

# LID ELEMENT #17: ADOPT NEW DRAINAGE DESIGN AND EROSION CONTROL MANUAL (DDECM) FOR OLYMPIA

## OBJECTIVE

To comply with the requirements of the Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) permit through stormwater code modifications incorporating low impact development (LID) techniques.

## CONSIDERATIONS

To achieve the objective, the City is planning to update the *Drainage Design and Erosion Control Manual for Olympia* (DDECM). To some extent the City is required to adopt an updated Manual. The purpose of this memorandum is to evaluate options within the range allowed by the State including adopting the Washington State Department of Ecology (Ecology) 2012 Stormwater Management Manual for Western Washington without changes.

## RELATED ELEMENTS

Element 20 Maintenance Standards and Inspections

## CURRENT DDECM

The Washington State Department of Ecology is designated by the U.S. Environmental Protection Agency as the entity responsible for implementing all federal and state water pollution control laws and regulations. Ecology, in turn, charges local agencies (cities and counties) with adopting regulations addressing the management of stormwater, protecting soils from erosion, and other activities that impact water quality. Ecology imposes this requirement through the issuance of National Pollutant Discharge Elimination System (NPDES) stormwater permits. In order to assist local agencies with implementation of required regulations, Ecology has created a Stormwater Management Manual for Western Washington (Ecology Manual) that establishes minimum regulations for management of stormwater. Many jurisdictions, including Olympia, use the Ecology Manual as the basis for drafting their own regulations.

Olympia adopted a stormwater management manual, the Drainage Design and Erosion Control Manual (DDECM), in 1992. Since that time, the DDECM has been updated several times to reflect the most

“The new Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) general permits require widespread adoption of Low Impact Development (LID) techniques into local development codes. These new practices and codes require significant changes in the way the private development community plans, designs, and builds sites, as well as the way public sector enforces, operates, maintains and inspects stormwater facilities.”

*Ecology Low Impact Development Code Update and Integration Toolkit July 2014*

current guidance from Ecology. The current DDECM was adopted by the City of Olympia in 2009 and was developed to achieve compliance with the 2005 Ecology Manual. Both the current DDECM and 2005 Ecology Manual include LID elements and LID best management practices (BMPs) including standards for permeable paving, biofiltration, flow dispersion, compost amended soils, etc. The Olympia DDECM allows and requires certain low impact development techniques. In addition, Minimum Requirement #5 (On-site Stormwater Management), contained within the City's DDECM emphasizes infiltration and dispersion of stormwater within the boundary of development sites, which is another LID technique. Other City codes outside of the DDECM are also important and effective in implementing low impact techniques.

The current DDECM does not contain the most current information for design and maintenance of LID systems. The 2012 Ecology Manual has revised many of the BMPs (LID and other BMPs) to improve their effectiveness in protecting water quality and to meet the intent of the anti-degradation provisions of the water quality standards. Further, the Ecology Manual includes LID BMPs that are not currently included within the DDECM for such techniques as rain gardens, more comprehensive bioretention application, and rainwater harvesting. The 2012 Ecology Manual mandates LID techniques be used on sites with feasible site conditions. In previous manuals, LID was an option, but never specifically encouraged or required. Ecology has also provided a separate LID maintenance guidance manual. Additional information regarding this document is provided in Element 20(Maintenance Standards and Inspections).



*In order to comply with the Municipal NPDES permit, revisions to City code and standards that make low impact the preferred and commonly used approach to site development are required.*

#### CODES AND STANDARDS REVIEWED

2009 City of Olympia Drainage Design and Erosion Control Manual (DDECM)

2012 Department of Ecology Stormwater Management Manual for Western Washington (2012 Ecology Manual)

#### BENEFITS OF DDECM UPDATE

The 2012 Ecology Manual achieves stricter integration of LID than the current Olympia DDECM. The following are some examples:

- Volume 1 Chapters 2 and 3 – One big change between the current DDECM and the 2012 Ecology Manual is within Minimum Requirement #5. In the current DDECM, Minimum Requirement #5 requires on-site management of stormwater but it does not specify use of LID. The current Ecology Manual has changed Minimum Requirement #5 to an LID requirement. It provides both a prescriptive and a performance standard for LID compliance and requires all projects provide LID compliance, where feasible.

- Volume 3 Chapter 3 – The 2012 Ecology Manual has updated requirements for establishing infiltration rates. It also provides detailed steps and requirements for designing infiltration facilities. Appendices to Volume 3 include guidance for hydrologic modeling of LID features.
- Volume 5 –The 2012 Ecology Manual introduces new LID BMP’s and updates the BMP’s that were previously included based on more recent research and experience in LID.

Olympia Specific Concerns – When the DDECM in 2009 was updated, the City did not simply adopt the 2005 Ecology Manual. Instead, the City crafted its own manual based on the 2005 Ecology Manual and also addressed Olympia-specific concerns. In some areas, the DDECM is more stringent than the 2005 Ecology Manual. As an example, the DDECM expanded the long term infiltration rate verification procedure for infiltration systems beyond what was contained within the Ecology Manual. The DDECM also included a requirement for enhanced treatment in wellhead protection areas, large highways, and commercial projects within ¼ mile of a stream. The City reduced the design infiltration rates allowed by the 2005 Ecology Manual by a factor of 2, creating more conservative design parameters. The DDECM also has more stringent threshold triggers for existing site stormwater system retrofits. In addition, many of the Olympia edits to the previous Ecology Manual were clarifications. It was determined that some of the language in the 2005 Ecology Manual was confusing and open to interpretation. City staff provided clarifying language, often in more plain terms, to ensure proper interpretation of the information.



*The City must update the current DDECM to be in compliance with the Municipal NPDES stormwater permit.*

The City may consider changes, as discussed above, which provide clarification or implement more stringent rules than those contained within the 2012 Ecology Manual. Requirements that are less rigorous than those contained within the 2012 Ecology Manual are not an option.

#### OPTIONS CONSIDERED

The City must update the current DDECM to be in compliance with the Municipal NPDES stormwater permit. The City’s limited options include:

- Option 1: Adopt the 2012 Ecology Manual with no revisions.
- Option 2: Update the current DDECM to integrate the new requirements of the 2012 Ecology Manual (without revision of new requirements)
- Option 3: Update the current DDECM to integrate the new requirements of the 2012 Ecology Manual with revisions addressing key issues specific to Olympia and providing clarification.

## ANALYSIS

Option 1 (Adopt 2012 Ecology Manual with no revision) - The Department of Ecology has prepared a manual to incorporate LID and ensure compliance with the Ecology municipal NPDES stormwater permit. Adoption of this manual in total would ensure compliance with LID. In addition, it is more likely to result in consistency among the many local jurisdictions (assuming local jurisdictions also adopt the 2012 Ecology Manual without revision). However, adoption of the Ecology Manual would lose all Olympia specific additions that were made with the last manual update.

Option 2 (Update DDECM – Add new Ecology Information without edits) – This option would retain the Olympia specific information for manual elements that have not changed. However, it would not allow for Olympic specific information to be added to the new requirements. This can be both limiting and potentially create conflict. For instance if a new design requirement refers to a portion of the manual that has been previously modified by Olympia, the reference may create a conflict or may be confusing.

Option 3 (Update DDECM - Add new Ecology information with edits) – This option would provide the opportunity to both retain Olympia specific information for the manual elements that have not changed and provide opportunity for Olympia specific edits of the new requirements. This option provides the best potential for creating a manual that not only meets the requirement to implement widespread use of LID, but also takes into account Olympia specific concerns. It also provides the most opportunity to provide manual clarifications and avoid confusion and misinterpretation of manual requirements.

## RECOMMENDATION

Staff recommends Option 3. Option 3 is the only option that preserves previous work that was performed by the City to provide regional specificity to drainage regulations and allows for similar work to be performed on the new regulations.

