

**TMDL Implementation Plan
Guidance – 5th Year Review Report Template for City
and County Designated Management Agencies**

December 2012



State of Oregon
Department of
Environmental
Quality



Disclaimer

This guidance document should not be construed as a requirement of rule or statute. This guidance document was developed to assist Designated Management Agencies(DMAs) with report preparation, and is designed to meet the following goals:

- **Report Acceptance:** Outline the elements that need to be in the report so DEQ reporting expectations are met.
- **Education & Outreach:** Provide DMAs with a review about what TMDLs are and the strategies that work to improve water quality.
- **Strategy Matrix-**Assist DMAs with generating a strategy matrix for the next 5 year cycle of TMDL implementation.
- **Public Involvement-** Promote the importance of TMDL implementation, which includes stormwater management to protect water quality, within your jurisdiction.

Contributor Recognition

(Placeholder for future additions)

Guidance Template Review and Recommendations

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Appendix A Checklist

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Cities: Keizer, Newberg, Turner

Feedback and Fillable Functionality

Cities: Keizer, Canby

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Preview

Introduction

As identified in OAR 340-042-0080, Total Maximum Daily Load (TMDL) Implementation Plan acceptance by DEQ was based on the TMDL Implementation Plan containing and acknowledging the following reporting and performance components:

1. Reasonable assurance that plan will be implemented.
2. Developed timeline, with reference to costs and funding, for implementing TMDL management strategies (implementation and completion dates).
3. Proposed performance monitoring plan for confirming implementation of strategies and success of strategies in meeting TMDL reductions for applicable parameters (ex., temperature, mercury, and bacteria).
 - a) Submittal of annual reports for describing progress on implementing strategies that were selected for pollutant load allocations/reductions in the TMDL Implementation Plan.
4. Submittal of a 5th year evaluation report for describing implementation progress and the effectiveness of the strategies implemented during the preceding 4 years in meeting the parameter reductions. Plan adaptation and revisions based on the annual and 5th year periodic report reviews if it is determined that the plan is not effective in meeting parameter load allocations/reductions.

Purpose

- **Background** – The 5th year review does not require additional monitoring or measurements. Use existing data and information to evaluate plan implementation and effectiveness relative to pollution reduction goals. The report should describe what information was used in the evaluation, the outcome of the evaluation and the basis for this reasoning.
- **Report Template** – This document captures the elements that should be included in the report, and provides examples for how to capture the minimum elements. This document is designed for use as the template for report submittal.
- **TMDL Implementation** – TMDL implementation is a five year cycle, that starts with the first plan due date. This document is designed to assist you with documenting strategy implementation for the next five year cycle of TMDL implementation.

Assistance, Additional Information, and Questions

Contact your DEQ TMDL Program Basin Coordinator at:

<http://www.deq.state.or.us/wq/tmdls/docs/basincoordinators.pdf>

Part I: Cover Page

Please provide the general and contact information below.

General Information:

TMDL Implementation Plan First Due Date (MM/DD/YY): _____

TMDL Implementation Plan First Approval Date (MM/DD/YY): _____

This is the 1st 2nd 3rd Other 5th year report submittal.

Designated Management Agency Name _____

County _____

TMDL Basin _____

Please check the Subbasin(s) within your Jurisdiction: Coast Fork McKenzie
 Middle Fork Middle Willamette North Santiam Pudding South Santiam
 Upper Willamette

Receiving Subbasin Waterbody(s) within your Jurisdiction: _____

Population based on 2010 Census or MS4 Status (Please check appropriate category):

- | | |
|--|---|
| <input type="checkbox"/> <500 | <input type="checkbox"/> >=10,000 Stormwater Six Control Measures |
| <input type="checkbox"/> 500 -<1000 | <input type="checkbox"/> City MS4 Phase II |
| <input type="checkbox"/> 1,000-<5000 | <input type="checkbox"/> County MS4 Phase II |
| <input type="checkbox"/> 5,000-<10,000 | <input type="checkbox"/> City MS4 Phase I |

Population per square mile _____

TMDL Contact Information for City or County:

Name _____

Title _____

Address _____ Zip Code _____

Telephone _____

Email address _____

Part II: Report Sections and Checklists

1. Please review Table 1 below. Table 1 summarizes, for each TMDL parameter, the general sources that impact water quality and strategies for improving water quality.

Table 1: TMDL General Sources and Management Strategies

| TMDL Parameter | General Sources | General Strategies/ Best Management Practices(BMPs) |
|-----------------------|---|---|
| Bacteria | Bacteria are carried to waterways in stormwater, overland flow, and pipes systems. | Reduce inputs of bacteria by various means including riparian protection, erosion control and stormwater control and treatment, low impact development, septic maintenance and various domestic and agricultural practices. |
| Dissolved Oxygen | In-stream sediment from runoff and stream bank erosion and high nutrient loads. | Reduce sediment delivered to streams by various means including riparian protection, erosion control and stormwater control and treatment, low impact development and reduce nutrient loads. |
| Iron | Iron is naturally occurring, but high iron concentrations are associated with rain, higher stream flows, and bank erosion. | Reduce sediment delivered to streams by various means including riparian protection, erosion control and stormwater control and treatment, low impact development. |
| Mercury | In-stream sediment from runoff and stream bank erosion; air deposition. | Same as Iron. |
| Legacy Pesticides | In-stream sediment from runoff and stream bank erosion. | Same as Iron. |
| Nitrates | Delivery of excess nutrients to groundwater and surface water. | Manage fertilization and irrigation to reduce excessive addition of nitrate to groundwater and runoff; maintain septic systems. |
| Temperature | Removal of trees and other shade-producing woody vegetation from stream banks. Wastewater discharges also contribute to stream heating. | Increase effective shade through restoration and protections; Restore natural stream hydrology and cool water refuges; Increase natural stream flow. |
| Turbidity | In-stream sediment from runoff and stream bank erosion and high nutrient loads. | Same as iron and reduce nutrient loads. |

Part II: Report Sections and Checklists Continued

2. Please review Table 2 below. Table 2 summarizes the nonpoint source TMDL load allocations for the Subbasins, or specific streams. Load allocations are the percent reductions or targets needed to meet water quality standards. Acknowledge, by checking, the percent reductions in Table 2 that apply to the Subbasin(s), or specific streams, within your jurisdictional boundaries for improving water quality.

Table 2: Nonpoint Source Urban/Rural TMDL Reductions

| Subbasin | Parameter Reductions |
|---|--|
| Coast Fork | Bacteria: <input type="checkbox"/> Coast Fork 303(d) listing removal, with continuation of strategy implementation for other TMDLs and the 80% Willamette basinwide average |
| Coast Fork McKenzie Middle Fork Middle Willamette North Santiam Pudding South Santiam Upper Willamette | Mercury: <input type="checkbox"/> 27% Willamette Basinwide-All Subbasins Temperature: <input type="checkbox"/> Attainment and preservation of effective shade levels on smaller tributaries associated with system potential vegetation will eliminate most anthropogenic nonpoint source heat loads. 91% thermal pollution is from nonpoint sources. Surrogate measure is percent effective shade targets and a heat load equivalent of 0.05 °C of the Human Use Allowance. Other important measures— preserving and restoring cool water refuges where salmonids rear and migrate to when the river warms up in the summer; restore instream flow quantity. |
| McKenzie | Bacteria: <input type="checkbox"/> 80% to 94% |
| Middle Willamette | Bacteria: <input type="checkbox"/> 88% summer <input type="checkbox"/> 75% fall-winter-spring and Middle Willamette Specific Tributaries <input type="checkbox"/> 81% Mill Creek Turner Road <input type="checkbox"/> 79% Pringle Creek at Pringle Park/Church Street <input type="checkbox"/> 89% Clark Creek at Mouth Bush Park |
| North Santiam | Bacteria: <input type="checkbox"/> 80% to 94% |
| Pudding | Bacteria: <input type="checkbox"/> 75% to 87% summer <input type="checkbox"/> 70% to 92% fall-winter-spring Iron: <input type="checkbox"/> 19% to 96% based on stream flow Legacy Pesticides: <input type="checkbox"/> Pudding River and Tributaries 30% DDT <input type="checkbox"/> Pudding River and Tributaries 90% Dieldrin <input type="checkbox"/> Pudding River In stream total suspended solids targets (15 mg/L) Nitrates: <input type="checkbox"/> Zollner Creek and Tributaries 10 mg/l criterion met based on stream flow |
| South Santiam | Bacteria: <input type="checkbox"/> 80% to 94% |
| Upper Willamette | Bacteria: <input type="checkbox"/> 65% Reduction Average Upper Willamette Specific <input type="checkbox"/> 77% Upper Long Tom <input type="checkbox"/> 84% Upper Amazon <input type="checkbox"/> 33% A-3 Drain Dissolved Oxygen: <input type="checkbox"/> Amazon Creek and Diversion Canal 40% reduction in sediment oxygen demand, Biological Oxygen Demand and nutrients <input type="checkbox"/> Coyote Creek below Spencer Creek and Spencer Creek 20% reduction in sediment oxygen demand, Biological Oxygen Demand and nutrients |

Part II: Report Sections and Checklists Continued

3. Please provide a concise discussion on the most positive or commendable plan elements implemented. Please limit your discussion to ten concise sentences or less. More details pertaining to specific TMDL strategy implementation will be requested in the sections that follow.

Note: *Some examples of positive and commendable elements for discussion: implemented strategies “above and beyond” proposed plan; high percentage of measures completed and implemented; square acres of riparian restoration; gap analysis and code revisions and ordinance adoption; prioritized work plan development; water quality monitoring , evaluation and progress results; interagency collaboration on key projects such as fish passage and riparian restoration.*

4. Please provide a concise discussion on any impediments to plan implementation and proposed solutions for the next four year cycle to overcome these impediments. Please limit your discussion to ten concise sentences or less. More details pertaining to TMDL Implementation timelines, progress, and plan adaptation will be requested in the sections that follow.

Note: *Some examples of impediments to consider for discussion: Lack of resources; Lack of partners; Unclear geographic priorities; Limited public support on ordinances; Inadequate staff training; No clear examples or showcase of strategies implemented.*

Part II: Report Sections and Checklists Continued

5. DEQ identifies key TMDL implementation strategies in the TMDL documents found at <http://www.deq.state.or.us/wq/tmdls/willamette.htm>. Please refer to Appendix A of this document and check the strategies, under the column category “1st 5 year cycle” that have been ongoing, implemented, or partially implemented over the preceding four years under your TMDL implementation plan.

If you are an MS4 Permittee, please also check “MS4 City or Countywide” or “MS4 Permit Boundaries Only” for a strategy when it applies.

Note: Do not use the column category, “next 5 year cycle.” This category is reserved for number 8 below.

6. Please indicate the reporting and performance components that were met for monitoring implementation success and effectiveness of strategies/Best Management Practices (BMPs) in meeting TMDL needed reductions.

Note: For sections 6.i.b. and 6.ii., utilize the status column in the matrix included with your DEQ accepted TMDL Implementation Plan, and submit it with the report. Please reference the Appendix B example provided with this document.

- i. Basic description of implementation monitoring (Were the specified management strategies implemented and annual reports submitted?)
- a. Please check yes or no:
- i. Were annual reports submitted?
- Report 1 Yes No Report 2 Yes No
Report 3 Yes No Report 4 Yes No
- ii. Did annual reports submitted identify changes, delays, substitutions, etc?
Yes No
- iii. Did you address or discuss with DEQ all comments provided in your annual report acceptance letter and/or email? Yes No
- b. For each strategy, please identify in your **matrix status column** the status that applies to the strategy – Please use the terms in **bold** below and every task must have an identified status (refer to Appendix B example)
- Complete:** Strategy has been implemented and is done.
Ongoing: Strategy has been implemented and is ongoing as expected.
Incomplete: Strategy implemented, but measures not 100% met.
Not Implemented: Strategy not started.
Replacement: Replacement for a strategy not implemented.
Delayed: Strategy started, and strategy or interim steps still underway because of unanticipated delays.
Added: Added as new or supplemental strategy identified and added for implementation.

Note: Timelines and measures are not intended to be DEQ enforceable compliance points, they were based on your professional judgment to implement and complete a strategy. It is important to confirm that implementation efforts supportive of TMDLs are underway, not that timelines and measures have been met 100%. Delays in timelines and not meeting 100% of the measures are anticipated.

Part II: Report Sections and Checklists Continued

c. Please provide the following information based on information from b above:

- Number of tasks **Completed** _____
- Number of tasks implemented and now **Ongoing** _____
- Number of tasks **Incomplete, but started** _____
- Number of tasks **Not implemented** _____
- Number of tasks **Replacement** _____
- Number of tasks **Delayed** _____
- Number of tasks **Added** _____

- ii. Document effectiveness monitoring (Confirm the strategies were implemented and effective at reducing pollutant loading) in your **matrix status column**(refer to Appendix B example).
 - a. Based on quantitative(water quality monitoring if utilized) or qualitative data(performance measures and milestones identified in matrix), summarize the metrics in the matrix status column for the four years of implementation that support progress on meeting load allocations and water quality standards.

Note:

***Quantitative** - Measurement of the effectiveness of pollution reduction efforts by conducting laboratory analyses of water samples.*

***Qualitative** - Measurement of implementation progress. Examples: Photo documentation of training; Before and after photo documentation of improvement in stream bank vegetation/cover; Vegetated stormwater containment/collection swales; Documentation of relative sediment volume/ year collected from catch basins; Roads, detention ponds or filters in stormwater treatment systems; Copies of education and outreach documentation and the number issued; Stormwater and temperature websites created.*

7. Based on the information you documented for numbers 2-6, use the space provided to describe recommendations for continued plan strategy implementation and improvements for the next five year cycle and 5th year review.

Note: *If the evaluation indicates that the plan and corresponding matrix are not likely to be adequate to meet the pollution reduction goals, describe how the plan and matrix will be modified or what efforts will be undertaken to achieve these goals and the timeline for working towards accomplishing them over the next four year cycle.*

8. Based on information you documented for numbers 2-7, check-off the strategies in the Appendix A column, “next 5 year cycle,” that will be utilized for the next four years of TMDL implementation. Please remember to attach the completed Appendix A checklist with the report.
9. Based on information you documented for numbers 2-8, please attach the BMP TMDL Implementation Matrix for the next four years of implementation under the 5 year cycle.
10. All DMAs are expected to revise their plan, if the proposed strategies in the matrix for the next five year cycle also triggers an impact to the overall content of their DEQ approved TMDL plan.

I am including a revised plan with this 5th Year Review Report Yes No

11. Your submittal due date for this 5th year report will restart the clock for the next 5 year cycle(progress reporting and 5th year review report). The 5th year report review and acceptance date by DEQ will not change your assigned annual progress report due date. Please confirm your assigned annual report submittal date _____ (MM/DD).

Part III: Signature of Legally Authorized Representative

Signature of Legally Authorized Representative for 5th Year Report(Definition: Principal executive officer or ranking elected official):

Type or Print Name: _____

Title: _____

I hereby certify that the information contained in this document is true, accurate, and complete to the best of my knowledge and belief.

_____ Date (MM/DD/YY): _____

Signature

Note: Please remember to complete and attach the Appendix A checklist and the TMDL implementation matrix that will be used for documenting strategies that will be implemented and tracking progress.

| | | | | Parameters Supported | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|--|------------------|-----------|------|---------|---------------------------------|---------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | Appendix A Recommended List of Key Strategies for TMDL Implementation | | | | | | | |
| | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
| | | | | Riparian and Wetland Protection and Restoration Programs | | | | | | | |
| | | | | Floodway and floodplain overlay district ordinance that protects the floodway and floodplain from development | • | • | • | • | • | • | • |
| | | | | Riparian Protection ordinance that provides a “no touch” riparian buffer on both sides of a waterbody with the width (in feet) based on the TMDL effectiveness shade and buffer width | • | • | • | • | • | • | • |
| | | | | Tree protection ordinance that retains at least 60% canopy coverage, which will hold water and reduce temperature increases on impervious surfaces. | | | | | | | • |
| | | | | Wetland protection ordinance that includes protection of headwaters and riparian corridors and other groundwater resources that provides cool water inflow from groundwater, hyporheic (near surface), wetland, or other sources into waterbody during the hottest time of year. | • | • | • | • | • | • | • |
| | | | | Adopt a Low Impact Development (LID) ordinance that requires all new, redevelopment, and retrofit projects to retain natural site conditions for surface water flows | • | • | • | • | • | • | • |
| | | | | Establish City/County exclusive requirement to protect buffers, riparian, wetland, and native vegetation areas on city/county property (ex., conservation) programs | • | • | • | • | • | • | • |
| | | | | Strategies and timelines to protect and establish system potential vegetation (ex., inventory land features and conditions; prioritize riparian and wetland areas; select sites for planting) | • | • | • | • | • | • | • |
| | | | | Restore instream with placement of large woody debris, and bed and bank material(e.g. gravel) | | | | | | | • |

| | | | | Parameters Supported | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|---|------------------|-----------|------|---------|---------------------------------|---------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | <p style="text-align: center;">Appendix A Recommended List of Key Strategies for TMDL Implementation</p> | | | | | | | |
| | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
| | | | | Protect or restore riparian area to 150-foot buffer on both sides with native shrubs and trees that would grow and restore stream conditions to natural conditions. | • | • | • | • | • | • | • |
| | | | | Restore riparian area with native shrubs and trees that would grow and restore stream conditions to natural conditions. | • | • | • | • | • | • | • |
| | | | | Zoning and development code audit and update to protect natural drainage and surface water areas and incorporate LID and structural collection & treatment of stormwater | • | • | • | • | • | • | • |
| | | | | Enforce on riparian violations | • | • | • | • | • | • | • |
| | | | | Identification of watershed partners and projects that support implementation efforts and participate/support implementation of riparian restoration and LID on-the-ground projects | • | • | • | • | • | • | • |
| | | | | Purchase of permanent instream transfers through Oregon Water Resources Department, particularly during the summer and late fall flow periods. | | • | | | | • | • |
| | | | | Gap analysis of DMA's programs (ID what's lacking for riparian restoration and preservation and six minimum stormwater control measures) | • | • | • | • | • | • | • |
| | | | | Pollution Prevention in Municipal Operations | | | | | | | |
| | | | | Adopt an Integrated Pest Management (IPM) Ordinance to develop effective plans, programs, and policies | | • | | • | | • | |
| | | | | Conduct Regular Street Sweeping of streets, parking lots, and other impervious surfaces with sweepers that have good efficiencies for removing the tiniest particles. | • | | • | • | • | • | • |

| | | | | Parameters Supported | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|---|------------------|-----------|------|---------|---------------------------------|---------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | Appendix A Recommended List of Key Strategies for TMDL Implementation | | | | | | | |
| | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
| | | | | Adopt and implement policy to prevent over-application of maintenance and construction products (ex., reduce fertilizers , herbicides, pesticides to public lawns and landscaped areas; avoid over application deicing salts) | | • | • | | • | | • |
| | | | | Employee training about maintenance and construction practices to protect water quality | • | • | • | • | • | • | • |
| | | | | Maintenance program for stormwater collection and treatment systems | • | | • | • | • | • | |
| | | | | Incorporate electric and low MPG into transportation fleet | | | | | • | | |
| | | | | Pet/Animal waste, Septic Systems, Illicit discharges | | | | | | | |
| | | | | Adopt a No Wildlife Feeding Ordinance near waterbodies to limit the amount of wildlife waste and sediment from riparian damage entering waters of the state, including lakes, reservoirs, ponds, and other impoundments. | • | | • | • | • | • | |
| | | | | Adopt a pet waste pick-up ordinance for home and in public area | • | | | | | • | |
| | | | | Establish Dog Run Areas in a dog park that is sited away from environmentally sensitive features and provides a safe off-leash fenced area. | • | | | | | • | |
| | | | | Collaborative Pledge based pet waste program | | | | | | | |
| | | | | Pet waste stations, signs (install) | • | | | | | • | |

| | | | | | Parameters Supported | | | | | | | | |
|----------------------------------|------------------------|-----------------------|-------------------|--|--|------------------|-----------|------|---------|---------------------------------|---------------------------------|-------------|---|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | Appendix A Recommended List of Key Strategies for TMDL Implementation | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature | |
| | | | | | Porta potties at parks in summer with no facilities and public events (fairs, markets, holidays, etc) | • | | | | | | • | |
| | | | | | Minimize inflow and infiltration of stormwater to wastewater system | • | | | | | | • | |
| | | | | | Septic system reduction through hook-up to public wastewater system | • | | | | | | • | |
| | | | | | Develop a Local Community Loan Program to provide low-cost financial assistance to individual homeowners to repair or replace substandard and failing on-site systems (Note: A county or city may contract with DEQ to borrow funds through the Clean Water State Revolving Fund (CWSRF) to establish a “local loan”). | • | | | | | | • | |
| | | | | | Onsite/septic inspection and maintenance ordinance to require onsite system inspection and maintenance to repair or replace substandard and failing on-site systems; Onsite system fixes and repairs during sale | • | • | | • | | | • | |
| | | | | | Identify and eliminate illicit discharges and cross connections | • | • | | • | | | • | • |
| Drinking water protection | | | | | | | | | | | | | |
| | | | | | Drinking water ordinance to protect drinking water obtained from groundwater sources | • | | | • | | | • | |
| | | | | | Drinking water ordinance to protect drinking water obtained from surface water sources | • | | • | • | | • | • | |

| | | | | Parameters Supported | | | | | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|--|--|--|--|------------------|------------------|-----------|------|---------|------------------------------------|------------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | Appendix A Recommended List of Key Strategies for TMDL Implementation | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
| | | | | Erosion and Sediment Control During Construction | | | | | | | | | | | |
| | | | | Hillside development (Steep Slopes) protection code/ordinance to minimize or stop soil erosion from steep slopes that are eroding (or subject to erosion from disturbance) causing sediment to enter into a waterbody. | | | | | | • | • | • | • | • | |
| | | | | Develop erosion and sediment control ordinance for less than 1 acre of disturbance | | | | | | • | • | • | • | • | |
| | | | | Require erosion and sediment control plans, when applicable, during building permit application phase | | | | | | • | • | • | • | • | |
| | | | | Restore exposed soil areas with erosion control BMPs to prevent and control erosion | | | | | | • | • | • | • | • | |
| | | | | Strengthen 1200-C permit oversight--Require permit approval for land use approval | | | | | | • | • | • | • | • | |
| | | | | Collaborative regional erosion control summit | | | | | | • | • | • | • | • | |
| | | | | Stormwater Planning and Programs, Structural Collection and Treatment of Stormwater | | | | | | | | | | | |
| | | | | Stormwater management ordinance that requires all new, redevelopment, and retrofit projects to control and treat soil laden stormwater runoff | | | | • | | • | • | • | • | • | |
| | | | | Stormwater management ordinance that requires all new, redevelopment, and retrofit projects to maintain post development peak runoff rate and average volume at levels that are similar to pre-development levels | | | | • | | • | • | • | • | • | |

| | | | | Parameters Supported | | | | | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|--|---|---|---|------------------|------------------|-----------|------|---------|------------------------------------|------------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | Appendix A Recommended List of Key Strategies for TMDL Implementation | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
| | | | | Construct site non-UIC dry swale that will settle, infiltrate , and treat stormwater | • | | • | • | • | • | • | • | • | | |
| | | | | Construct site pond/wetland system that will settle, infiltrate and treat stormwater | • | | • | • | • | • | • | • | • | | |
| | | | | Install onsite and/or regional basin facility to control and treat turbid runoff (i.e., rock dams, swales, sediment basins, sediment traps) | • | | • | • | • | • | • | • | • | | |
| | | | | Convert road ditches to Grassed Swales (a.k.a. grassed channel, dry swale, wet swale, biofilter, or bioswale) to infiltrate and capture sediment | • | | • | • | • | • | • | • | • | | |
| | | | | Investigate and/or promote the use of low impact development techniques such as bioswales, rain gardens, pervious surfaces, etc. | • | | • | • | • | • | • | • | • | | |
| | | | | Financial analysis and funding source identification - what can they really do with the funding they have | • | | • | • | • | • | • | • | • | • | |
| | | | | Adopt a Low Impact Development (LID) Ordinance that requires all new, redevelopment, and retrofit projects to reduce impervious surfaces and use LID and other BMPs to infiltrate, filter, retain, evaporate, and slow down runoff close to its source and treat nutrients from impervious surfaces. | • | | • | • | • | • | • | • | • | | |
| | | | | Develop stormwater conveyance systems map to track and locate problems more efficiently | • | • | • | • | • | • | • | • | • | | |
| | | | | Educate about illegal discharges | • | • | • | • | • | • | • | • | • | | |
| | | | | Develop and implement an outreach program/strategy for water quality protection | • | • | • | • | • | • | • | • | • | | |

| | | | | Parameters Supported | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|--|------------------|-----------|------|---------|---------------------------------|---------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | Appendix A Recommended List of Key Strategies for TMDL Implementation | | | | | | | |
| | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
| | | | | Employee training about maintenance and construction practices to protect water quality | • | • | • | • | • | • | • |
| | | | | Enforcement of ordinances that protect water quality | • | • | • | • | • | • | • |
| | | | | Establish system development charges for stormwater | • | • | • | • | • | • | • |
| | | | | Gap analysis of DMA's programs (ID what's lacking for riparian restoration and preservation and six minimum stormwater control measures) | • | • | • | • | • | • | • |
| | | | | Hand out water quality fact sheets with land use applications and building permits | • | • | • | • | • | • | • |
| | | | | Have appropriate staff attend TMDL meetings | • | • | • | • | • | • | • |
| | | | | Illegal discharge, detection and complaint response program | • | • | • | • | • | • | • |
| | | | | Increase enforcement capacity | • | • | • | • | • | • | • |
| | | | | Increase monitoring capacity | • | • | • | • | • | • | • |
| | | | | MS4 Phase II Non-Permittees - Implementing strategies and timelines for 6 minimum stormwater control measures | • | • | • | • | • | • | • |

| | | | | Parameters Supported | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|--|------------------|-----------|------|---------|---------------------------------|---------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | <p style="text-align: center;">Appendix A Recommended List of Key Strategies for TMDL Implementation</p> | | | | | | | |
| | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
| | | | | Non-Structural practices(Low Impact Development Code or Ordinance, Comprehensive Plans) | • | • | • | • | • | • | • |
| | | | | Quantify BMPs and protection needed to meet water quality standards and TMDL load allocations | • | • | • | • | • | • | • |
| | | | | Require construction of onsite or construct regional non-UIC Grassed Swales (a.k.a. grassed channel, dry swale, wet swale, biofilter, or bioswale) that infiltrates stormwater and maintains dry weather flow. | • | • | • | • | • | • | • |
| | | | | Promote utilization of or require construction of porous concrete and/or asphalt roads when constructing new or re-constructing a road | • | • | • | • | • | • | • |
| | | | | Stormwater Master/Management Plan with water quality components for riparian areas and stormwater management controls (develop or update) | • | • | • | • | • | • | • |
| | | | | Education and Outreach, Public Involvement | | | | | | | |
| | | | | Stormwater/water quality protection education via website | • | • | • | • | • | • | • |
| | | | | Stormwater/water quality protection education via workshops | • | • | • | • | • | • | • |
| | | | | Stormwater/water quality education via fact sheets, signage, mailers | • | • | • | • | • | • | • |
| | | | | Pursue and implement mutual strategies with other jurisdictions | • | • | • | • | • | • | • |

| | | | | Parameters Supported | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|--|------------------|-----------|------|---------|---------------------------------|---------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | Appendix A Recommended List of Key Strategies for TMDL Implementation | | | | | | | |
| | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
| | | | | Outreach - Creek protection and what “you” can do. | • | • | • | • | • | • | • |
| | | | | Conduct public education and outreach on riparian and wetland protection and restoration and local zoning/ordinances to protect riparian areas | • | • | • | • | • | • | • |
| | | | | Tree planting program and tree planting in open areas to provide adequate tree canopy coverage | | | | | | | • |
| | | | | Promote carpooling, public transportation | | | | • | | | |
| | | | | Promote/collaborate/incentivize riparian protection | • | • | • | • | • | • | • |
| | | | | Conduct public education and outreach on cold water for fish and stormwater quality: riparian protection; promote conservation programs available through agencies | • | • | • | • | • | • | • |
| | | | | Pet waste education - Inform residents about bacteria issues; Partner with other jurisdictions in media campaign | • | | | | | | |
| | | | | Post TMDL Implementation Plan on website or make available to public for review and comment | • | • | • | • | • | • | • |
| | | | | Conduct public education and outreach on stormwater quality: illegal dumping; septic system maintenance | • | • | • | • | • | • | |

| | | | | Parameters Supported | | | | | | | | | | | |
|------------------------------|------------------------|-----------------------|-------------------|--|--|--|--|------------------|------------------|-----------|------|---------|---------------------------------|---------------------------------|-------------|
| 1 st 5 Year Cycle | MS4 City or Countywide | MS4 Permit Boundaries | Next 5 Year Cycle | Appendix A Recommended List of Key Strategies for TMDL Implementation | | | | Bacteria(E coli) | Dissolved Oxygen | Turbidity | Iron | Mercury | Legacy & Current Use Pesticides | Nutrients Phosphorous; Nitrates | Temperature |
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Appendix B: TMDL Implementation Matrix Example for 6.i.c. and 6.ii.

| Pollutant: Bacteria, Mercury, Pesticides, Temperature | | | | | | | |
|--|--|--|--|---|-----------------------------|------------------|--|
| SOURCE | STRATEGY | HOW | FISCAL ANALYSIS | MEASURE | TIMELINE | MILESTONE | STATUS |
| Pollutants carried to waterways in stormwater | Long term planning for stormwater control | Develop stormwater master plan that incorporates protecting water quality | Council approval needed to fund contractor | -Obtain Council approval for funds -Hire contractor -Plan approval by Council | Start 2009 Complete 2012 | Contractor hired | Delayed Oct. 2009 Council fund approval Feb. 2010 Contractor selected May 2011 Stormwater master plan developed - City Council review delayed, but expected in next several months 2013 The stormwater master plan can be viewed at www.pwsplan |
| Pollutants carried to waterways in stormwater | Pollution prevention in municipal | Street Sweeping 2 times per year | Funded | -Sweep streets 2 times/yr -Track volume of debris collected -Before after reduction in volume of debris | Ongoing | NA | Ongoing Over the course of 4 years: Swept streets at a minimum 2 times per year; Documented 1000 pounds of debris reduction. Maintenance log with total debris collected and reduction overtime attached for reference. |
| Pollutant: Bacteria | | | | | | | |
| SOURCE | STRATEGY | HOW | FISCAL ANALYSIS | MEASURE | TIMELINE | MILESTONE | STATUS |
| Failing Septic System | Ensure Repair of Failing Septic System | Respond to reports of failing systems, work with homeowner to est. timeline for repair | Already funded | Track # of reports, document inspection outcomes, and repairs | Ongoing | NA | Ongoing Over the course of 4 years, received 5 complaints regarding failing septic systems. 2 of 3 resulted in notification for fixes. One was fixed at time of sale and one was a large system referred to DEQ for oversight. |
| Bacteria carried to waterways in stormwater | Encourage residents to pick up after their dogs in parks | Install pick up after pet stations and bags at 3 parks | Apply for grant | 3 Stations installed; Bags checked and replaced | 2008-2012 Then ongoing | Obtain grant | Ongoing Please refer to attached photos of park with station. 2009 Grant obtained; 2009 Two stations installed; 2010 One station installed; 2009-ongoing w/ bag inventory check and replacement 3 times per year . |

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|---|---|--|--|--|-----------|-----------------|---|
| Bacteria carried to waterways in stormwater | Conduct annual cross connection surveys and issue repairs | Conduct 4 cross connection surveys per/year and issue repairs for problems if identified | Part of Wastewater Treatment Plant Operation and Maintenance | Track number of : surveys conducted; repairs issued; repairs performed completed | 2008-2013 | Conduct Surveys | Incomplete 10 surveys(goal 16); 4 work orders issued, 2 completed to eliminate cross connections; 2 repairs pending but in-progress |
|---|---|--|--|--|-----------|-----------------|---|