

## Why are we doing Low Impact Development?

### 1. LID is the preferred method for stormwater management

LID techniques for managing stormwater in new development and redevelopment are coming to many Washington State municipalities, however with a different emphasis for the east and west sides of the state.

The Washington Department of Ecology (Ecology) will require municipalities covered by the Phase I or Phase II municipal stormwater permit in Western Washington to integrate LID requirements into their stormwater and broader development codes in the next two to five years.

#### Timeline

Western WA municipalities must implement the new permit requirements by:

- June 30, 2015: Phase I cities and counties
- Dec. 31, 2016: Most Phase II Western WA Municipalities
- June 30, 2017: Phase II permit holders in Lewis and Cowlitz Counties
- June 30, 2018: City of Aberdeen

Ecology's Phase II Eastern Washington permit requires cities and counties to introduce LID techniques and begin to identify what works for local conditions. Cities and counties will need to allow LID projects and develop local feasibility criteria for infiltrating stormwater runoff.

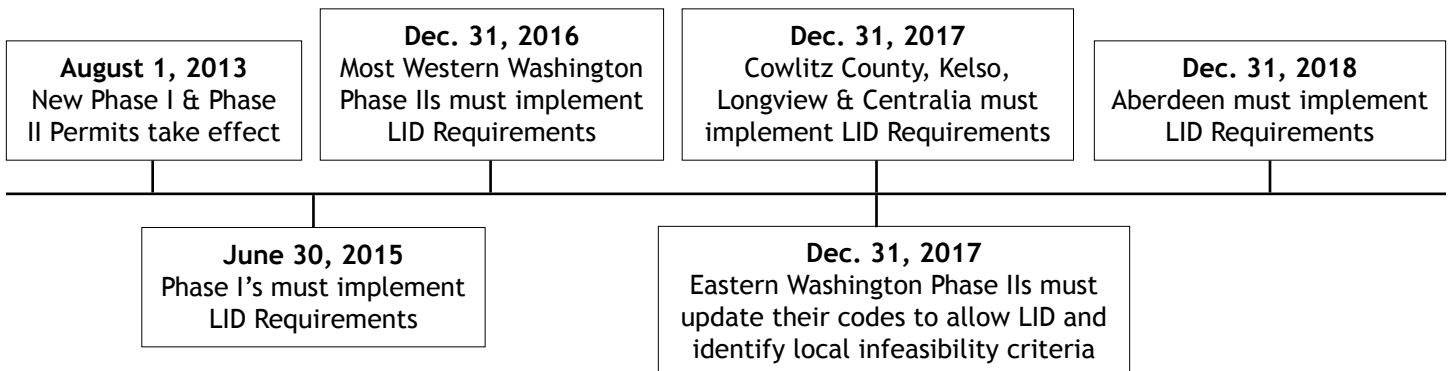
Eastern WA municipalities must implement the new permit requirements by Dec. 31, 2017

### 2. LID infiltrates and treats stormwater runoff on-site

LID refers to a suite of stormwater management and site design approaches that mimic natural drainage processes to retain vegetation, limit impervious surfaces, and infiltrate and treat runoff on-site. While traditional stormwater practices focus on collecting stormwater in piped networks and transporting it off-site as quickly as possible, LID manages stormwater on-site by using multiple approaches including:

- "Disconnecting" impervious surfaces by directing roof runoff to disperse or infiltrate in a bioretention facility
- Reducing impervious surfaces using techniques like minimizing the length and width of roads
- Conserving and retaining areas of vegetation, such as forested and natural areas as open space
- Amending soils by adding components like compost and mulch
- Installing bioretention facilities or raingardens that capture, infiltrate, and treat stormwater runoff
- Using permeable pavements which are a range of materials that allow stormwater runoff to move into underlying soils
- Rainwater collection and reuse, such as rain barrels and cisterns
- Vegetated roofs that capture and delay stormwater runoff in soils and plants that cover the roof area

### Timeline for new LID Requirements in Washington State



### 3. LID is an effective approach for managing stormwater

LID has been widely demonstrated as an effective approach for managing stormwater. Here's how it works:

- **Slows it down.** LID reduces the quantity and speed of stormwater flowing into water bodies. Seattle's SEA Streets LID project reduced the volume of water flowing to municipal drainage infrastructure by 98% and the Meadow on the Hylebos LID project in Tacoma was able to retain 99% of precipitation falling on that area.
- **Spreads it out.** Because LID approaches, such as permeable pavements, can be installed over larger areas than traditional stormwater drywells or retention ponds, their effectiveness amplifies when implemented at the landscape-level. LID facilities are often small and more dispersed across the development than the traditional facilities.
- **Soaks it in.** LID filters pollutants picked up by stormwater runoff, such as oil, bacteria, sediments, and metals, before the pollutants enter surface water bodies. A six-year study by University of Washington found that permeable pavements were much more effective than traditional pavements at reducing zinc, copper, and motor oil concentrations to in stormwater runoff.



### 4. LID has multiple economic, environmental, and community benefits

In addition to water quality improvements, LID provides a multitude of economic, environmental, and community benefits that go beyond traditional stormwater infrastructure. Some of these benefits include:

- **Cost effectiveness** through lower operations and maintenance costs as well as reduced infrastructure costs because LID reduces water flow into our stormwater systems
- **Aesthetic benefits** as LID features can be part of attractive landscaping throughout communities and streetscapes
- **Multiple ecological benefits** including: preserved fish and wildlife habitat, improved air quality from retaining vegetation, reduced building water or energy use (where rainwater is collected or vegetated roofs provide insulation), and carbon sequestration by retaining or planting vegetation

#### Economic benefits

The effectiveness and multiple benefits provided by LID as a stormwater approach can help stretch scarce local government dollars and provide your jurisdiction with the biggest "bang for its buck." Here's how LID may provide economic benefits:

- May lower long-term operations and maintenance costs for LID facilities
- Avoids expensive retrofits of existing infrastructure because there is less runoff from new development
- May provide more usable land area for development because LID reduces the need for stormwater retention ponds and can free up land area for other uses
- Reduces pollution in stormwater runoff from new development resulting in lower clean up costs for rivers and streams
- Leads to fewer costly urban flooding events as LID holds water on-site, reducing the amount of runoff generated during rain events
- Increases property values by creating attractive landscaping and streetscapes
- Contributes toward other regulatory goals, such as comprehensive plans, critical areas ordinances, salmon recovery plans, and watershed plans
- Cleaner water means healthier fisheries and shellfish throughout the state

### **Environmental and community benefits**

LID uses a variety of site design and pollution prevention techniques that create a hydrologically functional and environmentally sensitive landscape. Because LID strategies are, by design, environmentally-focused, their ecological and community benefits are many. Some are shown here:

- All LID strategies help clean our rivers, lakes, streams, and marine waters
- A rain garden or green roof can provide habitat for wildlife
- A green roof can help insulate a building, reducing energy use
- Improve air quality by decreased impervious surfaces and increased vegetation
- Provide communities with landscape enhancements
- Improve walkability and pedestrian safety
- Provide an opportunity for residents and businesses to help manage stormwater through actions
- Provide new small-business opportunities in the green jobs sector

## **5. LID works on many sites and under many conditions**

LID has been successfully implemented on many types of sites, depending on site conditions and with careful planning. LID can be implemented in a wide variety of land uses including:

- Urban redevelopment (rain gardens, green roofs, rainwater harvesting for indoor use)
- Lower density urban development (reducing street width and building bioretention in parking lots)
- Infrastructure projects (integrate into planning of roads, parking areas)
- Rural commercial and residential areas (bioretention in the right-of-way and permeable pavement parking lots)