

WASHINGTON STATE  
DEPARTMENT OF  
ECOLOGY

Phase II Permit Requirements  
for  
New and Re-Development  
&  
Construction Sites

# Purpose & Agenda

## ➤ Purpose

- Clarify the Permit Requirements
- Provide Background
- Make State's Expectations Clear
- Respond to Questions

## ➤ Agenda

- Focus on S5.C.4 (page 17 of 50) & Appendix 1

# Special Condition S5.C.4

## Minimum Performance Measures

- a. Local Regulatory Requirements
  - b. Plan Review, Inspection, Enforcement
  - c. Operation and Maintenance
  - d. Recordkeeping
  - e. Notice of Intent Availability
  - f. Staff Trained
- 

# S5.C.4.a.i.

## Appendix 1

- Minimum Requirements
- Thresholds
- Definitions
- Adjustments & Variances

OR,

Basin-specific plans, if equal protection

# S5.C.4.a.ii.

## '05 Manual Reference

- Site Planning Processes
- BMP selection and design criteria
  - More judgment calls/variations
- OR, Document how local requirements
  - Protect WQ
  - Achieve MEP
  - Achieve AKART

# S5.C.4.a.iii – v

## Additional Authorities

- Legal Authority to Inspect
- Allow Non-structural Controls – Low Impact Development
  - PSAT / PS Partnership Grants for Ordinances  
[http://www.psp.wa.gov/our\\_work/stormwater/lid.htm](http://www.psp.wa.gov/our_work/stormwater/lid.htm)
  - Low Impact Development Technical Guidance Manual (Ecology website)
- Erosivity Waiver Enforcement

# S5.C.4.b.

page 18

## Implementation Capability for sites $\geq 1$ acre 30 months – August 2009

- (i) Review design plans of all proposed projects
- (ii – v) Inspect construction sites
  - Hi potential sites (App. 7) – prior to
  - All sites – during
  - All sites – completed
  - 95% inspection - applies to active sites as of 8/09
- (vi) Enforcement strategy
- (vii) Not including sites with “Erosivity Waiver”

# S5.C.4.c

page 19

## Verify Long-term O&M August 2009

- (i) Adopt Ordinance or other
  - Responsible party, inspections, enforcement
  
- (ii) Establish Maintenance Standards
  - '05 manual – ID's conditions needing maint. action
  
  - Meet maintenance time limits – when std exceeded
  
  - Inspection frequency – start out semi-annually (iv); then annually unless records or signed statements (iii)

# S5.C.4.d – f

page 20

## Other Performance Measures

- Recordkeeping
  - Maintenance activities
  - Inspections
  - Enforcement
  
- NOI distribution
  - Continue to enforce local ordinances even if a state-issued permit for a site
  
- Training for all staff – by August 2009
  - Keep records of training

# Training

## ➤ Inspectors

- Ecy approved classes for Construction Erosion and Sediment Control Leads
- <http://www.ecy.wa.gov/programs/wq/stormwater/cescl.htm>

## ➤ Plan Reviewers

- WWHM training
  - [http://www.ecy.wa.gov/programs/wq/stormwater/whm\\_training/index.html](http://www.ecy.wa.gov/programs/wq/stormwater/whm_training/index.html)
- KCRTS training

## ➤ Ecology Workshops

- Fall '08 - smaller scale?

# Appendix 1

1. Exemptions
  2. Definitions
  3. Applicability of Minimum Requirements (Thresholds)
  4. Minimum Requirements
  5. Adjustments
  6. Exceptions/Variations
  7. Basin/Watershed Planning
- 

# Mandatory/Enforceable Documents

- Local Ordinances
  - Thresholds, Min. Requirements, Adjustments; Variances
- Local Rules
  - Site Planning Process
- Manual
  - Treatment Selection
  - Design Criteria

# General Questions



# Appendix 1: Section 4

page 13 of 30

## Minimum Requirements

- **For Your NPDES compliance: Apply these requirements to sites that disturb 1 acre or more, and to smaller sites that are part of a larger common plan (that is  $\geq 1$  acre).**

# Minimum Requirements #1 - #5

New and Replaced Impervious  $\geq 2,000$  sq. ft.,  
or  
Land disturbing activity  $\geq 7,000$  sq. ft

- #1 Preparation of Stormwater Site Plans
- #2 Construction Stormwater Pollution Prevention
- #3 Source Control of Pollution
- #4 Preservation of Natural Drainage Systems and Outfalls
- #5 Onsite Stormwater Management

# Minimum Requirements #6 - #9

New Impervious  $\geq$  5,000 sq ft, or  
 $\frac{3}{4}$  acres lawn/landscape, or 2.5 acres pasture

- #6 Runoff Treatment
- #7 Flow Control
- #8 Wetlands Protection
- #9 Operation and Maintenance

# **Minimum Requirement #1**

## **Stormwater Site Plan Preparation**

page 13/30

### **Stormwater Site Plan**

- **Prepare a Permanent Stormwater Quality Control Plan**
  - **Prepare a Construction Stormwater Pollution Prevention Plan**
- 
- The bottom right portion of the slide features a decorative graphic of several concentric, light blue circles of varying sizes, resembling ripples on water, set against the dark blue background.

# **Minimum Requirement #2**

## **Construction Stormwater Pollution Prevention Plan (SWPPP)**

### **Page 13**

- **Require Construction SWPPP - reviewed by local government**
- **Narrative and drawings**
- **BMP's consistent with those in Ecology manual or otherwise approved by Ecology**

# Minimum Requirement #2

## Construction Stormwater Pollution Prevention

- Very Small projects < 2,000/7,000
  - Ordinance must require compliance with erosion and sediment control if site is part of a common plan of development or sale  $\geq 1$  acre
  - No SWPPP submittal to you
  - Suggested Implementation
    - Instructions with Building, Grading, or other Permit
  - Ecology suggests local ordinance require E&SC of all projects regardless of size

# Minimum Requirement #2

## Construction Stormwater Pollution Prevention page 14/30

- Local Code/Rules must have seasonal work limitations
  - Can use the 3 listed criteria, or more specific
  - Can alter the 10/1 – 4/30 window based on
  - local weather, or site-by-site
  
- Flexibility here
  - We want you to start

# The 12 Construction SWPPP Elements

- Mark Clearing Limits
- Establish Construction Access
- Control Flow Rates
- Install Sediment Controls
- Stabilize Soils
- Protect Slopes
- Protect Drain Inlets
- Stabilize Channels And Outlets
- Control Pollutants
- Control De-Watering
- Maintain BMPs
- Manage the Project

# Erosivity Waiver

- Local requirements can incorporate the waiver provision
- Applies to sites less than 5 acres
- Must require the conditions noted (see pages 19 – 20)

# Minimum Requirement #3

## Source Control

Page 20

- Prevention is still best strategy
- Requires Source Control BMPs described in Volume IV of the manual. Specifically, look at the BMP's described in Section 2.2 of Chapter 2 of Volume IV
- Applies primarily to Commercial/Industrial Sites
- Design review should look for compliance with “structural source controls”

# Minimum Requirement #4

## Preservation of Natural Drainage Systems and Outfalls

Page 20

- Maintain natural drainage patterns
- Discharge at the natural location, to the maximum extent practicable.
- No significant adverse impact to receiving waters and properties.
  - See Supplemental Guidelines in the manual
- All outfalls require energy dissipation.

# Minimum Requirement #5

## On-Site Stormwater Management

Page 20

- Intent: reduce hydrologic change
- Apply on-site BMPs to infiltrate, disperse, and retain runoff

Applies primarily to Residential Areas

# Minimum Requirement #5

## On-Site Stormwater Management

### ➤ Roof Downspout Dispersion or Infiltration

Ch. 3 of Volume III

### ➤ Dispersion of driveway or other impervious surfaces

Ch. 5 of Volume V

### ➤ Soil Quality and Depth

- Ch. 5 of Volume V
- See “Guidelines and Resources For Implementing Soil Quality and Depth BMP T5.13.”

# #6 - #9 Minimum Requirements

New Impervious  $\geq$  5,000 sq ft, or  
 $\frac{3}{4}$  acres lawn/landscape, or 2.5 acres pasture

- #6 Runoff Treatment
- #7 Flow Control
- #8 Wetlands Protection
- #9 Operation and Maintenance

# Minimum Requirement #6

## Runoff Treatment

- Project Thresholds
  - Treatment-type Thresholds
  - Facility Sizing
  - Selection
  - Design
  - Maintenance
- 

# Project Thresholds

page 21

**Table 2.1 Treatment Requirements by Threshold Discharge Area**

	< 3/4 acres of PGPS	≥ 3/4 acres PGPS	< 5,000 sf PGIS	≥ 5,000 sf PGIS
Treatment Facilities		✓		✓
Onsite Stormwater BMPs	✓	✓	✓	✓

PGPS = pollution-generating pervious surfaces

PGIS = pollution-generating impervious surfaces

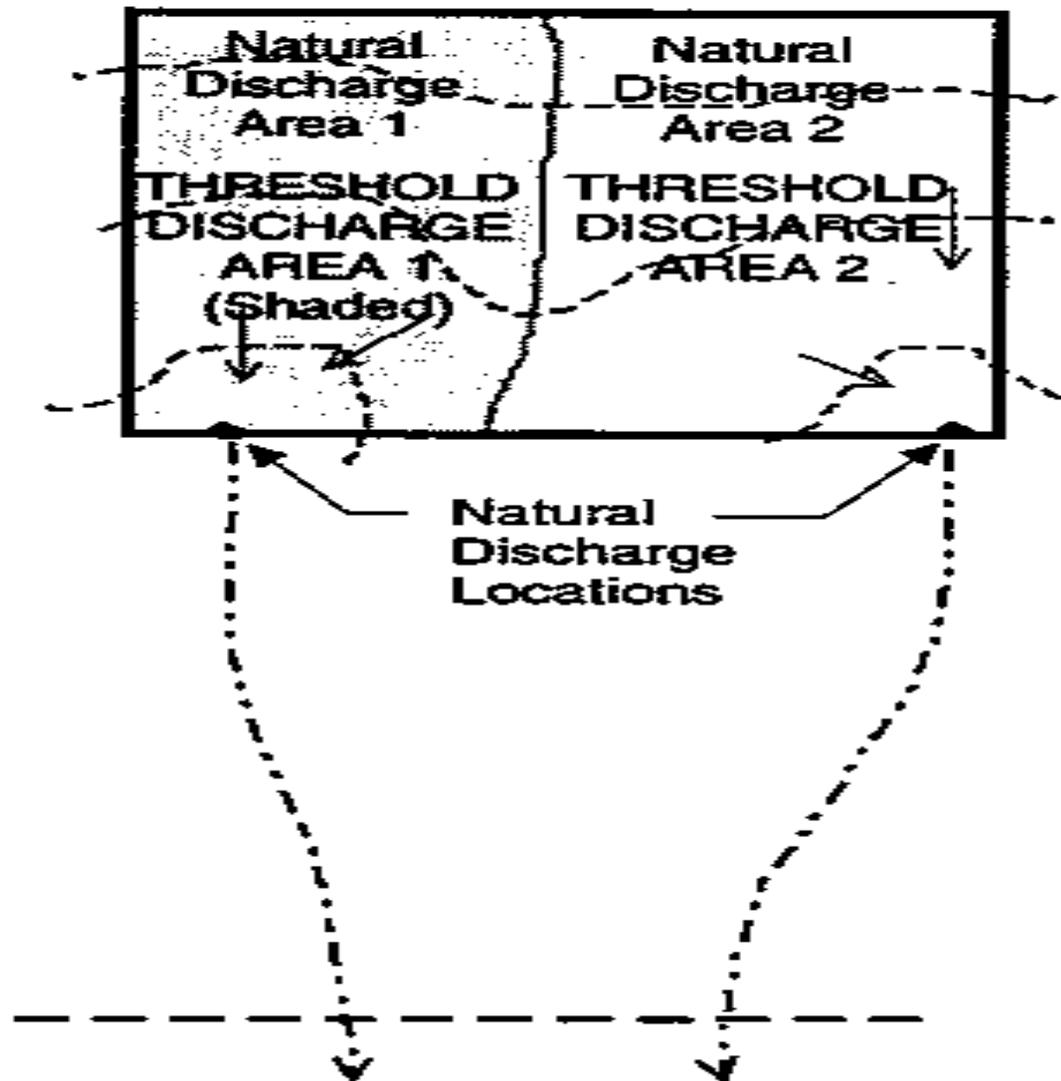
sf = square feet

# Treatment-type Thresholds

page 21

- Intent: Meet federal & state laws
- Basic & Oil Control Treatment = default technology-based
  - AKART: State Law
- Phosphorus/Enhanced = default water quality-based
- Adjustment of defaults through case-by-case analysis

**Example of a Project Site  
with Multiple Natural  
Discharges and Multiple  
Threshold Discharge Areas**



# Runoff Treatment Facility Sizing

page 23

## ➤ Water Quality Design Storm

- 6-month, 24-hour event, Or
  - New Estimate: 72% of 2-year, 24-hour
- 91<sup>st</sup> percentile, 24-hr volume in WWHM
- Applies to WetPool Facilities
  - Ponds, Vaults, Wetlands, Combined Detention/Wetpool

## ➤ King County method OK

# Runoff Treatment Facility Sizing

page 24

- Water Quality Design Flow Rate
  - Preceding Detention
    - Flow Rate at or below which 91% of the runoff volume will be treated
    - On-line or off-line?
    - Need continuous runoff model
  - Downstream of Detention
    - The 2-year release rate from detention
  - King Co. method OK

# Treatment Facility Selection, Design, Maintenance - page 24

- Use a Selection Process Similar to Volume I, Ch. 4
  - Similar BMP Options for similar situations
  
- Use Similar Design Criteria – Volume V
  - Must result in approx. equal sized facilities or equivalent pollutant removal capability
  
- Use Equivalent Maintenance Requirements,
  - Volume V

# Additional Requirements

page 24

- No untreated discharges to ground, except through approved On-site BMP's
- At least Basic Treatment prior to soils not meeting suitability criteria
- At least pre-settling prior to soils meeting suitability criteria.
  - Type 2 catch basins not an approved pre-settling device
- Details in Volume III of manual

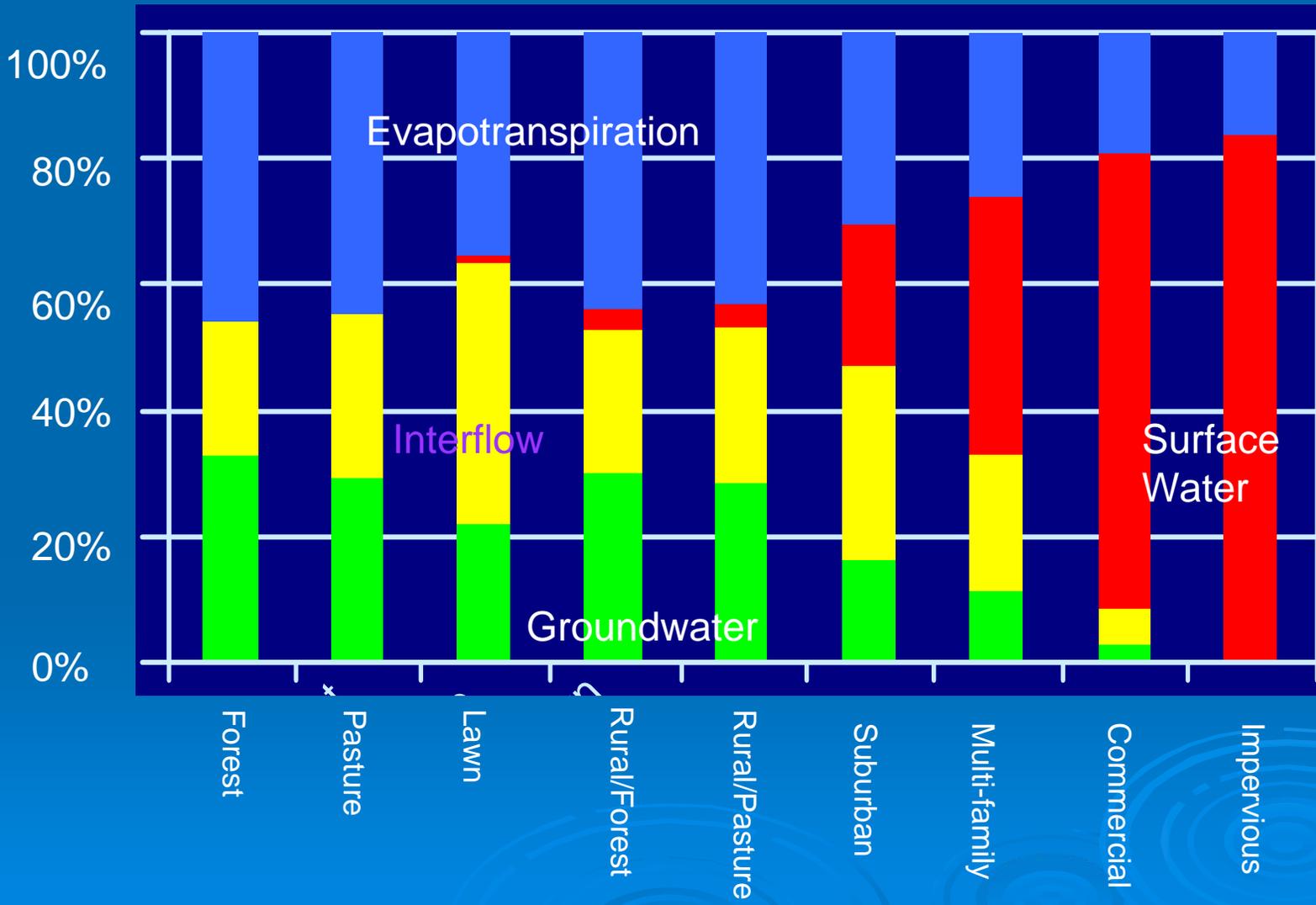
# Minimum Requirement #7

## Flow Control

page 25

- **Purpose:** To prevent or correct increases in stream erosion rates and channel instability by maintaining or restoring the channel's natural erosion rate
- **Presumptive Water Quality-Based Requirement**
  - Local hydrogeologic basis

# Where does the precipitation go?



Easter Lk. Outlet,  
Federal Way, WA



Photo by Derek Booth, U of W

# Channel Erosion caused by Stormwater



# Flow Control



# Flow Control Standard

page 26

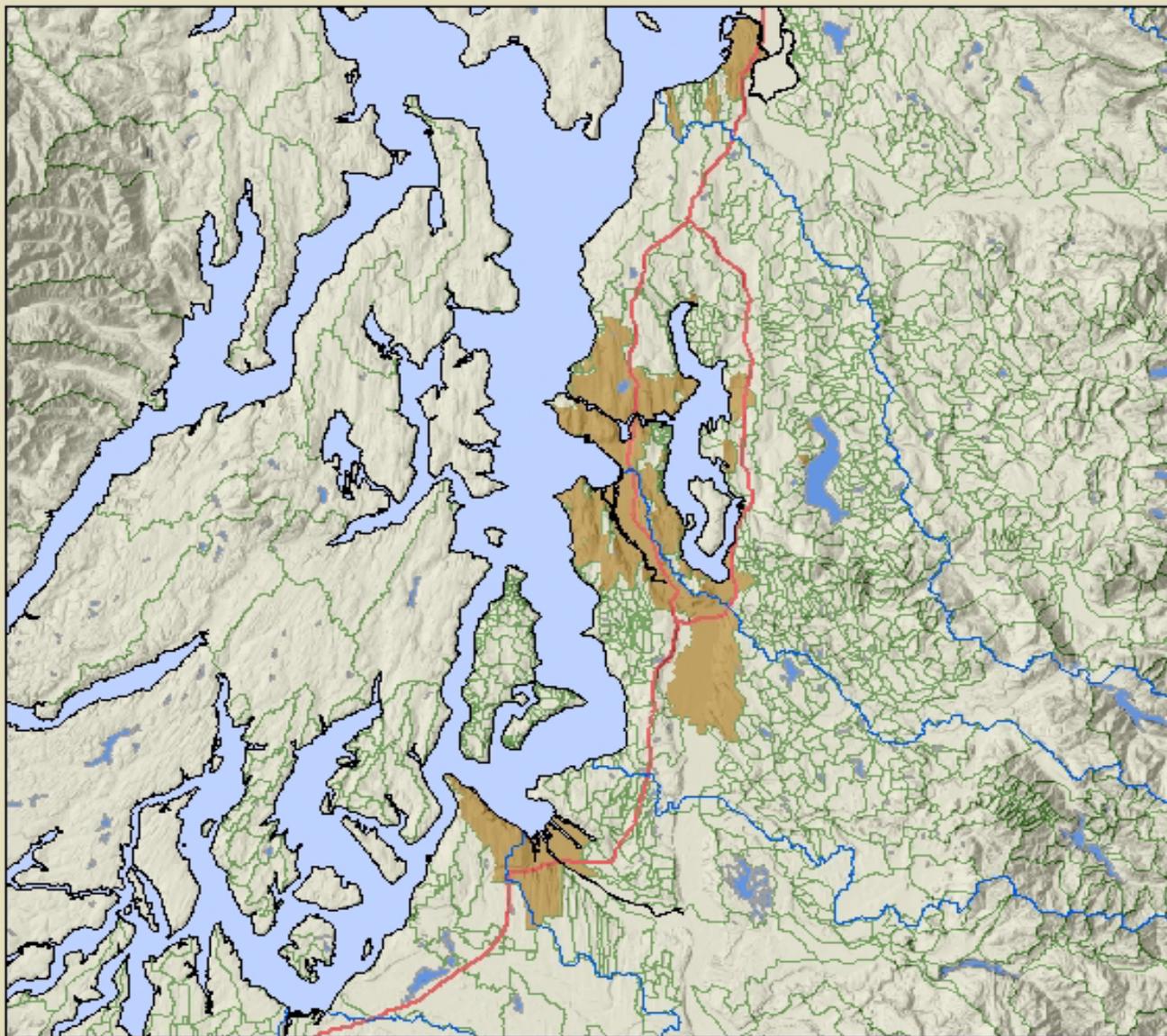
## Standard Requirement:

- **Flow Durations.** Match Pre-developed discharge rates from 50% of 2-year to 50-year peak flows
- Assume forested pre-developed condition unless evidence otherwise
- Assume existing land cover in “highly urbanized basins”

## Local Government Option:

- **Peak Flows.** Don't exceed 2-, 10-, and 50-year Pre-developed Peak Discharge rate

## Basins Potentially Meeting 40% TIA/20 year Criterion



# Flow Control Standard Applicability — pages 25 - 27

## ➤ Direct Discharge Exemption

- See Appendix I-E.  
<http://www.wsdot.wa.gov/environment/wqec/flowcontrol.htm>
- Local government petitions/hydrologic basis, e.g. Sammamish River, Longview Ditches, Mercer Slough

## ➤ Select, Design, Maintain

- Facilities in accordance with Volume III

# Flow Control Thresholds page 26

## Flow Control Requirements by Threshold Discharge Area

	Flow Control Facilities	On-site Stormwater Management BMPs
<3/4 ac. Conversion to lawn/landscape, or < 2.5 ac. to pasture		
$\geq \frac{3}{4}$ ac. Conversion to lawn/landscape, or $\geq 2.5$ ac. conversion to pasture		
< 10,000 sq ft of effective impervious area		
$\geq 10,000$ sq ft of effective impervious area		
$\geq 0.1$ cfs increase in the 100-year flood frequency		

# Alternative Requirement

page 27

- Watershed modeling and field observations
- Must be consistent with preserving the beneficial uses that existed as of 1975
- Example reasons for a different standard
  - Not a gravel embedded stream
  - Channel has changed significantly – however ...
  - Land use restrictions (max impervious area and land clearing with full dispersion) in watershed allow use of a lesser standard
    - Restricting a watershed to 10% TIA is not adequate

# Method for Compliance

## ➤ Approved Continuous Simulation & Pond Sizing Models

- WWHM
- KCRTS
- MGS Flood



# Minimum Requirement #8

## Wetlands Protection

Page 27

- Thresholds same as M.R. #6 and #7
- Apply treatment BMP's
- Maintain hydrologic conditions, vegetation, substrate – requires continuous runoff model
- Use Puget Sound Wetlands Research Program as amended in Appendix I-D of the manual
- Facilities not in natural buffer

# Minimum Requirement #9

## Operation and Maintenance

Page 28

- O&M manual for all proposed facilities
- Responsible parties identified
- Local government must adopt equivalent O&M standards (also in subsection c)
  - Volume V, Section 4.6
- Manual readily available
- Log of maintenance activity

# General Questions



# Section 5 - Adjustments

page 28

## ➤ Written Finding of Fact

- Equivalent Protection
- Sound Engineering
- Objectives are met
  - Safety
  - Function
  - Environmental protection
  - Facility maintenance

# Section 6

## Exceptions/Variations

page 29

- Public Notice
  - Application
  - Decision
- Written Finding of Fact
- Keep records
- Jurisdiction-wide variations require Ecology prior approval
  - e.g., stop-loss provision re application of stormwater requirements to replaced surfaces on redevelopment

# Exceptions/Variations Qualifying Criteria

- Severe and unexpected economic hardship
  - 6 considerations – written findings
- Not increase risk to public health and welfare; not injurious to other properties and quality of state waters
- Least possible exception

# Section 7

## Basin/Watershed Planning

page 29

- Necessary to support any proposed basin-specific alternative treatment, flow control, & wetland protection requirements
- Necessary conditions for modifying requirements:
  - Reviewed and approved by Ecology
  - Adopted by all jurisdictions
  - Ordinances & rules must be in effect

# Section 1: Exemptions

page 1

- Forest Practices
- Commercial agriculture
- Oil and Gas Field Activities or Operations
- Road Maintenance
- Underground Utility Projects

# Section 2: Definitions

page 2

- Effective Surface
- Impervious Surface
- Pollution-Generating Impervious Surface (PGIS)
- Pollution-Generating Pervious Surface (PGPS)
- Land Disturbing Activity
- Threshold Discharge Area

# Section 3: Applicability of the Minimum Requirements

page 7

## a.k.a. Project Thresholds

- Who needs to do what?
- Depends upon size of the project
  - Amount of impervious surface
  - Extent of land disturbed

## Section 3.1 and Figure 3.1 (Note Correction!)

- For permit compliance, you must regulate sites that discharge to your MS4, AND meet one of the following criteria;
  1. Meet or exceed the “Regulatory Threshold”
    - Disturb 1 acre or more, or
    - Disturb less than 1 acre, but are part of a “common plan of development or sale that exceeds 1 acre,”  
or
  2. Are smaller sites that were regulated by you at the time of permit issuance.

# Discharges Not Using the MS4

- Ecology does not require you to regulate development sites that do not drain to your MS4.
- Ecology encourages you to regulate those sites in the same manner as you do sites that use your MS4
- Local government regulation is an efficient and equitable solution; also necessary to prevent damaging cumulative impacts

# 1 acre or Part of a Common Plan of Development

- 1 acre - minimum threshold set by USEPA.
- Ecology decided not to extend NPDES authority to smaller sites this permit term
- USEPA definition
  - Subdivisions and Master Planned Developments
  - Individual lots within them are part of the common plan

## Figure 3.1 - Link to Figures 3.2 & 3.3

- If one of the “regulatory thresholds” is exceeded, Projects must use thresholds in figures 3.2 & 3.3; and text of Sections 3.2 – 3.4.
- No local requirements below 1 acre may create inequitable regulatory environment
  - 1 acre commercial vs 0.9 acre commercial
  - 1 acre ball field vs 0.9 acre building and parking lot
  - Same type project inside/outside of a common plan (3/4 – 1 acre lot)

## Figure 3.1

# Previous Local Regulatory Thresholds

- The permit requires that you continue to regulate smaller sites if you did so at the time of permit issuance – no implementation delay
- You must apply the local requirements that existed at that time, or the minimum requirements of Appendix 1
- Different standards for smaller sites creates inequities and confusion

➤ Permit Requirement

- Adopt the thresholds indicated in Figures 3.2 & 3.3 and Sections 3.2 and 3.3

➤ Recommendation

- If a “regulatory threshold” used, make it smaller than 1 acre

➤ NOTE:

- The Permit restricts Ecology’s oversight to projects triggered by the thresholds in Figure 3.1

# New Development Thresholds – Figure 3.2 & Section 3.2

- ❑ Min. Req. #2 -Erosion control
  - ↑ all projects
- ❑ Min. Requirements #1 - #5:
  - ≥ 2,000 sq. ft. impervious area, or 7,000 sq. ft. land disturbance
- ❑ Min. Requirements #1 - #10:
  - ≥ 5,000 sq. ft. new impervious area, or
  - ≥ 3/4 acre native vegetation to lawn/landscape, or
  - ≥ 2.5 acres native vegetation to pasture

# Redevelopment Threshold Summary

## Figure 3.3 & Section 3.3

- Top ½ of Flow Chart
  - Same as “New Development” – Figure 3.2
- Bottom ½ of Flow Chart
  - Addresses replaced impervious surfaces
  - Treatment and Flow Control (MR 6&7), only if
    - New + replaced impervious  $\geq 5,000$  sq. ft., and Proposed improvements value  $> 50\%$  of existing improvements value
    - For roads, new impervious  $\geq 5,000$  sq. ft., and  $\geq 50\%$  of existing impervious area

# Redevelopment Scope

## ➤ Existing Surfaces Not Replaced:

not addressed unless runoff not separated from new or replaced surfaces needing management

- Treatment facilities must be sized for flows that they receive
- Flow Control facilities have a limit on offsite inflow that can be accepted

# Redevelopment Exemptions

- If Plan & Schedule for Regional Facilities, **replaced** impervious surfaces exempted or a stop-loss provision
- New Impervious surfaces not exempted.
  - Regional facilities should be on-line or imminent.
- Variance re flow control on replaced impervious surfaces if a severe economic hardship

# Alternative Mitigation for Redevelopment Sites

See Supplemental Guidelines in Manual

- Equivalent Area within Site
  - For Roads, Equivalent Area must drain to same receiving water
  - Fee-in-lieu
- 

# S5.C.4.a.i.

## Appendix 1

- Minimum Requirements
- Definitions
- Thresholds
- Adjustments & Variances

OR,

Basin-specific plans, if equal protection

# General Questions



# S5.C.4.a.ii.

## Page 17 of 50

### '05 Manual Reference

- Site Planning Processes
- BMP selection and design criteria
- OR, Document how local requirements
  - Protect WQ
  - Achieve MEP
  - Achieve AKART

# Stormwater Site Plan Preparation

## Chapter 3, Volume I

- Collect and Analyze Existing Conditions Information
  - Prepare Preliminary Layout
  - Perform Off-site Analysis (option)
  - Determine Applicable Minimum Requirements
- 

# Stormwater Site Plans (continued)

- Prepare a Permanent Stormwater Quality Control Plan
  - Prepare a Construction Stormwater Pollution Prevention Plan
  - Complete the Stormwater Site Plan
  - Check Compliance
- 

# Chapter 4 - Permanent Stormwater Quality Control Plans

- Determine Applicable Minimum Requirements
- Select Source Control BMPs
- Determine Threshold Discharge Areas, Flow Control & Treatment Requirements

# Permanent Stormwater Quality Control Plans (cont.)

- Select Flow Control BMPs and Facilities
    - Infiltrate?
    - Size Detention Facility and Orifices – Approved Hydrology Model
  - Select Treatment Facilities
    - Figure 4.1, page 4-6
  - Review Selections
  - Complete PSQCP
- 

# **VOLUME II**

## **Construction Stormwater Pollution Prevention**



# Volume II – Construction SWPPP

- Ch. 3 – How to develop a Construction SWPPP
- Ch. 4 – BMP's

# Chapter 3 – Planning

- Step-by-Step Procedure (S.5.C.4.a.ii)
  - Data Collection
  - Data Analysis
  - Construction SWPPP Development & Implementation
    - Lists Elements & BMP's to achieve
    - Construction SWPPP Checklists
      - For Narrative & Drawings

# Chapter 4 – BMP's

- Local Government must list & describe BMP's and their criteria
  - BMP's should be capable of protecting water quality, achieve MEP, and AKART
  - Do not have to use all of Ecology's; can differ somewhat
- 

# Volume III

## Hydrologic Analysis/Flow Control

- Ecology-approved continuous runoff model
  - Similar Credits for Low Impact Development
  - Similar Design Criteria for Flow Control Facilities
  - Similar On-site Stormwater Management Controls
- 

# Volume IV

## Source Control BMP's

- For new development and redevelopment
- Adopt similar requirements to Section 2.2 for each of the identified sites or activities.
- “Applicable operational BMP's” and “applicable structural source control BMP's” are the minimum compliance target.
- Suggest you list the “recommended” BMP's also and give yourself regulatory discretion to require

# **VOLUME V**

## **Runoff Treatment BMP's**



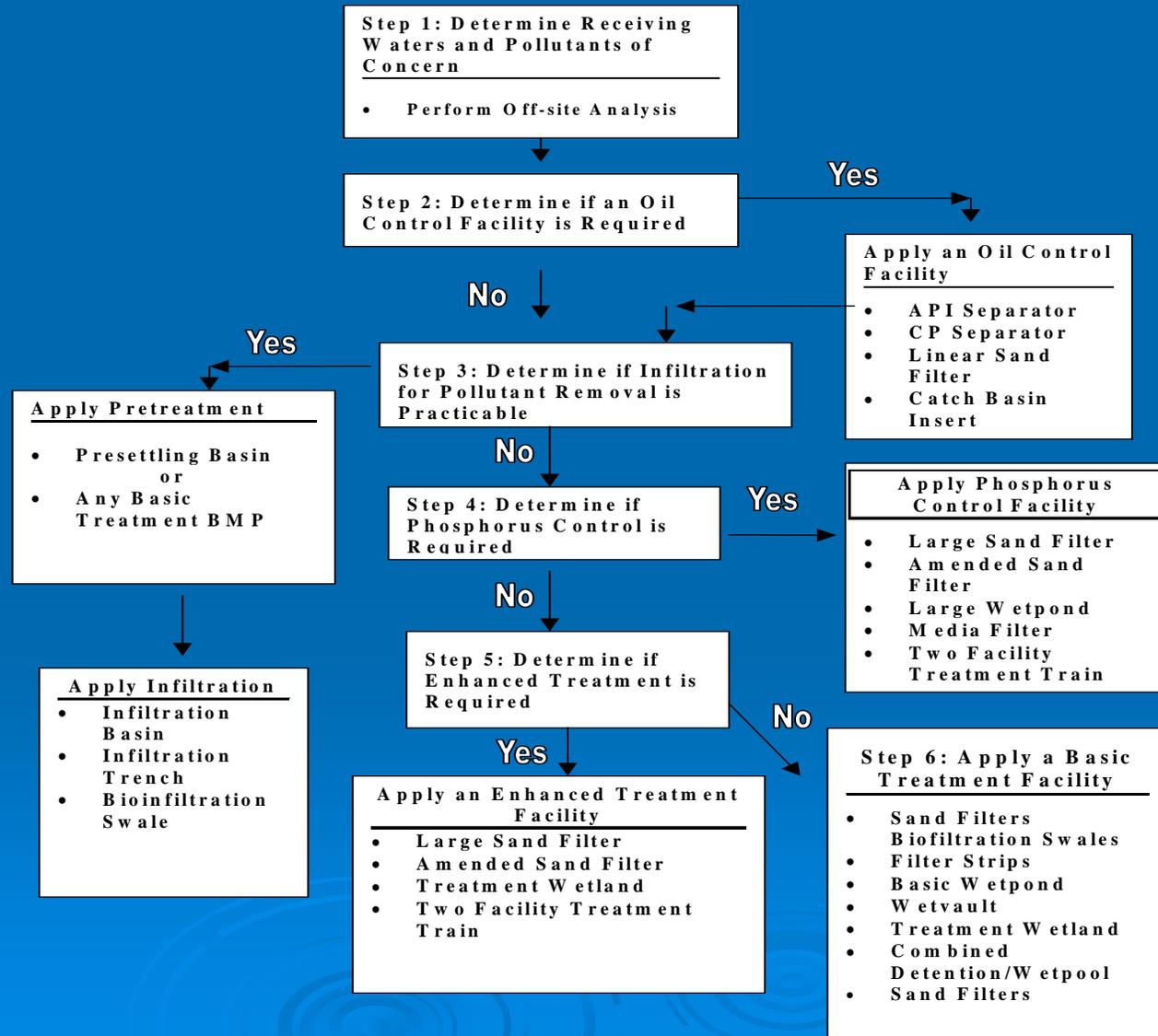
# Chapter 2

## Treatment Facility Selection

- Step 1 – Receiving Waters & Pollutants
  - Step 2 – Oil Control Necessary?
  - Step 3 – Infiltration Treatment Possible?
  - Step 4 – Phosphorus Control Necessary?
  - Step 5 – Enhanced Treatment Necessary?
  - Step 6 – Basic Treatment Backstop
- 

# Treatment Facility Selection

Figure 1.1 Treatment Facility Selection Flow Chart



# Chapter 3

## Treatment Facility Menus

- Oil Control
- Phosphorus
- Enhanced
- Basic

# Chapter 4

## General Requirements

- Design Volume & Flow
  - Sequencing
  - Setbacks, Slopes & Embankments
  - Facility Liners
  - Hydraulic Structures
  - Maintenance Standards
- 

# Chapter 5

## On-site Stormwater Management

- Dispersion and Soil Quality BMP's
  - Downspout Dispersion
  - Concentrated Flow Dispersion
  - Sheet Flow Dispersion
  - Post-Construction Soil Quality and Depth
- Downspout Infiltration (Vol. III, Chapter 2)
  - (for Non-Pollution Generating Surfaces)

# Treatment BMP Design Criteria

- Chapters 6 – 11
- See Website for additional approved BMP's
  - General Use
  - Conditional Use
  - Pilot Use (2 – 3 sites statewide)
- <http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>

# Changes to the Manual

- Ecology publishes addenda, errata, and approvals of new technologies at its stormwater website.
- We encourage you to incorporate those changes into your adopted ordinances, rules, and manuals.
- Addenda and errata published after the permit issuance date; we cannot require you to use them.
- Use of new technologies within the limits allowed by the approvals is at your discretion. Most published before permit issuance.

# General Questions



# Wrap-Up

