

# County of Placer



## Lake Tahoe Pollutant Load Reduction

### Progress Report

September 27, 2013

Prepared for:

**Lahontan Regional Water Quality Control Board**

Prepared by:

**Placer County Department of Public Works**

## **Introduction/ Background**

The California Regional Water Quality Control Board-Lahontan Region (Lahontan) incorporated Total Maximum Daily Load (TMDL) pollutant load reduction requirements into the updated Lake Tahoe Municipal National Pollutant Discharge Elimination System (NPDES) Permit. This permit (Board Order R6T-2011-0101, NPDES Permit Number CAG616001) regulates stormwater discharges from each of the three California Lake Tahoe Basin jurisdictions (El Dorado County, Placer County and the City of South Lake Tahoe).

The municipal separate storm sewer system (MS4) infrastructure in Placer County consists of collection, conveyance, and treatment facilities. Federal rules require operators of MS4 systems to implement programs to control pollution in stormwater runoff. California regulates MS4s through municipal NPDES permits, and for this document, Lahontan Board Order R6T-2011-0101 is referred to as the MS4 permit.

The MS4 permit required the County of Placer (County) to prepare a Pollutant Load Reduction Plan (PLRP) by March 15, 2013 detailing the County's approach for meeting pollutant load reduction requirements promulgated by the TMDL. In summary, the TMDL requires reducing fine sediment (less than 16 microns in size) discharge from the Lake Tahoe Basin portion of Placer County by a minimum of 10 percent (expressed by weight and no. of particles) by September, 2016. Required fine sediment, total phosphorus and total nitrogen load reductions are based upon estimated 2004 baseline load estimates.

The MS4 permit further requires that the County prepare and submit a Pollutant Load Reduction Progress Report by October 1, 2013, describing and quantifying TMDL load reduction actions taken between May 1, 2004 and October 15, 2011. Specifically, permit Section IV.F, *Pollutant Load Reduction Progress*, reads as follows:

*"To demonstrate pollutant load reduction progress, each Permittee shall submit a Progress Report by October 1, 2013. The Progress Report shall include:*

- 1. A list of erosion control and storm water treatment projects the Permittee completed between the May 1, 2004 and October 15, 2011.*
- 2. Pollutant load reduction estimates for all erosion control and storm water projects and any other load reduction actions up to October 15, 2011. The report shall compare the pollutant load estimates for work completed with the pollutant load reduction requirements described in Section IV.B above."*

Permit Section IV.B, as referenced in the above MS4 permit excerpt defines the TMDL load reduction requirements applicable to each jurisdiction regulated under the MS4 permit. For Placer County, the required ten percent fine sediment load reduction equates to 260 Lake Clarity Credits. Such credits are evaluated and measured in accordance with the *Lake Clarity Crediting Program (LCCP) Handbook*, incorporated as Attachment D to the MS4 permit. Permit Section IV.B, *Pollutant Load Reduction Requirements and Water Quality-Based Effluent Limits*, reads as follows:

*“For the first five year milestone, jurisdiction-specific waste load reduction requirements, incorporated into this Permit as average annual particle number- and mass-based effluent limits (Table IV.B.1), are calculated by multiplying the percentage of reduction required by the urban uplands for each pollutant by each jurisdiction’s individual baseline load. Each jurisdiction must reduce fine sediment particle (FSP), total phosphorus (TP), and total nitrogen (TN) loads by 10%, 7%, and 8%, respectively, by September 30, 2016.*

**Table IV.B.1 – Maximum average annual particle number- and mass-based effluent limits for Fine Sediment Particles (FSP) Total Phosphorus (TP) and Total Nitrogen (TN) to meet the first five year TMDL milestone**

<b>Jurisdiction</b>	<b>Baseline FSP (# of particles)</b>	<b>FSP Allowable Load</b>	<b>Baseline TP (kg)</b>	<b>TP Allowable Load</b>	<b>Baseline TN (kg)</b>	<b>TN Allowable Load</b>
El Dorado County	$2.2 \times 10^{19}$	$2.0 \times 10^{19}$	1043	970	4082	3755
Placer County	$2.6 \times 10^{19}$	$2.3 \times 10^{19}$	1111	1033	4635	4264
City of South Lake Tahoe	$1.9 \times 10^{19}$	$1.7 \times 10^{19}$	789	734	3361	3092

*Pollutant load reductions shall be measured in accordance with the processes outlined in the Lake Clarity Crediting Program Handbook (Attachment D). To demonstrate compliance with the average annual fine sediment particle pollutant load reduction requirements outlined in Table IV.B.1, each Permittee must earn and maintain Lake Clarity Credits in accordance with Table IV.B.2 for water year October 1, 2015 to September 30, 2016, and for subsequent water years.*

**Table IV.B.2 – Minimum Lake Clarity Credit Requirements**

<b>Jurisdiction</b>	<b>Min. Lake Clarity Credit Requirement*</b>
El Dorado County	220
Placer County	260
City of South Lake Tahoe	190

*\*The Lake Clarity Crediting Program Handbook defines one (1) Lake Clarity Credit as equal to  $1.0 \times 10^{16}$  fine sediment particles with a diameter less than 16 micrometers”*

**TMDL Load Reduction Estimates**

Placer County's *Lake Tahoe Pollutant Load Reduction Plan*, dated March 15, 2013 and revised May 15, 2013, describes the County's approach to achieving fine sediment, total phosphorus and total nitrogen load reductions required in the MS4 permit. As indicated therein, approximately 33 percent of the required load reduction credits are expected from thirteen water quality improvement projects constructed by Placer County between 2004 (baseline conditions) and 2011 (MS4 permit adoption). Load reduction estimates for these completed projects were initially generated through use of the prescribed Pollutant Load Reduction Model (PLRM) for three of these completed project areas, with results extrapolated to the other listed project areas. The County's Pollutant Load Reduction Plan, *Table 2.1, Completed WQIP Catchment Credit Estimates* (modified to show only 2004-2011 projects), summarizes projects and load reduction estimates for each:

**Table 2.1 – Completed WQIP Catchment Credit Estimates**

Water Quality Improvement Project	Year Completed	Load Reduction Estimates (Pounds/Year)	Lake Clarity Credits
		FSP	
Timberland	2004	551	3
Lake Tahoe Park	2004	804	4
Upper Cutthroat	2005	398	2
Tahoe Pines – Area A	2007	1,195	6
Beaver Street Retrofit	2007	928	5
Dollar Point	2008	3,241	16.2
West Sunnyside Phase I	2008	1,305	7
Tahoe Pines – Area B	2009	43	.25
Tahoe Estates	2009	3,112	16
Lake Forest Meadow	2009-2010	2,184	11
Fox Clean Water Pipe	2010	400	2
Tahoe Pines – Area C	2011	1,704	9
Tahoe City Residential	2011	969	5
<b>Totals:</b>		<b>16,834</b>	<b>86.45</b>
<b>Percentage of Required Credits:</b>		<b>86.45/260</b>	<b>33.3%</b>

Note: 1 Lake Clarity Credit = 200.42 pounds of FSP

**Lake Clarity Credit Implementation Schedule**

The County’s *Lake Tahoe Pollutant Load Reduction Plan, Table 4.1, Catchment Registration Schedule*, sets forth an MS4 permit-term schedule for registration of project area load reduction credits, which includes all projects constructed after 2004. Table 4.1 is shown below, with 2004-2011 completed projects shown in ***bold italics***:

**Table 4.1 – Catchment Registration Schedule**

<b>Catchment Registration Year</b>	<b>Associated Project:</b>
2012	<b><i>Dollar Point</i></b>
	<b><i>Tahoe Estates</i></b>
2013	<b><i>Timberland</i></b>
	<b><i>Upper Cutthroat</i></b>
	<b><i>Beaver Street Retrofit</i></b>
	Brockway
2014	<b><i>West Sunnyside Phase I</i></b>
	<b><i>Tahoe Pines – Area A</i></b>
	<b><i>Tahoe Pines – Area B</i></b>
	<b><i>Tahoe Pines – Area C</i></b>
	<b><i>Fox Clean Water Pipe</i></b>
	<b><i>Lake Forest Meadow</i></b>
2015	<b><i>Tahoe City Residential</i></b>
	<b><i>Lake Tahoe Park</i></b>
	Homewood Phase 1 and 1A
	Lake Forest Highlands
	Snow Creek Restoration
Griff Creek	
2016	Lake Forest Panorama
	West Sunnyside Phase II
	Kings Beach CCIP
	Kings Beach WIP

## **Lake Clarity Credit Implementation Status**

The Lake Clarity Crediting Program appended to the MS4 permit prescribes use of specific tools for modeling TMDL load reductions, assessing BMP and roadway conditions, and for accounting and tracking load reduction credits. These tools were developed independently and within different timeframes. As such, these tools are not completely aligned and lack integration that would facilitate their use by implementers.

Following adoption of the MS4 permit in 2011, the Lahontan Water Board initiated consulting efforts to further improve and integrate these tools, and informed implementers (MS4 permittees) that catchment registration should wait until the improved credit accounting and tracking tool is available. Since this tool is not currently available, the Clarity Credit progress being reported herein is based upon the concept of having modeled load reduction results ready for registration. The table on the following page shows the 2004-2011 project areas/catchments, their schedules for registration, their registration status, phosphorus and nitrogen load reductions, and a comparison of estimated-to-modeled clarity credits.

## 2004-2011 Catchment Registration and Modeled Load Reduction Status

2004-2011 Project/Catchment Area	PLRP Estimated Lake Clarity Credits	Proposed Registration Year	Registration Ready?	TP Avg Annual Reduction (lbs)	% of Required TP Reduction (172 lbs)	TN Avg Annual Reduction (lbs)	% of Required TN Reduction (818 lbs)	PLRM Modeled Lake Clarity Credits	% of Required Credits (260)
Dollar Point	16.2	2012	Yes	13.2	8%	62.6	8%	16.2	6%
Tahoe Estates	16	2012	Yes	12	7%	51.1	6%	16	6%
Timberland	3	2013	No		0%		0%		0%
Upper Cutthroat	2	2013	Yes	7.1	4%	23.9	3%	12.4	5%
Beaver Street Retrofit	5	2013	No		0%		0%		0%
West Sunnyside Phase I	7	2014	No		0%		0%		0%
Tahoe Pines – Area A	6	2014	No		0%		0%		0%
Tahoe Pines – Area B	0.25	2014	No		0%		0%		0%
Tahoe Pines – Area C	9	2014	Yes	4.7	3%	11.9	1%	9	3%
Fox Clean Water Pipe	2	2014	No		0%		0%		0%
Lake Forest Meadow	11	2014	No		0%		0%		0%
Tahoe City Residential	5	2015	No		0%		0%		0%
Lake Tahoe Park	4	2015	No		0%		0%		0%
Totals	<b>86.45</b>			<b>37</b>	<b>22%</b>	<b>149.5</b>	<b>18%</b>	<b>53.6</b>	<b>21%</b>