

State of Oregon
Department of Environmental Quality

Technical Support Document for the Preliminary Draft Permit Template
Phase I Municipal Separate Storm Sewer System (MS4)

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INTRODUCTION

The Oregon Department of Environmental Quality (referred to as “the Department” throughout this document) began issuing municipal separate storm sewer system (MS4) NPDES permits to large municipalities in 1995. The permits contain requirements that are intended to minimize impacts from pollutants carried to area streams and wetlands via municipal storm sewer systems. The pollution reduction activities implemented by the municipality are outlined in a Storm Water Management Plan (SWMP) approved by the Department. Compliance with the MS4 permit is based both on the implementation of specific actions required in the permit itself and the implementation of the SWMP. The SWMP is not a static document. An underlying principle of SWMP implementation is adaptive management – the process of regularly evaluating the effectiveness of program activities and making improvements to the plan based on the results of the evaluation.

The Department has traditionally provided opportunities for public comment on individual NPDES permits prior to permit issuance and after many permit conditions have been developed and reviewed by permit holders. MS4 permits are unique in that they do not contain numeric effluent limits, instead relying on broad based programs designed to reduce stormwater pollution to the maximum extent practicable. Consequently, there is considerable interest in the permits from community members. The current large municipal MS4 permits expire in February, 2009. The Department would like your input as we consider options for reissuing these permits for another five years. The Department has developed a preliminary draft permit template and this accompanying technical support document in an effort to solicit stakeholder input early in the permitting process.

These documents are considered "discussion drafts" and the Department requests your informal input and comment on the preliminary draft permit template. This technical support document describes the permit conditions that the Department is considering for the next permit term, the rationale behind the requirements and the major differences between the current permit (2004-2009) and permit conditions that the Department is considering as part of the preliminary draft permit template. The current municipal stormwater permits are available for comparison on the Department's website at: www.deq.state.or.us/wq/stormwater/municipalpl1.htm

COVER PAGE

The cover page of the preliminary draft permit template outlines the type of discharges eligible for permit coverage. The permit covers existing and new discharges of stormwater from the municipal separate storm sewer system. The permit does not cover any stormwater discharged to underground injection control (UIC) systems. Some municipalities discharge stormwater to both surface waters and into the ground via UICs. Discharges to UICs are regulated through a separate set of rules derived from the Safe Drinking Water Act. Unless otherwise addressed in an individual permit, UIC discharges must be addressed through a Water Pollution Control Facilities (WPCF) permit or in some alternate manner specified in Oregon's UIC rules.

The cover page of the preliminary draft permit template also includes information about the receiving stream(s) to which the co-permittee's MS4 discharges stormwater. In addition, a reference is made to the Total Maximum Daily Load (TMDL) that establishes wasteload allocations (WLAs) for urban stormwater in receiving streams within the co-permittee's jurisdiction. The methods by which the co-permittees are required to address TMDL are described in Schedule D of the permit.

Upon issuance of the final permits, the cover page will also include the expiration date that will not exceed five years from the date of issuance.

SCHEDULE A – Controls and Limitations for Stormwater Discharges from Municipal Separate Storm Sewer Systems

Schedule A provides a summary of the required controls and limitations for stormwater discharges from permitted sources.

CONDITION 1 –PROHIBIT NON-STORMWATER DISCHARGES

Condition 1 simply prohibits non-stormwater discharges into the MS4 that are not otherwise authorized, in accordance with federal regulations.¹

CONDITION 2 - IMPLEMENT THE STORMWATER MANAGEMENT PLAN

Condition 2 specifies that each co-permittee must implement, enforce, and measure the effectiveness of its Department-approved Stormwater Management Plan (SWMP) and also specifies that each co-permittee is responsible for compliance with this permit only within its jurisdiction. Information on the physical location of the SWMP documents is also provided. When referenced in the permit, the SWMP is defined as the SWMP submitted with the permit application, with subsequent additional changes made in response to specific permit requirements. In this case, the co-permittees recently submitted SWMPs as part of their permit renewal application packages. Co-permittees were required to submit SWMPs by September 2, 2008, in advance of the February 2009 expiration date of the current permits.

Implementation of the SWMP can be shared with other entities. For instance, a county government responsible for an urbanized area adjacent to a city may develop an agreement with this city to implement certain stormwater program elements within the county's jurisdiction. The co-permittee ceding implementation responsibility to another entity must ensure that the program elements are at least as stringent as required by the permit. Additionally, to maintain a record of accountability, the co-permittee must maintain a written record of the agreement with the other entity. The co-permittee is ultimately responsible for the fulfillment of any of the responsibilities it shares with another entity, and is liable for any inadequate program implementation. This liability for delegated activities applies to situations where a co-permittee is sharing SWMP

¹ 40 Code of Federal Regulations § 122.26(d)(2)(iv)(B)(1)

responsibilities with other co-permittees, or where the co-permittee develops an agreement with an entity that is not covered by the permit.

CONDITION 3 - REDUCE POLLUTANTS TO THE MAXIMUM EXTENT PRACTICABLE

This condition states that the compliance standard for the permit and SWMP implementation is the reduction of MS4 discharges to the maximum extent practicable (MEP). The objective of this condition is to explicitly define the standard the co-permittee is required to achieve. MEP is the pollutant reduction standard for MS4s established by the Clean Water Act and implementing regulations. Although the U.S. Environmental Protection Agency (EPA) has not provided a precise definition of MEP to allow maximum flexibility in MS4 permitting, EPA does envision that the evaluative process MS4s undertake to meet the MEP standard will: “...*consider such factors as condition of receiving waters, specific local concerns, and other aspects included in a comprehensive watershed plan. Other factors may include MS4 size, climate, implementation schedules, current ability to finance the program, beneficial uses of receiving water, hydrology, ecology, and capacity to perform operation and maintenance.*”² While this preliminary draft permit template includes performance-oriented requirements, the Department expects that co-permittees’ SWMPs will further address water quality objectives. Permit conditions and SWMPs combine to achieve the full desired environmental outcome. For example, some co-permittees have tiered requirements that apply to development or redevelopment projects in sensitive areas. These projects may be subject to more stringent requirements than projects in other areas. Many of the conditions and requirements of the preliminary draft permit template include a single threshold. For example, the preliminary draft permit template specifies the amount of area necessary to trigger requirements or the water quality treatment performance standard. However, the adaptive management provisions of this preliminary draft permit template allow and encourage co-permittees to tailor these conditions and requirements, beyond the minimum required by this permit, to provide greater protection based on local conditions and priorities.

CONDITION 4 - STORMWATER MANAGEMENT PROGRAM REQUIREMENTS

Condition 4 specifies that each co-permittee must implement a Stormwater Management Plan (SWMP) that includes management practices, control techniques, and provisions for reducing the discharge of pollutants to the maximum extent practicable. The objective of this condition is to provide clarity regarding the Department’s minimum expectations for the SWMP. This is consistent with the Clean Water Act requirement that NPDES permits for discharges from MS4s “*shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods.*”³ This preliminary draft permit template differs from the current permits in that it specifies certain required activities that must be implemented for the SWMP elements listed in Conditions 4(a) through (g), sets minimum performance expectations for various SWMP elements, and requires the co-permittees to develop measurable goals for various SWMP elements.

² December 8, 1999 Federal Register, Vol. 64, No. 235, Page 68754

³ Clean Water Act Section 402(p)(3)(B)(iii)

Since this preliminary draft permit template and technical support document is being written before the Department has had an opportunity to review the SWMPs submitted by the co-permittees (submitted no later than September 2, 2008), the Department will necessarily consider the content of the final SWMPs in determining final permit requirements. This approach is consistent with the following federal requirements: “*Proposed programs will be considered by the Director when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable.*”⁴ The Department intends to evaluate the content of co-permittees’ SWMPs relative to the permit conditions and requirements contained in the preliminary draft permit template and explained in this technical support document. Where the proposed SWMPs do not comport with the conditions and requirements of the preliminary draft permit template, the co-permittees may elect to update their SWMP during the permit renewal process prior to final permit issuance. In some cases the Department may include compliance conditions and timelines in Schedule C of the final permits to allow an appropriate amount of time for individual co-permittees to come into full compliance with permit requirements.

Measurable Goals: The current (2004-2009) permits require reporting on TMDL “performance measures”. Co-permittees are also required to describe measurable “performance indicators”, which have been commonly reported as miles of streets swept, the amount of material removed from catch basins, etc. Performance measures were developed in response to a TMDL, whereas the performance indicators apply to all SWMP activities that lend themselves to measurement. However, in some instances the same information was used for both reporting purposes. In order to simplify and clarify the permit requirements, the Department looked to the federal Phase II stormwater regulations, which require permittees to develop “measurable goals” and metrics for tracking progress towards those goals. Though the EPA regulations apply to smaller Phase II communities, the Department believes that it is appropriate to apply this requirement to the larger Phase I communities that will be covered by the proposed MS4 permit. Measurable goals are functionally very similar to the performance indicators in the current Phase I permits. For the purposes of this preliminary draft permit template, measurable goals are BMP design objectives or targets that quantify the progress of SWMP implementation and the performance of BMPs. Measurable goals are quantitative, prospective and, wherever possible, describe what the co-permittee intends to do and when they intend to do it. EPA has developed guidance on the development and expression of measurable goals.⁵ The EPA guidance presents an approach for MS4 operators to develop measurable goals as part of their stormwater management plan. The Department will use EPA’s guidance as a basis for evaluating the measurable goals in the co-permittees’ SWMPs, but neither the Department nor EPA mandates specific types of goals or measurement tools.

Several program elements described below in Conditions 4(a) through (g) of the preliminary draft permit template require co-permittees to develop and report on progress toward meeting measurable goals.

Condition 4(a) – Illicit Discharges

⁴ 40 Code of Federal Regulations §122.26(d)(2)(iv)

⁵ EPA’s measurable goals guidance can be found on the web at:
<http://cfpub.epa.gov/npdes/stormwater/measurablegoals/index.cfm>

Conditions (i) through (vi) describe the program components that the co-permittees must implement in order to control illicit discharges into the MS4.

Condition (vii) describes how some types of non-stormwater discharges do not need to be addressed by the co-permittee's illicit discharge program unless they have been identified as a significant source of pollutants to waters of the state. The co-permittees were required to evaluate these types of discharges during the 2004-2009 permit term, identify those deemed significant, and identify appropriate control measures to address the discharges that were deemed to be significant. The Department expects that the co-permittees will implement the appropriate control measures that were identified during the 2004-2009 permit term during the next permit term, as identified in the co-permittees' SWMPs. The types of discharges that were evaluated are largely derived from the standard list used by EPA, with the exception of discharges from contaminated clean-up sites occurring under the authority of a state or federally-approved clean-up order. State and federal site clean up statutes provide such sites with permit waivers if they follow all substantive requirements of those permits. Therefore, clean-up orders issued by the Department or EPA ensure that any discharges from these sites meet any limitations and controls that would otherwise be included in an NPDES permit prior to discharge into the MS4. The intent of referencing these types of discharges in the permit is to explicitly acknowledge the Department's acceptance of the legitimacy of the clean-up waivers.

Condition 4(b) – Industrial and Commercial Facilities

Federal stormwater regulations envision states and municipal permittees cooperating in addressing pollutants in stormwater discharges to municipal storm sewers from industrial facilities. In the preamble to the federal Phase I stormwater regulations EPA clearly states its position on this dual responsibility: "*Although today's rule will require industrial discharges through municipal separate storm sewers to be covered by separate permit, EPA still believes that municipal operators of large and medium municipal systems have an important role in source identification, and the development of pollution controls for industries that discharge storm water through municipal separate storm sewer systems is appropriate. Under the CWA, large and medium municipalities are responsible for reducing pollutants in discharges from municipal separate storm sewers to the maximum extent practicable. Because stormwater from industrial facilities may be a major contributor of pollutants to municipal separate storm sewer systems, municipalities are obligated to develop controls for stormwater discharges associated with industrial activity through their system in their stormwater management program.*"⁶

Currently, Clean Water Services and the cities of Eugene and Portland, through Memoranda of Agreement (MOAs) with the Department, act as agents for industrial NPDES permits within their jurisdictions. The MOAs outline both the Department's and the agent's responsibilities in carrying out permit administration and compliance and include a fee-sharing agreement. Agent's major responsibilities typically include processing new permit applications and making permit registration decisions; assisting the Department with permit renewal; reviewing stormwater discharge monitoring reports;

⁶ U.S. EPA, Federal Register, Vol.55, No. 222; November 16, 1990; p. 48090.

reviewing action plans; inspecting sites; and being the first-responder for complaints and permit compliance.

For those co-permittees that do not act as the Department's agent, this permit condition requires co-permittees to screen existing and new businesses and notify the Department when they identify businesses that require a Department-issued industrial NPDES permit. Industrial activities that are subject to permitting requirements are determined by SIC codes listed in the federal regulations.⁷ These activities include manufacturing, transportation, mining, and steam electric power industries, as well as scrap yards, landfills, certain sewage treatment plants, and hazardous waste management facilities. This requirement will assist the Department in identifying businesses that need an industrial stormwater NPDES permit and will assist the co-permittees in evaluating industrial stormwater discharges that are occurring within their jurisdictions.

Finally, the preliminary draft permit template permit condition requires co-permittees to implement programs and control measures where they have identified industrial or commercial areas within their jurisdiction that they determine are contributing a substantial pollutant loading to the MS4.

The current permits also include requirements related to a smaller subset of industrial facilities compared to those subject to Department-issued industrial stormwater permits – municipal landfills, hazardous waste facilities, and industrial facilities subject to “Superfund” cleanup requirements. The current permits require a monitoring program for stormwater discharges associated with these particular industrial facilities. However, many co-permittees do not have these types of facilities within their jurisdiction and all of the industrial facilities that are specifically called out in the current permit would also require a Department-issued industrial stormwater NPDES permit. The industrial permits require the facilities to monitor for a range of “indicator” pollutants. The Department believes that a separate monitoring requirement for the MS4 co-permittees is redundant. However, the co-permittees may choose to use either their own monitoring or the industrial facility's monitoring results during the next permit term in order to identify areas that they determine are contributing a substantial pollutant load to their MS4.

Condition 4(c) – Construction Sites

The co-permittees, through ordinances or other regulatory mechanisms, must implement a construction program that controls polluted runoff from construction sites with a land disturbance of greater than one thousand square feet. This threshold was determined based upon the Department's evaluation of thresholds currently used by co-permittees and the Department's best professional judgment that sites below this size threshold have a low likelihood of causing adverse water quality impacts. Even though all construction sites that disturb more than one acre of land are covered by Department-issued construction stormwater NPDES permits, the construction site runoff control requirements in this permit are needed to induce more localized site regulation and enforcement efforts, and to enable the MS4 co-permittees to more effectively control

⁷ 40 Code of Federal Regulations § 122.26(b)(14) and (15)

construction site discharges into their MS4s.

The requirements in Conditions 4(c)(i) through (vi) describe the Department's minimum expectations for co-permittees' construction stormwater programs. The requirements are similar to those found in the current permits, but are more specific about the actions that co-permittees are required to perform. For example, where the current permits require co-permittees to implement "*procedures for site planning...*", the proposed permit template directs co-permittees to "*require construction site operators to develop site plans and implement effective erosion and sediment control best management practices*". Where the current permits require permittees to include "*procedures for identifying priorities for inspecting sites...*" in their SWMPs, the proposed permit template specifically requires that co-permittees "*conduct site plan reviews; perform on-site inspections and follow-up enforcement actions*". The preliminary draft permit template requirements also reflect those found in the Department's Phase II MS4 permits that apply to smaller communities in Oregon.

Condition 4(d) – Education and Outreach

The current (2004-2009) permits include requirements for co-permittees to conduct educational activities to facilitate the proper management and disposal of used oil and toxic materials, provide educational opportunities for construction site operators, and consider using education programs to address the application of pesticides, herbicides and fertilizers.

These conditions of the preliminary draft permit template require co-permittees to build upon past efforts and implement an education and outreach program designed to achieve measurable changes in target audiences' behaviors. The preliminary draft permit template includes more specific requirements for education program elements. This condition requires co-permittees to conduct or participate in a group effort to conduct an effectiveness evaluation to measure the success of public education activities during the permit term. The effectiveness evaluation will focus on quantifying changes in targeted behaviors and the results will be used in adaptively managing the co-permittees' education and outreach programs.

Co-permittees will continue to report on their education activities annually and will report on the results of any effectiveness evaluations in subsequent annual report(s).

Measurable goals for this condition may include such things as conducting surveys and measuring results. For example, an MS4 could develop a stormwater public education campaign for radio and television. The goal of the campaign might be to increase the number of dog owners who pick up after their pets. To measure the program's progress towards this goal, the program manager might perform a stormwater public awareness survey at the beginning, during, and at the end of the permit term to gauge any change in pet owner behavior over time. As another example, an MS4 might want to encourage "do-it-yourselfers" to recycle used motor oil by establishing and advertising a municipal drop-off center. The MS4 could measure progress toward this goal by tracking the amount of motor oil collected and correlating those data to the timing of public service

announcements and other advertisements to see if their message is being received.

Condition 4(e) – Public Involvement and Participation

Federal regulations require MS4 co-permittees to establish a public involvement process for the development of their stormwater management plan. However, there is no explicit public involvement requirement in the federal regulations regarding the ongoing implementation and evaluation of the SWMP. The Department believes continued public involvement will assist the co-permittees in maintaining a high quality SWMP and effective TMDL pollutant load reduction benchmark evaluation that meets MEP. This condition of the preliminary draft permit template specifies that co-permittees must adopt a public participation process as a part of their ongoing stormwater management program that provides opportunities for the public to participate in the development, implementation and adaptive management of the co-permittee's SWMP. The public involvement and participation process must include provisions for receiving and considering public comments on the SWMP and TMDL pollutant load reduction benchmark evaluation. In the view of the Department, the most efficient and effective method for obtaining public input is through a direct dialogue between the co-permittee and the public, rather than solely through the Department's formal public notice and comment period. The Department's process is best suited for comments on the permit requirements themselves, whereas public comments on the SWMP or TMDL pollutant load reduction benchmark evaluation can be most effectively incorporated or addressed during the time the revision is being drafted.

Condition 4(f) – Post-Construction Stormwater Management

Federal regulations require Phase I municipal stormwater co-permittees to “*develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewer systems which receive discharges from areas of new development and significant redevelopment.*”⁸ Federal regulations also require that NPDES permits for discharges from MS4s “*shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods.*”⁹ The Department believes that the preliminary draft permit template should reflect the Department's commitment to continued improvement with successive iterations of the MS4 permits. The water quality and quantity requirements in Condition 4(f) are based on the Department's evaluation of stormwater program requirements in Oregon and elsewhere.

Water Quality: Co-permittees must implement and enforce a program to control pollutants in stormwater runoff from new development and redevelopment projects that create or disturb 5,000 square feet or more of impervious surface. The 5,000 square foot threshold was determined based upon the Department's evaluation of thresholds currently used by co-permittees as well as a guidance document prepared by the Center for Watershed Protection¹⁰ and requirements

⁸ 40 Code of Federal Regulations § 122.26(d)(2)(iv)(A)(2)

⁹ Clean Water Act Section 402(p)(3)(B)(iii)

¹⁰ http://www.cwp.org/Resource_Library/Center_Docs/SW/pcguidance/Tool_3_Model_ordinance.pdf

found in Washington State.¹¹ The program must ensure that controls are in place to prevent or minimize water quality and quantity impacts. The proposed preliminary draft permit template contains a minimum performance standard of capturing and treating 80 percent of the average annual rainfall, calculated based on site runoff estimates and using rain event characteristics appropriate for the region or locality. The proposed preliminary draft permit template also contains a minimum water quality treatment performance standard of 70 percent removal of Total Suspended Solids (TSS), as compared with uncontrolled runoff.

The Department considered a number of different approaches for expressing performance standards before deciding on the “percent removal efficiency” approach. These minimum performance standards are simple, straight forward and give co-permittees maximum flexibility in how they design their program requirements.¹²

As part of Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990, EPA developed guidance specifying "management measures" to mitigate the effects of development on water quality. Specifically, EPA established an 80% post-construction annual average TSS reduction management measure for new development.¹³ Upon review of the reported ranges of TSS removal efficiencies for treatment BMPs, the Department chose a removal goal of 70% TSS reduction since it represents the middle range of many treatment BMPs.¹⁴ The fact that some co-permittees currently implement programs using similar, and in some cases more stringent goals supports the use of these minimum performance goals.

The Department recognizes that the design standards intended to achieve the 70% TSS removal goal will be based on presumptions about such things as influent pollutant concentration(s), rainfall patterns, individual site conditions and facility maintenance over time. Accordingly, the removal rate for treatment BMPs will increase if properly designed and sized. The Department also understands that BMP performance should not be based on comparisons using percent removal alone. Rather, in addition to evaluating the amount of runoff that is treated (80% average annual) and the percent of TSS expected to be removed based on the presumptions described above, co-permittees may choose to evaluate overall BMP performance using criteria such as the amount of runoff that is “prevented”

¹¹ Washington Department of Ecology. Municipal Stormwater NPDES and State Waste Discharge General Permit. Appendix 1: Minimum Technical Requirements for Development and Re-development. Issued January 17, 2007.

¹² Virginia Stormwater Management: Nutrient Design System, Appendix B. Center for Watershed Protection and Virginia Department of Conservation and Recreation. Version 1.0. 5/14/2007

¹³ U.S. EPA. 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters. Issued under authority of Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990. No. 840-B-92-002. EPA Office of Water. Washington, D.C.

¹⁴ California Department of Transportation (Caltrans). 2004. BMP Retrofit Pilot Program – Final Report. January. and United States Environmental Protection Agency (U.S. EPA). 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. August.

by the BMP and the expected pollutant concentrations in the treated effluent. These measures form the basis of a much more robust way to evaluate performance, as well as to be able to predict the potential effectiveness of BMPs in watershed planning efforts.¹⁵

The removal efficiency represents a minimum performance expectation and is not an attempt by the Department to define the level of effort necessary to achieve the “Maximum Extent Practicable” standard for these permits. Municipalities may need to tailor their local requirements based on local development patterns and water resource and planning priorities. If there are receiving waters or land uses of concern, more stringent criteria may be developed to provide greater protection. For example, several co-permittees currently implement requirements for a 65% reduction in phosphorus from new development. These local requirements are designed to address water quality issues in the Tualatin basin. Both the capture (80% average annual) and treatment (70% TSS) requirements are design standards—if properly designed according to the guidelines and requirements presented as BMP specifications, these performance targets are presumed to be met. Actual pollutant removal performance will vary based on individual site conditions, rainfall patterns, the inflow concentration of pollutants, and maintenance.

Water Quantity: Increases in stormwater runoff rates and volume have been shown to have a detrimental effect on receiving water quality and habitat. Impervious areas such as roofs, roads, parking lots and driveways do not allow precipitation to infiltrate into the ground or be absorbed by vegetation, thus increasing the volume of stormwater runoff and all of its associated problems.

The preliminary draft permit template language includes several new requirements related to controlling stormwater quantity. The intent of these permit requirements are to focus co-permittees on managing the increased frequency, volume and energy of stormwater runoff so that water resources are not degraded. The Department expects that these broad requirements for stormwater quantity control will be tailored by individual co-permittees in order to best accommodate local conditions, watershed priorities and achieve the Maximum Extent Practicable requirement. Co-permittees will describe stormwater quantity requirements in their SWMPs for the Department to review and evaluate.

More specifically, the preliminary draft permit template requires co-permittees to require all new and redevelopment projects that result in the creation or replacement of 5,000 square feet or more of impervious surface to control stormwater discharge rates, volumes, velocities and durations, with the ultimate goal of maintaining pre-development runoff characteristics.

¹⁵ “Assessing Performance Using BMP Database Protocols”. Jane Clary, Jonathan Jones, Eric Strecker and Marcus Quigley. Urban Water Management, July 2007.

One method of addressing the water quantity requirements of the proposed permit is through the use of Low Impact Development (LID) practices. Stormwater control techniques that attempt to preserve or mimic natural hydrology – often referred to as “Green Infrastructure” or “Low Impact Development” – are becoming increasingly prevalent in Oregon and across the country. Low-impact development (LID) is a site design approach, which seeks to integrate hydrologically functional design with pollution prevention measures to compensate for land development impacts on hydrology and water quality. LID’s goal is to mimic natural hydrology and processes by using small-scale, decentralized practices that infiltrate, evaporate, detain, and transpire stormwater.¹⁶ In contrast to traditional stormwater treatment, which typically only mitigates peak flow rates, the use of LID addresses runoff volume.¹⁷ The proposed permit language requires co-permittees to review codes and development standards and, where possible, remove barriers to low impact development practices.

Where site-specific conditions make the water quality and/or quantity requirements infeasible, co-permittees’ programs must provide for opportunities such as off site mitigation (e.g. banking) or a payment-in-lieu program. The Department expects that these alternative options will be granted by co-permittees on a project-by-project basis. In some cases, watershed benefits may be realized when off-site mitigation projects are implemented instead of on-site mitigation, depending on the location and nature of the regional projects and the ancillary benefits they offer (habitat, recreation, open space, flood control, etc.).

Condition 4(g) – Maintenance Activities

The long-term performance of stormwater management facilities hinges on ongoing, effective maintenance. Regular maintenance will ensure that facilities continue to function properly and achieve their design objectives, whether it is infiltration, flow control, pollutant removal or a combination of objectives. The intent of this preliminary draft permit template language is to ensure that BMPs are maintained and operated in a manner that ensures they function properly over time.

EPA’s MS4 Program Evaluation Guidance¹⁸ recommends that States ask the following questions related to long term maintenance of stormwater management facilities:

- How does the permittee track the installation and maintenance of post-construction BMPs?
- Does the permittee require maintenance agreements for all projects with post-

¹⁶ “Low Impact Development Design Strategies: An Integrated Design Approach.” Prince George’s County, Maryland. Department of Environmental Resources. 1999.

¹⁷ “Low Impact Development Practices: A Review of Current Research and Recommendations for Future Directions”. Michael E. Dietz. 2007. Water, Air and Soil Pollution. ISSN: 0049-6979.

¹⁸ “MS4 Program Evaluation Guidance”, U.S. Environmental Protection Agency Office of Wastewater Management. January 2007.

- construction BMPs?
- Does the permittee inspect private facilities or require inspections by owner/operators?
- If the permittee performs the inspections, how often are they performed?
- If owner/operators are required to inspect and maintain their BMPs, how is this authorized?
- How does the permittee ensure inspections are occurring?

Based upon the Department's review of readily available information, it appears that the co-permittees currently use a variety of approaches to address long term maintenance of private stormwater facilities. Some municipalities assume ownership of private facilities, while others require some form of maintenance agreement where owner/operators are responsible for maintenance.

In order to be consistent with EPA's Program Evaluation Guidance and to ensure that stormwater treatment facilities are maintained and operated in a manner that ensures they function properly over time, the Department believes that co-permittees SWMPs should include long term maintenance element for public and private facilities that describes the following:

- Under what circumstances post-construction stormwater management facilities are required (e.g. disturbance threshold).
- The party responsible for inspection and maintenance of public and private facilities.
- How often inspection and maintenance is scheduled to occur.
- How the municipality intends to track and keep records of inspection and maintenance of public and private facilities.
- How the municipality will ensure inspection and maintenance of private facilities (maintenance agreements, ordinance, assume responsibility, etc).

For tracking and maintenance of stormwater treatment facilities, the Department is proposing a size threshold of greater than 5000 square feet of impervious area. Facilities that serve an area that meets or exceeds the size threshold would need to be inventoried, mapped and included in the co-permittees maintenance program. The Department recognizes that it may be infeasible for co-permittees to track every stormwater treatment facility, particularly those that may be required for single family residences. The preliminary draft permit template proposes a threshold of "greater than 5000 square feet" in an attempt to create a workable, reasonable size threshold. An example of the 5000 square foot threshold would be a commercial parking lot with a capacity of approximately 18 passenger vehicles, assuming approximately 300 sq. ft. per vehicle is necessary. In this example, if the entire parking lot is impervious surface and a single stormwater treatment facility receives the stormwater runoff, that facility would need to be included in the co-permittees' maintenance program.

The preliminary draft permit template requirements set forth in 4(g)(i) through (vii) provide the Department's minimum expectations for the long term maintenance element of co-permittees' stormwater management programs.

CONDITION 5 – HYDROMODIFICATION AND STORMWATER RETROFITS ASSESSMENT

The Department acknowledges that it may take decades or longer to address the water quality impacts of existing municipal stormwater discharges. In part, this is because of the difficulty and challenges associated with reversing the water quality impacts of existing stormwater discharges. The focus of the preliminary draft permit template is to prevent further water quality impairment due to new stormwater discharges and make reasonable progress in addressing existing sources of water quality impairment. The preliminary draft permit template requires co-permittees to conduct a hydromodification assessment and retrofit assessment no later than the fourth year of the permit.

Stormwater retrofits help improve water quality by providing stormwater treatment in locations where practices previously didn't exist or were ineffective, including existing urban lands, such as parking lots, residential streets, conveyance systems, and landscaped areas. The retrofit assessment language in the proposed permit template is intentionally broad, requiring co-permittees to define retrofitting objectives, identify priority locations and treatment options and create a retrofit project priority list. The Department believes that broad permit language is appropriate so that co-permittees have the flexibility to develop a retrofit assessment that is appropriate for their jurisdiction. The Department expects that co-permittees may choose to utilize one or more of the urban retrofit guidance documents that are currently available as they design and implement their assessment.¹⁹

Hydromodification assessments evaluate the effect of increased stormwater related flows and/or volumes that can lead to stream channel erosion and/or sedimentation. Hydromodification assessments help define stormwater flow and volume-related impacts to local receiving streams. The preliminary draft permit template language requiring the hydromodification assessment will compliment the water quality and quantity performance standards discussed above and may be used to inform and compliment the urban retrofit assessment required by the proposed permit.

Generally, the Department believes that these assessments are needed to develop both protection and restoration strategies, identify priorities, and adjust management prescriptions based on local conditions and needs. An assessment and monitoring program is important for effective watershed management because it provides a basis for decisions and actions, and allows managers to continually reassess progress and redefine goals and priorities.

The Department anticipates that as part of the ongoing discussions with the co-permittees regarding MS4 NPDES Phase I permit reissuance expectations regarding development and implementation of these assessments will be clarified (e.g., identification of stream channel segments susceptible to channel erosion or sedimentation). It is possible that the requirement for a retrofit and hydromodification assessment could be combined into a single effort.

¹⁹ *Urban Stormwater Retrofit Practices, Version 1.0.* Urban Subwatershed Restoration Manual #3. Tom Schueler, et al. Center for Watershed Protection. July 2007.

SCHEDULE B – MONITORING & REPORTING REQUIREMENTS

CONDITION 1 – MONITORING

This condition requires the co-permittee to monitor the effectiveness of its SWMP and the water quality impacts of stormwater discharges from the MS4, with the objective of measuring the pollution reduction progress made by the co-permittee during the permit term and providing information for the co-permittees to use in adaptively managing their stormwater programs. The current permits (except Salem and Eugene) include specific, prescriptive monitoring requirements in Tables B-1 and B-2 as well as the narrative, objective-oriented monitoring requirements in Schedule B(1)(b). The co-permittees are required to conduct the monitoring as described in the monitoring component of the approved SWMP and associated Monitoring Program as summarized in Tables B-1 and B-2.

The preliminary draft permit template also includes monitoring requirements (parameters, frequency, location, etc.), but in some cases with less specificity than the current permits. The Department believes that monitoring-related permit conditions should largely be based on gathering the information necessary to conduct the assessments required in Condition 1(b), not the specific requirements found in Tables B-1 and B-2, which must remain “static” throughout the permit term. This approach will allow the co-permittees to tailor a program that is appropriate for their jurisdictions and use adaptive management throughout the permit term to optimize their monitoring efforts.

Condition 1(a) – Minimum Monitoring Requirements

This condition describes the monitoring requirements that apply to each co-permittee. Tables B-1 and B-2 contain the minimum monitoring requirements, including the parameters to be analyzed, the number of monitoring locations, the minimum sampling frequency, and the co-permittee responsible for each activity. The Department envisions that there will be some variation in the number of monitoring locations and frequency of sampling for these minimum “core” monitoring requirements amongst the various co-permittees. However, the list of pollutant parameters and the requirement for both in-stream and MS4 discharge monitoring will be consistent for all co-permittees.

While the list of pollutant parameters to be analyzed in the proposed permit is largely consistent with the requirements of the current MS4 permits, the Department chose to include a new requirement for the monitoring of pesticides in MS4 discharges. The Department believes that it is appropriate and necessary for co-permittees to conduct pesticide monitoring in order to evaluate success and to adaptively manage the pesticide-related education and outreach activities required in Schedule A(4)(d) of the preliminary draft permit template.

The monitoring requirements may be shared between the co-permittees via Intergovernmental or other agreement.

Condition 1(b) – Monitoring Assessments

This condition requires co-permittees to conduct the monitoring necessary so that five

types of monitoring assessments can be conducted. This requirement is largely similar to the requirements in the current permits, with minor changes to add clarity. The Department provides the co-permittees with flexibility in determining how they will obtain the information and data necessary to conduct these assessments, as data collection methods are not prescribed. In evaluating long-term trends in water quality receiving waters, the co-permittee may use existing monitoring data collected by the Department or other entities, but this data, if it's available, may not be sufficient to meet the requirements of this condition. For example, existing in-stream monitoring data may not have been collected in locations or during time periods that would be considered representative for characterizing stream quality within the MS4.

The co-permittees will include the results of any assessments conducted pursuant to Conditions B(1)(b)(i) and (ii) in subsequent annual reports during the permit term. Results of the long-term assessments conducted pursuant to Conditions B(1)(iii) through (v) will be reported to the Department in the next permit renewal application package (e.g. 2014).

This condition also specifies that the monitoring program component must support the objective of assessing progress towards meeting pollutant load reduction benchmarks associated with TMDLs. As with the overall monitoring program, the information and data collection methods for benchmark assessment are not prescribed. For instance, BMP performance monitoring could be used to help estimate pollutant load reductions. However, the co-permittee may determine that some combination of environmental and performance monitoring may be necessary to meet reporting objectives.

Conditions 1(c) through (e) – Other Monitoring Requirements

These conditions outline the specific elements that co-permittees need to include in the monitoring component of their SWMP, provide protocols for quality assurance/quality control for sample collection and analysis, and describe the due diligence that co-permittees must exercise in collecting and analyzing all samples highlighted in this preliminary draft permit template.

CONDITION 2 – ANNUAL REPORTING REQUIREMENTS

This condition of the preliminary draft permit template requires co-permittees to submit information and data to the Department annually during the permit term, with the objective of communicating the environmental and programmatic results of SWMP evaluations and implementation activities.

The annual reporting requirements in the preliminary draft permit template are similar to the existing permit requirements and are largely derived from the federal stormwater regulations²⁰. The information and data submitted annually relates primarily to SWMP implementation and monitoring results from the previous year, as well as proposed changes resulting from the

²⁰ 40 Code of Federal Regulations § 122.42(c)

ongoing adaptive management process that occurred during the previous year.

The annual report must include information on a number of items, including progress toward achieving the measurable goals identified in the co-permittees' SWMPs.

CONDITION 3 – PERMIT RENEWAL SUBMITTAL

To continue permit coverage for stormwater discharges, the co-permittee must submit a permit renewal application 180 days prior to the permit expiration date. Condition 3 describes the information that must be provided in the renewal application. Renewal applications must contain an evaluation of the adequacy of the SWMP in reducing pollutants to the maximum extent practicable, an updated SWMP and, where applicable, the co-permittee must develop TMDL pollutant load reduction benchmarks when Total Maximum Daily Loads have been established for local receiving waters. The Department added specific language in Condition 3 (h)(i) through (v) regarding the type of information that must be included as part of the TMDL pollutant load reduction benchmark evaluation. The added specificity will provide the Department with the information necessary to review and assess the TMDL benchmarks in a consistent manner.

At a minimum, the TMDL benchmark evaluation is to be conducted as part of the permit renewal application process. This evaluation allows the co-permittees to develop new TMDL pollutant load reduction benchmarks and strategies to meet the TMDL benchmarks. The Department does not expect co-permittees conduct an annual TMDL pollutant load reduction benchmark evaluation. However, the Department expects that the efforts taken by the co-permittee towards developing and meeting the TMDL benchmarks are part of the Public Involvement and Participation process. For example, a co-permittee may conclude based on review of ongoing monitoring efforts that reallocation of resources within a community is necessary to move towards the TMDL benchmarks that have been developed. By presenting the results of this adaptive management review in the annual report, and allowing public comment, the goal of public involvement and participation can be achieved. The Public Involvement and Participation process can also be achieved by presenting the results of the TMDL benchmark evaluation for public comment.

The end of the permit cycle provides an opportunity for the co-permittee to evaluate trends in MS4 discharges and impacts, as well as changes in baseline conditions and assumptions. Some of this baseline data and information was submitted to the Department in the co-permittee's original "Part 2" application in 1994. The information was updated during the current permit term and additional information was recently submitted with the co-permittees 2008 permit renewal applications. These requirements include an identification of sources of run-off to the MS4, an estimation of total pollutant loads, an estimate of stormwater run-off from various land uses, and the volume and percentage of stormwater run-off treated by structural and non-structural controls. Given that these conditions and assumptions provided the basis for the original and subsequent SWMPs, the Department believes a periodic evaluation of relevant changes is essential in determining if the current SWMP is appropriately structured and focused and consistent with the Department's antidegradation policy. The results of this evaluation will be submitted with the co-permittee's next permit renewal application.

Condition 3(i) requires the co-permittees to address the WLA(s) for a TMDL(s) approved within three years of the issuance date of the proposed permit. The objective of this condition is to ensure a timely pollutant reduction response to the TMDL. Since the co-permittee must submit a renewal application 6 months prior to permit expiration, they will likely need to begin developing their revised SWMP for this application approximately one year prior to the submittal deadline. Therefore, Condition 3(i) does not require the co-permittee to address TMDLs in their revised SWMP if the TMDL is approved after 3 years from the date of issuance of this permit. The TMDLs are issued as Department orders. Should the Department determine that other time frames are appropriate, they can be developed as part of the TMDL and the permit can be subsequently re-opened. Therefore, this permit condition acts to ensure that stormwater allocations are addressed in a timely manner under any circumstance.

The other required elements of the permit renewal submittal relate primarily to an examination of data and program implementation results over the five-year permit cycle. The objective of this examination is to discern trends in BMP effectiveness, water quality changes, pollutant discharges, and progress towards TMDL-related benchmarks that generally cannot be observed on an annual basis. The results of this analysis of the previous five years should provide the co-permittee with insights and information that will lead to proposed revisions to the SWMP. These analysis results, along with proposed changes to the SWMP and the rationale for such changes, are to be included in the permit renewal application submittal.

The proposed preliminary draft permit template differs from the current permits in that it includes a requirement for co-permittees to provide the Department with the information and analysis necessary to support the Department's independent determination that the co-permittee's stormwater management program reduces pollution to the maximum extent practicable (MEP). Each Phase I municipality's stormwater management program is unique in how they achieve the MEP standard, perhaps employing different BMPs or emphasizing different program areas. In order to support DEQ's independent determination that a program reduces pollution to the maximum extent practicable, the Department included common evaluation factors in Condition 3(b). A common process allows municipalities flexibility in implementing their stormwater programs while providing DEQ with reasonable certainty that stormwater programs achieve the MEP standard. Co-permittees must describe how the management practices, control techniques, and other provisions contained in the proposed SWMP components were evaluated relative to the MEP standard.

SCHEDULE C – COMPLIANCE CONDITIONS AND SCHEDULES

Schedule C within the Department's NPDES permits is reserved for the description of compliance schedules for co-permittees. The Department anticipates that some co-permittees will require compliance conditions and schedules in order to address some of the proposed permit requirements. The Department will work with individual co-permittees throughout the

course of the permit renewal process in order to develop appropriate compliance conditions and schedules.

SCHEDULE D – SPECIAL CONDITIONS

CONDITION 1 – LEGAL AUTHORITY

The language in this condition was simplified from the current permits, which include language derived directly from the federal regulations²¹. This federal requirement related to the submittal of the original “Part 2” application submitted by the co-permittee in 1994. The current permit language includes six (6) specific areas where the co-permittees are required to demonstrate adequate legal authority before the original permits were issued in 1995. The Department believes that the proposed simplified language, though not as explicit as the language found in the current permits, more accurately reflects the third-generation status of this proposed permit and captures the objective of the condition. The objective of this condition is to ensure the co-permittee can legally implement all components of the permit, and thus, reduce pollutants to the maximum extent practicable.

CONDITION 2 – TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

These proposed permit conditions in the preliminary draft permit template require the co-permittee to address wasteload allocations (WLAs) assigned by the approved TMDL for the surface water body to which stormwater is discharged from the co-permittee’s MS4. The objective of this condition is to reduce the contribution of pollutants from the MS4 that have been identified as causing impairment to this surface water body.

The integration of stormwater WLAs, assigned by approved TMDLs, into MS4 permits is, and has been, the subject of ongoing policy discussions at the state and national level. The fundamental policy challenge is determining how a numerical WLA affects the requirements of an MS4 permit that relies on a non-numeric standard of reducing pollutants to the “maximum extent practicable.” An EPA guidance memo on this subject, dated November 22, 2002, stated that “water quality based effluent limits for NPDES-regulated stormwater discharges that implement WLAs in TMDLs may be expressed in the form of best management practices (BMPs) in certain circumstances.” Further, the memo states that EPA expects most effluent limits for MS4s will be in the form of BMPs, and numeric limits for such permits will only be used in “rare instances.”

For most point sources, TMDLs are implemented through water quality based NPDES permit limits. For MS4s, however, the compliance standard is, except in rare circumstances, the maximum extent practicable (MEP) standard established by the Clean Water Act. Therefore, the WLAs can be a part of the MS4 permit, but the standard by which MS4 is determined to be in compliance with the permit is MEP. WLAs should be used to guide an MS4’s efforts in implementing BMPs to the maximum extent practicable.

²¹ 40 Code of Federal Regulations §122.26(d)(2)(i)

The preliminary draft permit template requires the MS4s to develop pollutant load reduction estimates, referred to as “benchmarks”, for pollutants assigned stormwater WLAs in the TMDL as part of the SWMP process. The benchmark is based on the WLA and an estimate of what level of pollutant reduction is reasonable to achieve within the permit term if appropriate BMPs are implemented to the maximum extent practicable. Thus, the benchmarks allow the Department and the public to assess the overall effectiveness of the SWMP in making progress toward achieving the WLA. The Department will encourage MS4s to consult with the Department in developing and refining the benchmarks. The SWMP must also be augmented to ensure that BMPs are designed to address the TMDL pollutants.

The benchmarks are not considered numeric effluent limits. Rather, an assessment of progress toward achieving the benchmarks is directly tied to the adaptive management process EPA has established as the approach co-permittees should use to meet the MEP standard. If a co-permittee discovers through its analysis that it is making insufficient progress towards reaching the benchmark, they are expected to review their SWMP and determine how it should be further augmented to make adequate progress towards the benchmark. Thus, from the Department’s perspective, the benchmarks provide a refined context for achievement of the MEP standard. Progress towards the benchmark would not be the only method of evaluating MEP, as the Department will also examine the co-permittee’s selection and implementation of BMPs that target a wide range of pollutants – not just the TMDL pollutants.

In sum, the preliminary draft permit template requires that BMPs be developed and implemented that address the WLA(s), and also contains monitoring requirements to assess the effectiveness of the SWMP. Therefore, with the inclusion of these requirements, the permit contains conditions consistent with the requirements and assumptions of the wasteload allocations in the TMDL.

Requirements of Condition 2 largely mirror the requirements found in the current MS4 permits. The Department removed the “performance measures” requirement found in the current permits, replacing it with the broader requirement for co-permittees to develop “measurable goals” for various SWMP elements (See discussion of measurable goals, above). Some co-permittees may chose to utilize the measurable goals in determining their TMDL pollutant load reduction benchmarks.

In order to review and assess the TMDL benchmark development in a consistent manner, it is imperative that the Department understand the methodology and rationale. The Department anticipates that a co-permittee may need to assess the rationale and methodology of the TMDL benchmark evaluation (during the permit cycle and/or the permit renewal process) to determine progress towards meeting the TMDL benchmarks. For example, additional scientific research may quantify the effectiveness of non-structural BMPs, such as educational programs, in the removal of TSS. Based on this new information, the co-permittee may change the rationale behind the TSS removal assumptions used in TMDL pollutant load reduction benchmark evaluation. This added specificity will provide the Department with the information necessary to review and assess the TMDL benchmarks in a consistent manner.

CONDITION 3 – 303d LISTED POLLUTANTS

For receiving streams for which TMDLs have not yet been approved, the co-permittees must evaluate 303(d) listed pollutants for those water bodies and make appropriate changes to their SWMP if stormwater discharges from the MS4 are determined to be a contributor of these pollutants. This condition ensures that MS4s will undertake actions to address pollutant of concerns in the short term for those waterbodies that are water quality limited. Many of the changes the co-permittee makes to its SWMP to address the pollutants may be similar to those made in response to the TMDL conditions of this permit. Moreover, the Department can provide the co-permittee “credit” for the reductions of 303(d) pollutants it makes prior to the completion of the TMDL. In this instance, the TMDL benchmarks established in the following permit cycle will reflect the reductions made in previous years. To ensure such credit is given, the co-permittee must establish some type of baseline pollutant loading by which it measures reductions of the 303(d) pollutants.

CONDITION 4 – ADAPTIVE MANAGEMENT

The intent of Condition 4 is to provide a detailed description of the adaptive management process to be followed by the co-permittee. The adaptive management process is the established method for achieving the maximum extent practicable (MEP) standard. The proposed permit conditions allow for the revisions to the Stormwater Management Plan (SWMP) through an adaptive management process. Such revisions are expected to improve the overall effectiveness of the SWMP and not contribute to increased degradation. The permit also requires the use of adaptive management to focus and refine SWMP elements to address TMDL wasteload allocation(s) over the course of this permit term.

The SWMP is a set of structural and nonstructural actions and activities used by the co-permittee to reduce the discharge of pollutants to the maximum extent practicable. Minor changes and adjustments to the various SWMP elements are expected and may be necessary to more successfully adhere to the goals and requirements of the permit. One of the purposes of this section of the preliminary draft permit template is to specify the procedures for making changes to the SWMP. A distinction is made between adding new components and replacing (or removing) components of the SWMP.

If the co-permittee proposes to add new BMPs to the plan, they can do so at any time. The co-permittee must notify the Department of any updates in the next Annual Report(s). However, if they plan to replace or remove BMPs, the co-permittee must submit a request to the Department with a written justification for the change. The Department then has the option of approving or denying the request. The proposed changes will automatically become effective 60 days after submittal of the request if the co-permittee does not receive denial notification from the Department.

The Department may also initiate changes to the SWMP based on concerns about water quality impacts of stormwater, a need to maintain compliance with federal or state regulations, or information demonstrating that certain BMPs are no longer appropriate. The Department must submit the requested changes in writing to the co-permittee, and provide the co-permittee with an

opportunity to propose alternatives.

SCHEDULE F – GENERAL CONDITIONS

Schedule F includes the general conditions that are applicable to all NPDES permits. They address operation and maintenance, monitoring and record keeping, and reporting requirements. The Department recognizes that a majority of these conditions do not apply to stormwater discharges. Many specifically address industrial and domestic wastewater treatment facilities. However, the stormwater permits are NPDES permits and these conditions are required for all such permits. Such conditions as those outlining signatory and record-keeping requirements are relevant to all NPDES permits, including stormwater discharge permits. Where a ~~direct~~ conflict exists, the general conditions included in Schedule F are superseded by the conditions in Schedules A and D.