



## Fact Sheet #6

### 2010 Drainage Design and Erosion Control Manual for the City of Tumwater

#### *WHAT IS LOW IMPACT DEVELOPMENT AND HOW IS IT ADDRESSED IN THE MANUAL?*

#### **WHAT IS LOW IMPACT DEVELOPMENT (LID)?**

LID is an ecologically friendly approach to site development and storm water management that aims to mitigate development impacts to land, water, and air. The approach emphasizes the integration of site design and planning techniques that conserve natural systems and hydrologic functions on a site. The practice has been successfully integrated into many municipal development codes and storm water management ordinances throughout the United States. Specifically, LID aims to:

- Preserve open space and minimize land disturbance
- Protect natural systems and processes (drainage ways, vegetation, soils, and sensitive areas)
- Reexamine the use and sizing of traditional site infrastructure (lots, streets, curbs, gutters, sidewalks) and customize site design to each site
- Incorporate natural site elements (wetlands, stream corridors, mature forests) as design elements
- Decentralize and manage stormwater at its source

#### **HOW IS LID CURRENTLY MANAGED IN THE CITY OF TUMWATER?**

The City of Tumwater enacted the “Zero Effect Drainage Discharge” ordinance in 2002 (TMC 13.22) with the intent to define an alternative design standard that retains the critical functions of a forest including evapotranspiration and infiltration after site development, such that near “zero effective impervious surface” is achieved. The purpose of this stormwater management tool is to dramatically preserve stormwater flows available to streams and wetlands in order to enhance environment and fisheries. The ordinance aims to fulfill the following purposes:

- Provide developers land the opportunity to demonstrate zero effective impervious surfaces;
- Preserve habitat and waters within a watershed by allowing the use of innovative urban residential design and development techniques;
- Foster community acceptance of the use of significantly less impervious surface and greater natural habitat conservation on sites;

- Provide the opportunity to identify and evaluate potential substantive changes to land use development regulations that support and improve natural functions of watersheds.

Prior to the issuance of the City’s National Pollutant Discharge Elimination System (NPDES) Phase II Permit, the City relied on TMC 13.22 to authorize the use of LID Best Management Practices (BMPs). During the short period between the adoption of TMC 13.22 and the receipt of the NPDES permit, a handful of developments employed LID techniques successfully.

Since the issuance of the NPDES permit in 2007, any development of 1 acre or more has been required to review the feasibility of applying LID design techniques. Regardless, all stormwater for new developments has been required to be managed on-site since the original drainage manual was adopted in the mid-1990’s.

## HOW DOES THE PROPOSED MANUAL ADDRESS LID?

The proposed Drainage Design and Erosion Control Manual requires an LID assessment as part of every project meeting the criteria for implementation of the Manual. Specifically, any development adding or replacing (or both) 2,000 or more square feet of impervious surface and disturbing 7,000 or more square feet of soils are required to implement Minimum Standard #5, Onsite Stormwater Management. At a minimum, this requires the developer to implement the following to the maximum extent practicable:

1. Restore native vegetation (BMP LID.01) – preserve (preferred) or restore native vegetation on up to 65% of the site on lower density developments.
2. Provide natural or amended soils in disturbed areas (BMP LID.02) – require the placement of native or amended soils for all lawn and landscaped areas and those disturbed areas that are reserved for the restoration of native vegetation (as required by BMP LID.01) to a depth up to 12”.
3. Provide infiltration system for roof downspouts (BMP LID.04)
4. Ensure runoff dispersion – Using techniques in BMP LID.05, .06, and .07, the development shall disperse stormwater runoff onsite to naturally vegetated areas of the site. Dispersion aims to infiltrate stormwater PRIOR to the runoff being directed toward other on-site management options, such as an infiltration pond.
5. Install Bioretention Facilities (BMP LID.08) – Bioretention facilities are shallow stormwater retention systems designed to mimic forested systems by managing stormwater through detention, infiltration, and evapotranspiration, as well as providing for water quality treatment. Compared to traditional stormwater ponds, these facilities are typically smaller in scale and integrated into the landscape to better mimic natural hydrologic systems.

## WHAT ARE THE BENEFITS TO LID?

In addition to the practice just making good sense, low impact development techniques can offer many benefits to a variety of stakeholders.

### Municipalities

- Protect regional flora and fauna
- Balance growth needs with environmental protection
- Increase collaborative public/private partnerships

## Developers

- Reduce land clearing and grading costs
- Potentially reduce infrastructure costs (streets, curbs, gutters, sidewalks)
- Reduce storm water management costs
- Potentially reduce impact fees and increases lot yields
- Increase lot and community marketability

## Environment

- Preserve integrity of ecological and biological systems
- Protect water quality by reducing sediment, nutrient, and toxic loads to water bodies
- Reduce impacts to local terrestrial and aquatic plants and animals
- Preserve trees and natural vegetation.

## SOME COMMONLY ASKED QUESTIONS:

Information on the most frequently asked low impact development questions.

### Public Safety

Q. Don't LID stormwater management practices increase the likelihood of flooding?

A. No. LID designs provide adequate conveyance of stormwater by using designs that maintain predevelopment volumes and rates of runoff. Since bioretention areas are designed to completely drain within a specified period of time, they do not provide breeding grounds for mosquitoes. Overflow controls within bioretention areas control the risk of flooding.

### Public Perception

Q. Aren't owners concerned about maintaining storm water controls on their properties?

A. Environmental stewardship is everyone's responsibility. Most owners view these systems as "landscaping" and once they are aware of the benefits to local hydrology, few remain opposed.

### Maintenance

Q. LID practices sound great, but who maintains all of the open space and various storm water controls?

A. Communities designed using LID practices often rely on a combination of stewardship and maintenance agreements. When designed correctly, most owners perceive these systems as value-added amenities and actively provide for their maintenance.

### For more information:

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