WELCOME

LID Briefing for NPDES Permittees (Cities & Counties)

Western Washington

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Introduction

AWC LID briefing – Western WA

- AHBL
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- HDR
  - Robin Kirschbaum
- Ecology

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Introduction

PRESENTATION OVERVIEW

I. Introduction

II. Why we are here

III. What is LID?

IV. What do the new requirements mean to me & my community?

V. Questions & Evaluation

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Introduction

PRESENTATION OVERVIEW

- Beginning of a 4-5 year training process
  - -- Permittees
  - -- Landscapers
  - -- Composters
  - -- Engineers
  - -- Realtors
- LID is coming. Start preparing now!
- Dept. of Ecology is prepared to help
- Feedback for what you need to move forward

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Introduction

Learning Objective

- We are here to discuss the integration of LID into local codes and standards. This will include the steps needed to accomplish LID code integration, a primer on LID, and a solicitation of your feedback on future local training and support needs. *We are not here to discuss the merits of the permit and/or the previous PCHB rulings.*

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Why are we here?

Why are we here?

Stormwater Regulation Changes

- Over the next 3-5 years – changes as to how stormwater is managed in western WA
- Steps you can take to prepare for the changes

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Why are we here?

- Leading cause of water quality impairment in stormwater runoff
- Clean Water Act
  - Framework for stormwater management
- Manage stormwater for two primary purposes:
  1. Flow Control
  2. Water Quality

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Why are we here?

Clean Water Act

- Permits are reissued every five years to comply with the Act's MEP standard
- Technology advances change what is deemed "practicable"
  - LID is example of an evolving science

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Why are we here?

NPDES Phase I & Phase II permits

- Reissued Phase I permit & first issued Phase II permits in 2007
- The Western WA permits were appealed to the Pollution Control Hearings Board (PCHB)
- PCHB decisions compelled Ecology to prepare a requirement in the 2012 permits to require LID unless infeasible

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Why are we here?

Variety of ways to manage stormwater :

- Traditional practices
  - Centralized
  - Constructed to collect & remove runoff quickly
  - Traditionally to clear & grade the site
- LID practices
  - Smaller
  - Decentralized
  - Integrated within the landscape

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What is LID?

What is LID?

- Stakeholders participated in a 2-year process to define LID:

"Low-impact development (LID) is a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design."

Source: Department of Ecology's Phase II Municipal Stormwater Permit

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What is LID?

Challenges with conventional stormwater facilities

- Large facilities that take up a lot of room
- Aging infrastructure
- Increase runoff volumes
- Increase pollutant discharges
- Create “flashy” storm events
- Reduce groundwater recharge & results in lower stream flows in critical late summer months

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What is LID?

Conventional stormwater facilities

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What is LID?

LID stormwater facilities

- Reduces volume thereby minimizing high flows
- Removes pollutants from stormwater
- Replenishes streams and wetlands
- Reduces size of conventional stormwater facilities
- Increases open space
- Visually attractive
- Can result in construction and maintenance cost savings
- Can increase densities
- Can increase public safety

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What is LID?

LID stormwater facilities

Multiple functions

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What is LID?

LID stormwater facilities

Aesthetically pleasing

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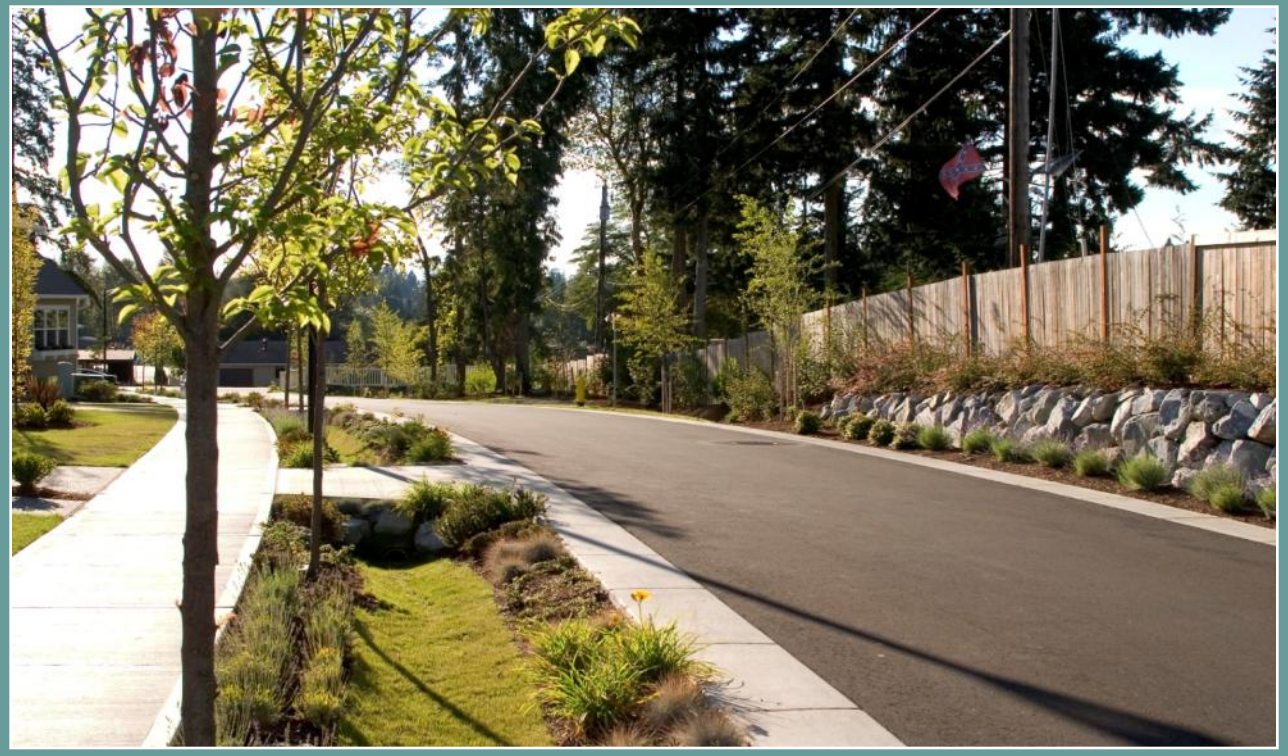
What is LID?

LID stormwater facilities

Size



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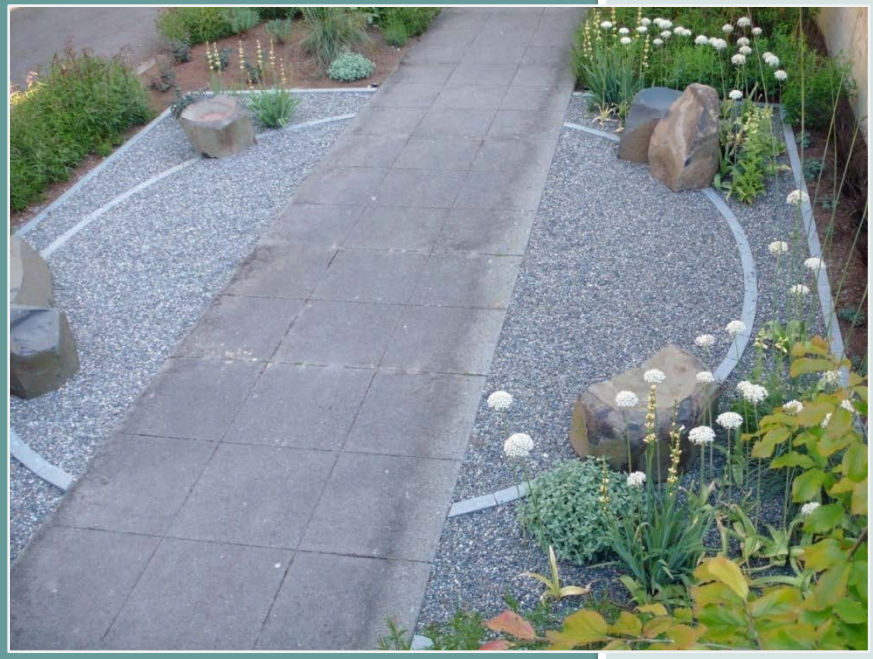
What is LID?

LID stormwater facilities

Options for a variety of design challenges



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What is LID?

LID stormwater facilities

Maintenance

- LID practices require maintenance
- May be less costly than conventional facilities

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What is LID?

LID stormwater facilities

Maintenance

Conventional

LID

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What do the new requirements mean to me & my community?

Western WA Phase 1 & Phase II NPDES permit overview

- LID required, where feasible
- Review & amend local codes & standards
- Site & subdivision scale requirements
- Small, medium and large projects

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LID BMPs identified in the permit

- Key best management practices (BMPs) required where feasible
- Optional BMPs that permittees may opt to allow or require
- Key LID principles

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What do the new requirements mean to me & my community?

Required BMPs (unless infeasible)

Bioretention

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Required BMPs (unless infeasible)

Permeable Pavement

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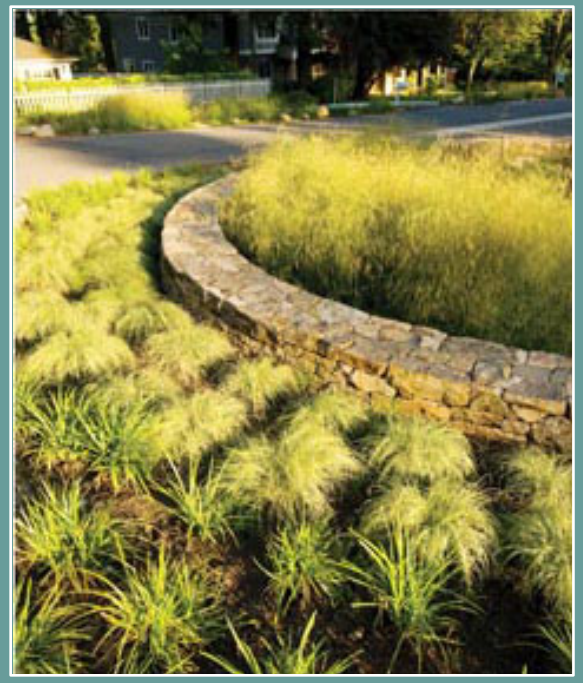
What do the new requirements mean to me & my community?

Required BMPs (unless infeasible)

Rain Gardens (small projects only)



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Required BMPs (unless infeasible)

Dispersion

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Required BMPs (unless infeasible)

Downspout Dispersion

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What do the new requirements mean to me & my community?

Required BMPs

(unless infeasible)

Sheet Flow

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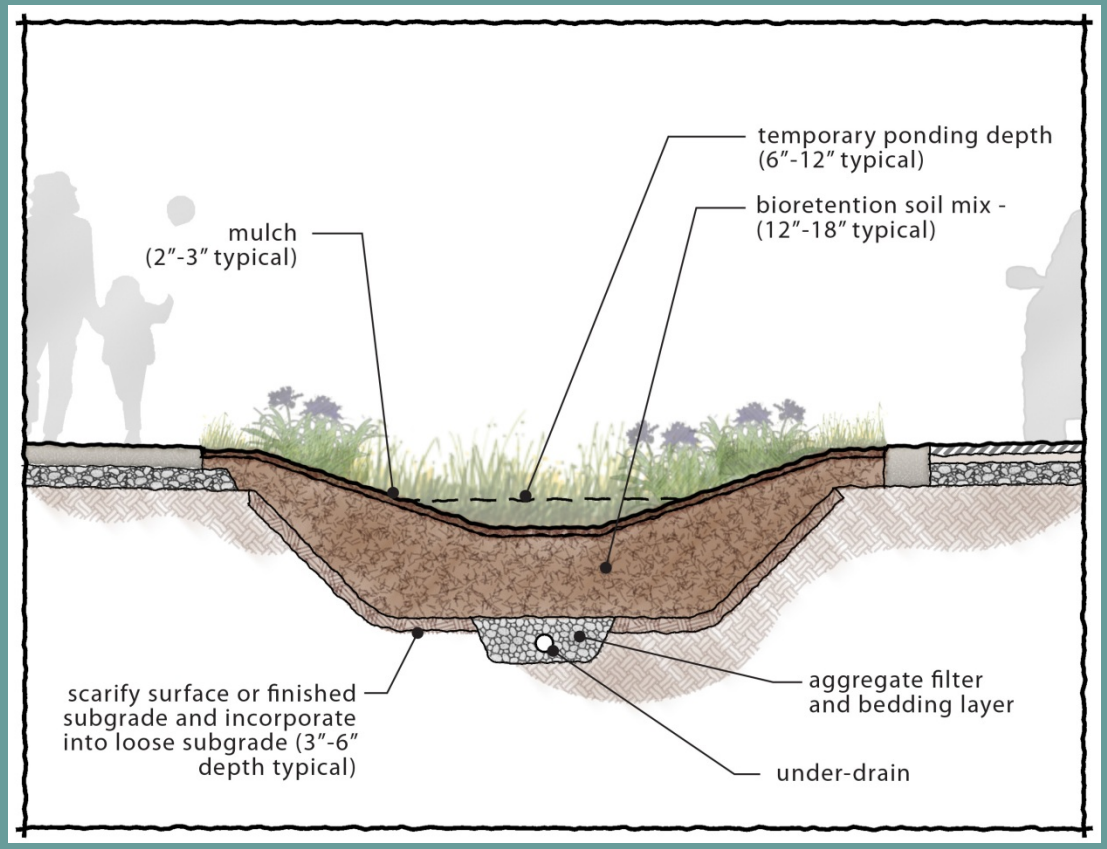
Required BMPs (unless infeasible)

Perforated stub-out connections



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What do the new requirements mean to me & my community?

BMPs — permittees may opt to allow or require

Vegetated roofs

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What do the new requirements mean to me & my community?

BMPs — permittees may opt to allow or require Rainwater Harvesting

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BMPs — Permittees may opt to allow or require Minimal Excavation Foundations

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What do the new requirements mean to me & my community?

Development Code Review & Amendment Goals

- Reduce impervious surface
- Protect native vegetation
- Reduce stormwater runoff
- Make LID the preferred and commonly used approach

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What do the new requirements mean to me & my community?

Development Codes

- Directive
- Prescriptive

} Ecology included flexibility for developers & discretion for local government

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LID Key Principles

- Permit requires non structural practices integrated into early stages of project design
- LID principles include:
  - Conserve Vegetation
  - Reduce & Disconnect Impervious Surfaces
  - Distribute small-scale techniques
  - Infiltrate on site

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Code amendments for implementing LID principles

- Reduced road width
- Changes in road layout and orientation
- Clustering
- Higher building & smaller footprints
- Parking regulations
- Landscaping using bioretention

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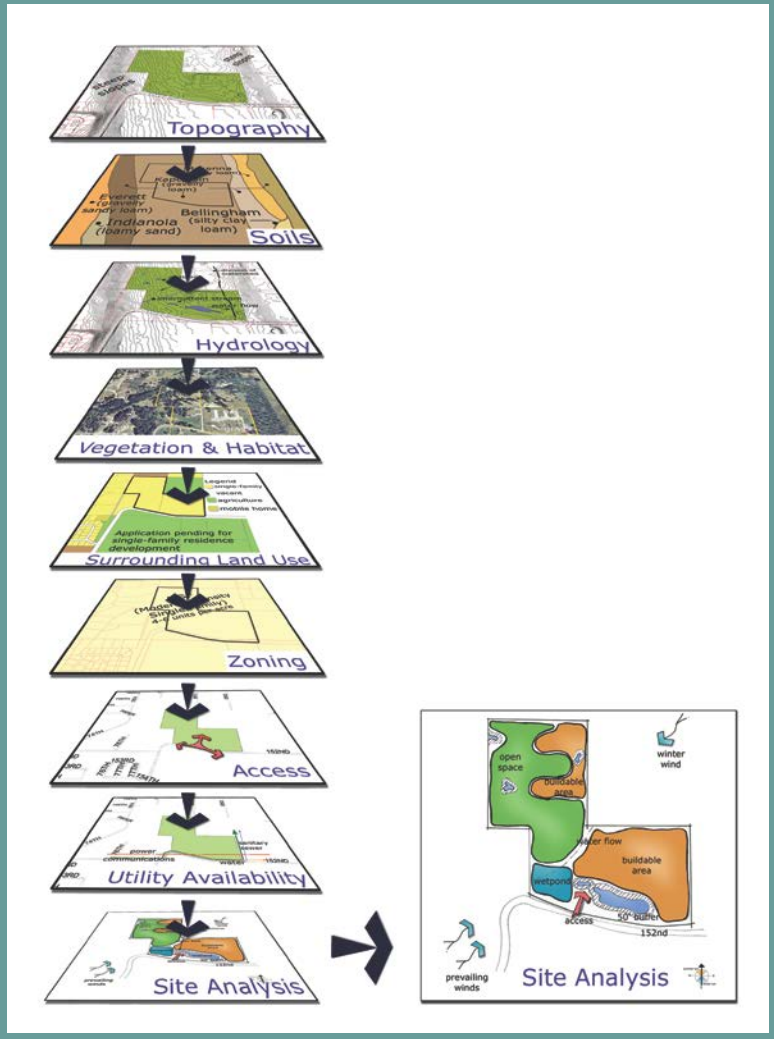
Site Analysis Code Language



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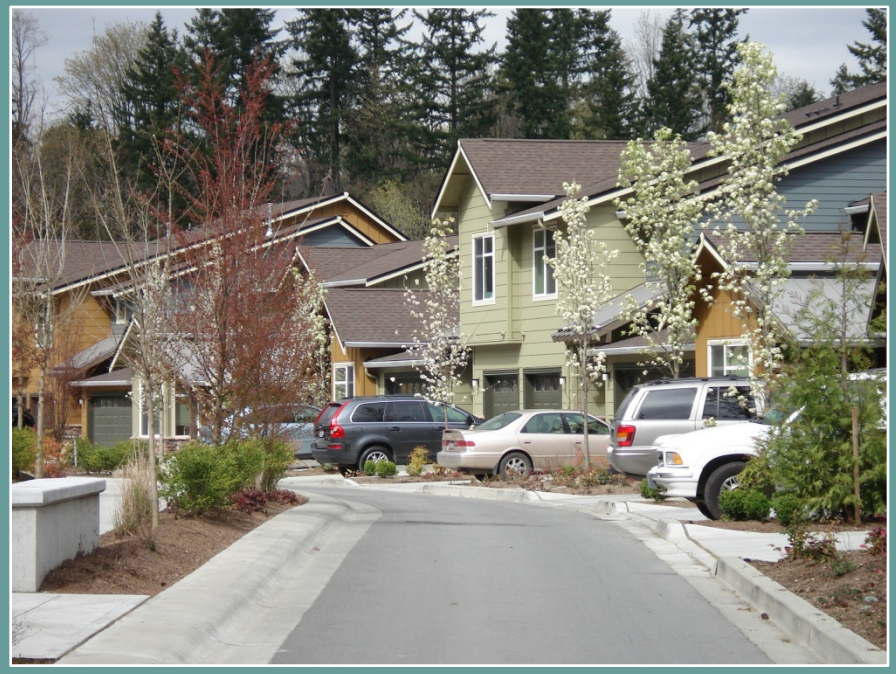
Narrow Road Standards



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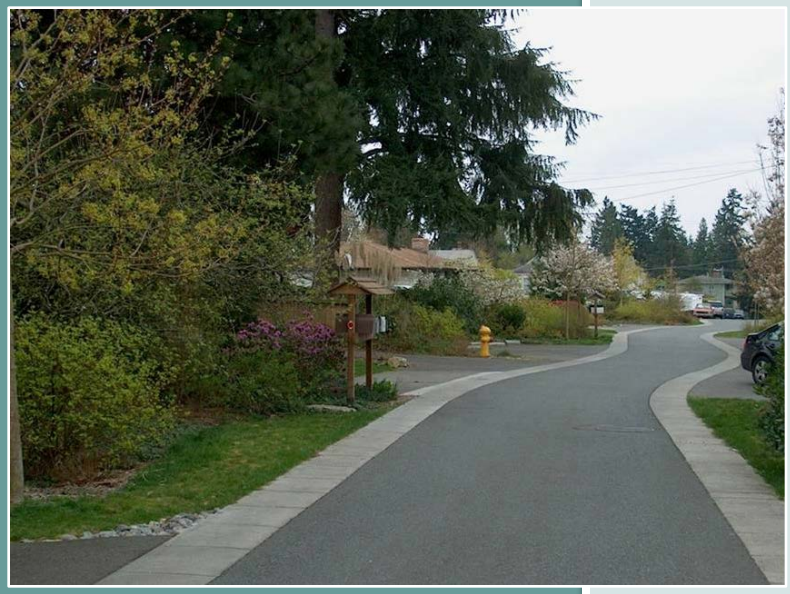
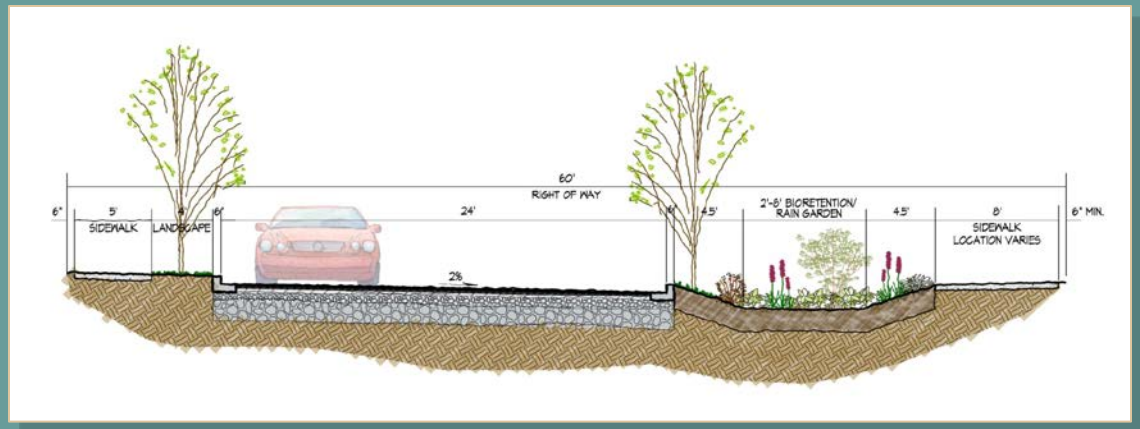
What do the new requirements mean to me & my community?

Road Layout & Orientation Standards





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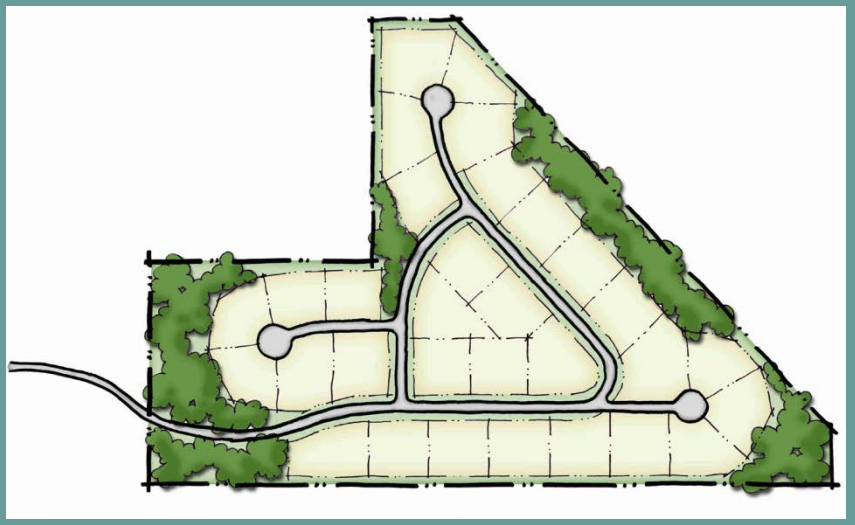
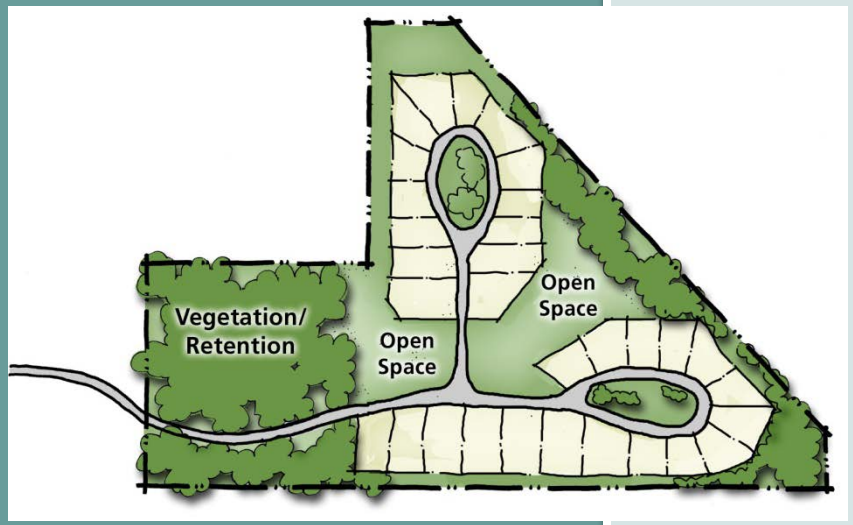
Clustering/PUD Code Provisions



Conventional Design



Low-Impact Design

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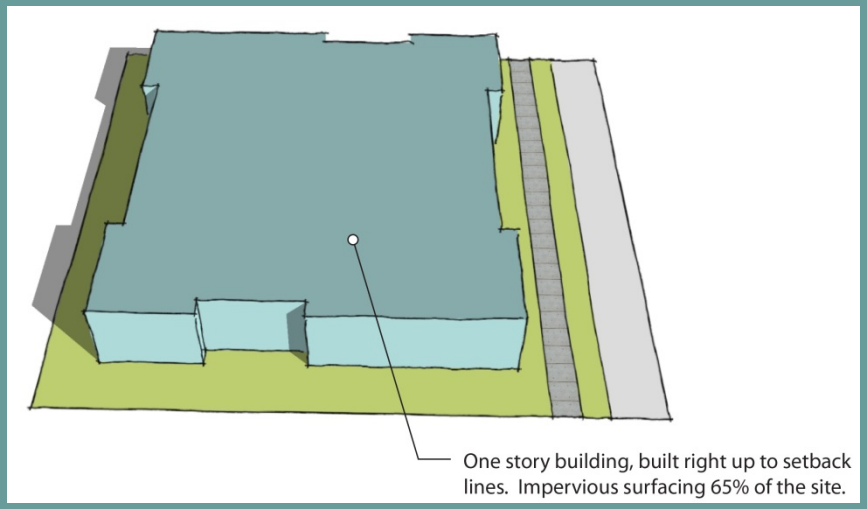
Minimizing Impervious Surfaces Through Taller Structures



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Examining Existing Parking Regulations

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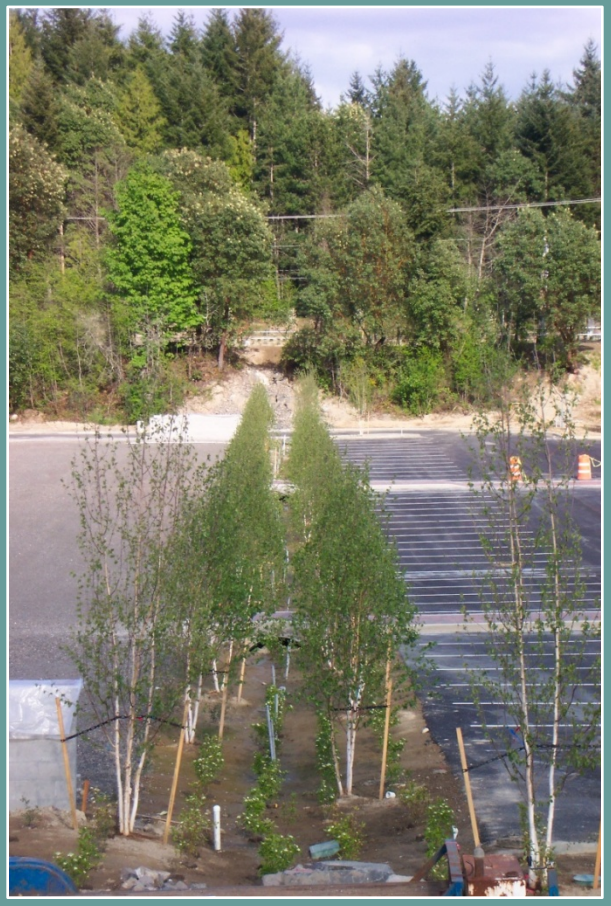
Integrating Bioretention Into Required Parking Lot Landscaping



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Development Code Review & Amendment

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What do the new requirements mean to me & my community?

DEADLINES:

December 31, 2016 except;

Lewis and Cowlitz - June 30, 2017

Aberdeen - June 30, 2018

- Timing is to be coordinated with major 10 year GMA updates

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What do the new requirements mean to me & my community?

START NOW

- This process is not difficult, but will take time
- Begin thinking with the end in mind

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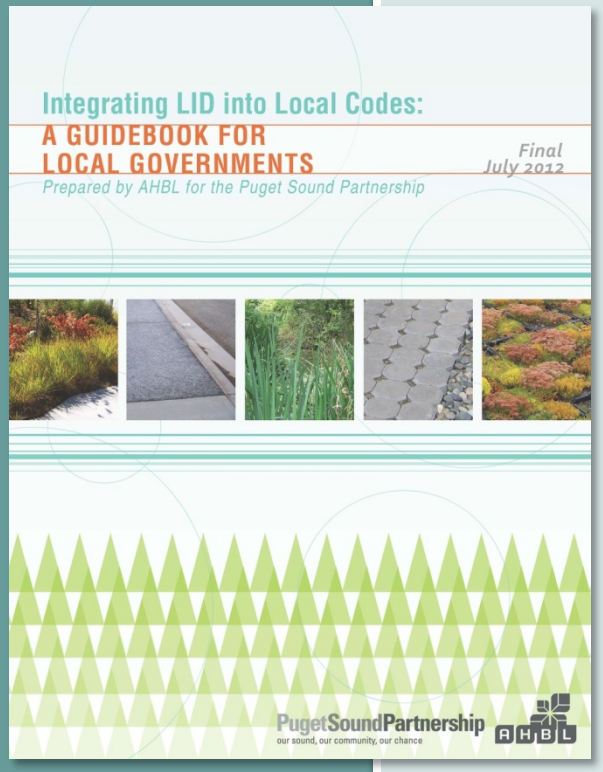
What do the new requirements mean to me & my community?

STEPS:

1. Assemble Team
2. Understand LID topics to Address
3. Review Existing Codes & Standards
4. Fill in the Gaps
5. Review & Adopt
6. Implementation



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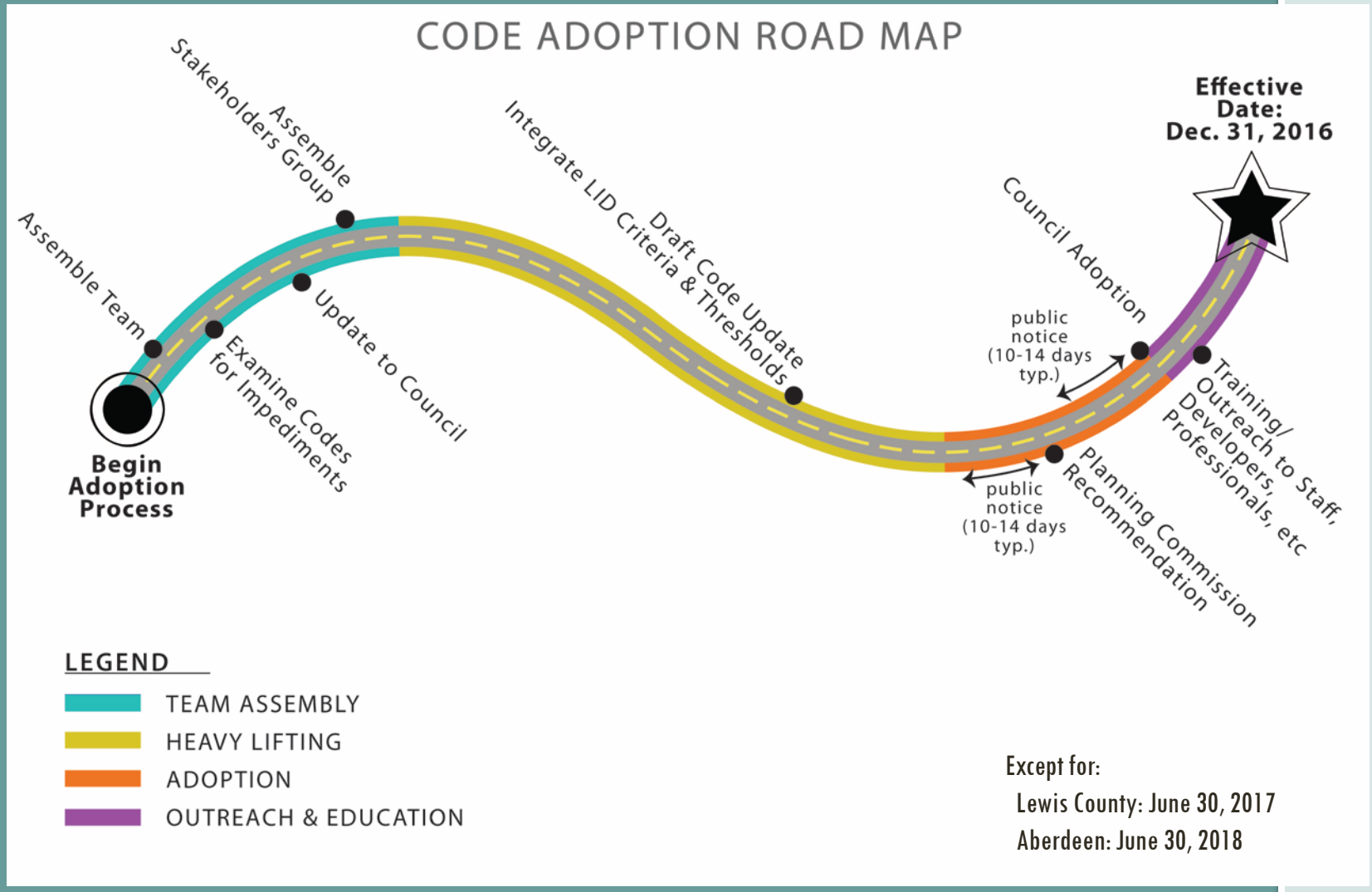
What do the new requirements mean to me & my community?



Except for:

Lewis County: June 30, 2017

Aberdeen: June 30, 2018

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1. Assemble Team

- Large undertaking that will require you to assemble a team of various departments to work together
  - public works, planning, fire marshal, building, maintenance/inspections, etc.

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2. Understand LID topics to Address

- Site planning
- Healthy soils
- Landscaping, native vegetation & street landscaping
- Hard & impervious surfaces
- Bulk & dimensional standards
- Clearing & grading
- Streets & roads
- Parking
- Design Guidelines & Standards
- Stormwater & maintenance management
- Subdivision & planned use development
- Critical areas & shoreline management

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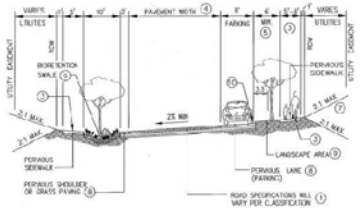
3. Review Existing Codes & Standards

BENCHMARK/OBJECTIVE	CODE REFERENCE AND SUMMARY OF EXISTING STANDARD	GAP BETWEEN EXISTING STANDARD AND BENCHMARK (OPPORTUNITY TO IMPROVE)
Are curb and gutters required for most residential street sections? 	§ 9-4.159 – Curbs, Gutters and Sidewalks Standard Drawing Nos. 401, 402, 405	Yes. Within the urban services line, residential street sections (local) are required to have curb and gutter. Outside the urban services line, rural street sections are not required to have curb and gutter.
Do adopted street sections allow for the use of open treatment and conveyance of stormwater within landscape strips? 		The code is silent on this design alternative.

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4. Fill in the Gaps

City of Newcastle. 18.21.080 Native vegetation areas.

A. For the purposes of this Chapter, native vegetation areas shall have a tree density of one native tree for every 600 square feet.

B. Native vegetation area includes native, undisturbed areas or rehabilitation of previously disturbed areas. Native vegetation areas may integrate passive recreation facilities. Active recreation areas shall not count towards native vegetation areas total.

C. For the purposes of calculating the required native vegetation area required in 18.21.050-1, inundated lands shall not be included; however, other sensitive areas and their buffers may be included within the Native Vegetation Area boundaries. Land below an ordinary high water mark shall not be counted towards the required native vegetation.

D. Native Vegetation Areas shall be forested or reforested.
   1. Native Vegetation Areas that do not contain sufficient tree canopy coverage shall be planted with native or near native trees at the minimum tree density specified in 18.21.080(A) and shall be replanted in accordance with 18.16.090(C) and (D) for broadleaf and evergreen trees, respectively. This requirement does not apply to areas addressed by Chapter 18.24.
   2. Native Vegetation Areas shall be planted with vegetation that is indigenous to the Pacific Northwest or suitable for the Pacific Northwest climate.
   3. A minimum of 25% replanted trees shall be of deciduous species and a minimum of 25% replanted trees shall be coniferous species.

E. Existing native vegetation, forest litter, and understory shall be preserved to the extent possible in the Native Vegetation Areas in order to reduce flow velocities and encourage the dispersion of the storm water on the site. Runoff discharged into native

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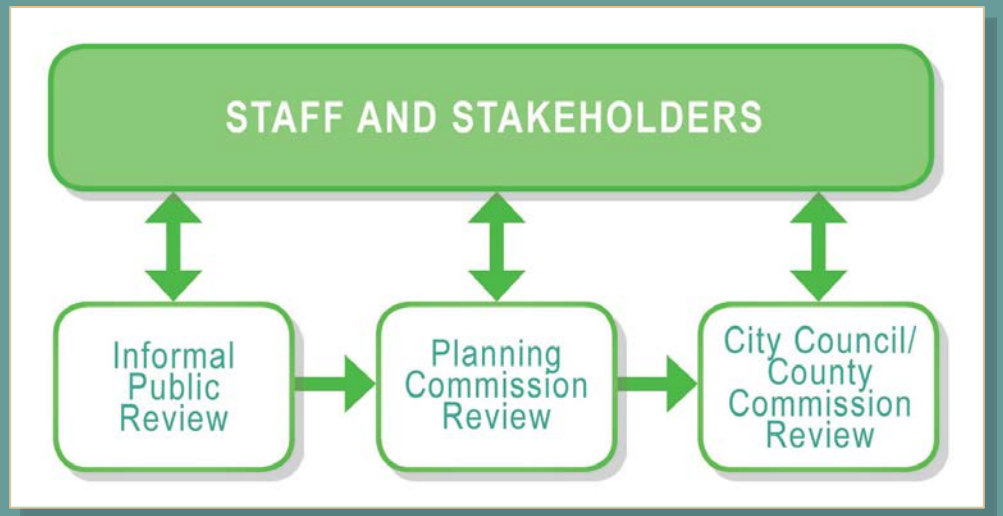
5. Review & Adopt



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6. Implementation

- The change to LID will represent a paradigm shift that will affect the way you do business
  - Education & Training
  - Maintenance
  - Cost (short & long term)

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What do the new requirements mean to me & my community?

TIMELINE:

1. Assemble Team: 1 to 3 months
2. Understand LID topics to address: 1 to 3 months
3. Review Existing Codes & Standards: 1 to 3 months
4. Fill in the Gaps: 3 to 9 months
5. Review & Adopt: 3 to 9 months
6. Implementation: Ongoing

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ASSISTANCE

- Ecology is aware of the work ahead of you and wants to help
  - Resources
  - Contact
  - Feedback

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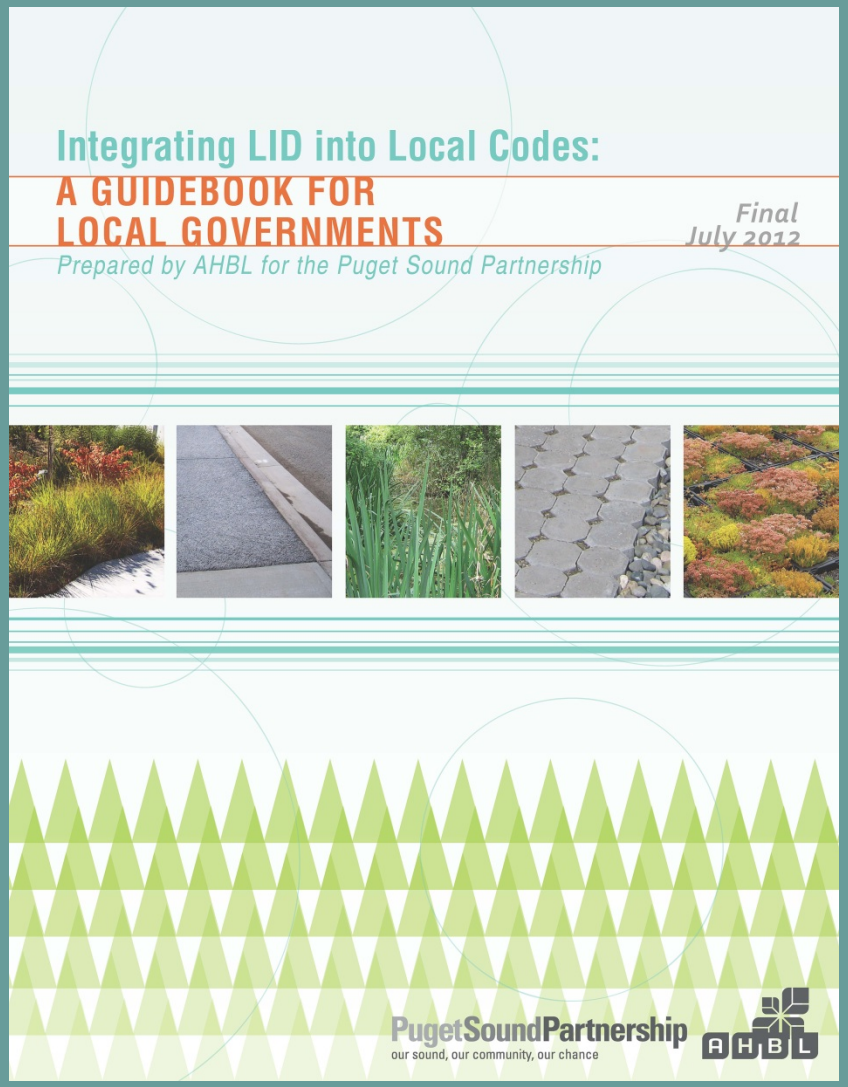
Integrating LID into Local Codes:

A Guidebook for Local Governments



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What do the new requirements mean to me & my community?

Other Resources:

Ecology's stormwater website:
http://www.ecy.wa.gov/programs/wq/stormwater/index.html

Washington Stormwater Center LID portal:
http://www.wastormwatercenter.org/low-impact/

EPA's Green Infrastructure website:
http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm

Puget Sound Partnership's stormwater and LID website:
http://www.psp.wa.gov/stormwater.php

Puget Sound Partnership's Resource Center website:
http://www.psparchives.com/our_work/stormwater/stormwater_resources.htm#bio

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What do the new requirements mean to me & my community?

Association of Washington Cities LID website:
http://www.awcnet.org/TrainingEducation/LowImpactDevelopment.aspx

Other Resources:

Ecology studies:

- LID Cost Analysis
- Maintenance Manual
- Raingarden Handbook (update)

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Questions & Evaluation

Questions & Evaluation

FEEDBACK

- What do you need from Ecology for your local government to make the transition?
- What does your community need?
  - Training for developers?
  - Public education?

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Questions & Evaluation

THANK YOU!

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