Storm Water Quality Improvement Committee

Identification of Potential Constraints and Recommendations affecting Implementation of the Urban Storm Water Treatment Component of the Environmental Improvement Program

June 2004

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Appendix A – Complete List of Constraints Identified by SWQIC

Acronyms

SWQIC – Stormwater Quality Improvement Committee
FEA – Formulating and Evaluating Alternatives
PDP – Project Delivery Process
PDA – Preferred Design Approach
EIP – Environmental Improvement Program
HDM – Hydraulic Design Manual
PDT – Project Design Team
LTRA – Lake Tahoe Restoration Act
TMDL – Total Maximum Daily Load
SNPLMA – Southern Nevada Public Lands Management Act

Introduction

The Storm Water Quality Improvement Committee (SWQIC) is a group established by the Executive Soil Erosion Control Working Group of the Basin Executives. The SWQIC consists of representatives from the various funding, regulatory and implementing agencies involved in the implementation of the Urban Storm Water Treatment component of the Environmental Improvement Program (EIP).

The purpose of the SWQIC is to evaluate the project delivery process, identify constraints and opportunities, and to build consensus on a number of elements critical to improve the design, delivery, and effectiveness of storm water quality improvement projects. The SWQIC identified a number of tasks towards that end. Several of these tasks are being addressed by SWQIC, some involving assistance from technical consultants. These include development of a Manual for Formulating and Evaluating Alternatives for Water Quality Improvement projects (FEA), and development of a Hydraulic Design Manual (HDM). SWQIC is also working on development of a project development process (PDP), which includes a conflict resolution process, as well as strategies for resolution of potential constraints to the effective delivery of Urban Stormwater Treatment EIP projects. It is expected that the products developed will be incorporated into the Preferred Design Approach (PDA) currently endorsed by the major funding agencies, California Tahoe Conservancy, Nevada Division of State Lands, and the US Forest Service.

This document presents the results of the SWQIC effort to identify potential constraints to design and implementation of Urban Storm Water Treatment projects, and to suggest improvements that will improve the quality of these projects, while at the same time, expediting delivery.

All the agencies represented in the SWQIC felt that there are a variety of constraints that arise repeatedly and impede the design and implementation of Projects. The purpose of this task was to build on the work of Jones and Stokes (cite reference) and specifically identify perceived barriers and constraints that are currently impacting effective delivery of Projects, and to develop strategies and recommendations for implementing solutions to resolve these constraints.

The first step towards accomplishing this task was for each participant to review the more general constraints identified in the Jones and Stokes report, and to generate a list of specific constraints they felt were impeding the efficient and effective implementation of Urban Stormwater Treatment Projects. The complete list identified through this effort is presented in Appendix A.

The second step was for each participant to identify his or her top three (3) constraints. The SWQIC's desire was to create a manageable, achievable goal within established timeframes. Following some consolidation of issues, this resulted in a list of eleven (11) constraints that are considered to be the most significant related to EIP implementation,

The third step was for SWQIC to discuss these issues and prepare a summary analysis of each of the top eleven (11) constraints. Section I contains a complete description of each of these constraints including issues, examples and impacts to EIP implementation.

The final step was to develop an Action Plan that identifies the SWQIC's recommendations for resolving each constraint in Section I. The Action Plan is contained in Section II.

SECTION I
Description of Top 11 Constraints

1. Clarify Programmatic and Regulatory Water Quality Objectives

Issue:

Compliance with applicable TRPA and Lahonton Regional Water Quality Control Board (LRWQCB) regulations and implementation of the Preferred Design Approach (PDA), as endorsed by the California Tahoe Conservancy (CTC), United States Forest Service (USFS), Nevada State Lands, and various implementing agencies, seem contradictory. Currently water quality objectives are not clearly correlated to existing water quality regulations.

Examples:

- The 20-year, 1-hour design storm is the most often cited regulatory constraint. Regulations require containment or treatment of the design storm. This requirement appears to favor conveyance and containment strategies rather than source control and alternative treatment.
- Perceived contradiction between the PDA and regulatory requirements (process-based design vs. numeric regulations).
- Although the CTC and the agencies recommend vegetative treatment options, criteria for directing storm water runoff to Stream Environment Zones (SEZs) has not been developed.
- Confusion exists regarding direction as regulations shift toward Total Maximum Daily Load (TMDL) objectives (numeric effluent limits vs. total pollutant load reduction).

Effects on EIP Implementation:

Misunderstanding and inconsistent interpretation or application of regulatory objectives and requirements can complicate the design process and inhibit creative solutions. Without clear and consistent direction from regulatory agencies regarding water quality objectives and expectations, innovative ideas may be stifled.

2. Develop and Document Relevant BMP Effectiveness Information and Integrate into an Adaptive Management Process

Issue:

Recent research has found very fine sediment (<60 microns) and dissolved nutrients are believed to be the cause of lost transparency at Lake Tahoe. The ability of most storm water treatment BMPs (both existing and new technologies) to effectively remove these constituents is uncertain. Available Tahoe-specific BMP effectiveness information is scattered; other out-of-Basin studies may not be applicable. There is a desire to incorporate Adaptive Management (i.e., the integration of relevant monitoring and research) into the design and implementation of urban

storm water treatment projects. However, there is currently no defined process or common understanding as to what this means or how this would take place.

Examples:

- Storm water basins have been the primary treatment BMP in the Lake Tahoe Basin. It is unclear whether these structures can effectively remove the constituents of concern.
- Site-specific conditions render monitoring data comparisons difficult.
- Few new technologies or innovative treatment measures have been funded or tested in the Lake Tahoe Basin.
- The effectiveness of some treatment methods, such as wetland or SEZ treatment, can be difficult to quantify.
- The length of time to test solutions is inconsistent with EIP project delivery timeline goals.
- There needs to be a more systematic, basin-wide process to identify and prioritize necessary research on BMP effectiveness.
- There needs to be a process to share BMP effectiveness information and ensure implementers have access to that information in a timely manner.
- There needs to be a process to consider monitoring and research results when making management decisions.
- At what point do these findings get incorporated into the project development process and implementation of a project? When and how will project retrofits be implemented?
- Uncertainty regarding the effectiveness of existing projects and new methods complicates the design process. Project implementers and regulatory agencies need to ensure future BMPs meet water quality goals.

Effects on EIP Implementation:

Adaptive Management, as it relates to the integration of monitoring and research regarding urban storm water treatment BMPs and projects, is unlikely to occur in a timely and effective manner unless some of the examples above are addressed. This may result in the implementation of less cost effective and lower priority projects, and insufficient levels of achievement regarding reduction of urban storm water pollutants. If we do not effectively utilize the results of existing monitoring and research, we will not continue to get support for more monitoring and research.

3. Reconcile Agency Objectives and Expectations

Issues:

Project design time frames are long and costs high due to considerable delays and redesign resulting from differing regulatory, funding and implementation agencies priorities, objectives and expectations.

Examples:

- Late input from regulatory agency.
- Turnover in regulatory, implementation and consultant personnel results in design decisions being addressed more than one time. Previous decisions are revised and sometimes changed.
- Water quality facilities may create hazards or liabilities that must be protected. Methods of protection may conflict with fin scenic or other thresholds. Another way of stating this is that risk management objectives may be inconsistent with other thresholds.
- Construction personnel, without full knowledge of design considerations, may modify facilities resulting in ineffective projects.
- Completed designs cannot be implemented due to inability of funding, regulatory, and implementing agencies to agree on portions of plan or phasing of plan.
- Multiple projects in same area with differing priorities and timelines.

Effects on EIP Implementation:

Differing regulatory, funding and implementation agencies priorities, objectives, and expectations cause project delays and/or postponement. This results in fewer projects being implemented and higher design and construction costs, and sometimes results in expiring funding.

4. Enhance Regulatory/Funding Agency Staff Participation

Issues:

Insufficient participation by regulatory/funding agencies throughout the design process. This includes lack of participation (staff not present), as well as inadequate input from agencies at an appropriate time in the process, including specific resource professionals needed for consultation to address/resolve specific issues for the project to move forward.

Examples:

- A resource specialist either was not identified early enough in the design process or was unable to attend several design meetings, but had critical and essential comments at the ninety-five percent (95%) design field meeting. This resulted in the consultant redesigning several sections of the proposed channel alignment. There were associated cost increases and delays in the permitting process.
- A land agent (funding agency) was uninformed on the placement of a BMP that required an easement. BMPs was placed on the parcel during construction and resulted in a more lengthy process to have it officially and legally resolved.

Effects on EIP Implementation:

- Lack of consensus.

- Delayed projects due to redesign, securing permits and at times securing additional funds.
- Increases project costs (delay/change orders).
- Comments received too late in the design process requiring revisiting/redoing earlier steps.

5. Streamline Permitting Process

Issues:

The regulatory requirements relative to permit application, coordination and processing have caused unnecessary delays in project design because of regulatory staff workload, inconsistent interpretation and application of codes, competing codes and interdisciplinary project planning issues. Improved communication and consistency are required to streamline the permit process.

Examples:

- Communication between lead agencies, TRPA and other agencies needs improvement (i.e., delay in information sharing, late comments from TAC members, lack of technical information necessary to complete permits).
- Permit review process is not well understood by project applicants. All projects must address all of the regulatory requirements of each agency.
- Timing to obtain permits required by all agencies is not synchronized (i.e., TRPA, the United States Army Corp of Engineers (USAC), Lahonton, etc.).
- The California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) and other environmental requirements not focused on streamlining EIP processes.
- Volume of project applications is high, and combined with incomplete applications or knowledge of the process, results in long review and approval times.
- No approved EIP project prioritization and streamlining permitting review process
- Project management by all agencies could be more effective. (guidelines needed to adequately plan, design and permit project on schedule).

Effects on EIP Implementation:

Navigating the permitting process is often the key to whether or not a project can be implemented in a given construction season. Without a high level of coordination between all agencies involved to share information, missteps in the planning process can be significant to whether or not a permit will be issued in a timely way.

6. Minimize Construction Season Constraints

Issue:

The TRPA and Lahonton regulations limit grading to three cubic yards from October 15 to May 1 of each year. Favorable weather frequently exists outside of this period, and a streamlined process for issuing variances, and improved contracting procedures, could enable more projects to be initiated and completed. ***Examples:***

- Contractors frequently ask for variances to the grading deadlines due to favorable weather between October 15 and May 1.
- Contractors from out-of-Basin can be unaware of grading restrictions and may not be adequately prepared to meet grading requirements, inspection and timelines which potentially pushes the project into the next construction season
- Implementing agencies can incur increased project costs and delays due to variance permit conditions not on original permit.
- Risk of significant storms in the Lake Tahoe Basin increases dramatically after October 15 and decreases sharply after May 1.
- Roadway closures and tourist traffic volume during the grading season affects the ability of implementing agencies to utilize entire grading season.

Effects on EIP Implementation:

These restrictions place more pressure on implementing agencies to complete projects and potentially affect how many projects are initiated or completed in a given year. Implementing agencies can incur increased project costs and delays due to a limited grading season and/or variance permit conditions that were not contained in the original permit.

7. Reach Early Agreement on Design Concepts and Minimize Changes Through Design Process

Issues:

Changes requested or directed by regulatory and/or funding agency staff that contradicts or supercedes prior direction or agreements disrupt the project design and permitting process, and can delay project completion. Changes requested or directed during construction by regulatory and/or funding agency staff for the purpose of project enhancement can cause delay and result in significant expense. Changes requested or directed during construction for the purpose of project enhancement can also result in violations of agency permits issued for the project.

Examples:

- Changing staff assignments during the life of a project often result in differences of opinion as to the best project options. Prior commitments or agreements are ignored and/or revisited.
- The typically lengthy timeframe for project development and design can result in changing opinions about the best technology to apply to a project.
- Numerous revisions to design plans can substantially increase project costs and delay delivery. These impacts can adversely affect project grants, resulting in the need for additional funding and time extensions.

- Adequate TAC meeting records and review comments are not prepared and maintained. Agreements and commitments are lost due to poor record keeping practices.
- Construction schedules and budgets can be negatively impacted by changes requested in the field. Changes requested for the purpose of project enhancement only should be implemented at the discretion of the owner and contractor because of contractual obligations**.**
- Changes during construction are generally more expensive to implement than if that work had been included in the project plans. Such changes can also warrant additional working days that will extend the construction period, and can push completion beyond regulatory deadlines, possibly into another construction season.
- Any material change to the project during construction can result in violations of existing agency permits. Applying for modifications is generally not an option due to the lengthy review process; the contractor must not be delayed in the completion of the project.

Effects on EIP Implementation*:*

Changes requested, other than at pre-established milestones, such as TAC meetings and scheduled plan reviews, can slow project delivery and add considerable cost to the project. This is disruptive to the grant funding process, often resulting in the need for additional project funding and time extensions or new grant applications. (This also may result in an inability for implementers to meet previously established project delivery milestones.) Minor disruptions in the delivery process can cost months of delay for redesign, especially when using consultants, as contract amendments can take months to negotiate and implement. Changes during the construction phase can also delay project completion and can result in cost overruns of available grant funding.

8. Develop Strategies for Long-Term Maintenance

Issues:

Required maintenance effort can influence design alternatives because of expected maintenance cost, and safety concerns for maintenance workers and the public. Funding for maintenance has not been clearly identified and is not generally available. Project implementers need to balance maintenance needs with new project implementation and evaluate maintenance costs versus project effectiveness.

Examples:

- Filtration devices typically require frequent cleaning and/or replacement of filter media. Failure to provide effective maintenance can cause failure of the system, which can create liabilities for the owner/operator. Maintenance costs can be very high, if frequent labor, equipment or replacement materials are required.
- Infiltration systems lose effectiveness over time, as fine material seals voids. The only effective way to restore the functionality is to reconstruct the system. This is very time-consuming and expensive process. Funding is not available to pay for reconstruction.

- Wet basins are often avoided due to concerns about public safety, vectors, nuisance and vegetation management. Drowning concerns necessitate access control and active enforcement. Concerns have been expressed about the potential contamination of soils and groundwater resulting from the entrapment and concentration of pollutants in a basin. There are many unknowns about vegetation management and system operation and maintenance that may have significant cost to the owner/operator.
- Infiltration devices must be sited properly to minimize liability. Care is needed to avoid property damage (i.e., to building foundations, roads, etc.) caused by saturation of surrounding soils. Such proximate damage, and the potential failure of the system for any reason, is cause to examine use of these facilities carefully.
- Devices that require workers to enter enclosed spaces (i.e., vaults) are avoided due to liability and safety concerns. Such facilities are also more difficult and expensive to maintain.
- Funding for maintenance is not widely available. Existing agency resources are already stretched, and not generally available to support desired maintenance efforts. Maintenance is provided on an "as-needed" basis, rather than on a preventative basis.
- Many project areas would benefit from private improvements coordinated and constructed with a public project; this flexibility is discouraged by absolute requirements for public maintenance. Although county is encouraged to partner with public, county has ultimate responsibility and funding limits what county can do on private properties.
- Implementing agencies lack equipment needed to properly maintain BMPs and grant funding is not available for equipment purchases. As a result, many effective alternatives are eliminated during the design process.
- Effectiveness of BMPs is compromised by lack of properly trained maintenance personnel, the lack of funds to adequately maintain BMPs and hire necessary maintenance staff.

Effects on EIP Implementation:
Maintenance requirements and anticipated costs influence design considerations and can result in the implementation of less effective project elements. Implementers have varying degrees of concern about the issues described, but project design is always influenced by consideration of maintenance requirements, liability concerns and long-term costs. The EIP implementation process is slowed by differences of opinion and negotiations on project elements, and may ultimately be compromised by construction of projects having less effect on water quality than desired.

9. Raise Awareness and Retain Flexibility for Private Property/Easement Acquisition

Issues:

Property owners can be unwilling sellers based on their issues with either design and/or compensation. Condemnation law requires a resolution of necessity based on the project's need for the property. Complicating private property/Easement acquisitions is the fact that some funding agencies may not be receptive to condemnation and certain funding prohibits

condemnation for property acquisition. Implementing agencies may be reluctant to exercise powers of condemnation. These can be categorized as organizational issues. Acquisition costs can be substantial depending on location (i.e., outfalls on lakefront property) and can require large amounts of staff time.

Examples:

Design Issues:

- A property owner does not want an open ditch on their property, but that might be the preferred water quality design.
- Infiltration systems placed near structures could create new subsurface drainage problems on existing structures (i.e., channels running along side houses may be detrimental to the foundation).
- Conveying water in areas where water does not naturally run (i.e., substantially changing pre-existing drainage patterns).
- Different alternatives require differing easements, add to costs and time to implement projects.
- CEQA/NEPA approval timelines may not be ideally coincidental with necessary timing of negotiations.
- Drainage law limits ability to substantially change volume or velocity of flow onto adjacent properties which must be considered in evaluating benefit of acquisition needs for a project.

Compensation Issues:

- A creek or channel runs adjacent to property; restoration requires that it be relocated and property owner claims loss of value to their property.
- Negotiations for property or easements can continue for many months. Extended negotiations can be very costly.

Organizational Issues:

- If condemnation is necessary, and the implementing agency elects not to acquire in that manner, the project must be re-designed.
- Condemnation costs add substantially to the final acquisition cost and usually delays projects not anticipated in the original project delivery schedule.

Effects on EIP Implementation:

The EIP implementation process is slowed by the length of time it takes to secure the property necessary to complete projects. The use of condemnation authority can add significant cost and can delay project delivery for many months.

10. Reduce Limitations And Restrictions On Project Funding

Issues:

Grant cycles conflict with implementing agency budget cycles. Fluctuations in yearly grant amounts can create staffing sustainability issues with implementing agencies limits project delivery capacity. Grant funds cannot be used for certain improvements or activities and lack flexibility to adapt to changing project requirements. USFS grants require fifty percent (50%) matching funds. Grant extensions in certain jurisdictional areas are difficult or impossible to secure and the grant application process (in certain jurisdictional areas) can be complicated and time-consuming.

Examples:

- Grant funds are usually not available for private property improvements, road-paving work and other improvements/activities needed to comply with municipal National Pollutant Discharge Elimination System (NPDES) permit requirements.
- Matching fund requirements necessitate balanced expenditures for each billing cycle; this may not be consistent with project activity and funding restrictions.
- Limited project funds are available each year and must be allocated between jurisdictions.
- Grant processes are not flexible enough to adapt to changing project needs (such as late-process design revisions and property acquisition adjustments). Can't amend an existing federal grant with subsequent year funding. Have to apply for a new grant.
- The grant application, screening, approval and appropriation processes utilize a significant portion of the grant funding cycle.
- The inability to secure grant extensions may jeopardize project delivery.
- Pre-applications, screening, negotiations, approvals and work plan development are currently involved processes that could be made more efficient to free up staff resources to be applied to project delivery.

Effects on EIP Implementation:

Efficient planning and project delivery is dependent on a reliable and uninterrupted funding source with sufficient flexibility to adapt to frequent changes and conditions that can delay project completion. Program funding availability is increasing, but is not proportional to the expected and desired performance of implementing agencies. Uncertainty about future program funding constrains implementing agency expansion efforts. Restrictions on the use of funds limit project options, which can lead to reduced project effectiveness (ie. private property BMPs and public road paving). Grant timelines can limit the scope of projects, resulting in smaller and potentially less effective projects. Significant time and effort are devoted to grant applications, work plans, status reports, submittals and meetings that tend to lengthen the project delivery process.

11. Develop Strategies to Attract and Retain Sufficiently Qualified Professional and Technical Staff.

Issues:

Many agencies are having difficulties with attracting and retaining sufficiently qualified professional and technical staff, creating loss of institutional knowledge–about project delivery elements of the EIP, as well as the unique programmatic, environmental and regulatory issues of the Lake Tahoe Basin. This is also a national problem, especially in the areas of science and engineering. The most critical issue is compensation. The private sector predominately pays significantly better for both new and experienced employees. Salaries & Benefits are often not competitive enough to attract the numbers of quality staff needed.

Examples:

- Project delivery schedules have sometimes been impacted by the addition of a new TAC member with new ideas on the strategy of a previously adopted project approach.
- An implementing agency recently recruited for an employee for their Lake Tahoe water quality program. Minimal candidates applied and many declined offers, even though these offers were within the maximum of the agency's compensation authority.
- Some agencies have historically high and/or long-term vacancies in their organizations. This creates impacts to existing staff members, as they have to complete assignments that would have been completed by an incumbent of the vacant position. This can also impact organizational morale.
- In some instances, high turnover in staffing at agencies with a reviewing role has created limitations in that agency's ability to effectively review EIP projects, participate in project development TAC meetings and to process project permits.
- High turnover of staff has sometimes impacted the ability to create stable interdisciplinary teams necessary to ensure continuity throughout the project development process. New people are frequently being assigned to projects and the loss of staff diminishes the institutional knowledge of the organization. This has previously occurred within the funding, regulatory and implementing agencies**.**

Effects on EIP Implementation:

The implementation agencies cannot effectively expand the staffing levels necessary to meet the Basin-wide project delivery objectives of the EIP.

Low staff retention results in new people frequently being assigned to projects and results in the loss of institutional, programmatic and project knowledge. Productivity decreases as replacements are sought and new employees are brought up to speed.

New staff must become familiar with the history of a project and frequently insist on additional analyses that result in project delays. (Jones & Stokes)

Time and resources are being expended on recruitments, as well as on repeat training for the new incumbents of previously vacated positions.

Section II

Stormwater Quality Improvement Committee- Action Plan

1. Clarify Programmatic and Regulatory Water Quality Objectives.			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. Define and document a clear alternatives development process (FEA), including clarifying the compatibility of the existing Preferred Design Approach (PDA) with water quality objectives and applicable regulatory requirements.	SWQIC	Submit to Basin Executives for Approval by June 2004 Conduct Training/workshop for FEA (and PDP) in June and November 2004.	
2. Lahontan and TRPA to endorse the PDA and PDP and support the FEA as a tool to develop effective water quality improvement projects.	Lahontan TRPA	Winter 2004	
4. As the TMDL is developed, Lahonton and TRPA will provide clarification on relationship between TMDL and FEA.	Lahonton TRPA	2007	
5. TRPA assume stewardship of the FEA, and develop and oversee process for adaptive review and revision.	TRPA Basin Execs	Winter 2004	TRPA GB may endorse
6. Determine where it would be appropriate to implement pre-project storm water characterization (i.e., relate storm water quality to specific land uses to help drive treatment methods and identify realistic water quality treatment	Implementing & Funding Agencies	On going	Regulatory agency input needed

objectives.).			
7. Grant agencies should encourage project applicants to submit proposals incorporating pre-project water quality monitoring where appropriate as part of planning/design. Incorporate in RFPs, grant announcement letters and guidelines	Implementing & Funding Agencies	On going	

2. Develop and Document Relevant BMP Effectiveness Information and Integrate into an Adaptive Management Process			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. When implementing storm water monitoring, utilize new monitoring guidance document developed by Lake Tahoe Interagency Monitoring Program (LTIMP) to help standardize sampling and analytical protocols in monitoring plans.	Implementing, Regulatory & Funding Agencies	Immediately	SWQIC should develop statement for partner signature and include in FEA or PDP
2. Where appropriate, incorporate BMP and project effectiveness monitoring in the planning/design phase of a project and have researchers and designers consult during design process. Incorporate results in alternatives analysis document. (Example: Roundhill and Glorene and 8th Projects.)	Implementing & Funding Agencies	On going	
3. Development of a Tahoe Integrated Information Management System (TIIMS) prototype to serve as a central clearinghouse to store and retrieve data and results related to urban storm water treatment projects and BMPs.	Basin Executives & TRPA	Prototype Oct 1, 2003	
4. Insure urban runoff water quality monitoring data is stored in TIIMS, and updated annually.	Implementing and Funding Agencies	Beginning in Fall 2003	SWQIC should develop standard contact language for this item.

5. Finalize identification of current monitoring efforts for key water quality management questions a (TRG Bibliography, 2001), leading to an approved science plan to guide required monitoring and research as it relates to urban storm water treatment projects. (w/SAG)	Basin Executives Research and Monitoring Subgroup LTIMP	June 2004	o see recent update by John Reuter, TRG
6. Periodically update monitoring/research results related to urban storm water treatment in the Lake Tahoe Basin, including recommendations for future monitoring and implications for design and implementation of future urban storm water treatment projects	Basin Executives Research and Monitoring Subgroup LTIMP	As needed	
7. Regular and effective annual reporting and presentation of relevant urban storm water treatment monitoring/assessment results to researchers, designers and implementers. Presented in a well-advertised workshop format.	LTIMP Basin Executives SWQIC	Conduct workshop in November of 2004.	Identify team to organize/facilitate workshop and funding sources.
8. Assist in Formulation of an Adaptive Management strategy to be incorporated in the design review process for urban storm water projects. Strategy to include a protocol for utilization in project development process and include the establishment of outcome based performance measures (Net Water Quality Benefit).	SWQIC	Summer 2005	Initiate as task for SWQIC in Spring 2004.
3. Reconcile Agency Objectives and Expectations			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. Development of project development process(es) (PDP). Incorporate comprehensive project review checklist and	SWQIC	June 2004	Need Schedule of action items related to development

conflict resolution procedures in PDP. Insure that PDP incorporates a) finalization of potential regulatory agency permit requirements and issues earlier in design phase for inclusion in final plan documents, b) comprehensive design and construction time lines (with input and commitment from funding and regulatory agencies), c) contacts with regulatory and funding agencies for input on consultant's scope of work prior to finalization d) regular, periodic project design meetings in conjunction with complete documentation of project decisions, e) adequate oversight during installation of water quality facilities.		Conduct Training/work shop for PDP (and FEA) in June and November of 2004.	of PDP, from PDP Subcommittee
2. All agencies with review/approval responsibility will commit to timely reviews at milestones that are consistent with agreed-upon project delivery timelines. Representatives of regulatory agencies must be responsible to coordinate project review comments from all disciplines within their agency.	Regulatory & Funding Agencies	Ongoing	With the adoption of PDP
3. Development of an interactive EIP list with search capabilities based on project type priority, timeline, location, agency, and funding source.	TRPA	Late 2004	
4. Commit staff to working within the PDP framework.	Basin Executives	Spring meeting	
4. Enhance Regulatory/Funding Agency Staff Participation			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. Development of PDP, incorporate the following elements: a) well-documented design meeting notes that highlight decisions (also document in decision log) and potential problems that are circulated to all	SWQIC	March 2004	See 3.1

design team members, b) invite/schedule design meetings well in advance, with appropriate notice early in the design process, c) designate a point person for each stakeholder or entity and their supervisor for appeal, d) Design teams and TAC members identify and agree upon key milestones up front (commitment continues dynamic thorough process), e) allow implementing agencies to focus on project management as a key to project success.			
2. Funding agencies incorporate PDP in funding guidelines. By endorsing the PDP in this way, funding agencies agree to: a) make design meetings a priority (shared responsibility) and be prepared to make timely decisions, b) designate an individual who is responsible for highlighted decisions or problem areas that need to be addressed by a specific resource specialist. c) Provide comments back to the design team or make sure the specialist is present, d) Recognize when late comments can negatively impact project schedule and cost.	Regulatory & Funding Agencies	See 3,1	
3. Funding/regulatory agencies should strive to improve efficiency in review process and/or have staffing levels sufficient to handle workload to conduct review/regulatory procedures in a timely manner.	Regulatory & Funding Agencies	Immediately	
4. Field visits need to be integrated into the design meetings, as appropriate. Winter can create problems and Project Design Team (PDT) needs to consider sequencing field visits in the proposed project development workflow schedule to accommodate this. Prepare and utilize field condition videos if	Implementing Agencies	Immediately	

weather prohibits actual field visits.			
5. Familiarize personnel with the project development process (PDP) and follow the principles behind the objectives and guidelines in PDA. Workshops need to be held to help staff understand the PDP.	Implementing Agencies	ConductTraining/ workshop for FEA (and PDP) in June and November 2004.	Funding is needed to properly conduct staff PDP training sessions
6. Need to have a process to address non-participation. Endorse PDP as first step.	Basin Executives	March 2004	
5. Streamline Permitting Process			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. Incorporate the following elements in PDP(or FEA as appropriate): a) single points of contact at all agencies involved in a given project to streamline communication. Utilize agency single points of contact to gather and centralize project documentation, record progress and bring together appropriate staff for key decisions, b) engage permitting agencies early in the process, c) fully scope the project and the design process with all agencies before finalizing scope of work for agency and consultant staff, d) determine timing gaps between permitting process, coordinate permitting timelines, and e) develop and agree upon a planning process that will fully communicate the needs and the process to applicants.	SWQIC	See 3.1	
2. Continue to improve efficiency in permitting process and/or add TRPA Project Review and Environmental	TRPA	As needed	

Improvement Division (EID) staff to address EIP project permits and record high work loads/ permitting backlog.			
3. Continue involvement in early project development phase to ensure project familiarity and simplify permit review.	Regulatory Agencies	Immediately	
6. Maximize Construction Season			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. Define protocol and schedule requests for grading season variance in project development process (PDP).	SWQIC	See 3.1	
2. Prepare contracts to allow for multiple season construction.	Implementing Agencies	On going	
3. Schedule projects to be complete by October 15. Do not plan on an extended construction season	Implementing Agencies	On going	
7. Reach Early Agreement on Design Concepts			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. Incorporate in PDP and FEA as appropriate the following elements: a) a method to establish clear understanding of design concepts as early as possible at benchmark decision points. All parties should honor them, unless there is a critical, b) a method to establish a change control protocol that considers implementation of suggested changes in a subsequent phase of project, c) written records of all meetings and project reviews should be prepared and	SWQIC	As needed	

distributed to all participants. Review and acceptance of record by participants should be included, d) protocol to ensure all on site communication by regulatory and funding agency representatives should go through permittee's construction manager.			
2. Permitting and funding agencies should designate a representative who is available to address construction-related needs and establish an accelerated review process for construction related changes.	Regulatory and Funding Agencies	As needed	
3. Permitting and funding agencies should clarify the flexibility afforded to implementers to implement changes in project design during project construction.	Regulatory and Funding Agencies	As needed	
8. Develop Strategies for Long-Term Maintenance			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. Communicate need for development of maintenance funding mechanisms and identification of funding sources can alleviate some of the cost concerns and encourage use of potentially more-effective project elements	Basin Executives	Ongoing	
2. Communicate need for funding to implement improved technology in previously treated areas if TMDL modeling and WQ data indicate additional treatment is desired.	Basin Executives	Ongoing	
3. Development and identification of low-maintenance, high-efficiency project elements will encourage design	SWQIC	On going	

flexibility.			
4. Incorporate in FEA the following information: 1) Future maintenance costs for various BMPs need to be identified during Alternatives Analysis and considered in the alternatives analysis criteria for selecting preferred project alternative, 2) Identify maintenance resource limitations of implementing agencies in analyzing alternatives.	SWQIC	See 1.1	Maintenance funding is also part of the local commitment to the EIP, but all sectors should be responsible.
5. Need to provide adequate training to maintenance personnel.	Implementing Agencies	Immediately	
6. Comprehensive maintenance plans should be included in project design reports.	Implementing Agencies	Immediately	
7. Partnerships with private entities to fund and maintain BMPs in public right of ways should be explored. Consider JPA's or other mechanisms to perform needed maintenance in a more cost effective manner (share staff/equipment costs, etc.)	Implementing Agencies	Immediately	
8. Implement monitoring and cost benefit evaluation of BMP maintenance relative to impacts on water quality. Grant agencies encourage project applicants to submit proposals to conduct BMP maintenance monitoring as part of project. Funding agencies facilitate reporting of monitoring results.	Funding & Implementing Agencies	Summer 2004	
9. Enhance Options for Private Property/Easement Acquisition			

Task	Who is Responsible	Due Date	Notes
1. Begin the acquisition process early by making initial contacts with property owners to allow property owners to receive an appropriate amount of coverage credits or other developmental considerations commensurate with the land that is being acquired as an enhancement to settle with the implementing agency. Solicit donations of land early on in the process (through the below-mentioned public education effort) and extol tax benefits or other developmental considerations commensurate with the land that is being acquired as an enhancement to settle with the implementing agency.	Implementing Agencies	Immediately	
2. Increase awareness through broad scale public education efforts/media campaign.	Basin Executives	Ongoing	
3. Identify funding acquisition alternatives for condemnation.	Basin Executives	2004	Existing funding sources do not support.
10. Reduce Limitations And Restrictions On Project Funding			
1. Develop streamlined procedures for documenting programmatic matching fund requirements in LTRA authorized USFS grants.	USFS	2004	
2. Coordinate grant cycles with the implementing agencies budget cycles.	Funding Agencies	Ongoing	
3. Streamline and coordinate the grant application, review, approval and reporting processes.	Funding Agencies	2005	

4. Seek long term funding commitments from Local, State and Federal sources.	Basin Executives	Ongoing	The local share of the EIP has not been committed.

11. Attracting & Retaining Sufficiently Qualified Staff			
Task	**Who is Responsible**	**Due Date**	**Notes**
1. Implement PDP to streamline, standardize and document Basin-wide project development processes to allow new staff to quickly learn the steps necessary to advance and deliver an EIP project.	SWQIC	See 3.1	
2. Maintain competitive salaries and benefits to attract and retain the most highly qualified staff.	All Agencies	Ongoing	
3. Research and employ innovative compensation strategies and philosophies that are in place and working in other jurisdictions. An example is to create an intern recruitment program to offer a financial incentive to qualified college students in the form of participation of payment of their higher education in turn for a commitment to post-graduate employment with a host agency.	All Agencies	Ongoing	
4. Identify and develop additional multi-disciplined job specifications necessary to effectively deliver the EIP projects to expand the pool of expertise and disciplines from which agencies can draw their potential candidates.	All Agencies	Ongoing	
5. Employ continuous recruitment until vacant positions are filled.	All Agencies	Ongoing	

6. Explore opportunities to provide recruitment and relocation bonuses above the basic salary.	All Agencies	Ongoing	
7. Consider non-pay alternatives such as training opportunities, improved working conditions, alternative work schedules and time off as an incentive/ reward.	All Agencies	Ongoing	
8. Utilize more widespread marketing to create awareness of the breadth of potential jobs and target marketing to attract employees to our specific field and unique region. Get the message out that Lake Tahoe Basin is a desirable area to work and educate potential candidates on the attractiveness of participating in the EIP program.	All Agencies	Ongoing	
9. Consider having the agencies collectively advertise in national publications for all vacant positions. Continue to develop a Basin-wide reputation for technical excellence as a strong attraction.	All Agencies	Ongoing	
10. Work to stabilize annual funding revenue levels to allow for multi-year sustainable staffing levels.	All Agencies	Ongoing	SNPLMA will largely resolve this constraint.
11. Improve and streamline processes to add, recruit and hire new staff members.	All Agencies	Ongoing	
12. Provide professional development and promotional opportunities to enhance the skills of all staff and provide for succession planning.	All Agencies	Ongoing	

Appendix A

Summary of Constraints

The following is a comprehensive list of constraints to the implementation of urban storm water treatment projects identified by members of the . These constraints are organized into the following categories: Technical, Fiscal, Legal, Political, Procedural, Human Resources, and Other. Many of these constraints could fit into more then one category. A statement, which seems to provide the best overall description, defines each constraint. All other statements that seem to address or further describe the same constraint are provided as bullets.

1. Technical

Construction

C1) Coordination w/ highways and utilities – required to avoid traffic impacts, comply with traffic control restrictions and coordination with utility and other construction projects

- Traffic impacts and coordination. (Placer)
- Traffic control restrictions (e.g.,, between July 4 and Labor Day). (Placer)
- Conflicts in work schedules between agencies (e.g., Caltrans, Utility Companies). (Placer)

C2) Short construction season –requires fragmentation/phasing of projects, takes longer to build Projects

- Short construction season as it relates to permitting (NTCD)
- Very short construction season. (Placer)
- Projects need to be constructed during a time restricted time and regulated construction season. (El Dorado)

C3) Incomplete/ inadequate plan and specifications quality – can result in poor contractor performance or poor quality outcomes

- Leads to change orders (increased cost and time to finish projects). (NTCD)

C4) Lack of available qualified contractors/lack of bidders – can result in having to take what is available with resulting poor contractor performance or project quality.

Design

D1) Lack of clearly defined regulatory water quality (WATER QUALITY) objectives – for purpose of determining BMP design. Regulatory water quality objectives in transition (TMDL vs. 20-year, 1hour).

- Lack of clearly defined design objectives or standards. (Placer)
- Innovation discouraged by NPDES Permit compliance concerns. (Placer)

- Incomplete understanding and confusion regarding requirements has lead to the perception that regulatory requirements limit design and treatment options. For example, municipalities and other dischargers have construed the recommended design storm as a primary, inflexible requirement to retain the design storm volume rather than treat it. (LRWQCB)
- Regional Board regulatory requirements viewed as a barrier to alternative treatment and source control opportunities. (LRWQCB)
- Agencies tend to have different expectations on role of TRPA in project planning, design and implementation process. (TRPA)
- Guidelines recommend five-foot separation between infiltration facilities and highest anticipated ground water. Exceptions can be made where pre-treatment is provided and/or semi-permeable liners are constructed. (LRWQCB)
- Required treatment, <u>at a minimum</u>, of the runoff volume generated by the 20-year, 1-hour design storm. (LRWQCB)
- Requirement to meet numeric effluent limits and/or to maximize pollutant load reduction. (LRWQCB)

D2) Difference/conflicts in agency objectives and expectations – can be related to differences in "professional opinion", regulatory objectives (i.e., (water quality vs. aesthetics, vs. habitat etc.), as well as lack of consensus on PDA.

- Differences in agency expectations (e.g., 20 year,1 hour vs. other; what constitutes "best" treatment? (Placer)
- Conflicting direction between reviewers (internal and external) (Placer)
- Changing direction throughout the process. (Placer)
- There is a need for improved interdisciplinary team planning. (El Dorado)
- Methods necessary to reach consensus are not well established. (El Dorado)
- Staff turnover within the agencies has been high. (El Dorado)
- Regulatory requirements sometimes inconsistent with other permitting agencies (TRPA)
- Lack of information and agreement on PDA – necessary to meet water quality objectives.
- Objectives and guidelines for the State grant process need to be followed more thoroughly. (NTCD)
- Differing interpretations of rules and procedures. (Placer).

D3) Difficulty in defining project areas for design – because of limitation/uncertainty `associated with funding and NPDES permitting (e.g., work area vs. watershed). (Placer)

- Regional Board requires local governments to treat storm water discharges generated within its legal jurisdictional boundaries. Specifically, we are asking that each project treat (or consider treating) all runoff generated within the watershed area. Concerns have been raised by local governments on how to fund/implement this requirement. (LRWQCB)
- Comprehensive watershed assessments and approach could improve coordination/effectiveness of storm water/restoration projects (and help set priorities). (TRPA)

D4) Lack of supporting information for design (e.g., site specific soils data for infiltration capability). (Placer)

- Lack of pre-design data collection has lead to design and construction delays (NTCD).

D5) Lack of available information concerning the ability of various BMPs to meet numeric effluent limits and reduce pollutant loads - specifically, there are few BMPs that have proven capable of treating the pollutants believed responsible for clarity decline (i.e., fine sediments <60 microns and dissolved nutrients). (LRWQCB)

D6) The Adaptive Management concept is good, but it does not currently allow for information to be incorporated into the current project designs. (El Dorado)

- Better tracking, coordination, integration (data) of storm water capital, monitoring, and research projects needed. (TRPA)

D7) Design options are tempered by the costs of operation and maintenance. (Placer)

Maintenance

M1) Requirements for long-term maintenance - effort and cost and safety considerations of workers and public, influence design options.

- Requirements for long-term maintenance impact considerations of projects and project elements. (Placer)
- Maintenance effort and cost influence design options. (Placer)
- Safety considerations of workers and the public.
- CTC cannot fund maintenance. (CTC**)**
- Lack of local responsibility for maintenance, due to insufficient resource. (NTCD)

2. Fiscal

F1) Limitations and restriction on funding – results in delays in design and construction**.**

- Project funding has time limits (normally four years from date of grant award). (The appropriation period is intended to include two years of post-construction monitoring). Appropriation and re-appropriation of grant funds requires approval through the state budgetary process (i.e., with concurrence from the Department of Finance, the legislature and the Governor). (CTC Constraints**)**
- 5 year limit on grant awards, no exceptions. (USFS**)**
- Grant funding cycles conflict with local agency budget cycles. (Placer**)**
- State fiscal conditions may preclude the re-appropriation of expiring funds. CTC)
- Also, it is difficult to request new or increased appropriations at the same time that re-appropriations are being requested (for expiring funds). (CTC)
- Reliability of future funding is still uncertain. (USFS)
- Projects started without full funding or knowledge of possible funding. (TRPA)
- Plan revisions needed because status of funding changed, easements or rights-of way not acquired which delays project review and permit. (TRPA)
- Funding availability limits capacity to deliver products. (Placer).
- Identifying match on some projects early on to move forward with the design phase. Coordinating grant cycle by different funding agencies to achieve this. (NTCD)
- Currently, fifty percent (50%) State and local project match is required. (USFS**)**

F2) Lack of discretionary revenues for overall programmatic effectiveness. - grant funding is limited in what the funding can be used for and there are no alternative discretionary funding sources readily available. (El Dorado)

- Restrictions on funding (e.g., paving, private property). (Placer).
- Unfunded NPDES requirements, incorporated into projects. (Placer)

3. Legal

L1) CTC-Funded Improvements Can Only Be Constructed on Land Controlled by the Grantee - through ownership or another legal instrument which gives the grantee the right to enter the property to construct and maintain the improvements. (CTC Constraints**)**

L2) CEQA - CTC cannot award grants for site improvements until CEQA documents are prepared and certified. (CTC Constraints**)**

L3) NEPA – Will be required to do NEPA analysis, starting in FY 2003, for all projects in which USFS funds are sought for implementation. NEPA analysis will need to be completed so the Forest Supervisor can issue a Decision Notice at the time of award. (USFS**)**

- NEPA compliance. (Placer)

L4) CTC Acquisition Specific Funding Cannot Be Used for Site Improvements - (Note: beginning in 2002, CTC erosion control funding will cover both site improvements and acquisitions and will be transferable). (CTC Constraints**)**

L5) Funding Cannot Be Shifted Between Projects - unless the projects are covered under the same grant contract.

- Shifting of funds requires written approval by the Executive Officer. (CTC Constraints**)**
- Cannot transfer funds to other projects, if project over funded. Cost recovery to federal treasury. (applicant may amend scope of work to increase project). (USFS**)**

L6) CTC funding requires approval from the CTC board. The CTC board normally meets in May, July, September, and December. (CTC Constraints**)**

L7) Property rights often in conflict with project needs. (El Dorado)

- Public often threaten litigation if project does not meet their personal agendas. (NTCD)
- Easement/property condemnation policies. (Placer)

L8) TRPA's interpretation of SEZs (application to man-made facilities). (Placer)

L9) Drainage law concepts limit options. (Placer)

L10) Roadway user safety - (e.g., fixed objects hazards, and other general health and safety considerations, such as drowning, and trip/fall hazards, vectors). (Placer)

L11) NPDES compliance efforts divert resources from EIP project delivery. (Placer)

4. Political

O1) EIP program a higher priority for the Lake Tahoe Basin than for the West Slope - when pitted against other West Slope programmatic needs. (El Dorado)

- EIP project prioritization and definition by others. (Placer)
- Differing priorities among agencies. (Placer)

5. Procedural

P1) Insufficient participation by regulatory agencies – results in delays in design and avoidable changes in construction.

- Insufficient inspection throughout planning, design and implementation of project by regulatory agencies. (NTCD)
- Limited staff resources may result in delay of project review or inadequate review resulting in less effective projects. (LRWQCB)
- Lack of review process coordination. (Placer)
- Lengthy agency review time frames. (Placer)
- There is no clearly documented EIP project "streamlining" process. (TRPA)
- Providing late comments on projects. (TRPA)
- Other agency program personnel need to be brought into the loop prior to project approval. (TRPA)
- Underestimating the project (time, complexities, cost, other agency concerns). (TRPA)
- Role of EIP Projects Coordinator not clearly defined internally at TRPA for staff or for other agencies that work with TRPA on projects. (TRPA)
- Agency's staff commitments may not mirror management priorities resulting in delays. (TRPA)
- Project coordination between divisions. (TRPA)
- Priorities changing too rapidly. (TRPA
- Decisions made outside of TAC process can steer projects in directions that impact other TRPA thresholds thus increasing review time. (TRPA)
- Prior agreements arrived at TAC, funding and design meetings are not well documented delaying project review and approval. (TRPA)
- High staff turnover in Project Review Division has resulted in increased backlog. (TRPA)
- Not enough EIP Project Coordinators to "shepherd" every EIP project through the process. (TRPA)
- More communication needed amongst EIP staff with stakeholders implementing water quality projects. (TRPA)
- Roles and responsibilities need formal definition between all divisions for EIP implementation, TAC participation, and project design/ decision-making. (TRPA)
- Consistency needed on TRPA project planning and design inputs, enforcement of code, etc. (TRPA)
- Technical information is not reaching design or project review personnel in an efficient manner. (TRPA)
- No centralized location for storage of technical information. (TRPA)

- The current project Technical Advisory Committee (TAC) process is limited in its overall effectiveness. (El Dorado)

P2) Monitoring requirements - may not result in most effective evaluation of BMP effectiveness.

- Projects funded by the Conservancy must have significant, documented water quality benefits. (CTC**)**
- At least two years of post-construction monitoring are required. (CTC**)**
- Each project must be monitored " to determine the effectiveness of the erosion control measures installed in reducing or minimizing the effects of soil erosion and discharge of sediment into the waters of the Lake Tahoe region." (CTC**)**

P3) Changing direction throughout process - (Placer). **Closely related to P1**

- Agency requested changes during construction. (Placer)
- At times, Regional Board staff comments have been limited and/or not timely. Consequently, significant issues have been raised late in the design and permitting phase when plan changes are costly and unacceptable delays occur. (LRWQCB).

P4) Too much bureaucracy and too many procedures slow project delivery (Placer)

- Financial reporting must include state and local match on all invoices and financial status reports..(USFS**)**
- Extensive submittals required. (Placer)

P5) Lengthy permitting processes (Placer)

- Volume of projects is high resulting in a longer review and approval time. (TRPA)
- TRPA permit review process is complex and includes 8 other thresholds in addition to water quality. (TRPA)
- If information is not readily available, planners will take conservative approach to permitting a project. (TRPA)

P6) The County's internal processes are lengthy - sometimes inconsistent in individual objectives, and are frequently incompatible with the efficient program delivery timeline objectives. (El Dorado)

6. Human Resources

HR1) County is having a difficult time attracting and retaining sufficient numbers of qualified staff to meet the EIP program's ramping up expectations. (El Dorado)

7. Other

- Exclusionary meetings and discussions between agencies. (Placer)
- Lack of public support and participation. (Placer).