

WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

Municipal Stormwater General Permits West. Washington Low Impact Development Preliminary Draft Requirements

May 26, 2011



PCHB Findings – Phase I

To meet MEP Std, and Preserve WQ:

- **Aggressive use of LID**
- **Best Conventional Engineering**
- **Land Use Actions**

Preserve high % of native land cover



PCHB Conclusions – Phase I

- **Permit must require LID, where feasible**
- **WQ integrated into growth management process in GMA**
- **This permit: Permittees ID where Basin Planning could incorp. strategies to protect resources**
- **Implication: Next Permit, do it.**

PCHB Conclusions – Phase II

- ID & Address Barriers
- ID LID practices to use this permit term
- ID LID to prevent impacts
- Establish goals & metrics to ID, promote, & measure LID use
- Establish schedules for Phase II's to use LID
- Discretion to Ecy for Phase II schedule

Proposal Documents

➤ Phase I

- Preliminary draft permit language
 - Appendix 1
- Explanatory Notes

➤ Phase II

- Preliminary draft permit language
 - Appendix 1
- Explanatory Notes

- <http://www.ecy.wa.gov/programs/wq/forms/lidspubcomments.html>

Proposal Overview

Site & Subdivision Project Requirements

Phase I: S5.C.5.b.i & ii, Appendix 1

Phase II: S5.C.4.a.i & ii, Appendix 1

Updates of Local Development Codes, Rules, & Standards

Watershed-scale Stormwater Planning

Site and Subdivision Proposal

Some modifications/simplification to previous proposal

Uses existing stormwater thresholds, requirements, and BMP's as much as possible

Phase II: elimination of the 1 acre threshold



Site and Subdivision Proposal

Phase 1: S5.C.5.b.i & ii remain the same

Phase II: S5.C4.a.i & ii remain the same

Appendix 1 changes

**SW Manual will change consistent with Appendix 1
e.g., will provide design criteria for BMP's**

Section 2: Definitions

PAGES 2 - 7 OF APPENDIX 1

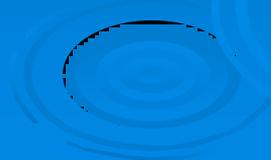
LID/ LID BMP's/ LID Principles

Permeable pavements

Bioretention VS Rain Gardens

Hard Surfaces

impervious surfaces, permeable pavements, vegetated roofs



Section 3: Thresholds

PAGES 8 - 12

Project sizes remain the same

“Hard” replaces “impervious”

Maintains same level of regulatory requirements



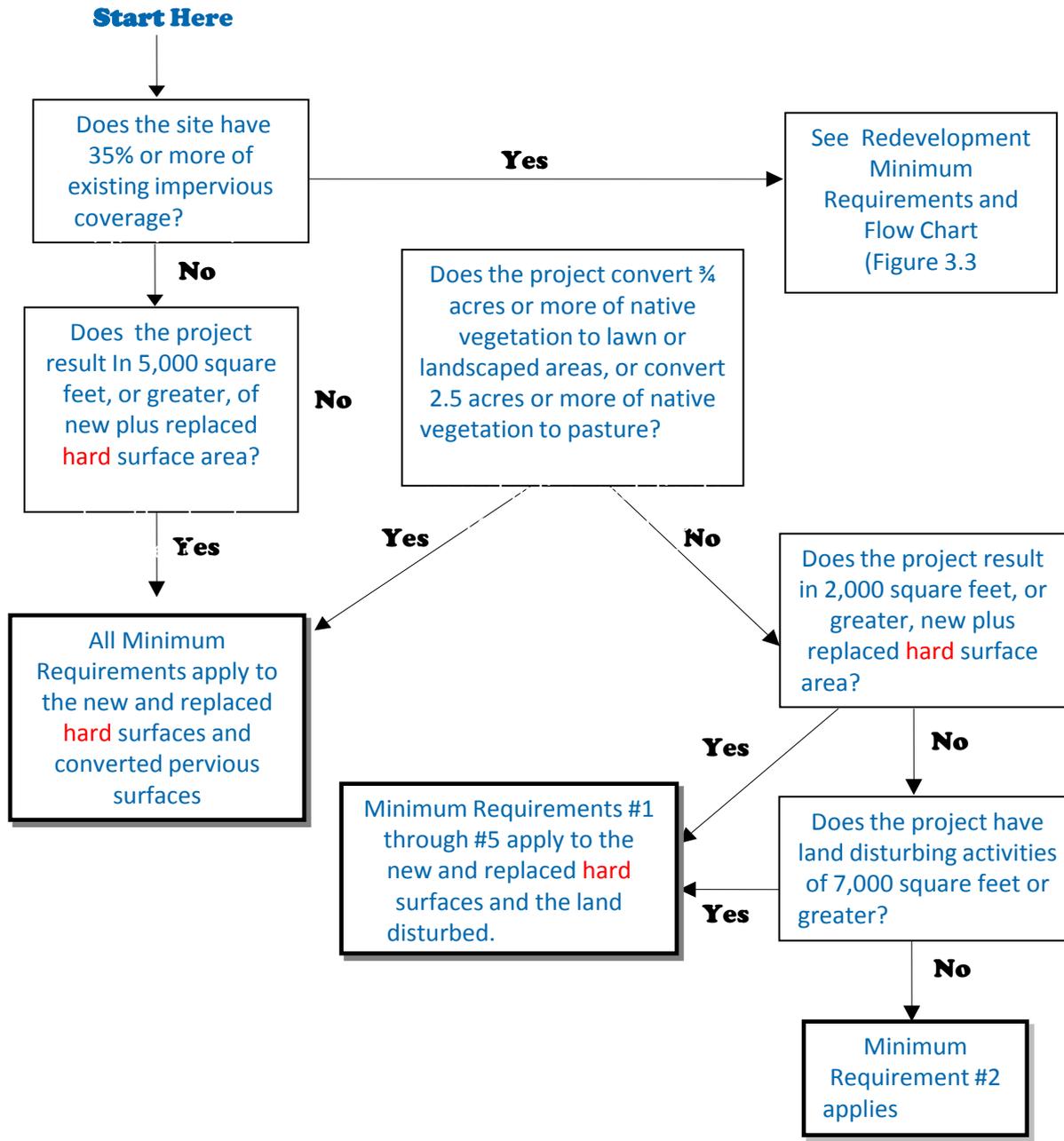


Figure 3.2 Flow Chart for Determining Requirements for New Development

Section 4: Minimum Requirements

PAGE 13 & 19

Amended M.R. #1:

Site Plans shall use development principles to retain native vegetation & minimize impervious

Chapter 3, Vol 1 to be revised per updated LID manual guidance

Amended M.R. #2:

Protect LID BMP's

Goal: Consistent with LID Manual

Amended M.R. #5 – On-site SW Management

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➤ Threshold #1

- 2,000 ft² hard surface \leq Project < 5,000 ft² hard surface

OR

- 7,000 ft² disturbance \leq Project < $\frac{3}{4}$ acre conversion

➤ Requirement – Use these BMP's

- Roof Downspout Control
- Partial Dispersion
- Soil Quality
- Permeable pavement to MEF (text box question)
- Rain Gardens to MEF

Amended M.R. #5 – On-site SW Management

page 21

- **Threshold #2**
 - 5,000 ft² hard surface \leq Project < 10,000 ft² hard surface
 - And
 - Converts < $\frac{3}{4}$ acres of native vegetation

- **Requirement – Use these BMP's**
 - Roof Downspout Control
 - Partial Dispersion
 - Soil Quality
 - Permeable pavement to MEF (text box question)
 - Bioretention BMP's to MEF

- **Text Box: Allow Performance Std option?**

Amended M.R. #5 – On-site SW Management

Bottom of page 21 thru 23

➤ Threshold #3

- Projects exceeding 10,000 ft² hard surface and/or $\frac{3}{4}$ acre conversion

Amended M.R. #5 – On-site SW Management

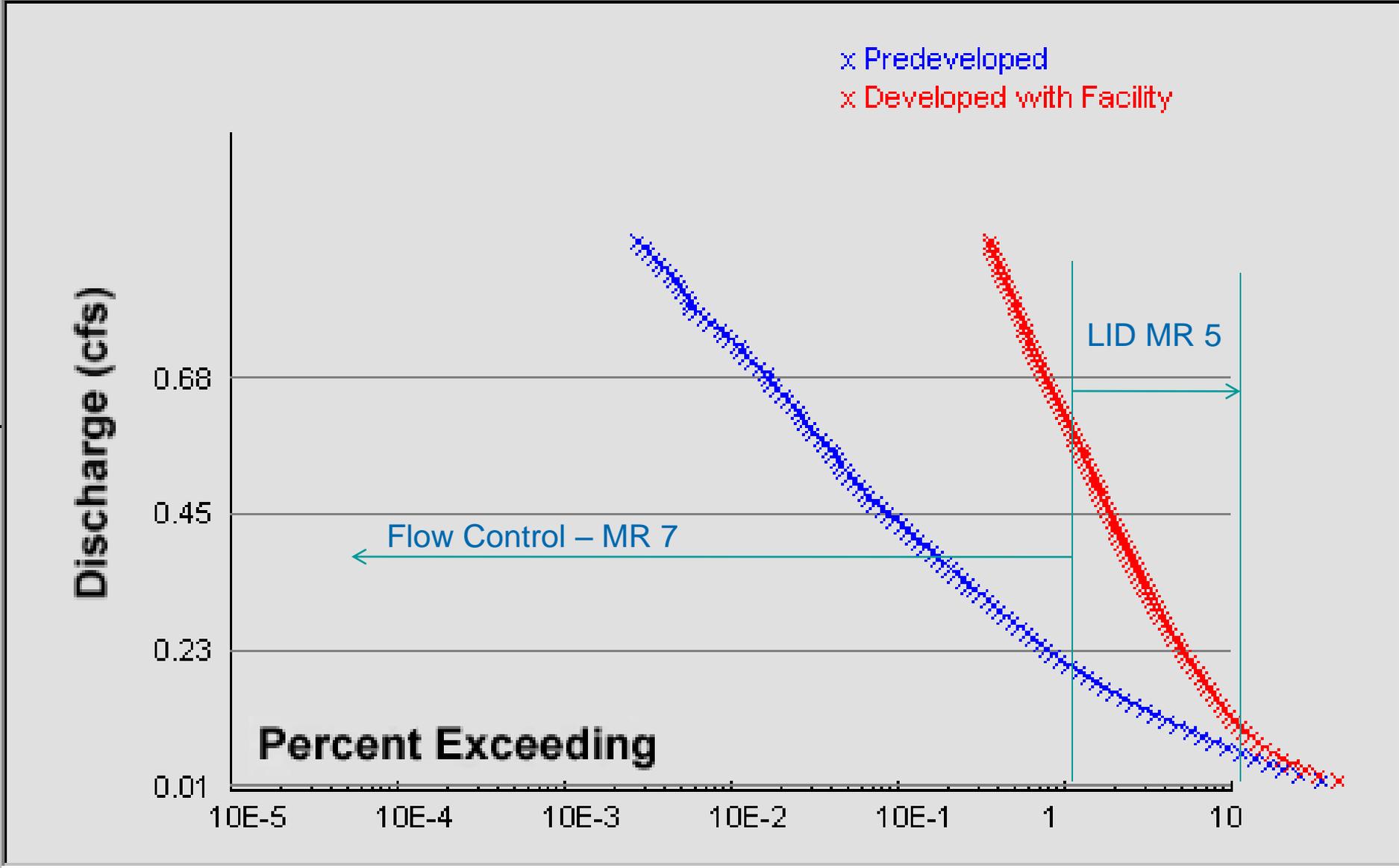
Bottom of page 21 thru 23

Project Type and Location	Requirement
New development inside the UGA, or new development outside the UGA on a parcel less than 5 acres	Performance Standard or Mandatory List (applicant option)
New development outside the UGA on a parcel of 5 acres or larger	Performance Standard
Redevelopment inside the UGA, or redevelopment outside the UGA on a parcel less than 5 acres	Performance Standard or Mandatory List (applicant option)
Redevelopment outside the UGA on a parcel of 5 acres or greater	Performance Standard

LID Performance Standard

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- Match pre-development flow durations ranging from 8% to 50% of the 2-year flow.
- Roughly corresponds to the flow rates that are exceeded from 1 to 10% of the time
- Pre-development condition is usually forested or prairie (pasture)



Mandatory List Option

page 22

Unless Infeasible:

- Roof Downspout Control
- Partial Dispersion
- Soil Quality
- Infiltration below pavement/Permeable Pavement
- Bioretention BMP's
 - 7.5% of residential area; 4% of commercial area

Commercial projects

- Vegetated Roof or Roof Runoff below pavement
 - Cost analysis

Section 8: Feasibility Criteria

page 33

1. Site/Engineering-based Conditions

A. Bioretention /Rain Gardens

Initial Sat. Hyd. Cond. of Underlying Soil < 0.15 in/hr

Otherwise underdrains ; See Text box

Clearance to high groundwater

1 ft for areas $< 5,000$ ft² PGIS, $< 10,000$ ft²
impervious, or $< \frac{3}{4}$ acre lawn

3 ft for larger drainage areas

Section 8: Feasibility Criteria

page 34

➤ B. Permeable Pavement

Clearance to high groundwater – within 1 ft. of base course

Treatment layer necessary where underlying soils don't meet suitability criteria

6-inch Sand layer, or

6-inches of soil media meeting site suitability criteria

Text box re minimum Sat. Hyd. Conductivity

Text box re road categories and/or AADT

Section 8: Feasibility Criteria

page 36

➤ C. Commercial Vegetated Roofs

Structural load

Cost Analysis



Section 8: Feasibility Criteria

page 36

➤ 2. Competing Needs

Other federal or state requirements

Incompatibility with existing aesthetics, or existing site layout mandated by local codes

Text box asks for examples of above; & more criteria

Guidance Documents

- **Stormwater Manual for West. Wash. – 2012**
- **LID Manual for Puget Sound – 2011**
- **West. Wash. Hydrology Model – 2012**
- **Rain Garden Handbook for West. Wash. – 2011-12**

BMP Maintenance

- Request options for:
 - Maintenance Standards
 - Inspection frequency
 - Maintenance time intervals

Deadlines

Phase I:

- **December 31, 2013 – Submit drafts**
- **August 31, 2014 – Updated & effective stormwater ordinance, rules, manual**

Phase II

- **December 31, 2015 – Updated & effective ordinance or other enforceable mechanism**

Questions?



Proposal Overview

Site & Subdivision Project Requirements

Updates of Local Development Codes, Rules, & Standards

Phase I: S5.C.5.b.iii – Low Impact Development

Phase II: S5.C.4.a.iv – Low Impact Development

Watershed-scale Stormwater Planning

Updates of Codes, Rules, & Standards

- **Incorporate LID Principles & BMP's to the MEP**
 - **Revised Codes, etc., become standard operating procedure**
 - **Need to justify not using them, rather than asking for allowance to use them**
- 

Update of Codes, Rules, & Standards

Goal - Minimize:

- **Native vegetation loss**
- **Impervious surface creation**
- **Stormwater surface runoff**

Update of Codes, Rules, & Standards

- **Engineering & Street Standards**
- **Clearing & Grading Ordinance & Standards**
- **Parking Requirements**
- **Individual Zoning District Bulk & Dimension Regulations**
- **Subdivision Standards**
- **Landscaping and Tree Standards**

Guidance Documents

- **Integrating LID into Local Codes: A Guidebook for Local Governments – 2011**

“Conduct a review and revision process similar to the steps and range of issues outlined in...”

Substantial effort involving multiple departments

- **LID Manual for Puget Sound – 2011 update**

Deadlines

Phase I:

- **December 31, 2013 – Submit drafts**
- **August 31, 2014 – Updated & effective site development codes, rules, standards**
- **Third Annual Report – 3/31/2015**
 - Summary of results and revision process

Phase II

- **December 31, 2015 – Updated & effective ordinance or other enforceable mechanism**
- **Fourth Annual Report – 3/31/2016**
 - Summary of results and revision process

Questions?



Proposal Overview

Site & Subdivision Project Requirements

Updates of Local Development Codes, Rules, & Standards

Watershed-scale Stormwater Planning

Phase I – S5.C.5.c

Phase II – S5.C.4.g



PCHB findings – Phase I

- To meet MEP standard and preserve water quality:
 - Aggressive use of LID
 - Best conventional engineering
 - **Watershed-scale land use actions to preserve high percent of native land cover.**

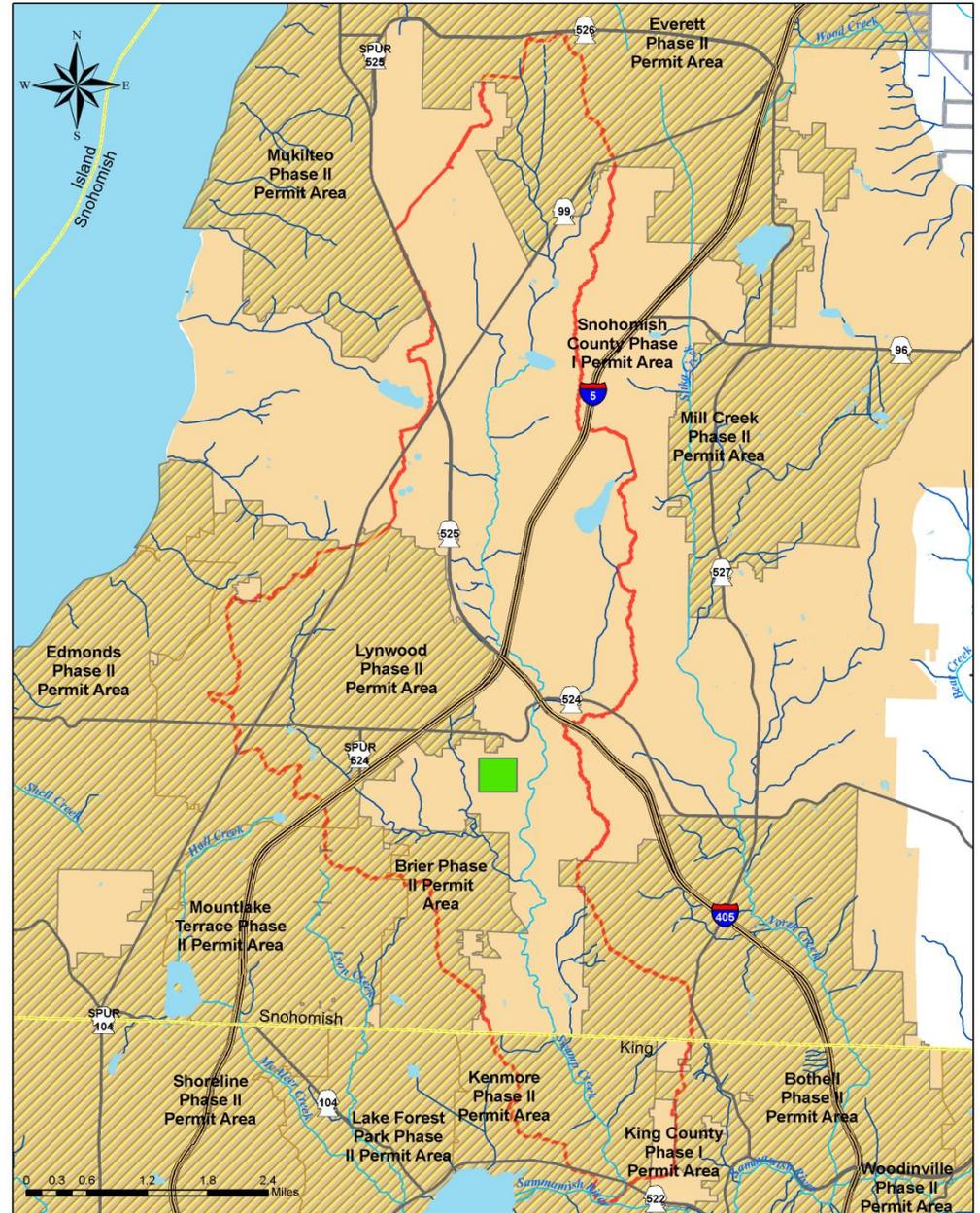
Priority Basin Approach

- Re-visits previous land use decisions
- Selection of basin likely to be controversial
- Permit-mandated cooperation is a compliance problem
- Creates inequitable obligations among permittees

Swamp Creek

Jurisdictions:

Snohomish County
King County
Bothell
Kenmore
Brier
Mountlake Terrace
Lynnwood
Everett



Ecology Proposal

- Addresses future land use decisions
- Addresses an area of impending growth
- Permittee decisions trigger the analysis
- Compliance is achieved individually or by cooperative analysis.

Watershed-level Thresholds for Analysis

For watersheds between 2 square miles and 40 square miles:

Counties

Expansion of UGA by > 80 acres within the watershed.

Planned Land Use Action that increases TIA by $\geq 5\%$.

Cities

Expansion of city by >80 acres within the watershed.

Planned Land Use Action that increases TIA by $\geq 5\%$.

Land use action

- Refers to land use actions such as changes in zoning, UGAs and densities.
- Does not refer to site specific projects unless the project involves a broader land use action such as zoning change.

Why Those Triggers?

- Addresses future land use actions
 - Significant for watersheds of 2 to 40 square miles
 - 40 UGAs and 50 cities exceeded 80 acre total over previous 6 years
 - Literature documents impacts of forest cover loss; TIA increases
 - Other triggers?
- 

Analysis Content

- Assess and quantify water quality and hydrology impacts
- Approaches to minimize impacts
- Establish targets to protect water quality and aquatic habitat
- Identify benefits and costs of proposed land use action

Analysis Demonstration

- Show public interest if water quality lowered
- Conduct public review process
- Minimum criteria:
 - Comply with water quality standards
 - Preserve and maintain beneficial uses



Reporting

- Submit analysis with annual report
- Track measurable targets; 5th year annual report

Developing Guidance & Analysis Tools

Demonstration projects:

- King County WRIA 9
- Ecology Toxics Loading Reduction Analysis
- Bremerton – Gorst Creek Analysis
- Thurston County – Deschutes River Analysis

Questions?

