



## 2016 Annual Stormwater Report

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### Douglas County

**Prepared for:**

Nevada Division of Environmental Protection  
Bureau of Water Quality Planning

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## List of Acronyms

BMP	Best Management Practices
BMP RAM	Best Management Practices Rapid Assessment Methodology
CAP	Credit Accounting Platform
CICU	Commercial, Institutional, Communications, Utilities
ECP	Erosion Control Project
EIP	Environmental Improvement Program
FSP	Fine Sediment Particles
ILA	Interlocal Agreement
LCCP	Lake Clarity Crediting Program
MFR	Multi-family residential
NDEP	Nevada Division of Environmental Protection
O&M	Operations and Maintenance
PLRM	Pollutant Load Reduction Model
PLRP	Pollutant Load Reduction Plan
RAM	Rapid Assessment Methodology
Road RAM	Road Rapid Assessment Methodology
RSWMP	Regional Stormwater Monitoring Program
SFR	Single-family residential
SLRP	Stormwater Load Reduction Plan
SNPLMA	Southern Nevada Public Lands Management Act
SWQIC	Storm Water Quality Improvement Committee
TIST	Tahoe Integrated Stormwater Tool
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
TRPA	Tahoe Regional Planning Agency
TSS	Total Suspended Solids
UPC	Urban Planning Catchment
WQIP	Water Quality Improvement Project
WY	Water Year (October 1 – September 30)

## **1.0 BACKGROUND**

The purpose of this report is to comply with Section IV of the 2016-2021 Interlocal Agreement to Implement the Lake Tahoe Total Maximum Daily Load (ILA), approved by the Douglas County Board of County Commissioners September 15, 2016. This report summarizes Douglas County's load reduction activities undertaken to meet the first five year load reduction milestone and associated credit target of 41 credits established in the ILA. To demonstrate attainment of the 2016 milestone, this report covers registration activities through March 2017. This is justifiable because the accepted registered pollutant controls were both in place and operational prior to the start of the 2016 water year and were demonstrated to be maintained in expected condition.

## **2.0 ACCOMPLISHMENTS SUMMARY**

In order to enhance the consistency of efforts made basin-wide, Douglas County actively participates in the Stormwater Quality Improvement Committee (SWQIC), as well as the three subcommittees that focus on stormwater operations and maintenance: Environmental Improvement Project (EIP), funding strategies, and implementer stormwater monitoring (IMP); Regional Stormwater Monitoring Plan (RSWMP); and the Parcel BMP Working Group.

In order to meet the 2016 milestone of 41 credits, Douglas County has registered the load reduction activities listed in Table 1 (below). At the time of this report, the 2016 milestone of 41 credits has been met. Douglas County has declared a total of 53 credits to date.

In WY2016 Douglas County had successfully completed two parcel best management practices (BMPs) registrations: Pinewild Condominiums (PW01) and Lower Kingsbury neighborhood draining to Edgewood Creek (EWCC). The next registrations that were submitted and approved were N. Benjamin Drive (EWCH/BCC) for road operations, Cave Rock Water Quality Improvement Project (CR02), Lakeridge Water Quality Improvement Project (LR01), Logan Creek Water Quality Improvement Project (LC01), and Oliver Park Water Quality Improvement Project (OP01) for water quality improvement projects, and commercial/SFR on the north side of Kingsbury Grade (EWCC) for parcel BMPs. With these successful registrations, Douglas County has at least one of each BMP type.

These registrations were completed using the newly established baseline load calculations, therefore Douglas County has a sufficient understanding of the revised TMDL Tools and the LCCP revised Handbook in order to continue registering catchments to meet the 2021 milestone of 101 credits. With the current accepted registrations, Douglas County has not only attained but surpassed the 10% load reduction milestone of 41 credits. See Table 1.

Table 1 Summary of Credit Registration Accomplishments

Catchment ID	Description	Pollutant Controls	Year Implemented	Estimated FSP Load Reduction	Credits	Timeline
PW01	Pinewild Condominiums	Parcel BMPs	2004-2016	450	2	6/21/16
EWCH/BCC	N. Benjamin Dr. to Upper Andria Drive	Road Operations	2014	1,574	8	11/3/16
CR02	Cave Rock GID WQIP	Bed Filter	2015	1,342	7	12/19/16
EWCC	Comm./resid. from Ponderosa West to Terrace	Parcel BMPs	2004-2016	908	4	12/19/16
LC01	Logan Creek GID WQIP	Treatment vaults, infiltration basins	2007	478	2	12/22/16
LR01	Lakeridge GID WQIP	Dry basins, treatment vaults	2006	1,813	9	1/19/17
OP01	Oliver Park WQIP	wet basin, treatment vaults	2006	4,259	21	3/10/17
Total				10,824	53	

## 2.1 Credit Declaration

In a typical year, credits are declared by January 15 and awarded by February 15 through the Credit Accounting Platform (CAP). Due to system issues, credit declaration was unable to be submitted through the CAP. By conducting Road RAM on the County's one registered road network (EWCH/BCC), scores were sufficient to retain full credit. Inspections and BMP RAM on the registered water quality improvement projects also demonstrated that they were in functioning condition. Therefore, credits are being declared through this report.

Table 2 Jurisdiction-wide credits expected, declared

Water Year	Annual Credit Target	2016 Five Year Milestone	Lake Clarity Credits Expected	Lake Clarity Credits Declared
Oct 2015- Sept 2016	41	41	42	53

The following registrations were submitted and subsequently approved by the time of development of this report for road operations, water quality improvement projects, and parcel BMP implementation.

Table 3 Credit potential declared due to road operations and BMP implementation

Catchment ID	Primary Water Quality Improvement Actions	Declaration Date	Lake Clarity Credits Expected	Lake Clarity Credits Declared
EWCH/BCC	Road Operations and Maintenance	1/15/2017	8	8
PW01	Parcel BMPs	1/15/2017	2	2
CR02	Cave Rock WQIP	1/15/2017	7	7
EWCC	Parcel BMPs	1/15/2017	4	4
LC01	Logan Creek WQIP	1/15/2017	2	2
LR01	Lakeridge WQIP	1/15/2017	9	9
OP01	Oliver Park WQIP	1/15/2017	21	21

## 2.2 Inspection Results

Because the online system was not functioning to declare credits at the time of this report, the table below outlines the RAM inspection results to demonstrate the systems are functioning and have been maintained. Please note, RAM scores are only determined for BMPs that are considered 'essential' and 'key' water quality improvements. Essential is defined as the potential to receive 10+ credits, and key is defined as the potential to receive 3-9 credits. Specific inspection results for each BMP are documented in the online Stormwater Tools Treatment BMPs page. In 2015 TRPA re-issued the certificates for the CICU parcels within the EWCC catchment. Douglas County will coordinate with TRPA annually to evaluate BMP maintenance within registered catchments to update certificates as needed.

Table 4 Summary Table of BMP RAM and Road RAM Inspections

Treatment BMPs	BMP Name	Catchment ID	Benchmark	Threshold	Annual Score
Road Operations	N. Benjamin/ Andria	EWCH/BCC	3.00	+/-0.5	3.3
Bed Filter	DCBF0001	CR02	0.5 in/hr.	60% decline (0.2 in/hr.)	5.00
Dry Basin	DCDB0005	LR01	0.1 in/hr., vegetation cover 0%, material accumulation 0 ft. depth	20% decline (0.08 in/hr.), vegetation cover 20%, Material accumulation 30% decline (0.45 ft.)	5.00
Wet Basin	DCWB0001	OP01	vegetation cover 75% Material accumulation 1 ft. depth	vegetation cover +/- 15% Material accumulation 50% decline (0.5 ft.)	5.00

### 3.0 STORMWATER LOAD REDUCTION PLAN

The Interlocal Agreement between NDEP and Douglas County outlines the annual targets and 5-year milestones necessary to meet TMDL specified load reductions. The interim targets are to achieve 82 credits by 2019 and 101 credits by 2021. As registrations are approved by NDEP, monitoring will occur annually and maintenance will be performed when thresholds are reached as outlined in each registration memo.

#### 3.1 Description and Timeline of Controls to be Implemented

In order to work towards the 2021 milestone, Douglas County intends to register two additional catchments in WY2017: EWCA for parcel BMPs and LV01 Lake Village HOA parcel BMPs and water quality improvement project. Douglas County will continue to coordinate with KGID on road operations. Additional road segments will be registered to meet the 2021 milestone, and as segments are added, additional Road RAM data will be collected in those respective areas. Road segments that are being considered at this time are within the Kingsbury GID jurisdiction catchments such as EWCG, EWCF and EWCE. Grant funding is being sought for design and construction of the lower Kahle basin, which is the next water quality improvement project to be installed to meet the 2026 milestone. The credit potential of this project is about 50 total, to be divided between Douglas County and NDOT.

#### 3.2 Progress toward 2021 Milestone (ILA Table 2)

The County intends to continue on its current course, as identified in this report, to meet the 2021 milestone. Actions listed in Section 3.1 contribute toward meeting the 2021 milestone. Douglas County plans to register the minimum number of load reduction activities necessary to meet the cumulative target of 101 credits for the 2021 milestone. With the existing Table 1 registrations, our obligation will have been met through WY 2018, if all inspections and maintenance are conducted annually. WY milestones are outlined in Table 5 below, taken from the Interlocal Agreement 2016-2021 between Douglas County and NDEP. While Douglas County plans to complete the additional registrations described above, no changes are proposed at this time to the existing annual credit targets and five-year milestone schedule contained in the ILA (Table 5).

*Table 5 Progress toward 2026 Milestone per Interlocal Agreement*

Water Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>FSP Load Reduction</b>	10%	10%	10%	17%	17%	21%	21%	21%	21%	21%	34%
<b>Credit Milestone Target<sup>1</sup></b>	41	41	41	82	82	101	101	101	101	101	163

<sup>1</sup> Credit Targets/Milestones for 2016-2018 are based on a Jurisdiction Baseline Load estimate conducted in 2013, while Credit Targets/Milestones for years 2019-2026 are based on revised Jurisdiction Baseline Load estimates produced in 2016.

#### 4.0 FISCAL ANALYSIS

The following table is an estimate of the costs to administer the County’s Tahoe stormwater program. The Budget contains estimated total and annualized expenditures necessary to operate and maintain implemented and registered pollutant controls, as well as to design, construct, implement, operate, register, inspect and maintain pollutant controls contained in the five year SLRP. The table also identifies anticipated or targeted funding sources and/or finance mechanisms to cover the costs associated with the budget estimates.

#### 4.1 Budget (total and annual expenditures to implement, operate, and maintain)

Table 6 Douglas County TMDL Implementation Budget

Douglas County Stormwater Funding Partnership Financial Outlook				
Stormwater Program Category	Expenditures During FY2015	Annual Budget for FY2016	Estimated Actual Budget for 2 <sup>nd</sup> ILA (FY16-FY21)	Funding Sources for Next ILA Term (FY16-FY21)
Program Management: Catchment Registration and Annual declaration of credits – SLRP development, PLRM, and CAP. Includes inspections (Road RAM, BMP RAM)	\$30,000	\$30,000	\$150,000	Douglas County General Fund for Stormwater Program Manager staff time
Infrastructure Maintenance: Road Operations (Sanding/Deicing, Sweeping)	KGID <sup>2</sup>			KGID, Potential Stormwater Utility
Infrastructure Maintenance: Treatment BMPs	\$45,000	\$45,000	\$225,000	Potential Stormwater Utility, TRPA WQ Mitigation Funds
Stormwater Monitoring (RSWMP, IMP)	\$22,000	\$22,000	\$176,000 <sup>3</sup>	Potential Stormwater Utility, General Fund
Capital	\$100,000 (Burke Creek)	\$0	\$1,200,000 (Lower Kahle Basin) <sup>4</sup>	State & federal WQ Grants, TRPA WQ Mitigation Funds
Total	\$197,000	\$97,000	\$1,751,000	
Projected 5-yr Need to meet TMDL Program Requirements for ILA term FY16-FY21			\$1,654,000	

<sup>2</sup> KGID was not able to break out costs associated with road operations on the registered road segment at this time.

<sup>3</sup> SNPLMA grant funding covered Stormwater Monitoring for FY15. SNPLMA funding covered half of the expense for FY16. For FY17 and beyond, 100% of the monitoring will need to be paid by each jurisdiction.

<sup>4</sup> \$1,200,000 for the lower Kahle Basin will be partially financed through ILA term FY16-FY21 and partially financed through the following ILA term.



## **4.2 Finance Plan (anticipated and targeted funding sources)**

At the time of the Annual Stormwater Report submittal, Douglas County does not have a sustainable funding source to implement the TMDL. Douglas County dedicated General Funds to the Stormwater Program Manager position in 2015 and will continue to do so into the foreseeable future. However, there is not a line item in the general budget for infrastructure maintenance, stormwater monitoring, or capital project design and implementation.

Douglas County has been pursuing implementation of a County-wide Stormwater Utility, which would provide funding for infrastructure maintenance as well as grant funding match for capital projects. It is unknown at this time if that will end up passing and become a viable funding source. Douglas County is in the process of determining the average fee and square footage of a residential unit, and then will bring additional information to the Towns and GIDs for further discussion. This issue will be voted on by the time of next year's annual stormwater report, and will be reported on at that time.

Douglas County utilizes the TRPA Water Quality Mitigation funds as match for capital projects (such as Burke Creek) and infrastructure maintenance, but it will not be sufficient as additional maintenance is required with each new BMP registration. Douglas County is always searching for grant funding opportunities, such as the Lake Tahoe Restoration Act (coming in the future), USFS SNPMLA funding, Nevada Division of State Lands funding, and NDEP's 319(h) program.

## **5.0 BARRIERS**

There are three potential barriers for being successful with the Lake Clarity Program as it is designed today.

1. As stated in Section 4.2 Finance Plan, Douglas County does not at this time have a sustainable funding source for maintenance of registered water quality improvement projects, monitoring, or design and construction of future projects. It is currently unknown what the funding mechanism will be for continued implementation of the TMDL in Douglas County, which continues to be the largest barrier. Douglas County, as stated above in Section 4.2, is investigating the viability of operations and maintenance funding through a stormwater utility.
2. The infancy of the Crediting Program has seen programmatic changes driven by the need to gain user acceptance through improved efficiency of tools. Changes to the modeling and reporting tools contributed to delays in Douglas County's registrations. Douglas County does not see this as a barrier, but it is unknown what changes may occur in the future. Significant future changes to tools or policies could impact the County's ability to attain targets or milestones. We request that NDEP and Lahontan take this into account when considering future modifications to the Crediting Program.
3. It is furthermore recognized that due to the changes in the tools and program, the review process has taken longer for both Douglas County staff and NDEP staff as we

become familiar with the revised tools and process. It is the hope of Douglas County that since the first few registrations have been completed and awarded, these review periods for both Douglas County and NDEP will be drastically reduced.

## 6.0 BASELINE DISCREPENCIES

The baseline load estimate developed in the 2016 Baseline Report is refined with each credit registration. During the registration process, refinements will be made to the PLRM baseline inputs to better reflect baseline conditions. These changes affect Douglas County’s total baseline load. Table 7 below tracks changes in baseline load for all approved registrations to date.

*Table 7 Baseline Discrepancies*

Registration Name	2016 Baseline Report Estimated FSP load (lbs/yr)	Registration Baseline Refined FSP load (lbs/yr)	Baseline Difference (lbs/yr)
<b>PW01</b>	635	460	-175
<b>EWCH/BCC</b>	9600	13,100	+3500
<b>CR02</b>	1661	1598	-63
<b>EWCC</b>	5542	8887	+3345
<b>LC01</b>	497	799	+302
<b>LR02</b>	1790	2099	+309
<b>OP01</b>	3641	6061	+2420
<b>Total</b>	23,366	33,004	+9638

The difference between the estimated baseline load and the refined baseline load was 9,638 lbs/year. While this represents a 34% difference between the initial baseline load estimates for the 2016 milestone, it represents only about 10% of the 2016 revised jurisdictional baseline load of 96,000 lbs/year.

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