

LOW IMPACT DEVELOPMENT

EXAMPLES of DEVELOPMENT CODE CHANGES

The proposals described below provide further detail about the staff recommended options in Elements #11, 12, 13, 15, 17, 19, and 20. Specific code language will not be determined until late in 2015.

Group 5 – Procedures, Process and Codes

Element 17 - Adoption of revisions to the *Drainage Design and Erosion Control Manual* (DDECM)

Staff proposes to 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.

The *Phase II Western Washington Municipal Stormwater Permit* requires the City of Olympia to adopt a drainage manual equivalent to the Department of Ecology's *Stormwater Management Manual for Western Washington*. The City's intention is to do so with some modifications.

Ecology's key changes are:

- Requirements for development to use low impact development best management practices.
- Updated requirements for control of stormwater discharges to wetlands.
- Several updates to infiltration rate determination and site and subsurface investigation requirements.
- Numerous edits intended for clarification.

Olympia's key changes are:

- Lower thresholds for requiring stormwater retrofits with redevelopment (25% vs. 50% of property value).
- Much lower threshold for requiring stormwater retrofits with roadway projects (installation of curbs and \$500,000 project value).
- Includes more conservative methods of determining infiltration rates.
- Includes requirements for verification testing of the performance of infiltration facilities.
- Includes the requirement for a Stormwater maintenance agreement.
- Requires the use of bioretention facilities to achieve LID in lieu of permeable pavements for public streets.
- Requires a higher level of water quality treatment for commercial and multi-family development regardless of the proximity to surface waters.
- Significantly enhances maintenance and source control guidance.

Element 19 - Pre and during Construction Inspection

Staff proposes to revise current guidance manuals and procedures to recognize additional needs related to LID. Requirements specified for LID inspection should cover pre-construction inspections to ensure proper sediment control measures are installed and preserved vegetation is protected. Additional inspections during construction are needed to ensure infiltration surfaces are protected from compaction and sedimentation.

Phase II Western Washington Municipal Stormwater Permit requires the City inspect permitted development sites prior to clearing and construction and ensure development implements BMPs to protect infiltration surfaces from compaction and sedimentation.

The *Drainage Design and Erosion Control Manual* will be revised to require erosion and sediment control plans to have an additional element related to the protection of infiltration surfaces associated with LID facilities.

The *Stormwater Erosion and Sediment Control Inspection and Enforcement Policy* and *Construction Inspector Training Manual* both need to be modified to include inspection, documentation and enforcement requirements.

Element 20 - Maintenance Standards and Inspections

Staff proposes to develop new City of Olympia stormwater maintenance guidelines to address maintenance of LID facilities as well as update maintenance guidelines for other traditional stormwater management BMPs.

Stormwater facilities are required to be inspected and maintained in accordance with an agreement recorded against a property at the time of development. A maintenance plan is required to be recorded as an attachment to the agreement. The maintenance plan provides property managers or homeowners associations with the guidelines for maintaining stormwater facilities. Staff's experience has been that maintenance guidelines provided in Ecology's *Stormwater Management Manual for Western Washington* are inadequate and confusing to a lay person.

Staff proposes to simplify and clarify maintenance guidelines and consolidate them in Volume 4 of the *Drainage Design and Erosion Control Manual* for Olympia. Maintenance guidelines will be at least as stringent as Ecology's guidelines.

Additionally, staff proposes to have maintenance agreements recorded against every parcel in a subdivision rather than just the original underlying parcel. This should help with maintenance of downspout infiltration systems, rain gardens and permeable driveways.

Group 4 – Increased Infiltration

Element 11 Bioretention Street Section

There are three main ways to achieve the low impact development standard for public streets: full dispersion, permeable pavement and bioretention (infiltration). Street right-of-ways are not large enough to allow for full dispersion of runoff (6.5 feet of vegetated width required for each one foot of pavement width). The City's transportation line of business considers the use of permeable pavements in public streets to be too great a risk at this time. Therefore, bioretention is the alternative staff proposes for achieving low impact development. In some cases bioretention swales will be capable of fulfilling runoff flow control requirements, but in most cases a separate pond would still be required.

Staff is developing street sections that include bioretention swales within the landscaping strips or median. Specific requirements, including landscaping, will be established in the *Olympia Engineering*

Design and Development Standards. The bioretention swales will have a minimum width of 10 feet if on both sides of a roadway, 12 feet if only on one side of a roadway, or 10 to 14 feet if within a median. A curb will separate traffic and bike lanes from swales.

Maintenance of bioretention swales and particularly landscaping will be a challenge. The Storm and Surface Water Utility proposes to maintain bioretention swales within the right-of-way at a functional level of service. A higher level of service for aesthetics would be at the property owner's or HOA's discretion. Maintenance responsibilities will be spelled out in a maintenance agreement.

Element 12 Stormwater Use of Landscaping

Staff recommends removing code conflicts that make it difficult to design landscape areas to accommodate stormwater management and still meet requirements of the landscaping code (OMC 18.36). Landscaping standards will be revised with stormwater management in mind. For instance, the landscaping code will be revised to address potential conflicts between rain gardens (bioretention) in parking lot landscape islands and perimeter landscaping.

Element 13 Downspout Infiltration

Staff proposes to update the *Drainage Design and Erosion Control Manual* to adopt Ecology's rain garden designs as an option for downspout infiltration. Additionally, staff proposes to add the maintenance of roof downspout infiltration systems to maintenance agreements.

Since 2005, where feasible, Olympia has required roof downspout infiltration trenches (aka dry wells). Olympia has developed prescriptive methods for sizing infiltration trenches based on the soil type. Olympia has permitted rain gardens as an alternative to infiltration trenches, but never documented them as an accepted equivalent.

Element 15 Impervious Pavement with Underdrains

Staff recommends not allowing under pavement infiltration within public streets where there are too many risks and potential utility conflicts. The City already allows use of under pavement infiltration under parking lots and other on-site hardscapes. Therefore, current City code already allows this LID practice where it is most appropriate and feasible.