**ISSUE SUMMARY**

**Context/Background:** To improve Lake Tahoe's water quality, the Draft Regional Plan includes targeted amendments that support the findings and water quality improvement strategies of the Lake Tahoe Total Daily Maximum Load (TMDL). Amendments would facilitate a transition from the current focus on parcel-level regulations to the TMDL strategy of comprehensive catchment-based load reduction plans focusing on fine sediments, phosphorus and nitrogen. Significant amendments include:

- Modifying Land Use and Transportation Policies to encourage environmental redevelopment, accelerate the restoration of Stream Environment Zones, and reduce automobile dependency;
- Updating language throughout the Regional Plan to support the TMDL and require ongoing coordination between TRPA and TMDL programs;
- Authorizing the development of Area-Wide Best Management Practice (BMP) treatments;
- Initiating programs to phase-out the use of chemical fertilizers that contain phosphorus; and
- Creating new Threshold Management Standards for algae and aquatic invasive species.

This Issue Sheet focuses on water quality policies. Land Use and Transportation Policies are addressed separately in Issue Sheets #2 through #6.

**RPU Committee:** The RPU Committee unanimously endorsed water quality provisions; except area-wide BMP treatments, which were advanced by a non-unanimous vote. Concerns focused on the adequacy of "safeguards" to prevent adverse impacts and the rate of BMP Compliance under current Policies. The Bi-State Recommendation addresses TMDL and related water quality provisions.

**EIS Analysis:** The Draft EIS did not identify any potentially-significant impacts related to water quality policy amendments. Water quality impacts related to other policies (e.g. coverage) are addressed separately in other Issue Sheets.

**Public Comments:** Many agency and public comments focused on area-wide BMP provisions, BMP enforcement programs, and TMDL coordination between the States and TRPA. Comments were also received on fertilizer provisions and the Section 208 Water Quality Management Plan. Many comments supported area-wide BMP treatments and increased State-TRPA coordination with the TMDL. Other comments raised concerns about the potential for duplicative and inconsistent requirements, about the effectiveness and impact of BMP enforcement programs and about the appropriateness and adequacy of various water quality requirements.

**Summary of Recommendation:**

1. Review and endorse the Bi-State Recommendation (Exhibit B), which would:
   - Require additional coordination between TRPA and the TMDL regulatory agencies; and
   - Initiate a Governing Board-stakeholder workgroup to review BMP compliance options.
2. Consider public comments related to Water Quality (Exhibit D).

## ISSUE ANALYSIS

**Context/Background:**

Since TRPA was created, restoring Lake Tahoe's exceptional water quality has been a primary focus for the Agency. Lake Tahoe's average deep water transparency has declined from approximately 97 feet in 1967 to less than 70 feet today. After decades of decline, loss of deep water transparency has slowed and has remained relatively stable since the mid-1990's, albeit at a level that is below the adopted Threshold Standard of 97.4 feet.

Additionally, nearshore water quality has become a topic of growing concern. Aquatic invasive species have become established in some areas and increasing levels of attached algae have been observed in shallow waters.

Lake Tahoe is designated as an "Outstanding National Resource Water" by the State of California and the U.S. Environmental Protection Agency (EPA), a designation reserved for exceptional waters with unique ecological or social significance. Nevada has designated Lake Tahoe as a "Water of Extraordinary Ecological or Aesthetic Value".

Lake Tahoe is also designated as an "Impaired Water Body". Section 303(d) of the Clean Water Act requires States to compile a list of impaired water bodies that do not meet water quality standards and to establish total maximum daily loads (TMDLs) for such waters. After ten years and millions of dollars of study, the Lake Tahoe TMDL was approved by California, Nevada and the EPA in 2011. The TMDL identifies major pollution sources – for Lake Tahoe: fine sediment, phosphorus and nitrogen -- and establishes a 65-year plan to attain the adopted Threshold Standard. The TMDL summarizes Lake Tahoe's major pollution sources in the following excerpt:

> *The ongoing decline in Lake Tahoe's deep water transparency and clarity is a result of light scatter from fine sediment particles (primarily particles less than 16 micrometers in diameter) and light absorption by phytoplankton. The addition of nitrogen and phosphorus to Lake Tahoe contributes to phytoplankton growth. Fine sediment particles are the most dominant pollutant contributing to the impairment of the lake's deep water transparency and clarity, accounting for roughly two thirds of the lake's impairment.*
>
> *A pollutant source analysis conducted by the California State Water Resources Control Board and Nevada Division of Environmental Protection identified urban uplands runoff, atmospheric deposition, forested upland runoff, and stream channel erosion as the primary sources of fine sediment particle, nitrogen, and phosphorus loads discharging to Lake Tahoe. The largest source of fine sediment particles to Lake Tahoe is urban stormwater runoff, comprising 72 percent of the total fine sediment particle load. The urban uplands also provide the largest opportunity to reduce fine sediment particle and phosphorus contributions to the lake.*

Based on the pollution source analysis, the TMDL outlines a strategy to restore water quality in a cost effective manner. Generally, the TMDL strategy focuses on comprehensive catchment-based load reduction plans that address fine sediments, phosphorus and nitrogen. The States prioritized load reduction plans for urban upland areas because urban stormwater runoff is the largest source of

pollution and urban uplands (pre-existing development and roads) provide the largest opportunity for improvement. Stormwater improvements along State Highways have been installed in many locations and are scheduled to be completed by 2015. Upgrading existing development on private property with water quality Best Management Practices (BMPs) has progressed more slowly.

Much of the existing development in the urban upland was built before TRPA was established and is not designed with modern stormwater treatment facilities. TRPA currently addresses existing development through the BMP retrofit program, which requires stormwater treatment on all parcels in the Region. Installing BMP retrofits are a significant expense for property owners and overseeing implementation of the existing program is a significant expense for TRPA and other public agencies. Exhibit A depicts the current status of BMP retrofit installation throughout the Region. Overall, approximately 34% of the Region's parcels have received a "BMP Certificate". Community centers have the highest amounts of existing land coverage and many centers have direct hydrologic connectivity to Lake Tahoe. As such, implementing more effective water quality strategies for already developed community centers is a Regional Plan Update priority.

TMDL studies suggest that TRPA's current practice of requiring water quality improvements at the parcel-level could be refined to prioritize BMP Implementation in areas that achieve the greatest load reduction, thereby restoring Lake Tahoe's water quality more rapidly and in a more cost effective manner. The TMDL requires Load Reduction Plans that identify catchments (aka sub-watersheds) and their respective pollutant loading to Lake Tahoe. Overall, the TMDL focuses on the quality of stormwater entering Lake Tahoe over the quality of stormwater leaving each parcel. The TMDL also utilizes a load based standard applied at the catchment level, which can be monitored and measured effectively.

The States of California and Nevada are designated authorities for administering the TMDL. They collaboratively developed the Lake Tahoe TMDL and are working closely with public agencies and other stakeholders to reduce the amount of fine sediment and nutrients entering the Lake. The Lahontan Regional Water Quality Control Board issued National Pollutant Discharge Elimination System (NPDES) permits to each California jurisdiction. The Nevada Division of Environmental Protection is implementing the TMDL through Memoranda of Agreement (MOA) with agencies in Nevada. Specific TMDL Load Reduction Plans are currently being prepared as required by each implementing jurisdiction.

A high-level comparison of TRPA's current water quality practices and proposed future practices with full implementation of the TMDL is outlined in a table below. Full implementation is expected to occur in a series of steps. TMDL implementation measures that are included in the Draft Plan, and suggestions for additional measures, are summarized later in this Issue Sheet.

| CONCEPTUAL SUMMARY OF LONG-TERM TMDL IMPLEMENTATION STRATEGIES | |
|---|---|
| **Stormwater Management** | |
| Existing<br>• Implementation focus is every tax assessor parcel in region<br>• Infiltration standard<br>• Parcel-specific conditional compliance; area-wide pilots underway for constrained properties unable to infiltrate<br>• TRPA minimum site-specific design standard with concentration-based discharge standard | Proposed<br>• Implementation adds focus to select sub-watershed ("catchment")<br>• Load reduction standard<br>• Area-wide, parcel, and/or hybrid flexibility<br>• New Lake Clarity Crediting Program to measure and report load reduction by catchment |
| **Private Property BMP Enforcement** | |
| Existing<br>• TRPA is primary BMP enforcement agency<br>• TRPA BMP enforcement is prioritized based on proximity to public water quality improvement project or SEZ, or in response to complaints or non-response to BMP compliance notice | Proposed<br>• Shared state, local and TRPA responsibility for BMP enforcement<br>• TRPA targeted enforcement coordinated to support local government priorities in areas that achieve the greatest load reduction<br>• States will enforce TMDL compliance |
| **Private Property BMP Operations and Maintenance** | |
| Existing<br>• The responsibility for the operations and maintenance of water quality projects rests with the party that installed the project<br>• Approximately 43,000 separate O & M systems to monitor and maintain | Proposed<br>• Create more efficient and cost effective system at area-wide level<br>• Options include:<br>· Public entity (e.g., GID, City, County)<br>· Group of property owners (e.g., HOA)<br>· Private property owner<br>• Mitigation funding for O&M capital |
| **Monitoring** | |
| Existing<br>• Require project-level monitoring<br>• No scientific nexus to WQ standards<br>• High cost<br>• No long-term, ongoing funding source | Proposed<br>• TMDL science connects load reduction by catchment to achievement of WQ standards<br>• Local governments report load reductions through Lake Clarity Crediting Programs as required part of NPDES Permit or MOA<br>• Regional monitoring calibrates and validates load estimation tools<br>• Monitoring and reporting has direct nexus to regional water quality standards |

The Draft Regional Plan includes targeted amendments that support the findings and water quality improvement strategies of the TMDL. Amendments would expand the current focus on parcel-level regulations to reflect the TMDL strategy of comprehensive catchment-based load reduction plans for fine sediments, phosphorus and nitrogen. Parcel owners must still contribute to BMP solutions but the prescription may differ under more flexible area wide solutions that could be developed to achieve TMDL load reductions for each catchment. Local jurisdictions would have flexibility in designing the system that applies to each sub-watershed. Significant amendments include:

- Modifying Land Use and Transportation Policies to encourage environmental redevelopment, accelerate the restoration of Stream Environment Zones, and reduce automobile dependency;
- Updating language throughout the Regional Plan to support the TMDL and require ongoing coordination between TRPA and TMDL programs;
- Authorizing the development of Area-Wide Best Management Practice (BMP) treatments to which individual parcel owners would contribute in different ways;
- Initiating programs to phase-out the use of chemical fertilizers that contain phosphorus; and
- Establishing new Threshold Management Standards for attached algae (a nearshore water quality indicator) and aquatic invasive species.

Strengthening existing BMP compliance programs was discussed by the RPU Committee, but ultimately not endorsed. Costs for property owners and inconsistency with newer TMDL strategies were cited as reasons to maintain the existing policy focus on voluntary compliance, technical assistance and public education (Policy WQ-3.11).

Land Use and Transportation Policies are discussed in detail in Issue Sheets #2 through #6. Reduced nitrogen loading from vehicle exhaust and reduced loading from stormwater runoff in community centers are expected to result from Land Use and Transportation Policy amendments.

Draft Water Quality amendments are summarized below.

<u>TMDL Coordination Text</u>:
As noted above, full integration of the TMDL with TRPA programs is expected to occur in a series of steps as detailed Load Reduction Plans are prepared and implemented. The Draft Plan provides a framework for ongoing TMDL/TRPA coordination with new language in the Plan Introduction, the Water Quality Introduction, Water Quality Goals and Policies and Implementation Goals and Policies. Regulatory amendments in the Draft Plan are summarized below. Additional future efforts to support the TMDL are outlined in Attachment 4 (Preliminary List of Priority Projects).

<u>Area-Wide BMP Treatments</u>:
Currently, TRPA requires all properties in the Region to implement and maintain Best Management Practices to control sediment and infiltrate 20 year/1 hour storms on-site. Site-constrained properties that are unable to infiltrate stormwater may treat and release stormwater to meet adopted discharge standards (for commercial and large multi-family residential parcels), or control sediment and receive

a Source Control Certificate (for small multi-family and single-family residential properties). Source Control Certificates require future participation in an area-wide project to infiltrate stormwater.

Several pilot area-wide treatment projects are currently in progress for areas that cannot meet TRPA's infiltration requirements due to site-constraints such as high ground water, bedrock, or limited property boundaries. Projects include, but are not limited to, the Bijou and Harrison Avenue Water Quality Project in the City of South Lake Tahoe, the Tahoe City Wetlands and Lake Forest Water Treatment Project in Placer County, and the Cave Rock Water Treatment Project in Douglas County. These area-wide treatment projects may be included as strategies in the TMDL Load Reduction Plans currently being prepared by Local Governments.

The Draft Regional Plan would authorize more effective load reduction strategies by permitting area-wide BMP treatments and funding mechanisms for any area, as long as they achieve equal or greater water quality benefits compared to parcel-specific BMP requirements. Area-wide BMP treatments would need to be developed and approved in accordance with provisions for Area Plans (See Issue Sheet #1). Over time, this Policy change would allow Local Governments to develop integrated Load Reduction Plans that comply with both TMDL and TRPA requirements. Where Local Jurisdictions do not gain approval of area-wide treatment programs, TRPA's site specific requirements would remain.

Phase-out Phosphorus Fertilizer:
Phosphorus is a significant pollutant of concern identified by the Lake Tahoe TMDL, with fertilizer application being a primary source. The Draft Regional Plan proposes new policy language (WQ-3.9) to phase-out the use of chemical fertilizer containing phosphorus for lawns by 2017 through education and outreach. The phase-out provision complements but does not replace existing restrictions on the use of fertilizer in Stream Environment Zones and Shorezone Areas.

New Threshold Standards for Nearshore Attached Algae and Aquatic Invasive Species:
Currently, TRPA does not have Threshold Standards for nearshore water quality or aquatic invasive species. As noted above, both topics are increasingly concerning. Aquatic invasive species have become established in some areas and increasing levels of attached algae have been reported in shallow waters. The Draft Plan would establish new Management Standards for Aquatic Invasive Species and Attached Algae, as follows:

> *Aquatic Invasive Species*
> *MANAGEMENT STANDARD*
> *Prevent the introduction of new aquatic invasive species into the region's waters and reduce the abundance and distribution of known aquatic invasive species. Abate harmful ecological, economic, social and public health impacts resulting from aquatic invasive species.*
>
> *Attached Algae*
> *MANAGEMENT STANDARD*
> *Implement policy and management actions to reduce the areal extent and density of periphyton (attached) algae from Lake Tahoe's nearshore.*

TRPA's Aquatic Invasive Species boat inspection program is well established and would not be modified by the Draft Plan. Boat inspections will continue to be required at Lake Tahoe.

Scientific study is ongoing to better understand the causes of nearshore water quality challenges (including attached algae) and the most effective strategies to improve nearshore water quality. When studies are complete, the new Threshold Standards may be proposed for refinement. Available information indicates that the pollution sources affecting deep water transparency, especially phosphorus and nitrogen, are also responsible for attached algae in the nearshore. TMDL Load Reduction Plans are expected to benefit nearshore water quality.

**RPU Committee Action:**

All water quality amendments were endorsed unanimously, except area-wide BMP treatments and BMP compliance provisions, which were advanced by a non-unanimous vote. Concerns focused on safeguards that would be needed to prevent impacts from area-wide BMP treatments and the rate of BMP Compliance under current Policies.

Endorsed Plan and Code sections are attached as Exhibit C.

**EIS Analysis:**

The Draft EIS did not identify any potentially-significant impacts related to water quality policies. Water quality impacts related to other policies (e.g. coverage) are addressed separately in other Issue Sheets.

**Bi-State Recommendation:**

The Bi-State Recommendation for Water Quality includes the following provisions:

- Require additional coordination between TRPA and the TMDL regulatory agencies, including:
  - When reviewing Area Plans, TRPA would utilize TMDL water quality improvement plans for registered catchments and TRPA default standards for unregistered catchments;
  - Require State Agencies to provide TRPA annual progress reporting and analysis, copies of all MOAs and NPDES permits, and notification of all breaches or violations of MOAs or NPDES permits; and
  - Require that TRPA use catchment data and all reporting to inform Area Plan re-certification every four years, and
- Initiate a review of BMP compliance options by a work group of the TRPA Governing Board and other interested parties.

Specific Bi-State Recommendations are outlined in Exhibit B.

**Public Comments:**

Most Agency and public comments generally supported area-wide BMP treatments and other water quality-related plan amendments. Many comments requested more details on funding and how it

would affect BMP compliant properties. Some comments supported TRPA adoption and enforcement of the TMDL, while others felt incorporating TMDL specifics into the Regional Plan would impinge on State authorities and create duplicative and inconsistent regulations. Additional explanatory text better explaining the relationship of the TMDL to the RPU was requested in several comments.

A number of comments suggested stricter water quality standards and enforcement programs, while numerous form letters opposed requiring BMPs at point of sale. Generally, comments supported the new fertilizer provisions.

Public Agency Comments:
Most Public Agency comments generally supported area-wide BMP treatments because they would provide increased flexibility to Local Jurisdictions and are consistent with the TMDL strategies. Agencies that expressed support for area-wide stormwater treatment approaches, either in general or specific recommendations include:

- Lahontan Regional Water Quality Control Board (Lahontan);
- California Tahoe Conservancy (CTC);
- Douglas County
- El Dorado County
- The City of South Lake Tahoe;
- TRPA Advisory Planning Commission (APC) members; and
- California State Lands

Some agencies recommended more details on funding components and how area-wide treatments would affect existing BMP compliant properties.

Comments from Local Governments, Lahontan and the CTC focused on improving consistency to avoid duplicative, inconsistent, or ineffective monitoring and reporting requirements. Some comments stated that as policies are written now, there are conflicting requirements with water quality thresholds, roadway operations, maintenance activities and monitoring. Additional comments addressed differences between TRPA floodplain ordinances and local government ordinances.

Several agencies suggested that the Regional Plan should discuss respective roles, responsibilities and authorities for implementing the TMDL in more detail. Comments generally supported more detailed descriptive text, but did not support the Regional Plan directly incorporating TMDL load allocations, milestones, and related permit requirements.

More detailed comments from Lahontan identified opportunities for the Regional Plan to transition from the existing concentration-based stormwater effluent limit to load-based limits used in the TMDL. Lahontan also emphasized a desire for increased coordination between Regional Plan and Code and the Lake Clarity Crediting Program. California State Lands commented that Lakefront property BMP compliance should be a priority.

Generally, comments supported fertilizer regulations. There were suggestions for additional provisions by Lahontan and the Nevada Tahoe Conservation District.

Comments from the California Department of Transportation focused on proposals to limit road abrasives and the need for the Regional Plan to consider public safety, while a TRPA APC member wanted stricter standards from Alternative 2 for road abrasives and dust control in the final plan.

The State of Nevada did not submit written comments. TRPA staff has met with various Nevada State Agencies and understands the State is generally supportive of TRPA's approach related to water quality management. The Nevada Division of Environmental Protection is willing to further coordinate with TRPA to address water quality issues as needed.

The U.S. Forest Service did not submit written comments. Staff has met with the U.S. Forest Service and understands the Forest Service is generally supportive of Draft Plan proposals that affect water management.

The U.S. Environmental Protection Agency provided written comments focusing on Water Quality Agency Coordination, including the process to update the 208 Plan and differences between existing TRPA programs and TMDL programs. The EPA suggested that the Regional Plan more clearly explain the relationship between the various planning documents.

Comments from Organizations and Advocacy Groups:
Comments from environmental organizations focused on stricter standards for stormwater and raised concerns about nearshore water quality and the ability of Draft Plan provisions to attain water quality Threshold Standards. Environmental organizations generally supported area-wide treatment but wanted more details on approval requirements, funding and how new programs would affect BMP compliant properties.

Numerous surveys from Friends of the West Shore, including one submitted by the Sierra Club, supported focusing on infiltration to treat stormwater pollutants. More detailed comments submitted with the survey questioned the water quality benefits from VMT reduction through infill development.

Comments from business organizations generally supported water quality provisions in the Draft Plan and emphasized a desire to avoid duplicative or inconsistent requirements. Several organizations favored stricter BMP enforcement, especially point-of-sale BMP requirements.

Comments from Businesses and Individuals:
Comments from businesses and individuals generally reflected the range of recommendations from agencies and organizations. Generally, businesses and individuals supported area-wide treatment because it could reduce the cost of BMPs and increase the rate of water quality improvements from redevelopment.

Some comments supported stricter BMP enforcement (including point of sale requirements), while other comments (including numerous form letters from individuals and businesses) opposed point of sale enforcement. The form letters raised concerns about the efficiency and fairness of point of sale requirements for BMPs. Concerns also included potential impacts on real estate transactions, how the requirements would be implemented in the winter and forcing real estate professionals from an educational to an enforcement role.

Individual comments generally supported fertilizer policies, with more detailed comments wanting greater focus on Tahoe Keys pollutant loading. Some comments supported stricter water quality standards, while other comments suggested that provisions are too strict.

Exhibit D lists comments from Agencies, Organizations, Businesses and Individuals addressing water quality.

Staff is engaged in ongoing discussions with public agencies and other organizations regarding various Water Quality provisions and possible modifications to more effectively support TMDL implementation in a manner that is consistent with prior RPU Committee endorsements and the Bi-State Recommendation.

**Recommendation:**

Staff recommends the Update Committee:

1. Review and endorse the Bi-State Recommendation (Exhibit B), which would:
    - Require additional coordination between TRPA and the TMDL regulatory agencies, including:
        - When reviewing Area Plans, TRPA would utilize TMDL water quality improvement plans for registered catchments and TRPA default standards for unregistered catchments;
        - Require State Agencies to provide TRPA annual progress reporting and analysis, copies of all MOAs and NPDES permits, and notification of all breaches or violations of MOAs or NPDES permits; and
        - Require that TRPA use catchment data and all reporting to inform Area Plan re-certification every four years, and
    - Initiate a review of BMP compliance options by a work group of the TRPA Governing Board and other interested parties; and
2. Consider public comments related to Water Quality (Exhibit D)

**Exhibits:**

A. Water Quality Map Packet
B. Bi-State Recommendation
C. Draft Plan and Code Text - April 25, 2012
D. List of Applicable Comment Letters