
RECOMMENDATIONS MEMORANDUM & PROJECT REPORT

CREDITING PROGRAM SUPPORT SERVICES

Prepared by
Environmental Incentives, LLC

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INTERNAL AGENCY DOCUMENT



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I. SUMMARY

The Lake Clarity Crediting Program (Crediting Program) motivates effective action to improve Lake Tahoe clarity by tracking pollutant load reductions and enabling urban jurisdictions flexibility to most efficiently meet load reduction targets. The Crediting Program is systematically improved through a structured decision process to ensure 1) operational efficiencies reduce administrative costs, and 2) new scientific information enables jurisdictions to maximize the load reduction achieved at least possible cost. The decision process is capped with an Executive Decision Meeting where action is taken.

This summary presents recommendations for improving the Crediting Program, divided into two categories: those that require an executive-level discussion and consent items that are not expected to require executive engagement. It also presents a preview of substantial topics that are anticipated to come to executives' attention over the next year.

A Tahoe Total Maximum Daily Load (TMDL) executive action meeting held on September 8, 2011 resulted in three actions based on the recommendations presented. Additional context for these decisions is provided in the following section and Executive Action Meeting Report 2011.¹

- I. The executive action process will use a recommendation briefing and a public process with consensus expected between Lahontan and NDEP executives.
- II. The TMDL baseline cutoff date was not changed, however urban jurisdictions can petition to have projects excluded from baseline on a case-by-case basis.
- III. The Crediting Program Handbook v1.0 was conceptually adopted and has since been incorporated into agency policy and CA permits.

Key Terms

Crediting Program Handbook (Handbook) – The document that defines the Lake Clarity Crediting Program and protocols for calculating load reductions. Many of the recommendations in this memo are related to changes in the technical guidance section of the Handbook.

Catchment Credit Schedule (CCS) – The form and related technical guidance which jurisdictions use to document calculations and establish performance standards for catchments generating load reductions.

RECOMMENDATIONS FOR DISCUSSION

I. DEFINE EXECUTIVE DECISION PROCESS

Step 3.9 in the Handbook on page 3-12 describes the executive decision process. This recommendation proposes to provide clarifying detail.

Recommendation

- **Decision Process:** Decisions are by consensus of the program partner agency executives
- **Program Partners:** Water Board, NDEP
- **Program Advisors:** US EPA, TRPA and urban jurisdictions
- **Forum:** Annual meeting of program partners and program advisors with all parties expected to review program improvement recommendations and communicate major issues or changes in advance of meeting

¹ Environmental Incentives 2011. Crediting Program Executive Action Meeting Report 2011. <https://environmentalincentives.centraldesktop.com/home/viewfile?guid=144324025366251D0CF25591C2105EDC4F6DB74C6&id=14769719>.

Rationale

This decision process is structured to provide a streamlined and nimble process that will not overload staff with excessive effort but will provide executives the context needed to make decisions that are informed by key stakeholders. This decision process will enable the Crediting Program to smoothly incorporate new scientific findings, program performance information and stakeholder input to enhance the viability of the program over the Lake Tahoe TMDL implementation period.

Issues to Address

- TRPA inclusion as a program partner rather than a program advisor may be considered. This is not recommended because technical capability and regulatory authority are concentrated with Water Board and NDEP, the EPA designates at each State. The Water Board and NDEP are mission-focused on water quality, maintain responsibility for enforcement of the Clean Water Act, and are the primary motivators for jurisdictions to achieve load reduction targets.
- Jurisdictions may wish to participate as program advisors during the executive decision process. These organizations are engaged deeply in the Crediting Program and are often the source of program improvement recommendations. They are also consulted formally in a stakeholder meeting during development of the recommendations memo. Participation in the executive decision process will increase the difficulty for regulatory entity to make decisions in the timeframes necessary to efficiently maintain the Crediting Program. If the collaborative benefits of including regulated entities outweigh the costs in slower decision making; a representative of the regulated entities could be designated as a program advisor.

II. ADJUST BASELINE CUTOFF DATE

The City of South Lake Tahoe (CSLT) submitted an official Program Improvement Recommendation and compelling backup documentation to justify a change to the cutoff date for projects. This cutoff date is important to CSLT and other jurisdictions because projects completed before this date are included in the TMDL baseline and receive substantially less credit than those that are completed after the cutoff date.

Recommendation

- **Adjust baseline cutoff date** from October 2004 to May 1, 2004 in all sections of the Handbook.² Sections include: Chapter 0, Chapter 1, and CCS Technical Guidance & Instructions: Section E.

Rationale

CSLT reviewed rainfall and runoff data and found that very little stormwater flowed through projects built during the construction season of 2004. TMDL staff concludes that it is not necessary to include the effects of this runoff in the baseline loading condition.

This adjustment will demonstrate regulators' desire to work with jurisdictions by making a change that helps jurisdictions get the most possible credit for their actions. This demonstration comes at little cost to the Crediting Program because it impacts only a few projects built on the cusp of the baseline.

A cutoff date of May 1, 2004 is appropriate because it is often uncertain if a project is completed exactly by the October 15 grading deadline. The lack of certainty comes from (1) deadline waivers or penalties paid for late project closure and (2) need for administrative time to finish billing and close contracts. Typically no construction occurs during the winter (October-April) and this time can function as a grace period for tying up loose ends on projects that may have been completed on the cusp of the baseline period.

² All references to Handbook pages are to version 0.99. Pagination is expected to shift in version 1.0.

III. ADOPT HANDBOOK WITH ADJUSTMENTS

After reviewing all recommendations including consent items, executives can officially adopt the Handbook for use with Memoranda of Agreement and stormwater permits.

Recommendation

- **Adopt Handbook v1.0** based on recommended changes to previously reviewed version 0.99. This adoption will be subject to review of the final document via email in late September 2011.

Rationale

Adjustments to the Handbook are focused on clarity and usability enhancements based on the experience of urban jurisdictions which have pilot tested the program over the last 18 months. Major concepts in version 0.99, such as use of models to estimate expected loading and use of condition assessment tools to award ongoing credit are not changing.

CONSENT ITEMS

The following recommendations should be reviewed by executives but do not require discussion at the executive decision meeting unless called out for discussion by executives.

A) STORMWATER RUN ON GUIDANCE

Expand the technical guidance in Section B of the CCS Technical Guidance & Instructions on page TT-14 of the Handbook for dealing with stormwater from other jurisdictions that runs on to a registered catchment. This guidance will explain a well-thought-out approach to delineate the catchment, model runoff and distribute credit.

Rationale: Most jurisdictions have asked for this guidance so that they can use best practices and minimize time spent recreating an approach.

B) RUNOFF VOLUME TRACKING

Add runoff volume to CCS Section F as a parameter to track.

Rationale: This change focuses implementers on reducing this aspect of the pollutants and is consistent with the Stormwater Quality Improvement Committee (SWQIC) preferred design approach. This parameter is already calculated by the Pollutant Load Reduction Model (PLRM) and would require a negligible amount of extra time to record.

Additional Considerations: Until the Accounting & Tracking Tool is updated, this parameter will only be recorded in the CCS. A tool integration effort is currently underway and should be able to incorporate the runoff volume parameter by the end of 2012.

C) CATCHMENT CONNECTIVITY CONSISTENCY

Provide additional guidance to increase consistency and reduce uncertainty among jurisdictions in estimates of catchment connectivity to surface waters. This addition is recommended for Section D of the CCS Technical Guidance & Instructions on page TT-26 of the Handbook.

Rationale: Catchment connectivity identifies the fraction of loading leaving a catchment, and is modeled in PLRM, that is expected reach surface waters and the lake. This guidance has been requested by some of the jurisdictions. The proposed approach is focused on simply binning similar catchments, but still allows jurisdictions some freedom to select the numeric connectivity percentage within the bins. Jurisdictions

who feel the guidance is not helpful can select a different connectivity as long as they take the time to provide a clear rationale for their choice.

Additional Considerations: The topic of jurisdictional baseline calculations is under some debate by jurisdictions; however the targeted nature of this change to the Handbook minimizes the controversy related to this aspect of connectivity. Urban jurisdictions which define more technically rigorous approaches will be allowed to use their approach provided that they provide documentation and show calculations and assumptions in the CCS Memo.

D) CATCHMENT DISCONNECTION

Make changes in the CCS to allow changes in catchment connectivity between Baseline and Expected conditions of a catchment. These changes are recommended for Chapter 1, page 1-4 and Sections D & E of the CCS Technical Guidance & Instructions on page TT-26 and 29.

Rationale: This change focuses jurisdictions on a strategy to hydrologically disconnect catchments, increasing infiltration that may occur between the outlet of a catchment and surface waters. This strategy shows potential for substantial load reduction.

Additional Considerations: This change cannot be quantified by the standard tool for load calculations (PLRM), so there will be less consistency among jurisdictions in the estimated benefit of this strategy.

E) STANDARD TOOL ISSUES

Add a “known issues” text box to the technical guidance for each standard stormwater tool. For example: the BMP Rapid Assessment Methodology (RAM) database crashes catastrophically when saved on a network drive and then moved to a new location. Recommended Handbook locations for these changes are:

BMP RAM - Appendix C, page C-4

Road RAM – Appendix C, page C-7

PLRM – CCS Technical Guidance & Instructions, page TT-26

Rationale: Informs users of potentially time-consuming issues and reduces possible frustration.

Additional Considerations: Focuses users on the standard tools but may reduce confidence in them unnecessarily. Will require future adjustments to the Handbook as the issues are corrected.

F) VERIFICATION CHECKLIST

Add an additional template to the Handbook that helps regulators review and verify CCS forms effectively and consistently. This addition is recommended for the Technical Guidance & Instructions after page TT-39. This addition will reduce use of the Issue Resolution Punchlist by reserving it for intractable issues that cannot be worked out informally.

Rationale: The verification checklist significantly enhances review quality of submitted CCS forms and reduces staff time needed for review. The verification checklist can help jurisdictions understand many of the details upon which their submissions will be judged.

Additional Considerations: Increases the number of forms for users to understand.

G) LOAD REDUCTION ELIGIBILITY CLARIFICATION

A set of findings from stream restoration research and policy discussions leads to recommendations to clarify the load reduction eligibility from stream restoration and other innovative practices that provide load reductions additional to the TMDL implementation plan. These recommendations include:

- 1) Add the following policy guidance to Chapter 0, page 0-5.
All pollutant load reductions from urban areas are eligible to be considered for meeting Lake Clarity Credit targets in stormwater permits and memoranda of agreement. This includes any urban stormwater load reductions resulting from improving stream environment zones that result in increased filtration and pollutant capture of stormwater runoff.
- 2) Add the following statement to the CCS Technical Guidance & Instructions Section C, pages TT-17 & 24.

All load reductions achieved in addition to those identified in the Lake Tahoe TMDL Implementation Plan and supported by a rigorous load reduction estimate may be considered to contribute to an urban jurisdiction's Lake Clarity Credits target. Load reductions resulting from stream restoration outside of the Upper Truckee River, Blackwood Creek or Ward Creek may be considered. Similarly, pollutant sinks not directly linked to a pollutant source in the TMDL may be considered, such as load reductions from increasing floodplain deposition of sediments. However, non-urban load reductions identified in the Implementation Plan of the Lake Tahoe TMDL may not be considered to contribute to an urban load reduction target, because they are already accounted for in the TMDL Implementation Plan.

All implementers are encouraged to innovate and develop previously unexpected pollutant control strategies to cost effectively reduce pollutant loading and restore lake clarity. When urban jurisdictions identify effective non-urban load reduction opportunities that were not identified in the TMDL, they should discuss the opportunities with regulators to determine if the opportunities may be eligible to generate credits. For eligible load reduction opportunities the urban jurisdiction and regulator will determine acceptable methods to develop load reduction estimates, document expected conditions and assess conditions over time to determine ongoing performance. Depending on the circumstances, it may not be possible to determine an acceptable estimation method, or equivalency and uncertainty ratios may be applied that will provide assurances that the environmental benefit for non-urban pollutant controls are at least as beneficial to lake clarity as those achieved from urban stormwater reductions.

When a certain type of pollutant control becomes widely implemented, regulators and implementers will develop standard methods to estimate load reductions, document expected conditions and assess conditions over time. Once accepted, these standard methods will be adopted through the Lake Clarity Crediting Program's Program Improvement Process.

Rationale: This recommendation addresses findings that confusion exists about the regulatory classification of stream zone improvements and their relationship to urban load reductions. It also provides incentive for all Crediting Program participants to discover innovative ways to reduce pollutant loads to Lake Tahoe.

Additional Considerations: Uncertainty surrounding the amount of load reduction will be higher for innovative approaches until standard estimation methods and tools become available. This consideration can be addressed through the use of uncertainty ratios until standard methods are developed.

H) OBSERVATION-PARAMETER CROSSWALK

Provide a crosswalk between condition assessment observations in the BMP RAM and PLRM parameters that model expected conditions. This addition is recommended for Section C of the CCS Technical Guidance & Instructions after page TT-20.

Rationale: This product will substantially clarify the critical linkage between expected conditions modeled in PLRM and actual conditions assessed with the RAMs. Jurisdictions have expressed desires for this additional guidance.

Additional Considerations: Many of the linkages are not direct and technically rigorous at this time. For instance the Constant Head Permeameter measurements of infiltration rate in the BMP RAM do not provide comparable information to the infiltration rate field for BMPs in PLRM. SNPLMA-funded research is currently underway to provide scientific guidance on this issue and is expected to inform future improvements.

I) ROAD RAM INTEGRATION

Update Handbook guidance to reflect Road RAM concepts, for instance the Road Group concept will be converted to the Road Class concept. The Handbook was completed about a year before Road RAM and several concepts have evolved substantially. These changes are recommended for Section C of the CCS Technical Guidance & Instructions on page TT-21 and Appendix C: Credit Award Method, page C-7.

Rationale: Misalignment between the PLRM and Road RAM are a source of substantial confusion among jurisdictions that have learned how to use the Crediting Program. This Handbook update will synchronize terminology and concepts.

Additional Considerations: the design of the PLRM was completed before Road RAM was complete and lacks certain features that would facilitate comparison of actual conditions to expected conditions. For example, there is no single water quality rating for Road Groups and PLRM uses an activity-based system for predicting runoff pollutant concentration. This update to the Handbook will make several changes, but will focus on describing the relationship between PLRM maintenance activity -> pollutant concentration curve and the corresponding Road RAM pollutant concentration curve -> RAM score. Changes to PLRM are necessary in the future and are not possible through the Support Services contract.

J) LOAD MODELING METHODOLOGY

Update Handbook technical guidance regarding when to use the Private Property BMP versus Treatment BMP methodology to calculate load reductions in PLRM. This change is recommended for Section D of the CCS Technical Guidance & Instructions, page TT-27.

Rationale: Jurisdictions are free to use the methodology that best suits their needs, but there may be strategic choices that can maximize credit. This guidance will help all jurisdictions realize these choices and level the playing field used by the Crediting Program.

K) BASIC EDITORIAL ADJUSTMENTS

Make basic usability enhancements and editorial clarifications throughout the Handbook and CCS. Staff and the consultant team are currently

- a. Changing order of Inspection Summary and Maintenance Summary
- b. Changing units of pollutants to match PLRM – saves conversion effort and errors; can be converted to TMDL (metric) units en mass at a later time if necessary
- c. Changing order of CCS pollutant fields to match PLRM output order
- d. Aligning Private Property BMP section of CCS to match with PLRM inputs and outputs – reduces effort and comprehension issues with users
- e. Making minor text edits – punctuation, word choice and layout that do not substantively change Crediting Program or TMDL concepts

ANTICIPATED FUTURE TOPICS & DECISIONS

Executives should be aware of several topics that are actively being discussed and may require a decision during one of 2-3 executive interactions anticipated during 2012. These topics should be discussed with staff, but are not expected to be discussed in the September 2011 executive decision meeting.

JURISDICTION-WIDE CREDITING

Allow jurisdictions to earn Credits from activities in areas outside of registered catchments. This topic has been brought up by several jurisdictions in regard to their road maintenance activities.

Rationale: A policy allowing jurisdiction-wide crediting would reduce administrative overhead and create a practical alternative to registering every catchment before receiving Credits for pollutant controls that are acknowledged to produce substantial load reductions (e.g. abrasive management and sweeping). This desire can be satisfied through use of a special CCS that includes the entire jurisdiction.

Lake Clarity Credits (Credits) – One credit is equivalent to 1×10^{14} particles of <16 micron fine sediment, or roughly 200 pounds. Credits are generated by implementing pollutant controls such as effective operation and maintenance of roads, stormwater treatment and policies. Credits are awarded on an annual basis based on evidence that pollutant controls are operating at or near performance expectations.

Additional Considerations: This complicates program by necessitating a special form and requiring that jurisdictions subtract jurisdiction-wide load reductions from those calculated when new catchments are registered.

CREDITING NON-URBAN SOURCES

Staff and interest groups have raised the topic of giving credit for non-urban source categories

Rationale: Any bonafide load reduction is valuable for enhancing lake clarity. The infrastructure of the Crediting Program does track estimated Load Reductions. The TMDL Management System project is developing template crediting protocols for other source categories in 2012-2013.

Additional Considerations: The Crediting Program is currently focused on urban sources because (1) they are the largest portion of the load, (2) there will be mechanisms in place to enforce Credit requirements and (3) building a focused program will allow major issues to be resolved before complications arise due to additional source categories.

TMDL MANAGEMENT SYSTEM & TOOL INTEGRATION PROJECT

Many enhancements to the Crediting Program are expected through two efforts that have been recently funded. The TMDL Management System project will define the critical processes necessary to sustain the TMDL over time and produce the first set of key products, including

- a. **TMDL Performance Report**
- b. **Public Reporting Platform**
- c. **Synthesis of Findings**
- d. **Stakeholder participation process**
- e. **Lists of operational improvements and areas for investigation**

The Tool Integration Project will connect and streamline the technology tools that manage information for the TMDL and Crediting Program. The major products that come from these efforts are expected to strategically complete program needs and several will be reviewed by the executives.

II. INTRODUCTION & BACKGROUND

The Lake Clarity Crediting Program (Crediting Program) motivates effective action to improve Lake Tahoe clarity by tracking pollutant load reductions and enabling urban jurisdictions flexibility to most efficiently meet load reduction targets. The Crediting Program is systematically improved through a structured recommendation and decision making process to ensure 1) operational efficiencies reduce administrative costs, and 2) new scientific information enables jurisdictions to maximize the load reduction achieved at least possible cost.

SUPPORT SERVICES PROJECT

The Crediting Program Support Services (Support Services) project enabled improvement of the Crediting Program by supporting implementation and refinement through a beta-testing process. The primary regulating agencies – the Nevada Division of Environmental Protection (NDEP) and Lahontan Regional Water Quality Control Board (Water Board or Lahontan) – worked with local jurisdictions and transportation agencies in a non-regulatory atmosphere in order to implement and test the protocols, tools and methods outlined in the beta version of the Crediting Program Handbook. Processes of the Crediting Program that were tested include: (1) selection and inventory of a test catchment, (2) estimation of potential load reductions under baseline and expected conditions, and (3) verification and registration of load reductions.

The Support Services project was capped with an Executive Decision Meeting where action was taken, followed by production of a revised Crediting Program Handbook that will be used to guide the kickoff of the Crediting Program.

DOCUMENT CONTEXT

This document is an internal product, designed to be used primarily by regulatory agency staff. It is intended to serve as a long-term reference that will inform regulatory agency project managers and developers of the Crediting Program Handbook (Handbook) of (1) actions that took place during the project and (2) feedback received on the Crediting Program and TMDL-related tools.

DOCUMENT STRUCTURE

Throughout this project, the team has developed a series of “Best Practice” or “Additional Guidance” memos based on understanding gained while aiding jurisdictions in completing Crediting Program products. This document is a collection of the findings from those memos including issues addressed, lessons learned, and recommendations surrounding the following topics

- Catchment Selection & Delineation
- Catchment Inventory
- Catchment Credit Schedule
- PLRM Load Estimation Tool
- Catchment Verification & Registration

Many of the recommendations capture changes that were made between version 0.99 and version 1.0 of the Handbook – the primary product of the Crediting Program Support Services project. Recommendations made throughout the document are captured in the Summary section which was presented to TMDL executives as a separate recommendations memo to support decision making.

The appendices include jurisdictions’ catchment credit schedules, a tabular summary of recommendations, formal program improvement recommendations from jurisdictions and a summary of assistance provided directly to jurisdictions.

The Recommendations Summary Table, included in Appendix C and used throughout this document, includes specific change recommendations, the document or tool that the change recommendation is referencing, and several rating categories described in the table below.

Summary Rating Table

Criteria	Rating	Narrative Justification
Importance	5	If the change is not implemented, it will be a substantial hindrance to the adoption and eventual success of the Crediting Program.
	3	The change will lead to a substantial increase to participant satisfaction with the Crediting Program.
	1	The change would be nice to have, but is not influential on the overall success of the Crediting Program.
Anticipated Effort	5	Implementing the change will require multiple months of effort.
	3	Implementing the change will require approximately one week of effort.
	1	Implementing the change will require approximately one day of effort.
Recommendation Status	C	Complete - The recommendation was completed as part of the Support Services project.
	F	Funded – The recommendation is planned within the scope of a currently funded project.
	O	Outstanding – The recommendation is still an outstanding need to be resolved.

III. CATCHMENT SELECTION & DELINEATION

Crediting Program Support Services (CPSS) participants selected one test catchment to use as a real-life, hands-on learning scenario for the duration of the project. During the early months of 2010, participants worked with the project team to identify catchments that would give each jurisdiction an opportunity to effectively apply the protocols and processes of the Crediting Program within a catchment in their respective jurisdictions. The project team worked to ensure that a variety of catchments (size, land use, connectivity, pollutant control strategy, etc.) were used so as to provide an assortment of catchments to truly test the guidance and processes defined by the Handbook.

EXISTING GUIDANCE

- Crediting Program Handbook Step 1.1.1 (pg. 1-4)
- CCS Technical Guidance & Instructions (TT 14-17)
- Example Products: Handbook Appendix A, Attachment 3: Catchment Delineation & Outfalls Map

ISSUES ADDRESSED & LESSONS LEARNED

CATCHMENT VARIATION & USER TYPES

Relevance: Crediting Program
Context: Public works jurisdictions vs. transportation jurisdictions

Recommended Action

Crediting Program Handbook Revision: Retain the common name “urban jurisdiction” but explain that this term encompasses two jurisdictions: public works and transportation entities.

Lessons Learned & Best Practices

Traditional definition of “urban jurisdiction” has included county (e.g. Douglas County), city (e.g. City of South Lake Tahoe) and transportation (e.g. NDOT) entities. For purposes of defining catchments for the Crediting Program, however, it is evident that counties and cities will define more traditionally shaped catchments that adhere to hydrologic boundaries whereas transportation jurisdictions commonly define linear catchments. By recognizing this distinction, it helps these two different types of jurisdictions delineate catchments that are of reasonable size and designation while reducing confusion regarding right of way and hydrologic connectivity.

Products

The Project Team developed guidance that expanded the definition of an urban catchment to accommodate catchments that intersect other catchments and/or are not directly connected to a surface water body; primarily, this addressed the unique linear catchments generally used by road jurisdictions.

[Considerations & Process for Selecting Test Catchments](#) (1/28/10)

[Additional Considerations for Catchment Delineation](#) (4/2/10)

CATCHMENT SIZE

Relevance: PLRM, Crediting Program

Context: Jurisdictions are provided no specific limitations (max/min) for catchment area

Recommended Action

Approve existing guidance: Users should consult the 1) PLRM guidance on catchment size (10-100 acres), 2) the minimum investment of resources required to develop a catchment credit schedule, and 3) the Crediting Program’s high degree of flexibility (and the Project Team’s resulting emphasis on “grouping” or “lumping” similar topics to increase efficiency). See also “sub-catchments in PLRM” in the guidance developed.

Lessons Learned & Best Practices

Some jurisdictions wish to register large catchments (+100 acres) while it is more practical for others to register smaller catchments (~10 acres). The Crediting Program & PLRM are flexible, but jurisdictions should be encouraged to think about which catchment size is more practical for their jurisdiction.

Products

The Project Team developed guidance that explained different scenarios for catchment size, run-on and cross-jurisdiction ownership.

[Related Issues - Catchment Run-On Guidance](#) (5/11/10)

CATCHMENT MEMOS & ASSOCIATED PRODUCTS

Relevance: Crediting Program

Context: Catchment memos contents

Recommended Action

Develop new Appendices: With the information gained during this project, the Handbook should include a full example of all Crediting Program Products, using the best products created by jurisdictions during this project.

Lessons Learned & Best Practices

Products produced by jurisdictions varied in depth, breadth and quality. The most useful maps were those that clearly identified the features required by the Crediting Program layered with key information that provided a general understanding of the natural and built environment. Useful catchment selection memos provided a brief narrative assessment of the general pollutant control strategy while calling out in a clear (bulleted) format the information used to assemble and assess the catchment. When used together,

these two products provide a reader unfamiliar with the catchment or area with a good understanding of the catchment and general pollutant control strategy. The Project Team focused jurisdictions on producing concise memos.

Products

The Project Team developed guidance that gave specific instructions and requirements for developing catchment memos.

[Considerations & Process for Selecting Test Catchments](#) (1/28/10)

[Additional Considerations for Catchment Delineation](#) (4/2/10)

RUN-ON & COMINGLED WATER

Relevance: Crediting Program, BMP RAM, Road RAM, PLRM

Context: Treating pollutant loads that jurisdictions legally do not have responsibility for; jurisdictions were unclear how they should deal with non-urban run-on

Recommended Actions

Approve existing guidance: Users should consult the Catchment Run-On Guidance developed during this project as a resource for understanding concerns, approached and best practices when run-on is a concern in their catchment.

Crediting Program Handbook Protocol: Jurisdictions who plan to model run-on from another catchment should always coordinate with the primary jurisdiction responsible for the run-on to ensure that the run-on has not been previously accounted for and that claiming any associated load reduction from the run-on is acceptable. (This is particularly important when considering run-on from transportation jurisdictions such as NDOT or Caltrans.)

Crediting Program Handbook Protocol: Run-on from non-urban source categories should not be entered into PLRM or included in any load reduction estimates. Jurisdictions should explain how they plan to address this run-on in their catchment within the catchment implementation plan section of the CCS.

Lessons Learned & Best Practices

Addressing run-on and right of way is important for all jurisdictions especially when concerning transportation jurisdictions and general improvement districts. This consideration is essential when evaluating credit sharing between jurisdictions.

The Project Team, in coordination with regulatory agencies, came to the conclusion that run-on (ie., off-site flow into a catchment) is only important to be modeled if the flows are not bypassed and are subsequently routed to a stormwater treatment control located in the catchment. All other pollutant loading for private parcels is assessed by private parcel BMP and source control certificate percentages.

This guidance also explained that “erosion potential” in PLRM is used to represent undeveloped urban lots and not forested land. In addition, this guidance clearly advised users to use PLRM only as a tool for estimating pollutant loading from urban areas.

Products

The Project Team developed guidance that detailed different scenarios that aid jurisdictions in evaluating if they should model run-on in their catchment or not.

[Catchment Run-On Guidance](#) (5/11/10)

RECOMMENDATIONS

Summary Table

#	Change Recommendation	Document/ Tool	Importance	Anticipated Effort	Recommendation Status
1	Refine User Type Guidance & Definition	Handbook	4	2	C
2	Incorporate Catchment Size Guidance	Handbook	4	2	C
3	Incorporate Catchment Delineation Definition & Guidance	Handbook	4	2	C
4	Develop Catchment Memo Guidance & Example	Handbook	2	3	C
5	Incorporate Run-On & Comingled Water Guidance	Handbook	3	3	C
6	Provide Rationale & Guidance Regarding Modeling Non-Urban Loading	Handbook	2	3	C
7	Consider Ways to Allow Jurisdiction-wide Reporting	Handbook	4	2	O

1. **Refine User Type Guidance & Definition** - Develop specific guidance and Crediting Program language that recognizes and addresses the differences between jurisdictions.
2. **Incorporate Catchment Size Guidance** - Develop a set of considerations to include in the Crediting Program Handbook that prompts users to consider investment of time and acceptable methods for increasing efficiency when delineating an urban catchment.
3. **Incorporate Catchment Delineation Definition & Guidance**– Expand the definition and develop guidance for urban catchments in the Crediting Program. Ideally, catchments should generally be delineated in a manner that preserves hydrologic boundaries, however, in certain situations it may be cumbersome, and even unnecessary, to define catchments that preserve hydrologic boundaries for a jurisdictional calculation of pollutant loads when using PLRM. When necessary, a jurisdiction may define a catchment that intersects another jurisdiction’s catchment. In this instance, the jurisdiction seeking to intersect another catchment must coordinate with the appropriate jurisdiction(s) and regulatory agency to ensure that no load reduction is double-counted (e.g., overlap in catchment boundaries, run-on/run-off, etc.).
4. **Develop Catchment Memo Guidance & Example Catchment Memo** - Incorporate additional catchment memo requirements identified and detailed in guidance developed through the Support Services Project. Develop an ideal example of a catchment memo for the Crediting Program Handbook Appendix.
5. **Incorporate Run-On & Comingled Water Guidance** – Incorporate and further develop language and specific guidance for the Crediting Program Handbook that explains scenarios and options for modeling load reductions where run-on and comingling of water occurs.
6. **Provide Rationale & Guidance Regarding Modeling Non-Urban Loading** - Develop or provide guidance and/or rationale regarding run-on to an urban catchment from forested lands and other source categories.
7. **Consider Ways to Allow Jurisdiction-wide Reporting** - Develop or provide guidance and/or rationale for jurisdictions to report and get credit for broadly applied pollutant-reducing activities such as road sweeping or ordinances.

IV. CATCHMENT INVENTORY

Jurisdictions were trained in inventory protocols and methodologies to employ when inventorying their selected test catchment. During a full-day training, the Project Team provided training, guidance and examples for the following tools: Treatment BMP RAM, Treatment BMP RAM Database, Road RAM Protocols (draft). After training sessions, jurisdictions went into the field to apply the protocols with other jurisdictions. The Project Team gathered feedback, provided targeted assistance in the field and ensured that jurisdictions were familiar with the tools to the degree that each attendee could inventory their test catchment.

Roads were inventoried during this project for each jurisdiction's test catchment; however the Road RAM was not used directly because it had not yet been drafted. Since catchments were inventoried, the Road RAM has been completed and it is now the recommended approach to inventory roads for the Crediting Program.

EXISTING GUIDANCE

- Crediting Program Handbook
- CCS Technical Guidance
- BMP RAM User Manual
- BMP RAM Technical Documentation
- Road RAM User Manual
- Road RAM Technical Documentation

ISSUES ADDRESSED & LESSONS LEARNED

INCONSISTENT NOMENCLATURE

Relevance: Crediting Program, PLRM, BMP RAM, Road RAM, A&T Tool, Annual Reports

Context: Different names for different items can be confusing and cumbersome for jurisdictions, add to this new terminology and requirements, and jurisdictions have a tendency to become frustrated.

Recommended Action

Approve existing guidance: Users should consult the guidance developed during this project as a resource for understanding concerns, approached and best practices in their catchment.

Lessons Learned & Best Practices

Although aligning nomenclature for BMPs, urban catchments, etc. for all jurisdictions is a significant undertaking, tool developers can limit confusion by providing clear definitions and explicit descriptions for users.

Products

The Project Team developed additional guidance that provided specific and clear requirements for a number of topics that were unclear and refined definitions of terminology unique to the Crediting Program and associated tools.

[Considerations & Process for Selecting Test Catchments](#) (1/28/10)

[Additional Considerations for Catchment Delineation](#) (4/2/10)

[PLRM Sweeper Guidance](#) (5/10/10)

[Catchment Run-On Guidance](#) (5/11/10)

[BMP RAM Sediment Trap Diameter Conversion Tool](#) (5/27/10)

[Catchment Inventory Data Checklist – Crediting Program, RAMs & PLRM](#) (5/28/10)

[Road RAM Draft Inventory Guidance](#) (6/11/10)

PRACTICALITY OF TOOLS IN TIMES OF CONSTRAINED RESOURCES

Relevance: Crediting Program, PLRM, BMP RAM, Road RAM, A&T Tool

Context: Users expressed serious concerns regarding the increase in workload required to use these tools especially with limited resources

Recommended Action

Approve existing guidance: Users should consult the guidance developed during this project as a resource for understanding concerns, approached and best practices in their catchment.

Lessons Learned & Best Practices

Tools should be made to be as easy to use as possible. To do this, tool developers should support mass import/export functionality at a minimum. A central tool hosted online would be preferred, however, such that jurisdictions would not have to install special software, enter data multiple times and avoid a number of other costly steps and missteps inherent in the existing tools.

Products

The Project Team developed additional guidance and tools that helped simplify and clarify steps of inventorying a catchment including using PLRM and the RAMs.

[PLRM Sweeper Guidance](#) (5/10/10)

[BMP RAM Database Update](#) (7/7/10)

[Inventory Data Checklist & Time Estimate](#) (5/28/10)

[BMP RAM Sediment Trap Diameter Conversion Tool](#) (5/27/10)

[Catchment Inventory Data Checklist – Crediting Program, RAMs & PLRM](#) (5/28/10)

[Road RAM Draft Inventory Guidance](#) (6/11/10)

RECOMMENDATIONS

Summary Table

#	Change Recommendation	Document/ Tool	Importance	Anticipated Effort	Recommendation Status
8	Integrate RAM Tools in Online Database	All	4	5	F
9	Coordinate & Unify Nomenclature	Handbook	2	5	C
10	Develop BMP RAM Import Capabilities	BMP RAM	3	3	F
11	Add functionality to BMP RAM to calculate observation values based on a target RAM score	BMP RAM	3	4	F
12	Determine need for benchmark and threshold values for Cartridge Filters	BMP RAM	3	3	O

8. **Integrate RAM Tools in Online Database** - Develop one central, web-based and GIS enabled tool that incorporates all existing stormwater tools into an online web application.
9. **Coordinate & Unify Nomenclature** - Encourage all-jurisdiction development and adoption of comprehensive nomenclature for stormwater terms (e.g., BMP types, catchments, etc.) in the Tahoe Basin. Ensure that new terminology and data requirements in stormwater tools are clear and concise (e.g., bullets), and – importantly – consistent. Specifically, consider the creation of an information graphic showing links between names for common BMPs, BMP RAM Types & PLRM Fields.

10. **Develop BMP RAM Import Capabilities-** Develop the BMP RAM database to accept standard format imports and also complete export functionality to increase the ability of users to interact with the database efficiently.
11. **Add Functionality to BMP RAM to Calculate Observation Values Based on a Target RAM Score-** Create a new report in the BMP RAM database that back-calculates observation values equivalent to a user-defined RAM score that can then be modeled in PLRM.
12. **Determine Need for Benchmark and Threshold Values for Cartridge Filters-** Conduct further research into the effectiveness of cartridge filters to inform the importance and practicability of obtaining benchmark and threshold values for cartridge filters.

V. CATCHMENT CREDIT SCHEDULE

Jurisdictions produced Catchment Credit Schedule forms that documented expected load reductions from one test catchment. The project team led an introduction to the forms and necessary supporting materials that were needed. The project team then provided extensive one-on-one attention to each jurisdiction as it progressed through the creation and review process. When the CCS and supporting materials were of adequate quality, regulators used a structured review form to provide regulatory comments. Each jurisdiction also met with its regulator in a “Verification Meeting” to work out remaining issues and create a punch list of changes needed to register the test catchment.

EXISTING GUIDANCE

- CCS Form
- CCS Technical Guidance & Instructions
- Example products: Handbook Appendix A, Attachments 1-8

ISSUES ADDRESSED & LESSONS LEARNED

REFINE BASELINE DATE

Relevance: Crediting Program Handbook

Context: CSLT has suggested a change in the date of projects that are eligible for full credit to those that are completed after May 1, 2004 because they treated very little runoff during the 2004 construction season.

Recommended Action

Clarify Handbook: Adjust baseline definition in Section 1.1.4 and glossary to define the baseline cutoff to be May 1, 2004. Also clarify that the infrastructure must be treating stormwater rather than “in place.”

Lessons Learned & Best Practices

- CSLT reviewed rainfall and runoff data and found that very little stormwater flowed through projects built during the construction season of 2004. They conclude that it would be inappropriate to include the effects of this runoff in the baseline loading condition. This would result in a somewhat greater number of projects being eligible for “full” credit for infrastructure built rather than “partial” credit based on improvements in operating conditions.
- A cutoff date of May 1, 2004 is appropriate because it is often unclear if a project is completed exactly by the October 15 grading deadline. The lack of clarity comes from (1) deadline waivers or penalties paid for lateness and (2) need for administrative time to finish billing and close contracts. Typically no construction occurs during the winter (October-April) and this time can function as a grace period for tying up loose ends on projects. Particularly those completed at the end of the baseline period.
- Although May 1 does not align with the water year, the construction cycle does align well with it and no significant change in infrastructure on the ground is anticipated.
- This change in the baseline cutoff helps jurisdictions feel that more of their effort is accepted/appreciated because they can include projects that were on the cusp. During this period of adoption, the baseline date refinement does not make a significant accounting difference in loads but will help regulated entities accept the TMDL.

Products

[A Program Improvement Recommendation has been developed by CSLT](#)

CHANGE CCS FORM

Relevance: Crediting Program Handbook

Context: Use of the CCS form revealed several areas of potential improvement that ranged from instructional text to structural changes.

Recommended Action

Adjust CCS Form: The following updates will enhance quality of data collected and ease of entry:

1. Add runoff volume as one of the tracked parameters in the CCS form. This additional information requirement is easy to provide for implementers because this parameter is an output of PLRM. This parameter could be a useful proxy for load reductions that is particularly easy to monitor and verify.
2. Convert CCS to a PDF that can autopopulate summary fields and allow rapid export of data to other tools such as the A&T Tool. This change will save jurisdiction time and increase accuracy of transferred information.
3. Exchange order of Inspection (#8) and Maintenance (#7) subsections for Section C; parts II, III, and IV.
4. Move Section B, I: Catchment Connectivity to an appropriate place in Sec. D and E. This will allow representation of changes in the connectivity of the catchment to a surface water.
 - a. Include a text box to summarize connectivity rationale
 - b. Include a system to more consistently define connectivity (see related Issue Addressed section)
5. Checkbox guidance throughout Sections B-E refer to the wrong subsection in A. Currently it should be changed from A.17 to A.14, however this should be confirmed once the final numbering is set.
6. The CCS units of load reduction should be given in pounds/year to align with PLRM's output. The order of the pollutants should be made consistent with PLRM reports and internally. Subsection F.4 has nutrients in reverse order from previous sections. PLRM order is: Volume (ac-ft/yr), FSP (lbs/yr), Total Phosphorus (lbs/yr), Total Nitrogen (lbs/yr).
7. Add a version number to the CCS Form. This will assist in tracking changes made over time and could reduce frustration of users when they update their CCS for a catchment that has been registered previously.
8. Adjust Section C, 16 to specs defined in this report. Issue Addressed: Private property BMPs.
9. Remove checkboxes (or extensively clarify instructions) in Section D.2 and E.4. These boxes were intended to call out use of parameters outside of PLRM's recommended ranges. In general jurisdictions did not check yes when they had changed default parameters or used parameters outside of recommended ranges. These checkboxes are particularly difficult to use because some of the default values in PLRM (DCIA @ 50% and Treatment Vault effectiveness) are not set at appropriate levels or otherwise should not have a default.
10. Add Baseline Map to list of supporting materials and file names (A. 14.)

Lessons Learned & Best Practices

- Douglas County's restoration efforts in their test catchment changed the outlet location of their catchment, providing a longer flow path and more vegetation exposure before outflows reach a surface water. This kind of change has potential to significantly reduce pollutant loads and should be incorporated in the CCS.
- Some urban jurisdictions were scared away from customizing PLRMs more sensitive parameters by the checkboxes in section D.2. because this would cause them extra work. As described in a recommended action above, these boxes should be removed because they are somewhat ambiguous anyway.
- Urban jurisdictions often incorporated inspection plan summaries into their Maintenance plan summaries. It is important to make this distinction in the Handbook instructions for filling out this section of the CCS. These sections should also be in reverse order so that jurisdictions consider the inspection aspect first.
- Many errors made on the load reduction sections of the CCS could be attributed to conversions and information transfers when moving information from PLRM or various sections of the CCS. A standard spreadsheet was constructed to check conversions and calculated load reductions. This sheet could be circulated to urban jurisdictions to reduce their effort and increase consistency.

Products

The Project Team developed additional guidance and review tools that helped simplify and clarify steps of inventorying a catchment including using PLRM and the RAMs.

[Crediting Program Load Calculation Check Tool](#) (Nov 2010)

[Crediting Program Handbook v1.0](#) (Oct 2011)

CHANGE HANDBOOK CCS INSTRUCTIONS

Relevance: Crediting Program Handbook, Technical Guidance & Instructions section

Context: Use of the CCS form revealed several areas of potential improvement that ranged from instructional text to structural changes.

Recommended Action

Adjust Handbook Technical Guidance & Instructions: The following updates will clarify the information needed and facilitate rapid completion of necessary tasks.

1. Guidance on p. TT-16, para. 3 of Handbook should not recommend a separate CCS for each non-100% connected outfall. This recommendation is currently causing need for more CCS work than necessary because many of these catchments can be represented as modeling catchments in PLRM and then have their connectivity averaged, thereby saving jurisdiction effort. The loss of accuracy due to averaging is expected to be small relative to the variability due to subjective connectivity estimates.
2. Add a section describing known issues to user guidance on each TMDL tool. Examples include: Add a note about BMP RAM Access database error that occurs when saving the db on a network hard drive. This will permanently corrupt the database, necessitating reentry of all information.
3. Provide more description of what should be included in implementation plan summaries for inspection and maintenance. Descriptions should include:
 - a. Fully describe details/features that are specific to the catchment
 - b. Reference established protocols if they are used and describe how/when they will be triggered
 - c. Summarize in a sentence or two the Stormwater (or other) plans of the jurisdiction and reference the specific section that relates to that portion of the CCS.

4. Update guidance to match Road RAM terminology (e.g. change road groups to “road class”). See p. TT-21 (section III), TT-23 text box, for important examples of this consistency check.
5. Add features required to catchment delineation map: runon points, flow paths. These should be added to TT-16 “Instructions” bullet #2.
6. Clarify that supporting BMPs need not be documented in the CCS supporting tables. Changes on p. TT-19 Treatment BMP Implementation Summary section.
7. Add a table that shows correspondence of every BMP Type “Observation” to “Related PLRM Value.” Also clarify the instructions for this step. Changes on p. TT-20 table and related text.
8. Enhance narrative explaining how to determine the expected condition score for Roads. This is currently described in the table of TT-22, but needs more detail. Probably more detail than will fit in the table.
9. Align private property BMP information with that needed by PLRM and enhance instructions (see related *Issue Addressed and Lesson Learned*)
10. Sec D: Expected loading Estimate p. TT-28: provide more detail about definition of fine sediment (<16 micron) and provide reference to specifics of conversion factors
11. Sec E: Baseline Loading Estimate p. TT-29: change baseline date (see related *Issue Addressed and Lesson Learned*); check to make sure that we will use the basinwide average conditions for each catchment.
12. Align choices in Standard Baseline Modeling Parameters table with PLRM (e.g. sweeping strategy).
13. Clarify that loads can be modeled using the most appropriate and advantageous method for the jurisdiction. For instance, jurisdictions may need to choose between modeling treated area at large redevelopment projects as “treatment BMPs” or as “private property BMPs.”
14. Language should be added that clarifies when non-urban load reductions can be accounted in the Crediting Program. These guidelines were developed with executives in the Climate project report produced by 2NDNATURE. Situations that may be creditable are stream restorations where streams other than the 3 main streams included in the TMDL PRO report are restored. This section should also explain when urban loads are potentially reduced when floodplains are reconnected to streams.

Products

[Crediting Program Handbook v1.0](#) (Oct 2011)

EDITORIAL & FIGURE CHANGES TO HANDBOOK APPENDICES

Relevance: Crediting Program Handbook, Appendices A, B, C

Context: Use of the Handbook revealed several changes relating to examples, figures and clarity of communication.

Recommended Action

Adjust Handbook Appendices: The following updates will clarify the information presented

Appendix A

1. Create a synthesized “best” CCS example based on information submitted by jurisdictions during the Support Services effort. Ensure that the new example is based on the revised CCS form developed in 2011.

Appendix B

2. Review carefully for minor text edits (see p. B-1)

Appendix C

3. Revise Figure C.1. Pollutant Controls conceptual model such that Stormwater Treatment reduced “Concentration & Volume” rather than EMC and Runoff.
4. Figure C.3. Relationship between baseline: check color coding and consider ways to simplify/distill the crucial points. Caption is inconsistent with others.
5. Figure C.6. Relationship between observation values... check scale of bottom chart; it should be positive values; adjust references in text as well.
6. Review text for minor edits
 - a. be careful of using the term “scenario” because it can be confusing with a PLRM scenario; “situation” is a possible synonym
 - b. Review for use of the term “average” in relation to Road RAM (p. C-8), use “integration” as a synonym

Products

[Crediting Program Handbook v1.0](#) (Oct 2011)

RECOMMENDATIONS

Summary Table

#	Change Recommendation	Document/ Tool	Importance	Anticipated Effort	Recommendation Status
13	Adopt Crediting Program Handbook v1.0	Handbook	4	2	C
14	Adjust Baseline Definition	Handbook	3	1	C
15	Clarify Handbook Methodology for calculating Private Property BMP Values	Handbook	2	1	C

13. **Adopt Crediting Program Handbook v1.0** – Work with executives of Lahontan and NDEP to review the adjustments proposed above and adopt the revised Handbook v1.0 as the guiding protocols for the Crediting Program.
14. **Adjust Baseline Definition** – Change the date of projects eligible for full credit to those completed after May 1, 2004 and clarify that infrastructure must be treating stormwater rather than simply being “in place.”
15. **Clarify Handbook Methodology for Calculating Private Property BMP Values**- Refine existing language in the Handbook and consider simplifying the process to calculate private property BMP values in a catchment.

VI. PLRM LOAD ESTIMATION TOOL

The Pollutant Load Reduction Model (PLRM) was used by participants to estimate test-catchment loads for baseline and expected condition scenarios. Most jurisdictions found the PLRM to have a reasonably user-friendly interface and produce acceptable estimates. However there are some usability enhancements and consistency issues with other TMDL tools that should be addressed in future versions. At the time of this report regulators were working to secure funding to make PLRM upgrades. This section provides recommendations for PLRM enhancement.

EXISTING GUIDANCE

- PLRM Documentation
 - User's Manual
 - Applications Guide
 - Model Development Document
 - GIS Layers
 - PLRM Update History
 - PLRM Input Template
- Crediting Program Handbook v0.99

ISSUES ADDRESSED & LESSONS LEARNED

CLARIFY RELATIONSHIPS BETWEEN BMP RAM AND PLRM PARAMETERS

Relevance: Crediting Program Handbook

Context: CSLT and other jurisdictions have asked questions about the specific relationships between field observations in the BMP RAM and the input parameters for PLRM treatments. Questions have also surfaced regarding the recommended methods to model named BMP types from BMP RAM which are not named in PLRM.

Recommended Action

Use Crosswalk Table: The project team has produced a draft crosswalk table which explains relationships between field observations and input parameters. This table has been modified and formatted for the Crediting Program Handbook.

Lessons Learned & Best Practices

- Several of the field observations, such as the Constant Head Permeameter do not correspond to PLRM inputs such as Ksat, with the same units (in./hr.). Research is ongoing to provide a well-documented conversion factor. A basic rule of thumb will be provided in the Handbook v1.0.
- Several of the BMP types in the BMP RAM are not used in the PLRM. Although these BMPs function based on distinct treatment processes, PLRM developers are not comfortable with methods that currently exist to model load reduction. Users should note however, that existing PLRM treatments can be modified to represent all BMP types from BMP RAM using carefully documented assumptions. These assumptions should be captured in the CCS Memo.

Products

[Treatment BMP Relationships section of Crediting Program Handbook v1.0 - pg. TT-26](#) (Oct 2011)

[Draft BMP RAM to PLRM Crosswalk Table – Excel File](#) (August 2011)

TREATMENT VAULT REPRESENTATION IN PLRM

Relevance: PLRM, Crediting Program

Context: Initial use of the PLRM has shown that most users select a Treatment Vault flow rate that does not target removal of pollutants of concern. This inconsistency is causing the PLRM to over-predict performance of Treatment Vaults for load reductions.

Recommended Actions

Adjust PLRM: The current representation of Treatment Vault performance in the PLRM should be adjusted to help PLRM users identify and resolve this issue.

1. In the near-term: a PLRM user must justify that the Treatment Vault and the associated Maximum Treatment Flow rate selected will target removal of pollutants of concern.
2. In the long-term:
 - a. Modify the default representation of a Treatment Vault in PLRM to produce small load reductions, which will require a PLRM user to adjust default values to increase load reductions. Where modification to default values will be flagged by the program and require justification.
 - b. Develop a new section within the PLRM Applications Guide that comprehensively discusses the issue and provides guidance.
 - c. Modify the PLRM to include a tool tip in the Treatment Vault Editor that links to guidance in the PLRM Applications Guide.

Lessons Learned & Best Practices

- PLRM user's consistently input a very high Maximum Treatment Flow for a Treatment Vault. The value for the Maximum Treatment Flow is often taken from a manufacture's recommendation, but this recommendation may not be applicable to Lake Tahoe pollutants of concern (e.g., FSP, and dissolved species of nitrogen and phosphorus). Whereas, the PLRM assumes the Maximum Treatment Flow targets Lake Tahoe pollutants of concern. This inconsistency is causing PLRM to over-predict performance of Treatment Vaults for pollutant load reduction estimates.
- The selection of an appropriate Maximum Treatment Flow that targets pollutants of concern is challenging for PLRM users because manufacturers typically specify treatment flow rates that target trash or gross pollutants. (In many cases this may indicate that the Treatment Vault will not be effective for removal of pollutants of concern at any flow rate).
- A near-term work around for this issue is to adjust the default characteristic effluent concentrations (CECs) for Treatment Vaults upwards until the output for pollutant removal is consistent with maintenance records for vault clean-out, or consistent with anecdotal observations of vault performance.

Products

The Project Team has provided PLRM user's with guidance on this issue during a PLRM training, and through comments transmitted after review of PLRM models.

[Advanced PLRM Training Report](#) (5/5/11)

DIRECTLY CONNECTED IMPERVIOUS AREA REPRESENTATION IN PLRM

Relevance: PLRM, Crediting Program

Context: PLRM output is very sensitive to the representation of directly connected impervious area (DCIA). Initial use of the PLRM has shown that many users do not adjust default values for DCIA, which can lead to inaccurate estimates of stormwater runoff and pollutant loading.

Recommended Actions

Use GIS Layer To Estimate DCIA: The PLRM team has made an initial estimate of DCIA for all Tahoe Basin roads and packaged it in a GIS layer. This file should be used to initially estimate inputs to PLRM for crediting program use, however jurisdictions can improve on this estimate with careful field-based estimates if site-specific studies are undertaken.

Adjust PLRM: Do not provide a default value for the DCIA parameter so that PLRM cannot produce an output unless the user consciously provides a value. Add a warning so that users know why PLRM is not able to run the scenario.

Provide Additional Guidance: Guidance and support tools for estimating DCIA should be improved to help PLRM users estimate this sensitive input parameter.

1. Develop expanded guidance for the PLRM Applications Guide illustrating approaches for estimating DCIA.
2. Add a tool tip for drainage condition editor that links to the guidance in the PLRM applications guide.

Lessons Learned & Best Practices

- PLRM v1.1 uses a default value of 50% DCIA for all urban land uses. A default value is provided to ensure the program will run. However, many users accept the default value instead of developing site specific estimates. PLRM output is very sensitive to the representation of DCIA.
- Estimation of DCIA can be challenging and is somewhat subjective, especially in locations such as the Tahoe Basin where most development was constructed without engineered drainage systems.
- A GIS shapefile that provides an initial estimate of DCIA for all Tahoe Basin roads was released in 2011. The GIS shapefile provides a starting point for a PLRM user to estimate DCIA of roads within their project area. The shapefile should be revised when detailed analyses supports modifications to improve accuracy.
- Section 3 of the PLRM Applications Guide (Oct 2010) was updated to better explain the importance of site specific estimates of DCIA. The guidance also includes an example of how to estimate DCIA for Tahoe Basin roads using GIS methods.
- Section 5 of the PLRM Applications Guide (Oct 2010) includes recommendations for presenting supporting information to project reviewers that documents how DCIA estimates were made.

Products

[PLRM Applications Guide](#) (Oct 2010)

[Road Shoulder Condition GIS Layer](#) (March 2011)

SEDIMENT TRAP REPRESENTATION IN PLRM

Relevance: PLRM, Crediting Program

Context: Many public works and transportation entities have expressed a strong desire to model the performance of sediment traps in PLRM. The current version of PLRM does not have an explicit method for modeling sediment traps.

Recommended Actions

Provide Additional Guidance: Develop guidance to include in the PLRM Applications Guide that demonstrates a suggested method for simulating sediment traps by applying currently available PLRM algorithms. Note sensitive parameters in guidance.

Lessons Learned & Best Practices

- Public works and transportation entities commonly construct sediment traps as part of drainage system improvements for water quality improvement projects. Furthermore, removal of material deposited in sediment traps is a common maintenance activity. Consequently, public works and transportation entities have expressed a strong desire to have a method for estimating the performance of sediment traps in PLRM.
- Analysis of maintenance records from Placer County show that street sweeping provides an order of magnitude more sediment removal and cost effectiveness compared to vactoring sediment traps.³
- PLRM v1.1 does not include an explicit method for simulating the performance of sediment traps. This approach was taken because sediment traps are: 1) assumed by the PLRM designers to primarily target coarse sediment removal and will not remove a significant amount of the pollutants of concern modeled by PLRM; and 2) the distributed nature of sediment traps within a drainage catchment is difficult to adequately represent within PLRM.
- Section 3 of the PLRM Applications Guide (Oct 2010) discusses a method for using the Infiltration Facility Editor in PLRM to represent porous concrete. An experienced user of the PLRM could adapt this guidance to model the function of sediment traps. Specific adoptions to porous pavement example would include:
 - Step 1 – Calculate the area of the roads within the PLRM catchment that drain to sediment traps. Enter this area as a percentage of the total road area within the PLRM catchment in the row “Area Draining to Infiltration Facilities” in the Drainage Conditions Editor for the Road Methodology.
 - Step 2 – Calculate the Combined Unit Area Storage of all sediment traps. Where Combined Unit Area Storage equals the combined storage volume of all sediment traps divided by the total impervious area tributary to all sediment traps.
 - Step 3 – Enter the Combined Unit Area Storage value in the Infiltration Facility Editor for the targeted roads. Additionally, enter an estimate of the average saturated hydraulic conductivity for infiltration in the sediment traps that will be occur between maintenance intervals.

Products

None produced to date beyond this summary.

³ Placer County Stormwater TMDL Strategy Final Technical Report, 2011

CUT SLOPE REPRESENTATION IN PLRM

Relevance: PLRM, Crediting Program

Context: Public works and transportation entities have expressed a strong desire to model pollutant loading generated from cut slopes in PLRM. The current version of PLRM does not have an explicit method for modeling cut slopes.

Recommended Actions

Augment PLRM Using RCAT: Develop and incorporate modeling algorithms into PLRM that allow a user to estimate pollutants loads from cut slope erosion. Modeling algorithms would be adapted from the *Road Cut and Fill Slope Sediment Loading Assessment Tool* (IERS, 2011), which was developed from a significant amount of monitoring data and uses rapid field observations to relate the condition of a road cut slope to measured sediment loading.

Lessons Learned & Best Practices

- Road cut slope stabilization is a component of many water quality improvement projects. Public works and transportation entities desire an accepted method for quantifying pollutant load reductions associated with cut slope stabilization practices to receive credit under the TMDL.
- PLRM v1.1 does not include an explicit method for simulating pollutant loading from cut slopes. Current PLRM guidance recommends that pollutant loading from cut slope erosion should be accounted for outside of a PLRM simulation.
- The following approach is presented for information purposes only, and summarizes how road cut slopes could be represented in PLRM v1.1 using existing algorithms. The approach presented has significant limitations and is not intended for use with TMDL Crediting. An experienced user of the PLRM could use the following steps to model a road cut slope to obtain an order of magnitude estimate of pollutant loading and pollutant load reduction.
 - Step 1 – Define a separate catchment in the PLRM model to represent cut slopes within the project area in the Baseline/Existing Condition. Define the catchment area to be the area of cut slopes in a similar condition. Connect this catchment to other catchments within the PLRM model using a Junction.
 - Step 2 – Define the land use of the catchment to be one of the five available Erosion Potential classes within PLRM to represent the condition of the cut slope. Note that Erosion Potential land use classes represent degrees of disturbance for forested land uses. There is no method available to relate a specific Erosion Potential land use class to a cut slope condition.
 - Step 3 – In the Drainage Conditions Editor, adjust the saturated hydraulic conductivity for the “All Others” land use to represent the expected average infiltration rate of the cut slope.
 - Step 4 – Under the Expected Condition Scenario, where cut slope stabilization practices have been implemented, adjust the Erosion Potential land use class and the saturated hydraulic conductivity within the catchment to represent the improved condition of the cut slope.
 - Step 5 – Compare pollutant loading within the Scenario Reports generated from the catchment in the Baseline/Existing Condition to the Expected Condition to estimate the pollutant load reduction.

Products

RCAT User Manual (Oct 2010)
RCAT Final Report (Oct 2010)
RCAT Spreadsheet Tool (Oct 2010)

PLRM PARAMETER EXPORT FUNCTION

Relevance: PLRM

Context: Use of the PLRM model by less experienced users revealed a few aspects that can be improved with additional guidance or revisions to the software.

Recommended Action

Develop export function: Add functionality to export all values used in the analysis. Organize report to present most sensitive parameters first and highlight those that are outside of recommended ranges.

Lessons Learned & Best Practices

- Several sections of the PLRM Applications Guide are very helpful for urban jurisdictions to understand concepts necessary to use the PLRM. In particular section 5.0 is related to registering an urban catchment and section 3.0 is related to recently available default condition maps for roads, and section 4.0 is related to modeling techniques for specific situations that commonly occur and should be accurately represented within the Crediting Program. Future participants should be directed to this guidance.

Products

[PLRM Applications Guide](#) (Oct 2010)

RECOMMENDATIONS

Summary Table

#	Change Recommendation	Document/ Tool	Importance	Anticipated Effort	Recommendation Status
16	Develop Crosswalk of BMP RAM Observations and PLRM Parameters	PLRM & BMP RAM	4	2	C
17	Increase Accuracy of Treatment Vault Performance	PLRM	2	4	F
18	Use GIS Layer to Estimate DCIA	PLRM	4	2	C
19	Remove Default DCIA Value	PLRM	3	4	F
20	Develop Guidance for Simulating Sediment Traps	PLRM	2	3	O
21	Add Export Function to PLRM	PLRM	3	4	F

- 16. Develop Crosswalk of BMP RAM Observations and PLRM Parameters** – Include a crosswalk table in the Handbook which explains relationships between field observations and input parameters. This table should also suggest possibilities for representing BMP RAM BMP Types in the limited number of PLRM BMPs.
- 17. Increase Accuracy of Treatment Vault Performance** – Adjust representation in PLRM to help users target removal of pollutants of concern. Focus users on fine sediment particles less than 16 micrometers in diameter and associated nutrients.
- 18. Use GIS Layer to Estimate DCIA** – Add guidance in the Handbook to estimate the DCIA input parameter in PLRM through use of the DCIA GIS layer that was produced by nhc in 2010. This layer is currently available on the TIIMS.ORG website. Provide additional guidance in Handbook about situations when on-the-ground research provides better information than the GIS layer.
- 19. Remove Default DCIA Value** – Force users to consciously provide a DCIA value by otherwise prohibiting the PLRM to run a scenario. The current default value of 50% is allowing the model to run without thoughtful input from users.

20. **Develop Guidance for Simulating Sediment Traps** – Define explicit method for modeling sediment traps and include in the Handbook or PLRM Applications Guide. This recommendation is necessary because jurisdictions feel that large load reductions are possible from these BMPs; however the best demonstrations of these BMPs have shown that very little load reduction is likely.
21. **Add Export Function to PLRM** – Increase efficiency with export function and highlight values that are outside recommended ranges.

VII. CATCHMENT VERIFICATION & REGISTRATION

Each jurisdiction produced a CCS and supporting materials that were reviewed by regulators. After adequate email-based review jurisdictions also met with their regulator in a “Verification Meeting” to work out remaining issues and create a punch list of changes needed to register the test catchment. After all changes were made, jurisdictions used the A&T Tool to register their catchment and declare credits. This section describes lessons learned and makes recommendations for the verification and registration process.

EXISTING GUIDANCE

- Crediting Program Handbook v0.99, Step 1.2 & 1.3
- Handbook Appendix A: Sections A1.2, A1.3, & A1.6
- Draft A&T Tool User Manual

ISSUES ADDRESSED & LESSONS LEARNED

VERIFICATION CHECKLIST

Relevance: Catchment Credit Schedule

Context: Regulators need a structured way to review the CCS so that they can consistently comment on existing content and recall details that may have been omitted. Jurisdictions would have benefitted from a boiled down version of the details that were checked on the CCS and supporting materials.

Recommended Actions

Use Verification Checklist: The verification checklist should be initiated by regulators and used by jurisdictions to capture comments on the evolving versions of the CCS and supporting materials. The Verification Checklist should provide a long term record of all comments and responses through all rounds of the review process.

Lessons Learned & Best Practices

- The verification checklist should be used early in the review process of the CSS to capture comments, questions and responses. Each entry into a “notes” section should begin with the initials of the commenter and the date. Newest entries should be at the top of each “notes” section so that there is a historical record with the most recent information at the top of each section. Older entries should not be erased. Color coding based on commenter identity is helpful in quick review.
- Urban jurisdictions can use the Verification Checklist to understand specific details that will be checked on their CCS and supporting materials. The Verification Checklist however, is not complete enough for jurisdictions to learn how to provide the correct information in the CSS. Urban jurisdictions need to refer to the Crediting Program Handbook, Technical Guidance and Instructions section for instructional details.

Products

The Project Team produced an initial draft of the Verification Checklist and tested it with regulators. The product was then revised based on comments and an updated version of the Handbook includes this form.

[Verification Checklist](#) (page TT-45) (Sept 2011)

VERIFICATION MEETING

Relevance: Catchment Credit Schedule

Context: Regulators and jurisdictions needed guidance in the way that a verification meeting should be conducted and how to preserve the outcomes for future reference.

Recommended Actions

Adjust PLRM: The current representation of Treatment Vault performance in the PLRM should be adjusted to help PLRM users identify and resolve this issue.

Lessons Learned & Best Practices

- Verification meetings should be conducted with appreciation for the extensive work that has been invested by the jurisdiction to produce the CCS and regulator to carefully review it. Both the regulator and jurisdiction should find constructive ways to move toward documentation of a catchment that reduces loads and can earn credits. Small details that do not affect load calculations or understanding of the methods to achieve load reductions should not become issues of contention.
- It is expected that one or more rounds of comments will be exchanged via the Verification Checklist before an in-person Verification meeting is scheduled. However, scheduling of a meeting can provide incentive to complete necessary revisions.
- If jurisdictions and regulators are well prepared, it is possible to discuss multiple catchments (and related CCS materials) in a single verification meeting. The intent of the Crediting Program is to hold only one verification meeting annually. If participants are not prepared another verification meeting will become necessary.
- At the meeting, all participants should use the Verification Meeting Capture Template to ensure that a complete punchlist of necessary changes is recorded for later reference. The punchlist needs to be complete and specific enough that all parties will be satisfied when all items are addressed. Without a complete punchlist. The Meeting Capture Template is attached to the end of the Verification Meeting Plan file produced in November 2010. This form should be available to regulators.
- Meeting Process – For each major section of the CCS, jurisdictions should briefly present their catchment and highlighted results. Jurisdictions should also present key assumptions and rationale for their use. It is valuable for regulators to attend verification meetings in each state to build consistency among CCS forms and meeting process.

Products

The Project Team produced verification meeting plans for participant context, a capture template for use in future meetings and summarized each verification meeting in a short report.

[Verification Meeting Plan](#) (Nov 2010)

[Verification Meeting Capture Template](#) (Dec 2010)

[Verification Meeting Notes/Reports for each Jurisdiction](#) (Dec 2010 – March 2011)

ACCOUNTING AND TRACKING TOOL (A&T TOOL)

Relevance: Catchment Credit Schedule, credit declaration, A&T Tool

Context: Crediting Program participants need a tool in which to register their catchments, provide annual condition of pollutant controls and award/recieve credits. The A&T Tool is a MS Access database that provides these functions as well as reports that will be useful in annual reporting for all participants. The primary inputs to the A&T Tool are based on

information in the CCS and annual self-inspections. The outputs are the verified number of credits at jurisdictional through Basin-wide scales. Participants used the A&T Tool during the Spring of 2011.

Recommended Actions

Create Web-based Version: Provide better user control and access to the A&T Tool by rebuilding it using a web-based programming environment. A lack of access to the live A&T Tool was frustrating to participants.

Lessons Learned & Best Practices

- It would be more satisfying for users if they did not have to enter data for the Crediting Program in more than one place. For instance information from the CCS and BMP RAM could be automatically referenced by the A&T Tool if there was an integrated system.
- A long term hosting strategy for the A&T Tool is necessary. Issues with the current hosting on TIIMS.ORG and Log-Me-In single user system were not viable for the needs of any program participants.
- Tool guidance enhancements and tips should include:
 - Only verified catchments should be entered into the tool.
 - The tool automatically calculates credit award potential based on the number of performing pollutant controls in your catchment. Users, however, must declare credit award percentages and should provide rationale for any deviation from the default. The credit calculation equation and detailed explanations are in Appendix C of the Crediting Program Handbook.
- Manual querying of the TRPA BMP database is time consuming because each BMP certificate needs to be checked. Since private property BMPs change slowly, this process should only be required every 3-5 years. An alternative suggestion is to create a less time consuming way to gather the necessary data (e.g. area of BMP parcels).
- Bulk-import functionality for the tool is highly desirable. The current version has some capability for this function but it is limited.

Products

The Project Team produced an exercise to allow participants to work with the A&T Tool and referred to a draft version of user guidance.

[A&T Tool Database Registration Meeting Supporting Documents](#) (March 2011)

[Draft A&T Tool User Manual](#) (2010)

RECOMMENDATIONS

Summary Table

#	Change Recommendation	Document/ Tool	Importance	Anticipated Effort	Recommendation Status
22	Create Web-based Version of A&T Tool	A&T Tool	4	4	F
23	Reduce Frequency of Private Property BMP Checks	A&T Tool	3	1	F
24	Develop TRPA BMP Database Query	TRPA BMP DB	3	3	O

22. **Create Web-based Version of A&T Tool** – A web-based version of the A&T Tool would allow for additional features and reduce effort necessary to participate in the Crediting Program. Additional features should focus on better user accounts that allows multiple access, enhanced reports and bulk upload of information. Effort reductions could be realized by allowing the A&T Tool to gather information from other TMDL tools for use in the annual award of credits. For instance the A&T Tool could automatically gather information from the BMP RAM condition assessments, CCS load reductions and upload files from the PLRM.
23. **Reduce Frequency of Private Property BMP Checks** – Since the current TRPA BMP database requires users to individually sum the areas of certified properties, this task can be tedious and time consuming. The A&T Tool currently requires this check every year. Since Private Property BMP implementation changes slowly, jurisdictions should only be required to update this data every 3-5 years.
24. **Develop TRPA BMP Database Query** – Develop a spatially based method for querying the TRPA BMP database that is accessible to the public. The TRPA has an early stage, internal GIS tool that has this functionality. Additional assistance or requests for this feature to be made public would be helpful for TRPA staff. This feature would greatly benefit many types of BMP research.

VIII. PROJECT ACTIONS & ACCOMPLISHMENTS SUMMARY

CREDITING PROGRAM SUPPORT SERVICES - PROJECT ACTIONS & ACCOMPLISHMENTS				
Tasks & Deliverables		Deliverables & Products	Date Completed	Links/Notes
NV	CA			
1.2	1.2	Progress Reports & Invoices		
1.A	(1)	Progress Report & Invoice Files	Monthly	See Email Records
1	1.4	Online Collaboration Workspaces		
1.B	(1)	Support Services Participant Forum	Ongoing	Link
1.B	(1)	Support Services Team Workspace	Ongoing	Link
2.1	2.1	Project Kickoff Meeting		
-	(1)	Project Kickoff Meeting Notes	1/28/10	Download
2.2	2.2	Select Test Catchments		
-	-	Considerations & Process for Selecting Test Catchments Memo	1/28/2010	Download
-	-	Related Issues - Catchment Run-On Guidance	5/11/2010	Download
-	-	Additional Considerations for Catchment Delineation	4/2/2010	Download
2A	(1)	Brief Test Catchment Memos	Misc.	Download Zip*
2.3	2.3	Catchment Selection Review Meetings		
-	(1)	Catchment Selection Review Meeting Notes	6/11/2010	Download
-	-	Additional Considerations for Catchment Delineation	4/2/2010	Download
-	-	Test Catchment Run-On Guidance	5/11/2010	Download
2.4	2.4	Catchment Delineation & BMP/Roadway Inventory Development		
-	-	Catchment Inventory Training	5/12/2010	Download
-	-	Inventory Training Packet	5/12/2010	Download
-	-	Road RAM Draft Inventory Guidance	6/11/2010	Download
-	(1)	Catchment Delineation & Inventory Meeting Notes	5/28/2010	Download
2.5	2.5	Support BMP/Roadway Inventory Development		
-	(1)	Written Comment on Catchment Delineation Maps	Misc.	Download Zip*
-	-	BMP RAM Database Update	7/7/2010	Download
-	-	Inventory Data Checklist & Time Estimate	5/28/2010	Download
-	-	BMP Sediment Trap Diameter Conversion Tool	5/27/2010	Download
-	(2)	Written Comment on Jurisdiction Inventories	Misc.	Download Zip
2B	(3)	Recommendations Memo - Catchment Selection & Inventory Section	12/23/11	Download
3.1	3.1	Implementation Plan & Load Estimate Group Meeting		
-	(1)	Implementation Plan & Load Estimate Group Meeting Notes	7/2/2010	Download
-	-	CCS-PLRM Training Presentation	6/23/2010	Download
-	-	CCS-PLRM Training Plan	6/21/2010	Download
-	-	PLRM Activity Instructions v1	6/23/2010	Download
-	-	CPSS Inventory Tables – Activity Template	6/23/2010	Download
-	-	CPSS Inventory Table Instructions	6/23/2010	Download
3.2	3.2	Catchment Implementation Plan Summary and Expected Condition Determination		
-	(1)	Written Comments on Implementation Plan Summaries	Misc.	Download Zip*
3.3	3.3	Support Baseline and Current Load Estimation		

CREDITING PROGRAM SUPPORT SERVICES - PROJECT ACTIONS & ACCOMPLISHMENTS				
Tasks & Deliverables		Deliverables & Products	Date Completed	Links/Notes
NV	CA			
-	(1)	Written Comment on Load Estimates	Misc.	Download Zip*
-	-	PLRM Sweeper Guidance	5/10/2010	Download
-	-	PLRM Application Guide	October 2010	Download
-	-	Road Shoulder Condition GIS Layer	March 2011	Download
3.4	3.4	Catchment Credit Schedule Meeting Notes		
-	(1)	Catchment Credit Schedule Meeting Notes	7/2/2010	Download
-	-	CCS-PLRM Training Presentation	6/23/2010	Download
-	-	CCS-PLRM Training Plan	6/21/2010	Download
-	-	PLRM Activity Instructions v1	6/23/2010	Download
-	-	CPSS Inventory Tables – Activity Template	6/23/2010	Download
-	-	CPSS Inventory Table Instructions	6/23/2010	Download
3.5	3.5	Catchment Credit Schedule Support		
-	(1)	Written Comment on Catchment Credit Schedules	Misc.	Download Zip*
3A	(2)	Recommendations Memo - Load and Credit Schedule Section	12/23/11	Download
-	-	CCS PLRM Lessons Learned Presentation	8/18/2010	Download
-	-	CCS PLRM Lessons Learned Meeting Agenda	8/18/2010	Download
4.1	4.1	Facilitate Verification Meetings		
-	(1)	Jurisdiction-Regulator Meeting Notes	Misc.	Download Zip*
-	-	Verification Meeting Plan	2/15/11	Download
4.2	4.2	Catchment Credit Schedule Registration Meeting		
-	(1)	Accounting and Tracking Database Registration Meeting Notes	3/1/2011	Download
-	-	Accounting and Tracking Database Registration Meeting Supporting Documents	3/1/2011	Download
4.3	4.3	Support Accounting and Tracking Database Use		
-	(1)	Written Comment on Catchment Credit Schedule Registration, Condition Assessment Results and Credit Declarations	Misc.	Download Zip*
4A	-	Credit Registration and Declaration Memo	9/1/2011	Download
4B	(2)	Recommendations Memo - Coordination and Accounting and Tracking Database Section	12/23/11	Download
-	-	Accounting and Tracking Tool User Guidance v1.0	5/6/2011	Download
5.1	5.1	Review Potential Program Adjustment Recommendations		
5A	(1)	Recommendations Summary Table	12/23/11	Download
-	-	Catchment Connectivity Categorization Presentation	-	Download
-	-	Program Improvement Recommendation by CSLT	11/9/2010	Download
-	-	Draft BMP RAM to PLRM Crosswalk Table	August 2011	Download
5.2	5.2	Change Recommendation and Project Wrap-Up Meeting		
-	(1)	Recommendations and Wrap-Up Meeting Notes	5/3/2011	Download
-	-	Recommendations and Wrap-Up Meeting Plan	4/27/2011	Download
5.3	5.3	Change Recommendation Support		
-	(1)	Edits and Comments on Change Recommendations	9/1/2011	Download
5.4	5.4	Facilitate Change Recommendation Decision Meeting and Decision Record		
-	(1)	Upper-Management Decision Meeting Notes	9/13/2011	Download

CREDITING PROGRAM SUPPORT SERVICES - PROJECT ACTIONS & ACCOMPLISHMENTS				
Tasks & Deliverables		Deliverables & Products	Date Completed	Links/Notes
NV	CA			
5B	-	Change Recommendation Decision Record	9/13/2011	Download
-	-	Crediting Program Recommendation Briefing	9/1/2011	Download
-	-	Upper-Management Decision Meeting Plan	9/8/2011	Download
-	-	Executive Decision Meeting Handout	9/8/2011	Download
5.5	5.5	Adjust LCCP Handbook		
5C	(1)	Revised Lake Clarity Crediting Program Handbook	10/25/2010	Download
-	-	Temporary Best of CCS	5/2/2010	Download
5.6	5.6	Develop Brief Project Report		
5D	(1)	Draft and Final Project Report	12/23/11	Download
6.1	-	Public Presentation		
6A	-	ASIWPCA Presentation	7/19/2010	Download
7	-	Enhanced Urban Jurisdiction Service		
7A	-	Jurisdiction Assistance Report and Request Log (monthly updates)	Misc.	Download
-	-	Jurisdiction Products and Comments	Misc.	Download Zip*
-	-	Crediting Program Load Calculation Tool v1	5/4/2011	Download
-	-	Additional Support Funding Process v1 Memo	2/10/2010	Download
-	-	Support Services Augmentation Opportunity v1.0	January 2010	Download

*Please note that this file is a very large download: 258 Megabytes.

IX. APPENDICES

APPENDIX A: FINAL JURISDICTION PRODUCTS

The jurisdictions' most recent Catchment Credit Schedules are provided in this section. Follow this [link to view all supporting documents](#).

CCS forms provided next page.



SECTION A: CORRESPONDENCE & CATCHMENT CREDIT SCHEDULE SUMMARY

The Correspondence & Catchment Credit Schedule Summary section is completed incrementally throughout the process of establishing a Catchment Credit Schedule (CCS), as defined in Chapter 1 of the Lake Clarity Crediting Handbook (Handbook). Subsequent sections of this template prompt users to complete the corresponding summary items here in Section A.

I. GENERAL CATCHMENT INFORMATION SUMMARY

1. CATCHMENT STATUS		Check the appropriate status and add date of previous approval if applicable	
<input checked="" type="checkbox"/> NEW CATCHMENT <input type="checkbox"/> REVISION <input type="checkbox"/> EXTENSION		Date of previous approval	
2. CATCHMENT ID		Provide the unique catchment ID & common name	
Catchment ID CSLTG12		Common Catchment Name Al Tahoe	
3. PRIMARY JURISDICTION		Identify the primary urban jurisdiction and primary point of contact within the urban jurisdiction	
<input type="checkbox"/> CALTRANS <input checked="" type="checkbox"/> CSLT <input type="checkbox"/> DOUGLAS <input type="checkbox"/> EL DORADO		<input type="checkbox"/> NDOT <input type="checkbox"/> PLACER <input type="checkbox"/> WASHOE	
		Primary Contact Robert Erlich	
		Phone Number (530) 542-6038	E-mail Address rerlich@cityofslt.us
4. REGULATORY AGENCY		Identify the responsible regulatory agency and primary point of contact within the agency	
<input checked="" type="checkbox"/> LRWQCB <input type="checkbox"/> NDEP		Primary Contact Robert Larsen	
		Phone Number (530) 542-5439	E-mail Address RLarsen@waterboards.ca.gov

II. CATCHMENT CREDIT SCHEDULE SUMMARY

5. BASIC CATCHMENT POLLUTANT CONTROL STRATEGY NARRATIVE	In the space provided, describe the basic strategies employed to reduce pollutant loading within the catchment
--	--

Basic Narrative

Source control methods such as revegetation and shoulder stabilization will be implemented to prevent or reduce sediment and nutrients from entering storm water runoff. Emphasis will be placed on utilization and maintenance of natural drainage pathways for flow reduction, and separation of clean and polluted flows. Porous pavement designed to infiltrate stormwater and snowmelt will reduce the volume of runoff significantly. The addition of infiltrating drain inlets and sediment traps, as well as existing conveyance features, will effectively route stormwater to a Pretreatment Vault and two Cartridge Filter (Stormwater) Vaults which will decrease the amount of untreated storm water runoff reaching the lake.

6. EFFECTIVE LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts from Section F	
Fine sediment particles (#) 1.94796E+17	Fine sediment mass (kg) 1770.87	Total nitrogen (kg) 33.02	Total phosphorous (kg) 10.30
7. CREDIT POTENTIAL AMOUNT		Note the credit amount	

19.5 CREDITS

8. ESTABLISHMENT DATE	Note the catchment establishment date from Section F for final CCS only	9. FINAL YEAR	Note the final year of the CCS from Section F for final CCS only
Establishment Date 10/15/10		Final Year 2020	

III. COORDINATION CHECKLIST

10. SUBMITTED FOR VERIFICATION REVIEW		Note the date submitted and urban jurisdiction staff person (Step 1.3)
Date Submitted	Name of Staff Person	

11. STATEMENT OF COMPLETENESS & APPROPRIATENESS		Representative from urban jurisdiction must certify the completeness of the CCS (Step 1.3)
I certify that the information contained in this Catchment Credit Schedule and the analyses related to this Catchment Credit Schedule are complete and appropriate.		
Printed Name	Date	
Signature		

12. VERIFIED BY REGULATOR		Regulator must certify the verification step is complete (Step 1.4)
I certify that the Verification Step is complete.		
Printed Name	Date	
Signature		

13. REGISTERED AND SUBMITTED FOR APPROVAL		Note the date that the catchment was registered in the Accounting and Tracking Database (Step 1.5)
Date		

14. SUPPORTING MATERIALS CHECKLIST AND FILENAMES		Confirm each file is included in the digital submission and provide the filename and save date
Checklist	Filename	Save Date
<input checked="" type="checkbox"/> CCS FORM	CSLTG12_08112010.doc	9/30/10
<input checked="" type="checkbox"/> CCS MEMO (IF NECESSARY)	CSLTG12 Memo.docx	9/30/10
<input checked="" type="checkbox"/> CATCHMENT DELINEATION MAP FOR CATCHMENT 1	CSLTG12_Catchment Delineation Map_Portrait.mxd	8/9/10
<input checked="" type="checkbox"/> OVERALL CATCHMENT DELINEATION MAP	Urban Planning Catchments.mxd	9/30/10
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY MAP	CSLTG12_BMP Inventory Map.mxd	8/10/10
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY TABLE	CSLTG12_BMP Inventory.xlsx	8/16/10
<input checked="" type="checkbox"/> ROADS INVENTORY MAP	CSLTG12_Road Inventory Map.mxd	8/17/10
<input checked="" type="checkbox"/> ROADS INVENTORY TABLE	CSLTG12_Road Inventory.xlsx	8/16/10
<input type="checkbox"/> ROADS MAINTENANCE MAP(S) (NOT REQUIRED)		
<input type="checkbox"/> BASELINE TREATMENT BMP INVENTORY TABLE	Map: CSLTG12_Baseline Inventory Map.mxd	8/18/10
<input type="checkbox"/> CATCHMENT REGISTRATION REPORT (FINAL ONLY)		
<input checked="" type="checkbox"/> PLRM PROJECT FILE (DIGITAL FILE ONLY)	Project1	9/29/10
<input checked="" type="checkbox"/> AS-BUILT DRAWINGS AND EQUIPMENT SPECIFICATIONS (DIGITAL FILES ONLY)	AT_PROJ1_STG2_03-12-2010	7/21/10

SECTION B: CATCHMENT DELINEATION

Credits and load reductions are tracked for specific urban catchments. The same urban catchment area must be used in both baseline and expected loading estimates. In order to prevent double counting, no land area may be included in two urban catchments.

I. CATCHMENT CONNECTIVITY			
1. CATCHMENT ID	Confirm the catchment ID and name	2. CATCHMENT DELINEATION MAP	Confirm the catchment delineation map is complete
<input checked="" type="checkbox"/> CATCHMENT ID IS PROPERLY LISTED IN A.1		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. OVERALL URBAN JURISDICTION CATCHMENT MAP	Confirm the overall catchment delineation map is complete	4. CATCHMENT HISTORY	Note any previous catchments that included a portion of this catchment
<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		Previous Catchment Name	Establishment Date
5. CATCHMENT AREA	Provide the total catchment area	6. CATCHMENT CONNECTIVITY	Provide the percent connectivity that will be used to modify the load reduction estimate
Total Area (acres)		Percent Connectivity	
79		<input checked="" type="checkbox"/> 100% <input type="checkbox"/> OTHER _____%	
		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CATCHMENT CONNECTIVITY SECTION	

SECTION C: IMPLEMENTATION PLAN SUMMARY

The Implementation Plan Summary defines the expected conditions for treatment BMPs, roads, private property BMPs, and other pollutant control strategies based on the urban jurisdiction’s planned operations, maintenance and program implementation activities in the urban catchment. The Implementation Plan Summary may pull information from multiple sources and ideally relies upon one or more of the broader implementation plans used by the urban jurisdictions.

I. DEFINE LOAD REDUCTION STRATEGY			
1. TREATMENT BMPS	Check the most appropriate description	2. ROAD OPERATIONS	Check the most appropriate description
<input checked="" type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input checked="" type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	
3. PRIVATE PARCEL BMPS	Check the most appropriate description	4. OTHER POLLUTANT CONTROL STRATEGY	Check the most appropriate description
<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input checked="" type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	

II. TREATMENT BMP IMPLEMENTATION SUMMARY			
5. TREATMENT BMP INVENTORY TABLE	Confirm the table is complete	6. TREATMENT BMP INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
7. TREATMENT BMP MAINTENANCE PLAN SUMMARY		In the space provided, summarize planned treatment BMP maintenance actions for the overall catchment (reference implementation planning documents if applicable)	

The City Stormwater Inspector inspects Drain inlets and Sediment Traps within CSLTG12 on an annual basis between spring and fall. Street Maintenance Division maintains Drain Inlets and Sediment Traps within CSLTG12 annually based on inspection prioritization. Other BMP's such as Treatment Vaults and Cartridge Filters have a maintenance program that provides for regular inspection and assessment. Typically, maintenance for Pretreatment Vaults and Cartridge Filters (or other BMP's in a confined space) is performed by the manufacturer, in this case Contech. Porous Pavement will be swept using regenerative air (dustless) sweepers at least 2 times per year, or as needed. Typical maintenance for Sediment Traps and Drain Inlets is performed using a vactor truck. For more information, see the City's annual MEP update or the NPDES Annual Report (Section II.C Traction Abrasive Deicing Material).

8. TREATMENT BMP INSPECTION PLAN SUMMARY	In the space provided, summarize planned treatment BMP inspection actions for the overall catchment (reference implementation planning documents if applicable)
<p>The City Stormwater Inspector inspects all treatment BMP's within CSLTG12 on an annual basis from late spring through fall to determine maintenance priorities. For more information, see the City's annual MEP Update or the NPDES Annual Report (Section II.C Traction Abrasive Deicing Material).</p>	

9. ADDITIONAL TREATMENT BMP IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the treatment BMPs within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO TREATMENT BMP IMPLEMENTATION SUMMARY SECTION	

III. ROADS OPERATION IMPLEMENTATION SUMMARY

10. ROAD INVENTORY TABLE	Confirm the table is complete	11. ROADS INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
12. ROADS MAINTENANCE PLAN SUMMARY		In the space provided, summarize planned road maintenance actions for the overall catchment (reference implementation planning documents if applicable)	

See the CSLT NPDES Annual Report (Section II.C Traction Abrasive Deicing Material) for a description of the Sanding and sweeping practices in the City of South Lake Tahoe. Typical abrasive application occurs during the winter months in the steepest areas of the City (Heavenly Valley, Gardner Mountain, etc). The City Uses a Regenerative Air Sweeper and sweeps CSLTG12 streets approximately two times per year. The City plans to Maintain all roads within CSLTG12 to obtain a RAM score of 3.

13. ROADS MAINTENANCE MAP(S)	Confirm road maintenance maps
<input type="checkbox"/> ROAD MAINTENANCE MAPS ARE PROPERLY IN A.17 (NOT REQUIRED)	
14. ROADS INSPECTION PLAN SUMMARY	In the space provided, summarize planned road inspection actions for the overall catchment (reference implementation planning documents if applicable)

The City plans to inspect and maintain all roads within the CSLT Jurisdiction according to the Road RAM, maintaining a RAM score of 3. The City Stormwater Inspector currently inspects curbs and gutters, and road shoulders within CSLTG12 on an annual basis. Inspections typically begin after the spring snowmelt and continue through the summer. For more information on the road inspection plan, see the City's Annual MEP Update or NPDES Annual Report (Section II.C Traction Abrasive Deicing Material).

15. ADDITIONAL ROAD IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the roads within the catchment
<input checked="" type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO ROADS IMPLEMENTATION SUMMARY SECTION	

IV. PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY

16. PRIVATE PROPERTY BMP INVENTORY		In the space provided, note the total number of developed single-family residential (SFR) parcels and the number of SFR parcels with BMP and source control certificates. Also, note the total area of multi-family residential (MFR) and commercial properties (CICU) and the area with BMP and source control certificates. Provide the percentage area with BMP and source control certificates that should be used as the expected value.			
Total Area of SFR (acres)	Total # of SFR	Total # of SFR w/ BMP Cert.	Total % of SFR w/BMP Cert.	Total # of SFR w/ SC Cert.	Total % of SFR w/ SC Cert.
41.33	260	44	17%	0	0%
Total area of MFR (acres)	Area of MFR with BMP Certificates (acres)	Total Area of CICU (acres)	Area of CICU with BMP Certificates (acres)		
10.13	1.03	4.02	0.41		
Expected percentage of area with BMP certificates		Expected percentage of area with source control certificates			
17%		0%			
17. URBAN JURISDICTION PRIVATE PROPERTY BMP PROGRAM SUMMARY		In the space provided, describe any planned variations from the general private property BMP program for this urban catchment (reference implementation planning documents if applicable)			

The City adheres to the current Private Property BMP Program guidelines. Although the City encourages residents to implement BMP's, there is no current regulation. The City is in the process of creating a web-based GIS system that will allow GIS tracking of current BMP status with a semi-annual update from the TRPA database. The City currently utilizes the TRPA BMP database to gather information about BMP's within CSLTG12. That information is queried in GIS to provide an up to date BMP inventory within CSLTG12.

18. PRIVATE PROPERTY BMP INSPECTION PLAN SUMMARY	In the space provided, identify the data sources supporting these private property BMP calculations (reference implementation planning documents if applicable)
---	---

The City tracks private property BMP's in CSLTG12 using the TRPA database and querying the data with our GIS records. The City is currently working with TRPA to develop a BMP spreadsheet to track private property BMP's within the City, which will be updated on a semi-annual basis.

19. ADDITIONAL PRIVATE PROPERTY BMP INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment
--	---

ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY SECTION

V. OTHER POLLUTANT CONTROL STRATEGIES IMPLEMENTATION SUMMARY

20. OTHER POLLUTANT CONTROL PROGRAM SUMMARY	If other pollutant control strategies are implemented in the urban catchment, indicate that they are described in the CCS memo
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO OTHER POLLUTANT CONTROL STRATEGIES SECTION

SECTION D: EXPECTED LOADING ESTIMATE

The expected loading estimate reflects annual average loading assuming treatment BMPs, roads, private property BMPs and other pollutant controls are maintained and operated to achieve the expected conditions defined in the Implementation Plan Summary.

I. EXPECTED LOADING ESTIMATE

1. LOAD ESTIMATION METHOD		Select the method used to estimate the expected and baseline loading for the catchment	
<input checked="" type="checkbox"/> POLLUTANT LOAD REDUCTION MODEL (PLRM) V1.0 <input type="checkbox"/> OTHER (DESCRIPTION IS INCLUDED IN CCS MEMO)		Name and version (If you selected Other)	
2. EXPECTED LOADING PARAMETERS, ASSUMPTIONS & DATASETS		Check yes if any parameter values, assumptions or datasets used deviate from default values or recommendations	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (only defaults used)		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO LOAD ESTIMATION APPROACH AND ASSUMPTIONS SECTION	

If Yes, please explain

Notes: PLRM expected conditions from model run "Option 3".

3. EXPECTED LOADING PROJECT FILE	Confirm that the expected loading estimate scenario is included	4. EXPECTED LOAD	Provide the expected loads for fine sediment, nitrogen and phosphorus
<input checked="" type="checkbox"/> THE EXPECTED LOADING ESTIMATE SCENARIO IS INCLUDED IN THE LOAD ESTIMATION PROJECT FILE AND IS LISTED IN A.17		Fine sediment mass (kg) 175.36	Fine sediment particles (#) 1.92895E+16
		Total nitrogen (kg) 20.73	Total phosphorus (kg) 2.04

SECTION E: BASELINE LOADING ESTIMATE

The urban catchment baseline loading estimate sets the reference point for determining load reductions.

I. BASELINE LOADING ESTIMATE

1. BASELINE INVENTORY TABLE	Confirm baseline inventory table	2. BASELINE INFRASTRUCTURE MAP	Confirm baseline infrastructure map
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. CHANGES SINCE 2004		Summarize any changes to treatment BMPs since 2004	

The Al tahoe ECP is scheduled for completion in 2010. Improvements include destruction and replacement of DI's as infiltrating sediment traps and drain inlets. Storm drain pipes have been replaced with infiltration trenches (infiltration features)

ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

4. BASELINE LOADING PARAMETERS, ASSUMPTIONS & DATASETS	Indicate if any parameter values, assumptions or datasets used deviate from default values or recommendations
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

If Yes, please explain

5. BASELINE LOAD ESTIMATE		Provide the baseline loads for fine sediment, nitrogen and phosphorus	
Fine sediment mass (kg) 1946.23	Fine sediment particles (#) 2.14085E+17	Total nitrogen (kg) 53.75	Total phosphorus (kg) 12.34

SECTION F: CATCHMENT CREDIT SCHEDULE AMOUNT & DURATION

The final determination of the appropriate CCS credit potential amount and duration is made by the regulator in consultation with the urban jurisdiction. The urban jurisdiction proposes the CCS credit potential amount based on the load reduction estimate, and the duration based on the primary and secondary pollutant control strategies.

I. LOAD REDUCTION ESTIMATE & CATCHMENT CREDIT SCHEDULE AMOUNT

1. LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts	
Fine sediment mass (kg) 1770.87	Total phosphorus (kg) 10.30	Total nitrogen (kg) 33.02	
2. FINE SEDIMENT PARTICLE NUMBER CONVERSION	Using Equation 0.3, convert the fine sediment mass to number of fine sediment particles	3. CATCHMENT CONNECTIVITY	From item B.5
Fine sediment particles (#) 1.94796E+17		Percent Connectivity 100 %	
4. EFFECTIVE LOAD REDUCTION ESTIMATE		Multiply the values in items F.1 and F.2 by F.3	
Fine sediment mass (kg) 1770.87	Fine sediment particles (#) 1.94796E+17	Total phosphorus (kg) 10.30	Total nitrogen (kg) 33.02
5. CREDIT AMOUNT CALCULATION		Using equation 0.2 calculate the credit amount	

19.5 CREDITS

II. CREDIT SCHEDULE DURATION

6. CREDIT SCHEDULE DURATION	Indicate the catchment credit schedule duration	7. DURATION RATIONALE	Briefly explain the rationale for the selected duration
<input type="checkbox"/> 5 YEARS <input checked="" type="checkbox"/> 10 YEARS <input type="checkbox"/> 15 YEARS <input type="checkbox"/> OTHER (SPECIFY) _____ YEARS		Explanation The City expects the reductions from the current ECP to provide effective treatment for at least the next ten years.	

III. ESTABLISHMENT SUMMARY

8. ESTABLISHMENT DATE	Note the date that the CCS is submitted to the regulator	9. ESTABLISHMENT YEAR CREDIT POTENTIAL	Note the appropriate establishment year percentage and amount
Date		Percentage	Credit Amount
		100%	19.5
10. FINAL YEAR OF CREDIT SCHEDULE	Note the appropriate final year of the credit schedule		
Final Year	2020		
11. ADDITIONAL EXPECTED CCS AMOUNT AND DURATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment		
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CCS AMOUNT AND DURATION SECTION			



SECTION A: CORRESPONDENCE & CATCHMENT CREDIT SCHEDULE SUMMARY

The Correspondence & Catchment Credit Schedule Summary section is completed incrementally throughout the process of establishing a Catchment Credit Schedule (CCS), as defined in Chapter 1 of the Lake Clarity Crediting Handbook (Handbook). Subsequent sections of this template prompt users to complete the corresponding summary items here in Section A.

I. GENERAL CATCHMENT INFORMATION SUMMARY

1. CATCHMENT STATUS		Check the appropriate status and add date of previous approval if applicable	
<input checked="" type="checkbox"/> NEW CATCHMENT <input type="checkbox"/> REVISION <input type="checkbox"/> EXTENSION		Date of previous approval	
2. CATCHMENT ID		Provide the unique catchment ID & common name	
Catchment ID 50(7.5-8.5)		Common Catchment Name US 50 Milepost 7.5 to 8.5	
3. PRIMARY JURISDICTION		Identify the primary urban jurisdiction and primary point of contact within the urban jurisdiction	
<input type="checkbox"/> CALTRANS <input type="checkbox"/> CSLT <input type="checkbox"/> DOUGLAS <input type="checkbox"/> EL DORADO		<input checked="" type="checkbox"/> NDOT <input type="checkbox"/> PLACER <input type="checkbox"/> WASHOE	
		Primary Contact Tyler Thew	
		Phone Number (775) 888-7574	E-mail Address tthew@dot.state.nv.us
4. REGULATORY AGENCY		Identify the responsible regulatory agency and primary point of contact within the agency	
<input type="checkbox"/> LRWQCB <input checked="" type="checkbox"/> NDEP		Primary Contact Jason Kuchnicki	
		Phone Number (775) 687-9450	E-mail Address jkuch@ndep.nv.gov

II. CATCHMENT CREDIT SCHEDULE SUMMARY

5. BASIC CATCHMENT POLLUTANT CONTROL STRATEGY NARRATIVE	In the space provided, describe the basic strategies employed to reduce pollutant loading within the catchment
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Basic Narrative

Reduction of sediment and nutrients conveyed from this catchment to Lake Tahoe will be accomplished by the following strategies:

- 1) Source control: reduced use of traction abrasives, increased frequency and efficiency of road sweeping, shoulder stabilization and slope stabilization. The PLRM does not have a method for estimating load reductions generated by slope stabilization. In the future this catchment may be revised to include FSP reductions associated with the slope stabilization improvements.
- 2) Treatment: Infiltration facilities have been constructed to reduce both the volume of stormwater reaching Lake Tahoe and the FSP concentration leaving the facilities. Many sediment traps have also been constructed to provide pre-treatment for the infiltration facilities; however, they are not included in the BMP RAM or PLRM for this catchment.

6. EFFECTIVE LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts from Section F	
Fine sediment particles (#) 2.4E+17	Fine sediment mass (kg) 2146	Total nitrogen (kg) 7	Total phosphorous (kg) 4
7. CREDIT POTENTIAL AMOUNT		Note the credit amount	

24 CREDITS

8. ESTABLISHMENT DATE	Note the catchment establishment date from Section F for final CCS only	9. FINAL YEAR	Note the final year of the CCS from Section F for final CCS only
Establishment Date		Final Year	

III. COORDINATION CHECKLIST

10. SUBMITTED FOR VERIFICATION REVIEW		Note the date submitted and urban jurisdiction staff person (Step 1.3)
Date Submitted	Name of Staff Person	
March 3, 2011	Jason Kuchnicki	

11. STATEMENT OF COMPLETENESS & APPROPRIATENESS

Representative from urban jurisdiction must certify the completeness of the CCS (Step 1.3)

I certify that the information contained in this Catchment Credit Schedule and the analyses related to this Catchment Credit Schedule are complete and appropriate.

Printed Name	Date
Tyler J. Thew	
Signature	

12. VERIFIED BY REGULATOR

Regulator must certify the verification step is complete (Step 1.4)

I certify that the Verification Step is complete.

Printed Name	Date
Signature	

13. REGISTERED AND SUBMITTED FOR APPROVAL

Note the date that the catchment was registered in the Accounting and Tracking Database (Step 1.5)

Date

14. SUPPORTING MATERIALS CHECKLIST AND FILENAMES

Confirm each file is included in the digital submission and provide the filename and save date

Checklist	Filename	Save Date
<input checked="" type="checkbox"/> CCS FORM	US_50_Test_Catchment_Credit_Schedule.Doc	
<input type="checkbox"/> CCS MEMO (IF NECESSARY)		
<input checked="" type="checkbox"/> CATCHMENT DELINEATION MAP FOR CATCHMENT 1	US50-TMDL-Catchments_MAP.pdf	
<input checked="" type="checkbox"/> OVERALL CATCHMENT DELINEATION MAP	US50-TMDL-Catchments_MAP.pdf	
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY MAP	US50-TMDL-Catchments_BMP_Inventory.pdf	
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY TABLE		
<input type="checkbox"/> ROADS INVENTORY MAP		
<input type="checkbox"/> ROADS INVENTORY TABLE		
<input type="checkbox"/> ROADS MAINTENANCE MAP(S) (NOT REQUIRED)		
<input checked="" type="checkbox"/> BASELINE TREATMENT BMP INVENTORY TABLE	US50_BMPRAM_Output.pdf	
<input type="checkbox"/> CATCHMENT REGISTRATION REPORT (FINAL ONLY)		
<input checked="" type="checkbox"/> PLRM PROJECT FILE (DIGITAL FILE ONLY)	PLRM/Projects/Project1/ Scenario 1 & Scecnario 6	
<input checked="" type="checkbox"/> AS-BUILT DRAWINGS AND EQUIPMENT SPECIFICATIONS (DIGITAL FILES ONLY)	Contract 3293_Partial.pdf	

SECTION B: CATCHMENT DELINEATION

Credits and load reductions are tracked for specific urban catchments. The same urban catchment area must be used in both baseline and expected loading estimates. In order to prevent double counting, no land area may be included in two urban catchments.

I. CATCHMENT CONNECTIVITY			
1. CATCHMENT ID	Confirm the catchment ID and name	2. CATCHMENT DELINEATION MAP	Confirm the catchment delineation map is complete
<input checked="" type="checkbox"/> CATCHMENT ID IS PROPERLY LISTED IN A.1		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. OVERALL URBAN JURISDICTION CATCHMENT MAP	Confirm the overall catchment delineation map is complete	4. CATCHMENT HISTORY	Note any previous catchments that included a portion of this catchment
<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		Previous Catchment Name	Establishment Date
5. CATCHMENT AREA	Provide the total catchment area	6. CATCHMENT CONNECTIVITY	Provide the percent connectivity that will be used to modify the load reduction estimate
Total Area (acres)		Percent Connectivity	
22		<input type="checkbox"/> 100% <input checked="" type="checkbox"/> OTHER 25%	
		<input checked="" type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CATCHMENT CONNECTIVITY SECTION	

SECTION C: IMPLEMENTATION PLAN SUMMARY

The Implementation Plan Summary defines the expected conditions for treatment BMPs, roads, private property BMPs, and other pollutant control strategies based on the urban jurisdiction’s planned operations, maintenance and program implementation activities in the urban catchment. The Implementation Plan Summary may pull information from multiple sources and ideally relies upon one or more of the broader implementation plans used by the urban jurisdictions.

I. DEFINE LOAD REDUCTION STRATEGY

1. TREATMENT BMPS	Check the most appropriate description	2. ROAD OPERATIONS	Check the most appropriate description
<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input checked="" type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input checked="" type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	
3. PRIVATE PARCEL BMPS	Check the most appropriate description	4. OTHER POLLUTANT CONTROL STRATEGY	Check the most appropriate description
<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input checked="" type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input checked="" type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	

II. TREATMENT BMP IMPLEMENTATION SUMMARY

5. TREATMENT BMP INVENTORY TABLE	Confirm the table is complete	6. TREATMENT BMP INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
7. TREATMENT BMP MAINTENANCE PLAN SUMMARY		In the space provided, summarize planned treatment BMP maintenance actions for the overall catchment (reference implementation planning documents if applicable)	

NDOT maintenance crews assigned to this section of road perform frequent visual inspections of the drain inlets, sediment traps, and treatment facilities while driving along US 50 and perform maintenance as needed. At a minimum all drain inlets, sediment traps, treatment vaults, and infiltration facilities are physically inspected and cleaned once a year. NDOT has contracted out the cleaning of these facilities. Typically the contracted maintenance/cleaning program starts in late spring and runs through early fall.

8. TREATMENT BMP INSPECTION PLAN SUMMARY	In the space provided, summarize planned treatment BMP inspection actions for the overall catchment (reference implementation planning documents if applicable)
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NDOT maintenance crews assigned to this section of road perform frequent visual inspections of the drain inlets, sediment traps, and treatment facilities while driving along US 50 and perform maintenance as needed. At a minimum all drain inlets, sediment traps, treatment vaults, and infiltration facilities are physically inspected and cleaned once a year. NDOT is currently planning on implementing the BMP RAM and will maintain treatment BMP's with a RAM score less than 3.

9. ADDITIONAL TREATMENT BMP IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the treatment BMPs within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO TREATMENT BMP IMPLEMENTATION SUMMARY SECTION	

III. ROADS OPERATION IMPLEMENTATION SUMMARY

10. ROAD INVENTORY TABLE	Confirm the table is complete	11. ROADS INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
12. ROADS MAINTENANCE PLAN SUMMARY	In the space provided, summarize planned road maintenance actions for the overall catchment (reference implementation planning documents if applicable)		

NDOT has implemented the Road Weather Information System (RWIS) to develop an effective winter maintenance strategy that allows for better control over when, where and in what quantity sand and salt mixtures will be applied to the roadway. The system has sensors imbedded into the pavement that send information about road temperatures and conditions to computer systems for analysis. They also collect information about air temperatures, wind speed and the actual detection of rain, snow and ice on the road. Engineers and maintenance workers use that information to determine the best response to current and anticipated road conditions.

Each sensor, along with surface pavement forecasts, can determine when the road is going to freeze. This information allows crews to efficiently determine strategies before the storm and reduce unnecessary application of sand and salt. There are ten RWIS stations in the Lake Tahoe Basin and 5 are located along US 50.

NDOT has equipped some of its sand application trucks with Epoke spreaders. These devices allow for improved control of the sand application rate and where the sand is applied resulting in a reduction in the amount of sand used. NDOT uses mechanical broom sweepers with a vacuum assist system. Road sweeping occurs as soon as possible after every application of sand. During the late spring through early Fall roads are swept at least twice.

13. ROADS MAINTENANCE MAP(S)	Confirm road maintenance maps
<input type="checkbox"/> ROAD MAINTENANCE MAPS ARE PROPERLY IN A.17 (NOT REQUIRED)	
14. ROADS INSPECTION PLAN SUMMARY	In the space provided, summarize planned road inspection actions for the overall catchment (reference implementation planning documents if applicable)

NDOT has a maintenance crew assigned to US 50 and they are continuously performing maintenance and inspection of the road. Due to the continuous nature of the maintenance and inspection of US 50 NDOT practices exceed the inspection plan suggested by the Road RAM and therefore NDOT is not planning on implementing the Road RAM.

15. ADDITIONAL ROAD IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the roads within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO ROADS IMPLEMENTATION SUMMARY SECTION	

IV. PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY

16. PRIVATE PROPERTY BMP INVENTORY		In the space provided, note the total number of developed single-family residential (SFR) parcels and the number of SFR parcels with BMP and source control certificates. Also, note the total area of multi-family residential (MFR) and commercial properties (CICU) and the area with BMP and source control certificates. Provide the percentage area with BMP and source control certificates that should be used as the expected value.			
Total Area of SFR (acres)	Total # of SFR	Total # of SFR w/ BMP Cert.	Total % of SFR w/BMP Cert.	Total # of SFR w/ SC Cert.	Total % of SFR w/ SC Cert.
			%		%
Total area of MFR (acres)	Area of MFR with BMP Certificates (acres)	Total Area of CICU (acres)		Area of CICU with BMP Certificates (acres)	
Expected percentage of area with BMP certificates		Expected percentage of area with source control certificates			
%		%			
17. URBAN JURISDICTION PRIVATE PROPERTY BMP PROGRAM SUMMARY		In the space provided, describe any planned variations from the general private property BMP program for this urban catchment (reference implementation planning documents if applicable)			

18. PRIVATE PROPERTY BMP INSPECTION PLAN SUMMARY	In the space provided, identify the data sources supporting these private property BMP calculations (reference implementation planning documents if applicable)
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19. ADDITIONAL PRIVATE PROPERTY BMP INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY SECTION

V. OTHER POLLUTANT CONTROL STRATEGIES IMPLEMENTATION SUMMARY

20. OTHER POLLUTANT CONTROL PROGRAM SUMMARY	If other pollutant control strategies are implemented in the urban catchment, indicate that they are described in the CCS memo
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO OTHER POLLUTANT CONTROL STRATEGIES SECTION

SECTION D: EXPECTED LOADING ESTIMATE

The expected loading estimate reflects annual average loading assuming treatment BMPs, roads, private property BMPs and other pollutant controls are maintained and operated to achieve the expected conditions defined in the Implementation Plan Summary.

I. EXPECTED LOADING ESTIMATE

1. LOAD ESTIMATION METHOD		Select the method used to estimate the expected and baseline loading for the catchment	
<input checked="" type="checkbox"/> POLLUTANT LOAD REDUCTION MODEL (PLRM) V1.0 <input type="checkbox"/> OTHER (DESCRIPTION IS INCLUDED IN CCS MEMO)		Name and version (If you selected Other)	
2. EXPECTED LOADING PARAMETERS, ASSUMPTIONS & DATASETS		Check yes if any parameter values, assumptions or datasets used deviate from default values or recommendations	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (only defaults used)		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO LOAD ESTIMATION APPROACH AND ASSUMPTIONS SECTION	

If Yes, please explain

The PLRM does not account for the implementation of source controls on steep slopes. NDOT has stabilized steep erosive slopes in this catchment through revegetation and riprap installation. The erosion reduction for slope stabilization improvements is not included in the calculations for this catchment. NDOT anticipates a future revision to this catchment to include the source control improvements.

3. EXPECTED LOADING PROJECT FILE	Confirm that the expected loading estimate scenario is included	4. EXPECTED LOAD	Provide the expected loads for fine sediment, nitrogen and phosphorus
<input checked="" type="checkbox"/> THE EXPECTED LOADING ESTIMATE SCENARIO IS INCLUDED IN THE LOAD ESTIMATION PROJECT FILE AND IS LISTED IN A.17		Fine sediment mass (kg) 2596 Total nitrogen (kg) 28	Fine sediment particles (#) 2.9E+17 Total phosphorus (kg) 8

SECTION E: BASELINE LOADING ESTIMATE

The urban catchment baseline loading estimate sets the reference point for determining load reductions.

I. BASELINE LOADING ESTIMATE

1. BASELINE INVENTORY TABLE	Confirm baseline inventory table	2. BASELINE INFRASTRUCTURE MAP	Confirm baseline infrastructure map
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. CHANGES SINCE 2004		Summarize any changes to treatment BMPs since 2004	

Improved sand and salt application methods resulting in a reduction of sand and salt applied, Increased sweeping frequency, installed infiltration facilities, stabilized shoulders and slopes.

ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

4. BASELINE LOADING PARAMETERS, ASSUMPTIONS & DATASETS		Indicate if any parameter values, assumptions or datasets used deviate from default values or recommendations	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION	

If Yes, please explain

5. BASELINE LOAD ESTIMATE		Provide the baseline loads for fine sediment, nitrogen and phosphorus	
Fine sediment mass (kg)	Fine sediment particles (#)	Total nitrogen (kg)	Total phosphorus (kg)
5458	6.0E+17	38	13

SECTION F: CATCHMENT CREDIT SCHEDULE AMOUNT & DURATION

The final determination of the appropriate CCS credit potential amount and duration is made by the regulator in consultation with the urban jurisdiction. The urban jurisdiction proposes the CCS credit potential amount based on the load reduction estimate, and the duration based on the primary and secondary pollutant control strategies.

I. LOAD REDUCTION ESTIMATE & CATCHMENT CREDIT SCHEDULE AMOUNT

1. LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts	
Fine sediment mass (kg)	Total phosphorus (kg)	Total nitrogen (kg)	
2862	5	10	
2. FINE SEDIMENT PARTICLE NUMBER CONVERSION	Using Equation 0.3, convert the fine sediment mass to number of fine sediment particles	3. CATCHMENT CONNECTIVITY	From item B.5
Fine sediment particles (#)		Percent Connectivity	
3.1E+17		75 %	
4. EFFECTIVE LOAD REDUCTION ESTIMATE		Multiply the values in items F.1 and F.2 by F.3	
Fine sediment mass (kg)	Fine sediment particles (#)	Total phosphorus (kg)	Total nitrogen (kg)
2146	2.4E+17	4	7
5. CREDIT AMOUNT CALCULATION		Using equation 0.2 calculate the credit amount	

24 CREDITS

II. CREDIT SCHEDULE DURATION

6. CREDIT SCHEDULE DURATION	Indicate the catchment credit schedule duration	7. DURATION RATIONALE	Briefly explain the rationale for the selected duration
<input type="checkbox"/> 5 YEARS <input checked="" type="checkbox"/> 10 YEARS <input type="checkbox"/> 15 YEARS <input type="checkbox"/> OTHER (SPECIFY) _____ YEARS		Explanation NDOT typically schedules pavement improvements every 8-10 yr.	

III. ESTABLISHMENT SUMMARY

8. ESTABLISHMENT DATE	Note the date that the CCS is submitted to the regulator	9. ESTABLISHMENT YEAR CREDIT POTENTIAL	Note the appropriate establishment year percentage and amount
Date		Percentage	Credit Amount
		%	
10. FINAL YEAR OF CREDIT SCHEDULE	Note the appropriate final year of the credit schedule		
Final Year			

11. ADDITIONAL EXPECTED CCS AMOUNT AND DURATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CCS AMOUNT AND DURATION SECTION	



SECTION A: CORRESPONDENCE & CATCHMENT CREDIT SCHEDULE SUMMARY

The Correspondence & Catchment Credit Schedule Summary section is completed incrementally throughout the process of establishing a Catchment Credit Schedule (CCS), as defined in Chapter 1 of the Lake Clarity Crediting Handbook (Handbook). Subsequent sections of this template prompt users to complete the corresponding summary items here in Section A.

I. GENERAL CATCHMENT INFORMATION SUMMARY

1. CATCHMENT STATUS		Check the appropriate status and add date of previous approval if applicable	
<input checked="" type="checkbox"/> NEW CATCHMENT <input type="checkbox"/> REVISION <input type="checkbox"/> EXTENSION		Date of previous approval	
2. CATCHMENT ID		Provide the unique catchment ID & common name	
Catchment ID EDC05		Common Catchment Name Nottaway Catchment	
3. PRIMARY JURISDICTION		Identify the primary urban jurisdiction and primary point of contact within the urban jurisdiction	
<input type="checkbox"/> CALTRANS <input type="checkbox"/> CSLT <input type="checkbox"/> DOUGLAS <input checked="" type="checkbox"/> EL DORADO		<input type="checkbox"/> NDOT <input type="checkbox"/> PLACER <input type="checkbox"/> WASHOE	
		Primary Contact Brendan Ferry	
		Phone Number (530) 573-7905	E-mail Address brendan.ferry@edcgov.us
4. REGULATORY AGENCY		Identify the responsible regulatory agency and primary point of contact within the agency	
<input checked="" type="checkbox"/> LRWQCB <input type="checkbox"/> NDEP		Primary Contact Robert Larsen	
		Phone Number (530) 542-5439	E-mail Address RLarsen@waterboards.ca.gov

II. CATCHMENT CREDIT SCHEDULE SUMMARY

5. BASIC CATCHMENT POLLUTANT CONTROL STRATEGY NARRATIVE	In the space provided, describe the basic strategies employed to reduce pollutant loading within the catchment
--	--

Basic Narrative

El Dorado County will implement the following pollutant control strategies to achieve significant load reductions:
 Operations & Maintenance: Bi-annual sweeping targeted in the spring and fall; Targeted road sand application.
 Key BMP Implementation: Wet Basin; Sand Filter.
 Essential BMP Implementation: Curb & Gutter; Sediment Traps; Treatment Vault; Revegetation.
 Private BMPs: Continue to support the efforts of TRCD and TRPA and provide incentives to homeowners for regional treatment where feasible.

6. EFFECTIVE LOAD REDUCTION ESTIMATE				Note the load reduction estimate amounts from Section F			
Fine sediment particles (#)		Fine sediment mass (kg)		Total nitrogen (kg)		Total phosphorous (kg)	
1.7 x 10 ¹⁷		1515.7		17.3		6.5	
7. CREDIT POTENTIAL AMOUNT				Note the credit amount			

17 CREDITS

8. ESTABLISHMENT DATE	Note the catchment establishment date from Section F for final CCS only	9. FINAL YEAR	Note the final year of the CCS from Section F for final CCS only
Establishment Date 2/1/11		Final Year 2/1/16	

III. COORDINATION CHECKLIST

10. SUBMITTED FOR VERIFICATION REVIEW		Note the date submitted and urban jurisdiction staff person (Step 1.3)
Date Submitted	Name of Staff Person	
1/28/11	Brendan Ferry	

11. STATEMENT OF COMPLETENESS & APPROPRIATENESS		Representative from urban jurisdiction must certify the completeness of the CCS (Step 1.3)
I certify that the information contained in this Catchment Credit Schedule and the analyses related to this Catchment Credit Schedule are complete and appropriate.		

Printed Name	Date
Brendan Ferry	1/28/11
Signature	

12. VERIFIED BY REGULATOR	Regulator must certify the verification step is complete (Step 1.4)
----------------------------------	---

I certify that the Verification Step is complete.	
Printed Name	Date
Signature	

13. REGISTERED AND SUBMITTED FOR APPROVAL	Note the date that the catchment was registered in the Accounting and Tracking Database (Step 1.5)
--	--

Date	
------	--

14. SUPPORTING MATERIALS CHECKLIST AND FILENAMES	Confirm each file is included in the digital submission and provide the filename and save date
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Checklist	Filename	Save Date
<input checked="" type="checkbox"/> CCS FORM	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Documents	1/27/11
<input type="checkbox"/> CCS MEMO (IF NECESSARY)		
<input checked="" type="checkbox"/> CATCHMENT DELINEATION MAP FOR CATCHMENT 1	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Maps & Data\PDF Maps	3/24/10
<input checked="" type="checkbox"/> OVERALL CATCHMENT DELINEATION MAP	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Maps & Data\PDF Maps	3/24/10
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY MAP	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Maps & Data\PDF Maps	1/28/11
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY TABLE	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Maps & Data\Tables	1/28/11
<input checked="" type="checkbox"/> ROADS INVENTORY MAP	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Maps & Data\PDF Maps	8/19/10
<input type="checkbox"/> ROADS INVENTORY TABLE	In Progress	
<input type="checkbox"/> ROADS MAINTENANCE MAP(S) (NOT REQUIRED)		
<input checked="" type="checkbox"/> BASELINE TREATMENT BMP INVENTORY TABLE	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Maps & Data\Tables	1/28/11
<input checked="" type="checkbox"/> CATCHMENT REGISTRATION REPORT (FINAL ONLY)	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Documents	1/28/11
<input checked="" type="checkbox"/> PLRM PROJECT FILE (DIGITAL FILE ONLY)	S:\PROJECTS\95959 PLR\LCCP\EI Dorado\Active Catchments\CATCH_005\Maps & Data\Model Data	1/26/11
<input checked="" type="checkbox"/> AS-BUILT DRAWINGS AND EQUIPMENT SPECIFICATIONS (DIGITAL FILES ONLY)	Available upon request	12/10/06

SECTION B: CATCHMENT DELINEATION

Credits and load reductions are tracked for specific urban catchments. The same urban catchment area must be used in both baseline and expected loading estimates. In order to prevent double counting, no land area may be included in two urban catchments.

I. CATCHMENT CONNECTIVITY

1. CATCHMENT ID		Confirm the catchment ID and name	2. CATCHMENT DELINEATION MAP		Confirm the catchment delineation map is complete
<input checked="" type="checkbox"/> CATCHMENT ID IS PROPERLY LISTED IN A.1		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17			
3. OVERALL URBAN JURISDICTION CATCHMENT MAP		Confirm the overall catchment delineation map is complete	4. CATCHMENT HISTORY		Note any previous catchments that included a portion of this catchment
<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		Previous Catchment Name		Establishment Date	
		None		None	
5. CATCHMENT AREA		Provide the total catchment area	6. CATCHMENT CONNECTIVITY		Provide the percent connectivity that will be used to modify the load reduction estimate
Total Area (acres)		Percent Connectivity			
35.19 Acres		<input checked="" type="checkbox"/> 100% <input type="checkbox"/> OTHER _____%			
		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CATCHMENT CONNECTIVITY SECTION			

SECTION C: IMPLEMENTATION PLAN SUMMARY

The Implementation Plan Summary defines the expected conditions for treatment BMPs, roads, private property BMPs, and other pollutant control strategies based on the urban jurisdiction’s planned operations, maintenance and program implementation activities in the urban catchment. The Implementation Plan Summary may pull information from multiple sources and ideally relies upon one or more of the broader implementation plans used by the urban jurisdictions.

I. DEFINE LOAD REDUCTION STRATEGY			
1. TREATMENT BMPS	Check the most appropriate description	2. ROAD OPERATIONS	Check the most appropriate description
<input checked="" type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input checked="" type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	
3. PRIVATE PARCEL BMPS	Check the most appropriate description	4. OTHER POLLUTANT CONTROL STRATEGY	Check the most appropriate description
<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input checked="" type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	
II. TREATMENT BMP IMPLEMENTATION SUMMARY			
5. TREATMENT BMP INVENTORY TABLE	Confirm the table is complete	6. TREATMENT BMP INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
7. TREATMENT BMP MAINTENANCE PLAN SUMMARY		In the space provided, summarize planned treatment BMP maintenance actions for the overall catchment (reference implementation planning documents if applicable)	

All roadways will be swept bi-annually, at a minimum, focusing on areas where traction abrasives are applied. Sediment traps and the treatment vault will be cleaned with a vactor truck once their trapping sump capacities are greater than 50% full. The wet basin will be maintained as needed, once failures or clogging is noted during field inspections. The sand filter will be monitored annually to ensure it is performing as designed. It will be maintained on an approximate five year cycle by replacing the filter media. All key and essential BMPs will be maintained to ensure they are performing as designed.

8. TREATMENT BMP INSPECTION PLAN SUMMARY	In the space provided, summarize planned treatment BMP inspection actions for the overall catchment (reference implementation planning documents if applicable)
<p>All BMPs will be inspected once annually and after major storm events, at a minimum. BMP data shall be entered into the County's BMP database for tracking and reporting purposes to ensure that adequate field conditions exist indicating that the BMPs are functioning as designed. If failures, or sub-standard conditions are noted during the annual inspections, maintenance will be scheduled to ensure that BMPs continue to remain in a functional condition. County inspection and tracking protocols will be followed for each BMP type. These include the following:</p> <p>For sediment traps and drop inlets: Visual inspection, field measurement, field data sheet recording, BMP database entry and reporting. If the BMP is at greater than 50% capacity, maintenance will be scheduled.</p> <p>For basins: Visual inspection, field data sheet recording (including infiltration test, vegetation monitoring, photographic documentation, sediment deposition monitoring, inlet/outlet inspections, etc.), BMP database entry and reporting. If the BMP fails inspection due to non-functionality of one or more items noted, maintenance will be scheduled.</p> <p>For rock-lined or grass-lined swales: Visual inspection, field data sheet recording, photographic documentation, BMP database entry and reporting. If the BMP fails inspection due to non-functionality, maintenance will be scheduled.</p> <p>For treatment vaults: Visual inspection, field measurement, field data sheet recording, photographic documentation, BMP database entry and reporting. If the BMP is at greater than 50% capacity, maintenance will be scheduled.</p> <p>For sand filters: Visual inspection, field measurement, infiltration test, field data sheet recording, photographic documentation, BMP database entry and reporting. If the BMP fails field measurements, maintenance will be scheduled.</p> <p>For revegetation: Visual inspection and photographic documentation. If vegetation is not present, as designed, appropriate maintenance will be scheduled.</p>	
9. ADDITIONAL TREATMENT BMP IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the treatment BMPs within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO TREATMENT BMP IMPLEMENTATION SUMMARY SECTION	

III. ROADS OPERATION IMPLEMENTATION SUMMARY

10. ROAD INVENTORY TABLE	Confirm the table is complete	11. ROADS INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
12. ROADS MAINTENANCE PLAN SUMMARY	In the space provided, summarize planned road maintenance actions for the overall catchment (reference implementation planning documents if applicable)		

All roadways within the catchment will be swept bi-annually, at a minimum, focusing on areas where traction abrasives are applied. Sweeping will also be timed prior to large storm events and/or prior to the spring runoff. Failing pavement areas will be scheduled for maintenance as is deemed necessary and/or as resources become available.

13. ROADS MAINTENANCE MAP(S)	Confirm road maintenance maps
<input type="checkbox"/> ROAD MAINTENANCE MAPS ARE PROPERLY IN A.17 (NOT REQUIRED)	
14. ROADS INSPECTION PLAN SUMMARY	In the space provided, summarize planned road inspection actions for the overall catchment (reference implementation planning documents if applicable)

Roads will be visually inspected once annually and after major storm events, at a minimum. Inspection data shall be entered into the County's database for tracking and reporting purposes to ensure that adequate field conditions exist indicating that the road conditions are functioning as stated in our PLRM for the Project area. If inadequate conditions are noted during the annual inspections, maintenance will be scheduled accordingly to maintain the roadway surfaces at a level that was used in the PLRM modeling to ensure that load reduction and crediting is accurate.

15. ADDITIONAL ROAD IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the roads within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO ROADS IMPLEMENTATION SUMMARY SECTION	

IV. PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY

16. PRIVATE PROPERTY BMP INVENTORY		In the space provided, note the total number of developed single-family residential (SFR) parcels and the number of SFR parcels with BMP and source control certificates. Also, note the total area of multi-family residential (MFR) and commercial properties (CICU) and the area with BMP and source control certificates. Provide the percentage area with BMP and source control certificates that should be used as the expected value.			
Total Area of SFR (acres)	Total # of SFR	Total # of SFR w/ BMP Cert.	Total % of SFR w/BMP Cert.	Total # of SFR w/ SC Cert.	Total % of SFR w/ SC Cert.
SFI = 3.38, SFP = 13.38	108	11	10%	2	2%
Total area of MFR (acres)	Area of MFR with BMP Certificates (acres)	Total Area of CICU (acres)	Area of CICU with BMP Certificates (acres)		
0	0	0	0		
Expected percentage of area with BMP certificates		Expected percentage of area with source control certificates			
20%		8%			
17. URBAN JURISDICTION PRIVATE PROPERTY BMP PROGRAM SUMMARY		In the space provided, describe any planned variations from the general private property BMP program for this urban catchment (reference implementation planning documents if applicable)			

El Dorado County will continue to support TRPA and TRCD in their BMP implementation efforts and will continue water quality outreach efforts as part of its NPDES Permit, its EIP Project implementation and its Storm Water Management Program.

18. PRIVATE PROPERTY BMP INSPECTION PLAN SUMMARY	In the space provided, identify the data sources supporting these private property BMP calculations (reference implementation planning documents if applicable)
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El Dorado County will check in with TRCD annually to update its files with the current number of BMP certificates issued.

19. ADDITIONAL PRIVATE PROPERTY BMP INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY SECTION

V. OTHER POLLUTANT CONTROL STRATEGIES IMPLEMENTATION SUMMARY

20. OTHER POLLUTANT CONTROL PROGRAM SUMMARY	If other pollutant control strategies are implemented in the urban catchment, indicate that they are described in the CCS memo
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO OTHER POLLUTANT CONTROL STRATEGIES SECTION

SECTION D: EXPECTED LOADING ESTIMATE

The expected loading estimate reflects annual average loading assuming treatment BMPs, roads, private property BMPs and other pollutant controls are maintained and operated to achieve the expected conditions defined in the Implementation Plan Summary.

I. EXPECTED LOADING ESTIMATE

1. LOAD ESTIMATION METHOD		Select the method used to estimate the expected and baseline loading for the catchment	
<input checked="" type="checkbox"/> POLLUTANT LOAD REDUCTION MODEL (PLRM) V1.0 <input type="checkbox"/> OTHER (DESCRIPTION IS INCLUDED IN CCS MEMO)		Name and version (If you selected Other)	
2. EXPECTED LOADING PARAMETERS, ASSUMPTIONS & DATASETS		Check yes if any parameter values, assumptions or datasets used deviate from default values or recommendations	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (only defaults used)		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO LOAD ESTIMATION APPROACH AND ASSUMPTIONS SECTION	

If Yes, please explain

3. EXPECTED LOADING PROJECT FILE	Confirm that the expected loading estimate scenario is included	4. EXPECTED LOAD	Provide the expected loads for fine sediment, nitrogen and phosphorus
<input checked="" type="checkbox"/> THE EXPECTED LOADING ESTIMATE SCENARIO IS INCLUDED IN THE LOAD ESTIMATION PROJECT FILE AND IS LISTED IN A.17		Fine sediment mass (kg)	Fine sediment particles (#)
		662.8	7.3X10 ¹⁶
		Total nitrogen (kg)	Total phosphorus (kg)
		26.1	4.5

SECTION E: BASELINE LOADING ESTIMATE

The urban catchment baseline loading estimate sets the reference point for determining load reductions.

I. BASELINE LOADING ESTIMATE

1. BASELINE INVENTORY TABLE	Confirm baseline inventory table	2. BASELINE INFRASTRUCTURE MAP	Confirm baseline infrastructure map
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. CHANGES SINCE 2004		Summarize any changes to treatment BMPs since 2004	

The County installed curb and gutter, sediment traps, drop inlets, a wet basin, a treatment vault and a sand filter in the project area in 2005. The County has also increased sweeping frequency, modified road abbrasive applications and coordinated with TRCD on private property BMP outreach.

ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

4. BASELINE LOADING PARAMETERS, ASSUMPTIONS & DATASETS	Indicate if any parameter values, assumptions or datasets used deviate from default values or recommendations
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

If Yes, please explain

5. BASELINE LOAD ESTIMATE		Provide the baseline loads for fine sediment, nitrogen and phosphorus	
Fine sediment mass (kg)	Fine sediment particles (#)	Total nitrogen (kg)	Total phosphorus (kg)
2178.5	2.4 x 10 ¹⁸	43.4	11.0

SECTION F: CATCHMENT CREDIT SCHEDULE AMOUNT & DURATION

The final determination of the appropriate CCS credit potential amount and duration is made by the regulator in consultation with the urban jurisdiction. The urban jurisdiction proposes the CCS credit potential amount based on the load reduction estimate, and the duration based on the primary and secondary pollutant control strategies.

I. LOAD REDUCTION ESTIMATE & CATCHMENT CREDIT SCHEDULE AMOUNT			
1. LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts	
Fine sediment mass (kg)	Total phosphorus (kg)	Total nitrogen (kg)	
1515.7	6.5	17.3	
2. FINE SEDIMENT PARTICLE NUMBER CONVERSION	Using Equation 0.3, convert the fine sediment mass to number of fine sediment particles	3. CATCHMENT CONNECTIVITY	From item B.5
Fine sediment particles (#)		Percent Connectivity	
1.7 x 10¹⁷		100 %	
4. EFFECTIVE LOAD REDUCTION ESTIMATE		Multiply the values in items F.1 and F.2 by F.3	
Fine sediment mass (kg)	Fine sediment particles (#)	Total phosphorus (kg)	Total nitrogen (kg)
Same as above			
5. CREDIT AMOUNT CALCULATION		Using equation 0.2 calculate the credit amount	

17 CREDITS

II. CREDIT SCHEDULE DURATION			
6. CREDIT SCHEDULE DURATION	Indicate the catchment credit schedule duration	7. DURATION RATIONALE	Briefly explain the rationale for the selected duration
<input checked="" type="checkbox"/> 5 YEARS <input type="checkbox"/> 10 YEARS <input type="checkbox"/> 15 YEARS <input type="checkbox"/> OTHER (SPECIFY) -YEARS		Explanation Since this is a new concept, we want to revisit this at the end of the permit term.	
III. ESTABLISHMENT SUMMARY			
8. ESTABLISHMENT DATE	Note the date that the CCS is submitted to the regulator	9. ESTABLISHMENT YEAR CREDIT POTENTIAL	Note the appropriate establishment year percentage and amount
Date		Percentage	Credit Amount
2/1/11		100%	17
10. FINAL YEAR OF CREDIT SCHEDULE	Note the appropriate final year of the credit schedule		
Final Year			
2/1/16			
11. ADDITIONAL EXPECTED CCS AMOUNT AND DURATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment		
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CCS AMOUNT AND DURATION SECTION			



SECTION A: CORRESPONDENCE & CATCHMENT CREDIT SCHEDULE SUMMARY

The Correspondence & Catchment Credit Schedule Summary section is completed incrementally throughout the process of establishing a Catchment Credit Schedule (CCS), as defined in Chapter 1 of the Lake Clarity Crediting Handbook (Handbook). Subsequent sections of this template prompt users to complete the corresponding summary items here in Section A.

I. GENERAL CATCHMENT INFORMATION SUMMARY

1. CATCHMENT STATUS		Check the appropriate status and add date of previous approval if applicable	
<input checked="" type="checkbox"/> NEW CATCHMENT <input type="checkbox"/> REVISION <input type="checkbox"/> EXTENSION		Date of previous approval	
2. CATCHMENT ID		Provide the unique catchment ID & common name	
Catchment ID		Common Catchment Name	
DP1 (PLRM Subcatchments DP3 and DP4)		Dollar Point	
3. PRIMARY JURISDICTION		Identify the primary urban jurisdiction and primary point of contact within the urban jurisdiction	
<input type="checkbox"/> CALTRANS <input type="checkbox"/> CSLT <input type="checkbox"/> DOUGLAS <input type="checkbox"/> EL DORADO		<input type="checkbox"/> NDOT <input checked="" type="checkbox"/> PLACER <input type="checkbox"/> WASHOE	
		Primary Contact	
		Peter Kraatz	
		Phone Number	E-mail Address
		(530) 581-6230	pkraatz@placer.ca.gov
4. REGULATORY AGENCY		Identify the responsible regulatory agency and primary point of contact within the agency	
<input checked="" type="checkbox"/> LRWQCB <input type="checkbox"/> NDEP		Primary Contact	
		Robert Larsen	
		Phone Number	E-mail Address
		(530) 542-5439	RLarsen@waterboards.ca.gov

II. CATCHMENT CREDIT SCHEDULE SUMMARY

5. BASIC CATCHMENT POLLUTANT CONTROL STRATEGY NARRATIVE	In the space provided, describe the basic strategies employed to reduce pollutant loading within the catchment
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Basic Narrative

The predominant PSC for Catchment DP1 consists of the Dollar Point Erosion Control Project constructed by Placer County in 2008, identified as TRPA EIP Project No. 10063. Based on the County's delineation of urban planning catchments (UPCs), the project includes portions of UPC #s 20 and 22 and is situated in PLRM Met Grid Number 342 along the north shore of Lake Tahoe within land uses occupied predominantly by secondary roads, SFRs and MFRs. Erosion control improvements consist of hydrologic source controls (HSCs) including energy dissipation structures, infiltration galleries, numerous sediment traps, rock lined swales, vegetated swales, and rock lined transitions. No SWTs were built or are anticipated for the catchment. Private BMP promotion is not a significant PCS, however, road maintenance will increase (i.e., sweeping frequency and technology) from baseline conditions and related inspections by County staff will occur to validate road and HSC conditions and provide appropriate maintenance responses.

6. EFFECTIVE LOAD REDUCTION ESTIMATE				Note the load reduction estimate amounts from Section F	
Fine sediment particles (#)	Fine sediment mass (kg)	Total nitrogen (kg)	Total phosphorous (kg)		
16.2 x 10 ¹⁶	1470 kg	28 kg	6 kg		
7. CREDIT POTENTIAL AMOUNT				Note the credit amount	

16.2 CREDITS

8. ESTABLISHMENT DATE	Note the catchment establishment date from Section F for final CCS only	9. FINAL YEAR	Note the final year of the CCS from Section F for final CCS only
Establishment Date		Final Year	
1/25/11		1/25/21	

III. COORDINATION CHECKLIST

10. SUBMITTED FOR VERIFICATION REVIEW		Note the date submitted and urban jurisdiction staff person (Step 1.3)
Date Submitted	Name of Staff Person	
01/19/2011	Robert Larsen	

11. STATEMENT OF COMPLETENESS & APPROPRIATENESS		Representative from urban jurisdiction must certify the completeness of the CCS (Step 1.3)
I certify that the information contained in this Catchment Credit Schedule and the analyses related to this Catchment Credit Schedule are complete and appropriate.		

Printed Name	Date
Peter Kraatz	2/18/11
Signature	

12. VERIFIED BY REGULATOR		Regulator must certify the verification step is complete (Step 1.4)
I certify that the Verification Step is complete.		

Printed Name	Date
Robert Larsen	
Signature	

13. REGISTERED AND SUBMITTED FOR APPROVAL		Note the date that the catchment was registered in the Accounting and Tracking Database (Step 1.5)
--	--	--

Date	
1/25/11	

14. SUPPORTING MATERIALS CHECKLIST AND FILENAMES		Confirm each file is included in the digital submission and provide the filename and save date
---	--	--

Checklist	Filename	Save Date
<input checked="" type="checkbox"/> CCS FORM	PC_DLP_CCS 01-25-11	1/25/11
<input checked="" type="checkbox"/> CCS MEMO (IF NECESSARY)	PC Supporting Information and Memo 1.25.11.doc	1/25/11
<input checked="" type="checkbox"/> CATCHMENT DELINEATION MAP FOR CATCHMENT 1	PC_DLP_01 Catchment Delineation Map (Catch1)	1/25/11
<input checked="" type="checkbox"/> OVERALL CATCHMENT DELINEATION MAP	PC_DLP_01 Catchment Delineation Map (OvrAll)	1/25/11
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY MAP	PC_DLP_01...	1/25/11
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY TABLE	PC20 Treatment BMP Inventory.pdf	1/25/11
<input checked="" type="checkbox"/> ROADS INVENTORY MAP	PC_DLP_01 Roads Map	1/25/11
<input checked="" type="checkbox"/> ROADS INVENTORY TABLE	PC_DLP_01 Roads Table	1/25/11
<input type="checkbox"/> ROADS MAINTENANCE MAP(S) (NOT REQUIRED)	n/a	
<input type="checkbox"/> BASELINE TREATMENT BMP INVENTORY TABLE	There are no baseline treatment BMPs.	
<input type="checkbox"/> CATCHMENT REGISTRATION REPORT (FINAL ONLY)	n/a	
<input checked="" type="checkbox"/> PLRM PROJECT FILE (DIGITAL FILE ONLY)	PC20 PLRM Projects.zip	1/25/11
<input checked="" type="checkbox"/> AS-BUILT DRAWINGS AND EQUIPMENT SPECIFICATIONS (DIGITAL FILES ONLY)	PC20 DLP Erosion Cntrl Record Drawings (1of4).pdf PC20 DLP Erosion Cntrl Record Drawings (2of4).pdf PC20 DLP Erosion Cntrl Record Drawings (3of4).pdf PC20 DLP Erosion Cntrl Record Drawings (4of4).pdf	1/25/11

SECTION B: CATCHMENT DELINEATION

Credits and load reductions are tracked for specific urban catchments. The same urban catchment area must be used in both baseline and expected loading estimates. In order to prevent double counting, no land area may be included in two urban catchments.

I. CATCHMENT CONNECTIVITY			
1. CATCHMENT ID	Confirm the catchment ID and name	2. CATCHMENT DELINEATION MAP	Confirm the catchment delineation map is complete
<input checked="" type="checkbox"/> CATCHMENT ID IS PROPERLY LISTED IN A.1		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. OVERALL URBAN JURISDICTION CATCHMENT MAP	Confirm the overall catchment delineation map is complete	4. CATCHMENT HISTORY	Note any previous catchments that included a portion of this catchment
<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		Previous Catchment Name	Establishment Date
		n/a	
5. CATCHMENT AREA	Provide the total catchment area	6. CATCHMENT CONNECTIVITY	Provide the percent connectivity that will be used to modify the load reduction estimate
Total Area (acres)		Percent Connectivity	
216 acres		<input checked="" type="checkbox"/> 100% <input type="checkbox"/> OTHER ⁵⁰ / ₉ %	
		<input checked="" type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CATCHMENT CONNECTIVITY SECTION	

SECTION C: IMPLEMENTATION PLAN SUMMARY

The Implementation Plan Summary defines the expected conditions for treatment BMPs, roads, private property BMPs, and other pollutant control strategies based on the urban jurisdiction’s planned operations, maintenance and program implementation activities in the urban catchment. The Implementation Plan Summary may pull information from multiple sources and ideally relies upon one or more of the broader implementation plans used by the urban jurisdictions.

I. DEFINE LOAD REDUCTION STRATEGY			
1. TREATMENT BMPS	Check the most appropriate description	2. ROAD OPERATIONS	Check the most appropriate description
<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input checked="" type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input checked="" type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	
3. PRIVATE PARCEL BMPS	Check the most appropriate description	4. OTHER POLLUTANT CONTROL STRATEGY	Check the most appropriate description
<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input checked="" type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input checked="" type="checkbox"/> NONE	

II. TREATMENT BMP IMPLEMENTATION SUMMARY			
5. TREATMENT BMP INVENTORY TABLE	Confirm the table is complete	6. TREATMENT BMP INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
7. TREATMENT BMP MAINTENANCE PLAN SUMMARY		In the space provided, summarize planned treatment BMP maintenance actions for the overall catchment (reference implementation planning documents if applicable)	

The primary PSC for DP01 outside of road operations are hydrologic source control (HSC) facilities consisting of energy dissipation structures, infiltration galleries, numerous sediment traps, rock lined swales, vegetated swales, and rock lined transitions. Both the lack of ROW and runoff emanating primarily from secondary roads, SFRs, and MFRs were reasons that treatment type BMPs (SWT facilities) were not deployed in DP01 such as basins or vaults.

Maintenance will be performed at near or better-than-expected conditions according to BMP RAM protocols to maintain adequate RAM Score as the HSC facilities are predominantly in the road shoulders. Inspection for maintenance of HSC facilities will occur twice a year, once in the spring and once in the fall, and maintained at a frequency equivalent to removing sediment once facilities are over half full. Typical maintenance will include sediment removal by use of vac trucks. Maintenance activities will be conducted by Placer County roads maintenance staff who have been trained regarding proper maintenance. Vac trucking of sediment traps at least annually and infiltration feature would be required and tracked.

8. TREATMENT BMP INSPECTION PLAN SUMMARY	In the space provided, summarize planned treatment BMP inspection actions for the overall catchment (reference implementation planning documents if applicable)
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Treatment BMPs have not been deployed in DP01 as HSC facilities represent the primary PSC. HSC facility inspections will be conducted consistent with BMP RAM protocols to assess the condition of the HSC facilities as they are located predominantly along road shoulders. Trained Placer County employees will utilize Road RAM Field Observation Datasheets while documenting each HSC facility during the inspection process, as will a field journal to record additional pertinent observations.

Inspections at a minimum of twice per year (spring and fall) will occur to assess the structural integrity of each outfall, vegetation cover, rock lined swales, litter accumulation, and capacity of in/out flow conveyance features.

Knowledgeable staff will determine number and type of Field Observation Datasheets to bring into field via utilization of the BMP Inventory Table. The BMP Inventory Map will also be used to quickly locate each HSC facility, informing as to location and correct type of facility. Applicable Field Observation Datasheet will be used for each HSC facility, detailing type of measurements and observations collected for each HSC facility.

Inspections will include: type and percent vegetation cover, depth of sediment accumulation measured via staff gauge, and conveyance obstructions per the BMP RAM User Manual.

The applicable BMP RAM Field Observation Datasheet will be used to document the inspection process and record observations collected at all sediment traps, infiltration features, and all conveyances to ensure proper function and adequate condition. Data obtained will be entered into the BMP RAM database, receiving a BMP RAM score used to inform as to the level and priority of maintenance activities to be planned in this catchment.

9. ADDITIONAL TREATMENT BMP IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the treatment BMPs within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO TREATMENT BMP IMPLEMENTATION SUMMARY SECTION	

III. ROADS OPERATION IMPLEMENTATION SUMMARY

10. ROAD INVENTORY TABLE	Confirm the table is complete	11. ROADS INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
12. ROADS MAINTENANCE PLAN SUMMARY	In the space provided, summarize planned road maintenance actions for the overall catchment (reference implementation planning documents if applicable)		

The road maintenance plan emphasizes how often traction abrasives are swept. Currently, roads in DP01 are swept twice per year in the spring/summer consistent with baseline conditions modeled in PLRM. Future or expected conditions for road sweeping as modeled in PLRM will increase on medium and high risk roads to four times per year (twice in winter and twice in summer) using a tandem operation where a vacuum sweeper follows a traditional broom sweeper. The tandem operation will be contingent upon a vacuum sweeper purchased in the summer of 2011.

Other road maintenance will include vactoring

Placer County will continue to maintain our roadways consistent with our 2004 practices to maintain baseline conditions in terms of frequency (twice per year - once in spring and once in fall). The add

13. ROADS MAINTENANCE MAP(S)	Confirm road maintenance maps
<input type="checkbox"/> ROAD MAINTENANCE MAPS ARE PROPERLY IN A.17 (NOT REQUIRED)	
14. ROADS INSPECTION PLAN SUMMARY	In the space provided, summarize planned road inspection actions for the overall catchment (reference implementation planning documents if applicable)

Placer County will continue to inspect our roadways consistent with our 2004 practices to maintain baseline conditions in terms of frequency (twice per year - once in spring and once in fall). The inspection program will be updated though to align with the Road RAM protocols and more specifically, measurements will be taken on all roads to assess the areas of priority sweeping (tandem operation) which at this point as modeled, would be all medium and high risk roads. Actual inspection will verify this modeled assumption.

15. ADDITIONAL ROAD IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the roads within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO ROADS IMPLEMENTATION SUMMARY SECTION	

IV. PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY

16. PRIVATE PROPERTY BMP INVENTORY		In the space provided, note the total number of developed single-family residential (SFR) parcels and the number of SFR parcels with BMP and source control certificates. Also, note the total area of multi-family residential (MFR) and commercial properties (CICU) and the area with BMP and source control certificates. Provide the percentage area with BMP and source control certificates that should be used as the expected value.			
Total Area of SFR (acres)	Total # of SFR	Total # of SFR w/ BMP Cert.	Total % of SFR w/BMP Cert.	Total # of SFR w/ SC Cert.	Total % of SFR w/ SC Cert.
137.4	578	58	10.4%	0	0%
Total area of MFR (acres)	Area of MFR with BMP Certificates (acres)	Total Area of CICU (acres)		Area of CICU with BMP Certificates (acres)	
23.3	0	4.2		0	
Expected percentage of area with BMP certificates		Expected percentage of area with source control certificates			
8.7%		0%			
17. URBAN JURISDICTION PRIVATE PROPERTY BMP PROGRAM SUMMARY		In the space provided, describe any planned variations from the general private property BMP program for this urban catchment (reference implementation planning documents if applicable)			

Under current conditions in DP01 and as modeled in PLRM under baseline conditions, 7% by area of SFRs have BMP certificates and under expected conditions, an increase in 3.4% by area of SFRs is expected to a total of 10.4%.

Uncertainty exists in the area of MFR and CICU as well as the respective areas certified under current and expected conditions. Additional verification needs to be performed by County staff to provide a better implementation plan for MFRs and CICU.

The BMP Implementation Plan could be more aggressive if the County had more certainty on future incentives and enforcement actions. Placer County will be an active participant in this area as it is paramount that private BMP implementation is paramount to reaching FSP reduction targets and improving lake clarity. As such, we will revisit this CCS should a program be implemented during the credit schedule duration timeframe.

To facilitate the expected SFR area increase in BMP certificates, Placer County will continue to enforce private property BMP compliance through the process of when building permits are issued. In addition, we will continue to work on promotion and education efforts through the Tahoe Resource Conservation District (i.e., free site evaluations)

18. PRIVATE PROPERTY BMP INSPECTION PLAN SUMMARY	In the space provided, identify the data sources supporting these private property BMP calculations (reference implementation planning documents if applicable)
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The November 2004 Existing Conditions Assessment Memorandum for the Lake Forest Erosion Control Project was used as a basis for assessing baseline BMP compliance. Tracking future implementation will be performed by completing an annual inventory of building permits implemented in DP01 and verifying with the TRPA website (<http://www.tiims.org/bmptoolkit/searchBMP.asp>).

Related to BMP inspection, when BMPs are installed as part of a building permit issuance, BMP installation is inspected to ensure they are installed in accordance with approved plans. Resources for inspecting previously installed BMPs are not contemplated at this time.

19. ADDITIONAL PRIVATE PROPERTY BMP INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY SECTION

V. OTHER POLLUTANT CONTROL STRATEGIES IMPLEMENTATION SUMMARY

20. OTHER POLLUTANT CONTROL PROGRAM SUMMARY	If other pollutant control strategies are implemented in the urban catchment, indicate that they are described in the CCS memo
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO OTHER POLLUTANT CONTROL STRATEGIES SECTION

SECTION D: EXPECTED LOADING ESTIMATE

The expected loading estimate reflects annual average loading assuming treatment BMPs, roads, private property BMPs and other pollutant controls are maintained and operated to achieve the expected conditions defined in the Implementation Plan Summary.

I. EXPECTED LOADING ESTIMATE

1. LOAD ESTIMATION METHOD		Select the method used to estimate the expected and baseline loading for the catchment	
<input checked="" type="checkbox"/> POLLUTANT LOAD REDUCTION MODEL (PLRM) V1.0 <input type="checkbox"/> OTHER (DESCRIPTION IS INCLUDED IN CCS MEMO)		Name and version (If you selected Other)	
2. EXPECTED LOADING PARAMETERS, ASSUMPTIONS & DATASETS		Check yes if any parameter values, assumptions or datasets used deviate from default values or recommendations	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (only defaults used)		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO LOAD ESTIMATION APPROACH AND ASSUMPTIONS SECTION	

If Yes, please explain

3. EXPECTED LOADING PROJECT FILE	Confirm that the expected loading estimate scenario is included	4. EXPECTED LOAD	Provide the expected loads for fine sediment, nitrogen and phosphorus
<input checked="" type="checkbox"/> THE EXPECTED LOADING ESTIMATE SCENARIO IS INCLUDED IN THE LOAD ESTIMATION PROJECT FILE AND IS LISTED IN A.17		Fine sediment mass (kg) 4,956 Total nitrogen (kg) 182	Fine sediment particles (#) 54.5 * 10 ¹⁶ Total phosphorus (kg) 39

SECTION E: BASELINE LOADING ESTIMATE

The urban catchment baseline loading estimate sets the reference point for determining load reductions.

I. BASELINE LOADING ESTIMATE

1. BASELINE INVENTORY TABLE	Confirm baseline inventory table	2. BASELINE INFRASTRUCTURE MAP	Confirm baseline infrastructure map
<input type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. CHANGES SINCE 2004		Summarize any changes to treatment BMPs since 2004	

In November 2004, the Existing Conditions Assessment Memorandum was finalized for the Lake Forest area of Placer County which includes the Dollar Point subdivision. This report formed the basis for planning, designing and building stormwater BMPs in DP01 which include the series of HSC facilities previously discussed and referred to in attached figures. The HSC implementation reduces road runoff volumes through disconnection of impervious surfaces and conveying flow to rock and vegetated swales, and sediment traps for infiltration and capturing sediment. In addition, with this CCS, road maintenance efforts will be enhanced through increased frequency and technology of sweepers deployed on medium and high risk roads.

ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

4. BASELINE LOADING PARAMETERS, ASSUMPTIONS & DATASETS	Indicate if any parameter values, assumptions or datasets used deviate from default values or recommendations
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

If Yes, please explain

PLRM files, assumptions, and values have been created with assistance from consultants (NHC and 2nd Nature) and verified by County staff, both using the 11/2004 ECAM and Dollar Point Erosion Control Project as-built plans.

5. BASELINE LOAD ESTIMATE		Provide the baseline loads for fine sediment, nitrogen and phosphorus	
Fine sediment mass (kg)	Fine sediment particles (#)	Total nitrogen (kg)	Total phosphorus (kg)
6,430 kg	70.7 * 10 ¹⁶	211	45

SECTION F: CATCHMENT CREDIT SCHEDULE AMOUNT & DURATION

The final determination of the appropriate CCS credit potential amount and duration is made by the regulator in consultation with the urban jurisdiction. The urban jurisdiction proposes the CCS credit potential amount based on the load reduction estimate, and the duration based on the primary and secondary pollutant control strategies.

I. LOAD REDUCTION ESTIMATE & CATCHMENT CREDIT SCHEDULE AMOUNT

1. LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts	
Fine sediment mass (kg)	Total phosphorus (kg)	Total nitrogen (kg)	
1,474 kg	6	29	
2. FINE SEDIMENT PARTICLE NUMBER CONVERSION	Using Equation 0.3, convert the fine sediment mass to number of fine sediment particles	3. CATCHMENT CONNECTIVITY	From item B.5
Fine sediment particles (#)		Percent Connectivity	
16.2 x 10¹⁶ FSP		100 %	
4. EFFECTIVE LOAD REDUCTION ESTIMATE		Multiply the values in items F.1 and F.2 by F.3	
Fine sediment mass (kg)	Fine sediment particles (#)	Total phosphorus (kg)	Total nitrogen (kg)
1,470 kg	16.2 x 10¹⁶ FSP	6	28
5. CREDIT AMOUNT CALCULATION		Using equation 0.2 calculate the credit amount	

16.2 CREDITS

II. CREDIT SCHEDULE DURATION

6. CREDIT SCHEDULE DURATION	Indicate the catchment credit schedule duration	7. DURATION RATIONALE	Briefly explain the rationale for the selected duration
<input checked="" type="checkbox"/> 5 YEARS <input type="checkbox"/> 10 YEARS <input type="checkbox"/> 15 YEARS <input type="checkbox"/> OTHER (SPECIFY) _____YEARS		Explanation The HSC facilities deployed in DP01 are expected to function as designed for at least 20 years if adequately maintained. However, a shorter duration of 5 years is being submitted based on potential changes in both private BMP implementation enforcement and road maintenance frequency and technology. Within 5 years, there may be enforcement and/or incentive programs deployed that could significantly increase expected private BMP implementation, and road inspections may dictate changes to our road sweeping frequency and/or technology deployed. There may also be improvement in sand abrasive type and application techniques during the next five years that could result in a revision to this CCS.	

III. ESTABLISHMENT SUMMARY

8. ESTABLISHMENT DATE	Note the date that the CCS is submitted to the regulator	9. ESTABLISHMENT YEAR CREDIT POTENTIAL	Note the appropriate establishment year percentage and amount
Date		Percentage	Credit Amount
3/31/11		84%	13.6X10¹⁶
10. FINAL YEAR OF CREDIT SCHEDULE	Note the appropriate final year of the credit schedule		
Final Year			
3/31/21			
11. ADDITIONAL EXPECTED CCS AMOUNT AND DURATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment		
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CCS AMOUNT AND DURATION SECTION			



SECTION A: CORRESPONDENCE & CATCHMENT CREDIT SCHEDULE SUMMARY

The Correspondence & Catchment Credit Schedule Summary section is completed incrementally throughout the process of establishing a Catchment Credit Schedule (CCS), as defined in Chapter 1 of the Lake Clarity Crediting Handbook (Handbook). Subsequent sections of this template prompt users to complete the corresponding summary items here in Section A.

I. GENERAL CATCHMENT INFORMATION SUMMARY

1. CATCHMENT STATUS		Check the appropriate status and add date of previous approval if applicable	
<input checked="" type="checkbox"/> NEW CATCHMENT <input type="checkbox"/> REVISION <input type="checkbox"/> EXTENSION		Date of previous approval	
2. CATCHMENT ID		Provide the unique catchment ID & common name	
Catchment ID WC-IC1		Common Catchment Name Washoe County, Incline Creek #1	
3. PRIMARY JURISDICTION		Identify the primary urban jurisdiction and primary point of contact within the urban jurisdiction	
<input type="checkbox"/> CALTRANS <input type="checkbox"/> CSLT <input type="checkbox"/> DOUGLAS <input type="checkbox"/> EL DORADO		<input type="checkbox"/> NDOT <input type="checkbox"/> PLACER <input checked="" type="checkbox"/> WASHOE	
		Primary Contact Kris Klein	
		Phone Number 775-328-2046	E-mail Address kklein@washoecounty.us
4. REGULATORY AGENCY		Identify the responsible regulatory agency and primary point of contact within the agency	
<input type="checkbox"/> LRWQCB <input checked="" type="checkbox"/> NDEP		Primary Contact Jason Kuchnicki	
		Phone Number 775-687-9450	E-mail Address jkuchnic@ndep.nv.gov

II. CATCHMENT CREDIT SCHEDULE SUMMARY

5. BASIC CATCHMENT POLLUTANT CONTROL STRATEGY NARRATIVE	In the space provided, describe the basic strategies employed to reduce pollutant loading within the catchment
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Basic Narrative

Washoe County relies on mobile source control as the primary (essential) means to reduce fine sediment load. The Fairway/Mill Creek EIP project was constructed after May 2004 and primarily installed conveyance enhancements, but also a Vortechincs vault and some enhanced infiltration features. The Vortechincs vault is considered an essential BMP. This catchment is dominated by commercial land use (48%) with the Sierra Nevada College and Hyatt hotel parcels taking the majority of the commercial area. Washoe County disputes the default road risk because of the high traffic load on Country Club and Incline Way servicing the commercial properties. The baseline model was run with both the original and the preferred road risk resulting in a 2.5% increase FSP load. The preferred road risk was used for all PLRM model runs reported in this document.

6. EFFECTIVE LOAD REDUCTION ESTIMATE				Note the load reduction estimate amounts from Section F			
Fine sediment particles (#)		Fine sediment mass (kg)		Total nitrogen (kg)		Total phosphorous (kg)	
4.1x10E17		3704		37		16	
7. CREDIT POTENTIAL AMOUNT				Note the credit amount			

41 CREDITS

8. ESTABLISHMENT DATE	Note the catchment establishment date from Section F for final CCS only	9. FINAL YEAR	Note the final year of the CCS from Section F for final CCS only
Establishment Date		Final Year	

III. COORDINATION CHECKLIST

10. SUBMITTED FOR VERIFICATION REVIEW

Note the date submitted and urban jurisdiction staff person (Step 1.3)

Date Submitted	Name of Staff Person
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11. STATEMENT OF COMPLETENESS & APPROPRIATENESS

Representative from urban jurisdiction must certify the completeness of the CCS (Step 1.3)

I certify that the information contained in this Catchment Credit Schedule and the analyses related to this Catchment Credit Schedule are complete and appropriate.

Printed Name	Date
--------------	------

Signature

12. VERIFIED BY REGULATOR

Regulator must certify the verification step is complete (Step 1.4)

I certify that the Verification Step is complete.

Printed Name	Date
--------------	------

Signature

13. REGISTERED AND SUBMITTED FOR APPROVAL

Note the date that the catchment was registered in the Accounting and Tracking Database (Step 1.5)

Date

14. SUPPORTING MATERIALS CHECKLIST AND FILENAMES

Confirm each file is included in the digital submission and provide the filename and save date

Checklist	Filename	Save Date
<input type="checkbox"/> CCS FORM	WC-IC1_CCS	10 Jan 2011
<input type="checkbox"/> CCS MEMO (IF NECESSARY)	WC_IC1 MemoFinal.docx	
<input type="checkbox"/> CATCHMENT DELINEATION MAP FOR CATCHMENT 1		
<input type="checkbox"/> OVERALL CATCHMENT DELINEATION MAP		
<input type="checkbox"/> TREATMENT BMP INVENTORY MAP	WCI_WC_IC1_assets.pdf	
<input type="checkbox"/> TREATMENT BMP INVENTORY TABLE	TiiMS database	
<input type="checkbox"/> ROADS INVENTORY MAP		
<input type="checkbox"/> ROADS INVENTORY TABLE	Road Risk for IV.xlsx	
<input type="checkbox"/> ROADS MAINTENANCE MAP(S) (NOT REQUIRED)		
<input type="checkbox"/> BASELINE TREATMENT BMP INVENTORY TABLE	none	
<input type="checkbox"/> CATCHMENT REGISTRATION REPORT (FINAL ONLY)		
<input type="checkbox"/> PLRM PROJECT FILE (DIGITAL FILE ONLY)	WC_IC1_PLRM.zip	
<input type="checkbox"/> AS-BUILT DRAWINGS AND EQUIPMENT SPECIFICATIONS (DIGITAL FILES ONLY)		

SECTION B: CATCHMENT DELINEATION

Credits and load reductions are tracked for specific urban catchments. The same urban catchment area must be used in both baseline and expected loading estimates. In order to prevent double counting, no land area may be included in two urban catchments.

I. CATCHMENT CONNECTIVITY

1. CATCHMENT ID	Confirm the catchment ID and name	2. CATCHMENT DELINEATION MAP	Confirm the catchment delineation map is complete
<input checked="" type="checkbox"/> CATCHMENT ID IS PROPERLY LISTED IN A.1		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. OVERALL URBAN JURISDICTION CATCHMENT MAP	Confirm the overall catchment delineation map is complete	4. CATCHMENT HISTORY	Note any previous catchments that included a portion of this catchment
<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		Previous Catchment Name	Establishment Date
5. CATCHMENT AREA	Provide the total catchment area	6. CATCHMENT CONNECTIVITY	Provide the percent connectivity that will be used to modify the load reduction estimate
Total Area (acres) 135 acres		Percent Connectivity <input checked="" type="checkbox"/> 100% <input type="checkbox"/> OTHER _____%	
		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CATCHMENT CONNECTIVITY SECTION	

SECTION C: IMPLEMENTATION PLAN SUMMARY

The Implementation Plan Summary defines the expected conditions for treatment BMPs, roads, private property BMPs, and other pollutant control strategies based on the urban jurisdiction’s planned operations, maintenance and program implementation activities in the urban catchment. The Implementation Plan Summary may pull information from multiple sources and ideally relies upon one or more of the broader implementation plans used by the urban jurisdictions.

I. DEFINE LOAD REDUCTION STRATEGY

1. TREATMENT BMPS	Check the most appropriate description	2. ROAD OPERATIONS	Check the most appropriate description
<input checked="" type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input checked="" type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	
3. PRIVATE PARCEL BMPS	Check the most appropriate description	4. OTHER POLLUTANT CONTROL STRATEGY	Check the most appropriate description
<input type="checkbox"/> PRIMARY <input checked="" type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input checked="" type="checkbox"/> NONE	

II. TREATMENT BMP IMPLEMENTATION SUMMARY

5. TREATMENT BMP INVENTORY TABLE	Confirm the table is complete	6. TREATMENT BMP INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
7. TREATMENT BMP MAINTENANCE PLAN SUMMARY		In the space provided, summarize planned treatment BMP maintenance actions for the overall catchment (reference implementation planning documents if applicable)	

The maintenance practice in Washoe County is inspect twice annually and after major storms and to perform maintenance if based on historical experience.

8. TREATMENT BMP INSPECTION PLAN SUMMARY	In the space provided, summarize planned treatment BMP inspection actions for the overall catchment (reference implementation planning documents if applicable)
---	---

inspect twice annually and after major storms.

9. ADDITIONAL TREATMENT BMP IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the treatment BMPs within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO TREATMENT BMP IMPLEMENTATION SUMMARY SECTION	

III. ROADS OPERATION IMPLEMENTATION SUMMARY

10. ROAD INVENTORY TABLE	Confirm the table is complete	11. ROADS INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
12. ROADS MAINTENANCE PLAN SUMMARY	In the space provided, summarize planned road maintenance actions for the overall catchment (reference implementation planning documents if applicable)		

During the winter, roads are swept as soon as they are dry with a dustless sweeper.

During the summer, roads are swept every six weeks.

Traction control material is applied with a computer control application system and is only at intersections and known problem areas.

Brine is used when appropriate.

13. ROADS MAINTENANCE MAP(S)	Confirm road maintenance maps
<input type="checkbox"/> ROAD MAINTENANCE MAPS ARE PROPERLY IN A.17 (NOT REQUIRED)	
14. ROADS INSPECTION PLAN SUMMARY	In the space provided, summarize planned road inspection actions for the overall catchment (reference implementation planning documents if applicable)

Inspections are not generally required because streets are swept as soon as possible in the winter.

Road RAM will be used as appropriate when sufficient manpower is available.

15. ADDITIONAL ROAD IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the roads within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO ROADS IMPLEMENTATION SUMMARY SECTION	

IV. PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY

16. PRIVATE PROPERTY BMP INVENTORY		In the space provided, note the total number of developed single-family residential (SFR) parcels and the number of SFR parcels with BMP and source control certificates. Also, note the total area of multi-family residential (MFR) and commercial properties (CICU) and the area with BMP and source control certificates. Provide the percentage area with BMP and source control certificates that should be used as the expected value.			
Total Area of SFR (acres)	Total # of SFR	Total # of SFR w/ BMP Cert.	Total % of SFR w/BMP Cert.	Total # of SFR w/ SC Cert.	Total % of SFR w/ SC Cert.
23	46	27	41%	0	0%
Total area of MFR (acres)	Area of MFR with BMP Certificates (acres)	Total Area of CICU (acres)		Area of CICU with BMP Certificates (acres)	
30	0	65		2.4	
Expected percentage of area with BMP certificates		Expected percentage of area with source control certificates			
10%		0%			

17. URBAN JURISDICTION PRIVATE PROPERTY BMP PROGRAM SUMMARY	In the space provided, describe any planned variations from the general private property BMP program for this urban catchment (reference implementation planning documents if applicable)
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Incline Village is a leader in certificates for single family residential parcels. But clearly much has to be accomplished for multi family and commercial properties.

The impervious area for CICU is much lower (30%) than the 70% default in the model. The other impervious percentages for SFR and MFR are similar to the default values.

18. PRIVATE PROPTERY BMP INSPECTION PLAN SUMMARY	In the space provided, identify the data sources supporting these private property BMP calculations (reference implementation planning documents if applicable)
---	---

none

19. ADDITIONAL PRIVATE PROPERTY BMP INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY SECTION

V. OTHER POLLUTANT CONTROL STRATEGIES IMPLEMENTATION SUMMARY

20. OTHER POLLUTANT CONTROL PROGRAM SUMMARY	If other pollutant control strategies are implemented in the urban catchment, indicate that they are described in the CCS memo
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ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO OTHER POLLUTANT CONTROL STRATEGIES SECTION

SECTION D: EXPECTED LOADING ESTIMATE

The expected loading estimate reflects annual average loading assuming treatment BMPs, roads, private property BMPs and other pollutant controls are maintained and operated to achieve the expected conditions defined in the Implementation Plan Summary.

I. EXPECTED LOADING ESTIMATE

1. LOAD ESTIMATION METHOD		Select the method used to estimate the expected and baseline loading for the catchment
<input checked="" type="checkbox"/> POLLUTANT LOAD REDUCTION MODEL (PLRM) V1.0 <input type="checkbox"/> OTHER (DESCRIPTION IS INCLUDED IN CCS MEMO)		Name and version (If you selected Other) PLRM 1.1
2. EXPECTED LOADING PARAMETERS, ASSUMPTIONS & DATASETS		Check yes if any parameter values, assumptions or datasets used deviate from default values or recommendations
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (only defaults used)		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO LOAD ESTIMATION APPROACH AND ASSUMPTIONS SECTION

If Yes, please explain

1. We modeled an exceptional performance of the water quality treatment vault that is not representative of known performance parameters, but until told otherwise, we're sticking with the default CECs.
2. Washoe County has worked with NHC to change the default road risk for this catchment and all of Washoe County in the Tahoe Basin (see the attached spreadsheet). The pollutant load reduction was modeled using the updated road risk for the baseline and the 2010 conditions.
3. Out of range values were used for the Veg 3 landuse. This landuse is a sports field with a french drain system under the entire field which drains the field and adjacent parking lot to a wet basin. As a result, rain storage was increased to 0.5 inches and DCIA was decreased to zero.

3. EXPECTED LOADING PROJECT FILE	Confirm that the expected loading estimate scenario is included	4. EXPECTED LOAD	Provide the expected loads for fine sediment, nitrogen and phosphorus
<input checked="" type="checkbox"/> THE EXPECTED LOADING ESTIMATE SCENARIO IS INCLUDED IN THE LOAD ESTIMATION PROJECT FILE AND IS LISTED IN A.17		Fine sediment mass (kg)	Fine sediment particles (#)
		1524	1.7x10E17
		Total nitrogen (kg)	Total phosphorus (kg)
		45	5.8

SECTION E: BASELINE LOADING ESTIMATE

The urban catchment baseline loading estimate sets the reference point for determining load reductions.

I. BASELINE LOADING ESTIMATE

1. BASELINE INVENTORY TABLE	Confirm baseline inventory table	2. BASELINE INFRASTRUCTURE MAP	Confirm baseline infrastructure map
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. CHANGES SINCE 2004		Summarize any changes to treatment BMPs since 2004	

Incline Village Tourist/Fairway WQIP Phase II was a \$1.8M project completed in July 2006

ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

4. BASELINE LOADING PARAMETERS, ASSUMPTIONS & DATASETS		Indicate if any parameter values, assumptions or datasets used deviate from default values or recommendations
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

If Yes, please explain

1. Washoe County has worked with NHC to change the default road risk for this catchment and all of Washoe County in the Tahoe Basin (see the attached spreadsheet). The pollutant load reduction was modeled using the updated road risk for the baseline and the 2010 conditions.
2. Out of range values were used for the Veg 3 landuse. This landuse is a sports field with a french drain system under the entire field which drains the field and adjacent parking lot to a wet basin. As a result, rain storage was increased to 0.5 inches and DCIA was decreased to zero.

5. BASELINE LOAD ESTIMATE		Provide the baseline loads for fine sediment, nitrogen and phosphorus	
Fine sediment mass (kg)	Fine sediment particles (#)	Total nitrogen (kg)	Total phosphorus (kg)
5227	5.8x10E17	82	22

SECTION F: CATCHMENT CREDIT SCHEDULE AMOUNT & DURATION

The final determination of the appropriate CCS credit potential amount and duration is made by the regulator in consultation with the urban jurisdiction. The urban jurisdiction proposes the CCS credit potential amount based on the load reduction estimate, and the duration based on the primary and secondary pollutant control strategies.

I. LOAD REDUCTION ESTIMATE & CATCHMENT CREDIT SCHEDULE AMOUNT

1. LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts	
Fine sediment mass (kg) 3704	Total phosphorus (kg) 16	Total nitrogen (kg) 37	
2. FINE SEDIMENT PARTICLE NUMBER CONVERSION	Using Equation 0.3, convert the fine sediment mass to number of fine sediment particles	3. CATCHMENT CONNECTIVITY	From item B.5
Fine sediment particles (#) 4.1x10E17		Percent Connectivity 100 %	
4. EFFECTIVE LOAD REDUCTION ESTIMATE		Multiply the vaues in items F.1 and F.2 by F.3	
Fine sediment mass (kg) 3704	Fine sediment particles (#) 4.1x10E17	Total phosphorous (kg) 16	Total nitrogen (kg) 37
5. CREDIT AMOUNT CALCULATION		Using equation 0.2 calculate the credit amount	

41 CREDITS

II. CREDIT SCHEDULE DURATION

6. CREDIT SCHEDULE DURATION	Indicate the catchment credit schedule duration	7. DURATION RATIONALE	Briefly explain the rationale for the selected duration
<input checked="" type="checkbox"/> 5 YEARS <input type="checkbox"/> 10 YEARS <input type="checkbox"/> 15 YEARS <input type="checkbox"/> OTHER (SPECIFY) _____YEARS		Explanation sweeper technology and default database values will likely change in 5 years and the modeled results should be revisited.	

III. ESTABLISHMENT SUMMARY

8. ESTABLISHMENT DATE	Note the date that the CCS is submitted to the regulator	9. ESTABLISHMENT YEAR CREDIT POTENTIAL	Note the appropriate establishment year percentage and amount
Date		Percentage %	Credit Amount
10. FINAL YEAR OF CREDIT SCHEDULE	Note the appropriate final year of the credit schedule		
Final Year			

11. ADDITIONAL EXPECTED CCS AMOUNT AND DURATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CCS AMOUNT AND DURATION SECTION	

Pollutant Load Reduction Model (PLRM) Caltrans Test Catchment Analysis Lake Tahoe

DATE: April 22, 2010

This memo contains a description of the Pollutant Load Reduction Model (PLRM) test catchment chosen by Caltrans and the selection process that was implemented. Caltrans selected a portion of State Highway Route 28 in Placer County at Kings Beach as the test catchment. The catchment includes 0.8 miles of roadway and includes eight sub-catchment areas that drain to separate sand vault and biofiltration swale facilities and have separate outfalls. The drainage plans (provided as an attachment) shows the sub-catchments and best management practices (BMPs) that were constructed as part of the project.

Criteria Used

Caltrans selected this portion of State Highway Route 28 because the area is typical of other Caltrans highway facilities in the region. It includes numerous small sub-catchment areas that drain to different BMPs. The sub-catchments range in size from 0.04 acres to 1.0 acres. In addition, detailed plans exist that clearly show the drainage for the area and the BMPs that were constructed and what areas these BMPs treat.

Map and Description

The selected test catchment area project location grids (Grid Nos. 600 and 601) and the drainage area map are attached to this memorandum. The catchment lies on the north-west side of Lake Tahoe and includes the portion of Route 28 east of Chipmunk Street to the California-Nevada border. The highway improvement project has eight distinct tributary drainage areas treated by seven sand vaults (treatment vaults) and two biofiltration swales.

The assumptions used in the development of this test catchment model simulation include:

- Default values for drainage design.
- PLRM manual suggestions for road shoulder conditions.
- Default values for sweeping effectiveness.

Default values for characteristic runoff concentrations for primary roads; however, these may differ from Caltrans discharge concentrations.

Run-on flows from offsite (upstream of Caltrans roadway) were not considered.

Additional Rationale

The project selected is typical of Caltrans roadway projects incorporating treatment BMPs within the Tahoe Basin. The project selected has been completed, and treatment BMPs are operational. Test catchment focused on the Caltrans roadway prism (edge of right-of-way to edge of right-of-way only).

Catchments Considered

The selected project catchment considered for testing is along 0.8 miles of SR 28. For a linear roadway project with multiple outfalls, the project drainage boundaries can be considered eight distinct catchment areas with separate treatment BMPs and separate outfalls.

Available Information

The information for the catchment includes:

- Project as-builts for the roadway improvement with drainage features, outfalls, and BMP locations;
- Drainage areas for the sub-catchments;
- Topographic data, and
- Types and descriptions for Caltrans BMPs in the region.

Lessons Learned

During development of the PLRM simulation for this catchment area, Caltrans developed a list of concerns with regard to how the model represents Caltrans highway facilities.

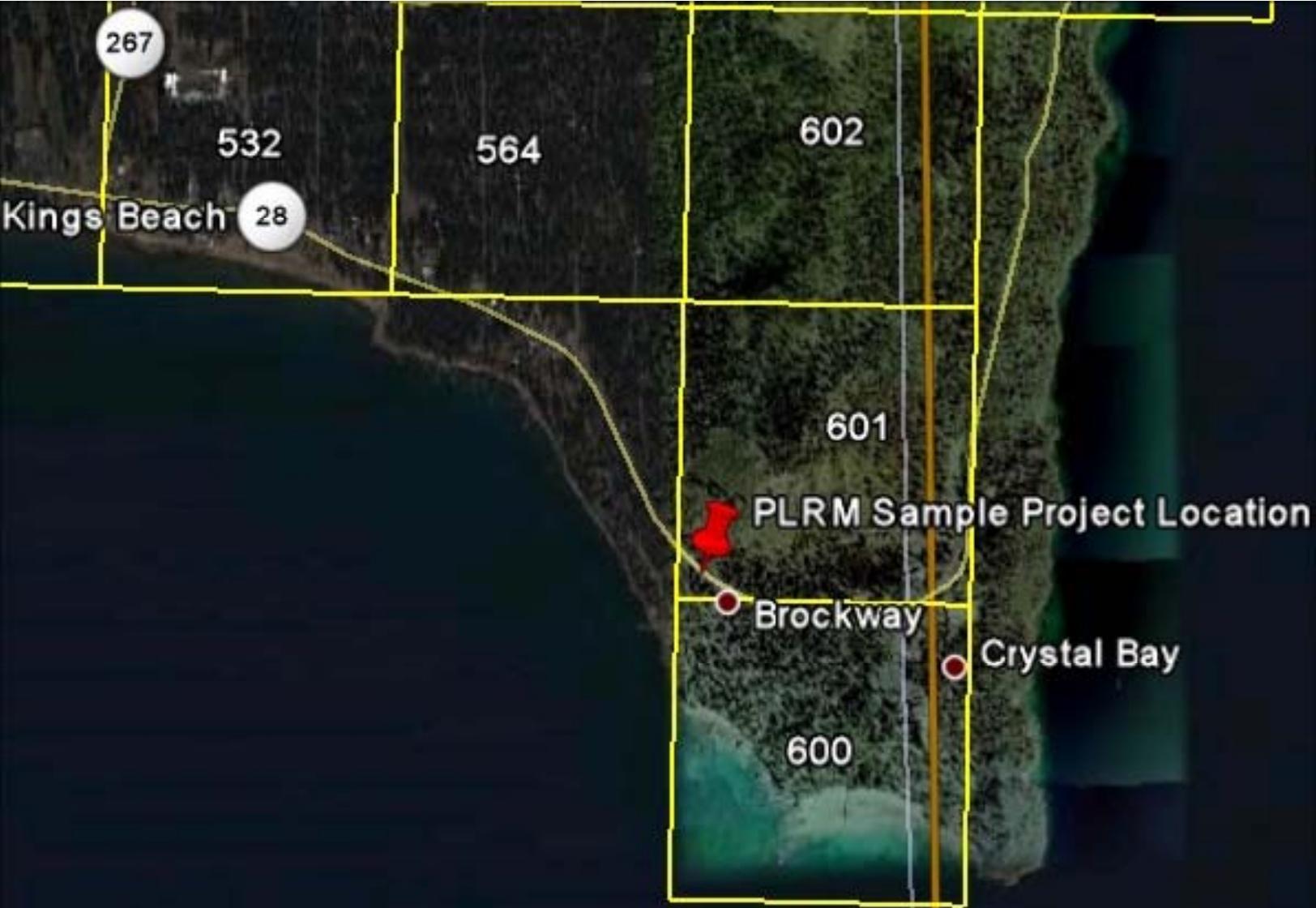
1. The model development process takes approximately one hour per outfall for small drainage areas (includes collection of data, as-builts review, drainage area delineation, data input to PLRM, and model run). A combined model for multiple outfalls was attempted; however, because model processing took several hours, separate models for each outfall/catchment area were created instead.
2. PLRM currently does not allow for revisions to Caltrans-specific characterization data (some of the default values do not apply to Caltrans).
3. PLRM Will need to allow for additional BMP types (Caltrans has nine approved BMP devices), including:
 - Dry Basin (yes, applicable to Caltrans)
 - Wet Basin (yes, applicable to Caltrans)
 - Infiltration Basin (yes, applicable top Caltrans)
 - Filter Bed (assumed same as a media filter or multi-chambered treatment train [MCTT])
 - Cartridge Filter (not applicable to Caltrans)
 - Treatment Vault (assumed same as Caltrans traction sand trap)

Comment: need to allow for biofiltration strips/swales (vegetated treatment)

4. Caltrans has multiple outfalls for roadway projects, which will be tedious for the 68 miles of Caltrans highway facilities in the watershed (the 0.8 miles of roadway used in this test catchment included eight distinct outfalls with multiple BMPs)
5. The model only allows acreage to be inserted for down to a 0.1 level of precision. For values with acreage levels of 0.01 or more, steps 2 and 4 of the model are showing erroneous values.
6. The model does not handle catchments less than 0.1 acres in size, and Caltrans has many drainage areas that are smaller than 0.1 acres.
7. BMP performance default values need adjustment; Caltrans will need the flexibility to use Caltrans-specific BMP testing data, especially for BMPs in the Caltrans approved list that are not included in the PLRM default BMP types.
8. The model is simple to use. However, with numerous outfalls associated with a linear roadway prism along 68 miles, its use for establishing baseline and load reduction

estimation would require development of several hundred models (likely one for each outfall or catchment area with treatment BMPs for pollutant reduction credits).

9. Run-on flows to the Caltrans right-of-way is likely, especially in areas along national forest land (non-urban upland areas), and modeling for Caltrans baseline and pollutant reduction will need to be further evaluated.
10. PLRM provides a baseline estimate and pollutant reduction estimate only for each catchment area. An overall assessment of Caltrans loads would likely need to be estimated as a cumulative (total) of all catchments or by other methods.

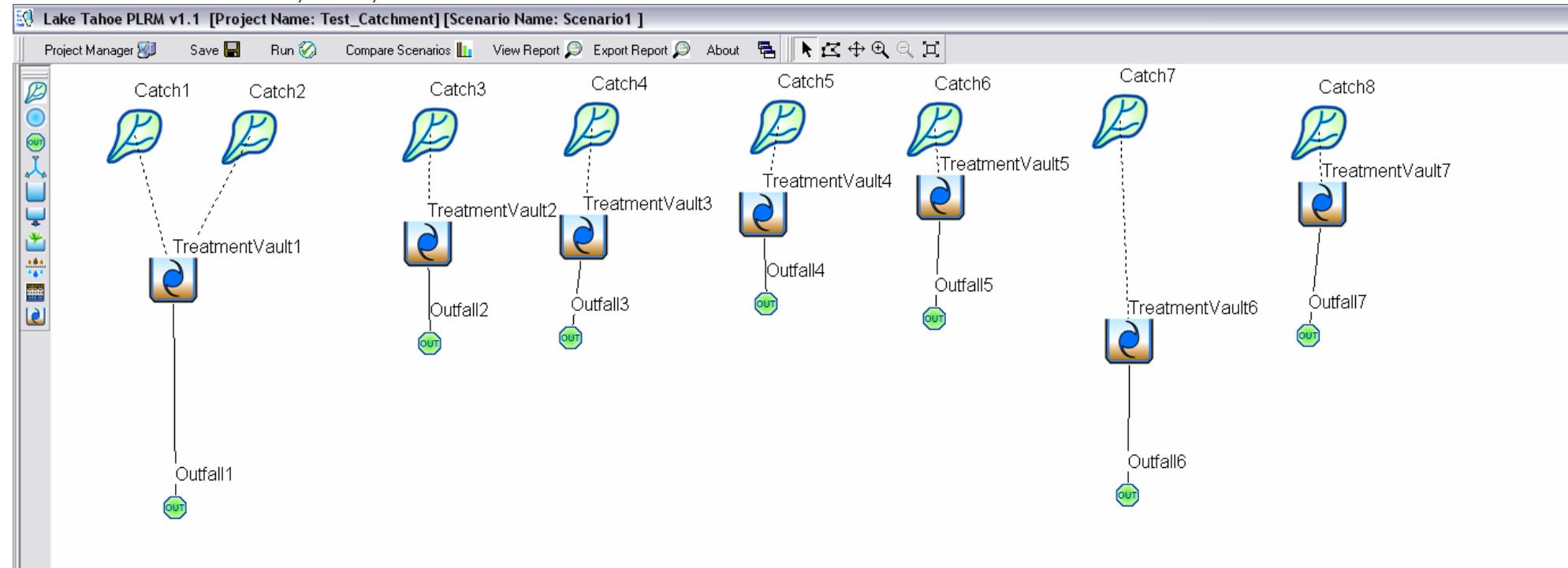


© 2010 Google
Image U.S. Geological Survey

Image © 2010 DigitalGlobe
lat 39.225744° lon -120.021330° elev 0 ft

Test Catchment for the PLRM Model

Overview of All Catchments, BMPs, and Outlets



Catchment 2 of Test Catchment – Steps 1 and 2

Lake Tahoe PLRM v1.1 [Project Name: Test_Catchment] [Sc...

Catchment Properties Editor

Catchment Properties

Name:

Flows To:

Step 1: Define Physical Attributes

Parameters	Values	Units
Area	0.22	ac
%Slope	7	%

Additional Attributes

Step 2: Define Land Uses

Step 3: Define Soils

Step 4: Define Land Use Conditions

Step 5: Define Drainage Conditions

Apply Ok

Lake Tahoe PLRM v1.1

Land Use Editor

Catchment Land Uses

Catchment ID: Catch2 [Area: 0.22ac]

Available Land Uses

- Secondary Road (ROW)
- Single Family Residential
- Multi Family Residential
- CICU
- Vegetated Turf
- Vegetated Burned
- Unpaved Road
- Ski Run
- Erosion Potential 1

Selected Land Uses

- Primary Road (ROW)

Land Use	% of Catchment Area	% Impervious	Acres
Sub-totals	100.00	99.0	0.2
Primary Road (ROW)	100	90	0.2

Apply OK Cancel

Lake Tahoe PLRM v1.1

Catchment 2 of Test Catchment – Step 3: Define Soils

Soil Editor

Soil Type Distribution

Catchment ID: Catch2 [Area: 0.22ac]

Available Map Units

- 7122-Ellispeak-Rock outcrop complex, 30 to 50 percent s
- 7123-Ellispeak-Rock outcrop complex, 50 to 70 percent s
- 7131-Ellispeak-Waca complex, 9 to 30 percent slopes
- 7132-Ellispeak-Waca complex, 30 to 50 percent slopes
- 7133-Ellispeak-Waca complex, 50 to 70 percent slopes
- 7141-Inville gravelly coarse sandy loam, 2 to 9 percent s
- 7142-Inville gravelly coarse sandy loam, 9 to 15 percent s
- 7143-Inville gravelly coarse sandy loam, 15 to 30 percent
- 7153-Jorge very cobbly fine sandy loam, 30 to 50 percent

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Selected Map Units

- 7151-Jorge very cobbly fine sandy loam, 5 to 1
- 7152-Jorge very cobbly fine sandy loam, 15 to

Map Unit	% of Catchment Area	Acres
Sub-totals	100	0.22
7151-Jorge very cobbly fine sandy loam, 5 to 15 percent slopes, rubbly	20	0.044
7152-Jorge very cobbly fine sandy loam, 15 to 30 percent slopes, rubbly	80	0.176

Lake Tahoe PLRM v1.1

Catchment 2 of Test Catchment – Step 4: Define Land Use Conditions

Land Use Conditions Editor

Applicable Catchment
Catchment ID: Catch2 [Area: 0.22ac]

Road Methodology

	Area		Road Risk Categories (% Area of Land Use)			Define Road Conditions
	% of Total	Acres	High	Moderate	Low	
Primary Roads	90.9	0.2	100	0	0	<input type="button" value="Edit Road Condition Defaults"/>
Secondary Roads	0	0	100	0	0	<input type="button" value="Edit Road Condition Defaults"/>

Parcel Methodology

	Area		BMP Implementation (% Area of Land Use)		
	% of Total	Acres	No BMPs	Source Control Certificate	BMP Certificate
Single Family Residential	0	0	100	0	0
Multi-Family Residential	0	0	100	0	0
CICU	0	0	100	0	0
Vegetated Turf	0	0	100	0	
Other	0	0			

Lake Tahoe PLRM v1.1

Road Conditions Editor

Pollutant Potential

Road Risk	Road Abrasive Application Strategy	Road Shoulder Conditions (Percent)				Score	Pollutant Potential Score
		Erodible	Protected	Stable	Stable and Protected		
High	Minimal control measures	25	0	75	0	3.25	1
Moderate	Minimal control measures	100	0	0	0	1	1
Low	Minimal control measures	100	0	0	0	1	1.5

Sweeping Effectiveness

Road Risk	Type of Sweeper	Sweeping Frequency	Sweeping Effectiveness Score
Moderate	Mechanical Broom	Winter = 0 times; Summer = 1 - 2 times	1.0
Low	Mechanical Broom	Winter = 0 times; Summer = 1 - 2 times	1.0

Characteristic Runoff Concentrations

Road Risk	Pollutants of Concern (mg/L)						Pollutant Delivery Factors	
	TSS	FSP	TP	SRP	TN	DIN	(Fines, Dissolved)	(Particulates)
High	970	673	1.59	0.13	4.46	0.58	1.0	1.0
Moderate	970	673	1.59	0.13	4.46	0.58	1.0	1.0
Low	686	477	1.25	0.11	3.99	0.51	1.0	1.0

Lake Tahoe PLRM v1.1

Catchment 2 of Test Catchment – Step 5: Define Drainage Conditions

Drainage Conditions Editor

Catchment ID: Catch2 [Area: 0.22ac]

Parcel Methodology: Road Methodology

Drainage Design

Primary Roads (0.2 acres)

	% of Area	Area (ac)	Imperv Area (ac)	DCIA (%)	Ksat (in/hr)	Perv Dep Storage (in)	Imperv Dep Storage (in)
Area Draining To Infiltration Facilities	0	0	0	100	0.2	0.1	0.02
Area Draining To Pervious Dispersion Areas	0	0	0	100	0.2	0.1	0.02
Remaining Area Draining To Outlet	100	0.2	0.18	50	0.2	0.1	0.02

Secondary Roads (0 acres)

	% of Area	Area (ac)	Imperv Area (ac)	DCIA (%)	Ksat (in/hr)	Perv Dep Storage (in)	Imperv Dep Storage (in)
Area Draining to Infiltration Facilities	0	0	0	100	0.3	0.1	0.02
Area Draining To Pervious Dispersion Areas	0	0	0	100	0.3	0.1	0.02
Remaining Area Draining To Outlet	100	0	0	50	0.3	0.1	0.02

Infiltration Facility Editor

Hydrologic Properties of HSC Receiving Runoff

Infiltration Facilities

Storage	Default	Units	Value
Unit Area Storage	1	in	1
Saturated Hydraulic Conductivity	0.50	in/hr	0.50

Apply Cancel OK

Apply Cancel OK

Treatment Vault 1 of Test Catchment



Bed Filters



Edit Object
Name: Flows To:

Design Parameters

Parameters	Default Value	Units	User Value
Equalization Basin Volume	2500	cu.ft	2500
Footprint of Filter	1000	sq.ft	1000
Filtration Rate	1	in/hr	1

[Click here to see schematic with parameter descriptions](#)

Characteristic Effluent Concentration

Pollutants of Concern	Default Value	Units	User Value
TSS	13	mg/L	13
FSP	13	mg/L	13
TN	1.5	mg/L	1.5
TP	0.14	mg/L	0.14
DIN	0.68	mg/L	0.68
SRP	0.04	mg/L	0.04

Lake Tahoe PLRM v1.1



SECTION A: CORRESPONDENCE & CATCHMENT CREDIT SCHEDULE SUMMARY

The Correspondence & Catchment Credit Schedule Summary section is completed incrementally throughout the process of establishing a Catchment Credit Schedule (CCS), as defined in Chapter 1 of the Lake Clarity Crediting Handbook (Handbook). Subsequent sections of this template prompt users to complete the corresponding summary items here in Section A.

I. GENERAL CATCHMENT INFORMATION SUMMARY

1. CATCHMENT STATUS		Check the appropriate status and add date of previous approval if applicable	
<input checked="" type="checkbox"/> NEW CATCHMENT <input type="checkbox"/> REVISION <input type="checkbox"/> EXTENSION		Date of previous approval	
2. CATCHMENT ID		Provide the unique catchment ID & common name	
Catchment ID DC_KUC_01		Common Catchment Name Lower Kahle Urban Catchment	
3. PRIMARY JURISDICTION		Identify the primary urban jurisdiction and primary point of contact within the urban jurisdiction	
<input type="checkbox"/> CALTRANS <input type="checkbox"/> CSLT <input checked="" type="checkbox"/> DOUGLAS <input type="checkbox"/> EL DORADO		<input type="checkbox"/> NDOT <input type="checkbox"/> PLACER <input type="checkbox"/> WASHOE	
		Primary Contact Mahmood Azad, County Engineer	
		Phone Number (775) 782-9063	E-mail Address MAzad@co.douglas.nv.us
4. REGULATORY AGENCY		Identify the responsible regulatory agency and primary point of contact within the agency	
<input type="checkbox"/> LRWQCB <input checked="" type="checkbox"/> NDEP		Primary Contact Jason Kuchnicki	
		Phone Number (775) 687-9444	E-mail Address jkuchnic@ndep.nv.gov

II. CATCHMENT CREDIT SCHEDULE SUMMARY

5. BASIC CATCHMENT POLLUTANT CONTROL STRATEGY NARRATIVE	In the space provided, describe the basic strategies employed to reduce pollutant loading within the catchment
--	--

Basic Narrative

A number of treatment BMPs have been installed in the catchment, including numerous sediment traps and drop inlets for sediment removal, vortex separator treatment vaults, sand/oil separators, and a large wet basin. Runoff from all roads and parcels flows directly to the drop inlets, which flow first to the vortechnic unit and a sand/oil separator, and then into the large wet basin for flow volume reduction and decreased effluent concentration. An additional control strategy has been to install immovable barriers along the north side of Kahle Drive to prevent off-road parking of vehicles on the adjacent Forest Service land. This will decrease the amount of sediment that is introduced from these vehicles due to the off-site parking onto Kahle Drive.

6. EFFECTIVE LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts from Section F	
Fine sediment particles (#) 10 * 10¹⁶	Fine sediment mass (kg) 933	Total nitrogen (kg) 16.15	Total phosphorous (kg) 14.55
7. CREDIT POTENTIAL AMOUNT		Note the credit amount	

10 CREDITS

8. ESTABLISHMENT DATE	Note the catchment establishment date from Section F for final CCS only	9. FINAL YEAR	Note the final year of the CCS from Section F for final CCS only
Establishment Date 1/31/11		Final Year 2015	

III. COORDINATION CHECKLIST

10. SUBMITTED FOR VERIFICATION REVIEW		Note the date submitted and urban jurisdiction staff person (Step 1.3)
Date Submitted	Name of Staff Person	
December 7, 2010	Jason Kuchnicki	

11. STATEMENT OF COMPLETENESS & APPROPRIATENESS

Representative from urban jurisdiction must certify the completeness of the CCS (Step 1.3)
 I certify that the information contained in this Catchment Credit Schedule and the analyses related to this Catchment Credit Schedule are complete and appropriate.

Printed Name	Date
Mahmood Azad	12/7/10
Signature	

12. VERIFIED BY REGULATOR

Regulator must certify the verification step is complete (Step 1.4)
 I certify that the Verification Step is complete.

Printed Name	Date
Jason Kuchnicki	
Signature	

13. REGISTERED AND SUBMITTED FOR APPROVAL

Note the date that the catchment was registered in the Accounting and Tracking Database (Step 1.5)

Date
2/17/11

14. SUPPORTING MATERIALS CHECKLIST AND FILENAMES

Confirm each file is included in the digital submission and provide the filename and save date

Checklist	Filename	Save Date
<input checked="" type="checkbox"/> CCS FORM	CCS FORM	2/16/11
<input checked="" type="checkbox"/> CCS MEMO (IF NECCESARY)	CCS MEMO	2/16/11
<input checked="" type="checkbox"/> CATCHMENT DELINEATION MAP FOR CATCHMENT 1	CATCHMENT DELINEATION MAP	2/16/11
<input type="checkbox"/> OVERALL CATCHMENT DELINEATION MAP		
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY MAP	TREATMENT BMP INVENTORY MAP	2/16/11
<input checked="" type="checkbox"/> TREATMENT BMP INVENTORY TABLE	TREATMENT BMP INVENTORY TABLE	2/16/11
<input checked="" type="checkbox"/> ROADS INVENTORY MAP	ROADS INVENTORY MAP	2/16/11
<input checked="" type="checkbox"/> ROADS INVENTORY TABLE	ROADS INVENTORY TABLE	2/16/11
<input type="checkbox"/> ROADS MAINTENANCE MAP(S) (NOT REQUIRED)		
<input checked="" type="checkbox"/> BASELINE TREATMENT BMP INVENTORY TABLE	BASELINE TREATMENT BMP INVENTORY TABLE	2/16/11
<input type="checkbox"/> CATCHMENT REGISTRATION REPORT (FINAL ONLY)		
<input checked="" type="checkbox"/> PLRM PROJECT FILE (DIGITAL FILE ONLY)	Project 1 (Baseline Conditions) Project 2 (Expected Conditions)	1/17/11
<input checked="" type="checkbox"/> AS-BUILT DRAWINGS AND EQUIPMENT SPECIFICATIONS (DIGITAL FILES ONLY)	DC_KUC_01 Wet Basin WB_01 Design Drawings	2/16/11

SECTION B: CATCHMENT DELINEATION

Credits and load reductions are tracked for specific urban catchments. The same urban catchment area must be used in both baseline and expected loading estimates. In order to prevent double counting, no land area may be included in two urban catchments.

I. CATCHMENT CONNECTIVITY

1. CATCHMENT ID	Confirm the catchment ID and name	2. CATCHMENT DELINEATION MAP	Confirm the catchment delineation map is complete
<input checked="" type="checkbox"/> CATCHMENT ID IS PROPERLY LISTED IN A.1		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. OVERALL URBAN JURISDICTION CATCHMENT MAP	Confirm the overall catchment delineation map is complete	4. CATCHMENT HISTORY	Note any previous catchments that included a portion of this catchment
<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		Previous Catchment Name	Establishment Date
5. CATCHMENT AREA	Provide the total catchment area	6. CATCHMENT CONNECTIVITY	Provide the percent connectivity that will be used to modify the load reduction estimate
Total Area (acres) 73.31 acres (Figure 1)		Percent Connectivity <input type="checkbox"/> 100% <input checked="" type="checkbox"/> OTHER ²⁵ % <input checked="" type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CATCHMENT CONNECTIVITY SECTION	

SECTION C: IMPLEMENTATION PLAN SUMMARY

The Implementation Plan Summary defines the expected conditions for treatment BMPs, roads, private property BMPs, and other pollutant control strategies based on the urban jurisdiction’s planned operations, maintenance and program implementation activities in the urban catchment. The Implementation Plan Summary may pull information from multiple sources and ideally relies upon one or more of the broader implementation plans used by the urban jurisdictions.

I. DEFINE LOAD REDUCTION STRATEGY			
1. TREATMENT BMPs	Check the most appropriate description	2. ROAD OPERATIONS	Check the most appropriate description
<input checked="" type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input checked="" type="checkbox"/> NONE	
3. PRIVATE PARCEL BMPs	Check the most appropriate description	4. OTHER POLLUTANT CONTROL STRATEGY	Check the most appropriate description
<input type="checkbox"/> PRIMARY <input checked="" type="checkbox"/> SECONDARY <input type="checkbox"/> TERTIARY <input type="checkbox"/> NONE		<input type="checkbox"/> PRIMARY <input type="checkbox"/> SECONDARY <input checked="" type="checkbox"/> TERTIARY <input type="checkbox"/> NONE	
II. TREATMENT BMP IMPLEMENTATION SUMMARY			
5. TREATMENT BMP INVENTORY TABLE	Confirm the table is complete	6. TREATMENT BMP INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
7. TREATMENT BMP MAINTENANCE PLAN SUMMARY		In the space provided, summarize planned treatment BMP maintenance actions for the overall catchment (reference implementation planning documents if applicable)	

The most important BMPs in the KUC catchment include a wet basin and two Vortechincs treatment vaults. These will be maintained at near or better-than-expected conditions according to BMP RAM protocols. Maintenance activities will be conducted by and coordinated between Douglas County roads maintenance staff and Oliver Park General Improvement District (GID) personnel, who have been trained on the BMP RAM protocols and other maintenance procedures.

The essential feature of this catchment is the wet basin which was designed to require little maintenance, with sediment removal not normally constituting a major activity on an annual basis. Unless dictated otherwise by BMP RAM field observations, every 5-7 years sediment should be removed from the basin forebay and the forebay shall be regraded. Approximately every 15-20 years, accumulated sediment should be removed from the wet basin itself.

The key features in this catchment are two Vortechincs treatment vaults, which will require a minimum of annual removal of accumulated material with an eductor truck, and cleaning of the inlet, all chambers, and the outlet, unless BMP RAM field observations dictate otherwise.

References:

- * See attached Table 1 - Treatment BMP Inventory Table, and Figure 2 - Treatment BMP Map.
- * See Attachment 2, CASQA Fact Sheet TC-20, Wet Ponds, and Attachment 3, CASQA Fact Sheet MP-51, Vortex Separator for more information.

8. TREATMENT BMP INSPECTION PLAN SUMMARY	In the space provided, summarize planned treatment BMP inspection actions for the overall catchment (reference implementation planning documents if applicable)
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Inspection of the Key and Essential Treatment BMPs will be conducted by following the BMP RAM protocols for condition assessment. Inspections will be conducted by and coordinated between Douglas County maintenance staff and Oliver Park GID personnel who will be trained in the use of the protocols and condition assessments for the applicable BMPs. The BMP RAM Field Observation Datasheets for each BMP will be used to document the inspection process and record observations.

The essential treatment BMP, the Wet Basin (WB_01) will require semiannual/annual inspections for burrows, sediment accumulation, structural integrity of the outfall, vegetation cover, and litter accumulation. Inspection staff will use the applicable BMP RAM Field Observation Datasheet detailing the location and type of measurement collected for the wet basin. Primary inspection points according to the datasheet are type and percent of vegetation cover, and depth of sediment accumulation as measured at the installed staff gauge. Inspections will be completed in the late spring and early fall, in order to ensure maximum capacities prior to the winter and prior to the summer.

The key treatment BMPs are the vortechinc treatment vaults, which should be inspected after storm events to check for accumulated sediment and debris. These units are considered "key" due to their intent of achieving a significant load reduction from their function; the vault located upstream of the wet basin removes a significant portion of sediment that would otherwise enter the wet basin and cause sediment accumulation in the wet basin that would decrease it's capacity. The applicable BMP RAM Field Observation Datasheet will be used to document the inspection process and record observations collected at the treatment vaults. An additional inspection will be made of the associated conveyance features to verify that they are in properly functioning condition, i.e., that the sediment depth accumulated is within specified depths, and that they are properly conveying water to the treatment vaults.

Data obtained in this inspection will be entered from the datasheets into the BMP RAM database. The subsequently received BMP RAM scores obtained will provide the county with the level and priority of maintenance activities to be planned in this catchment.

Wet basin inspection particulars:

1-2 times/year (early spring, late fall): Inspect for burrows, structural integrity of outfall, percent vegetation cover, litter accumulation.

1-2 times/year (early spring, late fall): Conduct measurement of depth of sediment accumulation at staff gauge installed in north end of basin.

Vortechnics units inspection particulars:

Inspect after storm events yielding > 1 inch of precipitation over 24-hour period. Prepare to vacuum contents out.

Inspect prior to storm season (October) to ensure little to no accumulation of sediment inside vault.

References

1. BMP RAM User’s Manual

Field Observation Datasheet - Treatment Vault

Field Observation Protocol - Material Accumulation (pps. 55-57)

Field Observation Protocol - Treatment Vault Capacity (pps. 61-62)

2. CASQA Fact Sheets

Fact Sheet TC-20 - Wet Ponds

Fact Sheet MP-51 - Vortex Separator

3. Douglas-Tahoe Stormwater Assests Operation and Maintenance Handbook

Inspection and Maintenance Guidance Sheet - Drainage Inlet and Sediment Traps (pps. 35-40)

Inspection and Maintenance Guidance Sheet - Treatment Basins (pps. 49-55)

Inspection and Maintenance Guidance Sheet - Stormwater Treatment Vault and Cartridge Filter (pps. 57- 63).

9. ADDITIONAL TREATMENT BMP IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the treatment BMPs within the catchment
<input checked="" type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO TREATMENT BMP IMPLEMENTATION SUMMARY SECTION	

Attached hereto are the design drawings for the Wet Basin.

III. ROADS OPERATION IMPLEMENTATION SUMMARY

10. ROAD INVENTORY TABLE	Confirm the table is complete	11. ROADS INVENTORY MAP	Confirm the map is complete
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
12. ROADS MAINTENANCE PLAN SUMMARY		In the space provided, summarize planned road maintenance actions for the overall catchment (reference implementation planning documents if applicable)	

See attached Roads Inventory Table and Roads Inventory Map.
 Planned Abrasive Strategy: The road abrasive application strategies represent long-term efforts to minimize total mass of road abrasives applied while maintaining safe driving conditions. In the Lower Kahle Urban Catchment, minimum and advanced control measures will be used. Minimum control measures include the application of a minimum amount of abrasive to high and moderate risk roads in the catchment, as seen on the attached Roads Inventory Map. Equipment operators shall apply the minimum amount of abrasive (sand) to these roads. Frequency of abrasive application shall be in accordance with major storms. On low risk roads, no abrasives will be used (representative of advanced control measures), as these are extremely low slope (<1%), with minimal traffic in this predominantly residential catchment.

- Minimum control measures - apply minimum sand to high and moderate risk roads
- Advanced control measures – no abrasive application to low risk roads

Because of the extremely low slope, minimal traffic in this area and no vacuum truck sweeper available, there will be no planned sweeping of this catchment. Because of the density of sediment traps, the treatment vaults and the wet basin’s efficacy of removing sediment from the catchment, this is not a detriment to water quality. PLRM modeling runs show little effect between scenarios of using a sweeper and not using a sweeper.

Other Source Control Practices: The source control practice used on Kahle Drive includes implementation of parking barriers on the north side of Kahle Drive, to prevent traffic from driving over the curb and onto the embankments on the north side of the road and parking off the road on the dirt area. This will preclude additional inputs of sediment entering Kahle Drive year-round, especially in the summer with increased visitors to the adjacent Forest Service land. This is represented in the PLRM model by changing road shoulder conditions along this segment of the road from erodible to stable and protected.

13. ROADS MAINTENANCE MAP(S)	Confirm road maintenance maps
<input type="checkbox"/> ROAD MAINTENANCE MAPS ARE PROPERLY IN A.17 (NOT REQUIRED)	
14. ROADS INSPECTION PLAN SUMMARY	In the space provided, summarize planned road inspection actions for the overall catchment (reference implementation planning documents if applicable)

It is expected that the roads in the catchment should be maintained and returned to expected conditions within 1-2 weeks after a storm. Calibration inspections should be completed at least once in the winter before and after application of abrasives. A reasonable inspection should follow the entrance of Kahle Drive, a left turn on Laura Drive, right on Irwin/Edward to Michelle Drive, then a right back onto Kahle Drive. This route will give inspectors an overview of the conditions on high, moderate and low risk roads within the catchment.

During winter inspections, there should be little to no abrasives on the side streets (low risk, low slope roads in the housing areas), with some expected abrasives remaining on Kahle Drive, depending on the time since the last storm. During a summer inspection, there should be no cars parked off the road north off Kahle Drive. This is a verification of expected conditions in the catchment. There should be little to no sand on the road during the summer months.

An application of the Road Rapid Assessment Methodology (ROAD RAM) is currently underway for Douglas County roads. Upon its implementation, protocols will be established based on this methodology to maintain an inventory and condition of the roads in this catchment. Because of the publication date of the ROAD RAM very close to the date of this CCS submittal, there was not enough time to prepare an inventory for this catchment. When the catchment is registered again in 2015 this will be completed.

15. ADDITIONAL ROAD IMPLEMENTATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the roads within the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO ROADS IMPLEMENTATION SUMMARY SECTION	

IV. PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY					
16. PRIVATE PROPERTY BMP INVENTORY		In the space provided, note the total number of developed single-family residential (SFR) parcels and the number of SFR parcels with BMP and source control certificates. Also, note the total area of multi-family residential (MFR) and commercial properties (CICU) and the area with BMP and source control certificates. Provide the percentage area with BMP and source control certificates that should be used as the expected value.			
Total Area of SFR (acres)	Total # of SFR	Total # of SFR w/ BMP Cert.	Total % of SFR w/BMP Cert.	Total # of SFR w/ SC Cert.	Total % of SFR w/ SC Cert.
46.2 acres	8	0	0%	8	1.3%
Total area of MFR (acres)	Area of MFR with BMP Certificates (acres)	Total Area of CICU (acres)		Area of CICU with BMP Certificates (acres)	
7.1 acres	0	7.5 acres		0	
Expected percentage of area with BMP certificates		Expected percentage of area with source control certificates			
0%		1.3%			
17. URBAN JURISDICTION PRIVATE PROPERTY BMP PROGRAM SUMMARY		In the space provided, describe any planned variations from the general private property BMP program for this urban catchment (reference implementation planning documents if applicable)			

18. PRIVATE PROPERTY BMP INSPECTION PLAN SUMMARY	In the space provided, identify the data sources supporting these private property BMP calculations (reference implementation planning documents if applicable)
<p>A list of private parcel BMPs was obtained from the TRPA website (http://www.tiims.org/bmptoolkit/searchBMP.asp). There are eight Source Control Certificates awarded to private parcels in this catchment. The acreage of each parcel is listed on the certificate. These acreages have been summed to account to be 0.85 acres of private parcels with Source Control Certificates.</p> <p>The residences with Source Control Certificates are shown on Figure 4.1, Private Party BMP Map.</p>	

19. ADDITIONAL PRIVATE PROPERTY BMP INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment
<input type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO PRIVATE PROPERTY BMP IMPLEMENTATION SUMMARY SECTION	

V. OTHER POLLUTANT CONTROL STRATEGIES IMPLEMENTATION SUMMARY	
20. OTHER POLLUTANT CONTROL PROGRAM SUMMARY	If other pollutant control strategies are implemented in the urban catchment, indicate that they are described in the CCS memo
<input checked="" type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO OTHER POLLUTANT CONTROL STRATEGIES SECTION	

Installation of immovable parking barriers blocking access to the unpaved road shoulder adjacent to the north side of Kahle Drive is expected to result in fewer cars parked off pavement and reduced soils disturbance within the catchment. Observations will be equated to an estimated level of road shoulder protection in the expected loading estimate.

In PLRM, this change in road shoulder protection has been effectuated by decreasing the percentage of erodible road shoulders and increasing the percentage of stable and protected road shoulders representative of Kahle Drive.

This CCS and accompanying memo define the inspection approach and frequency as a driving survey of Kahle Drive at least three times per year during non-snow conditions. The table in the memo provides a description of how visual surveys of parking behaviour and road shoulder disturbance will be used to define conditions.

SECTION D: EXPECTED LOADING ESTIMATE

The expected loading estimate reflects annual average loading assuming treatment BMPs, roads, private property BMPs and other pollutant controls are maintained and operated to achieve the expected conditions defined in the Implementation Plan Summary.

I. EXPECTED LOADING ESTIMATE

1. LOAD ESTIMATION METHOD	Select the method used to estimate the expected and baseline loading for the catchment
<input checked="" type="checkbox"/> POLLUTANT LOAD REDUCTION MODEL (PLRM) V1.0 <input type="checkbox"/> OTHER (DESCRIPTION IS INCLUDED IN CCS MEMO)	Name and version (If you selected Other)
2. EXPECTED LOADING PARAMETERS, ASSUMPTIONS & DATASETS	Check yes if any parameter values, assumptions or datasets used deviate from default values or recommendations
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (only defaults used)	<input checked="" type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO LOAD ESTIMATION APPROACH AND ASSUMPTIONS SECTION

If Yes, please explain

Default PLRM model values have been used for all parameters. Areal extent of land uses have been determined from Douglas County Assessor's Office parcel information, and the Lake Tahoe GIS Land Use layer. Soils data has been obtained from the NRCS Web Soil Survey. Road area, shoulder, and road risk have been calculated from parcel information, visual observations, and the Lake Tahoe Road Risk GIS layer. The area and volume of the wet basin have been determined from the design drawings, while the treatment vault capacities have been determined from local research.

3. EXPECTED LOADING PROJECT FILE	Confirm that the expected loading estimate scenario is included	4. EXPECTED LOAD	Provide the expected loads for fine sediment, nitrogen and phosphorus
<input checked="" type="checkbox"/> THE EXPECTED LOADING ESTIMATE SCENARIO IS INCLUDED IN THE LOAD ESTIMATION PROJECT FILE AND IS LISTED IN A.17		Fine sediment mass (kg) 542 kg Total nitrogen (kg) 94.78 kg	Fine sediment particles (#) 5.9* 10¹⁶ Total phosphorus (kg) 18.52 kg

SECTION E: BASELINE LOADING ESTIMATE

The urban catchment baseline loading estimate sets the reference point for determining load reductions.

I. BASELINE LOADING ESTIMATE

1. BASELINE INVENTORY TABLE	Confirm baseline inventory table	2. BASELINE INFRASTRUCTURE MAP	Confirm baseline infrastructure map
<input checked="" type="checkbox"/> TABLE FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17		<input checked="" type="checkbox"/> MAP FOLLOWS TECHNICAL GUIDANCE AND IS LISTED IN A.17	
3. CHANGES SINCE 2004	Summarize any changes to treatment BMPs since 2004		

Since 2004, additional BMPs have been implemented in the Lower Kahle Urban Catchment. These include a large wet basin, and an additional vortex separator upstream of the wet basin to minimize the amount of sediment loading to the wet basin, lengthening its useful life. Numerous sediment traps and drop inlets have also been installed, all of which also decrease the sediment loading to the vortex separators and wet basin. Sand/oil separators have also been installed. A number of homes have also received Source Control Certificates for their "private party BMPs".

ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

4. BASELINE LOADING PARAMETERS, ASSUMPTIONS & DATASETS	Indicate if any parameter values, assumptions or datasets used deviate from default values or recommendations
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/> ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO BASELINE CONDITIONS SECTION

If Yes, please explain

Default PLRM model values have been used for all parameters. Areal extent of land uses have been determined from Douglas County Assessor's Office parcel information, and the Lake Tahoe GIS Land Use layer. Soils data has been obtained from the NRCS Web Soil Survey. Road area, shoulder, and road risk have been calculated from parcel information, visual observations, and the Lake Tahoe Road Risk GIS layer. The existing treatment vault capacity has been determined from manufacturer's data.

5. BASELINE LOAD ESTIMATE		Provide the baseline loads for fine sediment, nitrogen and phosphorus	
Fine sediment mass (kg)	Fine sediment particles (#)	Total nitrogen (kg)	Total phosphorus (kg)
1786 kg	1.97* 10¹⁷	116.32 kg	37.92 kg

SECTION F: CATCHMENT CREDIT SCHEDULE AMOUNT & DURATION

The final determination of the appropriate CCS credit potential amount and duration is made by the regulator in consultation with the urban jurisdiction. The urban jurisdiction proposes the CCS credit potential amount based on the load reduction estimate, and the duration based on the primary and secondary pollutant control strategies.

I. LOAD REDUCTION ESTIMATE & CATCHMENT CREDIT SCHEDULE AMOUNT

1. LOAD REDUCTION ESTIMATE		Note the load reduction estimate amounts	
Fine sediment mass (kg) 1244 kg	Total phosphorus (kg) 19.4 kg	Total nitrogen (kg) 21.54 kg	
2. FINE SEDIMENT PARTICLE NUMBER CONVERSION	Using Equation 0.3, convert the fine sediment mass to number of fine sediment particles	3. CATCHMENT CONNECTIVITY	From item B.5
Fine sediment particles (#) 1.36 * 10¹⁷		Percent Connectivity 75 %	
4. EFFECTIVE LOAD REDUCTION ESTIMATE		Multiply the values in items F.1 and F.2 by F.3	
Fine sediment mass (kg) 933 kg	Fine sediment particles (#) 10 * 10¹⁶	Total phosphorus (kg) 14.55 kg	Total nitrogen (kg) 16.15 kg
5. CREDIT AMOUNT CALCULATION		Using equation 0.2 calculate the credit amount	

10 CREDITS

II. CREDIT SCHEDULE DURATION

6. CREDIT SCHEDULE DURATION	Indicate the catchment credit schedule duration	7. DURATION RATIONALE	Briefly explain the rationale for the selected duration
<input checked="" type="checkbox"/> 5 YEARS <input type="checkbox"/> 10 YEARS <input type="checkbox"/> 15 YEARS <input type="checkbox"/> OTHER (SPECIFY) _____YEARS		Explanation The essential treatment BMP in this catchment is a wet basin, which has long-term results. Therefore, this catchment should receive a long-duration credit schedule (15 years). However, due to the planned redevelopment of the lower 15 acres of the catchment that is estimated to be planned to further decrease sediment loads, this catchment credit schedule should be revised in 5 years upon expected completion of this project, "Tahoe Beach Club."	

III. ESTABLISHMENT SUMMARY

8. ESTABLISHMENT DATE	Note the date that the CCS is submitted to the regulator	9. ESTABLISHMENT YEAR CREDIT POTENTIAL	Note the appropriate establishment year percentage and amount
Date 1/31/11		Percentage 84%	Credit Amount 8.4
10. FINAL YEAR OF CREDIT SCHEDULE	Note the appropriate final year of the credit schedule		
Final Year 1/1/15			
11. ADDITIONAL EXPECTED CCS AMOUNT AND DURATION INFORMATION	Indicate whether additional information is provided in the CCS memo to adequately describe the private property BMP implementation efforts in the catchment		

ADDITIONAL INFORMATION IS PROVIDED IN THE CCS MEMO CCS AMOUNT AND DURATION SECTION

APPENDIX B: JURISDICTION PROGRAM IMPROVEMENT RECOMMENDATION FORMS

PIR forms provided next page.



SECTION A: GENERAL INFORMATION

Recommendations submitted with this form will be considered for inclusion in the **Program Adjustment Recommendations**. For each program change recommendation, fill in a separate Change Recommendation section.

I. CHANGE IDENTIFICATION

1. TITLE USED TO IDENTIFY CHANGE **2. YEAR OF PROPOSED CHANGE DECISION**

Title Baseline Year Water Treatment	Year 2010
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3. POINT OF CONTACT Provide the contact information for the appropriate representative

Name Robert Erlich	E-mail rerlich@cityofslt.us	Phone (530) 542-6038
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4. CHANGE PROPOSED AND ACTIVELY SUPPORTED BY

<p><i>Urban Jurisdictions</i></p> <input type="checkbox"/> CALTRANS <input type="checkbox"/> NDOT <input checked="" type="checkbox"/> CSLT <input type="checkbox"/> PLACER <input type="checkbox"/> DOUGLAS <input type="checkbox"/> WASHOE <input type="checkbox"/> EL DORADO	<p><i>Funding Partners & Scientists</i></p> <input type="checkbox"/> CTC <input type="checkbox"/> NDSL <input type="checkbox"/> RSWMP INVESTIGATORS <input type="checkbox"/> OTHER: _____
<p><i>Regulatory Agencies</i></p> <input checked="" type="checkbox"/> LRWQCB <input checked="" type="checkbox"/> NDEP <input type="checkbox"/> TRPA <input type="checkbox"/> U.S. EPA	<p><i>Stakeholders (name of group or individual)</i></p> <input type="checkbox"/> OTHER: _____ <input type="checkbox"/> OTHER: _____ <input type="checkbox"/> OTHER: _____ <input type="checkbox"/> OTHER: _____

II. RECOMMENDATION

5. PROPOSED CHANGE Indicate all of the following related to the proposed change.

- LOAD REDUCTION ESTIMATION METHODS
- PROGRAM OPERATIONS & CREDITING PROGRAM HANDBOOK
- CONDITION ASSESSMENT METHODS
- OTHER: 2004 Baseline Water Treatment

6. NEEDS ADDRESSED BY RECOMMENDATION Briefly describe the need for change and the issues that the change would address. If applicable, refer to items on the Identified Operational Improvements list.

Projects constructed in 2004 did not provide substantial treatment to stormwater in the catchment during the 2003/4 Water Year, and should not be part of the baseline. At the Lake Tahoe Airport only 0.07inches of precipitation was recorded from July through September 2004. Most projects constructed during 2004 would not be functioning before July. So, nearly all of the WY 2003/4 runoff occurred before the project could influence its load. It would be an error to assume that projects constructed in 2004 had significant impacts on baseline loads.

7. RECOMMENDED ACTION Describe the specific changes that are required to implement the change. Include section references to documents and specific language, if appropriate.

Rephrase definitions of baseline: "All infrastructure present within the a catchment as of October 2004 is part of the baseline, except for new infrastructure where construction started and was completed during the 2004 construction season. These 2004 projects, which would not have had substantial impacts on baseline loading estimates within the catchment during the 2002-2004 baseline period, are not considered part of the baseline."

8. POTENTIAL COMPLICATIONS/IMPACTS OF ACTION Describe any ramifications or related changes that would be required to completely implement the change.

A few projects which were started and completed in 2004 would be eligible for credits, and would no longer be part of the baseline. Minimal impacts on baseline load calculations are expected.

9. ADDITIONAL MATERIALS If additional space is needed, specify in a separate memo or attachment, and complete the fields below.

Filename	Date
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APPENDIX C: RECOMMENDATIONS SUMMARY TABLE

Summary Rating Table

Criteria	Rating	Narrative Justification
Importance	5	If the change is not implemented, it will be a substantial hindrance to the adoption and eventual success of the Crediting Program.
	3	The change will lead to a substantial increase to participant satisfaction with the Crediting Program.
	1	The change would be nice to have, but is not influential on the overall success of the Crediting Program.
Anticipated Effort	5	Implementing the change will require multiple months of effort.
	3	Implementing the change will require approximately one week of effort.
	1	Implementing the change will require approximately one day of effort.
Recommendation Status	C	Complete - The recommendation was completed as part of the Support Services project.
	F	Funded – The recommendation is planned within the scope of a currently funded project.
	O	Outstanding – The recommendation is still an outstanding need to be resolved.

Recommendation Summary Table

#	Change Recommendation	Document/ Tool	Importance	Anticipated Effort	Recommendation Status
1	Refine User Type Guidance & Definition	Handbook	4	2	C
2	Incorporate Catchment Size Guidance	Handbook	4	2	C
3	Incorporate Catchment Delineation Definition & Guidance	Handbook	4	2	C
4	Develop Catchment Memo Guidance & Example	Handbook	2	3	C
5	Incorporate Run-On & Comingled Water Guidance	Handbook	3	3	C
6	Provide Rationale & Guidance Regarding Modeling Non-Urban Loading	Handbook	2	3	C
7	Consider Ways to Allow Jurisdiction-wide Reporting	Handbook	4	2	O
8	Integrate RAM Tools in Online Database	All	4	5	F
9	Coordinate & Unify Nomenclature	Handbook	2	5	C
10	Develop BMP RAM Import Capabilities	BMP RAM	3	3	F
11	Add functionality to BMP RAM to calculate observation values based on a target RAM score	BMP RAM	3	4	F
12	Determine need for benchmark and threshold values for Cartridge Filters	BMP RAM	3	3	O
13	Adopt Crediting Program Handbook v1.0	Handbook	4	2	C
14	Adjust Baseline Definition	Handbook	3	1	C
15	Clarify Handbook Methodology for calculating Private Property BMP Values	Handbook	2	1	C
16	Develop Crosswalk of BMP RAM Observations and PLRM Parameters	PLRM & BMP RAM	4	2	C
17	Increase Accuracy of Treatment Vault Performance	PLRM	2	4	F
18	Use GIS Layer to Estimate DCIA	PLRM	4	2	C
19	Remove Default DCIA Value	PLRM	3	4	F
20	Develop Guidance for Simulating Sediment Traps	PLRM	2	3	O
21	Add Export Function to PLRM	PLRM	3	4	F
22	Create Web-based Version of A&T Tool	A&T Tool	4	4	F
23	Reduce Frequency of Private Property BMP Checks	A&T Tool	3	1	F
24	Develop TRPA BMP Database Query	TRPA BMP DB	3	3	O

APPENDIX D: DIRECT JURISDICTION ASSISTANCE SUMMARY

Jurisdiction Assistance Report

CONTRACT INITIATION THROUGH SEPTEMBER 30, 2011

This report summarizes services and costs associated with direct assistance to jurisdictions participating in the Crediting Program Support Services project. State regulatory sponsors have budgeted \$4000 in direct assistance to each jurisdiction, however some jurisdictions have chosen to augment their budget with their own funds. This report is intended to keep jurisdictions aware of the services received and appraised of their remaining funds.

The direct jurisdiction budget allocations have been divided among several tasks to help jurisdictions understand the stages of the project in which assistance should be needed. Tasks include:

- **Task 1:** Project admin and coordination – Not relevant to direct jurisdiction assistance
- **Task 2:** Selection and inventory of test catchments – A primary focus of direct jurisdiction assistance
- **Task 3:** Support load estimation and CCS development – A primary focus of direct jurisdiction assistance
- **Task 4:** Verification of CCS and A&T Tool Submittal – A secondary focus of direct jurisdiction assistance
- **Task 5:** Identify LCCP adjustments – A secondary focus of direct jurisdiction assistance

JURISDICTION SUPPORT PROVIDED

CALTRANS

- Called CalTrans to initiate & advise on test catchment selection
- Reviewed test catchment memo
 - Consulted with Brent Wolfe on PLRM functionality and details
- Provided guidance regarding PLRM modeling catchment size and complexity
- Prepared for, participated in and followed up on NEAT meeting
- Attempts to schedule feedback session on early products
- Provided guidance and initial review of draft CCS and PLRM estimates
- Reviewed comments provided by Caltrans subcontractor regarding PLRM, BMP RAM and Crediting Program protocols and processes
- Reviewed draft catchment credit schedule products and provided detailed written comments

CITY OF SOUTH LAKE TAHOE

- Visited office to initiate test catchment selection process and answer initial questions
- Reviewed two rounds of draft products for catchment selection and delineation
- Answered questions and produced square sed trap conversion tool for entering info into BMP RAM (this time was spread among other jurisdictions)
- Walked test catchment to answer questions and provide insight regarding catchment inventory efforts including BMP types
- Consultations by Brent Wolfe (nhc)
 - PLRM Modeling capability
 - 8th & Glorine project BMP types
- Provided troubleshooting assistance with BMP RAM database
- Answered questions regarding BMP RAM inputs and required fields
- Reviewed draft catchment credit schedule products and provided detailed written comments

- Answered questions regarding
 - BMP RAM for sediment traps
 - Forebay representation in PLRM
- Reviewed rationale for changing Crediting Program Baseline date from October 2004 to May 2004
 - Consulted with regulatory staff to gain initial proof of concept
- Reviewed draft final catchment credit schedule products
- Reviewed formal Program Improvement Recommendation for changing Crediting Program Baseline date
- Provided BMP RAM database troubleshooting
- Developed BMP RAM v1.2 with bulk upload capabilities
- Assisted with A&T Tool login and troubleshooting
- Synthesized Baseline Water Year PIR and assembled supporting documentation
- Advised regarding implementation of Crediting Program in context of city-wide TMDL adoption
- Developed temporary “best practices” CCS for reference use until updated Handbook release
- NHC assist with baseline and connectivity discussions and review

DOUGLAS COUNTY

- Scheduled calls and office visit to initiate catchment selection and discuss possible test catchment options
- Assessed runoff/runon conditions and test catchment suitability through two driving reviews of Kahle catchment
- Reviewed two rounds of maps for Kahle catchment, requests for memo
- Posted guidance regarding run-on issues in test catchment
- Discussed via phone conversations: level of effort & timing for catchment inventories
- Discussed via phone conversations: staffing and outsourcing plan for Douglas County participation
- Initial review of draft CCS, PLRM and catchment inventory products and provided initial feedback
- Assisted Douglas consultant with BMP RAM troubleshooting and questions
- Initiated in-depth review of draft CCS, PLRM and catchment inventory products
- Provided final review of draft CCS, PLRM and catchment inventory products prior to verification meeting
- Discussed and researched General Improvement District challenges in the Crediting Program
- Provided guidance regarding development of PIR for General Improvement District challenges in the Crediting Program
- Provided BMP RAM database troubleshooting
- Attended Douglas County Commissioners meeting to provide guidance and external feedback
- Developed BMP RAM v1.2 with bulk upload capabilities
- Advised on GID engagement and communications strategy
- Attended, provided in-meeting assistance and summarized GID engagement meeting for consideration in Crediting Program Handbook protocols/processes
- Initiated review and development of Connectivity Guidance
- Developed temporary “best practices” CCS for reference use until updated Handbook release

NDOT

- Established contact with key personnel at NDOT & introduced Support Services project
- Initiated calls and coordination on approach & need for test catchment selection
- Reviewed and commented on draft test catchment delineation products

- Assisted with BMP RAM troubleshooting through remote and in-person assistance
- Provided initial guidance on credit sharing opportunities and coordination with Washoe County
- Researched & provided initial guidance regarding cut/fill slope representation in Crediting Program
- Maintained contact to schedule delivery of draft products, final delivery: week of Nov. 22
- Assisted with PLRM & BMP RAM database troubleshooting
- Researched modeling slope stabilization load reductions and associated Crediting Program implications
- Maintained regular contact to schedule delivery of draft products, final delivery: mid-December 2010
- Reviewed draft BMP RAM database and provided troubleshooting support
- Developed BMP RAM v1.2 with bulk upload capabilities
- Reviewed and provided written and verbal comments on draft products
- Engaged nhc for PLRM Modeling review
- Scheduled and planned verification meeting
- Reviewed and provided comments on draft final CCS
- Reviewed and provided comments on PLRM modeling
- Planned, facilitated and summarized CCS verification meeting
- Initiated development of updated run-on guidance per NDOT recommendations
- Initiated development of guidance for transportation jurisdiction modeling in PLRM (road cuts, etc.)
- Developed temporary “best practices” CCS for reference use until updated Handbook release

EL DORADO COUNTY

- Visited office to define needs of test catchment and El Dorado approach to selection
- Reviewed 2 rounds of test catchment delineation products
- Answered questions regarding test catchment inventory efforts
- Considered details of guiding selection of % Connectivity in catchment credit schedule
- Meeting to discuss Crediting Program product development, use of stormwater tools and respond to issue of crediting of physical sediment removed from BMPs
- Initial cursory review of draft CCS, PLRM and catchment inventory products
- Reviewed draft catchment credit schedule products and provided detailed written comments
- nhc review and analysis of El Dorado County PLRM hydrology validation and comparison alternative method for baseline estimates
- Maintained regular contact to schedule delivery of draft products
- Reviewed and provided written and verbal comments on draft products
- Scheduled, planned, facilitated and summarized verification meeting

PLACER COUNTY

- Visited offices to initiate test catchment discussion
- Reviewed test catchment maps and memo
- Answered questions regarding test catchment inventory efforts
 - Discussed BMP RAM veg. type differentiation on two calls
- Produced estimate of time and personnel needed to do inventory of test catchment (much of this time was split to other jurisdictions)
- Maintained contact to schedule delivery of draft products; target submission date is Nov 19, 2010
- Worked with Placer intern, 2NDNATURE and other jurisdictions to fund an enhancement to BMP RAM database so that it can accept bulk information uploads

- Developed BMP RAM v1.2 with bulk upload capabilities
- Assisted Placer County staff in rapid understanding and development of Crediting Program Products to bring Placer County up to date with Support Services Project
- Reviewed draft products in advance of verification meeting to be held Feb 6 (tentatively)
- Facilitated and summarized verification meeting
- Reviewed and commented on draft final CCS products
- Consulted with staff regarding implementation of Crediting Program and Road RAM

WASHOE COUNTY

- Visited office to introduce and initiate test catchment selection & introduce test catchment selection
- Provided information and guidance regarding test catchment inventory
- Conveyed concerns to NDEP regarding jurisdictional primacy issues with GIDs
- Coordinated with NDOT re: test catchment mapping & credit sharing
- Reviewed 2 rounds of test catchment selection map and memo products
- Answered service augmentation process questions
- Visited test catchment to provide technical assistance with inventory of conditions and BMPs
- Responded to road shoulder condition assessment issues
- Researched drop inlet/sediment can FSP removal estimates for crediting and PLRM efforts
- Answered questions regarding BMP RAM inventory and provided clarification for road shoulder condition definition
- Maintained contact to schedule delivery of draft products
- Coordinated with NTCD to manage and schedule delivery of draft Washoe County products
 - Delivery: Week of Nov. 22
 - Verification meeting: Nov 29 or 30
- Provided phone and e-mail troubleshooting and training for Crediting Program Protocols, PLRM and BMP RAM
- Developed BMP RAM v1.2 with bulk upload capabilities
- Reviewed and commented on NTCD connectivity assessment methodology
- Provided extensive phone and e-mail troubleshooting and training for Crediting Program Protocols, PLRM and BMP RAM
- Reviewed draft products including PLRM and draft Catchment Credit Schedule
- Planned, facilitated and summarized CCS verification meeting
- Initiated development of updated run-on guidance per Washoe recommendations
- Provided guidance regarding implementation of BMP RAM and Road RAM at jurisdiction scale