Proposed NPDES Permit for Municipal Storm Water Discharges from Joint Base Lewis-McChord

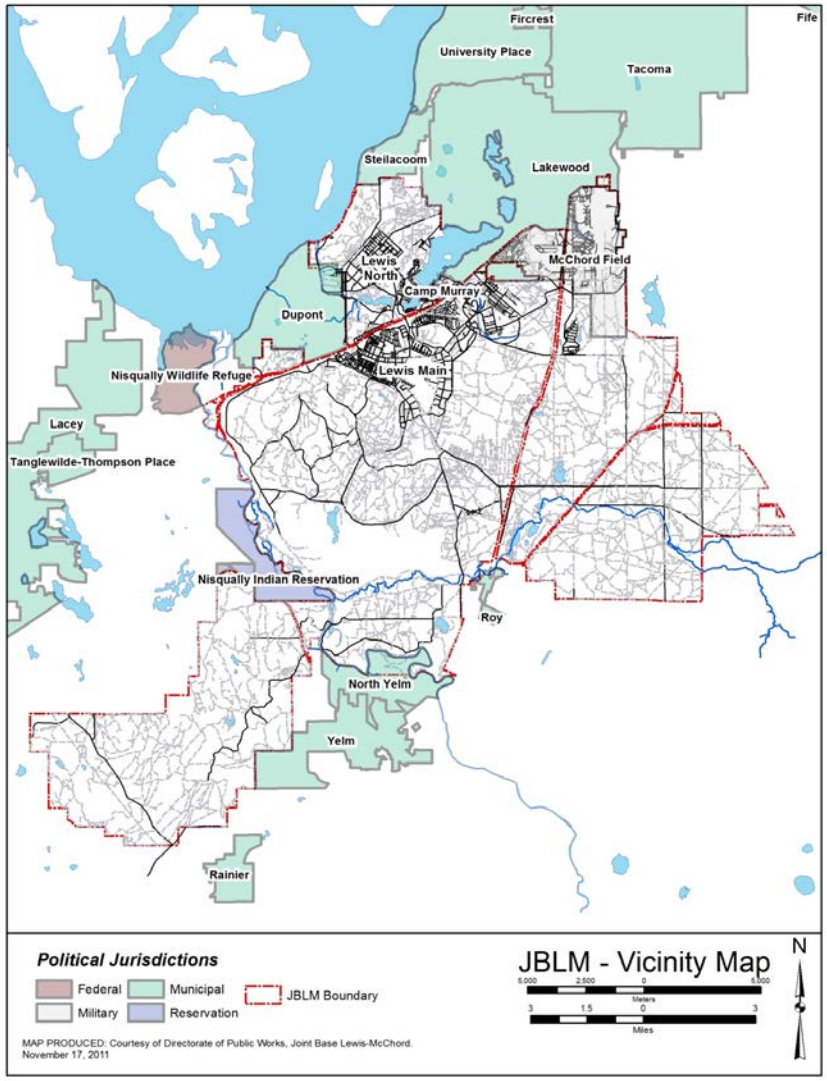
U.S. Environmental Protection Agency
Public Meeting

Lakewood Public Library
March 19, 2012

Presentation

- ✓ Background – what, why, where, who
- ✓ Overview of proposed permit requirement
- ✓ Next Steps

EPA's Proposed Permit



The permit authorizes discharges to waters of the U.S. from the *Municipal Separate Storm Sewer System* (MS4) owned or operated by Joint Base Lewis-McChord (JBLM) and that is located on the portion of the military subinstallation within Pierce & Thurston Counties.

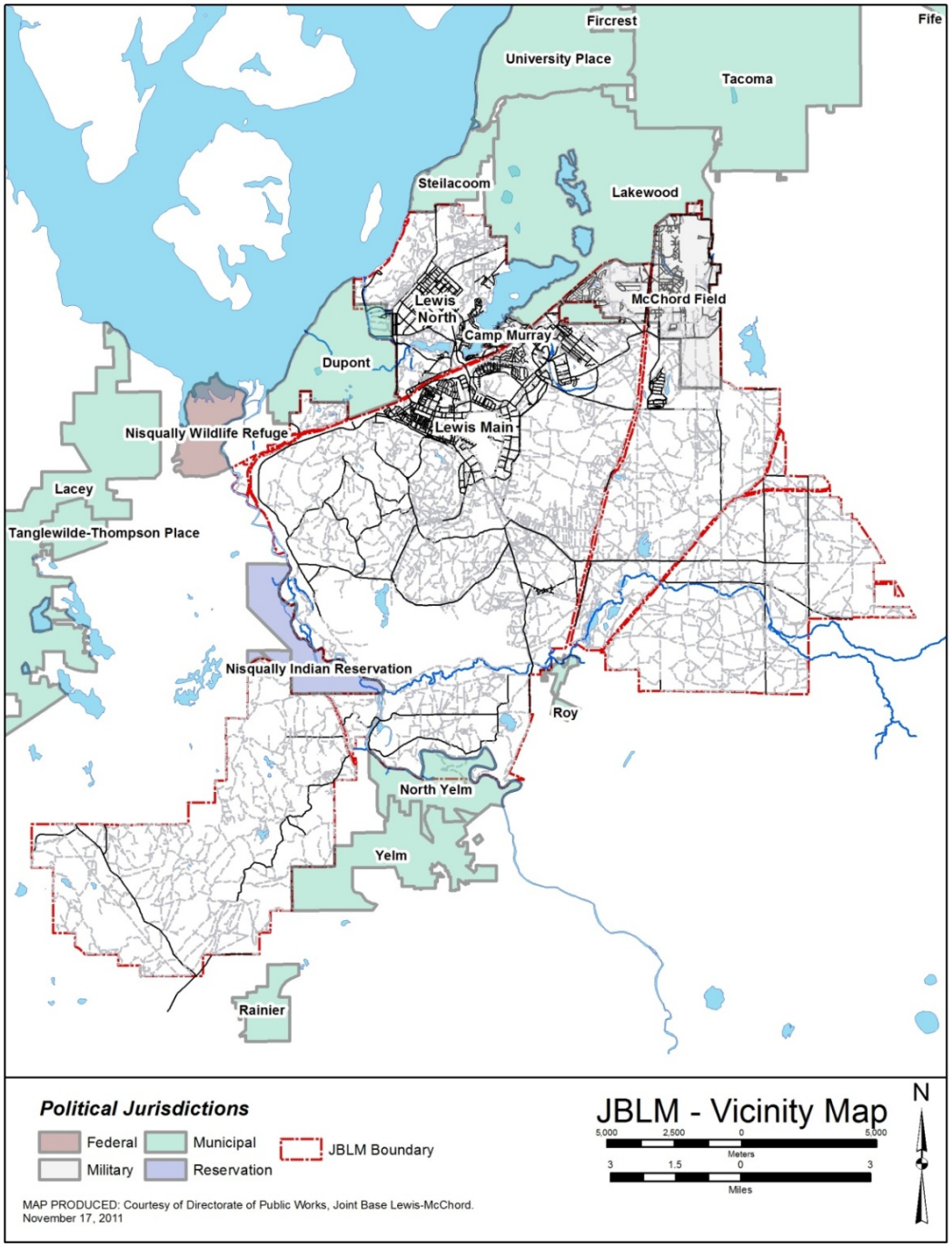
What is a MS4?

A *municipal separate storm sewer system*

..is a conveyance or system of conveyances... owned by a State, city, town, or other public entity, which discharges to waters of the U.S., and

- Is designed or used for collecting or conveying storm water,
- Is not a combined sewer, and
- Is not part of a Publicly Owned Treatment Works (POTW)

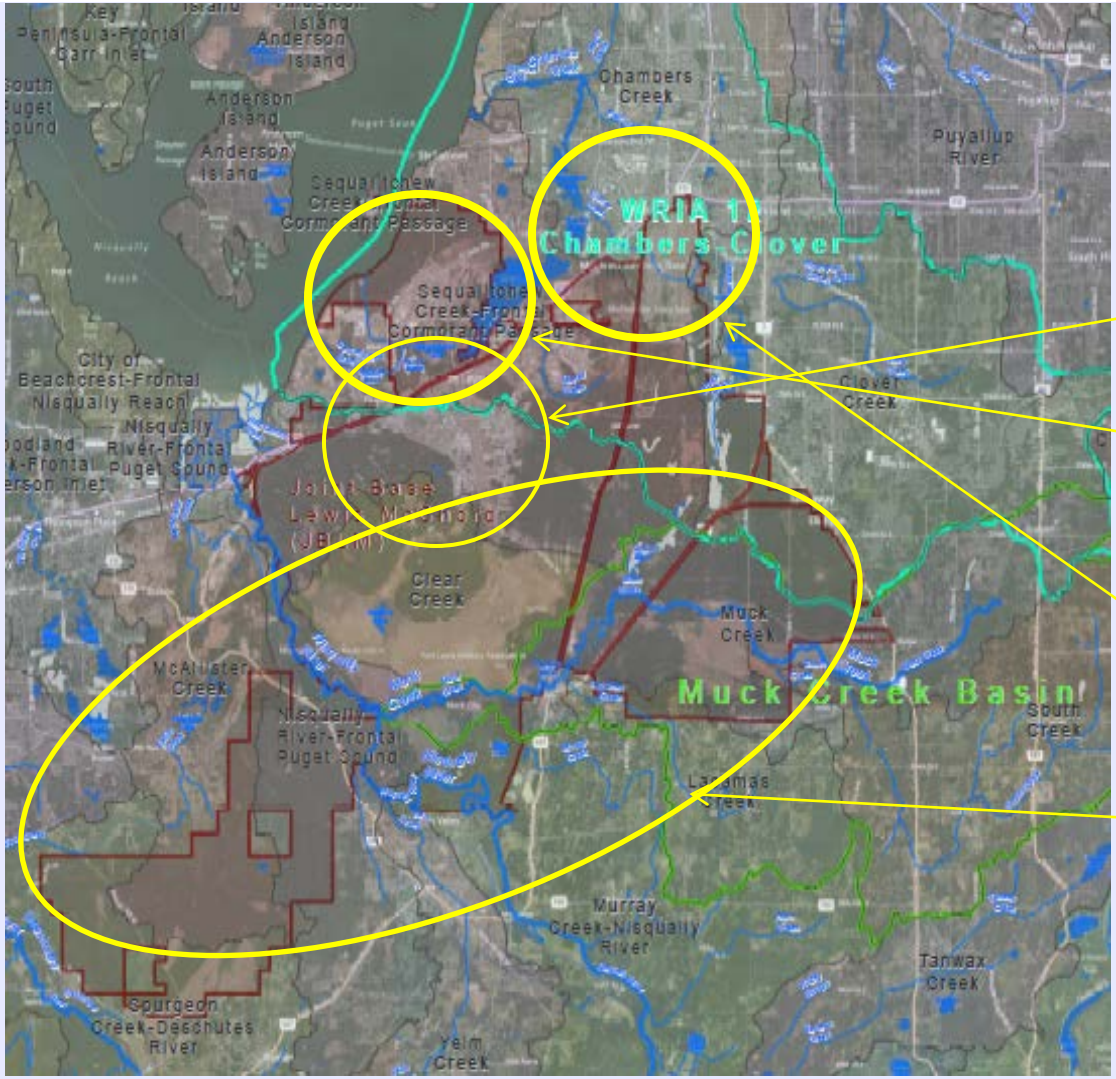
MS4s include …roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, and/or storm drains…..



About Joint Base Lewis-McChord

- Established in 2010;
  Includes Fort Lewis Army & McChord Air Force Bases
- Population = 95,000 (Year 2010)
  Includes military personnel, their families, civilian employees & visitors
- Total land area = 90,880 acres (142 sq. miles)
- Estimated land area draining to the MS4 = 5,707 acres

Receiving Waters



The MS4 in the cantonment area considered….	..Discharges to these receiving waters:
JBLM Main	Murray Creek; Bell & Hamer Marshes
JBLM North	American Lake American Lake Marsh Elliot Marsh
McChord Field	Clover Creek
If a MS4 exists in the JBLM Training Areas,* the MS4 may discharge to….	Muck Creek, Nisqually River, and/or Puget Sound

Impaired Waters: Ecology's 2008 Integrated Report

Receiving Water	*Pollutants of Concern*	*EPA Approved TMDL?*
Clover Creek	Fecal coliform Dissolved Oxygen pH	No
American Lake	Total Phosphorus	No

Other Stormwater Associated with Construction & Industrial Activities

JBLM maintains separate permit coverage under both

EPA's *Multi-Sector General Permit* (MSGP)

and *Construction General Permit* (CGP)

as necessary;

Requirements are implemented base-wide

EPA's Phase II MS4 Permit Requirements

"…Develop, implement, and enforce a storm water management program (SWMP), designed to:

- Reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP),
- Protect water quality, and
- Satisfy the appropriate water quality requirements of the Clean Water Act."

✓ Address "minimum control measures"

✓ Comply with more stringent permit requirements which the permit authority determines are needed to protect water quality.

The "Minimum Control Measures"

1. Public Education
2. Public Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control at Sites Disturbing 1 or more acres
5. Post-Construction (Permanent) Storm Water Management in New and Redevelopment for projects that disturb 1 acre or more
6. Pollution Prevention/Good Housekeeping for Municipal Operations

- ✓ Program Evaluation, Recordkeeping and Reporting
- ✓ Standard NPDES permit requirements
- ✓ Address waters not meeting State WQ standards & protect water quality

Beyond the "Minimum Measures"

EPA has also proposed:

- Including the entire JBLM subinstallation
- Mapping any existing MS4 in Muck Creek watershed
- Site disturbance threshold of 5,000 sq. ft. for the construction & new/re- development programs
  - Explicit requirements for treatment, onsite SW management & flow control
- Detailed SW structure operations & maintenance requirements
- For discharges to impaired waters:
  - Retrofit plan for reducing existing discharges and volumes
  - Monitoring for SW discharges, water quality & biological baselines

What Else Did EPA Consider When Developing the Proposed Permit?

- Puget Sound Information
- Washington Department of Ecology's Information
- Existing Watershed Basin Plans for Chambers/Clover, Muck, & Murray/Sequalitchew Creeks
- National Research Council 's 2008 Report recommendations to EPA
- Energy Independence & Security Act (EISA), Sec. 438

What is Ecology's Role?

- Establishes WQ standards
- Defines impaired waters
- Develops Total Maximum Daily Load (TMDL) clean up plans

For the JBLM MS4 permit, Dept. of Ecology provided:

- ✓ Comments on early drafts
- ✓ Notice of its intent to certify the MS4 permit under CWA § 401

(See Fact Sheet, Appendix C)

Summary of Proposed Permit

- Part I – Applicability
  - Permit area
  - SWMP document
  - Defines “allowable” non-stormwater discharges
- Part II – SWMP requirements
  - EPA review/approval of “equivalent” SWMP documents or programs
  - Share SWMP responsibilities with others

Parts II.B.1 & 2 - Public Education & Public Involvement

- Conduct public education programs to reduce behaviors that contribute to adverse water quality impacts
- Engage the “public” (ie, tenants, staff, contractors w/in fenceline)
- Coordinate SWMP implementation across JBLM

Summary of Permit:
Part II.B.3 – Illicit Discharge Detection & Elimination

- Update MS4 map
- Complete MS4 map etc for training areas (Muck Creek)
- Effectively prohibit all illicit discharges into the MS4
- Find & address illicit discharges

Summary of Permit:
Part II.B.4 – Construction Site Runoff Control

Reduce pollutants from construction activities disturbing ≥5,000 sq. ft:

- Oversee all CGP-regulated construction activity
- Appropriate BMPs at construction sites disturbing ≥5,000 sq ft
- Specify requirements in all contracts
- Site plan reviews, site inspections & enforcement




Summary of Permit:

Part II.B.6 - Good Housekeeping & Pollution Prevention

- ✓ Inspect & maintain SW structures & catch basins;
  - Spot check after major storm events
  - ~95% annual inspection rate by end of permit term

- ✓ SWPPPs for material storage areas & maintenance yards

Permit Summary:

Part II.C – Retrofits to Reduce Discharges to Impaired Waters

Create a retrofit plan to mitigate existing discharges & volume impacts to Clover Creek, American Lake & Murray Creek

- ✓ Evaluate Low Impact Development opportunities
- ✓ Identify potential project locations
- ✓ Complete one or more projects to disconnect ~5 acres of effective impervious area

Part IV - Monitoring & Reporting

- ✓ Annual Reports to EPA
- ✓ Monitoring
  - SW outfall monitoring in American Lake
  - WQ monitoring in both Murray & Clover Creeks
  - Benthic macroinvertebrate sampling in Murray & Clover Creeks

Summary of Permit:

Part II.B.5 –Storm Water Management in New & Redevelopment

Manage runoff from public or private new/re-development disturbing ≥ 5,000 sq. ft. to preserve & restore predevelopment hydrology:

- ✓ SW site planning
- ✓ Source controls
- ✓ Minimize impervious areas, preserve vegetation & natural drainage
- ✓ Hydrologic performance standards for onsite SW mgmt & flow control
- ✓ Runoff treatment
- ✓ Wetland protection
- ✓ Ensure proper installation & operation
- ✓ Maintain inventory & records
- ✓ Provide staff training

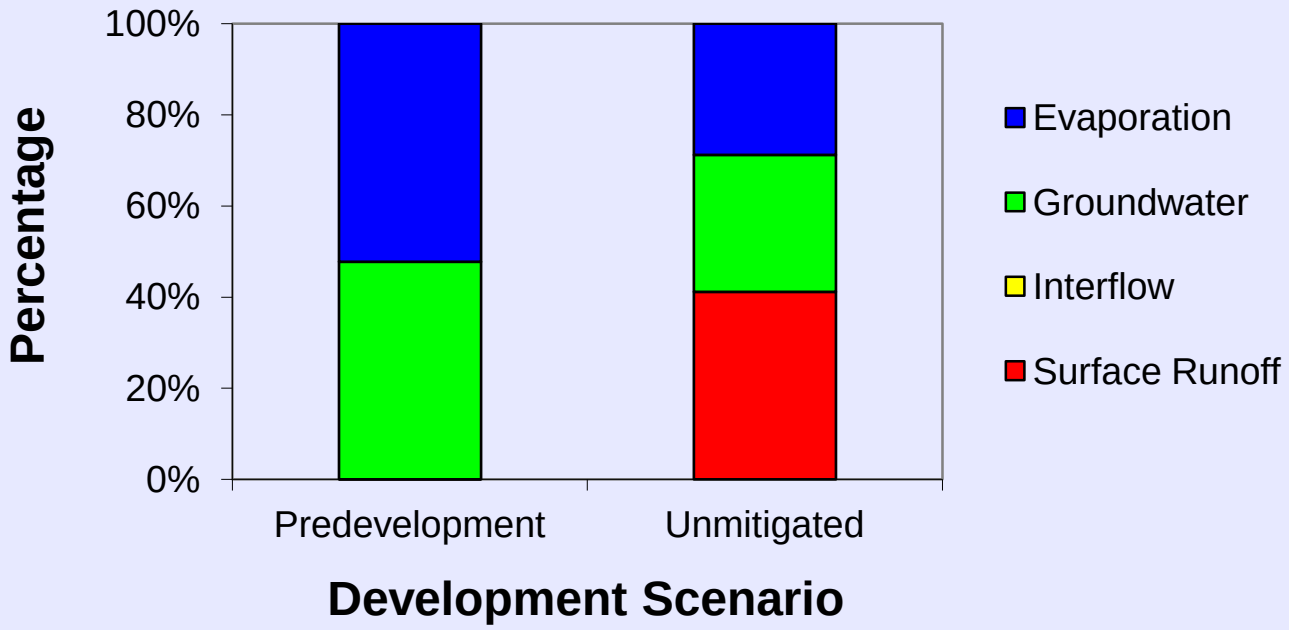
Joint Base Lewis-McChord

Draft Municipal Stormwater (MS4) Permit Performance Standard Illustration

Public Meeting

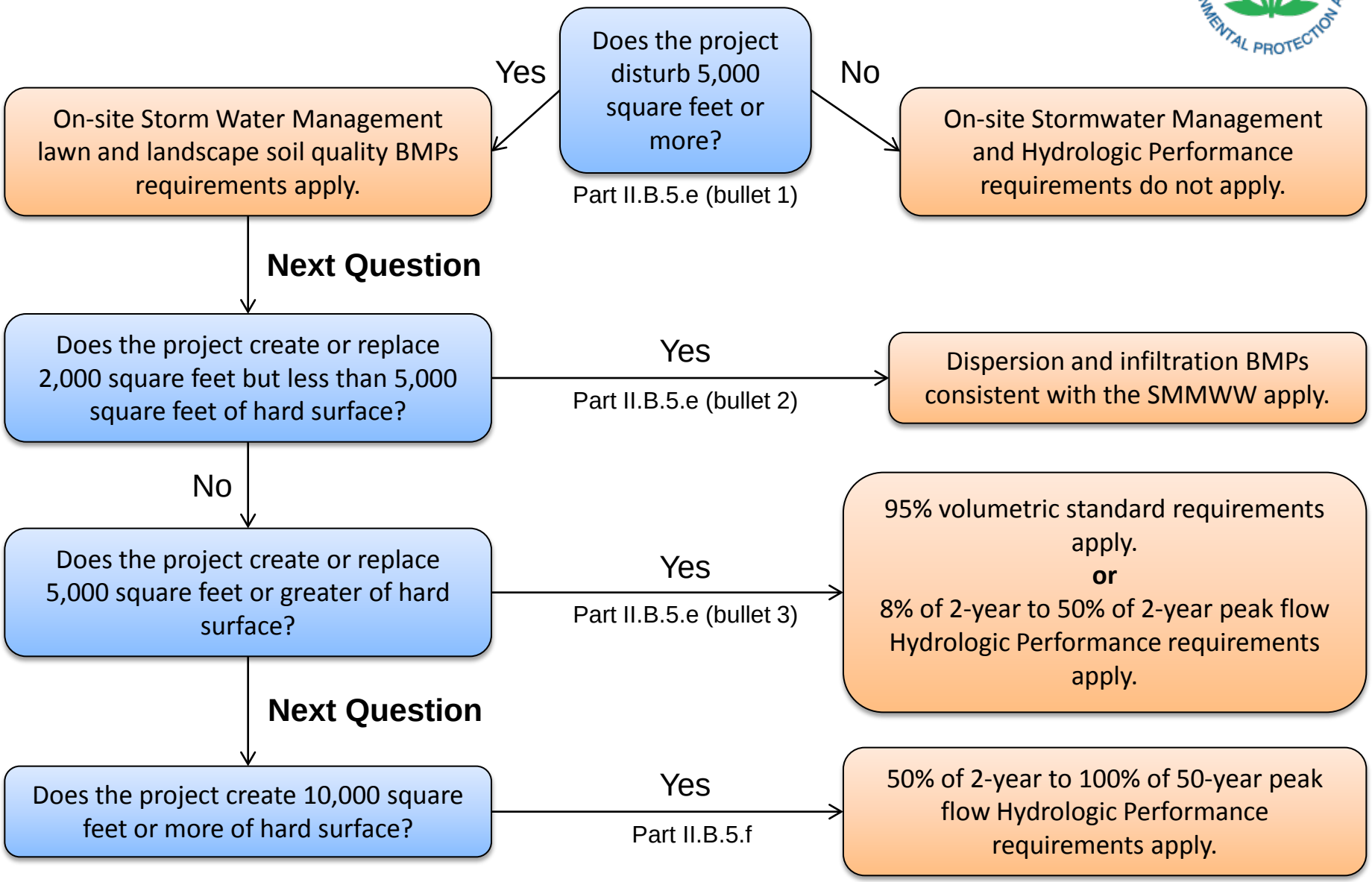
March 19, 2012

Impacts of Development

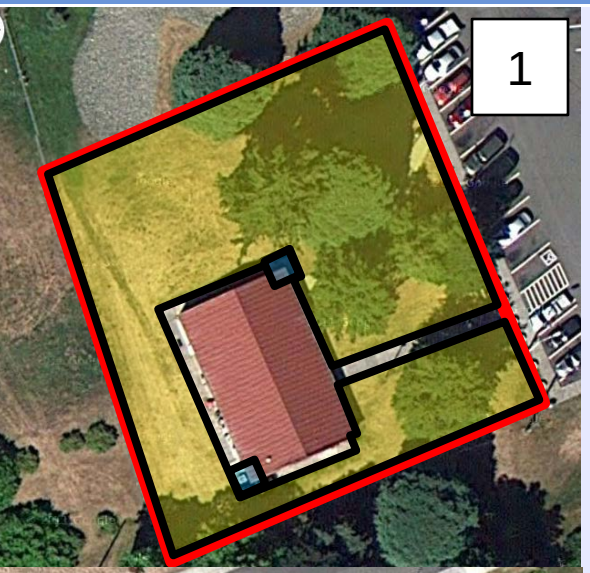


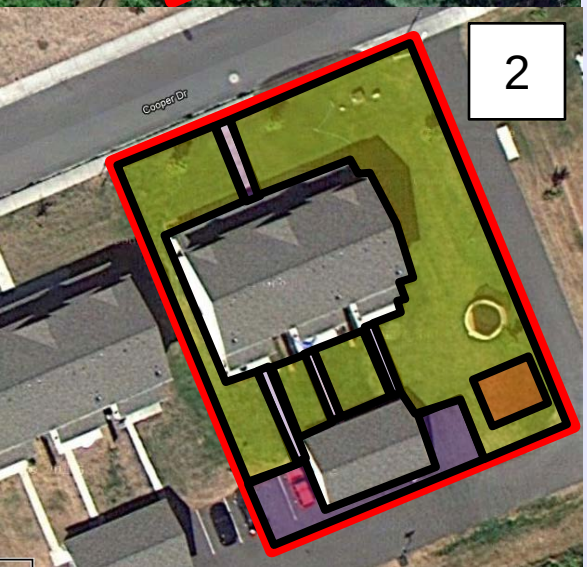
Adding impervious cover shifts the hydrologic cycle, resulting in increased surface runoff.

Summary of EPA's Proposed Hydrologic Performance Standard Requirements (Permit Part II.B.5.e & 5.f)



New Development Scenarios





1. Dispersion & Infiltration BMPs
2. 95% Volumetric Standard
3. Hydrologic Performance Standard

1. Dispersion & Infiltration BMPs

No Performance Standard

Disturbs area greater than 5,000 ft^2

Adds 2,000 - 5,000 ft^2 hard surface

No additional treatment is required assuming soil suitability criteria are met

1. Dispersion & Infiltration BMPs

Part II.B.5.e (bullet 2)

Downspout Dispersion

Soil Amendment

Part II.B.5.e (bullet 1)

2. 95% Volumetric Standard

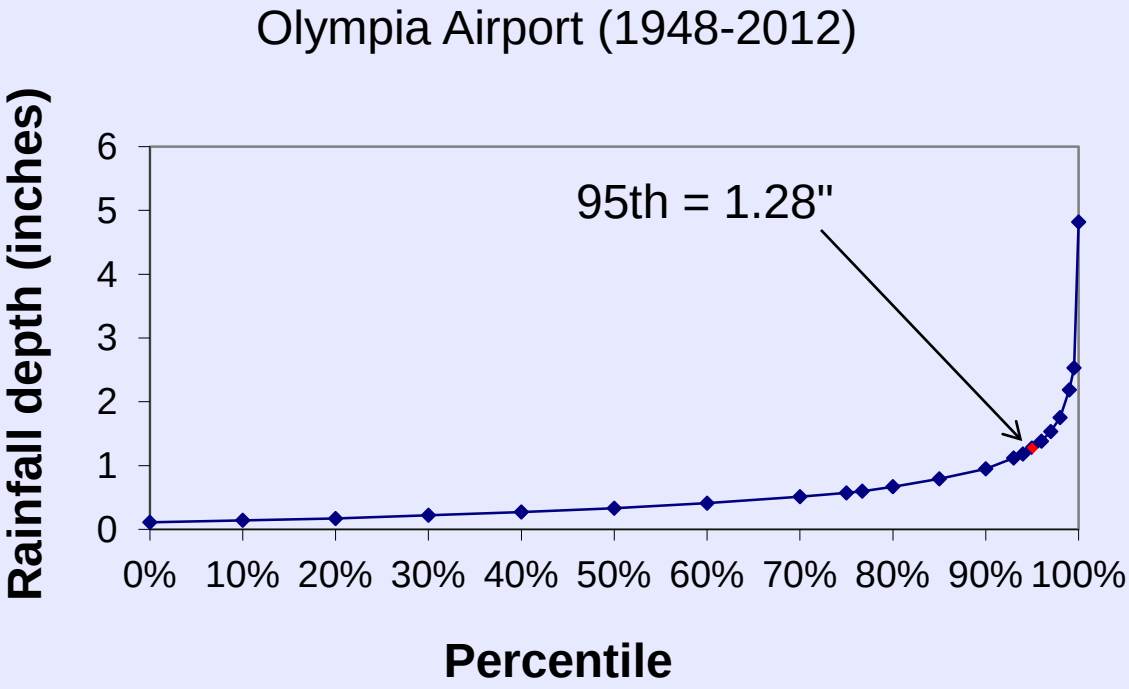
Performance Standard based on Historical Design Storm

Disturbs area greater than 5,000 ft^2

Adds greater than 5,000 ft^2 hard surface

Existing Ecology Treatment Requirements apply

95% Volumetric Standard



Volume of rain that would cover site footprint to a depth of the 95th percentile precipitation event (1.28 inches)

This volume must be retained on site

2. 95% Volumetric Standard

Part II.B.5.e (bullet 3)

Porous Pavement

Bioretention

Soil Amendment

Part II.B.5.e (bullet 1)

3. Hydrologic Performance Standard

Performance Standard based on Predevelopment Hydrology

Predevelopment:
17 acres
Forested
A/B soils
Flat

Average Yearly Runoff Volume:
~5,700 Gallons

3. Hydrologic Performance Standard

Performance Standard based on Predevelopment Hydrology

Average Yearly Runoff Volume:
~5,600,000 Gallons

Existing Ecology Treatment Requirements apply

3. Hydrologic Performance Standard

Part II.B.5.f

Porous Pavement

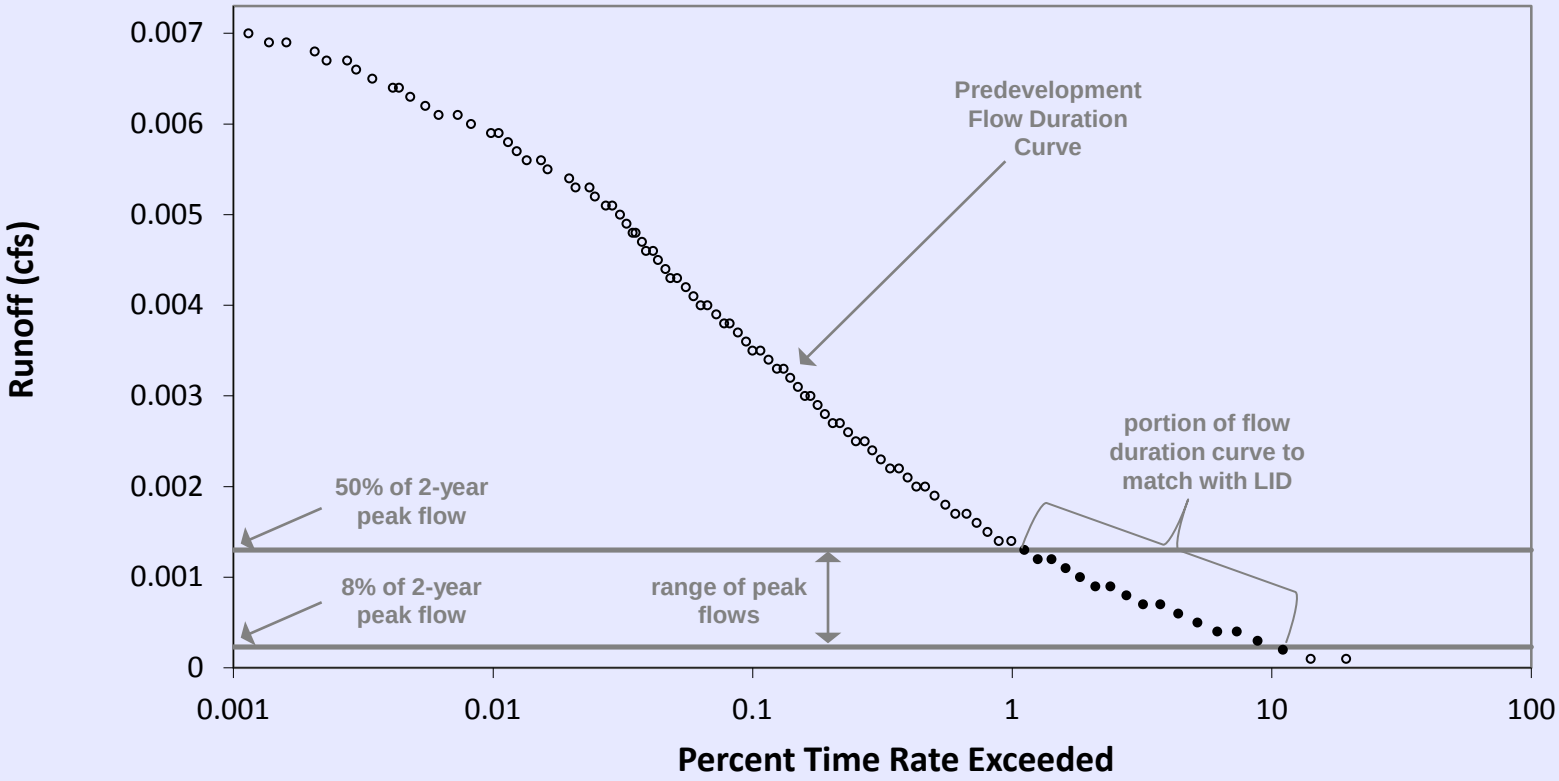
Bioretention

Vegetation

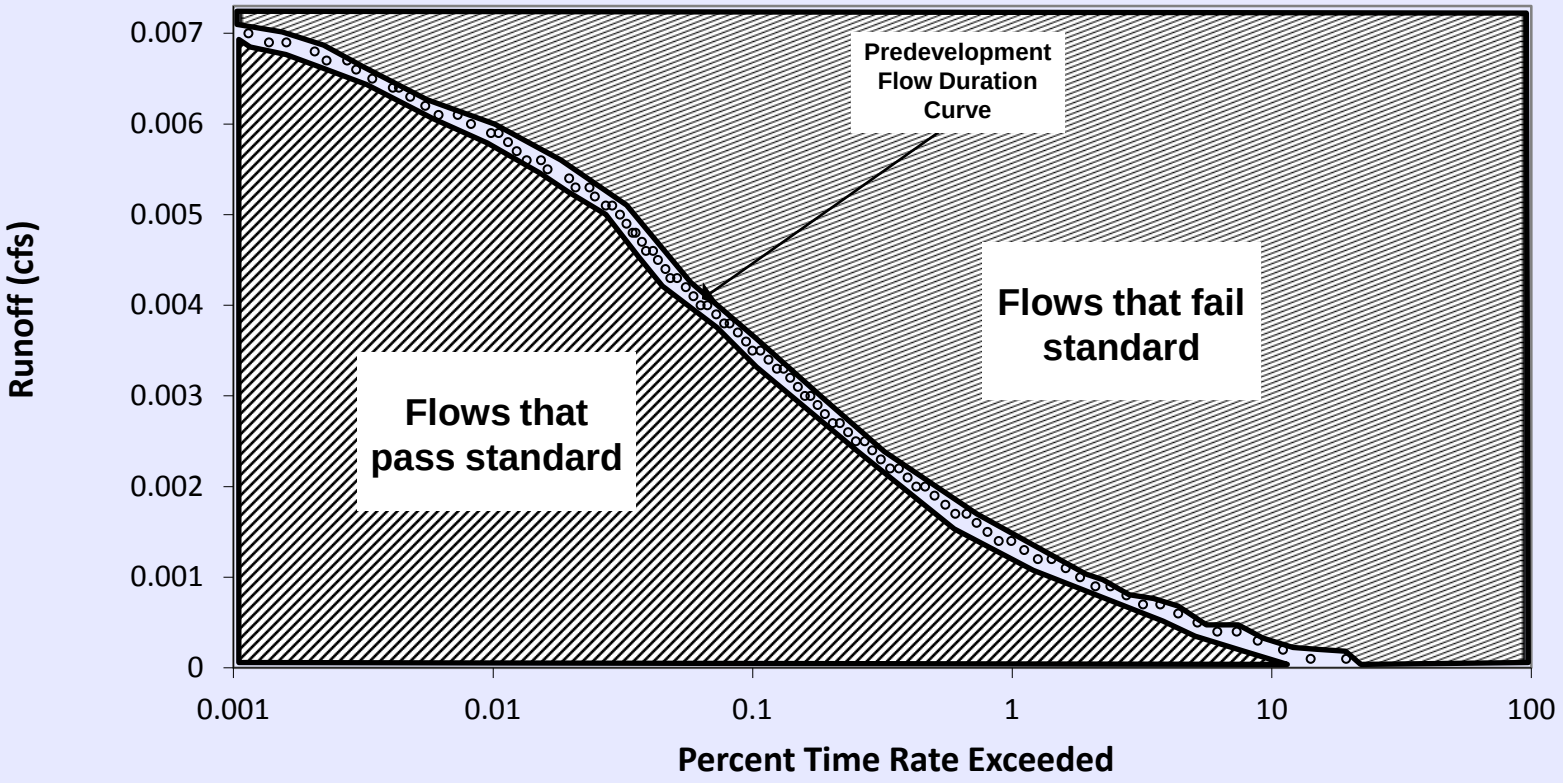
Soil Amendment

Part II.B.5.e (bullet 1)

Example Flow Duration Curve

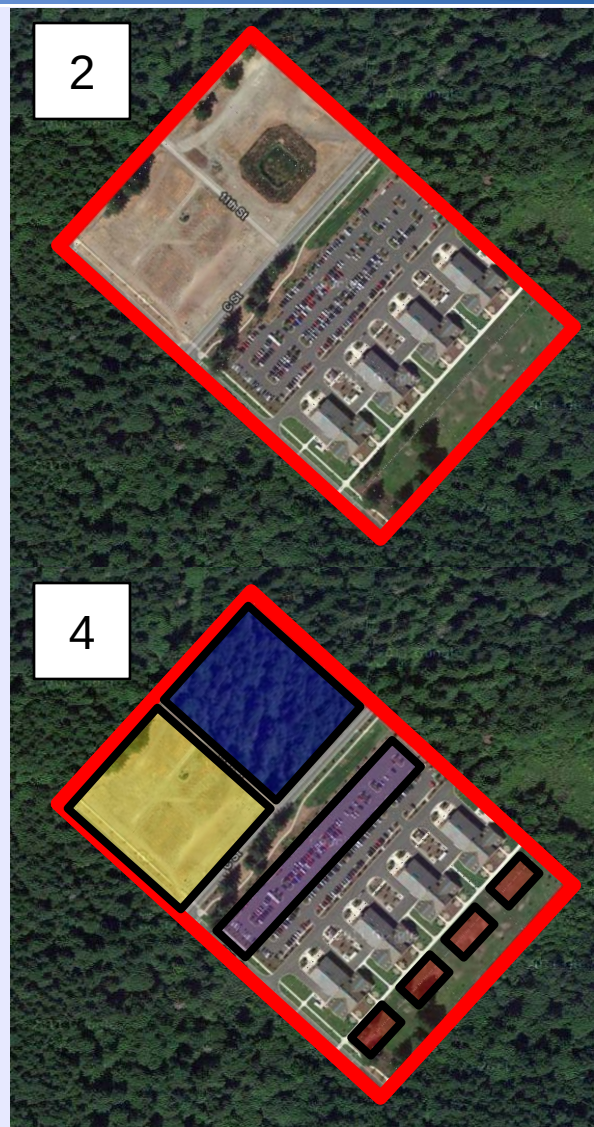


Flow Duration Curve Interpretation

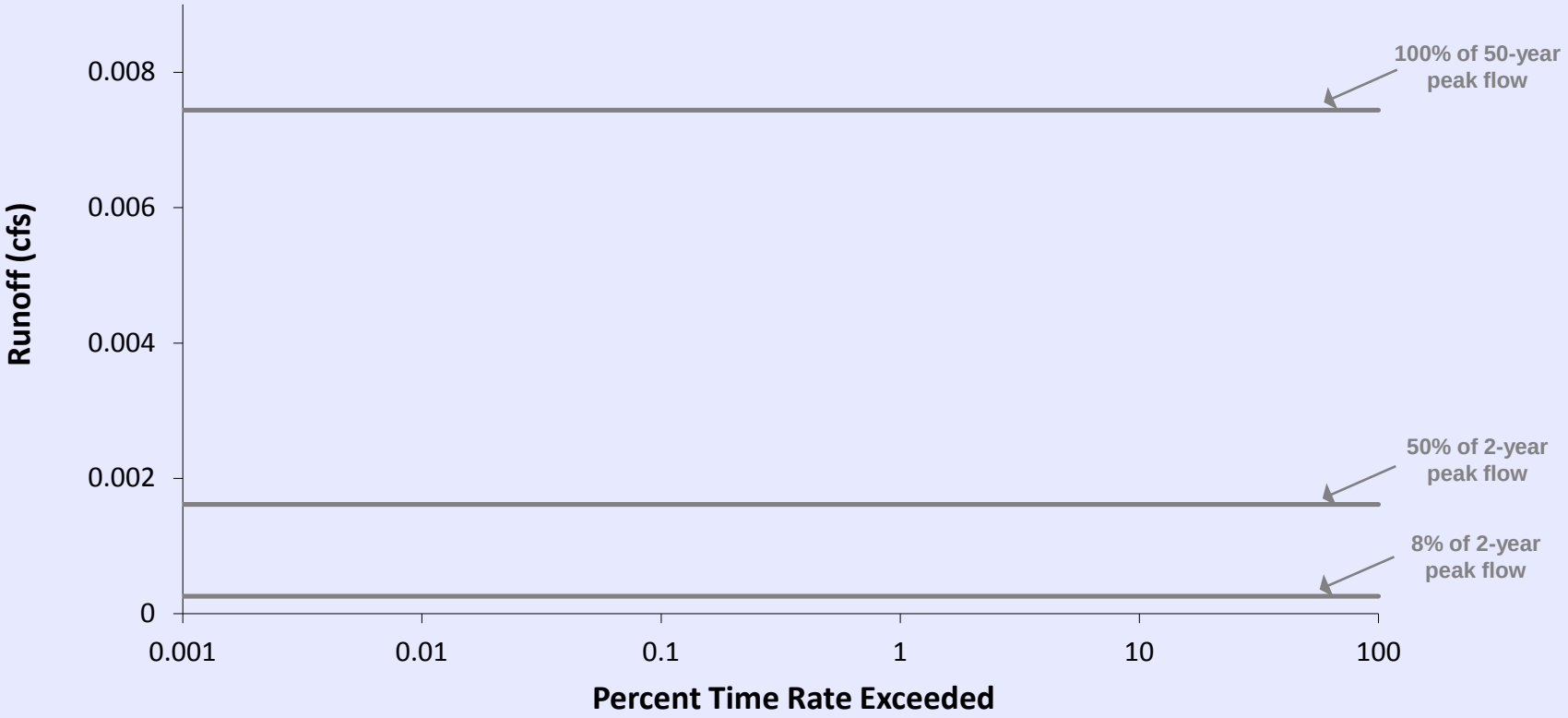


Development Scenarios Triggering Hydrologic Performance Standard

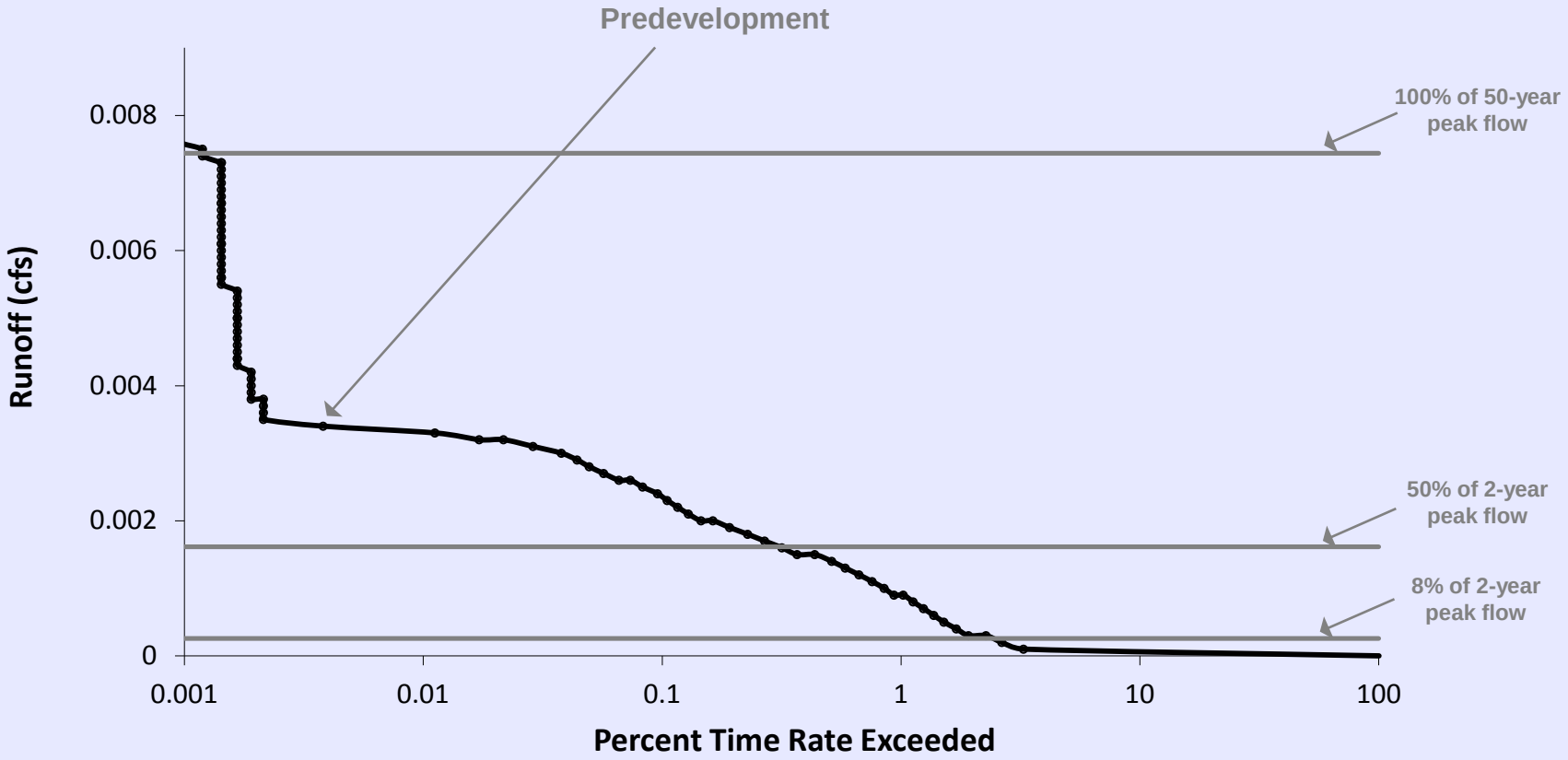
1. Predevelopment
2. Unmitigated
3. Detention Pond
4. LID



Performance Standard Results



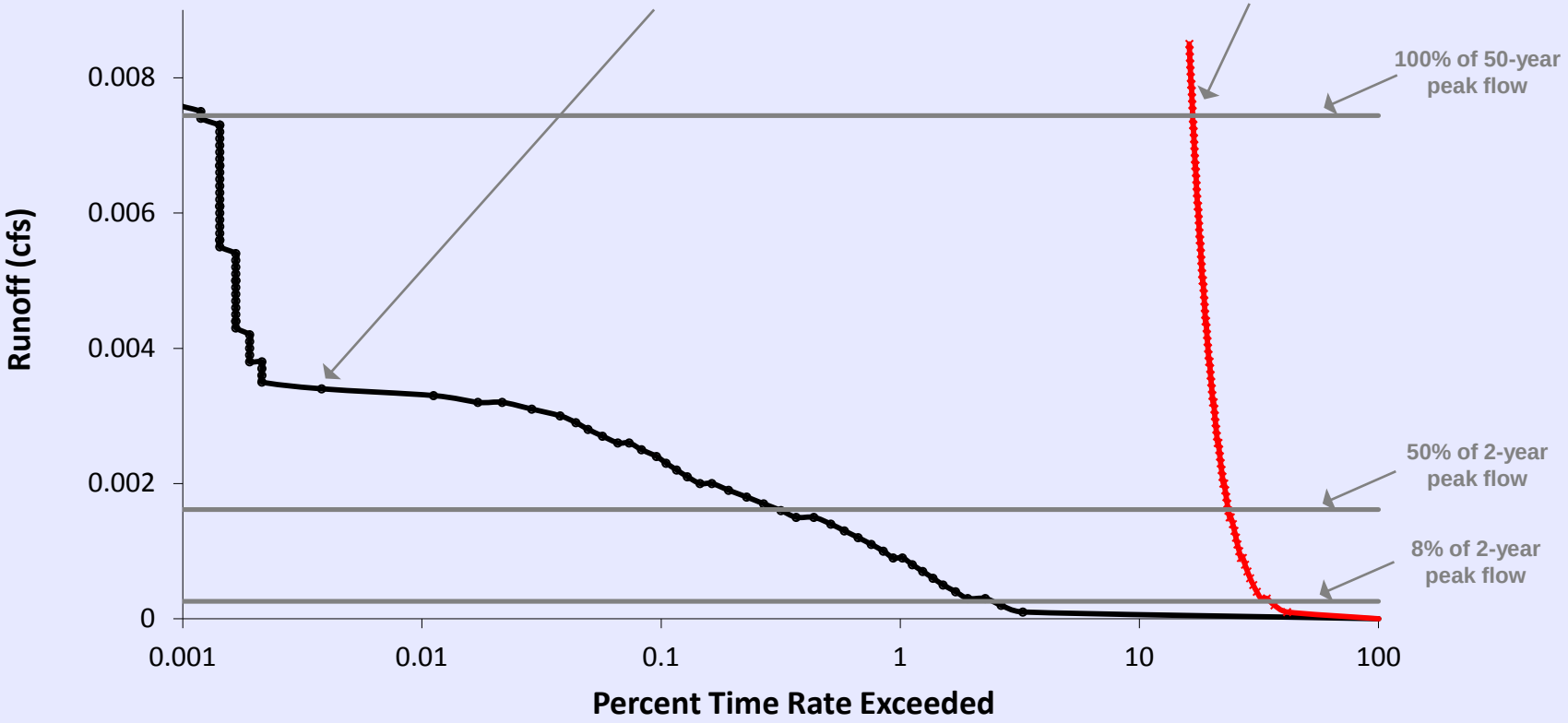
Performance Standard Results



Performance Standard Results

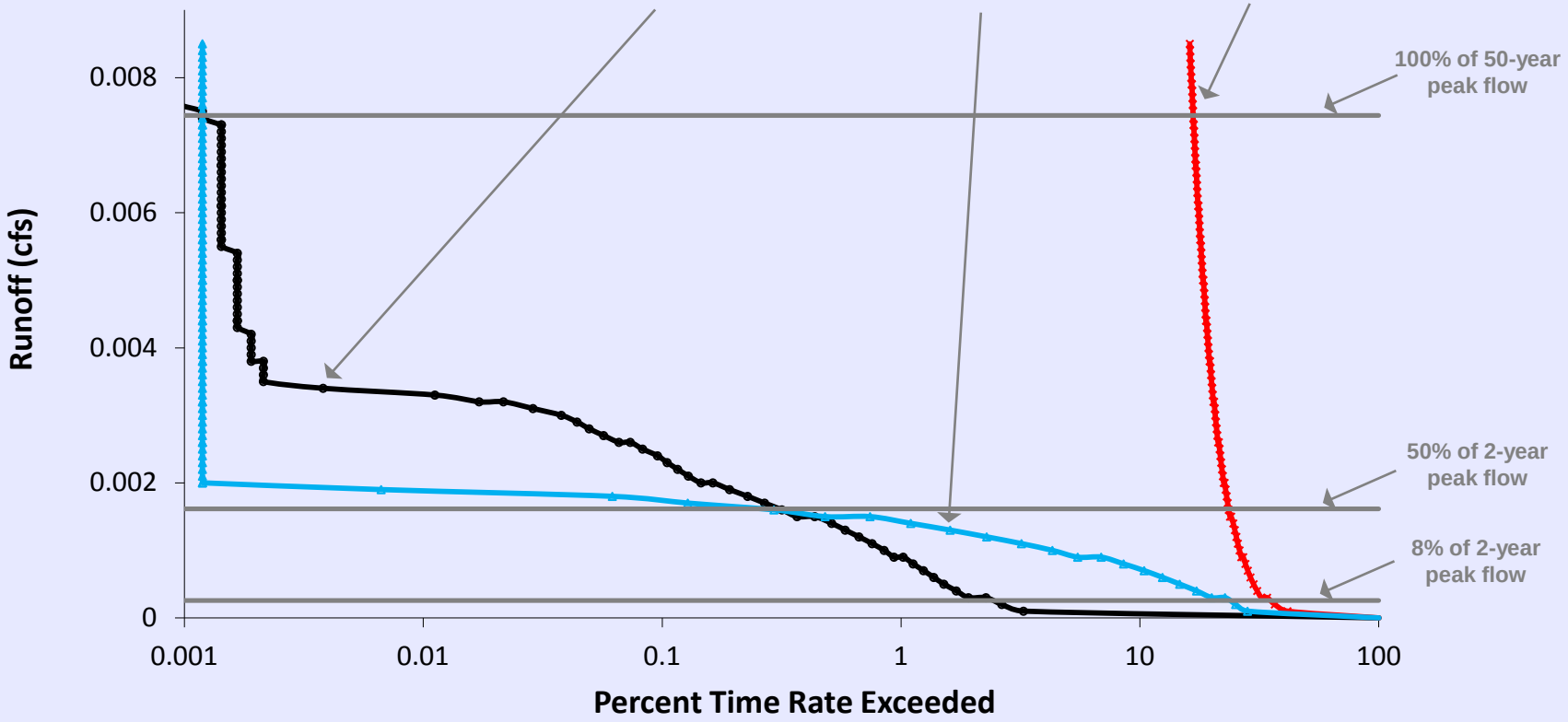
Predevelopment

Unmitigated

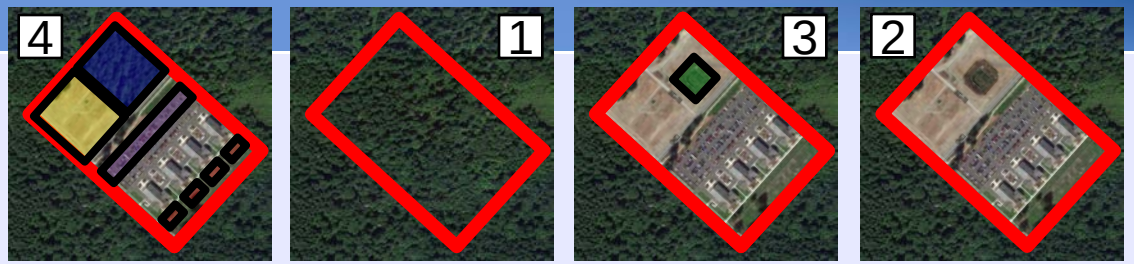


Performance Standard Results

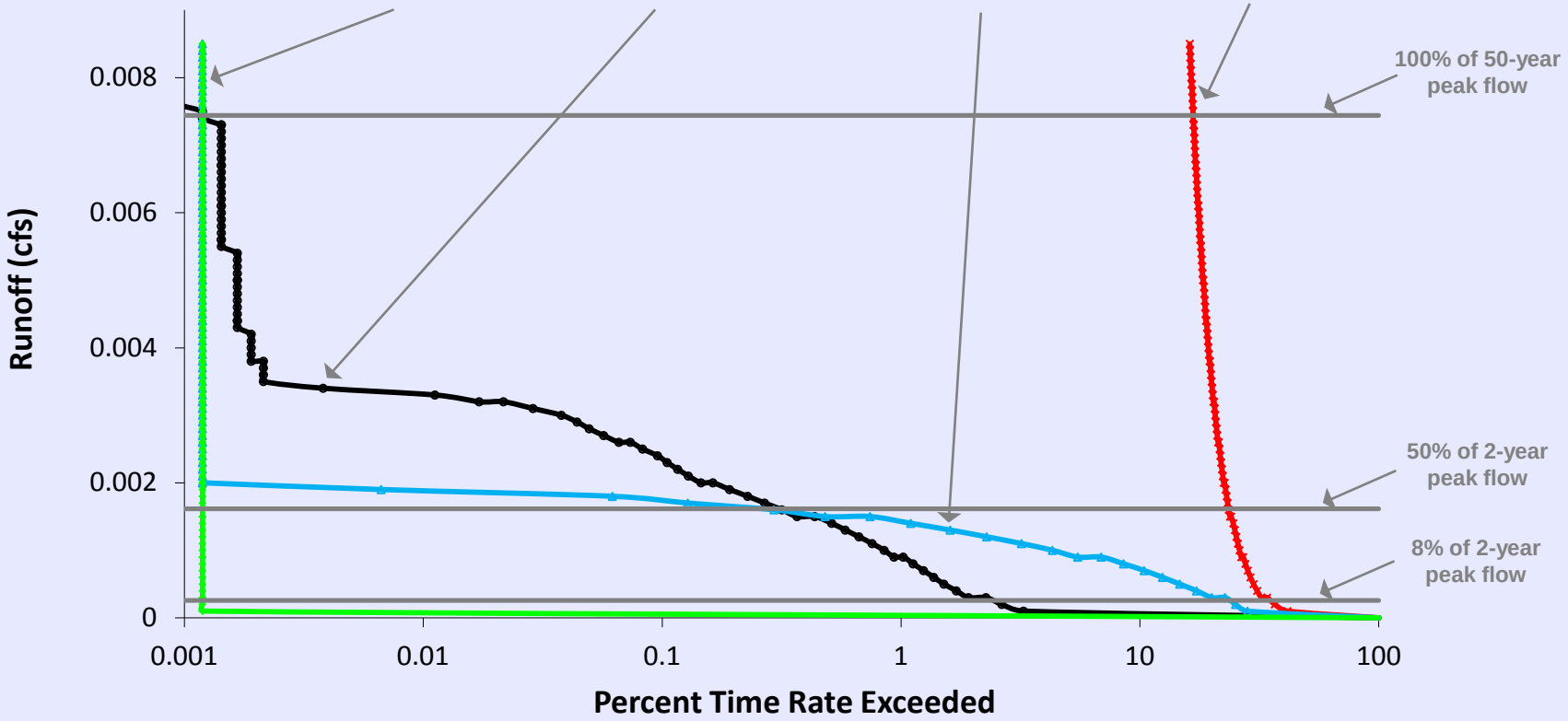
Predevelopment Detention Pond Unmitigated



Performance Standard Results



LID | Predevelopment | Detention Pond | Unmitigated



Public Comments Accepted through March 30, 2012

By mail:

EPA Region 10
Office of Water and Watersheds, OWW-130
Attn: NPDES Stormwater – JBLM
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Or via email: *vakoc.misha@epa.gov*

- ✓ Include name & contact info; Cite specific permit provision, as appropriate;
- ✓ Describe basis & facts supporting the comment, include suggested text revision.

After the comment period, EPA will:

- Respond to comments & revise permit text as necessary
- Request final CWA §401 certification from Ecology
- Issue the final permit

Thank You

Misha Vakoc , NPDES Stormwater Permit Coordinator
206-553-6650, *vakoc.misha@epa.gov*

Dino Marshalonis, Stormwater Technical Coordinator
206-553-1519, *marshalonis.dino@epa.gov*

John Palmer, Senior Advisor to the Office of Water & Watersheds
206-553-6521, *palmer.john@epa.gov*

Jayshika Ramrakha, Watershed Stormwater Coordinator
206-553-1788, *ramrakha.jayshika@epa.gov*

2. 95% Volumetric Standard

Average Predevelopment Runoff Volume:
~150 gal

95% Volumetric Standard:
~15,000 gal

Unmitigated:
~175,000 gal

Bioretention only:
~6,000 gal

Porous Pavement only:
~5,500 gal

3. Flow Control Standard - Traditional

Detention Pond

Average Yearly Runoff Volume

Predevelopment:
~5,700 gal
Unmitigated:
~5,600,000 gal

Mitigation Scenarios:
Pond:
~41,000 gal
LID:
~700 gal

Using combination of LID BMPs, runoff can be effectively reduced and treated