Oregon City
Low Impact Development (LID) Strategy

December 1, 2023

Section 1: Introduction/Background

Schedule A.3.e.ii of the NPDES MS4 Permit (Permit) requires co-permittees by December 1, 2023, to "review and update or develop and begin implementation of a strategy to require to the maximum extent feasible, the use of Low Impact Development (LID) and Green Infrastructure (GI) design, planning and engineering strategies intended to minimize effective impervious area or surfaces, and reduce the volume of stormwater discharge and the discharge of pollutants in stormwater runoff from development and redevelopment projects". The permit requires the co-permittees to document this strategy in the subsequent annual report and incorporate or reference the strategy in the SWMP Document after completion and DEQ approval. The purpose of this document is to summarize the City's current LID strategy to meet these permit requirements.

Section 2: Oregon City's Stormwater Design Standards

To address the previous 2012 iteration of the Clackamas Group's MS4 NPDES permit, the City undertook a significant effort to develop a Stormwater Grading and Design Manual (Manual). The purpose of the manual was to address permit requirements to: prioritize low impact development/green infrastructure, optimize on-site retention, and target predevelopment hydrologic functions as much as practical. The manual was completed in 2015, and since that time, these objectives have been addressed for both new and re-development activities in the City. Since 2015, as the manual has been implemented, additional refinements were made using an adaptive management approach. The latest version of the Manual is dated 2020. The City's strategy, as documented in the manual, is to prioritize LID/GI.

Section 3: Oregon City's LID Strategy

The City's 2020 Manual continues to include requirements for developers to provide both flow control and water quality treatment. Flow control is addressed by requiring either retention of the 10-year storm, or peak flow duration matching for flows that are considered to have the greatest potential for hydromodification impacts (i.e., 42% of the 2-year peak flow to the 10-year peak flow). Water quality is addressed by requiring treatment of a design storm representing 80% of average annual runoff. As stated in Section 1.3 of the Manual, infiltration is the preferred method to address the stormwater runoff for meeting water quality and flow control requirements.

Prior to designing stormwater management facilities, developers are required to conduct a Site Assessment and prepare a Preliminary Design Submittal (Section 2 of the Manual). The purpose of this requirement (as stated in Section 2.1 of the Manual) is to ensure that the physical attributes of the development site are reviewed before placing manmade structures such as streets, parking lots, and buildings. This is meant to optimize site design of stormwater management techniques and sensitive areas protection, and to reduce or eliminate potential conflicts between site development elements and required stormwater management systems. The site assessment includes review of topography, soils, seasonal high groundwater, infiltration rates, site hydrology, natural features, downstream conveyance, existing vegetation, vegetated buffers, land use and zoning. Applicants are required to address the following four objectives in the Site Plan (Manual Section 2.2.3):

- Preserve Existing Resources
- Minimize Site Disturbance
- Minimize Soil Compaction
- Minimize Imperviousness

These objectives are all considered to be LID design techniques.

Given suitable site and soil conditions, the City requires that the stormwater management strategy prioritize infiltration of stormwater runoff to recharge groundwater and mimic predevelopment hydrologic conditions.

Following Site Assessment, the City requires the design of stormwater management to address the flow control and water quality treatment requirements for the remaining runoff (Manual Chapter 4). In meeting the flow control and water quality requirements, the City requires a Stormwater Management Hierarchy to be used in selecting the applicant's proposed stormwater management strategy. Applicants must demonstrate that the strategies higher on the hierarchy are not feasible before selecting a lower-level strategy for stormwater management. To move from one level to the next, the applicant must demonstrate that the proposed development site has one or more of the physical limitations listed in the Manual (Manual Section 2.2.4.1). The Stormwater management hierarchy is included in the Manual and reproduced for convenience in Figure 1 below.

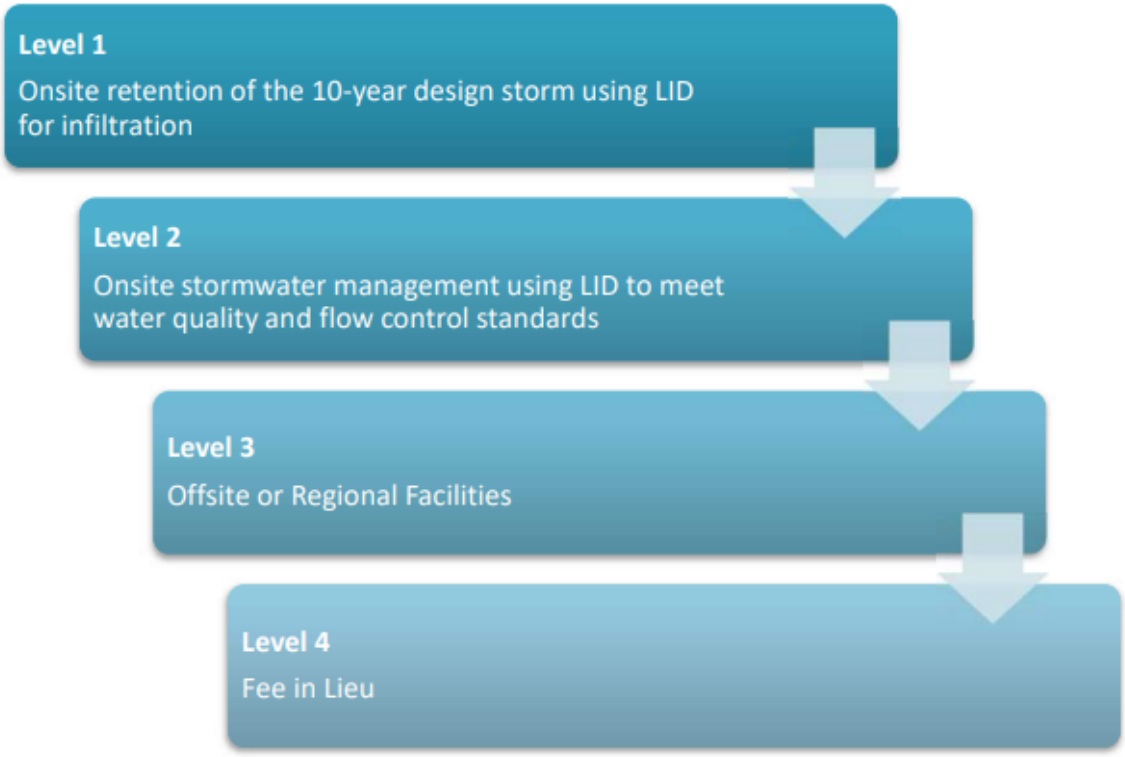

Figure 1. Stormwater Management Strategy Hierarchy

Source: Figure 2-2. Stormwater Grading and Design Manual

All levels in the stormwater management hierarchy require the use of LID facilities. Level 1 on-site retention is required for sites with infiltration rates of 2 inches per hour or greater. Level 2 is required for sites with design infiltration rates between 0.5 and 2.0 inches per hour. For Level 2, LID facilities are required to be designed with infiltration as the primary means of flow control. For Level 2 sites with design infiltration rates less than 0.5 inches per hour, the LID facility will require an underdrain connected to a flow control structure.

Approved LID stormwater management facilities are defined in Chapter 4 of the Manual. As provided in Chapter 4, LID facilities are the preferred strategy to meet the stormwater management requirements for water quality treatment and flow control. The following types of facilities are listed as those that can be used to meet these standards:

- Stormwater planters (infiltration and filtration)
- Rain Gardens (infiltration and filtration)
- Vegetated Swales (infiltration and filtration)
- Detention Ponds (infiltration and filtration)

Manufactured treatment technologies are not allowed for public projects, and, for private projects, they are only allowed for constrained sites where full implementation of LID facilities is not technically feasible.

Section 4: Summary

In summary, since 2015 Oregon City's LID strategy has been to require upfront site planning that emphasizes LID design techniques, and to implement a hierarchy of stormwater management strategies that require LID, GI and infiltration to the maximum extent feasible.