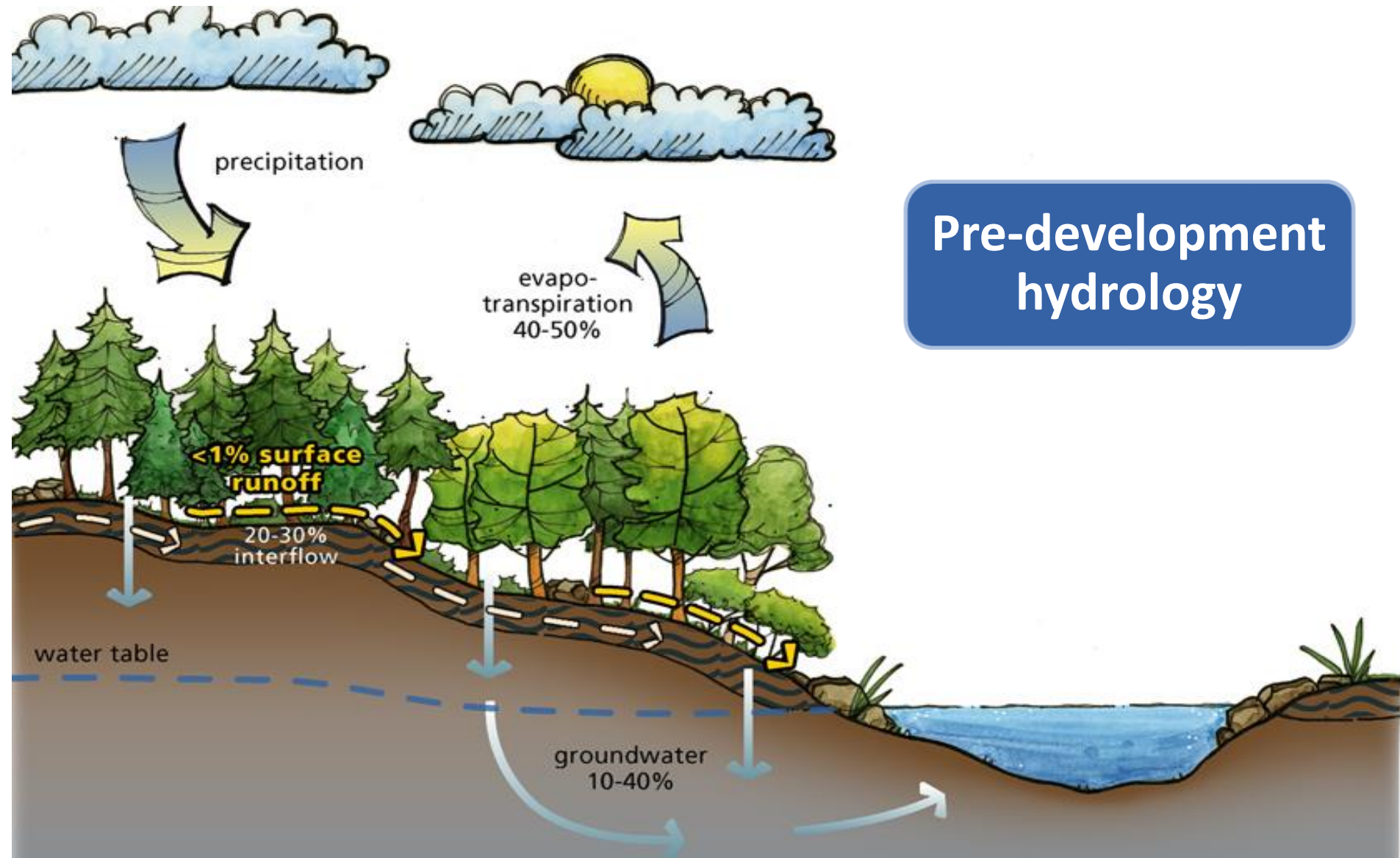


# MS4 Permit Requirements & Low Impact Development

Vincent McGowan  
Municipal Unit Supervisor  
Water Quality Program



# Pre-development hydrology



From: *Low Impact Development Technical Guidance Manual for Puget Sound*, January 2005

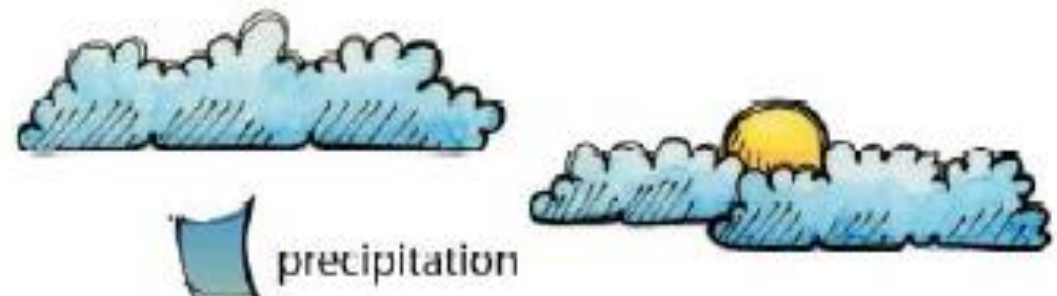
AHBL Civil & Structural Engineers



# Low Impact Development



AHBL Civil & Structural Engineers



20-30%  
surface  
runoff



<1% surface  
runoff

20-30%  
interflow

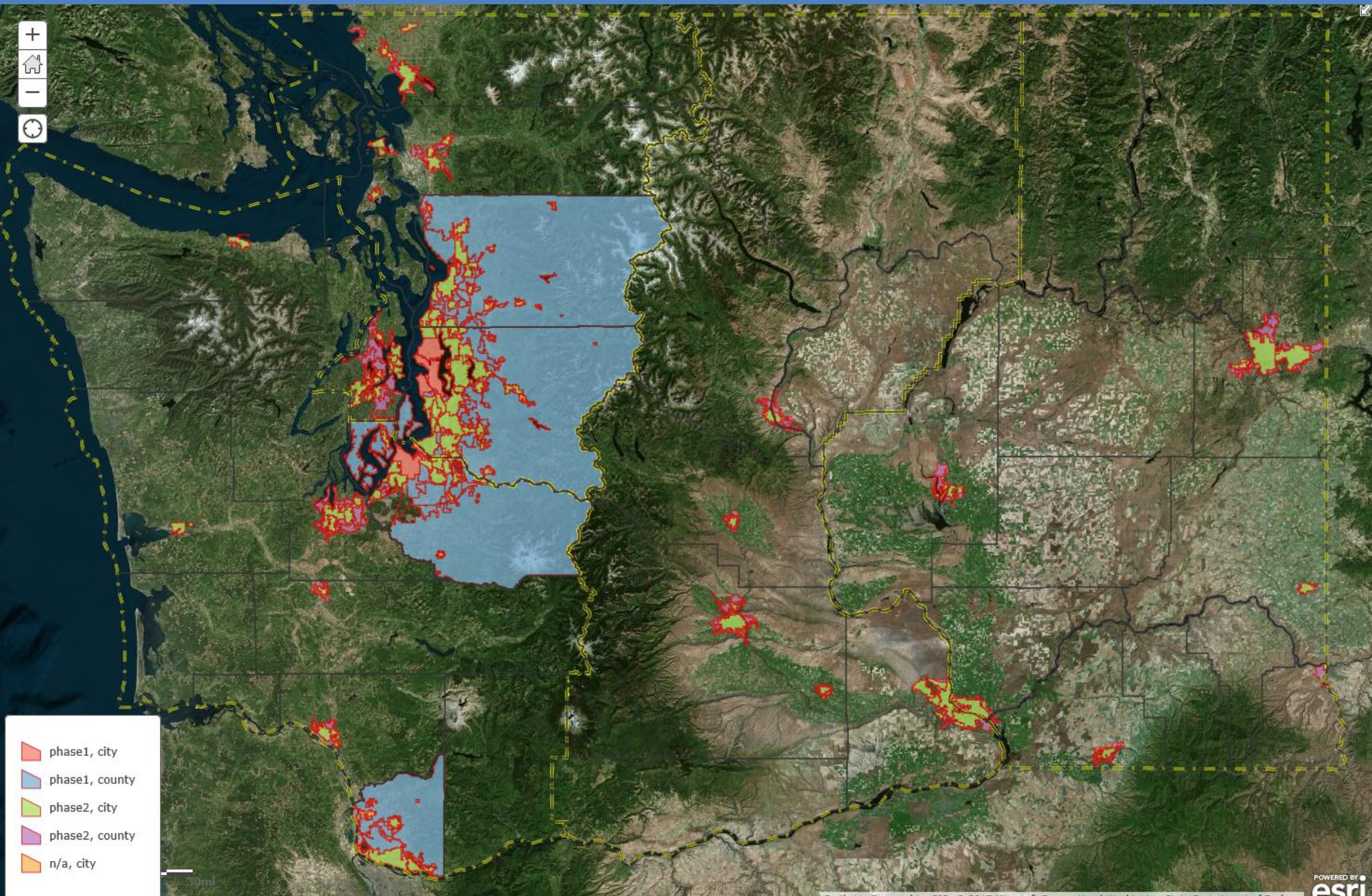
water table

groundwater  
10-20%

From: *Low Impact Development Technical Guidance Manual for Puget Sound*, January 2005

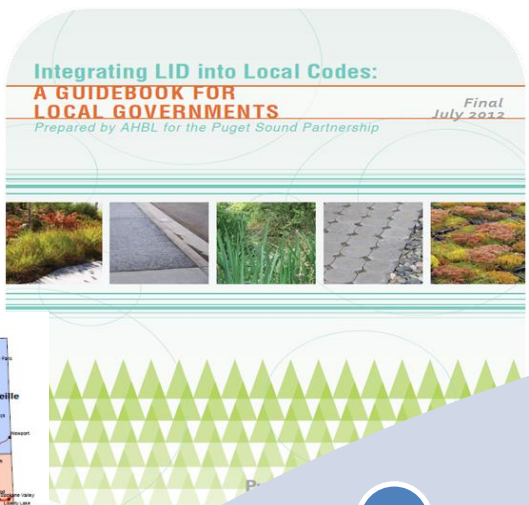


# Municipal Stormwater Permit Coverage

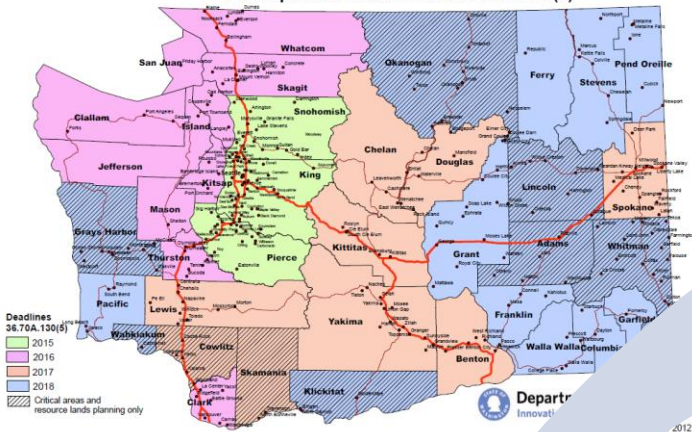


# Low Impact Development

## Permit timelines



GMA Update Schedule: RCW 36.70A.130(5)



LID Code integration timed with GMA updates

Training on LID Code & techniques + Guidance Manuals

Review, revise, and adopt

Implementation is just beginning for many in 2017



# Low Impact Development

## Principles and Planning



Narrower streets  
Street layout and  
orientation  
standards



Higher  
buildings/smaller  
footprint  
Reduce impervious  
surfaces  
Buffers



Retain on-site  
natural features  
Landscape with  
bioretention



Parking regulations  
Maximum  
impervious



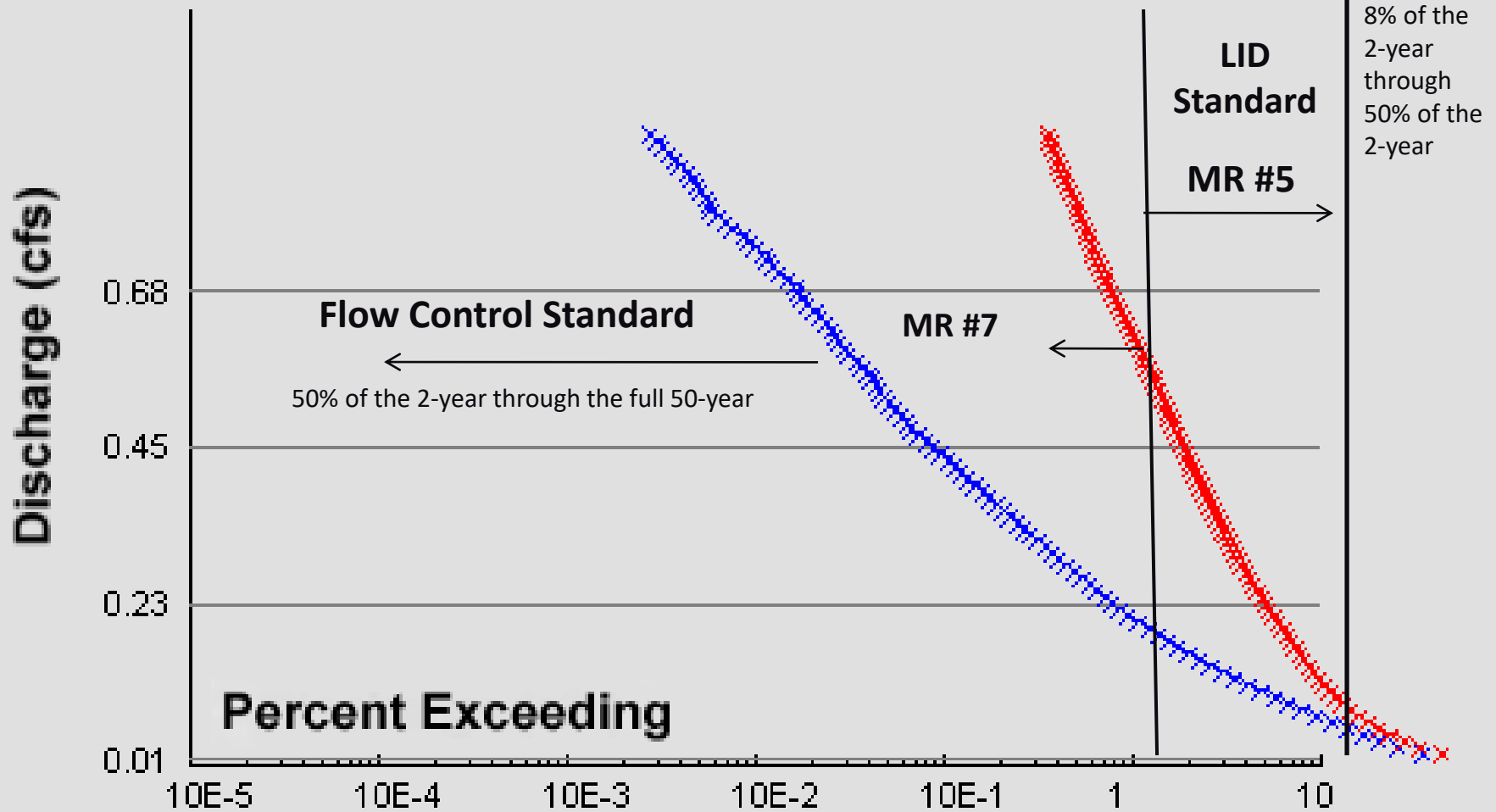
# Low Impact Development Engineering

## Combined Standard:

Control durations from 8% of 2-yr through 50-year

x Predeveloped

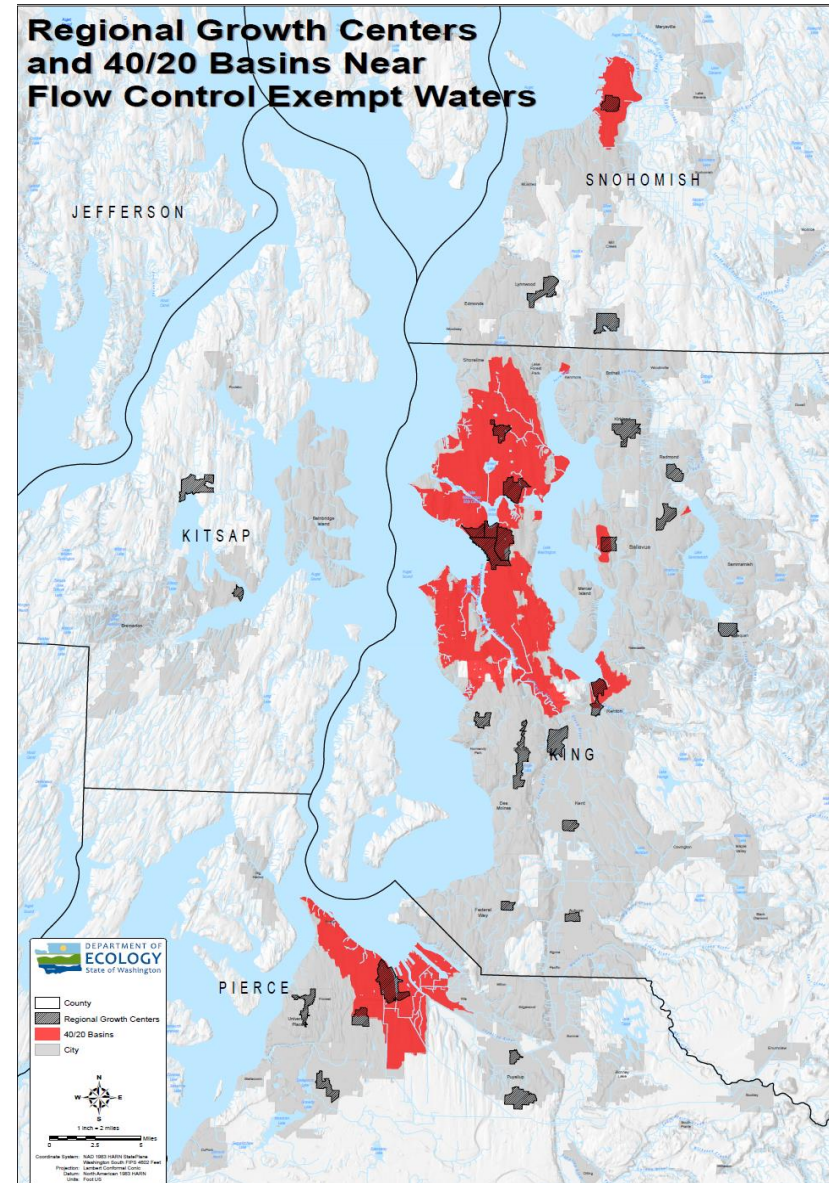
x Developed



# Flow exempt waterbodies

Low Impact Development **reduced** with:

- Discharges to flow exempt waterbodies
- Discharges from areas with > 40% impervious in 1985
- LID principles remain
- Soil quality and depth requirements remain
- LID facilities (controlling low flows) **not** required





# Building Green Cities

Achieving behavior change to cause green infrastructure use in the urban environments of Puget Sound will require incentives that go beyond permit requirements.

Approaches should include:

- Making LID a preferred runoff treatment option
- Highlighting the multiple benefits of LID in creating an urban environment that attracts residents who might otherwise choose to live in expanding suburbs



# More information

## Municipal Stormwater permits:

- Reissuance: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/2018Reissuance.html>
- LID Resources: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/LID/Resources.html>

## Stormwater Manual for Western Washington:

- Current manual:  
<http://www.ecy.wa.gov/programs/wq/stormwater/manual/2014SWMMWWinteractive/2014%20SWMMWW.htm>
- Preliminary draft manual:  
[https://fortress.wa.gov/ecy/madcap/wq/2019SWMMWWPrelimDraft/2019SWMMWW\\_PreliminaryDraft.htm](https://fortress.wa.gov/ecy/madcap/wq/2019SWMMWWPrelimDraft/2019SWMMWW_PreliminaryDraft.htm)
- Competing needs / infeasibility: [V-5.3.1 On-site Stormwater Management BMPs](#)