

**Carson City
Agenda Report**

Date Submitted: March 23, 2010

Agenda Date Requested: April 1, 2010

Time Requested: 10 mins

To: Mayor and Supervisors

From: Juan Guzman, Open Space Manager

Subject Title: Action to approve and authorize the Mayor to sign a letter to the U.S. Forest Service supporting the Round 11 Recommended Funding List created by the work of the Basin Executive Committee, the Tahoe Working Group, and the Lake Tahoe Federal Advisory Committee.

Staff Summary: The Round 11 Recommended Funding List includes funding Phase 2 of the Spooner Healthy Forest and Healthy Forest Restoration Project in the amount of \$3,125,000, as well as the Urban Lot, Prescription Burning, and Biomass project within our City.

Type of Action Requested: (check one)
 Resolution Ordinance
 Formal Action/Motion Other (Specify)

Does This Action Require A Business Impact Statement: Yes No

Recommended Board Action: I move to approve and authorize the Mayor to sign a letter to the U.S. Forest Service supporting the Round 11 Recommended Funding List created by the work of the Basin Executive Committee, the Tahoe Working Group, and the Lake Tahoe Federal Advisory Committee.

Explanation for Recommended Board Action: See Staff Summary.

Applicable Statute, Code, Policy, Rule or Regulation: N/A

Fiscal Impact: N/A

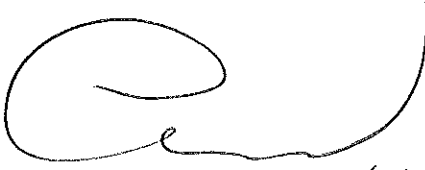
Explanation of Impact: N/A

Funding Source: N/A

Alternatives: Do not approve

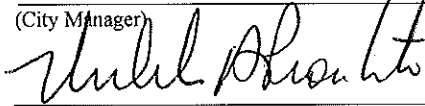
Supporting Material: Letter of Support, list for Science and Capital Project Funding and minutes of the 5/17/07 Board of Supervisors meeting.

Prepared By: Janet Busse, Office Supervisor

Reviewed By: 

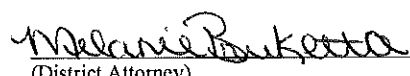
(City Manager)

Date: 3/23/10



(Finance Director)

Date: 3-23-10



(District Attorney)

Date: 3.23.10

Board Action Taken:

Motion: _____

- 1) _____
- 2) _____

Aye/Nay

(Vote Recorded By)



CARSON CITY, NEVADA
CONSOLIDATED MUNICIPALITY AND STATE CAPITAL

April 1, 2010

Linda Lind
The United States Forest
Lake Tahoe Basin Management Unit
35 College Dr.
South Lake Tahoe, Ca. 96150

Dear Ms. Lind:

The Carson City Board of Supervisors supports the Round 11 Recommended Funding List created by the work of the Basin Executive Committee, the Tahoe Working Group, and the Lake Tahoe Federal Advisory Committee (LTFAC).

We are especially supportive funding Phase 2 of the Spooner Healthy Forest and Healthy Forest Restoration Project in the amount of \$3.125,000, as well as the Urban Lot, Prescription Burning, and Biomass projects within Carson City, a consolidated municipality. We also support the Aspen Restoration and the Erosion Control funding in our jurisdiction.

The Board of Supervisors supports the efforts to control and eradicate invasive species in the Lake Tahoe Basin, as well as planning for the storm water load reduction project, a stream environment zone condition assessment, and the continued efforts by the scientific community to ensure these efforts are properly executed.

Sincerely,

Robert L. Crowell
Mayor

Robert L. Crowell, Mayor
201 North Carson Street, Suite #2, Carson City, Nevada • 89701
(775) 887-2100 • Fax: (775) 887-2286
e-mail: bcrowell@ci.carson-city.nv.us

CARSON CITY BOARD OF SUPERVISORS
Minutes of the May 17, 2007, Meeting
Page 6

RECESS: A recess was declared at 9:33 a.m. The entire Board was present when Mayor Teixeira reconvened the meeting at 9:39 a.m., constituting a quorum.

10. PARKS & RECREATION - OPEN SPACE

A. DISCUSSION ONLY REGARDING A PRESENTATION OF THE PROJECTS RECOMMENDED FOR APPROVAL BY THE CONGRESSIONAL DELEGATION IN ROUND 8 OF THE SOUTHERN NEVADA PUBLIC LAND MANAGEMENT ACT WHICH AFFECT CARSON CITY, AND UPDATE ON THE WHITE PINE BILL BY GREG MCKAY THE NEVADA LOCAL GOVERNMENT REPRESENTATIVE ON THE FEDERAL ADVISORY COMMITTEE FOR THE SOUTHERN NEVADA PUBLIC LAND ACT (9:38:55) - Fire Chief Stacy Giomi, Nevada Local Government Representative on the Federal Advisory Committee for the Southern Nevada Public Land Act Greg McKay - Fire Chief Giomi introduced Mr. McKay. Mr. McKay described his duties and the purpose of the presentation. His comments listed the local projects in Round 8 and indicated the need for a nonfederal funding method for the projects. Discussion noted the sheep that are working to reduce the fuel load on "C" Hill and the area along the western edge of the City. Mr. McKay indicated that Round 9 will commence after the Lake Tahoe summit. He, as the local representative, will represent the City's interest and projects. Supervisor Williamson thanked him for coming. She explained that the Lakeview area's fuel reduction program is included in that round. The City supports the fuel reduction program(s). A coordinated effort supporting this program was encouraged. Mr. McKay indicated that the comment period for this round ends on May 28. Comments supporting, opposing, or augmenting the program should be sent to him. Mayor Teixeira directed that the record indicate that Mr. Guzman has arrived—9:43 a.m. Discussion between Supervisor Aldean and Mr. McKay indicated that a portion of the biomass from the Forest Service fuel reduction program will be sent to the biomass plant at the City's landfill as soon as the "issues" have been worked out. Funding for biomass activities is included in the funding requests. Mr. McKay hoped that more biomass activities can be done. Supervisor Aldean pointed out that the Lake Tahoe residents are unable to burn in their fireplaces. The Forest Service's burning is problematical to them. She encouraged the removal and recycling of these materials via biomass operations. Mr. McKay concurred. Mayor Teixeira thanked him for his presentation. No formal action was required or taken.

B. ACTION TO REJECT ON SECOND READING, BILL NO. 109, AN ORDINANCE AMENDING THE CARSON CITY MUNICIPAL CODE TITLE 17, ESTABLISHING CHAPTER 17.18, LANDSCAPE MAINTENANCE DISTRICTS, SECTION 17.18.010 ESTABLISHES THE PURPOSE; SECTION 17.18.020 ESTABLISHES AUTHORITY; SECTION 17.18.030 ESTABLISHES DEFINITIONS; SECTION 17.18.040 ESTABLISHES PARKS DIRECTOR'S RESPONSIBILITIES; SECTION 17.18.050 ESTABLISHES PROCEDURES FOR APPLYING TO CREATE A MAINTENANCE DISTRICT; SECTION 17.18.060 ESTABLISHES PROCEDURES FOR REVIEW OF MAINTENANCE DISTRICT PETITIONS; SECTION 17.18.070 ESTABLISHES PROCEDURES FOR ESTABLISHMENT OF THE BOARD APPROVED MAINTENANCE DISTRICT; SECTION 17.18.080 ESTABLISHES DETERMINATION OF BENEFIT AND COST ALLOCATIONS BETWEEN ASSESSED PROPERTY AND CITY;



Lake Tahoe

Federal Advisory Committee

March 4, 2010

I invite you to review the Preliminary Recommendation Package for capital projects and related funding priorities for Lake Tahoe Restoration projects under Round 11 of the Southern Nevada Public Land Management Act (SNPLMA). Instructions for providing input to the preliminary package are shown below.

As a result of the federal 2000 Lake Tahoe Restoration Act, the federal government has pledged to invest \$300,000,000 over an eight-year period in order to implement its share of the adopted Lake Tahoe Environmental Improvement Program. In addition, the states of California and Nevada, local governments and the private sector have made similar commitments to invest in the restoration of Lake Tahoe and the surrounding watershed.

This year represents the seventh year of federal investment based on land sales in Southern Nevada made available under the SNPLMA. Because land sales are not an infinite source of funding, it is critically important to make wise investment priorities in recommending restoration projects for federal funding. Twenty one capital projects totaling over \$36,000,000 were initially proposed by the federal agencies participating in Round 11.

The Tahoe Working Group (TWG) and the Lake Tahoe Federal Advisory Committee (LTFAC) have deliberated over the last two months and have prepared the Preliminary Recommendation Package for public comment. The Preliminary Recommendation Package includes three potential funding scenarios that consider different splits and project products with the remaining Lake Tahoe SNPLMA commitment of approximately \$68.1 million. The \$68.1 million will be allocated for Rounds 11 and 12. Thus, the Round 11 funding scenarios of \$30, \$34, and just over \$34 million are approximately half of the \$68.1 million. The 2/23/10 Lake Tahoe SNPLMA Round 11 Project Nominations and Science Themes Table lists the projects including science themes under each funding scenario summarized as:

- The first preliminary recommendation would fund 15 capital projects for \$29,999,353, and science at \$3,165,000.
- The second preliminary recommendation would fund 18 capital projects for \$34,008,353, and science at \$3,750,000.
- The third preliminary recommendation would fund 18 capital projects for \$30,930,353 and science at \$3,750,000.

The table includes a comments column that provides information regarding changes/scaling of original project nominations from the original requested nomination amount.

The preliminary recommendation package is posted on the SNPLMA Lake Tahoe website for public review and comment at:
<http://bit.ly/Round11PreliminaryRecommendations>.

This preliminary recommendation package includes:

- 1) The 2/23/10 Lake Tahoe SNPLMA Round 11 Project Nominations and Science Themes Table
- 2) The Round 11 Capital Project Nominations (21 total)
- 3) The 2/23/10 LTFAC Preliminary Recommendation for Science Themes Spreadsheet.

Please review the preliminary recommendation package and submit comments at comments-pacificsouthwest-ltbmu@fs.fed.us no later than close of business on April 5, 2010. Written comments may be submitted by regular mail to Lake Tahoe Basin Management Unit, Attn: Linda Lind, 35 College Drive, South Lake Tahoe, CA, 96150. The Committee will review your submitted comments at our next meeting on April 12th beginning at 1:00 pm at the Lake Tahoe Basin Management Unit Office at 35 College Drive, South Lake Tahoe. Public comment will also be accepted at the meeting. Once public comments are reviewed and discussed, the LTFAC will prepare a final recommendation package for consideration, review and recommendation by the Tahoe Regional Executives and the SNPLMA Executives. Funding for Round 11 projects is anticipated to be available in late 2010 or early 2011 based on the approval of the U.S. Secretary of Interior.

To request hard copy material, or material in alternative formats, contact Linda Lind of the Lake Tahoe Basin Management Unit at (530) 543-2787, or TTY (530) 543-0956.

On behalf of the members of the LTFAC, thank you for your interest and participation. We look forward to your input.

Sincerely,



Andrew Strain
Chairperson, Lake Tahoe Federal Advisory Committee

LAKE TAHOE SNPLMA ROUND 11 CAPITAL PROJECT NOMINATIONS AND SCIENCE THEMES
2/23/10 Lake Tahoe Federal Advisory Committee (LTFAC) Preliminary Recommendation

FEDERAL AGENCY SPONSOR	PROJECT NAME	Requested Nomination Amount as of 1/6/10	2/23/10 LTFAC Preliminary Recommendation \$30 Million	*Priority from \$30M to \$34M	2/23/10 LTFAC Preliminary Recommendation \$34 Million	2/23/10 LTFAC Preliminary Recommendation \$34 Million +	Rationale for Changes in Funding Level
Air Quality							
FS	Basin Wide Transportation / Continuation	300,000	300,000		300,000	300,000	No Change
Forest Health							
FS	Aspen Community Restoration / Continuation	330,000	270,000	6	330,000	330,000	Reduction would eliminate restoration of 8 acres of aspen (mechanical operation).
FS	Carnelian Hazardous Fuels Reduction & Healthy Forest Restoration - Phase 2 of 3 / Implementation	2,600,000	2,100,000	2	2,600,000	2,600,000	Reduction of project would reduce number of acres treated. Reduction of project by \$500,000 would be added to the request for Round 12. This priority is ranked 4 of 5 for the Forest Service for hazardous fuels reduction/forest vegetation projects.
FS	Prescribed Fire / Biomass Treatment / Continuation	1,250,000	1,250,000		1,250,000	1,250,000	No Change
FS	S. Shore Haz Fuels Reduction & Healthy Forest Restoration - Phase 7 / Implementation	3,025,000	0	8	200,000	200,000	Reduction of project to \$200,000 would reduce number of acres treated and would entail hand-thinning only. Reduction of project from \$3,025,000 to zero would delay project implementation until Round 12 funding cycle. Current implementation funding from previous rounds provides ability to delay to Round 12 (higher costs anticipated in Round 12). This project is ranked 5 of 5 for the Forest Service for hazardous fuels reduction/forest vegetation projects.
FS	Spooner Hazardous Fuels Reduction & Healthy Forest Restoration - Phase 2 of 3 / Implementation	3,125,000	3,125,000		3,125,000	3,125,000	No Change
FS	Urban Forest Restoration and Fuels Reduction - Phase 5 of 6 / Implementation	1,350,000	1,350,000		1,350,000	1,350,000	No Change
Watershed and Habitat Improvement							
FS	Angora Creek Channel Restoration - Phase 2 / Implementation	2,500,000	2,500,000		2,500,000	2,500,000	No Change
FS	Erosion Control Grants / Continuation	10,000,000	9,640,000		9,640,000	10,000,000	Reduction of Erosion Control Grant solicitation to local jurisdictions by \$360,000. Reduction would be directed to fund EPA Lake Tahoe Nevada Stormwater Load Reduction Plan Development as a separate capital project which provides a tool to local jurisdictions in identifying Erosion Control Grant project priorities. Input will be sought from Stormwater Quality Improvement Committee (SQUIC) before final LTFAC recommendation.
FS	FS Public Resorts BMP Retrofits - Camp Rich - Phase 1 of 2 / Implementation	2,000,000	1,500,000	4	2,000,000	2,000,000	There was not consensus on this project from the local environmental sector. They are not supportive of prioritizing this project for funding until the NEPA (environmental process) is complete. Reduction of project by \$500,000 would eliminate the BMP improvement from the designated portion of the "Eagle's Nest" campground area.
FS	NEPA Resource Inventories, Surveys, and Analysis (NRI) / Continuation	375,000	375,000		375,000	375,000	No Change
FS	Restoration of Fire Adapted Meadow Ecosystems - Phase 3 of 3 / Implementation	375,000	375,000		375,000	375,000	No Change
FS	Taylor - Tallac Restoration Project - Phase 2 of 3 / Planning	180,000	0		0	0	Lower priority project for FS; therefore reduced to zero.
BOR	Upper Truckee Marsh Restoration Project - Design / Planning	1,212,000	0	7	900,000	1,212,000	Reduction of funding to \$900,000 would allow for completion of the Environmental Review and Environmental Impact Statement, and development of the preferred alternative to 50% (50% completion of design is consistent with state planning processes prior to moving forward with final design and implementation). The reduction in funding would not allow for developing technical specifications and permit applications.
FWS	Preventing Aquatic Invasive Species Proliferation in Lake Tahoe Using Prevention, Early Detection and Rapid Response, and Control and Eradication - Phase 5 / Continuation	3,967,000	2,457,000	1	3,221,000	3,221,000	Reduction in original request from \$3.96M to \$3.22M would reduce weed removal from Tahoe Keys by \$236,000 (will seek funding leverage potential from the Tahoe Keys property owners association), and removal of Asian clam in Emerald Bay (1 acre) would be reduced from \$510,000 to zero (will seek potential leverage funding through CA water pollution remediation funds). Reduction from \$3.22M to \$2.45M would further reduce removal of weeds from the Tahoe Keys by an additional \$314,000 (will seek funding leverage potential from the Tahoe Keys property owners association), and removal of weeds in Nearshore would be reduced from \$1M to \$550,000.
FWS	Recovery / Restoration of Lahontan Cutthroat Trout in the Lake Tahoe Basin / Continuation	650,000	400,000	5	650,000	650,000	Reduction of funding based on highest priority work identified in the proposal. Reduced funding would eliminate two elements - 1. Comply, analyze and identify gaps in habitat and fish data sets \$50,000; 2. Selection of 2-5 streams/tributaries to Lake Tahoe for implementation \$200,000. Potential for leverage of \$100,000 of other funding through the Management Oversight Group from a LCT earmark.
FWS	Mountain Yellow-legged Frog Recovery Project / Continuation	80,000	0		0	0	Potential to leverage other funding. Seek FWS and FS funding to complete work or submit in Round 12.
EPA	Lake Tahoe Environmental Newspaper Project	248,500	0		0	0	Proposed deliverables indirectly contribute to EIP Focus Areas and Categories. Federal agencies have identified willingness to fund a pilot publication as an indirect contribution to SNPLMA funded projects (one in CY 2010, and one in CY 2011).
EPA	Lake Tahoe Nevada Stormwater Load Reduction Plan Development	360,000	360,000		360,000	360,000	Project will contribute and assist local jurisdictions in identifying Erosion Control project priorities. Funding proposed through reduction of Round 11 EC Grants by \$360,000.
EPA	SEZ Classification, Inventory, and General Condition Assessment	628,560	0	8	250,000	250,000	Project proposal being refined to allow funding for specific tasks determined by synthesis and draft framework developed by Basin multi-agency stakeholders.
NRCS	Area Wide Conservation Planning / Continuation	1,664,706	832,353		832,353	832,353	50% reduction of project from \$1,664,706 to \$832,353 would result in reducing the number of integrated site plans and technical assistance to private landowners by half, from 700 plans to 350, and technical assistance from 800 to 400. Area wide plans would be reduced from 4 (2 in CA & 2 in NV) to 2 area wide plans (1 CA & 1 NV). This reduction represents one year of funding rather than the proposed two year funding level.
Total Proposed Capital Projects		36,220,766	26,834,353		30,258,353	30,930,353	
	Science Themes	3,750,000	3,165,000	3	3,750,000	3,750,000	TSC in coordination with Federal Interagency Partnership (FIP) currently coordinating science theme reduction at \$3.165M. Science Theme Table shows TSC recommendations at both \$3.75M and \$3.165M.
Total Proposed Round 11		39,970,766	29,999,353		34,008,353	34,680,353	

*Priority relates to those projects of highest priority in event of funding increase between \$30M to \$34M level.

FS - Forest Service; NRCS - Natural Resources Conservation Service; FWS - Fish & Wildlife Service; EPA - Environmental Protection Agency; BOR - Bureau of Reclamation

Round 11 SNPLMA Lake Tahoe Program Science Themes and Sub-themes

LTFAC Preliminary Recommendation 2-23-10

All research should leverage previous and existing efforts to the extent possible, including the synthesis and analysis of existing data to further understand environmental processes, conditions and trends. These analyses should aim to extract possibly unknown, yet critical information from existing data sets. Models should leverage previous and existing efforts to the extent possible, including the use and application of existing data and models or model elements. Proposals should identify which research needs in the Tahoe Science Plan that their proposal helps to address; furthermore, as part of their conclusions, projects should identify appropriate steps to advance scientific understanding, environmental policies, and management activities in the Basin. Stakeholders in the Lake Tahoe Basin should be engaged early and throughout the research. The Pacific Southwest Research Station, as the sponsor of this science program, will work with the recipients of funds and management agencies to help ensure that projects meet these objectives.

**2/23/10 LTFAC
Preliminary
Recommendation
\$34M & \$34M+**

**2/23/10 LTFAC
Preliminary
Recommendation
\$30 Million**

Forest Health

\$850,000

\$700,000

Title	Type of Research	Management/Policy Need	Description
Integrating the effects of forest management into the Lake Tahoe TMDL	Conventional Investigations and/or Synthesis & Review	Parallel efforts to date have collected field data and developed models for (1) effects of forest and fire management on nutrient loads in surface runoff and soil leachate in the Tahoe Basin uplands, and (2) watershed loading of sediments and nutrients to Lake Tahoe based on land use type. One model (NuCycling submodel for LANDIS-II), supported by field observations and experiments, predicts nitrogen and phosphorus leachate concentrations given forest and fuel management scenarios, but does not predict impacts to Lake Tahoe water clarity. The other model (Lake Tahoe Watershed Model - LSPC) provides input to the Lake Tahoe clarity model, but does not explicitly account for alternative forest and fuel management scenarios. Agency managers require a decision support tool for evaluating the effects of alternative forest management scenarios on nutrient and sediment loading at the watershed and basin-wide scales. TMDL Managers need to be able to link model based outputs of forest management actions to the TMDL Management System, including a comprehensive monitoring approach to validate the linkage and resulting estimates.	Proposed research should lead to increased understanding and quantification of how forest management practices (e.g., mechanical treatment, hand treatment, burning, or a combination of these activities) influence nutrient and sediment loading to Lake Tahoe and its tributaries. Research should address the question, "How do alternative forest management practices compare with regard to their short/long-term and cumulative effects on pollutant loading to tributaries and groundwater, and ultimately lake water quality?" Research proposals should address one or more of the following approaches, although proposals that integrate across these approaches are encouraged: (1) analyze, review and synthesize existing field data and incorporate results into the current models used at Lake Tahoe to simulate watershed processes (model parameterization). Where uncertainty exists, develop improved localized field data sets for incorporation into models; (2) develop modeling approaches to integrate and quantify nutrient and sediment outputs from models of vegetation dynamics in response to forest management practices; (3) develop decision support tools for evaluation
Impact of climate change on ecological communities and the evaluation of adaptation strategies	Conventional Investigations and/or Synthesis & Review	Significant changes in climate, recreational use, and air pollution are expected to affect the Sierra Nevada in coming decades. Management agencies want to understand how ecological communities within the Lake Tahoe basin, including forest communities, alpine communities, subalpine wetlands and other sensitive communities, will respond to these changing conditions over the next few decades. Current science emphasizes that adaptation strategies should be site-specific. Adaptation strategies could include thinning of forests to increase tolerance to drought and resistance to wildfire or insects, planting species or genotypes that may be more resilient to changing climate, genetic conservation of species, preservation of refugial habitats (including wetlands and riparian areas), assisted migration of species to suitable habitat, and development of wildlife corridors to facilitate migration. Such actions could be taken in anticipation of future changes or opportunistically following disturbances such as wildfires.	Proposed research projects should conduct new research and/or synthesize previous research to: (1) establish the potential range of key climate conditions relevant to ecological processes and biological communities in the Tahoe basin; (2) identify which ecological processes and biological communities in the Tahoe Basin are most vulnerable to the effects of climate change; (3) evaluate the effects of Basin-specific adaptation strategies and treatments to conserve particular ecological processes and biological communities; and/or (4) guide the temporal and spatial design of forest treatments to avoid unacceptable ecological impacts while promoting long-term desired conditions (particularly in the Jeffrey pine, mixed-conifer, and lodgepole forest community types).

Watershed, Water Quality, and Habitat Restoration				\$1,050,000	\$800,000
Title	Type of Research	Management/Policy Need	Description		
Understanding the impacts of aquatic invasive species	Conventional Investigations and/or Synthesis & Review	The prevention of new introductions and the control of established invasive species is a high priority for Tahoe basin land management and regulatory agencies. Agencies have a need for ongoing quantitative information to manage established species and minimize their impacts. Information related to prevention is required to assess risks from individual species and to track environmental conditions that may facilitate new invasions. Information related to control of invasive species is needed to assess the effectiveness and potential environmental effects of various control strategies. Long-term status and trend monitoring of priority invasive species in near shore habitats and streams in the Tahoe basin and their environmental effects is needed for strategic planning efforts and assessment of impacts to environmental thresholds.	Synthesis and review and/or conventional research should be conducted in collaboration with agency representatives and other research teams to ensure products will meet agency information and evaluation needs. Proposals are requested to: (1) Synthesize existing data and develop new strategies to prepare a regional and sub-regional monitoring plan for priority aquatic invasive species (AIS). The monitoring plan should assess the long-term status and trends of established AIS, aid the early detection of new invasions, and provide insight into the effectiveness of control and prevention strategies in Lake Tahoe's near shore environment, tributary streams, and other lakes of the region. (2) Determine the effectiveness of various control strategies for priority species, such as treatment of satellite populations vs. source populations, re-colonization rates, and the effects of control measures on near shore water quality and aesthetic indicators (biological, chemical, and physical). (3) Develop a predictive model to assess the risk of introduction of priority invasive species based on life history, habitat requirements, current and predicted environmental conditions of the region, and vectors, such		
Quantifying the benefits of urban stormwater management	Conventional Investigations and/or Synthesis & Review	Research associated with the Lake Tahoe total maximum daily load (TMDL) indicates that stormwater from urban land uses is the largest contributor and presents the greatest opportunity to reduce fine sediment particle (< 16 µm) and total phosphorous loads to streams and Lake Tahoe. However, pollutant loading and reduction estimates are based upon limited information, particularly with respect to fine sediment particle size class distribution. Improved characterization of urban stormwater is needed for the purposes of load reduction modeling, BMP design and TMDL crediting. A better understanding of the factors and processes related to the generation, mobilization, transport and fate of pollutants is needed. Furthermore, a better understanding of innovative treatment and control/recovery mechanisms to reduce fine sediment particles is needed to inform feasibility and cost-effectiveness evaluations and refine implementation plans and strategies. Roadways are a land use of primary concern, as these have the greatest pollutant yield potential. There is a need to evaluate roadway operations and maintenance practices and optimize them to ensure cost	Research proposals should address one or more of the following. (1) Source characterization: What are the factors controlling particle size distribution and turbidity of urban stormwater? How do these factors vary geographically, seasonally, and over the hydrograph? How does impervious area connectivity and hydrologic routing affect pollutant concentrations and loadings? What is the correlation between suspended sediment size classes and phosphorous (total and dissolved) concentrations? (2) Improving existing tools: How can existing tools and methods to estimate, track and report urban stormwater load reductions be improved? (3) Pollutant control/treatment: What is the effectiveness of controls to reduce pollutant concentrations and loadings? What are the key BMP design features that influence load reductions and what are the associated ranges? What are the optimal O&M practices in terms of cost and effectiveness and under various pollutant loading scenarios? How should BMPs be designed to maximize pollutant removal? How does BMP effectiveness vary over time? Research on innovative control strategies (e.g., pump and infiltrate) is especially encouraged		
Quantifying the effects of actions to reduce sediment loads using SEZs	Conventional Investigations and/or Synthesis & Review	Management and regulatory agencies need tools and methodologies to quantify the direct effects of stream environment zone (SEZ) restoration projects in achieving pollutant load reductions targets for the Lake Tahoe TMDL. Quantifications of benefits and impacts are important in demonstrating the fulfillment of basin-wide planning and environmental improvement efforts such as the Lake Tahoe TMDL and the Environmental Improvement Program. Specifically, estimates of the direct effects of SEZ restoration projects to achieve TMDL reduction goals are needed. Development of a protocol similar to the Lake Clarity Crediting Program is also needed for tracking and reporting purposes.	Research proposals should aim to develop methods that quantify the direct effects (both benefits and impacts) of SEZ restoration projects to reduce pollutant loads relative to the Lake Tahoe TMDL targets. Research projects should build upon existing datasets, methodologies, and models to the extent feasible and appropriate. Research proposals should address the following: (1) Development of tools and methodologies to quantify the direct effects of SEZ restoration projects in achieving pollutant load reductions targets for the Lake Tahoe TMDL. (2) Identify the capacity of SEZ and stream restoration activities to treat polluted urban stormwater runoff. (3) Identify the origin (i.e., anthropogenic or natural) and quantify the volume of stormwater that directly and indirectly drains into streams. (4) Identify the sources and anthropogenic origin of fine sediment and nutrients that are carried in the stream load and deposited on the floodplain. Research may focus on a particular site, but efforts are encouraged to develop and test methodologies for application at appropriately broad spatial and temporal scales.		
Air Quality				\$850,000	\$700,000
Title	Type of Research	Management/Policy Need	Description		
Secondary pollutant formation and the impacts of TMDL-related primary and secondary atmospheric pollutants	Conventional Investigations and/or Synthesis & Review	Secondary pollutants are not directly emitted from sources but are instead formed by chemical reactions in the atmosphere. Examples include ammonium sulfate and ammonium nitrate, which are major contributors to visibility degradation in the Tahoe basin and ozone concentrations, which now exceed air quality standards. Due to the secondary nature of these pollutants, the development of effective control strategies requires detailed knowledge of the chemical and physical processes leading to their formation. A related need is to model the transport and deposition of atmospheric pollutants into Lake Tahoe considered important in the Lake Tahoe Total Maximum Daily Load: particles, nitrogen, and phosphorus.	Proposals under this subtheme should yield results that inform issues related to the processes leading to gaseous and particulate secondary pollutants in the Lake Tahoe basin, lead to the development of an air quality model, estimate primary pollutant carrying capacities, or increase our understanding of TMDL pollutant transport and deposition. Potential modeling and measurement studies must relate to: (1) the development and validation of an air quality model to: (i) predict secondary pollutant formation, and as feasible, (ii) estimate the transport and deposition of TMDL-related primary and secondary pollutants to the lake; (2) conducting focused studies to quantify the precursor sources and pathways leading to the formation of these secondary species; (3) the development of "carrying capacity" estimates for the primary and secondary pollutant precursors (i.e., hydrocarbons, nitrous oxides, ammonia, etc.), which can be used by agencies to develop acceptable level of emissions (i.e., carrying capacities) to help ensure the Tahoe Basin meets the most stringent pollution standards. Research to develop carrying capacities also should include an assessment of how much of each pollutant		
Assessing the impacts of fire on air quality	Conventional Investigations and/or Synthesis & Review	Emissions from burning impact human health, ambient air quality, atmospheric visibility, and lake water quality. Information available to managers for predicting and mitigating these impacts is inadequate to quantify tradeoffs among various alternatives. The Tahoe Fire Commission found that there was "a lack of comprehensive air quality and meteorological information within the Lake Tahoe Basin to analyze air quality conditions to optimize burn windows for prescribed fire activities," and also that "low emission fuel reduction techniques are part of the necessary tools needed to minimize health-based air quality issues and visibility impacts when reducing the fuel load." Therefore, information is needed to increase our understanding of the effects of alternative fuel treatments, wildfires, and residential wood burning on air quality and pollutant deposition; and the development of best management practices to reduce these impacts.	Research should address one or more of the following issues: (1) evaluating local and regional impacts on air quality and/or particle deposition of various alternatives in the basin for reducing forest fuels (e.g., underburning, broadcast burning, pile burning, thinning, mastication, removing biomass for burning in the basin, and removing biomass out-of-basin), considering short-term impacts and long-term effects given the likelihood of wildfires; (2) evaluating the impacts of residential wood burning to air quality and pollutant deposition; and (3) evaluating the ability of alternative BMPs or control measures to mitigate the air quality impacts of various practices.		

Integrating Science				\$1,000,000	\$965,000
Title	Type of Research	Management/Policy Need	Description		
Tahoe science consortium	Synthesis & Review	Further support is needed to allow the Consortium to continue providing environmental managers and decision makers with comprehensive and well-synthesized scientific findings drawn from research, monitoring, and modeling. Continued support for the TSC also is needed to provide for science community involvement in agency programs such as the SNPLMA Lake Tahoe Program and the Environmental Improvement Program.	Funding will support continued operations of the Tahoe Science Consortium, whose activities include: (1) science planning and information synthesis, (2) technical peer review, (3) technical consultation, and (4) science information communication. The Tahoe Science Consortium will coordinate workshops and efforts to synthesize scientific information to support decision-making in the Lake Tahoe basin. In addition, the TSC will continue to build a reserve to fund rapid response efforts (e.g., focused research or short-term monitoring) deemed necessary to obtain critical information about the effects of catastrophes (e.g., wildfires, sewage spills, or earthquakes), or provide critical baseline information to understand the effects of restoration and remediation efforts undertaken in response to a catastrophe. Unexpended rapid response funds would not be redirected to other TSC activities, but would be held in reserve until needed.		
Understanding current and future resource conditions through analysis of remote sensing data	Analysis & model development	The Round 10 Lake Tahoe SNPLMA capital program included funding to acquire high-resolution LiDAR data and multispectral imagery for the Tahoe basin. Analyses of these datasets and images are needed to develop information that agencies can use in the future planning of capital projects, to characterize current natural resource conditions, and to provide a baseline for comparison of future conditions resulting from the ongoing implementation of forest management and habitat restoration projects. Proposed research that fuses/integrates high-resolution LiDAR and multispectral imagery to further our understanding of landuse patterns, and current and future natural resource conditions and management options is encouraged.	Research proposals are requested to (1) provide a spatially explicit determination of current forest structural classes across topographic features; (2) model a range of forest structure restoration strategies that include a range of tree density reductions and creation of openings based on (a) a range of opening sizes, (b) frequency distributions of opening sizes on the landscape, (c) rate of application of openings, e.g., number of openings by size per year, and (d) differences between intensity versus extent of openings. Climate change factors and model parameters could be included in forecasting possible forest density and structural restoration. (3) Analyze datasets to document the location and extent of hard and soft impervious cover; (4) develop derivative products to identify catastrophic fire risk, extent and distribution of defensible space in the urban intermix and Wildland Urban Interface, or hydrologic networks for application to TMDL project planning, floodplain management, or characterization of stream geomorphology; and (5) develop spatial models and maps of habitat suitability for special status plant and wildlife species or communities of concern.		
Identifying environmental indicators and development of approaches for monitoring and evaluation	Conventional Investigations and/or Synthesis & Review	Land management and regulatory agencies need to evaluate whether their actions are effective at meeting environmental goals. Credible evaluations require meaningful indicators, appropriate standards, and monitoring plans to evaluate the status and trends of environmental indicators relative to established standards, as well as tools and protocols for consistent and comprehensive data analysis and reporting.	Synthesis and review and/or conventional research proposals should address all of the following: (1) Synthesize and review previous and ongoing research efforts need to identify scientifically-supported environmental indicators for a specific topic area of agency interest. (2) Prepare a monitoring and evaluation plan that can be implemented to measure the identified indicators and report on long-term status and trends of environmental threshold area considering basin-wide needs, regulatory/programmatic requirements, statistical reliability, and agency financial constraints. (3) As appropriate, conduct pilot testing of field, analysis, data management and reporting protocols and procedures included in new or existing monitoring plans to support refinements that maximize the utility of these protocols and procedures to agencies. And (4) complete analyses to assess how the proposed new indicators compare to existing relevant indicators. Projects proposed under this subtheme should to the extent possible extract valuable information from existing datasets and provide data in accessible and useful formats to other researchers and managers seeking to evaluate changes in environment.		
Development of robust assessment methods for evaluating fine sediment concentrations and loads ¹	Directed Action	The control of fine sediment particles is a high priority for achieving the Lake Tahoe TMDL clarity challenge. Reliable, low-cost methods are needed for evaluating fine sediment concentrations on a regional basis and for improving estimates of fine particle loading from various sources.	The measurement and assessment of fine particle concentrations and loads is required for effective water quality management in the Tahoe Basin. Low-cost methods for quantifying fine sediment concentrations must be developed that are reliable, repeatable, and applicable on a regional basis for monitoring the benefits from implementation of water quality improvement projects. Additional analyses should evaluate the extent to which data produced by proposed methods are dependant upon site conditions or other characteristics. Direct consultation with the Regional Stormwater Monitoring Program development staff is required to ensure that methods are complete and standardized. This research also should examine the relations between fine sediment particle numbers and other important water quality characteristics, such as turbidity, total suspended solids, and phosphorus loading. Research should build on past monitoring data, methods and studies conducted in the Tahoe basin.		
Total Science Funding²				\$3,750,000	\$3,165,000
¹ Science work under this subtheme would be pursued as a 'directed action' under the Tahoe Science Consortium work plan. This would mean the projects would not be determined as part of the normal Round 10 RFP, but would instead be implemented based on scopes of work developed at the direction of the TSC in collaboration with appropriate agency representatives. One or more proposals may be solicited by the TSC based on each scope of work and all proposals would undergo independent peer review for an evaluation of technical merit. Appropriate agencies would need to dedicate technical staff time to work in collaboration with the selected scientists to complete the projects. The intent of this approach is to maximize agency-researcher interactions needed to achieve the products desired by agency representatives in an efficient and timely manner.					
² The full amount available for science has been allocated among four theme areas, with a target level of funding identified for each theme area. Actual funding levels may vary from targeted levels based on the merit of the proposals received and the specific dollar amount of the selected proposals; however, it is intended that all theme areas receive funding close to their targeted funding levels in order to accomplish the objectives identified as priorities by the TSC and relevant agencies. Regardless of the allocation among theme areas, the total funding will not exceed the amount approved by the Secretary of Interior. The cost to the Pacific Southwest Research Station of administering the funding will be calculated as a percent of the total and will be deducted from the final funding for each theme area. Administrative costs will be minimized to the extent possible.					