

Low Impact Development Implementation Report

City of Bonney Lake

March 2011

The February 2, 2009 Pollution Control Hearings Board (PCHB) ruling on an appeal of the Phase II Municipal Stormwater Permit required that Ecology begin to prepare Western Washington Phase II permittees for future implementation of Low Impact Development (LID). On June 17, 2009 Ecology modified the Phase II Western Washington permit conditions to add reporting requirements on advancing the use of low impact development practices in new development and redevelopment.

Special condition S9.E.4 of the modified permit requires the permittee to submit with the Annual Report information that includes:

- A Summary of Identified Barriers to the use of Low Impact Development (LID) within the area covered by the permit and measures to address the barriers.
- A Report Describing:
 - LID practices that are currently available and that can reasonably be implemented within this permit term.
 - Potential or planned non-structural actions and LID techniques to prevent stormwater impacts.
 - Goals and metrics to identify, promote, and measure LID use.
 - Potential or planned schedules for the Permittee to require and implement the non-structural and LID techniques on a broader scale in the future.

In October 2009, Ecology convened a stakeholder advisory process to provide input on LID requirements that are expected to be incorporated into the next permit cycle. The stakeholder committee worked closely with Ecology to define the scope of low impact development techniques, criteria for determining the feasibility of LID techniques, performance standards, and a timeline for future implementation. At the final meeting of the LID advisory process on August 12, 2010, Ecology presented a draft LID proposal outline.

The process of permit reissuance includes a number of opportunities for public input. Ecology plans to issue a draft permit in Spring of 2011 for public review and comment and over a two year review process, will make final decisions on LID permit requirements.

The following report produced by the City of Bonney Lake is intended to provide Ecology with additional input and to better prepare the City to implement LID requirements that are expected in the upcoming permit cycle. Please note that listing an

action in this report does not constitute a commitment to implement suggested changes. The City of Bonney Lake intends to wait for further direction from the Department of Ecology for specific implementation and deadline requirements.

Section 1. Identified Barriers and Measures to Address Them

The Bonney Lake Municipal Code via the Development Policies & Public Works Design Standards is compatible with low impact development concepts and principles and does not pose any clear impediments to its implementation. For the purpose of this exercise, specific sections of design standards have been identified that pose opportunities to further incorporate and encourage the use of LID:

1.1 Development Policies & Public Works Design Standards

Section 600: Street & Asphalt Concrete Paths and/or Bikeways Standards

In Section 600, two LID-related issues arise related to road surfaces and road widths. Roads and parking areas are the largest contributors of imperviousness in most developed areas. LID emphasizes minimizing impervious surface coverage. This can be achieved through narrower roadways and incorporation of pervious paving materials. Code language could be developed that encourages pervious pavements capable of supporting emergency equipment.

The specifications for dimensions of the fire apparatus road require an unobstructed width of no less than 20 feet. The City could offer some flexibility allowing more narrow driveways and fewer turn around areas on driveways where structures are sprinklered or have other fire suppression techniques employed.

1.2 Bonney Lake Subdivisions

Design Standards – BLMC Chapter 17.20

Reducing impervious surface coverage in site development is one important component of LID design. The *LID Technical Guidance Manual for Puget Sound* identifies LID as a stormwater management strategy that emphasizes conservation and use of natural site features with distributed, small-scale stormwater controls to more closely mimic hydrologic patterns in residential, commercial, and industrial settings.

Bonney Lake's Subdivision Design Criteria could be more LID compatible, with provisions for cluster subdivisions, the conservation of open space, natural vegetation retention, identification and protection of significant trees, as well as the use of bioretention swales for storm drainage.

The amount of open space required in subdivisions could also be increased. Further language could be added encouraging the preservation of existing trees on the site whenever feasible, as well as planting new trees and shrubs of a native character. The inclusion of a selected native trees and plant list could also be beneficial.

In regards to storm drainage, additional criteria for the design of stormwater facilities which incorporate LID techniques could be established.

1.3 Bonney Lake Zoning

BLMC Title 18

As noted above, reducing impervious surface coverage in site development is one important component of LID design. Some zones within the City, have no maximum lot coverage requirement. The City may consider setting some maximum lot coverage standards by zone to minimize impervious surfaces.

Off-Street Parking:

In many communities, parking lots are second only to roads as a source of impervious surface coverage. Reducing impervious surfaces associated with parking can be achieved in a variety of ways such as:

- Reduce the minimum number of parking stalls
- Specify a maximum number of parking stalls
- Reduce parking space dimensions and circulation corridors and/or provide for higher percentage of compact stalls
- Limit the amount of impervious surface coverage and provide direction for the use of pervious pavement and other materials

Reducing the effective impervious surface area of parking is equally important, and can be mitigated by interrupting massive sheet run-off through landscaping and planting islands. Originally, the main purpose behind most planting islands was aesthetic. However, slight modifications to planting details and plant selection can allow planting islands to fulfill stormwater functions as well as provide an aesthetic benefit.

It would be beneficial to add provisions to the code that directly address reducing the amount of impervious surfaces in parking lots as well as provisions for the use of pervious paving. These code revisions could include detail drawings for LID parking lot design, and refer to the landscaping and stormwater drainage details, so that the incorporation of LID is consistent throughout various sections of the City Code.

Improvements:

With respect to road sections and other improvements; the primary obstacles to LID are that the City's requirements call for all curbs to be vertical. Curb and gutter requirements in street construction can limit opportunities for LID stormwater management techniques such as roadside bioretention swales. The City may want to allow alternative cross-sections that reflect the following LID road design principles:

- Roads that are canted or pitched to a bioretention swale
- Curbs and gutters with "breaks" to allow surface water to enter the bioretention facility
- Sections consistent with manufacturer recommendations for alternative surfacing materials for sidewalks, parking, and vehicular travel.

Landscaping:

The City could encourage the use of native Pacific northwest and drought-tolerant plant materials, inclusion of bioretention swales and other surface water/water quality structures incorporated into landscape areas, mulching standards, the protection of significant trees and flexibility for creative design through modification options.

The City could adopt tree retention standards and establish general percentages for the amount of significant trees to be retained on properties, in addition to a replacement rate.

Landscaping and the retention of native vegetation are two LID tools that can play a key role in reducing stormwater runoff, providing ecological habitat, and preserving natural drainage patterns.

The City could also consider adding Low Impact incentives to the code offering an increase in the spacing of trees and shrubs and groundcover in exchange for implementing low impact practices and techniques.

The inclusion of an appendix with detailed descriptions of species native to the Pacific Northwest would also be helpful in this section.

Section 2. LID Practices, Goals, Planned Actions and Timelines

2.1 LID Practices Currently Available

The City encourages the use of the following LID practices when conditions make it a feasible option:

- The use of permeable surfacing

- Developments are encouraged to use parking lot landscaping as on-site stormwater infiltration facilities.
- Pervious paving techniques may be used on private roads where feasible.

2.2 Potential Non-Structural Actions and LID Techniques

Low Impact Development principles and applications present a significant conceptual shift in stormwater management. Conventional tools to manage stormwater emphasize collection and conveyance of stormwater while LID is a strategy that emphasizes conservation and use of existing features to mimic natural hydrology. In order to fully embrace the shift to LID stormwater management, changes may be necessary within the City's comprehensive plan or other land use policies in order to reflect this new vision.

In the future, the City may consider adopting additional policies to further advance the implementation of LID practices such as:

- Developing an incentive-based program to promote the use of LID
- Increasing flexibility to allow for more experimental designs
- Impervious surface limits
- Allowing for alternative building designs to reduce footprint and disturbed areas
- Changes to Site planning and layout that takes advantage of natural features
- Programs to encourage Infill and redevelopment to reduce creation of new impervious surfaces

Section 3. Goals and Metrics to Identify, Promote, and Measure LID Use

Ecology recommends that permittees provide indicators of progress in implementing LID techniques identified in this report. Permittees should identify goals for expanding the use of LID and establish methods for achieving these goals.

As we wait for Ecology to develop the anticipated LID requirements for the next permit, the City of Bonney Lake plans to focus on expanding staff training and public education as a means to further prepare for LID implementation.

Staff Training - adequate training is necessary for planning department counter staff, permit reviewers, inspectors, staff performing code enforcement, and also those involved in maintenance activities in order to provide guidance, review permit applications, and inspect LID facilities. There will be various levels of training which may include participation in a certification program, in-person training or tutorials available on the web. It may be necessary to prioritize

workload internally to increase staff availability to work on implementing future changes to code and regulations for LID.

Developers - Developers that are more knowledgeable in LID will produce better products for review (during permit review process). City staff will provide brochures, pamphlets, and mailings illustrating the benefits provided by LID, the uses of LID, and the types of LID techniques available.

Elected Officials and the Public - There is a need to increase acceptance and understanding of Low Impact Development within upper management, among elected officials and within the community in general. Because LID is a relatively new concept, there is a general perception that LID is not proven and that the technology is untested. It would be beneficial to highlight local LID projects that have been successful and encourage people to visit various demonstration LID projects in the region.

Regional Collaboration - Collaboration and sharing of information among local municipalities would be very beneficial. The City of Bonney Lake will support and participate in local forums where permittees can share strategies for successfully implementing LID and share LID accomplishments and lessons learned.

Section 4. Timeline to Implement LID Techniques on a Broader Scale in the Future

The City anticipates that Ecology will outline very specific deadlines for implementation of LID requirements in the next permit cycle. At this point in time it is difficult to generate an implementation schedule before knowing what changes will be necessary within the City's codes, development standards, comprehensive plan, and other policies in order to meet future NPDES permit requirements. The City intends to comply with deadlines in the next permit that Ecology determines feasible.