



LOW IMPACT DEVELOPMENT

WHAT IS LOW IMPACT DEVELOPMENT (LID)?

Also referred to as “green stormwater infrastructure”, low impact development is an approach to land development that works with nature to manage rainwater as close to where it falls as possible. Smaller scale, dispersed stormwater infiltration areas on a site more closely mimic how water would move through an undisturbed, forested ecosystem.

In practice, low impact development includes such structural best management practices (BMPs) as permeable pavements, green roofs, bioretention and rain gardens, as well as LID development principles like maximum impervious surface standards and native vegetation requirements.

WHY UPDATE OLYMPIA DEVELOPMENT CODES FOR LID?

Stormwater runoff has been found to be a leading contributor of pollution to Puget Sound. Low impact development has been identified as an approach to site development that can help minimize the effects of development on the health of the environment.

Acknowledging this, the Washington Department of Ecology included provisions in the [2013-2018 Western Washington Phase II Municipal Stormwater Permit](#) (Permit) that requires revisions to the City’s codes and standards to make low impact development the “preferred and commonly-used approach to site development”.

Olympia’s development codes include the Engineering Design and Development Standards (EDDS), the Drainage Design and Erosion Control Manual for Olympia (DDECM), and portions of the Olympia Municipal Code (OMC). These three documents have been reviewed for opportunities to strengthen or add LID provisions and are presented as an integrated LID code update package.

HOW WILL THE CODE UPDATES BE ACCOMPLISHED?

The Permit specifies that the code evaluations and process should be consistent with the guidance document prepared by Puget Sound Partnership titled [Integrating LID into Local Codes: A Guidebook for Local Governments](#). The guidebook outlines a six step code revision process that begins with choosing a project team, continues through a comprehensive code analysis and revisions, and ends with code adoption by elected officials.

City staff reviewed existing codes and standards for potential barriers to and opportunities for further support of LID techniques. Twenty-two issue papers were developed to document staff’s findings. The issue papers are further summarized in papers on the following five LID topics: 1) Reducing site disturbance, 2) Minimizing impervious area on sites, 3) Minimizing impervious area for streets, 4) Increasing water quality treatment and infiltration, and 5) Procedures, process and codes.

A workgroup comprised of sixteen local development professionals reviewed staff’s issue papers for technical feasibility and implications. Olympia’s Utility Advisory Committee (UAC), composed of volunteers appointed by the City Council, will study the issues during fall 2015 before making a recommendation to the Planning Commission and City Council at the end of the year. LID supportive codes and standards will be adopted by the Council and in effect mid-2016, prior to the December 31, 2016 Ecology permit deadline.

WHAT IS OLYMPIA'S EXPERIENCE WITH LID?

The Olympia Public Works Department started installing structural LID techniques more than fifteen years ago. For example, in 2007, City Council approved direction for the department on the use of permeable pavements. One of the City's first projects and most commonly utilized installation since then has been pervious sidewalks. Currently, Olympia has more than four miles of pervious sidewalk scattered throughout the City. Staff has developed a map depicting some of the types and locations of LID installations located throughout the City.

Over the years, the City's zoning code and development standards have been updated to increasingly incorporate low impact development-friendly regulations. For example, Olympia reduced street lane widths in 2006 to some of the narrowest in the state. In addition, the City adopted a unique zoning district and associated set of mandatory LID regulations within a highly sensitive watershed, Green Cove, for the purpose of preventing further damage to aquatic habitat from urban development. A comprehensive set of policy revisions covering development density, impervious surface coverage, lot size, open space/tree retention, street design, block sizes, parking, sidewalks and stormwater management requirements were enacted.

Within the context of fostering urban-scale land use, Olympia always seeks to promote environmentally-sensitive development. More detail on Olympia's experience with and use of LID techniques is described in the LID issue papers.

WHAT ARE SOME OF THE CHALLENGES TO IMPLEMENTING LID?

Change is rarely easy or without complication. The following overarching hurdles confront our community in implementing LID:

Challenging in an urban setting- Space constraints on dense urban lots make it more difficult to accommodate stormwater infiltration on site compared to a rural setting.

Competing community objectives- Often there are trade-offs between transportation, stormwater, and community planning objectives. For example, while transportation planning may favor larger cul-de-sacs to easily facilitate solid waste truck turnaround, stormwater planning may support smaller cul-de-sacs in order to reduce impervious surface. An overarching emphasis on stormwater infiltration on site could have unintended consequences. For example higher costs or larger lots could push development to the city outskirts or out of the urban area.

Moves stormwater design to the initial stage of the project design process- Costly investigation of site soils, groundwater levels and native vegetation will be required as a first step of project design, often before a property owner knows if the project is viable.

Changes construction processes and sequencing- LID techniques require the infiltrative capacity of site soils be preserved and not compacted during construction, therefore necessitating changes to the traditional practices and sequencing of construction.

Changes to long-term maintenance- Vegetated LID systems require different types of maintenance than traditional stormwater infrastructure. Similarly, pervious pavements can clog at varying rates based on traffic loading, nearby trees, etc. City crews, as well as property owners, will need to monitor and perform maintenance regularly to preserve functionality and prevent future flooding. Maintenance costs associated with stormwater management could increase.

Requires a shift in how property owners can use their land- Rain gardens and bioretention cells require regular maintenance over time and may conflict with how a property owner would like to use their property.

Unknown costs and life cycles- While some preliminary data exist, LID techniques are often site-specific. It is difficult to generalize costs and long-term life cycles of LID techniques as they are scaled up to a much larger and more widespread level.

The benefits and challenges of low impact development will continue to be evaluated by staff, technical experts, and City Council and its citizen advisory committees. Community discussion is anticipated in early 2016. Specific code revisions will be considered by City Council in mid-2016.