

# Lake Tahoe TMDL Program

## 2015 Findings & Program Recommendations Memo

December 2015

# LAKE TAHOE TMDL PROGRAM

The *Findings & Program Recommendation Memo* is an annual product of the Lake Tahoe TMDL Program. Lake Tahoe TMDL Program Managers at Lahontan Regional Water Quality Control Board and at Nevada Division of Environmental Protection are responsible for its content.

For more information about this document or the TMDL Program, contact:

**Robert Larsen**

Senior Environmental Scientist  
Lahontan Regional Water Quality Control Board  
2501 Lake Tahoe Blvd.  
South Lake Tahoe, CA 96150

Phone: (530) 542-5439

Email: [robert.larsen@waterboards.ca.gov](mailto:robert.larsen@waterboards.ca.gov)

**Jason Kuchnicki**

Lake Tahoe Watershed Program Manager  
Nevada Division of Environmental Protection  
901 S. Stewart St., Suite 4001  
Carson City, NV 89701

Phone: (775) 687-9450

Email: [jkuch@ndep.nv.gov](mailto:jkuch@ndep.nv.gov)

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# INTRODUCTION

Each year Lake Tahoe TMDL Program Managers request stakeholders' assistance in evaluating TMDL Program operations and performance. TMDL Program Managers identify, compile and respond to implementation challenges, policy issues, relevant scientific and technical findings, and emerging information needs. When appropriate, TMDL Program Managers pair the synthesized findings with program adjustment recommendations in an annual *Findings & Program Recommendation Memo* that enables Lahontan Water Board and NDEP executives to have an informed discussion about the need for proposed program adjustments.

The 2015 *TMDL Findings & Program Recommendation Memo* (2015 Memo) reiterates important findings from the 2014 document and incorporates new findings from the past calendar year. New and outstanding stakeholder comments are addressed in the *Stakeholder Feedback Capture Sheet*.

## Part I: Findings

Findings are grouped into one of three subject areas: A) Urban Stormwater Management; B) Non-Urban Source Category Management and C) Overall TMDL. A box at the beginning of each subject area contains summary findings drawn from themes within that subject area.

## Part II: Recommendations

This section distills actionable recommendations to adjust the TMDL Program, including both management strategies and policies. TMDL Program Managers propose recommendations based on new science, stakeholder feedback, and direct learning over the past year. Generally, adjustment recommendations proposed in Part II reflect findings from Part I. Findings not linked to recommendations either support existing policy, require actions outside TMDL Program Manager's purview, or are not currently actionable due to incomplete information or lack of implementation resources.

Proposed recommendations guide and inform discussions at the *TMDL Program Review Meeting*, an annual meeting between Lahontan Water Board and NDEP executives and TMDL Program Managers. Like findings, recommendations are grouped into one of three subject areas: A) Urban Stormwater Management; B) Non-Urban Source Category Management; and C) Overall TMDL.

## Appendix

The Appendix includes the 2015 *Stakeholder Feedback Capture Sheet*, a list of the input provided by TMDL stakeholders regarding information needs and recommendations for program adjustments as well as Program Manager's responses to these comments. Comments remain on the list until addressed and status updates may be provided for those that remain unresolved.

### Stakeholder Feedback

Stakeholder feedback is captured in the *Stakeholder Feedback Capture Sheet*, an appendix to this document. The sheet is a tool for TMDL Program Managers to track and respond to stakeholder feedback – including suggested program adjustments or information needs – in an organized and transparent manner. TMDL Program Managers update and sort the sheet each year for public release in conjunction with this memo. A primary feedback mechanism that assists with population of the sheet is the Stakeholder Feedback Form, available on the [TMDL Online Interface](#).

# PART I: FINDINGS

## Introduction

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Findings are grouped into three specific subject areas, outlined below. Individual findings within each subject area are synthesized from existing documents or drawn from observations or stakeholder comments.

- A. Urban Stormwater Management
- B. Non-Urban Source Category Management
- C. Overall TMDL

## 2015 Summary Findings

There were no new findings related to Urban Stormwater Management or Non-Urban Source Category Management during the past calendar year. Previously listed findings remain relevant and continue to guide Lake Tahoe TMDL program actions. New findings related to the overall TMDL program include recent research regarding stormwater monitoring analysis and reporting techniques, revised pollutant load estimates, and updated information on Lake Tahoe's physical properties and climate condition as reported in the University of California, Davis State of the Lake Report. The revised load estimates and climate and physical information are not significant enough to support any recommended change to the Lake Tahoe TMDL program or associated policy. Through the TMDL Management System process, TMDL Program Managers will continue to assess whether revised loading estimates or new climate information dictates program change.

## A. URBAN STORMWATER MANAGEMENT

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### Key Findings From Previous Assessments

1. Wintertime traction abrasive application to roadways is the primary specific source of both fine sediment particles (< 16µm) in stormwater runoff and PM10 in the urban upland and atmospheric deposition source categories, respectively.
2. Pollutant source control best management practices (PSC BMPs) are more cost effective than stormwater treatment (SWT) BMPs in reducing fine sediment particles from urban roads.
3. Implementing PSC BMPs has the direct benefits of improving the effectiveness and reducing maintenance cycles of SWT BMPs.
4. There is a consistent and ubiquitous lack of appropriate maintenance conducted on SWT BMPs. Regular inspection and maintenance of SWT BMPs is needed to sustain intended fine sediment particle load reductions.
5. Targeted implementation of SWT and PSC BMPs on developed parcels is a cost-effective strategy for reducing pollutant loads. The most efficient FSP load reductions are likely achievable on Commercial/Institutional/Communications/Utilities (CICU) and Multi-Family Residential (MFR) land uses due to the much larger pollutant potential of these land use types in comparison to the Single Family Residential (SFR) land use.

### NEW FINDINGS

**There were no new findings related to urban stormwater management practices during the past calendar year. Previously listed findings remain relevant and continue to guide Lake Tahoe TMDL program actions. Please refer to the [2014 Findings and Recommendations Memo](#) for specific details and associated references.**

## B. NON-URBAN SOURCE CATEGORY MANAGEMENT

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### Key Findings From Previous Assessments

1. The vast majority of the pollutant loading in forestlands originates from paved and unpaved roads, disturbed areas and public facilities.
2. Active unpaved roads are estimated to produce sediment yields (both FSP and other suspended solids) that are 1-3 orders of magnitude greater than inactive unpaved roads.
3. Forest management with appropriate mitigation techniques can reduce sediment generation from forested lands and developed properties.
4. Restoring floodplain connectivity and geomorphic function in riverine systems can provide substantial FSP load reductions.

### NEW FINDINGS

**There were no new findings related to non-urban pollutant sources or land management practices during the past calendar year. Previously listed findings remain relevant and continue to guide Lake Tahoe TMDL program actions. Please refer to the [2014 Findings and Recommendations Memo](#) for specific details and associated references.**

## C. OVERALL TMDL

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### Key Findings From Previous Assessments

1. Monitoring urban catchment stormwater, tributary streams, and the lake itself are all critical to evaluate the effects of stormwater management practices, track pollutant loading trends, and assess the Lake's response to TMDL implementation efforts. However, there is a lack of long-term stable funding to support these monitoring efforts.
2. Overall, average annual lake clarity levels continue to show a decade-long trend of stabilization. While measured clarity data are encouraging, they must be considered in the context of consecutive drought years.
3. The level of potential water quality impacts attributable to climate change is mixed: sediment loads are not projected to increase substantially, but nutrient availability from within the lake could increase substantially.
4. If Lake Tahoe ceases to mix by the middle of the 21st Century, the resulting substantial nutrient availability from within the lake could result in a dramatic decline in lake clarity such that the possibility of achieving the clarity standard of nearly 100 feet would need to be reevaluated.
5. Nearshore conditions are expected to improve in response to Lake Tahoe TMDL implementation, particularly in the vicinity of effective load reduction efforts.
6. Various Lake Tahoe basin research efforts have found strong correlations between field turbidity measurements and FSP (both mass and number of particles) in stormwater, streams, and land use data. The slope of the relationship can vary depending on the FSP source.

### NEW FINDINGS

1. The 2014 annual average Secchi depth was 77.8 feet (23.7 meters), an increase of 7.6 feet over the previous year. The best clarity in more than a decade is likely a result of a combination of the following factors:
  - a. implementation of water quality improvement actions;
  - b. continued warm, dry conditions for the third straight year. The 2014 average minimum and maximum air temperatures at Tahoe City were the highest recorded since 1910. Precipitation was only 61% of average, with only 18% of it falling as snow, well below normal. April snowpack in the Tahoe Basin was the lowest recorded in 100 years of record keeping. Reduced precipitation meant fewer contaminants flowed into Lake Tahoe. Due to warmer water and record-high levels of lake stability Lake Tahoe did not mix to its full depth for the third consecutive year.
  - c. decreases in the concentration and bloom duration of the algae *Cyclotella gordonensis* (UC Davis 2015).
2. Further review of the updated pollutant load estimates based on additional years of data (Sahoo et al., 2013) indicate a 21% shift in total phosphorous loading between urban and non-urban sources. Non-urban upland source categories loading increased from 26% to 47% while urban source category loading decreased from 39% to 18%.
3. 2NDNATURE (2014) developed technical recommendations to link site-specific urban stormwater monitoring datasets with recommended data analysis and reporting methods to address two priority TMDL management needs: 1) evaluating trends in urban pollutant loading over time as a result of water quality improvement management actions; and 2) informing priority needs of the stormwater tools used by the TMDL program.



- a. Standardized data analysis and reporting approaches facilitate stormwater quality trend analyses across sites and provide relative climatic context.
- b. To appropriately inform Pollutant Load Reduction Model (PLRM) characteristic effluent concentrations (CECs), treated effluent pollutant samples must be collected across a range of event types, magnitudes and durations from multiple representative BMPs of the same type (e.g., wet basin, dry basin, etc.). The monitored BMPs must be regularly maintained to operate within the acceptable range of performance. Three years of measured effluent concentrations from three specific BMPs of the same type are needed to generate a single recommended CEC (mg/L).
- c. Data management, analysis and reporting formats are presented that are relatively simple, repeatable and easily interpreted by managers, funders and other relevant stakeholders.

## REFERENCES

2NDNATURE. 2014. Aligning Stormwater Monitoring Datasets with Priority Management Questions. Final Guidance. Prepared for USDA Forest Service Pacific Southwest Research Station. December 2014. <http://www.2ndnaturellc.com/reports/>

Sahoo, G.B., J.E. Reuter, S.G. Schladow, J. Riverson and B. Wolfe. 2012. Development of a Water Quality Modeling Tool Box to Inform Pollutant Reduction Planning, Implementation Planning and Adaptive Management. University of California-Davis, Tahoe Environmental Research Center. Prepared for USFS-Pacific Southwest Research Station, Berkeley, CA. March 21, 2012.

UC Davis – Tahoe Environmental Research Center. 2015. Tahoe: The State of the Lake Report 2015. Davis, CA. Accessed on August 6, 2015. <http://terc.ucdavis.edu/stateofthelake/>

# PART II: RECOMMENDATIONS

## Introduction

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This section describes actionable adjustment recommendation proposals developed by the TMDL Program Managers, including management strategies and guiding policies. Recommendations are presented to Lahontan Water Board and NDEP executives for discussion and consideration of approval. Stakeholder recommendations that are either non-actionable, have not been advanced by TMDL Program Managers, or require action from entities other than the TMDL Program agencies (e.g. TMDL Implementers or Coordinating Partners) are captured and responded to in the *2015 Stakeholder Feedback Capture Sheet*, an appendix to this document available, also available on the [TMDL Online Interface](#).

## RESPONSE CATEGORIES

To establish a relative level of effort associated with each suggested recommendation, adjustment recommendations are placed into one of the following three response categories:

- **Response Category I** – Minor TMDL Program Adjustments. Generally, Category I adjustments may be executed by TMDL Program Managers at any time with consultation only from TMDL Executives. Little or no additional funding is required to implement Category I recommendations.
- **Response Category II**– Adjustments to TMDL Program technical tools, process, protocols or policy. Category II adjustments may require formal approval from Lahontan and NDEP TMDL Executives or formal approval from the Lahontan Regional Water Board and NDEP Administrator. Additional funding is usually required to implement Category II recommendations.
- **Response Category III** – Adjustments that would require amending the EPA-Approved Lake Tahoe TMDL Report. Category III recommendations may be warranted in the case of new scientific findings or substantial changes to environmental or economic conditions. Category III recommendations are first reviewed and approved or rejected by Lahontan and NDEP TMDL Executives. Following an approval process mandated by State or Federal laws and regulation, they are implemented through the appropriate policy change process for each agency. Additional funding would be required to implement Category III recommendations.

## 2015 STATUS

There were no new substantive findings during the past calendar year, and TMDL Program Managers are not recommending any program changes. Although updated findings provide valuable status and trend data and stormwater monitoring guidance, the new information does not warrant any change to the Lake Tahoe TMDL program at this time. The pollutant load estimate revisions are reasonably aligned with previous values and do not warrant change to the TMDL implementation approach. While the lake's physical characteristics are partially due to observed climate variables, the noted changes do not reflect a need for policy or program adjustment.

Previously listed recommendations remain relevant, and the following section describes the status of program recommendations made in the *2014 TMDL Findings and Program Recommendations Memo*.

## Summary of 2014 Recommendations

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	RECOMMENDATION	RESPONSE CATEGORY	STATUS UPDATE
SW.1.	Support Urban Jurisdictions' efforts to secure funding for road operations and maintenance	I	Ongoing. TMDL Program Managers are actively involved in current work to explore storm water program funding alternatives on the California side of the Lake Tahoe basin.
SW.2.	Update the Lake Clarity Crediting Program Handbook.	II	Complete. The updated Handbook is available <a href="#">here</a> .
NU.1.	Establish a new TMDL Performance Measure (TMDL PM) to track and report floodplain restoration activities in a manner consistent with TRPA EIP Program reporting efforts.	I	Ongoing. Other program priorities have prevented progress in implementing this recommendation. TMDL Program Managers will craft an updated PM in partnership with the Tahoe Regional Planning Agency as part of the Environmental Improvement Program reporting effort.
O.1.	Support ongoing nearshore status and trend monitoring and broadcast the relationship of nearshore quality to TMDL implementation in TMDL Management System products.	I	Ongoing. TMDL Program Managers are actively engaged in implementing established nearshore monitoring priorities. Work is also underway to target nearshore monitoring funds on evaluating nearshore processes and causal relationships.

# APPENDIX A – 2015 STAKEHOLDER FEEDBACK CAPTURE SHEET

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The *Stakeholder Feedback Capture Sheet* is a tool for TMDL Program Managers to track and respond to stakeholder feedback – including suggested program adjustments or information needs – in an organized and transparent manner. The *Stakeholder Feedback Capture Sheet* is populated by TMDL Program Managers who add stakeholder feedback to the list throughout the year. TMDL Program Managers reference the list when drafting the *Synthesis of Findings & Program Adjustment Recommendation Memo*. A primary feedback mechanism that assists with population of the sheet is the Stakeholder Feedback Form, available on the [TMDL Online Interface \(https://www.enviroaccounting.com/TahoeTMDL/Program/Home\)](https://www.enviroaccounting.com/TahoeTMDL/Program/Home).

Consistent with the structure of the *Synthesis of Findings & Program Adjustment Recommendation Memo*, stakeholder feedback is organized within three subject areas: 1) Urban Stormwater Management 2) Non-Urban Source Category Management 3) Overall TMDL. Feedback is organized chronologically by the submittal date within each category. Comments remain on the list until addressed and status updates may be provided for those that remain unresolved.

#	Short Title	Summary of comment (1-3 sentences)	Submittal Date	Stakeholder Information	TMDL Program Manager Response
<b>Urban Stormwater Management</b>					
2015-1	<b>Incentivize the use of more durable traction abrasive material</b>	TMDL program findings suggest traction abrasives are a significant source of pollutants and using alternative materials could improve water quality. Lake Clarity Credits are awarded for changing observable road conditions, but it's unclear if the road conditions are appreciably altered by alternative abrasive use. Consider different incentives to drive the shift to more durable abrasives to achieve water quality benefit.	May-15	Zach Bradford, League to Save Lake Tahoe, zach@keeptahoeblue.org, 530-541-5388	<b>Comment addressed.</b> In using the Road RAM to evaluate roadway condition, the Lake Clarity Crediting Program incentivizes implementation of holistic roadway operations and maintenance strategies that minimize the magnitude and residence time of FSP source material. While specific ideas for incentives to implement effective road operations and maintenance in addition to the Crediting Program are welcome, current research and monitoring indicates the Road RAM sufficiently accounts for roadway condition variables. The California Department of Transportation is planning additional water quality sampling paired with Road RAM observations and differing traction abrasive strategies to further assess the established water quality and condition assessment relationship.
2015-2	<b>Treatment BMP maintenance</b>	There is a documented lack of treatment BMP maintenance and the current program doesn't effectively enforce the need for treatment BMP maintenance. The program should reduce Lake Clarity Credit awards when treatment BMPs are't properly maintained.	May-15	Zach Bradford, League to Save Lake Tahoe, zach@keeptahoeblue.org, 530-541-5389	<b>Comment addressed.</b> Treatment BMP condition assessment and maintenance requirements are primary components of the Lake Clarity Crediting Program; Credit awards are reduced when key and essential treatment BMPs are not maintained in appropriate functioning condition.
2015-3	<b>Private Parcel BMP Registration</b>	The maintenance and verification requirements associated with Lake Clarity Credit from private parcel BMP implementation remain uncertain. The proposed 5 year/50% reduction approach shifts emphasis from single family residential BMPs to commercial and multi-family. It is also unclear how the LCCP approach for private property BMPs will be implemented and when it may be revised. Program stability and consistency is needed to allow urban jurisdictions to appropriately plan for meeting load reduction requirements.	May-15	Karin Peternel, Douglas County, kpeternel@co.douglas.nv.us, Jason Burke, City of South Lake Tahoe, jburke@cityofslt.us, 530-542-6038	<b>Comment addressed.</b> Parcel BMP maintenance verification policy is now specified in the Lake Clarity Crediting Program Handbook version 2.0. The policy is subject to revision through the Lake Tahoe TMDL Management System process. Execution of any additional or new program or policy adjustment would require TMDL Executive approval.
2015-4	<b>Lake Clarity Crediting Program Handbook Revision</b>	Concern regarding stakeholder participation in updating the LCCP Handbook. Specifically, revisions may effect established baseline load and load reduction estimates and associated plans developed using previous assumptions. Should program changes substantively impact load reduction strategies, funding should be identified for jurisdictions to recalculate baseline loadings.	May-15	Karin Peternel, Douglas County, kpeternel@co.douglas.nv.us, Jason Burke, City of South Lake Tahoe, jburke@cityofslt.us, 530-542-6038	<b>Comment being addressed.</b> Revisions to the Lake Clarity Crediting Program tools were undertaken with significant stakeholder support and involvement. Changes to the load estimation tool (PLRM) that ultimately influence previously prepared baseline pollutant loads have been implemented with stakeholder approval. While NDEP and NV Urban Implementers have secured funding, the Lahontan Water Board is working with CA Urban Implementers to identify and secure funding to revise jurisdiction scale baseline pollutant loads.
2014-12	<b>Effectiveness of roadway O&amp;M practices</b>	More information is needed to identify what FSP reductions can be expected from implementing various O&M practices. Effectiveness studies are needed using various equipment and various methodologies. This information is needed so TMDL Program Managers, stakeholders, and funders can evaluate and budget for the most cost effective modifications to road operations practices and justify expenditures.	May-14	Tyler J. Thew, P.E. Senior Hydraulic Engineer, NDOT, tthew@dot.state.nv.us, (775) 888-7574	<b>Comment being addressed.</b> The Road Operations Effectiveness Testing project has been initiated to help jurisdictions select cost-effective practices and better understand the expected roadway condition as a result of implementing such practices. The final report is due in Fall 2015. The project will also provide Urban Implementers standardized guidance to test and evaluate the cost-effectiveness of road operations and maintenance practices in the future.
2014-1	<b>Effectiveness of roadway O&amp;M practices</b>	Need better research and information on effect of advanced road maintenance practices – including sweeping and abrasive application. Relatively few sweeper and abrasive options are available in PLRM. More choices need to be available to best reflect the practices being implemented.	May-13	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2046	<b>Comment addressed/being addressed.</b> The program tracks road condition scores as established by Road RAM protocols. Rather than selecting specific road operations and maintenance practices, the updated Lake Clarity Crediting Program and associated load estimation tools allow entities to implement whatever practices they determine to be most cost-effective and feasible for their respective jurisdictions to achieve desired road conditions. The Road Operations Effectiveness Testing project was initiated to assist and guide jurisdictions in selecting cost-effective road operations and maintenance practices to achieve desired roadway condition scores. A final project report is due out Fall 2015. Finally, project to test revised Road RAM protocols that eliminate need to access highway drive lanes has been initiated.
2014-3	<b>Road RAM improvement</b>	Need less subjective and less labor intensive method to replace Road RAM. Due to the significant amount of fine sediment particles attributed to paved areas, road conditions need to be assessed consistently throughout the Tahoe Basin and across jurisdictions for successful implementation.	May-13	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2046	<b>Comment addressed.</b> Road RAM is currently the only road condition assessment approved for the Crediting Program. The Crediting Program allows for approval of alternatives condition assessment methodologies provided they demonstrate equivalency with Road RAM. Equivalency requirements are contained in the Crediting Program Handbook. Furthermore, the Crediting Program has been streamlined to reduce the road condition assessments burden.

#	Short Title	Summary of comment (1-3 sentences)	Submittal Date	Stakeholder Information	TMDL Program Manager Response
<b>Non-Urban Source Category Management</b>					
2014-18	<b>SLRT and the Lake Clarity Crediting Program</b>	EPA considers the load reduction estimation methods for both channel restoration and floodplain deposition sufficiently well-developed (an example is the Trout Creek restoration project) that Urban Jurisdictions should discuss opportunities with regulators to determine if channel and floodplain restoration projects may be eligible to generate credits. In order to improve certainty (or minimize equivalency and uncertainty ratios as described on p. TT-32 of the LCCP H), it may be preferable to award credits retroactively based on estimations of actual load reductions achieved rather than to estimate potential load reductions based on application and verification of predictive models.	Feb-14	Jacques Landy U.S. EPA Lake Tahoe Basin Coordinator (775) 589-5248 landy.jacques@epa.gov	<b>Adjustment not currently recommended.</b> Awarding credits to TMDL Implementers for stream restoration projects based on SLRT FSP load estimates is not recommended for the following reasons: 1) There is no process to link stream restoration fine sediment and nutrient load reduction estimates to Lake Tahoe TMDL baseline load estimates. 2) The Lake Clarity Crediting Program remains focused on accounting and tracking pollutant loading from urban storm water discharges and SLRT does not evaluate the proportion of pollutant load related to urban storm water. If an Urban Implementer can demonstrate a reduction of urban storm water loads associated with stream channel restoration work, TMDL Program Managers will consider awarding credits for such actions.
<b>Overall TMDL</b>					
2015-5	<b>LTIMP Data Use</b>	TMDL program managers should routinely review annual nutrient concentration data collected by LTIMP and consider observed spikes for potential point source problems.	Apr-15	Bob Coats, Tahoe Environmental Research Center, rccoats@ucdavis.edu, 510-295-4049	<b>Comment Noted.</b> This a low priority given: (1) competing priorities to manage the TMDL Program; and (2) the LTIMP stream monitoring program has been designed in such a manner that controllable and uncontrollable drivers are integrated. Therefore, it would be extremely difficult if not impossible to determine the cause of observed concentration spikes.
2015-6	<b>Nearshore Turbidity</b>	Consider <i>Effects of Motorized Watercraft on Summer Nearshore Turbidity at Lake Tahoe, California-Nevada</i> (Alexander and Wigart 2013) to inform the knowledge base of what effects nearshore turbidity.	Jun-15	Dan Kikkert, El Dorado County, dan.kikkert@edcgov.us	<b>Comment Noted.</b> This reference was reviewed and considered for inclusion in the 2014 Findings and Recommendations Memo.
2014-28	<b>The relationship of FSP mass and particle numbers and field turbidity</b>	Additional relationships should be investigated between streamflow and FSP transport. These relationships, or 'sediment rating curves' are perhaps the best tool for establishing sediment baselines prior to floodplain restoration or BMP implementation, and for assessing the change in fine sediment supply as BMPs and restoration activities are implemented. As sediment supply within a watershed diminishes, suspended sediment concentration at a given streamflow will also diminish.	May-14	David Shaw, Balance Hydrologic and Shay Navarro, TRPA, dshaw@balancehydro.com	<b>Comment being addressed.</b> SNPLMA funded research underway to address this need. Future SOF/PARM will report findings and implications from the relevant study.
2014-24	<b>The relationship of FSP mass and particle numbers and field turbidity</b>	Tahoe Basin researchers have found strong correlations between field turbidity measurements and FSP (both mass and number of particles) in stormwater, streams, and land use data (see 2010-2013 SOF-PARM Finding and Implication #5). However the slope of the relationship can vary depending on the FSP source. The relationship may also be variable over time as sources change. How much does the slope of the relationship vary across sources? Is the variability statistically significant? Information is needed regarding the cost associated with using site specific correlations versus basin-wide relationships already developed and what is the incremental gain in confidence.	Feb-14	Jason Kuchnicki, TMDL Program Manager, NDEP, jkuch@ndep.nv.gov, 775.687.9450 and David Shaw, Balance Hydrologics	<b>Comment being addressed.</b> SNPLMA funded research underway to address this need. Future SOF/PARM will report findings and implications from the relevant study.
2014-23	<b>Parcel BMP verification</b>	Developing and formalizing a condition assessment protocol for parcel level BMPs may be warranted due to the large load reduction benefit for the widespread implementation of them as indicated by PLRM results. Components of formalization are: development of protocol to be applied; guidance (i.e., rules) for application of the condition assessment; tracking and reporting database that links with TIST; reduction in credit values for specific proportions of BMPs that are non-functional.	Jul-13	Jason Kuchnicki, TMDL Program Manager, NDEP, jkuch@ndep.nv.gov, 775.687.9450	<b>Adjustment accomplished.</b> The parcel BMP condition assessment process is described in the Crediting Program Handbook Version 2.0.
2014-22	<b>TMDL Report Clearinghouse</b>	Need a clearinghouse of all TMDL related reports and studies that is kept current with links to access the reports. This is needed to minimize money being spent on similar studies and better utilize the studies and data that exist for the Tahoe TMDL.	May-13	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2046	<b>Comment addressed.</b> To keep TMDL Online Interface streamlined to the pertinent information that is easy to find, stormwater and other TMDL-related studies will not be posted to the Online Interface. Rather, links to studies and reports reviewed for relevance and inclusion will be included in future Findings and Recommendations Reports, when and where available.

#	Subject	Summary of comment (1-3 sentences)	Submittal Date	Stakeholder Information	TMDL Program Manager Response
<b>DRAFT Findings and Recommendations Memo &amp; DRAFT Annual Strategy</b>					
2015-7	DRAFT Findings and Recommendations Memo	The draft 2015 F&R memo qualitatively references "non-substantive findings" but lacks quantitative details. Consider including data, trends, or other details to bolster document findings.	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2039	<b>Comment Addressed.</b> The document was edited to remove the terms substantive and non-substantive as these are subjective terms. Additionally, TMDL Management Agencies try to provide quantitative information to strengthen and support findings and recommendations whenever possible.
2015-8	DRAFT Findings and Recommendations Memo	The draft 2015 F&R memo selectively reports information from the UC Davis State of the Lake Report but ignores other seemingly relevant information. Specifically, the memo lacks information on the relationship between blueness and clarity, doesn't discuss the influence of Cyclotella diatoms on clarity, and fails to discuss deep-lake mixing factors in nutrient loading.	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2040	<b>Comment Addressed.</b> The document was edited to incorporate information related to the influence of Cyclotella due to the algae's influence on clarity. The current relationship between blueness and clarity as well as the lack of deep-mixing effects on lake nutrient concentrations are both interesting information, but not considered by TMDL Program Managers as relevant for inclusion.
2015-9	DRAFT Findings and Recommendations Memo	It is unclear what draft 2015 F&R memo Section C. Overall TMDL Finding E (regarding urban stormwater monitoring) in is attempting to convey or how it is related to TMDL program activities.	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2041	<b>Comment Addressed.</b> Finding C.3 (formerly Finding E in the draft document) has been revised in response to this comment.
2015-10	DRAFT Findings and Recommendations Memo	The draft 2015 F&R memo finding that revised loading estimates do not warrant program change is inadequately supported. Consider adding quantitative specifics.	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2042	<b>Comment Noted.</b> The 21% shift in phosphorous loading from urban to non-urban sources was determined to not warrant program change on the basis that the current TMDL management approach prioritizes fine sediment particles.
2015-11	DRAFT Findings and Recommendations Memo	It is unclear whether the draft 2015 F&R memo considered the Road Operations Effectiveness Testing Project report.	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2043	<b>Comment Noted.</b> The referenced project report was not available prior to production of the draft 2015 F&R Memo and thus was not considered. It will be considered for inclusion in the 2016 memo.
2015-12	DRAFT Findings and Recommendations Memo	The draft 2015 F&R memo doesn't adequately link listed recommendations to specific findings.	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2044	<b>Comment Noted.</b> No new programmatic recommendations are included in the 2015 memo. Recommendations included in the 2015 F&R Memo are carry-overs from the 2014 memo. Recommendations in the 2014 memo include an "Alignment with Findings" description that links the specific findings with the recommendation.
2015-13	DRAFT Findings and Recommendations Memo	It is unclear whether all stakeholder feedback included in the Appendix A Stakeholder Feedback Table (draft 2015 F&R memo)	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2045	<b>Comment Noted and Addressed.</b> All comments submitted were included in the 2015 F&R Memo, except the Dan Kikkert comment submitted on 6/24/15 regarding availability of a 2013 study on watercraft affects on nearshore turbidity. This comment was not originally included in the Stakeholder Feedback Form because the study was reviewed prior to development of the 2014 F&R Memo. However, it has been added to the Stakeholder Feedback Form. In the future, all stakeholder feedback will be included in the Stakeholder Feedback Form for the sake of transparency.
2015-14	DRAFT Findings and Recommendations Memo	The draft 2015 F&R memo lacks specific detail on how the updated PLRM version will influence baseline loads and associated NPDES permits (CA) and Interlocal Agreements (NV)	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2046	<b>Comment Noted.</b> It is not the purpose of the F&R Memo to provide this type of information. This information will be fleshed out in conversations with Urban Implementers and specified in updated permits and agreements.
2015-15	DRAFT Findings and Recommendations Memo	It is premature to link nearshore with Crediting Program prior to attainment of first urban five year milestone achieved. Nearshore should not be linked to jurisdictions load reduction planning efforts until 3rd five-year milestone.	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2047	<b>Comment Noted.</b> At this time, the TMDL Program does not intend on linking nearshore with the Crediting Program. The TMDL Management Agencies believe nearshore improvement is one of many multi-benefit considerations that Urban Implementers should taken into account in the prioritization of load reduction projects and actions.
2015-16	DRAFT Annual Strategy	2016 Annual Strategy "Current Themes" should acknowledge 2016 is the initial year for catchment registration, inspection and award of credits and that implementation tools may need further refinement.	11/13/2015	Kristine R. Klein, Senior Licensed Engineer, Washoe Co., kklein@washoecounty.us, 775-328-2048	<b>Comment Addressed.</b> The final 2016 Annual Strategy has incorporated language that addresses this comment.



#	Subject	Summary of comment (1-3 sentences)	Submittal Date	Stakeholder Information	TMDL Program Manager Response
<b>DRAFT Findings and Recommendations Memo &amp; DRAFT Annual Strategy</b>					
2015-17	DRAFT Findings and Recommendations Memo	Consider adding newly available fiscal cost information to the 2015 F&R Memo.	11/13/2015	Jacques Landy U.S. EPA Lake Tahoe Basin Coordinator (775) 589-5248 landy.jacques@epa.gov	<b>Comment Noted.</b> While new fiscal estimates may drive more cost effective implementation approaches, the updated cost information does not currently impact the direction of established TMDL program policies. The Water Board and NDEP are committed to addressing cost estimates and compliance implications within the NPDES permit and Interlocal Agreement context.
2015-18	DRAFT Findings and Recommendations Memo	How will the LCCP program schedule provided in the draft 2015 F&R memo impact updates to permits, specifically Reports of Waste Discharge and Pollutant Load Reduction Plans? EPA suggests using the annual F&R memo to describe upcoming program activities.	11/13/2015	Jacques Landy U.S. EPA Lake Tahoe Basin Coordinator (775) 589-5248 landy.jacques@epa.gov	<b>Comment Noted.</b> The program implementation schedule remains unchanged. Similarly, Lake Clarity Credit verification and updated permit and interlocal agreement processes are consistent with established timeframes. Please review the existing permit for compliance dates and future submittal requirements.
2015-19	DRAFT Findings and Recommendations Memo	The F&R should identify significant upcoming TMDL related activities and describe how that information will be used to support TMDL implementation.	11/13/2015	Jacques Landy U.S. EPA Lake Tahoe Basin Coordinator (775) 589-5248 landy.jacques@epa.gov	<b>Comment Noted.</b> TMDL Program Managers agree there is value in broadcasting upcoming TMDL program activities to ensure stakeholders are informed. While such information is not well aligned with the Findings and Recommendations memo purpose and structure, those details can be found in the Annual Strategy document.
2015-20	DRAFT Findings and Recommendations Memo	The draft 2015 F&R memo should include additional nearshore status information as reported in the UCD SOTL Report. TMDL program should serve as the mechanism to report nearshore program activities.	11/13/2015	Jacques Landy U.S. EPA Lake Tahoe Basin Coordinator (775) 589-5248 landy.jacques@epa.gov	<b>Comment Noted.</b> Given the lack of established nearshore program stakeholder information distribution processes, TMDL Program Managers agree the TMDL Management System documents can provide an interim solution until such processes are developed. Future documents will consider and, where appropriate, report on nearshore program activities.