2. Point Source Tools

2.1. Washington

2.1.1. Technology

2.1.1.1. Wastewater Treatment Pilot Studies (mos. 0-6)

2.1.1.1.1. All wastewater treatment utilities will undertake and complete pilot testing and related or additional studies

2.1.1.1.2. Consideration must be given to opportunities to combine pilot testing and study efforts among similar utilities (such as among City of Spokane, Spokane County, and Liberty Lake Sewer & Water District, and among Inland Empire Paper and Kaiser)

2.1.1.2. Comprehensive Wastewater Management Plan (mos. 6-12)

Each utility prepares a comprehensive wastewater plan that includes:

2.1.1.2.1. An Engineering Report/Facilities Plan describing and detailing upgrades, improvements, and modifications to wastewater treatment works

2.1.1.2.2. A detailed estimate of quality characteristics wastewater treatment facility improvements expects to achieve

2.1.1.2.3. A plan for implementing other phosphorus/nutrient reduction and control strategies over time to achieve TMDL MIP goals and objectives

2.1.1.2.4. Using Other Toolbox Tools

2.1.1.3. Design (mos. 12-??)

2.1.1.3.1. Upon completion and approval items included within the Comprehensive Wastewater Management Plan, procure design services, prepare engineering design plans and related documents, and obtain all required approvals

2.1.1.3.2. Time to complete: It is generally assumed that the length time to accomplish this element will vary between individual utilities for a number of reasons. The following lengths of time are offered:

2.1.1.3.2.1. City of Spokane – 18 mos.

2.1.1.3.2.2. Spokane County – 18 mos.

2.1.1.3.2.3. Liberty Lake Sewer and Water Dist. – 12 mos.

2.1.1.3.2.4. Inland Empire Paper – 12 mos.

2.1.1.3.2.5. Kaiser – 12 mos.

2.1.1.4. Construction (times vary)

2.1.1.4.1. Upon design completion and obtaining all approvals, commence and complete construction

2.1.1.4.2. Time to complete: It is generally assumed that the length of time to accomplish this element will vary between individual utilities for a number of reasons. The following lengths of time are offered:

2.1.1.4.2.1. City of Spokane – 36 mos.

2.1.1.4.2.2. Spokane County – 36 mos.

2.1.1.4.2.3. Liberty Lake Sewer and Water Dist – 24 mos.

2.1.1.4.2.4. Inland Empire Paper- 12 mos.

2.1.1.4.2.5. Kaiser – 12 mos.

2.1.2. Permitting

2.1.2.1. General

2.1.2.1.1.1. Ecology will issue revised 5-year permits to existing Washington dischargers (City of Spokane, Liberty Lake Sewer & Water District, Inland Empire Paper, Kaiser) beginning Year 1 of the Memorandum of Agreement.

2.1.2.1.1.2. Every 5 years thereafter these NPDES permits will be reissued and will include a compliance schedule updated to reflect any appropriate adjustments necessary to implement the MIP so that

water quality standards are met in the Spokane River and Long Lake.

2.1.2.1.1.3. In Year 6 Ecology will issue a new NPDES permit to Spokane County for the operation of a new POTW consistent with the TMDL and MIP. Until the 10µg/L goal is achieved, the sum of the City and County #P will remain unchanged with the City and County each having a #P target.

2.1.2.1.1.4. Ecology will investigate and determine appropriate permit conditions, such as rolling averages or other effluent limits, which are flexible enough to provide incentives to encourage the adoption of advanced technologies which will, together with other pollution control efforts, result in the attainment of water quality standards.

2.1.2.1.1.5. All permits will incorporate a reasonable growth in wastewater flows over time, including both new population/customers to wastewater collections systems as well as septic tank elimination projects.

2.1.2.2. Interim Limits (6 mos.)

2.1.2.2.1.1. By completion of pilot studies Ecology will determine interim effluent limits for each permitted wastewater treatment facility. Interim limits will be determined in the event final limits cannot be achieved by implementing wastewater treatment technology alone, and as such can be considered as simply “another tool in the toolbox” to aid in achieving final limits. Interim limits should be adhered to by year 5 of each permitted facility’s compliance schedule. Individual “tools” in the “toolbox” include, but are not limited to, improved wastewater treatment technology, non-point source reduction, water reuse, water conservation, CSO elimination/reduction, I&I reduction, pretreatment, and nutrient source reduction and control.

2.1.2.2.1.2. Interim permit effluent limits can be adjusted to reduce effluent pollutants to the maximum extent practicable and reasonable and as new technologies are put into place and “fine tuned”. Specific timelines for adjusting these interim limits will be included as well.

2.1.2.3. Final Limits (6 mos. concurrent with Interim limits)

By completion of pilot studies Ecology will determine final effluent limits for each permitted wastewater treatment facility. Final limits are effectively the concentration-based, or equivalent mass-based, maximum pollutant loading to the Spokane River, are identified in the Draft Spokane River DO TMDL and 10 ug/L for total phosphorus, and are effectively comprised of “all of the tools in the toolbox”. Final limits must be adhered to by year 10 of each permitted facility’s compliance schedule. Individual “tools” in the “toolbox” include, but are not limited to, improved wastewater treatment technology, non-point source reduction, water reuse, water conservation, CSO elimination/reduction, I&I reduction, pretreatment, and nutrient source reduction and control.

2.1.2.4.

2.1.2.4.1.1. The proposed new Spokane County wastewater treatment facility, as a “new source” is not eligible for receiving a compliance schedule.

2.1.2.4.1.2. For the existing permitted wastewater treatment facilities of the City of Spokane, Liberty Lake Sewer & Water District, Inland Empire Paper, and Kaiser, Ecology and each utility will devise a 10-year compliance schedule to achieve MIP goals that will include, but is not limited to, dates/time frames for planning,

designing, constructing, and operating the following in order to achieve identified interim and final effluent limits:

2.1.2.4.1.2.1. Wastewater treatment technology (see above)

2.1.2.4.1.2.2. Reclamation and Re-use (see 4.1 below)

2.1.2.4.1.2.3. Water Conservation (see 4.2 below)

2.1.2.4.1.2.4. Enhance Pretreatment Programs

2.1.2.4.1.2.4.1. Municipal collection and/or treatment utilities

2.1.2.4.1.2.4.1.1. Amend local pretreatment ordinances to add important target pollutants (such as phosphorus)

2.1.2.4.1.2.4.1.2. Develop and prioritize an inventory of potential sources of important target pollutants throughout collection systems

2.1.2.4.1.2.4.1.3. Write pretreatment permits for priority sources of important target pollutants which include strategies for reducing or eliminating such pollutants

2.1.2.4.1.2.4.2. Industrial treatment wastewater utilities - Investigate opportunities for implementing pretreatment strategies, in advance of final wastewater treatment, that can reduce pollutant loading in effluent.

2.1.2.4.1.2.5. Infiltration and Inflow - Utilities with wastewater collection systems will investigate opportunities to reduce or eliminate opportunities for groundwater infiltration and surface water inflow into wastewater collection systems.

2.1.2.4.1.2.6. Non-point Phosphorus Reduction (see 3 below)

2.1.2.4.1.2.7. Combine Sewer Overflow Reduction or Elimination

2.1.2.4.1.2.7.1. The City of Spokane will complete all improvements included within their agreed-upon CSO elimination plan by the approved date of 2017

2.1.2.4.1.2.7.2. If possible, the City of Spokane will expedite improvements outlined within the agreed-upon CSO elimination plan

2.1.2.4.1.2.8. Stormwater

2.1.2.4.1.2.8.1. Spokane County and the Cities of Spokane, Spokane Valley and Liberty Lake will each be required to implement the provisions of the new Phase II Stormwater Permit for Eastern Washington.

2.1.2.4.1.2.8.2. Utilities will inventory and prioritize opportunities for stormwater discharge to the Spokane River, and develop implementation strategies for construction and/or management of such stormwater in order to reduce or eliminate the conveyance of pollutants via said stormwater to the Spokane River.

2.1.2.4.1.2.8.3. All Municipal Dischargers shall:

2.1.2.4.1.2.8.3.1. Year 1: Initiate studies and consideration of the following items for initiation of implementation by Year 2.

2.1.2.4.1.2.8.3.2. Enhanced street sweeping and leaf pickup from areas where storm water originates

2.1.2.4.1.2.8.3.3. Reduction or elimination of phosphorus from road de-icers

2.1.2.4.1.2.8.3.4. Installation and maintenance of bio-infiltration swales in key areas

2.1.2.4.1.2.8.3.5. Reconstruction of existing dry wells by priority in critical areas

2.1.2.4.1.2.8.3.6. The City of Spokane will make reasonable efforts to achieve completion, ahead of time if possible, of improvements to CSO system, and will consider enhancing inspection and maintenance to further reduce CSO events

2.1.2.5. Proposed Spokane County Regional Reclamation Plant

2.1.2.5.1. Cannot cause or contribute to exceedance of standards (10ug/L total phosphorus effluent).

2.1.2.5.2. Cannot exceed Spokane County's allocation of total phosphorus pounds (how the 2.93 lbs of total phosphorus identified and allocated to the existing City of Spokane wastewater treatment facility in the draft Spokane River DO TMDL report is distributed between the City of Spokane and Spokane County should be determined; Spokane County reportedly owns 10 MGD of the total 44 MGD permitted capacity at this facility).

2.1.2.5.3. This facility may very well be most easily permitted as a water reclamation facility. If this is the case, it will require an alternative point of discharge for emergency conditions.

2.2. Idaho

2.2.1. EPA Actions

2.2.1.1. Participate in the MIP adaptive management program. Adjust Idaho permits as appropriate to assure Washington Water Quality Standards are met and Idaho does not contribute to water quality violations in Washington

2.2.1.2. A permit "re-opener" clause is included within each Idaho NPDES permit.

2.2.2. Coeur d'Alene, Post Falls and Hayden Actions

In keeping with the Collaboration, the Idaho Permittees will Investigate and consider Implementation Plan toolbox actions.

2.2.2.1. Wastewater treatment technology

2.2.2.2. Water reclamation and re-use

2.2.2.3. Water conservation measures

2.2.2.4. Infiltration and inflow reduction

2.2.2.5. Non-point phosphorus reduction

2.2.2.6. Combined sewer overflow reduction or elimination

2.2.2.7. Pretreatment programs aimed at phosphorus and other target pollutants

3. Non-point Source Tools

3.1. Introduction

The Draft Spokane River Dissolved Oxygen TMDL requires reductions in the amount phosphorus coming from non-point sources. These reductions need to come from non-point sources in both the Spokane watershed and the tributary watersheds. Several tools to manage non-point sources are included in the "Toolbox" section.

3.1.1. The Draft TMDL identifies the need for reductions of 80-85% of controllable sources of phosphorus loading to the tributaries of the Spokane River. These tributaries include Latah (Hangman) Creek and the Little Spokane River, and possibly other smaller unnamed or intermittent streams. The strategy would be to complete the tributary TMDLs now in development, and identify opportunities to aggressively implement nutrient reduction practices from the top to the bottom of the sub-watersheds.

3.1.2. The assumption is that completing and implementing TMDLs for the tributaries will meet the established load allocations for the Spokane River. Financial and technical support for these ongoing efforts increases the probability of success in the shortest amount of time.

3.1.3. Additionally, other non-point source phosphorus reduction strategies could and should be looked at during a NPS evaluation study. Other phosphorus reduction opportunities may include reduction of phosphorus content in agricultural use fertilizers, reduction or elimination of phosphorus in lawn care products, and reduction or elimination of phosphorus content in dish washing detergents.

3.1.4. Schedule: Completion of the Spokane River (Lake Spokane) Dissolved Oxygen TMDL, followed by completing TMDLs for Hangman Creek by December 2006, and the Little Spokane River by December 2007. These TMDLs will include implementation schedules which generally entail 5-20 years of aggressive actions to reduce non-point source pollution.

3.1.5. Use existing information in developing a comprehensive plan for non-point activity (see Appendix 6.4)

3.2. Hangman (Latah) Creek TMDL

3.2.1. Hangman Creek and its tributaries are listed as impaired for dissolved oxygen, fecal coliform bacteria, pH, temperature, turbidity, and ammonia-N. Because Hangman Creek is an important contribution to the Spokane River, the TMDL for Hangman Creek will set allocations throughout the watershed for total suspended solids, nutrients and fecal coliform bacteria. It is expected that activities that address these pollutants will also help address the other listed parameters.

3.2.2. Possible Issues to Be Addressed In Detailed Implementation Plan

3.2.2.1. Sediment/nutrients from agricultural operations

3.2.2.2. Sediment/fecal from livestock and wildlife

3.2.2.3. Nutrients/chemicals from residential uses
3.2.2.4. Sediment/nutrients from agricultural field ditches
3.2.2.5. Nutrients/fecal from improper functioning septic systems
3.2.2.6. Sediment from gravel and summer road
3.2.2.7. Sediment from sheer or undercut banks
3.2.2.8. Sediment from storm water
3.2.2.9. Forestry management
3.2.2.10. Sediment from roadside ditching

3.3. Little Spokane River TMDL

3.3.1. Following the adoption of the Little Spokane Total Maximum Daily Load (TMDL), which is for dissolved oxygen, fecal coliform bacteria, temperature, and pH, implementation actions will occur. The Little Spokane River is not on the 303(d) List for phosphorus; however, the advisory group recognizes that phosphorus is a concern throughout the Spokane River watershed. Although this TMDL is in the early stages of development, the research team and advisory group have focused on homeowners and agriculture as most likely largest contributors of phosphorus within the watershed.

3.3.2. Possible Issues to Be Addressed In Detailed Implementation Plan

3.3.2.1. Sediment/nutrients from upland agricultural practices
3.3.2.2. Run-off from hobby farms and small livestock operations
3.3.2.3. Nutrient contributions from wildlife
3.3.2.4. Nutrients from residential fertilizers
3.3.2.5. Yard waste management
3.3.2.6. Sediment/nutrients from agricultural run-off
3.3.2.7. Nutrients/fecal from improper functioning septic systems
3.3.2.8. Atmospheric deposition from gravel roads
3.3.2.9. Sediment and nutrients from stream bank erosion
3.3.2.10. Sediment and nutrients from storm water run-off
3.3.2.11. Forestry management
3.3.2.12. Sediment and nutrient from new development

3.4. Administration and Funding

Establishment of a board to govern the disbursement of funds ($1 million + annually) to evaluate and fund projects/studies to be initiated the following year (see also 5.1 Regional Entity). The merits of these project proposals will be prioritized and funded in order of priority. Agencies qualified and capable of performing the prescribed work will compete for the available funding on an annual or biennial basis, which ever is established by the board. The make-up of the board will be determined by the funding entities, in consultation with the Department of Ecology. Evaluation of the overall program's success will be made on a regular basis. Water quality monitoring will take place throughout to help quantify the effectiveness of implemented projects. This evaluation process will help focus funding for future projects.

3.5. Other Main Stem and Aquifer Considerations

3.5.1. Septic Tank Elimination

3.5.1.1. Washington

3.5.1.2. Idaho

3.5.1.3. Package Plants Instead of Temporary Septic Tanks

3.5.1.4. Treatment/Re-use

3.5.1.5. Establish Way to Recognize #s P Removed by Septic Elimination Program

3.5.2. Evaluation of Near-shore Development

3.5.2.1. Spokane County

3.5.2.2. Stevens County

3.5.2.3. Kootenai County

4. Other Phosphorus Management Tools

4.1. *Toolbox:* Re-use/Infiltration Recharge

Ecology will require all municipalities & industries participating in the Memorandum of Understanding to develop and implement aggressive water reclamation and re-use programs as elements of their wastewater facility plan. Non-Washington municipalities will be encouraged to participate. The municipalities and industries include the following:

Spokane County	City of Spokane	City of Spokane Valley
Liberty Lake W/S District	Airway Heights	City of Cheney
Kootenai County	City of Coeur d'Alene	City of Post Falls
Hayden Area Regional Sewer Dist.		
Inland Empire Paper	Kaiser	

4.1.1. Administration and Policy Changes

4.1.1.1. Development Code

Reclamation and reuse is central to the success of efforts to comply with phosphorus loading requirements of the DO TMDL for the Spokane River. The definition of re-use is somewhat vague in state regulations for development of a water system plan. Therefore it is necessary that County Development Codes be amended to define and clarify what is intended for reclamation of wastewater and appropriate reuse options and beneficial uses. Appropriate incentives and enforcement tools need to be crafted and communicated.

The code changes should include information on dual piping systems; satellite wastewater reclamation and reuse facilities; criteria for their location and size; incentives and criteria for wastewater reclamation at large developments - residential or commercial; revisions of SEPA requirements to include the evaluation of reuse as option.

4.1.1.2. Administration

Administrative changes should include strategies for marketing reuse options and identifying potential audiences and benefits of interest to each audience

4.1.2. Education, Outreach and Marketing

Plan updates include a public involvement process. This public contact with customers is an educational opportunity to link re-use to conservation and local values (e.g. "Near Nature. Near Perfect"). Re-use is a sustainability practice that can enhance the quality of life, enhance and preserve the quality of the natural environment (come closer to "perfect"), and gain public understanding on the value and potential for substitution of reclaimed water for certain appropriate potable water uses.

A comprehensive and continuous public information and education program is vital to the success of re-use/infiltration recharge.

4.1.3. Comprehensive Wastewater Resource (Re-use) Management Plan

Prepare a comprehensive wastewater management effort with schedules for approximate start and completion of planning that includes public involvement/public education. The resulting plan will detail the following:

4.1.3.1. Re-use options, parameters of concern, and needed research

4.1.3.2. Identification of potential users

4.1.3.3. Review alternatives and select treatment technology required for intended use(s), time period of use(s), volume & rate of use(s), and storage needs;

4.1.3.4. Sites for Water Reclamation and re-use facilities

4.1.3.5. Distribution for reclaimed water to re-use sites

4.1.3.6. Assess potential for infiltration aquifer recharge, potential sites, define appropriate treatment and clarify barriers identified by Workgroup

4.1.3.6.1. Inventory local understanding and perceptions

4.1.3.6.2. Define education needs

4.1.3.6.3. Identify and plan revisions of state and local regulations and codes

4.1.3.6.4. Develop appropriate hydro geologic data

4.1.3.6.5. Identify and clarify any research needs

4.1.3.6.6. Describe necessary monitoring and feedback systems

4.1.3.7. Issue Draft Preliminary Plan

4.1.3.8. Issue Final Plan

4.1.4. Water Supply Plan

4.1.4.1. Water System Plans

Update Water Supply Plans to include possible revenue enhancements resulting from reclaimed water availability by identifying potential users, water re-use distribution systems, building cooperative agreements, holding workshops on revenue, workshops on marketing reclaimed water, and establish the link between reclaimed water and conservation.

Besides assessing potential users, appropriate beneficial uses, sites and possible routes for a distribution system, the Water Supply Plans would also include possible revenue enhancement programs by identifying potential users, water re-use distribution systems, building cooperative agreements, holding workshops on revenue, and workshops on marketing

4.1.4.2. Regional Water System Plan

Develop a Regional Water System Plan (RCW 90.46.120) that includes and coordinate the Comprehensive Wastewater Management Plan with re-use elements and the Water System Plans of regional and local water purveyors.

4.1.4.2.1. The participants in the TMDL development shall utilize incentives that encourage the use of Reclaimed Water. These incentives include potable water rates vs. water reuse rates; state and federal low interest loans for infrastructure; and cost sharing with industries, other municipalities, etc.

4.1.4.2.2. Implementation of this element of the TMDL is envisioned to include a funding strategy for the development of reclamation and reuse infrastructure. The strategy would include funding for design and construction of appropriate treatment of reclaimed water; a distribution system including dual pipe systems, storage of reclaimed water and pump stations; infiltration basins; and groundwater storage recovery.

4.1.4.2.3. TMDL with Technical Assistance and through the revision of regulations and procedures; education; and reclaimed water marketing. It is anticipated that additional assistance from the Department of Health; Washington Water Research Center (@ WSU and UW) will also be available.

4.1.4.2.4. Assistance may also include the National Water Research Institute (NWRI) through research, workshops, Expert Advisory Panel, and funding of Research and Technical Assistance; Water Environment Federation; and American Waterworks Association.

4.1.4.2.5. It is recommended that a point person (Spokesperson) be appointed for guiding and advocating Water Reuse implementation for the Spokane River TMDL.

4.1.5. Project Implementation

4.1.5.1. Prepare Reclaimed Water Engineering Report

4.1.5.2. Design Reclaimed Water Facility

4.1.5.3. Design Distribution and/or Infiltration Recharge Component

4.1.5.4. Construct Facility and Distribution/Infiltration

4.1.5.5. Secure Reclaimed Water Permit

4.2. *Toolbox:* Indoor Conservation

The Collaboration has discussed using an indoor water conservation program modeled after the program used by the regional sewer utility serving Lacey, Olympia and Tumwater in Thurston County (LOTT). This is one of the first sewer-utility-sponsored water conservation efforts in the state. It's aim is to cut per-capita indoor water use to reduce per capita wastewater treatment capacity needs. The LOTT program bases its conservation efforts on the cost of new wastewater treatment capacity. If the conservation effort can reasonably be expected to reduce water consumption without heavy reliance on behavior changes and its cost-per-gallon is below approximately 50% of the per-gallon cost of new wastewater treatment capacity, the effort is approved. Like the situation in Spokane, LOTT involves multiple jurisdictions. Some conservation efforts are pursue regionally while others can be done locally.

4.2.1. Prepare Individual Jurisdiction Conservation Plans

4.2.1.1. Pre- vs. Post-Code Revision Structure Inventory

National plumbing code revisions require low-flow equipment. Toilet replacement and other fixture modifications in older structures can have very positive results. A first step is to estimate the potential by doing a rough inventory of pre-code revision structures.

4.2.1.2. Retrofit Fixture Program

Toilet replacement was a key element of LOTT's early conservation program. Generally, homeowners found it fairly easy to present their utility bill, pick up free toilet(s), install them and bring back the old fixtures. There are contractors that supply the toilets, set up the program, and recycle the old fixtures (ceramic is ground into asphalt aggregate). Newer communities have significantly fewer eligible replacements.

4.2.1.3. Commercial Audit and Assistance Program

Commercial sewer customers are usually billed on the basis of flow, so there is economic incentive for conservation. Often, however, the cost of more efficient fixtures and equipment does not "pencil out" because the sewer savings are not sufficient and the water cost savings are slight because the cost of water is very low. Programs to inventory and design commercial conservation can be subsidized and part of the capital investment share so the business or industry has a reasonable pay-back on conservation investments.

4.2.1.4. Implementation Schedule

Scheduling of programs is critical. Across the board implementation can lead to failure because no program is well-managed and identifying actual reductions associated with each effort cannot be discerned. Continuous attention to the community value of using less water is also more effective at changing behaviors than one intense dose of information.

4.2.2. Prepare, and Implement Group Conservation Plan

Regionally scheduled and implemented public education and information efforts are generally more effective than multiple messages coming from multiple jurisdictions.

4.2.2.1. Fixture Maintenance Program

Toilet leak detection kits, replacement flapper valves, faucet washer replacements, flow restriction washers and low-flow shower heads are generally best handled regionally provided wastewater utilities and associated water utilities work together so there is substantial uniformity among jurisdictions.

4.2.2.2. Appliance Rebate Program

Electric and gas energy utilities can sometimes work jointly with wastewater and water utilities in sponsoring rebates for low-flow and low-energy use appliances such as front-loading laundry machines. Merchants are also important participants in these programs. In estimating conservation results it is necessary to allow for some machines being moved out of the area. Similar programs can be set up for businesses for laundry and dishwashing equipment.

4.2.2.3. Education Program

Resource conservation is widely and enthusiastically accepted both from the standpoint of preserving resources and cutting waste. Public education is most efficiently done on a regional basis using unified messages and staged over many months or years.

4.2.2.4. Implementation Schedule

Results measurement, measuring cost effectiveness and learning what works and what doesn't all depend on thoughtful scheduling and associated research.

4.3. *Toolbox:* Source Control

4.3.1. Dishwashing Detergent P Reduction Effort

Dishwashing Detergent Ban: A significant source of phosphorus is dishwasher detergent. Automatic dishwasher detergents may contain up to 8 percent phosphorus by weight. A general ban on the use of dishwashing detergents containing phosphorus, or requiring the use of low phosphate detergents would be expected to eliminate or reduce a significant source of phosphorus to ground water.

4.3.2. Residential Fertilizer Limitations

Residential and commercial fertilizer may be a significant source of phosphorus to the river and its tributaries via non-point runoff and discharge from storm water collection systems. The most effective way to address the non-point contributions from fertilizer is banning or limiting its use within the watershed boundaries. Encouraging or requiring the use of non-phosphorus fertilizer may be an effective, low-cost practice for reducing phosphorus in runoff.

Additionally, Local ordinances could be developed, which would require residential car washes to be conducted on lawns instead of impervious surfaces such as driveways or streets. This would allow for treatment and removal of phosphorus via uptake by vegetation rather then discharge to a drywell or other storm water collection system.

4.3.3. Commercial and residential Vehicle Washes

These operations, whether commercial or residential, are a source of phosphorus (as well as other pollutants) to ground water and the river via surface run-off and or discharges to a storm water collection system. Commercial Car washes could be required to install state-of-the-art treatment systems to assure the quality of water being discharged. The most beneficial of these technologies would be closed-loop (zero discharge) systems.

4.3.4. Septage Management

Septage Management: The City of Spokane currently receives and treats septage/sludge from smaller communities that lack the means to properly treat and dispose of it. This practice concentrates phosphorus rich septage at the City of Spokane's treatment plant, requiring treatment (including phosphorus removal) prior to discharge to the Spokane River. Funds should be made available for small municipalities to develop their own septage treatment and disposal facilities.

5. Managed Implementation Plan (MIP)

The opportunity to combine technology upgrades with toolbox tools to reduce #P to TMDL goal levels comes with a need for inter-jurisdictional coordination. Several tools demand pooling of resources to reduce #P without particular regard for political boundaries. There is necessarily a requirement for monitoring and keeping track of who has achieved which #P reductions. A "managed" plan also allows for adjustments as science and experience clarify the most efficient ways to reduce #P.

5.1. Devise and Form Regional Entity

There is discussion about the value of a regional entity to help support the Managed Implementation Plan. The responsibilities and authorities of such an entity may be covered in the Agreement which the Collaboration creates to compliment the TMDL and the NPDES permits and to contract for #P reduction efforts.

5.1.1. Reasons for an Entity

5.1.1.1. TMDL Success Is Multi-Jurisdiction Watershed Effort
5.1.1.2. Several *Toolbox* Items Rely on Multi-Jurisdiction Actions
5.1.1.3. Could Serve as Home for Monitoring, Modeling and Studies
5.1.1.4. Action Commitments Need Central Responsibility

5.1.2. Ecology's Interest

5.1.2.1. Form of Entity Need Only Be Responsible/Responsive
5.1.2.2. Authority of Entity Is Commensurate with Responsibility
5.1.2.3. Term of Entity Matches Multi-Jurisdiction Action Commitments

5.1.3. Administration and Funding

5.1.3.1. Consider Making Entity Grant Eligible
5.1.3.2. Will Need to Be Attached to Public Entity with Financial Capability
5.1.3.3. Governance (Board?) to Fairly Represent Participants
5.1.3.4. Open and Accessible

5.2. Monitoring, Modeling and Studies (see Appendix 6.5)

5.2.1. Current Monitoring Programs

5.2.2. Core TMDL Implementation Monitoring Program

5.2.2.1. Washington Standard
5.2.2.1.1. Amend Current Monitoring to Meet TMDL Implementation Needs
5.2.2.1.2. Careful Data Quality Management
5.2.2.1.3. Reports "Health of the River" Every Two Years
5.2.2.1.4. Adaptive Management TMDL Implementation Plan Adjustments
5.2.2.2. Spokane Tribe of Indians Standard

5.2.3. Effectiveness Monitoring

5.2.3.1. Establishes Demonstrated Pounds P Reductions for Non-point Programs
5.2.3.2. Establishes Pounds P Reductions from Septic Tank Elimination

5.2.4. Special Studies

5.2.4.1.1. Sediment Oxygen Demand
5.2.4.1.2. Stormwater and CSO Phosphorus Sources
5.2.4.1.3. Reactive vs. Non-reactive Phosphorus
5.2.4.1.4. Groundwater Phosphorus Sources

5.3. Adaptive Management

Because the effect of actions to achieve the TMDL goal for the Spokane River are not as certain as technology-based implementation plans, it is in the interest of both the river and those paying for the actions that adjustments in plans are possible. To have "reasonable assurance" the commitments, as adapted, are fulfilled, opportunity for substantial agency and public vigilance and accountability is worthwhile. Clear understandings about what is to be done, the measured effect of the action, and adaptation of the plan to incorporate learning and new information create an efficient program.

5.3.1. Action Commitments Annually Reviewed

5.3.1.1. Determine progress on Commitments and Encourage Attention
5.3.1.2. Unproductive Efforts Dropped
5.3.1.3. Promising Efforts Added
5.3.1.4. Minor Plan/Agreement/Permit Adaptations Approved

5.3.2. Biennial River Status Review

5.3.2.1. Each Participant Reports in Public Symposium
5.3.2.2. River Status Presented by Monitoring Team
5.3.2.3. Non-point Project Effectiveness Review
5.3.2.4. Minor Plan/Agreement/Permit Adaptations Approved

5.3.3. Ten Year Review

The Ten Year Review is an extremely important factual and objective assessment of progress toward a healthy river. Technology improvements will have made dramatic reductions in #P, conservation will be established, non-point pollution will be better controlled and re-use/infiltration recharge will be underway.

5.3.3.1. Individual and Collective Action Commitment Review
5.3.3.1.1. Were Commitments (as adapted) Kept?
5.3.3.1.2. What Went Right?/What Went Wrong?
5.3.3.2. Detailed Status of River Review
5.3.3.2.1. Summary of Collected River Data
5.3.3.2.2. Summary of Special Studies Conclusions
5.3.3.2.3. Review of How the River Responds
5.3.3.2.4. Model Run Projections on Probable Future Actions
5.3.3.2.5. Assessment of Oxygenation (see 5.5)
5.3.3.3. Analysis of Results vs. Goal
5.3.3.4. Review of Goal/DO Standards – Appropriate?/Attainable?
5.3.3.5. Public Assessment of MIP
5.3.3.6. Reconstruct Plan, Amend Permits and Agreement, Detail Next Actions that Offer Reasonable Assurance of Meeting Goal

5.4. Minimum In-stream Flow

A minimum in-stream flow for the Spokane River is being considered within the Avista Hydroelectric Dam Re-licensing process for both Washington and Idaho. Although lake levels and river flows are difficult issues, a minimum in-stream flow from Post Falls Dam above the current minimum (300 cfs) would likely provide some water quality benefits to the Spokane River and Lake Spokane. At present, there are many

uncertainties associated with minimum in-stream flows in the Spokane River. It is anticipated that an adaptive management process will need to be developed during the dam re-licensing process to resolve these issues. Although it would be inappropriate to assume a particular minimum in-stream flow recommendation or outcome, the Water Quality Modeling Group is considering a model run (for illustrative purposes only) which would show the water quality benefits of an increased minimum in-stream flow. When or if a minimum in-stream flow is established, it could be used to revise the TMDL.

5.5. Oxygenation

5.5.1. Long Lake Dam Tailrace

5.5.1.1. Option to be considered especially in effort to attain Spokane Tribe of Indians water quality standards (see 5.6.2.1 below)

5.5.1.2. Potential adjunct option in association with Lake Oxygenation

5.5.2. Lake Oxygenation

Lake Oxygenation is appears to be an appropriate option after phosphorus inputs from WWTPs and non-point sources are reduced to the extent feasible as confirmed by fulfilling action commitments, examining monitoring results and reviewing modeling.

5.5.2.1. This proposal recommends the preparation of a draft scope of work for a feasibility study of the oxygenation of Lake Spokane and the tail race to be completed early in the first ten year period of the Collaboration TMDL Implementation. The feasibility study would include a value analysis early in the effort. The feasibility study should include consideration of option for long term lake management

5.5.2.2. The feasibility study will include public education and participation elements. Education and input could occur at public workshop(s) in two parts:

5.5.2.2.1. Technology Options

5.5.2.2.2. Administrative Lake Management Options

5.5.2.3. Appropriate SEPA/NEPA documentation and processes could require 2 years of effort

5.5.2.4. Design and construction of tailrace oxygenation may reasonably occur during the first ten year period of the Collaboration TMDL Implementation Plan.

5.5.2.5. Design and construction of river oxygenation should occur in light of the Collaboration TMDL Implementation Plan tenth year review and after funding and long-term management are in place.

5.6. Education and Outreach

5.6.1. Outdoor Conservation

Residential water conservation may seasonally reduce municipal pumping from the Spokane-Rathdrum Aquifer and produce a benefit for stream flow restoration. Residents of the Spokane River Watershed use high quantities of water during summer months, primarily to irrigate lawns and gardens. Because of the intimate connection between the aquifer (the source of municipal water supply) and the Spokane River, reduction in outdoor use could result in partial restoration of stream flow in the River.

5.6.2. Polluted Runoff

In addition to best management practices, ordinances and bans, education is a valuable and essential tool for reducing and in some cases eliminating non-point source pollution. For education campaigns to be effective they must result in people changing their behaviors. Therefore it is important that proper research and planning is carried out prior to implementing an environmental education campaign. Successful education campaigns need to have dedicated professional educators designing and carrying out the education plan. A social marketing approach to an education plan identifies the target audience, identifies the barriers and benefits to doing the desired behavior, and removes these barriers so people are more likely to adopt the new behavior. Watershed pledge programs and other public education programs targeting specific sources of phosphorus should be an integral part of this TMDL.

5.7. Compliance

A compliance and enforcement strategy for the MIP will be implemented to assure that adequate progress is being made toward meeting water quality goals and standards. This strategy will entail accountability measures for both point sources (i.e., NPDES permitted facilities) and non-point source control and management.

5.7.1. Point Source Compliance:

Each permitted facility will be issued an NPDES permit and compliance schedule for meeting planned deadlines and goals. Five year compliance schedules, with a maximum up to ten years (as allowed under WAC 173-201A-510) will be used for achieving interim and final effluent limits. Failure to meet agreed-upon deadlines and permit conditions or requirements will be managed by the Department of Ecology using established protocols, including the possibility of enforcement and associated penalties.

5.7.2. Non-point Source Compliance:

The implementation of site-specific best management practices to control non-point sources and to meet the load allocations of the TMDL are the responsibility of individual landowners and local jurisdictions. If it is proven or demonstrated through monitoring that a particular site or land use is causing or contributing to a significant water pollution problem or a violation of the water quality standards, the Department of Ecology will use discretion and the authority granted under RCW 90.48.080 and WAC 173-201A-510 to follow up and conduct a compliance investigation. A standardized agency protocol will be followed for all enforcement actions.

5.8. Coordination

The Spokane River TMDL Collaboration interfaces with a multitude of water quality and watershed management projects and processes with similar objectives. It will be imperative to have good communication and coordination among the various efforts listed below to assure success.

Avista Hydrolelectric Dam Re-licensing
2514 Watershed Planning
Spokane Valley/Rathdrum Prairie Groundwater Study
Latah Creek TMDL
Little Spokane River TMDL
Spokane River PCB TMDL

6. Appendix

Documents in Order of Attachment

6.1. Regional Phosphorous Agreement (1989)

6.2. Spokane River Draft Dissolved Oxygen TMDL Report (2004)

6.3. Estimated Sources of Phosphorus Loading to the Spokane River

6.4. Draft Spokane Conservation District Non-point Source Program

6.5. Monitoring and Modeling Workgroup Report

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