

**Department of Ecology – Water Quality Program  
Development of Low Impact Development (LID) Standards for the  
Municipal Stormwater General Permits**

**Implementation Advisory Committee Meeting #1  
November 19, 2009, 10:00am–3:00pm at Ecology Headquarters - Lacey  
MEETING SUMMARY**

**Goal of the Meeting:** This was the first meeting for the Implementation Advisory Group (IAC). The purpose of the meeting was to begin discussion of a permit framework and issues to address for implementation.

## **AGENDA**

Introductions and Agenda Review

Review and update of LID goal and definition

Discussion of Ecology Proposed Permit Framework and issues with implementation

- Short term vs. long term implementation
- Development densities and impacts to implementation
- Off ramps, variances, exemptions
- Process and alternatives for performance standards

Focus of upcoming IAC Meetings

- LID Principles
- Performance standards and compliance schedule
- Municipal responsibilities and code changes
- Determination of performance standards, feasibility off-ramps

Next Meeting — Agenda and preparation

## **ATTENDEES**

A list of attendees is provided at the end of this meeting summary.

## **TRANSCRIPTION OF FLIP-CHART NOTES**

***The meeting summary provided here is a transcription of the flip-chart notes taken by Kate Snider during the meeting. This does not provide a full documentation of the dialogue, but provides a record of the primary input received from the attendees.***

## **PERMIT FRAMEWORK**

Ed O'Brien provided an overview of the Proposed Ecology Framework document - providing Ecology's initial concept for implementing the LID requirements into the permitting process through performance standards. This Framework is a proposal intended to stimulate discussion.

The proposed Permit Framework was distributed in the advance materials prior to the meeting and copies were provided at the meeting.

### **Committee Input – Permit Framework and Performance Standards**

- Is this plan only for Phase 1 permits?
  - Ecology: We assume the general framework would also apply to Phase 2.
- Short term vs. longer term Performance Standards?
  - Near term standards are “easier” to meet. These standards assume use of LID techniques that are readily available to implement and less constrained by existing codes.
  - Longer term performance standards assume use of LID techniques and development principles requiring multiple code changes.
- This concept will require two sets of deadlines in the permit
- Is this for the permit modification or in next permit? There are several questions and alternatives for the timing of the permit process...Ecology is hoping for input from the Implementation Committee.
- But what about sites where they could already meet higher standards without code changes? - A better model could be to set a higher performance standard with compliance timeline flexibility and off ramp flexibility.
- Hydrologic Performance Standard Examples
  - Match the flow duration curve for 50 year, 6 mo return flows
  - Pond size reduction compared to standard detention pond.
- Use term ‘Effective impervious’ surfaces
  - Reduction of effective impervious surface by LID techniques and then also with code change
- In opening paragraph of Proposed Framework document, include “where feasible” (“Ecology will require use of LID stormwater management strategies where feasible”)
- If meeting hydrologic performance standards – still required to meet end of pipe water quality standards?
  - Ecology: Yes. LID standards do not override water quality monitoring requirements under the CWA. In the NPDES program, there are not requirements for monitoring end of pipe water quality other than under the industrial stormwater permit (and note that the LID requirements apply to the municipal stormwater permits).
- From a planner’s view – need to address basin scale earlier as it sets the context for development-scale requirements.
- What is the intention re different performance standards by density? What are we trying to encourage? New development vs. redevelopment - redevelopment is preferable.

Make sure that LID standards aren't defined in a way that stimulate greenfield development.

- This discussion is overwhelming. It is too difficult and too confusing to implement. We need to keep it simple not overwhelm municipal implementers.
- Standard should be to the maximum extent practicable, not what is easy.
- Feasibility and off ramps need to focus on site conditions.
- Some permits in other parts of country require mitigation within same basin – if use site specific off ramps and LID can not be implemented on-site, provide hydrologic “mitigation” within the basin.
- Ecology should consider providing greater definition to municipalities for how to implement – detail and specific clear structure not a performance standard.
- Would be better for Ecology to do Option B (from Framework) – not delegate it to municipalities.
  - LID design guidelines already exist for engineered techniques
- But acknowledge that Ecology will not make the code changes that are necessary for implementation. This must come from the municipalities.
- Timing and funding is an issue: When? Who? How much money?
- Already have Ecology Flow control standard – will it be different for LID?
- Jurisdiction will look at a mix of LID and conventional techniques to meet flow control standard
- Consider a new “Option C”: We know we have to meet flow control and treatment standards –
  - LID techniques must be used unless site conditions infeasible
  - Must meet an overall hydrologic performance standard
  - Model LID techniques in accepted model
  - Then determine how much conventional flow control vault/pond still needed
- For the Jurisdiction to require use of LID – code change is required. The Ecology proposed framework that assumes early and then longer term code changes would be cumbersome. Should do all necessary code changes in one effort.
- Site/Subdivision now then Basin scale is an OK approach.
- Consider the role of current flow control standard. The current standard is one standard that applies to all densities. Why must LID standards be different based on density?
- The WWHM model is a viable and accepted model.
- EPA has developed a basin modeling tool called ‘Sustain’ –consider as a basin scale tool
- Specific examples of short/long term performance standards would be useful for IAC review

- It is important to describe the barriers to LID
- Definition of off-ramps and feasibility needs more prominence
- “I-permit” is an example of a process that assists in identifying permit conflicts

### **Public Input – Proposed Permit Framework and Performance Standards**

- Density regarding performance standards is important
- Urban infiltration constraints make it important to have different performance standards.
- Feasibility should include economic as well as site constraints
- Economics of LID are important – adding too much cost could push urban redevelopment out to greenfield
- Water Quality goals of LID are important – address both hydrologic and water quality goals in performance standards
- Can we hammer out 3-5 things that can be defined and achieved soon at the basin scale?
- There was a good presentation recently in Portland on LID Feasibility.
- Keep in mind bigger picture – Basin scale.
- Consider something similar to LEED point system to encourage LID?
- If a development can contain all runoff does it matter if they using LID? If there is no runoff is a development subject to NPDES?
- The terms ‘effective’ and ‘distributed’ need to be defined
- Approach assumes LID is synonymous with infiltration. Infiltration is a big concern and causes significant problems in many soil types.
- Technology that removes water similar to evapo-transpiration would be better in some soil types.

### **COMMITTEE DISCUSSION – ISSUES TO BE ADDRESSED BY IAC**

The committee discussed issues to be addressed by the IAC – both in the remainder of this meeting and in future meetings:

Require LID where Feasible

1. What is it?
2. What does it mean to require it?

LID definition and goals (*this meeting*)

Flow control and water quality (*this meeting*)

- Requirements per PCHB ruling
- ‘Jurisdiction’ of LID requirements
- Approach alternatives

LID at Basin Scale vs. Site/Subdivision scale (*brief discussion at this meeting, then focus on site/subdivision scale, table basin-scale discussion for later*)

- Objectives
- Approach concepts
- Timing

Permit Framework Options

- Hydrologic performance standards and compliance schedule
- Performance standards by density – how defined? Needed?
- Site constraints, soil types that drive feasibility and setting of performance standards
- Clear examples of performance standards and their implementation

LID Feasibility

- Barriers, off ramps
- Cost and implementation elements of feasibility
- Risks – concerns with infiltration capacity, interflow, etc

Relationship to flow control standard - where is the preferred solution along gradient from conventional flow control methods to LID – with prioritization of LID

Municipal Responsibilities

- Alternative approaches and levels of detail
- Code change expectations
- Funding and Implementation process

Timing of permit modification, permit issuances, and updates

- Options for permit timing
- Compliance schedule, deadlines in permit

## **COMMITTEE INPUT ON DRAFT LID GOAL AND DEFINITION**

The draft LID Goal and Definition - discussed and edited at TAC Meeting #1, was provided for IAC review and input. Comment received included the following:

- Treat stormwater as a resource. Prevent impact of built environment on natural hydrogeology
- Definition should allow for water reuse.
- Current definition includes “Land development” – should be broader and include all construction including transportation, etc
- “Reduce or Eliminate” - not just reduce.
- Important to add water quality goals in definition
- Add water harvest and reuse to the definition
- It is good to include “Land Use management strategy” as part of definition

- Concern re “Existing development” in goal statement – make sure it is clear that we are not asking developers to try to solve ills of surrounding existing development
- Prevent/reduce “impacts” not “change”
- Goals
  - 1) Add “new development” and
  - 2) “retrofit” projects
- Add pollution remediation to goals

### **COMMITTEE INPUT ON WATER QUALITY AND LID**

The proposed permit framework document stated Ecology’s assumption that LID would not be required in areas draining directly to marine waters, where flow-control is not required.

- There are significant concerns about Ecology’s concept of not requiring LID in areas that drain to non-flow control receiving water bodies
- PCHB Decision includes water quality as a benefit to LID – should include it everywhere that Municipal permit is applicable.
- LID has a demonstrated water quality benefit – should be required in areas where discharge to all waters including marine waters
- Ruling didn’t say “for flow control” or “in flow-controlled” areas. Why the limitation?
- The Board ruling is explicit, no rationale to restrict to flow control receiving waters.
- If requiring LID in areas discharging to marine water, consider different types of standards (not limited to flow control based standards) – implement LID based on hierarchical list, if feasible.
- LID requirement in Municipal Permit would not be to meet a specific water quality standard, rather implementation of LID provides both water quality and flow control benefits
- For properties that meet water quality goals through stormwater treatment, should NPDES mandate LID?
- For industrial properties with applicants doing sophisticated treatment -- would you also require LID? It takes away from available money needed for treatment.
- Current discharges to marine waters are not currently achieving water quality goals. LID as part of treatment could be an advantage.
- Areas that prevent infiltration to a sole source aquifer - Is this a feasibility issue or institutional barrier?

## **COMMITTEE DISCUSSION ON BASIN SCALE PERSPECTIVE/OVERVIEW**

- There are a confusing set of requirements for local governments regarding area-wide requirements and planning.
- Will NPDES and TMDLs mandate a Basin approach? Bremerton currently looking/working at the Basin scale.
- EPA 'Sustain' modeling tool requires optimal placement of LID facilities. Should bring into this discussion.
- What should be required now vs. in the future - Paragraph 17 "Conclusions of Law" from the PCHB ruling states "start taking action now". Need to identify areas where basin planning is would be helpful now.
- Work now to develop approach so can be required in 2012 permit.
- In order to achieve ecological objectives, need to consider at the Basin scale and have basin performance objectives guiding principles. Reference to research recommending "65/10" rule – for ecological health need 65% in forested condition and no more than 10% impervious surface.
- Need to understand basin context when working on what to do at site/subdivision scale, understand how impacting the overall context.
- Basin planning – to support ability to implement integrated stormwater planning and off-site mitigation options
- Ability to model 'alternative futures'
- Could have overall basin and LID water quality strategy based on land use models. In absence of that -- implement LID at site/subdivision scale where feasible.
- A later agenda should include specific advice to Ecology re: LID at basin scale, and potential incorporation into 2012 permits.

## **NEXT IAC AGENDA**

- Don't confuse discussions of performance standards and feasibility
- Discuss feasibility early
- Define what kind of performance standard is necessary to protect the resource
- Tee up meeting with set of specific questions that Ecology would like to ask – to make best use of the expertise around table
- Provide specific questions in advance and provide supporting material early
- Be careful about crossover with TAC
- Make good use of existing work
- What is aggressive mix of LID to conventional stormwater management techniques? Use to define performance standards

- Focus on implementation from county/city policy perspective.
- Allow discussion of lessons learned re implementation hurdles (liability constraints etc)
- Recognize that IAC focus is on the policy perspective – some things addressed in the TAC may also need to come to the IAC for policy viewpoint
- Specifics re implementation and operations and maintenance – provide clear examples
- Hoping TAC provides a “work product” re: performance standards and feasibility, bring to IAC to consider policy issues and implementation.

**Attachment 1  
Meeting Attendees**

<b>Implementation Advisory Committee</b>	
Cathy Beam City of Redmond cbeam@redmond.gov	Larry Matel City of Bremerton Public Works and Utilities larry.matel@ci.bremerton.wa.us
Wayne Carlson AHBL Inc. wecarlson@ahbl.com	John Palmer Region 10, US EPA palmer.john@epa.gov
Art Castle Kitsap County Homebuilders Association acastle@kitsaphba.com	Doug Peters WA Department of Commerce doug.peters@commerce.wa.gov
Wally Costello Quadrant Homes (Retired) wallycostello@comcast.net	Jodi Slavik Building Industry Association of Washington jodis@biaw.com
Craig Doberstein Herrera Environmental Consultants cdoberstein@herrerainc.com	Al Schauer MacKay & Sposito, Inc. aschauer@mackaysposito.com
Jan Hasselman EarthJustice jhasselman@earthjustice.org	Bruce Wishart People for Puget Sound bwishart@pugetsound.org
Debby Hyde Pierce County Utilities dhyde@co.pierce.wa.us	Bruce Wulkan Puget Sound Partnership bruce.wulkan@psp.wa.gov
<b>Public</b>	
Pat Allen Thurston County allenp@co.thurston.wa.us	Paul Fendt CDM fendtps@CDM.com
Geoff Appel Reid Middleton gappel@reidmiddleton.com	Jennifer Jerabek MBA jjerabek@mbakr.com
Sean Darcy CONTECH darcys@contech-cpi.com	Dave LaClergue City of Seattle dave.laclergue@seattle.gov
Ray Edralin GHD ray.edralin@ghd.com	Amalia Leighton SVR Design Co. amalia@svrdesign.com
<b>Public (continued)</b>	
Brandi Lubliner Washington State Department of Ecology – EAP brandi.lubliner@ecy.wa.gov	Chery Sullivan Washington State Department of Ecology – W2R chsu461@ecy.wa.gov



Tom Putnam Puget Soundkeeper Alliance tomput@comcast.net	Theresa Wagner City of Seattle theresa.wagner@seattle.gov
Lisa Rozmyn Port of Tacoma lrozmy@portoftacoma.com	Jane Zimmerman City of Everett jzimmerman@ci.everett.wa.us
Larry Schaffner WASDOT schaffl@wsdot.wa.gov	
<b>Steering Committee and Support</b>	
Harriet Beale Washington State Department of Ecology hbea461@ecy.wa.gov	Doug Howie Washington State Department of Ecology doho461@ecy.wa.gov
Tina Gary Floyd Snider Tina.Gary@floydsnider.com	Kate Snider Floyd Snider Kate.Snider@floydsnider.com

## **Proposed Framework for Incorporation of LID Requirements in Municipal NPDES Permits for Discussion with LID Advisory Committees 11/16/09**

***This is a preliminary description of how LID permit requirements could be structured and implemented. It has been developed to support early discussion and to solicit input from the Advisory Committees***

### **PERMIT FRAMEWORK**

To comply with the PCHB ruling, and to protect aquatic resources, Ecology will require use of Low Impact Development stormwater management strategies. In Municipal NPDES Permit updates, Ecology would set performance standards for LID. It will be the responsibility of Municipal jurisdictions and development project proponents to determine what specific steps to take to meet these performance requirements.

In the permit updates, Ecology would set hydrologic performance standards applicable to new development and redevelopment, requiring that municipalities require developers to utilize LID techniques to meet these standards, and eventually requiring municipalities to revise development codes.

- Different hydrologic performance standards would be set for developments of different levels of density; and different standards could be set for redevelopment projects.
- Initial performance standards would be set based on evaluation of the hydrologic performance that can be achieved at each level of density with LID techniques that are known and readily available.
- Longer-term performance standards would be set based on an expectation that over time, development code changes will be made that facilitate reductions in “effective” impervious area and site disturbance and that LID techniques will evolve and become more effective.
- Compliance schedules would be set for municipalities to implement both the initial and longer-term performance standards: An initial set of performance standards would be set for each level of density. The issue of compliance schedules to meet both the initial and longer-term performance standards within the permits is a significant issue for discussion.
- The timing for including both the initial and longer-term performance standards in the permits is a key question for the implementation committee. The PCHB’s phase I ruling implied requiring the implementation of some LID requirements this permit term. However the current LID committee schedule and the approaching expiration of the current permits in February 2012 make a permit modification difficult.

- There are a variety of ways that hydrologic performance standards can be structured...examples are being discussed with the TAC.

Consistent definitions would be used across western Washington for LID techniques, their design guidelines and their expected hydrologic performance (how they are represented in the runoff model). These definitions would be included in the state Stormwater Management Manual.

Given the required performance standards, and consistent definitions for LID techniques, Municipalities would make their own decisions regarding specifically how to pass forward the LID requirements to developers. Ecology assumes there are two primary choices (A and B below) for how Municipalities could structure their programs:

- A. Municipalities would require that each development (or redevelopment) proponent demonstrate that their proposed development will meet the hydrologic performance standard. Developers would perform that demonstration by inputting the characteristics of their development (amount of natural vegetation retained, impervious area, engineered LID techniques, soil type, etc) into an accepted hydrologic model provided by the Municipality – using the consistent, accepted definitions and variables for LID techniques.
  - B. Municipalities would require use of LID techniques to meet municipal LID guidelines with prescriptive requirements (these guidelines could define a hierarchy of required LID techniques and use criteria). To support this approach, the municipality would demonstrate to Ecology, on a programmatic basis, that application of LID to meet the municipal guidelines is expected to meet the Ecology performance standards. This would be done through modeling a set of case studies.
- Municipalities could also allow individual development proponents to choose between an A or B type approach.
  - Ecology would define acceptable “off-ramps” to LID requirements – certain conditions under which municipalities could grant variances or exceptions to LID requirements, such as presence of contaminated soils, high groundwater, steep slopes, etc.

In the municipal stormwater permit, Ecology could require municipalities to implement an administrative process, involving all affected departments, to evaluate development codes, and identify and implement opportunities for code change to facilitate decreases in effective impervious area and disturbed areas at development sites (e.g., reduction of street widths).

Ecology could also require municipalities conduct basin level planning that incorporates low impact development strategies as a water quality management tool to prevent degradation of aquatic resources.

## LIKELY PROCESS FOR DEVELOPING PERFORMANCE STANDARDS

*This is the process that would be undertaken by Ecology, with Advisory Committee input, prior to permit issuance.*

- Initial Performance Standards (the first step on the compliance schedule) would be set based on an evaluation of likely hydrologic performance (reduction in site runoff) that can be achieved at different development densities, with application of currently acceptable LID techniques, utilizing existing development codes. Existing AHBL work is a good starting point.

Modeling based on the assumption that at each level of density, a reasonable number of accepted and applicable LID techniques would be utilized. The performance of these LID techniques would be modeled based on existing design guidance and accepted model inputs.

- Longer-term Performance Standards (the longer-term target on the compliance schedule) would be set based on: 1) evaluation of the likely hydrologic performance (reduction in site runoff) that can be achieved following reasonable development code changes that facilitate reduction in effective impervious area and reduction in the extent of site disturbance; and 2) the application of more sophisticated LID techniques, that take into account better LID performance and evolution of the industry.

## KEY ISSUES

1. Should the municipal stormwater NPDES permit require local governments to implement LID in geographic areas that drain to waters not significantly impacted by hydrologic changes caused by development?
2. Should any hydrologic performance standard apply only to developments that exceed the size thresholds for the flow control standard? Should municipalities require smaller developments utilize certain LID techniques without a requirement to demonstrate compliance with a performance standard?