

MEMORANDUM

Date: March 20, 2013
To: TRPA Regional Plan Implementation Committee
From: TRPA Staff
Subject: Process for identifying 2012 Regional Plan four-year performance measures and benchmarks

Requested Action: The Regional Plan Implementation Committee will be asked to provide direction on preliminary matters including

- 1) The process and schedule for identification of Regional Plan performance measures and benchmarks, establish an advisory working group, and general categories of performance measures for further development.

Staff Recommendation: Staff recommends that the committee consider the information presented at the Committee meeting and based on discussion, deliberation, and public comment, provide direction on the above outlined matters.

Project Description/Background: On February 27, 2013 staff provided the Governing Board with information on the scope of ongoing monitoring working the Tahoe Basin. That presentation included information on a proposed process to meet California Senate direction found in California Assembly Bill #1464, section #3110-101-0140. This bill contained language regarding the *“establishment of four-year measurable performance benchmarks for all of the implementation measures and programmatic provisions included in the Tahoe Regional Planning Agency 2012 Regional Plan update”*. The proposal presented to the Governing Board was also provided to Chairs of the Senate Budget Subcommittee #2 and the Joint Legislative Budget Committee (Attachment A). As indicated in the attached report, the proposed collaborative process for adoption of performance measures and benchmarks was scheduled for completion in February of 2014.

The Governing Board approved the work element as a priority in the FY2013 work program. In connection with TRPA’s California Budget Hearing on March 7, 2013, Governing Board Members Shelly Aldean and Clem Shute in testimony to Budget Subcommittee #2, agreed to expedite the completion of the 4-Year Performance Benchmark Work Program Element to no later than June 30, 2013, within this budget year.

Staff will present the RPIC with a proposed process and schedule to meet this expedited timeframe. In addition, the RPIC will discuss and provide direction to staff on the membership of an Advisory Working Group to assist the Governing Board in development of performance measures and benchmarks.

Contact Information: If you have any questions, please contact Jeanne McNamara, Director, Implementation/EIP Department at jmcnamara@trpa.org or 755-589-5252.

Attachment A: California Budget Response



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January 31, 2013

The Honorable Jim Beall, Chair
Senate Budget Subcommittee #2
State Capitol, Room 4062
Sacramento, CA 95814

The Honorable Mark Leno, Chair
Joint Legislative Budget Committee
1020 N Street, Room 553
Sacramento, CA 95814

Dear Senators Beall and Leno:

The Tahoe Regional Planning Agency (TRPA) appreciates the opportunity to submit this report to satisfy supplemental budget language from AB 1464, section #3110-101-0140. The leadership demonstrated by the state of California was instrumental to the successful adoption of the Regional Plan Update in December 2012. TRPA remains committed to implementing the plan for the benefit of Lake Tahoe's environment, its residents and millions of annual visitors.

In preparing the following report, TRPA has collaborated extensively with the Tahoe Science Consortium – a collaborative of research organizations and resource management agencies committed to promote science in support of the preservation, restoration, and enhancement of the unique environmental values of Lake Tahoe – along with state and federal agencies in the Tahoe Region. Consistent with the budget bill language, this report provides the following:

- 1) Identifies Regional Plan performance measures, benchmarks, and targets,
- 2) Reviews the scientific basis of TRPA Environmental Threshold Carrying Capacities, and
- 3) Develops an updated Comprehensive Monitoring, Evaluation, and Reporting Plan that can be implemented to deliver scientifically supported annual and 4-year reports.

As described in the attached proposal, our highest priority is the implementation of an updated and scientifically-grounded monitoring plan that is robust, feasible, prioritized, and adaptive.

Thank you for the opportunity to improve our work in the Lake Tahoe Basin. We look forward to discussing our proposal with the Legislature in the 2013 session.

Sincerely,

A handwritten signature in blue ink that reads "Joanne S. Marchetta".

Joanne S. Marchetta
Executive Director
Tahoe Regional Planning Agency

Introduction

In response to the Appropriations Bill #1464, section #3110-101-0140, the Tahoe Regional Planning Agency (TRPA) in collaboration with its Tahoe partners are forwarding this report to address the California Legislature's recognized need to continue efforts to update Tahoe monitoring efforts. This report lays out a scope, schedule and budget to continue the update of a Comprehensive Monitoring, Evaluation and Reporting Plan that is scientifically credible, cost-feasible, prioritized and can more effectively inform policy decision-making and the public.

The TRPA¹ was established in 1969 through a Bi-State Compact between California and Nevada that was ratified by Congress. TRPA has unique planning and regulatory authority that spans from setting environmental quality standards to permitting individual development projects, as well as implementing environmental restoration throughout the Lake Tahoe Basin. In 1980, the Compact was amended to call for the establishment of Environmental Threshold Carrying Capacities, or Threshold Standards. These Standards are the environmental goals for the Tahoe Region and achieving and maintaining these standards is the primary purpose for virtually all of the implementation measures and programmatic provisions found in TRPA's Regional Plan. TRPA works collaboratively with a wide variety of federal, state and local agencies, including research institutions to implement its Regional Plan and to monitor, evaluate and report on the status of indicators associated with Threshold Standards. Given the historical significance of establishing the Threshold Standards, any changes are of great concern to Lake Tahoe stakeholders. However, there is now scientific and policy consensus that these 130+ Threshold Standards, now 30 years old, need to be reviewed and updated.

The review of the Threshold Standards and associated indicators was undertaken through TRPA's Pathway planning effort between 2004 to 2007. This program invested in science-management technical work groups to review existing Threshold Standards and indicators. The work groups made recommendations, through a public process, based on technical and science-based information. This work, however, did not lead to any substantive changes at the time because participants agreed that additional data analysis and scientific review was necessary to fully support recommended changes to Threshold Standards. In addition, the cost to implement the monitoring system for the indicators the technical workgroups identified during Pathway planning alone was estimated in excess of \$10 million per year². Under today's measurement and monitoring requirements, TRPA with the help of the Basin's multi-agency partnership attempts to fully measure and report on over 130 adopted Threshold Standards, over 20 applicable state and federal air and water quality standards, 34 Environmental Improvement Program (EIP) performance measures for annual accountings to the US Congress, over 200 Regional Plan "compliance measures" as specified in the TRPA Regional Plan, newly adopted performance measures related to the Tahoe Total Maximum Daily Load (TMDL), and additional measures now under development associated with the recently adopted sustainable community strategies as required by California's SB375 legislation. Since the Pathway planning effort and with the reality of declining agency budgets, many agencies have had to cut back on what has historically been available for monitoring and measurement. Consequently, there is now a recognized need to focus limited resources on measuring the most meaningful and high priority indicators of environmental

¹ Funding for the agency from California is received through the California Natural Resources Agency, Special Resources Program (Program 10 and payable from the California Environmental License Plate Fund).

² Praul, C., J. Sokulsky, M. Buckley, D. Mouat. 2007. Pathway indicator monitoring and reporting strategy: Technical Report. Prepared by Environmental Incentives, LLC for the Tahoe Regional Planning Agency. Stateline, NV.

condition well rather than attempt to measure these multiple hundreds of measures incompletely or in a substandard fashion. Although initiatives completed through the Pathway planning work provided ambitious aspirations, now focused work is needed to prioritize and refine currently required indicators and performance measures to a realistic reduced set that is:

- 1) Scientifically sound,
- 2) Financially feasible to implement, and
- 3) Meaningfully informs policy and management decisions and actions.

Recognizing this reality, TRPA had already begun early work on an initiative related to the California appropriations bill language concerning revisions to the Basin's Comprehensive Monitoring, Evaluation and Reporting Plan. Over the last five years, in response to TRPA monitoring mandates, the findings of the Pathway planning process, and anticipated Lake Tahoe Restoration Act reauthorization, TRPA has been progressively updating the established monitoring approach to create an improved although still fully expansive Lake Tahoe Status and Trend Monitoring and Evaluation Program (M&E Program) in collaboration with the member researchers in the Tahoe Science Consortium (TSC) and multiple partner agencies (such as the Lahontan Regional Water Quality Control Board, Nevada Division of Environmental Protection, US Forest Service – LTBMU, US Environmental Protection Agency, and California Tahoe Conservancy). For example, standardized monitoring plans have been updated and documented³. The M&E Program was designed as a cooperative effort between agency partners and the TSC to cost effectively monitor and report the status and trends of environmental Threshold Standards and socioeconomic conditions for the Tahoe Region. Information reported through the implementation of the M&E Program and other work (e.g., EIP performance measures) has informed decision-making and provided an ongoing understanding of Tahoe Basin conditions. Along with developing these improvements to the M&E Program, we have also improved our tracking and accounting of EIP programs and project accomplishments through regular reporting on 34 EIP performance measures. Most recently, the updated M&E and EIP Program concepts and practices were incorporated into the TRPA Governing Board-accepted 2011 Threshold Evaluation.

The cost of implementing a threshold monitoring program based on the existing suite of Threshold Standards is significant. An early 2011 analysis⁴ of the threshold monitoring program found that about a one-time \$4 million investment⁵ is needed to sufficiently document the monitoring program planning elements⁶ and that approximately \$3 million a year is needed to implement the Threshold-related monitoring program. Between 2000 and 2010, with the addition of funding provided above general fund baseline through the Southern Nevada Public Land Management Act (SNPLMA), it was estimated that TRPA and partner agencies have invested on average \$2 million per year to support status and trend

³ Sokulsky, J., C. Praul, M. Protteau, S. Romsos, 2008. Conceptual model and indicator framework development guidance: Tahoe status and trend monitoring and evaluation program. Prepared by Environmental Incentives, LLC, for the Tahoe Regional Planning Agency Stateline, NV; M&E Program Strategic Plan; TRPA 2009. Tahoe Status and Trend Monitoring and Evaluation Program Manual. Version 1.0. Originally prepared by Environmental Incentives, LLC for the Tahoe Regional Planning Agency. Stateline, NV.; Elements of a Monitoring & Evaluation Action Plan.

⁴ Environmental Incentives, LLC. 2011. Finance scenarios informing resource decisions for status and trends monitoring. Memo to TRPA.

⁵ This estimate has been updated to a \$3 million one-time cost for program planning because additional program planning documents have been completed since the 2011 estimate was made.

⁶ M&E Program planning elements include: 1) documentation of conceptual models, 2) documentation of resource-specific monitoring and evaluation plans, 3) the pilot implementation of monitoring and evaluation plans, and 4) development and implementation of a resources-specific database.

monitoring of threshold-related indicators. This \$2 million per year in funding is approximately \$1 million short of the \$3 million needed to fully implement a scientifically supportable and comprehensive Threshold monitoring program based on the existing suite of indicators (Figure 1). With funding from SNPLMA sun-setting, it is anticipated that available funding for the monitoring program will decrease to approximately \$1.2 million per year, increasing the current \$1 million funding gap to an estimated \$1.8 million funding shortfall to implement the current requirements.

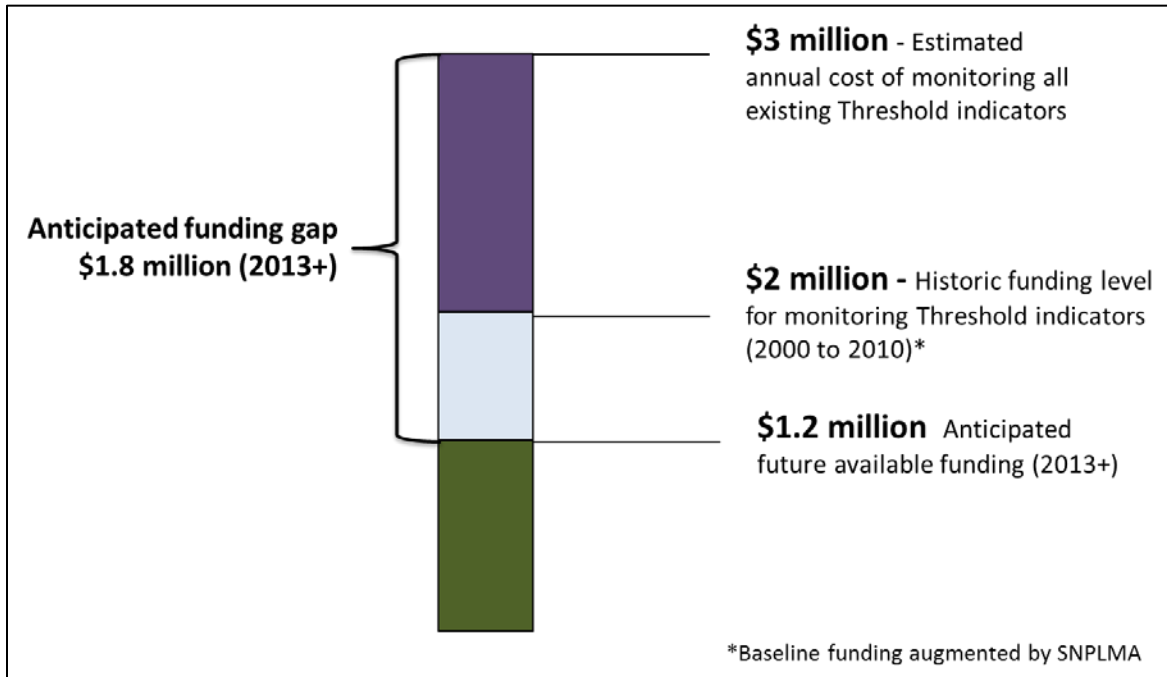


Figure 1. Historic annualized funding (across Tahoe partners) of the status and trend monitoring program showing that an estimated \$3 million is needed to evaluate and report on all indicators related to currently adopted Threshold Standards. When this program cost estimate is compared to the current best-case scenario estimate for future available funding, the funding gap will increase to an estimated \$1.8 million.

TRPA and its partner agencies in the Region have made effective use of the historic \$2 million in annual funding for monitoring threshold indicators. Funding for different resource categories of air, water, land, and people has been differentially allocated (Table 1) and existing monitoring efforts are extensive.

Table 1. Estimated annualized funding of the status and trend monitoring program across Tahoe partners by each of the resource categories of air, land, people and water (2000 to 2010).

Resource Category	Estimated Annual Historic Expenditure By Resource Category (2000 to 2010)
Air (criteria pollutants, visibility)	\$ 130,000
Land (vegetation, wildlife, impervious cover)	\$ 455,000
People (scenic quality, noise, recreation)	\$ 180,000
Water (Lake Tahoe and streams)	\$1,180,000
Total	\$1,945,000

Examples of monitoring currently performed by TRPA, research institutions such as UC Davis, partner agencies, and local governments include:

Air Quality Monitoring Highlights:

- Six monitoring stations to measure criteria pollutants (particulate matter, ozone, oxides of nitrogen, carbon monoxide) supported by TRPA, and county and state air quality agencies.
- Twenty-three locations measuring traffic volumes for vehicle miles traveled (VMT) monitoring, operationalized by California and Nevada Departments of Transportation.
- The *IMPROVE Program* (a national program to measure atmospheric visibility) to monitor regional haze

Water Resources Monitoring Highlights:

- UC Davis's deep-water Lake Tahoe clarity monitoring of approximately 25 samples annually, funded by TRPA and Lahontan Regional Water Quality Control Board.
- US Geological Survey (USGS) streamflow and tributary water quality monitoring of 300 stream samples (LTIMP) collected annually on 10 different streams.
- TRPA stream bioassessment of 48 samples collected/year – with sampling occurring on all perennial streams in coordination with Lahontan Regional Water Quality Control Board, California Department of Fish and Wildlife – Aquatic Bioassessment Lab, and Nevada Division of Environmental Protection.
- UC Davis's annual nearshore attached algae sampling at 10 sites in addition to lake-wide surveys, funded by Lahontan Regional Water Quality Control Board.
- Pilot implementation and testing of the California Rapid Assessment Method (CRAM) for assessing riparian conditions at 62 sites in two watersheds in 2011 and 2012.

Land Resources Monitoring Highlights:

- Cost-effective remote sensing and satellite technologies used to map and assess status of land use, impervious land coverage, and upland vegetation and wildlife habitat.
- Monitoring the population status of over 10 different sensitive wildlife and plant species.

People (Socioeconomic) Monitoring Highlights:

- Scenic quality assessment of 860 unique scenic resource units by TRPA every 5 years representing different roadway, shoreline, and recreation settings.
- Five-year Region-wide recreation quality surveys conducted by the US Forest Service.

Although progress has been made to update the M&E Program and EIP, further effort is needed to build out various aspects of these monitoring systems, and to further integrate, evaluate, synthesize and report metrics of Regional Plan implementation and effectiveness (i.e., performance measures). The reporting strategy for delivering knowledge from monitoring data to the public and decision makers needs additional refinement, public outreach, and prioritization as well.

This report summarizes the collaborative process that TRPA, the TSC, and state and federal agencies will administer through a public process to implement an updated Comprehensive Monitoring, Evaluation and Reporting Plan (Plan). A scope, schedule and budget for three primary tasks associated with the further development of the Comprehensive Monitoring, Evaluation and Reporting Plan are presented in detail in this report. They include:

Task 1: Identify key TRPA Regional Plan implementation measures designed to achieve Threshold Standards that can be quantitatively assessed by a set of high priority existing performance measures, benchmarks and targets. These established priority performance measures, benchmarks, and targets will measure the expected benefits from the recent Regional Plan amendments. The list of high priority performance measures selected in this task will be coordinated with TSC personnel conducting the scientific review of Threshold Standards, with results integrated into the updated Comprehensive Monitoring, Evaluation and Reporting Plan and reported in annual and four-year reports (Task 3).

⇒ **This task is being executed with existing appropriations and inter-agency resources.**

Task 2: The TSC preparation of a technical document that evaluates the scientific basis of currently adopted Threshold Standards⁷ and associated indicators. Other objectives of this task are to clearly identify the highest priority indicators and Standards, and provide recommendations on an evaluation and reporting framework that effectively characterizes the linkage between policy and management actions and environmental conditions.

⇒ **The budget estimate for this task is \$355,000 (includes \$250,000 for Tahoe Science Consortium and one full-time equivalent position at TRPA).**

Task 3: Complete the development of an updated Comprehensive Monitoring, Evaluation and Reporting Plan for high priority threshold indicators, including the integration of high priority performance measures and planning elements for the production of independent annual and four-year reports in coordination with the TSC.

⇒ **Budget to be determined following completion of Tasks 1 and 2.**

The first two tasks are projected to be completed within one year and Task 3 is projected to be complete in late 2015 as outlined in Figure 2, below.

Task	2013												2014					2015
	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May		
Task 1 - Performance Measures	█	█	█	█	█	█	█	█	█	█	█	█	█					
Task 2 – Science Review of Threshold Standards						█	█	█	█	█	█	█	█	█				
Task 3 – Updated Monitoring Plan													█	█	█	█	█	

Figure 2. Proposed schedule to complete directives in California Appropriation Bill #1464, section #3110-101-0140.

⁷ TRPA Resolution 82-11, Exhibit A.

Scope of Work

This scope of work addresses all directives outlined in the California appropriations bill with the ultimate objective to update the Comprehensive Monitoring, Evaluation and Reporting Plan. The scope is developed around three guiding principles:

- 1) Utilize and build upon established work efforts to update Lake Tahoe Basin’s monitoring and reporting programs.
- 2) Engage the science community, stakeholder agencies, and the public in the completion of all tasks outlined in this report.
- 3) Further develop and implement an updated monitoring program that is scientifically sound, streamlined, cost feasible, and effective in informing the public and decision-making.

Three tasks are scoped to fulfill the appropriations bill directives. The scope takes advantage of past and current work efforts to refine the monitoring and reporting process for existing Threshold Standards and EIP- related performance measures. Past work will also be used in evaluating the scientific basis of Threshold Standards.

Task 1: Identify and Prioritize Key Regional Plan Implementation Measures and Programmatic Provisions for Assessment with Performance Measures, Benchmarks and Targets

All actions implemented by TRPA are guided by the Compact-required Regional Plan. In December 2012, through a public and highly collaborative process, TRPA adopted a focused set of amendments to the Regional Plan to further facilitate the attainment and maintenance of regional environmental quality standards (i.e., Threshold Standards). The amendments to the Regional Plan targeted incentives to encourage redevelopment of town centers for needed environmental improvements, to facilitate a reduction in the development footprint on sensitive lands, and to promote walkability and non-automobile transportation modes. The majority of the 1987 Regional Plan – its regulatory controls, implementation measures and programmatic provisions – remained the same under the Regional Plan Update, including policies related to TRPA’s monitoring mandates, such as:

- 1) Developing and implementing a threshold monitoring program; measuring and regularly reporting on the attainment and maintenance of adopted Threshold Standards; and adjusting Regional Plan implementation measures and programmatic provisions in response to monitoring results and recommendations.
- 2) Conducting regular technical review and updates to Threshold Standards.
- 3) Monitoring and reporting on the implementation and effectiveness of Regional Plan implementation measures and programmatic provisions (known as “compliance measures”) in achieving and maintaining Threshold Standards.

Pre-existing policies within the Regional Plan call for work similar to that directed in the appropriations bill language. Consequently, the tasks outlined in this work plan, schedule and scope are consistent with tasks periodically performed under the Plan. The Regional Plan policy calling for periodic review of the Thresholds Standards that underpin the Plan is addressed in Task 2. Additional policies call for further development, implementation, and periodic review of the monitoring program, which is addressed in Task 3, and new Area Plan conformance policies adopted in the recent Plan amendments require an annual review of the effectiveness of local planning and permitting activities in meeting Regional Plan

goals and policies. Finally, adopted Regional Plan policies require annual reporting so that needed changes can be identified, adjustments can be made to the Regional Plan, and the planning and management process is more responsive to changing conditions.

Task 1 will inventory existing Regional Plan implementation measures and programmatic provisions (including those recently adopted as part of the Regional Plan Update) and associated performance measures, benchmarks, and targets. An interagency workgroup will then evaluate the list of implementation measures and plan provisions using criteria including:

- 1) potential for unintended consequences resulting from the execution of the implementation measure,
- 2) uncertainty of the implementation measure effectiveness in achieving a desired outcome,
- 3) level of investment made to execute an implementation measure, and
- 4) level of public interest in the implementation measure or programmatic provision.

Other criteria, such as the cost to retrieve performance measure data, may also be used. For implementation measures and programmatic provisions that meet these criteria, the interagency workgroup will coordinate with the Task 2 TSC science review panel to assess the workgroups findings. The workgroup, along with the TSC science review panel, will then identify appropriate existing, updated or new performance measures, benchmarks, and targets for selected implementation measures to create a cost-feasible and manageable set of performance measures.

Concurrent with the prioritization and selection of performance measures in this task, the Tahoe Science Consortium will undertake the science review of the Threshold Standards and associated indicators (Task 2). Built into the schedule for Tasks 1 and 2 are interactions between the performance measure workgroup and the science review panel to ensure continuity between the two tasks. Task 1 is expected to take up to 12 months to complete while Task 2 is expected to take up to 9 months. Together, Tasks 1 and 2 are expected to yield recommendations for a prioritized and manageable set of performance measures and Threshold related indicators and will significantly influence the scope of the updated Comprehensive Monitoring, Evaluation and Reporting Plan.

For the purpose of Task 1, TRPA defines a performance measure as a quantifiable expression of the cost or result of activities that indicate at what level services are provided during a given time period. A performance benchmark is directly related to a performance measure and is the interim objective that should be achieved to demonstrate incremental progress toward reaching a target. A performance target is a numerical objective that is established for an individual performance measure. Achievement of a performance target would indicate that the program or policy was a success. Failure to meet a performance benchmark or performance target could indicate the need to adjust operations or policy.

Performance Measures

The list of existing indicators and performance measures that will be examined by the prioritization process in Tasks 1 and 2 can be summarized in four categories:

1. **Policy Initiatives:** Performance measures related to Regional Plan policies such as the basic indicators of land use activity including development/redevelopment statistics (e.g., allocation of residential units, residential units provided as an incentive, hotel/motel units provided as a restoration incentive, allocation of commercial floor area, transfers of commodities, and additional sensitive lands restoration), sensitive land coverage reductions, measures of recreation activity intensity (“people at one time” or PAOTs), and water supply and demand.

2. **Capital Programs:** Performance measures of capital improvement and restoration actions such as the Environmental Improvement Program (EIP) performance measures, and sediment and nutrient load reductions as part of the Tahoe TMDL (Total Maximum Daily Load).
3. **Socioeconomics:** Indicators of sustainability such as those being identified to monitor environmental, social and economic conditions through a grant from the California Strategic Growth Council.
4. **Threshold Standards:** Indicators associated with each of the Threshold Standards will be coordinated with and evaluated as an element of Task 2.

Public interest in the Regional Plan Update centered largely around category **1, Policy Initiatives**, and how Regional Plan policies impacted category **4, Threshold Standards**. Many of the plan's updated policy provisions provide incentives for accelerated environmental improvement that would be realized through the implementation of private projects. As such, the rate and scale of these environmental benefits are affected by numerous factors, such as economic fluctuations at various scales; the location, scope, and rate of future projects that could be proposed throughout the Region over 20 or more years; and the degree of correlation and causation between the measure and the intended outcome. As a result, quantifying the environmental benefits of updated Regional Plan provisions is challenging.

The Environmental Impact Statement for the Regional Plan Update (EIS)⁸ used the best available information to estimate the effects of updated provisions. While these estimates cannot quantify the exact effect of updated policy provisions, they can provide an approximate indication of the type and scale of environmental benefits likely to result from the Regional Plan Update. The analysis in the EIS estimated that by the year 2035, the updated Regional Plan provisions would result in the following:

- Transfers of development rights resulting in the permanent retirement of 960 vacant sensitive and/or outlying residential lots;
- Transfers of existing development resulting in the restoration and permanent retirement of 250 sensitive and/or outlying residential lots containing existing development;
- Increased land coverage transfers resulting in a reduction of 10 to 15 acres of land coverage from Stream Environment Zones (SEZ); other mitigation programs and the EIP will result in additional SEZ restoration;
- Increased multi-modal opportunities within Town Centers resulting in more than a four percent reduction in vehicle trips in these areas; and
- A more concentrated land use pattern that results in a greater than a three percent reduction in per capita Vehicle Miles Travelled Region-wide and a greater than seven percent reduction in per capita Greenhouse Gas emissions from the 2005 baseline on the California side of the Region.

The following subtasks are proposed to identify and prioritize Regional Plan performance measures, benchmarks and targets:

- a) **Conduct a Public Workshop with TRPA Advisory Planning Commission and Governing Board on the Threshold Monitoring System.** As an initial step, a workshop will be held with the TRPA Advisory Planning Commission and Governing Board in February 2013 to familiarize them with the scope of existing monitoring mandates and the existing monitoring program. The workshop

⁸ TRPA. 2012 (October). Regional Plan Update - Final Environmental Impact Statement. CA SCH # 2007092027, NV SCH #E2008-124.

will highlight the scope of work proposed here and provide the Advisory Planning Commission, Governing Board, and the public with an understanding of the anticipated schedule and budget. The workshop will also provide TRPA's decision makers and the public with an early opportunity to provide input on those Regional Plan implementation measures and programmatic provisions that should be tracked with performance measures.

- b) *Develop a Comprehensive Inventory of Existing Regional Plan Policy Initiatives, Implementation Measures and Programmatic Provisions, and Existing Performance Measures.*** To establish baseline information needed for common understanding across agency and science personnel and to initiate the process for identifying high priority performance measures, TRPA will publish a comprehensive list of all programmatic provisions and policy initiatives currently implemented through the updated Regional Plan. TRPA will also incorporate applicable performance measures, benchmarks, and targets as well as other applicable performance measures (e.g., TMDL, Strategic Growth Council grant – Sustainability Indicators, other agency-specific performance measures) into the inventory. This subtask will be used as common baseline information for the interagency workgroup (Task 1.c, below) and the TSC Science Review Panel (Task 2). This work is expected to yield more than 200 implementation measures with associated performance measures, including Threshold Standard related indicators, EIP performance measures, and Strategic Growth Council-Sustainability Indicators.
- c) *Identify an Interagency Policy Review and Performance Measure Workgroup.*** A workgroup representing the interests of TRPA, the California Natural Resources Agency, the Nevada Department of Conservation and Natural Resources, and the TSC Science Review Panel (Task 2) will be assembled and chartered to fulfill the subtasks identified in Task 1⁹. Appendix 1 summarizes the list of agencies and research institutions that will either be included on the interagency taskforce or will be engaged by the interagency workgroup.
- d) *Identify High Priority Regional Plan Policy Initiatives, Implementation Measures, and Programmatic Provisions for Performance Measure Monitoring.*** TRPA currently implements well over 200 implementation measures and programmatic provisions designed to individually and cumulatively achieve and maintain Threshold Standards. The interagency workgroup will review available information collected in Task 1.b and perform a facilitated and standardized prioritization of all policy initiatives, implementation measures, programmatic provisions (including recently amended policies) included in the Regional Plan using a defined set of criteria. This process will be used to filter the list of implementation measures to a policy-relevant and manageable set that can be cost effectively implemented over the long term; targeting no more than 25 implementation measures to monitor. The workgroup will facilitate the review and vetting of implementation measures through a participatory process that includes interested public stakeholders. A TRPA Governing Board Subcommittee may be used for vetting public input or other process will be identified. The process and results of this subtask will also be coordinated with the TSC Science Review Panel (Task 2) to ensure consistency with any recommendations related to an updated evaluation and reporting framework (Task 2 and Task 3).

⁹ The level of participation on the interagency workgroup from agencies external to TRPA will largely depend on interest and ability to program staff.

- e) **Document Standard Operating Procedures for Measuring and Reporting Selected Performance Measures.** TRPA will use an already established template (i.e., the “EIP Performance Measure Information Sheet Template”) to document the tracking and reporting procedures for each selected performance measure. Completion of this subtask will result in the full documentation needed to support the ongoing implementation of performance measure tracking and reporting and will be incorporated into Task 3 – Comprehensive Monitoring, Evaluation and Reporting Plan.
- f) **Meetings with TSC Science Review Panel.** In addition to having one or more representatives from the TSC Science Review Panel on the interagency workgroup, targeted meetings will be scheduled between the full TSC Science Review panel and the interagency workgroup as appropriate throughout the duration of Task 1 in order to coordinate work across tasks.
- g) **Periodic Tahoe Interagency Executive Steering Committee Meetings.** The interagency workgroup will provide regular status updates to the Tahoe Interagency Executive Steering Committee. Additional opportunities for public input will be encouraged at these meetings through the participation of the Lake Tahoe Federal Advisory Committee Chair public representative.
- h) **Recommend Amendments to the Regional Plan to Reflect identified Priority Implementation Measures and Performance Measures.** The result of Task 1 will culminate with recommended amendments to the Regional Plan. The amendments will reflect the high priority implementation measures and performance measures selected and vetted by the workgroup, Science Review Panel, and public.
- i) **Scope, Schedule and Budget for Tahoe Science Consortium Preparation of Annual and Four-year Reports on Regional Plan Performance Measure and Threshold Standard Attainment Status.** The appropriation bill language 1.b.3 directs the TSC with the “*development of independent annual reports on the regional plan performance benchmarks and an independent peer-reviewed four-year report on the status of Threshold Standards.*” The TSC and TRPA will develop a scope, schedule and budget for these activities based on the outcome of Tasks 1 and 2, and in coordination with the further development of an updated Comprehensive Monitoring, Evaluation and Reporting Plan in Task 3. The structure, content, and cost for preparing an annual report on Regional Plan implementation and effectiveness largely depends on the nature and level of detail agreed to by stakeholders for the performance measures, benchmarks, and targets in Task 1. The TRPA and TSC will develop the structure, content and cost for preparing annual and four-year reports on threshold indicators based on the recommendations of the independent Science Review Panel (Task 2) and the updated Monitoring Plan (Task 3). The scope and budget for annual and four-year reports on the Threshold Standard attainment depends on the assessment of the scientific basis of the Threshold Standards and the adoption of a framework for prioritizing monitoring and evaluation activities.

Deliverables:

- 1) Comprehensive list of implementation measures, programmatic provisions, and other policy initiatives combined with existing and anticipated performance measures,
- 2) List of key implementation measures and programmatic provisions and associated high priority performance measures, benchmarks and targets,
- 3) Information sheets for selected performance measures,

- 4) Bi-monthly TIE-SC meeting notes,
- 5) Recommendations for amendments to the Regional Plan, and
- 6) Scope, Schedule, and Budget for TRPA and TSC preparation of annual and four-year reports.

Task 1 Schedule – Up to 12 months (and concurrent with the Review of Threshold Standards)

Prioritize Regional Plan Performance Measures		2013												2014		Result, Product, or Deliverable
Task ID	Task	February	March	April	May	June	July	August	September	October	November	December	January	February		
1.a	<i>Conduct Public Workshop with TRPA Advisory Planning Commission and Governing Board on Threshold Monitoring System</i>															Staff presentation to TRPA Advisory Planning Commission and Governing Board
1.b	<i>Develop Comprehensive Inventory of Existing Regional Plan Policy Initiatives, Implementation Measures and Programmatic Provisions, and Existing Performance Measures</i>															Table showing Regional Plan implementation measures, programmatic provisions, and associated performance measures
1.c	<i>Identify an Interagency Policy Review and Performance Measure Workgroup</i>															
1.d	<i>Identify High Priority Regional Plan Policy Initiatives, etc. for Performance Measure Monitoring</i>															Table of selected high priority Regional Plan implementation measures and programmatic provisions, and associated performance measures, benchmarks and targets with supporting summary narrative
1.e	<i>Document Standard Operating Procedures for Measuring and Reporting Performance Measures</i>															Documentation that will be used to guide the continuous tracking and reporting of selected performance measures
1.f	<i>Meetings with TSC Science Review Panel</i>															
1.g	<i>Periodic Tahoe Interagency Executive Steering Committee Meetings</i>															
1.h	<i>Recommend Amendments to the Regional Plan to Reflect Priority Implementation Measures and Performance Measures</i>															Memo recommending amendments to Regional Plan
1.i	<i>Scope, Schedule and Budget for TRPA and TSC Preparation of Annual and Four-Year Reports on Regional Plan Performance Measure and Threshold Standard Attainment Status</i>															Scope, Schedule and Budget for annual and four-year reporting of performance measures and Threshold related indicators

Task 1 Budget: In-kind Contributions \$200,000

Item	Unit Cost	Total Cost	Notes
Nevada Department of Natural Resources and Conservation	0.5 FTE @\$100,000/FTE	\$50,000	NV-DNRC funding would be used to support various Nevada Tahoe Resource Team staff participation in subtasks associated with accomplishing this task.
California Natural Resources Agency	0.5 FTE @\$100,000/FTE	\$50,000	Existing funding would be used to support staff as appointed by the CA Natural Resources Agency to participate in subtasks associated with accomplishing this task.
TRPA	1 FTE @\$100,000/FTE	\$100,000	TRPA would contribute existing staff time and resources to achieving this task from its baseline budget.
Workgroup Facilitation	-	-	A member of the interagency workgroup will be designated to facilitate and manage the workgroup.
TOTAL Estimated Cost		\$200,000 (In Kind)	All funding for Task 1 would be supported through existing baseline budgets.

Task 2: Science Review of Threshold Standards and Indicators

The TSC will establish and facilitate an independent Science Review Panel to conduct the scientific review of Threshold Standards¹⁰. Technical workgroup review of Threshold Standards and indicators during the Pathway planning process and research reports¹¹ have suggested opportunities to improve the suite of standards and indicators used to measure environmental conditions relative to desired conditions in the Lake Tahoe Region. An independent peer review of the 2011 Threshold Evaluation Report (accepted by the TRPA Governing Board in December 2012) agreed with the Report's findings that existing standards, with a few exceptions, needed some level of clarification or revision to reflect best available science, and incorporate emerging issues. The peer review also recommended that TRPA consider a different framework to evaluate threshold carrying capacities and to prioritize and focus monitoring efforts on those Threshold associated indicators that are most relevant for characterizing environmental conditions and the effect of management actions on environmental conditions.

The Task 2 science review will include a review of historic and current data, past and ongoing scientific studies, management reports, the 2011 Threshold Evaluation peer review, and monitoring and evaluation frameworks used by other successful watershed monitoring programs. The goals of the science review will be to:

- Evaluate the scientific basis for the existing threshold standards¹²,
- Propose an alternative and more effective framework from which to base the monitoring, evaluating and reporting of environmental status and trends with science-based criteria for prioritizing monitoring activities, and
- Identify and rank the most relevant threshold related indicators and identify potential gaps in indicators in the current Threshold monitoring system.

The Science Review Panel will release a technical report with recommendations to enhance the effectiveness of monitoring and evaluation programs in the Tahoe Basin to detect changes in environmental conditions.

The findings and recommendations in the technical report will at a minimum address the following questions:

- Does sufficient scientific evidence exist to justify existing Threshold Indicators and Standards?
- Is the suite of quantitative (numerical) and qualitative (management and policy statements) standards appropriate to assess both environmental condition and environmental change?
- Are existing Threshold Standards likely to be achieved or are they beyond the control of management and regulatory agencies (e.g., climate change)?
- Are two or more threshold standards mutually exclusive or duplicative?
- Does sufficient scientific evidence exist to eliminate or modify any of the existing threshold standards and indicators, including, but not limited to (i) adequacy of the scientific evidence and (ii) changes in our level of understanding since Resolution 82-11 was adopted in 1980?
- Which threshold-related indicators are most relevant for informing environmental quality policy and management actions? Which indicators are least informative?

¹⁰ Resolution 82-11, Exhibit A

¹¹ e.g., Taylor et al. 2004, Lahontan and NDEP 2010, and Chen et al. 2011

¹² It is not the purpose of the TSC review to make recommendations for changing already adopted state and federal environmental standards that are also referenced as TRPA Threshold Standards. The TSC Review Panel will, however, comment on their applicability to evaluate environmental status and trends.

- Are there gaps in the current suite of Threshold Standards? If so, does scientific evidence exist to recommend new or revised Threshold Standards or indicators to address issue area gaps?

Composition of the Science Review Panel:

- The TSC will establish a Science Review Panel comprised of a broad variety of qualified technical experts representing aquatic and terrestrial resources and socioeconomic systems.
- The TSC Executive Director will administer the Science Review Panel process.

Subtasks for the TSC Science Review Panel will include:

- Establish a Science Review Panel.** The TSC - Committee of Scientists will establish a Science Review Panel (SRP). The SRP will select a Panel chair. The Panel chair will coordinate and manage the SRP in all activities related to this task including interactions with the interagency workgroup identified in Task 1.
- Science Panel Meetings.** The SRP chair will plan and hold regular coordination meetings with the SRP to promote an integrated evaluation of content and ensure timely production of deliverables.
- Conduct Background Monitoring Policy Review.** The SRP will examine TRPA's current monitoring, evaluation, and reporting mandates associated with Environmental Threshold Carrying Capacities as expressed in the Compact, Resolution 82-11, and TRPA Regional Plan as well as other, non-threshold related reporting mandates (i.e., applicable state and federal standards). The SRP will review documents that were used as the technical basis for currently adopted Threshold Standards, such as the 1982 Study Report for the Establishment of the Environmental Threshold Carrying Capacities, and the accompanying Environmental Impact Statement. The panel will evaluate other relevant information as practical (e.g., the peer-review report on the 2011 Threshold Evaluation and materials related to frameworks for other large-scale monitoring programs). This task will provide the SRP with an understanding of current monitoring mandates and indicators measured as part of the threshold monitoring system.
- Prepare Technical Report.** The SRP will prepare a technical review document that presents the strengths and weakness of the science used to establish the currently adopted set of the Threshold Standards. When appropriate, the SRP will evaluate historical and alternative data. The technical report will include recommendations for a general evaluation and reporting framework that can better integrate the various monitoring and evaluation programs to: 1) assess the status and trend in environmental condition relative to established standards and 2) further link measures of Regional Plan implementation and effectiveness (performance measures) with Threshold Standards. It will also make recommendations for prioritizing, as appropriate, indicators associated with Threshold Standards as currently embodied in TRPA Resolution 82-11.
- Prepare Recommendations Briefing.** The SRP will prepare a briefing to provide an executive-level summary of prioritized Threshold Standards and for integrating selected Regional Plan performance measures into the evaluation and reporting structure.

- f) **Bimonthly Meetings with Interagency Workgroup (to coordinate with Task 1).** The SRP chair will organize regular bimonthly meetings for a sub-group of the SRP with resource agency staff to ensure that a high level of communication and understanding is maintained with the full Science Review Panel.
- g) **Executive Briefing Meetings.** The SRP chair will provide the Tahoe Interagency Executive Steering Committee with bimonthly progress reports on this task. These meetings will also be used to coordinate efforts between Tasks 1 and 2.
- h) **Public Meeting.** The preliminary results and recommendations of the tasks will be presented at a public meeting. Public input will be incorporated into the final report.

Deliverables:

- 1) Bimonthly Science Review Panel meetings
- 2) Final Report to be issued by the Science Review Panel on behalf of the TSC will provide an independent assessment of findings on the scientific basis of existing Threshold Indicators and Standards and will provide recommendations for focusing and prioritizing monitoring and evaluation programs
- 3) In coordination with TRPA, present the Science Review Panel findings to the public in a public forum

Task 2 Schedule – Up to 9 months

Scientific Review of Threshold Standards		2013						2014			Product/Deliverable
Tasks	Task	July	August	September	October	November	December	January	February	March	
2.a	<i>Establish a Science Review Panel</i>										Request for Qualifications, Participant contracts and agreements
2.b	<i>Science Panel Meetings</i>										Meeting agendas and notes
2.c	<i>Conduct Background Monitoring Policy Review</i>										Summary memo on the breadth of review conducted
2.d	<i>Prepare Technical Report</i>										Technical Findings Report, list of prioritized indicators
2.e	<i>Prepare Recommendations Briefing</i>										Recommendations Memo
2.f	<i>Bimonthly Meetings with Interagency Workgroup (Task 1)</i>										Meeting notes reflecting coordination between the Science Review Panel and Interagency Workgroup
2.g	<i>Executive Briefing Meetings</i>										Meeting notes reflecting executive input on progress and deliverables
2.e	<i>Public Meeting</i>										Present findings and receive input from public SRP findings and recommendations

Task 2 Budget– TRPA will request a budget augmentation from the state of California that includes \$250,000 to contract with the Tahoe Science Consortium to administer work carried out by the Science Review Panel. TRPA will also request cost recovery equal to 1 FTE (\$105,000) for TRPA staff. Funding for TRPA staff will cover the costs associated with contract administration, research, and material preparation for Science Review Panel, meeting preparation and participation, and public forum. Total cost and request to the state of California is estimated at \$355,000.

Item	Total Cost	Comment
Independent Reviewers	\$175,000	A total of 7 Subject Matter Experts and a Review Panel Chair will serve on the Science Review Panel from the TSC organizations and other academic, government agency, and the private sector entities. The panel may seek input from other technical experts in the field, as needed.
Travel Expenses	\$12,000	Travel for Reviewers and subject matter experts to attend meetings of the Science Review Panel, discussions with TRPA and other agencies, and other meetings, as required.
Research & Administrative Support	\$10,000	Technical, administrative and contract support to the Science Review Panel.
Workshops	\$2,000	Support for workshops with Science Review Panel, local agencies, and technical experts, and others as required.
IT and Web Meeting Support	\$1,000	Subscription to web-based meeting tools and document sharing support for the Science Review Panel to facilitate remote interactions and regular discussions among the panelists.
Estimated Overhead	\$50,000	Assumes average institutional overhead of 25% consistent with the UCD overhead rate from CA/Natural Resources Appropriations.
SUBTOTAL	\$250,000	Amount of funding that would be provided to TSC to administer the Science Review Panel.
TRPA Staff (1 FTE)	\$105,000	To cover staff costs associated with supporting and participating in the Science Review Panel work, including contract administration, research, providing requested information and material preparation for Science Review Panel, meeting preparation and participation, and public forum.
TOTAL	\$355,000	

Task 3: Comprehensive Monitoring, Evaluation and Reporting Plan

The Comprehensive Monitoring, Evaluation and Reporting Plan (Plan) that will be updated under this task will build upon, refine, and modify the existing M&E Program. Planning elements included in the M&E Program include: 1) the documentation of conceptual models, 2) the documentation of resource-specific monitoring and evaluation plans, 3) the pilot implementation of monitoring and evaluation plan (i.e., test field and analytical procedures), and 4) resource-specific database development. The plan will document and guide all substantive monitoring activities in the Lake Tahoe Region including the independent reporting of performance measures and Threshold Indicator monitoring information on an annual and four-year reporting cycle.

The prioritization of indicators in Task 2 of this report is expected to reduce the cost for developing program planning elements for status and trend monitoring. However, some additional costs are expected with the integration of high priority Regional Plan performance measures (Task 1) into the current M&E Program. At the completion of this task, the plan will only include guidelines and procedures for a cost-feasible and highly relevant set of indicators and performance measures as documented in Tasks 1 and 2 of this report. The degrees of cost reduction relative to offsetting cost increases are unknown at this time. Therefore, the subtasks, budget, and schedule for updating the Comprehensive Monitoring, Evaluation and Reporting Plan task will be revised following the completion of Tasks 1 and 2.

The interim subtasks pending the completion of Tasks 1 and 2 include:

- a) **Select Third Party Taskforce Lead.** An independent third-party project manager will be selected to be responsible for guiding, coordinating and completing all aspects of the updated Comprehensive Monitoring, Evaluation and Reporting Plan task. TRPA will work with agency partners to select the taskforce lead.
 - b) **Interagency Taskforce.** Form an interagency taskforce, including representatives from the Tahoe Science Consortium and Basin agencies, which will be responsible for completing Task 3. Agencies that participate in the taskforce would be expected to contribute baseline funding to support their agency representatives, while science community representatives would be compensated as part of the budget for Task 3.
 - c) **Review Result of Tasks 1 and Task 2.** The lead and the taskforce will review results of Tasks 1 (Performance Measures Prioritization) and 2 (Scientific Basis of Threshold Standards). The scope of the updated Comprehensive Monitoring, Evaluation and Reporting Plan task will be adjusted according to the results of Tasks 1 and 2.
 - d) **Update the Comprehensive Monitoring, Evaluation and Reporting Plan.** The taskforce will then further refine the M&E Program into the updated Comprehensive Monitoring, Evaluation and Reporting Plan based on the results of Tasks 1 and 2.
- **Deliverables -**
 - Interagency taskforce charter
 - Revised work plan per completion of Tasks 1 and 2
 - Updated Comprehensive Monitoring, Evaluation and Reporting Plan

- **Schedule** – To Be Determined. Depending on the scope, this task could take up to 2 years [some elements may be started concurrently with Tasks 1 and 2]. A detailed schedule will be developed following the completion of Tasks 1 and 2.
- **Budget and Staffing** – To Be Determined. Similar to the scope of work for this task, the budget and staffing for this task will need to be revised following the results of Tasks 1 and 2.

Conclusion

TRPA welcomes the opportunity provided by the California appropriations budget language to further the initiative that we have already begun to revise our existing standards, indicators and performance measures to a reduced set that is scientifically sound, financially feasible to implement, and that will meaningfully inform policy and management decisions and actions. The collaboration with our Tahoe partners and the public will be important to move this initiative forward. To address the language in the California appropriation budget, work on the three tasks outlined in this report is proposed to begin immediately and will continue over the next two years culminating in an updated Comprehensive Monitoring, Evaluation and Reporting Plan. TRPA appreciates the California Legislature’s recognition of the need to continually improve and refine its Regional Plan for the purposes of protect Lake Tahoe for current and future generations.

Appendix 1. Matrix showing potential participants/stakeholders by Threshold Category in the development of an updated Comprehensive Monitoring, Evaluation and Reporting Plan and the scientific assessment of Threshold Standards and performance measures.

Agency or Organization	Air Quality	Water Quality	Soil Conservation	Wildlife	Fisheries	Recreation	Noise	Vegetation Preservation	Scenic Resources
Bi-State									
Tahoe Regional Planning Agency*	X	X	X	X	X	X	X	X	X
Tahoe Science Consortium*	X	X	X	X	X	X	X	X	X
Washoe Tribe	X	X	X	X	X	X	X	X	X
California									
Natural Resources Agency*	X	X	X	X	X	X	X	X	X
Water Board – Lahontan*	X	X	X						
Tahoe Conservancy*		X	X	X	X	X		X	X
Air Resources Board*	X	X							
Fish and Game*				X	X	X		X	
CalFire*			X					X	
CalTrans*	X	X					X		
UC Davis*		X			X				
State Lands					X	X		X	
State Parks						X		X	
Highway Patrol							X		
Nevada									
Department of Conservation and Natural Resources*	X	X	X	X	X	X	X	X	X
Division of Environmental Protection	X	X	X						
State Lands		X	X			X		X	
State Parks						X			
Department of Wildlife				X	X				
Division of Forestry			X					X	
University of Nevada, Reno		X	X	X	X	X			
Desert Research Institute	X	X	X						
Highway Patrol							X		
Federal									
US Forest Service – LTBMU and PSW	X	X	X	X	X	X	X	X	X
US Geological Survey		X							
US Environmental Protection Agency	X	X	X						
US Fish and Wildlife Service				X	X			X	
Natural Resources Conservation Service			X						
Federal Aviation Administration							X		
Local									
City of South Lake Tahoe		X	X			X	X		
El Dorado County	X	X	X			X			
Placer County	X	X	X			X			
Washoe County	X	X	X			X			
Douglas County	X	X	X			X			
Non-Governmental Organizations									
Sierra Club and League to Save Lake Tahoe	X	X	X	X	X	X	X	X	X
Interested Public including LTFAC Chair	X	X	X	X	X	X	X	X	X

*Agencies specifically listed in appropriations bill language