

Stormwater Retrofit Plan for the City of West Linn

July 1, 2015

Submitted in accordance with the requirements of

National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit 101348 File 108016



City of West Linn

Stormwater Retrofit Strategy Development

July 1st, 2015

We, the undersigned, hereby submit this Stormwater Retrofit Strategy Plan under the NPDES (MS4) Discharge Permit #101348, Schedule A.6. We certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Date 6 - 26- 2015 Signature

Mike Cardwell, Environmental Services Division Supervisor

Date____ 6/29/15 Signature____

Lance Calvert, West Linn Public Works Director

Introduction

The City of West Linn's (City) municipal separate storm sewer system (MS4) National Pollutant Discharge Elimination System (NPDES) permit (effective date March 16, 2012) includes a requirement to develop a stormwater quality retrofit strategy. The retrofit strategy must be documented in a plan that applies to developed areas that the City has identified as impacting water quality and currently underserved or lacking stormwater quality controls.

The purpose of this Stormwater Retrofit Plan is to document the City's retrofit strategy for reducing water quality impacts from existing developed areas in accordance with Schedule A.6 of the NPDES MS4 permit. This plan describes and/or references the following elements that are required by Schedule A.6.b:

- i. Stormwater retrofit strategy statement and summary, including objectives and rationale
- ii. Summary of current stormwater retrofit control measures being implemented, and current estimate of annual program resources directed toward stormwater retrofits
- iii. Identification of developed areas or land uses impacting water quality that are high-priority retrofit areas
- iv. Consideration of new stormwater control measures
- v. Preferred retrofit structural control measures, including rationale
- vi. A retrofit control measure project or approach priority list, including rationale, identification, and map of potential stormwater retrofit locations where appropriate, and an estimated timeline and cost for implementation of each project or approach

i. Stormwater Retrofit Strategy Objectives, Summary, and Rationale

The City of West Linn's stormwater retrofit strategy objectives are to:

- reduce pollutants of concern
- reduce impacts associated with hydromodification
- make progress toward meeting total maximum daily load (TMDL) pollutant load reduction benchmarks

The City recognizes that the historical focus of stormwater management was on drainage and flooding issues. In recent years, improving water quality has been acknowledged as a high priority in stormwater management. The City has development standards in place that require water quality treatment to be addressed during new development projects. The purpose of this retrofit strategy is to address areas that were developed prior to these standards being in place and that are underserved or lacking stormwater quality controls. The elements of the City's strategy include the following:

1. Update the West Linn Stormwater Master Plan. The City's current Surface Water Master Plan was completed in December 2006. The City has a goal of developing an updated master plan by December 2016.

One of the main objectives of the master plan update is to provide an evaluation of the storm system with respect to both flooding (capacity deficiencies) and water quality. Capital improvement projects (CIPs) will be identified to provide water quality benefits in currently developed areas that are lacking stormwater quality controls. These CIPs will be targeted to address pollutants of concern as identified in the Tualatin and Willamette TMDLs and in the current 303(d) list.



Another objective of the Stormwater Master Plan will be to incorporate CIPs to address problems that may be identified in the City's hydromodification assessment, which is currently under way. The hydromodification assessment is required by the MS4 NPDES Permit and due July 1, 2015.

The CIPs incorporated into the updated master plan will generally be prioritized according to a comprehensive list of City objectives. The prioritization objectives will include the magnitude of flood control, potential water quality benefits, and project costs. The City will then implement the resulting prioritized CIP list as funding is available.

- 2. Incorporate stormwater quality measures into transportation capital improvement projects as appropriate. For many years, stormwater quality elements have been added to select transportation capital improvement projects as opportunities arise. The City will continue to implement this practice. Recent examples have included:
 - Salamo Road Resurfacing project: completed in 2010 including filtered catch basins
 - Blankenship Rd.: completed in 2014 including a parallel storm main to enhance the functioning of an existing swale
 - Multiple projects along existing roads adjacent to new development projects such as Renaissance at Willamette subdivision where rain gardens were added along existing Ostman Road near Willamette Falls Drive in 2014
- 3. Investigate treatment retrofit opportunities on City-owned properties. There may be potential retrofit opportunities on City-owned properties such as parks, public buildings, operation facilities, and parking lots. As with transportation capital improvement project opportunities, the City incorporates water quality improvements into City-owned properties when opportunities arise. Recent examples include:
 - Library Parking Lot Expansion: completed in October 2013 and included pervious pavement and a rain garden
 - Cedar Oak Primary School Remodeling: completed in 2012 including swales, an above ground detention/water quality facility and an underground detention facility
 - Willamette Primary School Remodeling: completed in 2012 including swales and an underground detention facility
 - Bolton Primary School Remodeling: completed in 2012 including rain gardens
 - Rosemond Ridge Middle School Remodeling: completed in 2013 including retrofitting existing above ground water quality/detention facilities for efficient and functional improvement
 - West Linn High School Parking Retrofit: completed in 2014 including swales and underground detention facilities

ii. Summary of Current Measures

As discussed above, West Linn incorporates water quality retrofits when opportunities arise with public projects. The surface water master plan update will identify additional areas that may be conducive to water quality retrofits. The City's hydromodification assessment will also identify in-stream and upland sites where water quality improvement would be beneficial to stream channel function.

City stormwater design standards will be used to design retrofit projects. The City's Public Works standards reference the City of Portland's Stormwater Management Manual (SWMM) for water quality facility design guidelines. The SWMM includes facilities such as stormwater



swales, curb extensions, planters, basins, filter strips and ponds. These are appropriate best management practices (BMPs) for retrofit opportunities to address pollutant reduction and in some cases hydromodification impacts (i.e., when facilities are designed to include infiltration and flow control elements).

Currently no annual program resources are directed specifically toward the development of stormwater retrofits. With the update of the Stormwater Master Plan, the City will be better able to properly allocate funds for future retrofit projects in subsequent fiscal years.

iii. Identification of High-Priority Retrofit Areas

Identification and prioritization of developed areas or land uses that impact water quality will be based on the City's stated objectives to reduce pollutants of concern and address hydromodification issues. The City's GIS staff are currently working on a figure to show which areas of the city are currently covered by BMPs. The focus of the City's retrofit priorities will be in areas not currently served by water quality BMPs. In addition, high priority areas will include locations where water quality benefits can be achieved in conjunction with other public projects in order to achieve efficiencies in costs. And, lastly, priority areas will include locations where hydromodification impacts have been identified through field assessment work.

iv. Consideration of New Stormwater Control Measures

As new technologies are developed for stormwater treatment, the City will be open to their use, as deemed appropriate. Selection of any control measure will take into consideration the benefits derived from the measure and the overall costs, including long-term maintenance requirements.

v. Preferred Retrofit Structural Control Measures

As previously discussed in the Summary of Current Measures section, the City's design standards include these water quality facility options: swales, curb extensions, planters, basins, filter strips and ponds. These are also the City's preferred control measures for addressing stormwater quality and hydromodification impacts as they relate to retrofit opportunities on public property. These measures can provide an effective means for addressing the City's stated objectives: pollutant removal and minimizing stormwater peak flows that can lead to flooding and hydromodification impacts.

In the development of CIPs, upcoming master planning work will consider stormwater quality and associated hydromodification effects as well as the need to specifically reduce Willamette Basin and Tualatin Basin TMDL stormwater pollutants: dissolved oxygen, phosphorus, bacteria, and mercury (the surrogate being total suspended solids). Other pollutants of concern, e.g., sediment, nutrients, metals, and pesticides, will also be considered in the selection of treatment options. Treatment options must also take into account the applicability to the City's soil types, availability of land, and surrounding existing conditions.

vi. Retrofit Priority List

The City's retrofit priority list is a planned product of the updated Surface Water Master Plan. To date, the City has been successful incorporating retrofit projects into other public projects as opportunities arise. The City anticipates increased emphasis on retrofits with the update of the Surface Water Master Plan.

The City recognizes the importance of improving stormwater quality in areas that are currently underserved or lacking in stormwater quality controls. As master planning efforts move forward



and a CIP list is generated, additional water quality retrofit opportunities will continue to be addressed.

Based on a review of the current master plan and based on results from the hydromodification assessment (due July 1, 2015), two types of retrofits were identified as priorities for consideration and potential incorporation into the Surface Water Master Plan: stormwater pond retrofits and culvert retrofits.

Stormwater pond retrofits: There are several detention ponds and instream detention facilities located throughout the City that were originally designed for the purpose of flood control. Many of these ponds have been in place for years and are known to be in poor condition and/or non-functioning. One of the priorities of the master plan will be to take inventory of these facilities and propose retrofits to both bring them up to a functioning condition for flood control purposes and to add features to provide water quality benefits. Two examples that were noted during field visits conducted for the hydromodification assessment include:

- Bland Circle Detention Facility on Salamo Creek This is an in-line detention facility located at the headwaters to Salamo Creek. The outlet to the facility is currently malfunctioning and new development is anticipated upstream. A retrofit could be considered to fix the detention function and to enhance it to provide water quality benefits.
- In-line Detention Facility in Salamo Creek upstream of Remington Drive This facility appears to be causing some incision in the creek banks and is in need of updates. Retrofitting this facility for storage could also include enhancements to address water quality.

Culvert retrofits: In some cases, undersized or elevated culverts can lead to water quality/hdyromodification impacts. This can occur as a result of the increased stream energy caused by these conditions. One of the priorities of the master plan will be to take inventory of the City's culverts and propose retrofits where these conditions are noted. Examples are noted during the field visit conducted for the hydromodification assessment (due July 1, 2015).

