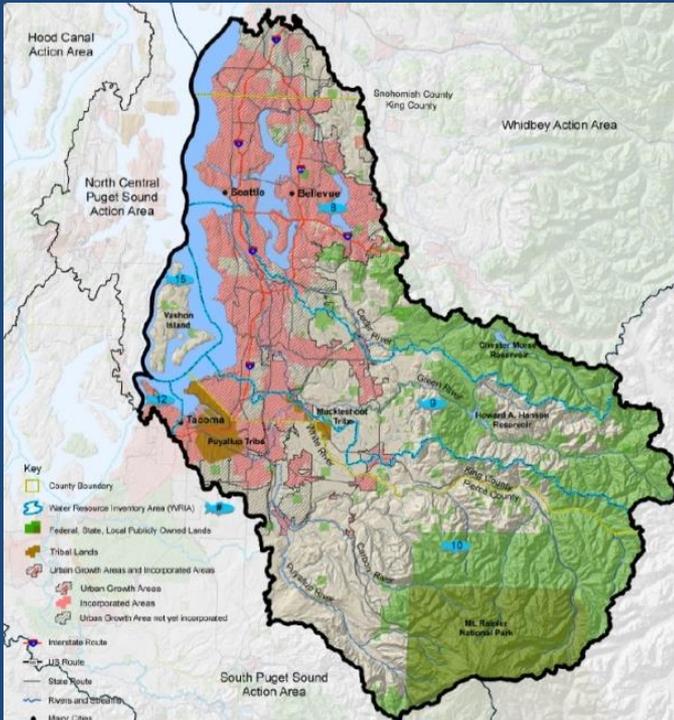


Building cities in the rain

South Central Puget Sound Action Area Caucus Group *Subcommittee on Stormwater and Infill* &



Department of Commerce
Innovation is in our nature.



PugetSoundPartnership
LEADING PUGET SOUND RECOVERY

“Regional Collaboration” program

National Estuary Program grant to implement PS Action Agenda

Project origin: PSRC Growth Policy Board sessions

“NPDES v GMA:” Are stormwater regulations making it harder to build compact cities?



Sessions posted on PSRC website:

May: Introduction (*Ecology/Commerce*), Problem Statement, (*Tacoma*); Regional Solutions (*Redmond*)

June: Puget Sound Partnership

July: Cost-effective stormwater strategies (*OTAK*)

GMPB Co-Chair Ryan Mello: “NPDES & GMA”

“VISION 2040 expects **both growth to meet our GMA targets, and to protect the environment.**”

“Stormwater is one of those details we need to wrestle with to actualize VISION. Water quality is important to us all but it’s not free, so there’s an obvious impact to our ability to create...compact dense communities...”

“Instead of pretending like the problem doesn’t exist, and like there aren’t details that might be getting in the way, we should **have the tough conversation** and figure out how to address them.”



Project tasks

1. Collect and organize existing information.
2. Meet with builders, land use planners, local and state stormwater managers: identify challenges in implementing growth management and NPDES stormwater regulations, and suggestions for solutions.
3. Identify innovative strategies and approaches that jurisdictions have taken to address the challenge.
4. Recommend strategies and approaches that jurisdictions can use to align growth management and water quality goals.

Task 1: Background memo

Summary of findings from:

Growth Management Policy Board sessions

Meetings:

- American Public Works Association
- MBA-Pierce Co
- Pierce Co Growth Management Coordinating Committee
- Olympic Peninsula Planners Forum
- Interviews

Building cities in the rain: background memo

Introduction

Consistent with the Growth Management Act, [VISION 2040](#) sets forth a vision and strategy for accommodating growth in the central Puget Sound region by concentrating housing and jobs in designated growth centers. In most areas, reaching population and employment targets will require substantial infill development. In addition to encouraging efficient use of urban land through infill, VISION 2040 encourages maintaining hydrological functions, and where feasible, restoring them to a more natural state. The [Puget Sound Partnership Action Agenda](#) also calls for concentrated growth in UGAs and improved stormwater controls.

However, the Puget Sound Regional Council [Growth Management Policy Board](#) (GMPB) has heard concerns from cities that the high cost of site-by-site stormwater regulations, in combination with other costs such as demolition, brownfield remediation, historic preservation, and aging infrastructure repairs, may stifle redevelopment of urban areas. If costs are too high developers may look outside concentrated growth centers for lower cost strategies or options for their projects, or downsize redevelopment projects to avoid triggering thresholds for expensive stormwater requirements to the detriment of desired density.

Some areas have found regional stormwater facilities can help address the challenges of infill development, but those approaches may not work in all cities depending on local real estate markets, or constraints of local geology or hydrology.

The South Central Action Area Caucus Group *Subcommittee on Stormwater and Infill Development* is building on Growth Management Policy Board discussions with help from Commerce (*see sidebar*). This memo provides background information on stormwater management challenges in infill situations based on information presented to the GMPB as well as preliminary input from interviews and meetings with builders, planners and state and local stormwater managers.¹

Who, What and Why: The [South Central Action Area Caucus Group](#) is a regional "Local Integrating Organization" (LIO) designated with advancing the [Puget Sound Action Agenda](#). This project is intended to further one of the group goals: "Better alignment of land use planning with conditions for, and implementation of, municipal NPDES permits to reduce stormwater impacts."

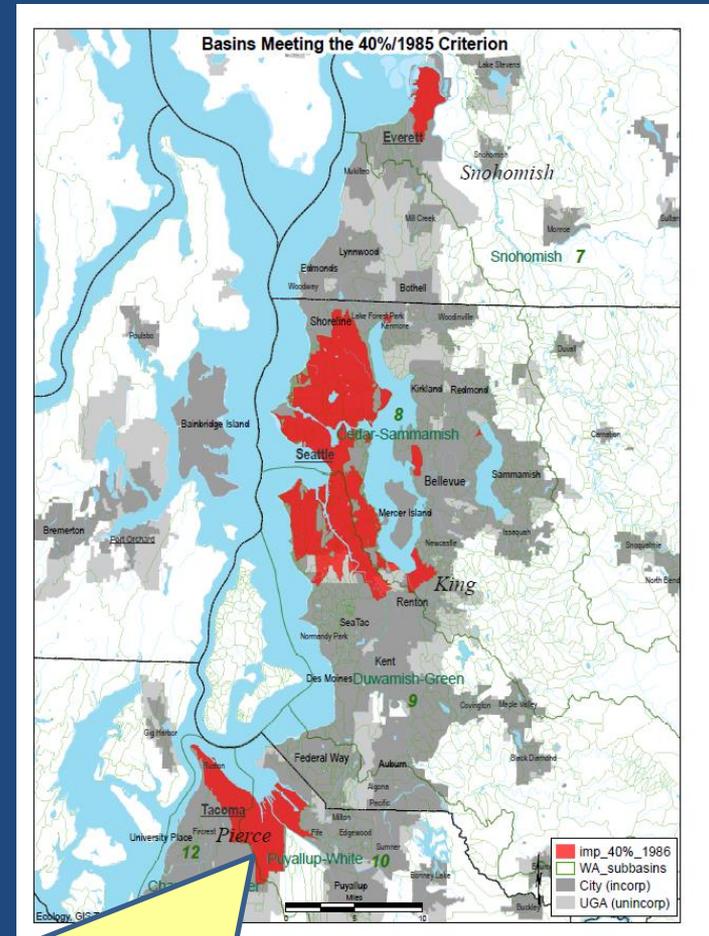
This memo was prepared by Department of Commerce with a grant from the National Estuary Program directed at promoting regional collaboration efforts that advance protection of Puget Sound. For information visit the project [EZ-View website](#) or contact [Tim Gates](#), Commerce, at 360.725.3058; or [De'Sean Quinn](#), Caucus Group Coordinator, at 206.263.3420.

¹ Including meetings of the American Public Works Administrators; MBA-Pierce Co; the Pierce Co Growth Management Coordinating Committee.

Main issue is *not water quality*, but flow control

Biggest concern is **Flow Control standard** (*matching forested condition*) in areas where future plans demand very high lot coverage:

- Outside basins that have been 40% impervious since 1985 (*aka “40/20” or “red zones”*)
- Where you can't pipe to flow-control exempt waters
- With limited infiltration options



Red Zone: Flow Controls only need to match *existing* conditions

Can LID reduce cost?

Recent study found 2012 Stormwater Manual using LID can reduce costs compared to 2005 manual in many scenarios.

Concern: modeled assumptions don't match many conditions.
“Stormwater approaches at ultra-urban redevelopment sites may vary significantly from the approaches included in this analysis. Different BMPs... would be a significant cost element in **scenarios where the building footprint occupies a large percentage of the parcel.**”

COST ANALYSIS REPORT

COST ANALYSIS FOR WESTERN WASHINGTON LID REQUIREMENTS AND BEST MANAGEMENT PRACTICES

Prepared for
State Department of Ecology

Prepared by
City of Puyallup
Washington Stormwater Center
Herrera Environmental Consultants, Inc.



Regional facilities?

Can help escape the “tyranny of site constraints.”

Concerns:

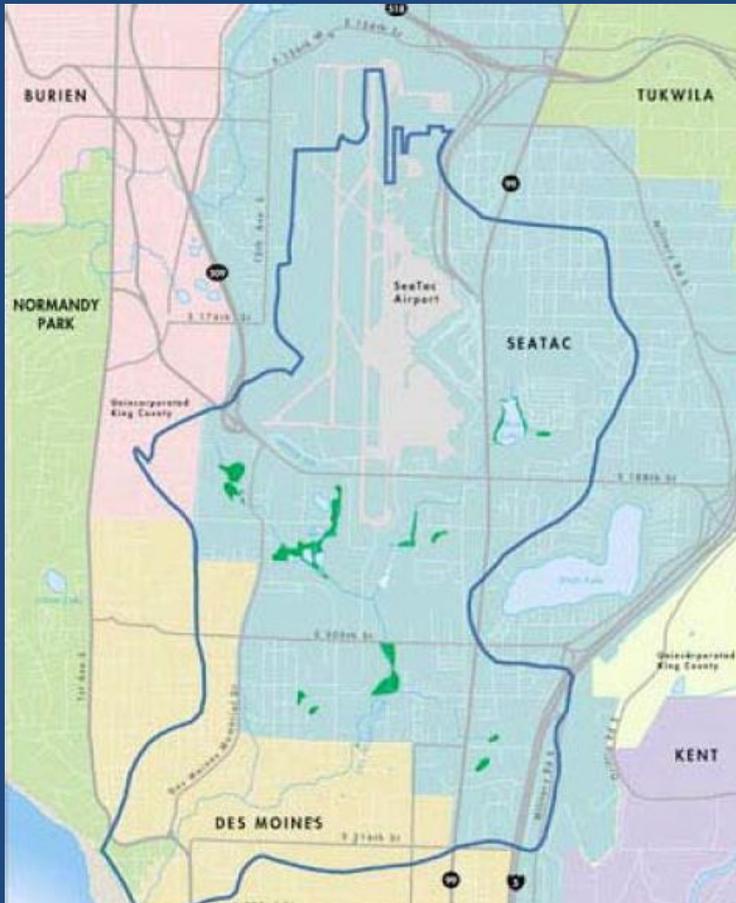
May not work everywhere

- Need the right geography
- Expensive, must be certain that redevelopment market will respond
- “Opportunity costs” (if affected streams are too altered to expect recovery)



Basin planning to alter Flow Control standard?

Permit allows for tailored standard through basin planning.



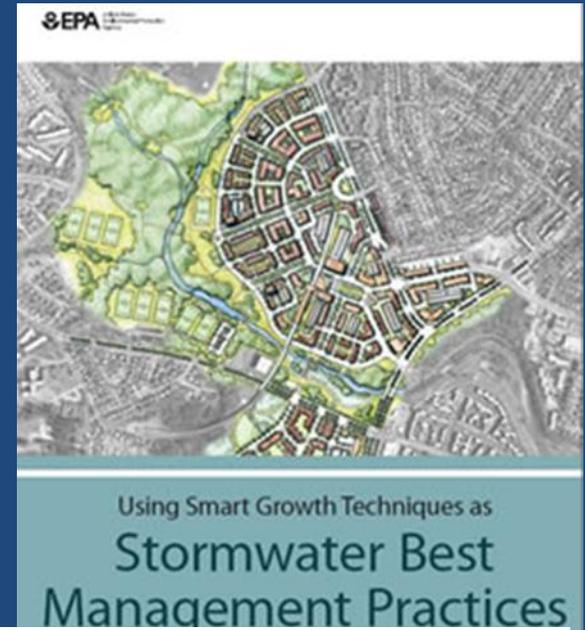
DesMoines Creek Basin Plan

Concerns:

- Requires costly, time-consuming study.
- In many basins, must collaborate with multiple jurisdictions, get all to approve plan before Ecology review.
- Lack of clear criteria or approval/appeal process.

“Context-sensitive” mitigation

- Considers redevelopment as a stormwater BMP.
- Dense infill development = less impervious surface *per capita*.
- **Opportunity to address mutual goals of GMA and Water Quality laws?**



STORMWATER

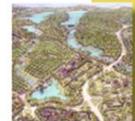
The Journal for Surface Water Quality Professionals

Watersheds, Walkability, and Stormwater

The role of density

Dense and Beautiful Stormwater Management

By Laurence Aurbach
Ped Shed Blog • PedShed.net
May 14, 2010

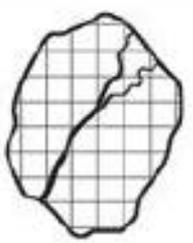
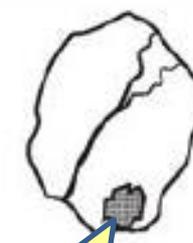


RAINWATER IN CONTEXT

ing and design possesses the stormwater well and encourage er, stormwater standards pact urban development at a y unintentionally promote sprawl arily damage watersheds. Four ent are proposed to encourage t: (1) recognize density as a best site mitigation, preferably in the the Transect (neighborhood

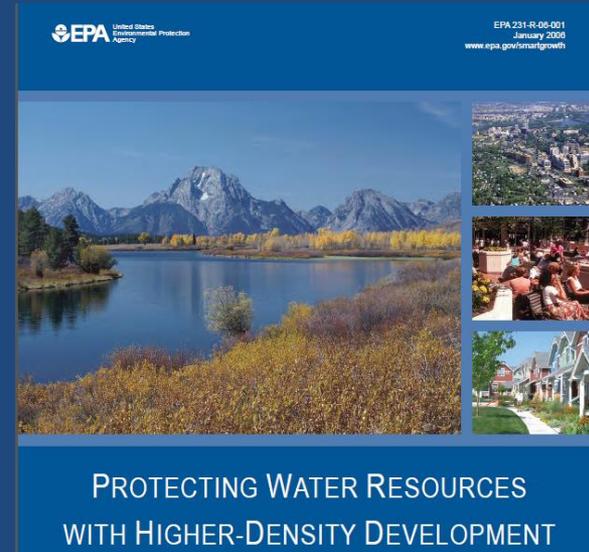
Density from the watershed's point of view

EXHIBIT 5: 10,000-Acre Watershed Accommodating 10,000 Houses

Scenario A	Scenario B	Scenario C
		
<p>10,000 houses built on 10,000 acres produce: 10,000 acres x 1 house x 18,700 ft³/yr of runoff = 187 million ft³/yr of stormwater runoff Site: 20% Impervious cover Watershed: 20% Impervious cover</p>	<p>10,000 houses built on 2,500 acres produce: 2,500 acres x 4 houses x 6,200 ft³/yr of runoff = 62 million ft³/yr of stormwater runoff Site: 38% Impervious cover Watershed: 9.5% Impervious cover</p>	<p>10,000 houses built on 1,250 acres produce: 1,250 acres x 8 houses x 4,950 ft³/yr of runoff = 49.5 million ft³/yr of stormwater runoff Site: 65% Impervious cover Watershed: 8.1% Impervious cover</p>

4 du/acre

8 du/ac



Higher density creates less runoff per capita and consumes less land than lower density scenarios.

National Pollutant Discharge Elimination System (NPDES)

[Recent Additions](#) | [Contact Us](#) Search NPDES: [GO](#)

[EPA Home](#) > [OW Home](#) > [OWM Home](#) > [NPDES Home](#) > [Stormwater](#) > Stormwater Rulemaking

[NPDES Topics](#)

[Alphabetical Index](#)

[Glossary](#)

[About NPDES](#)



Proposed National Rulemaking to Strengthen the Stormwater Program

EPA has initiated a national rulemaking to establish a program to reduce stormwater discharges from newly developed and redeveloped sites and make other regulatory improvements to strengthen its stormwater program. This website provides information on activities related to this proposed rulemaking:

[Rulemaking Considerations](#)

Stormwater Information

[Recent Additions](#)

Performance Standards (Cont'd)

11

- Considering relaxed standard for redevelopment
 - Recognizes site constraints and benefits to reusing already developed site
 - Encourages redevelopment to revitalize urban communities
 - Considering additional incentives for smart growth and brownfields development

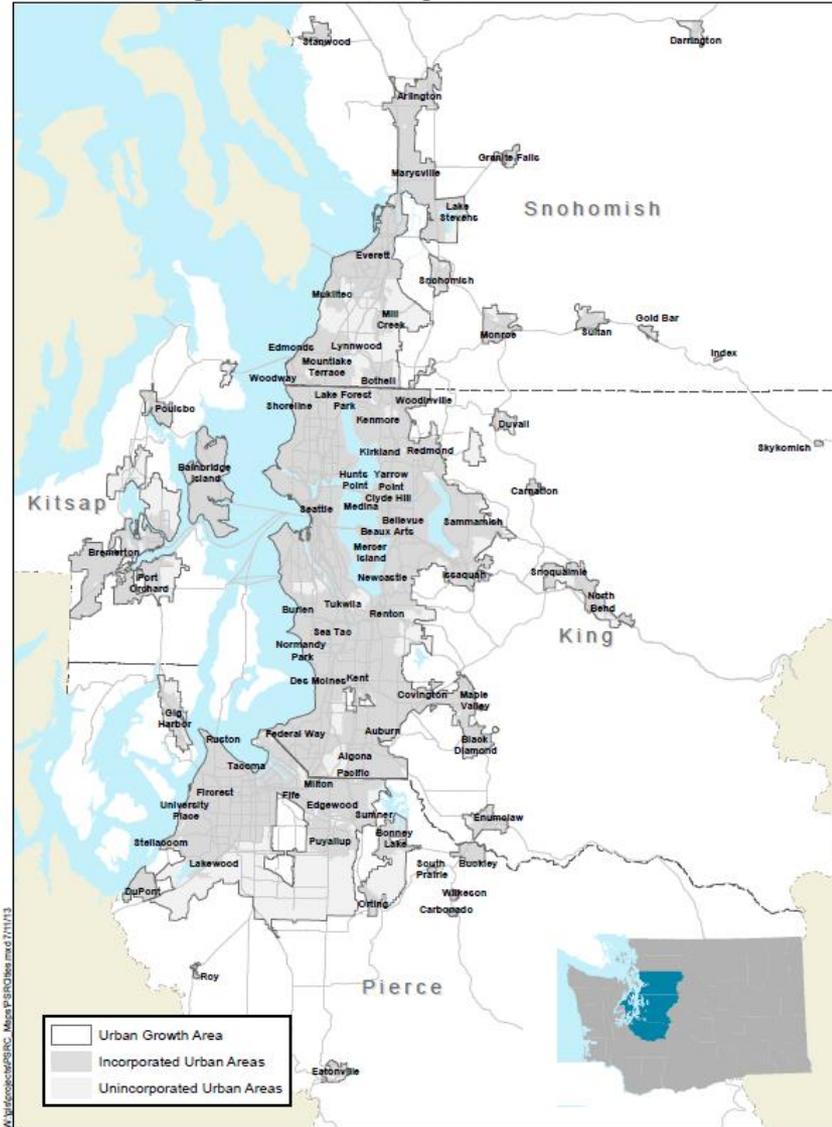
Applying the standard nationwide would create a level playing field for developers among municipalities and protect downstream communities from upstream development.

VISION 2040: A plan for 1.7 Million more people



2 more Seattles + 2 more Tacomas

Central Puget Sound Region





Regional strategy for distributing growth

Population targets for cities

Plans & regulations authorize densities to achieve targets

GMA Goals

Multi-county planning policies

County-wide planning policies

Comprehensive plan

Regulations

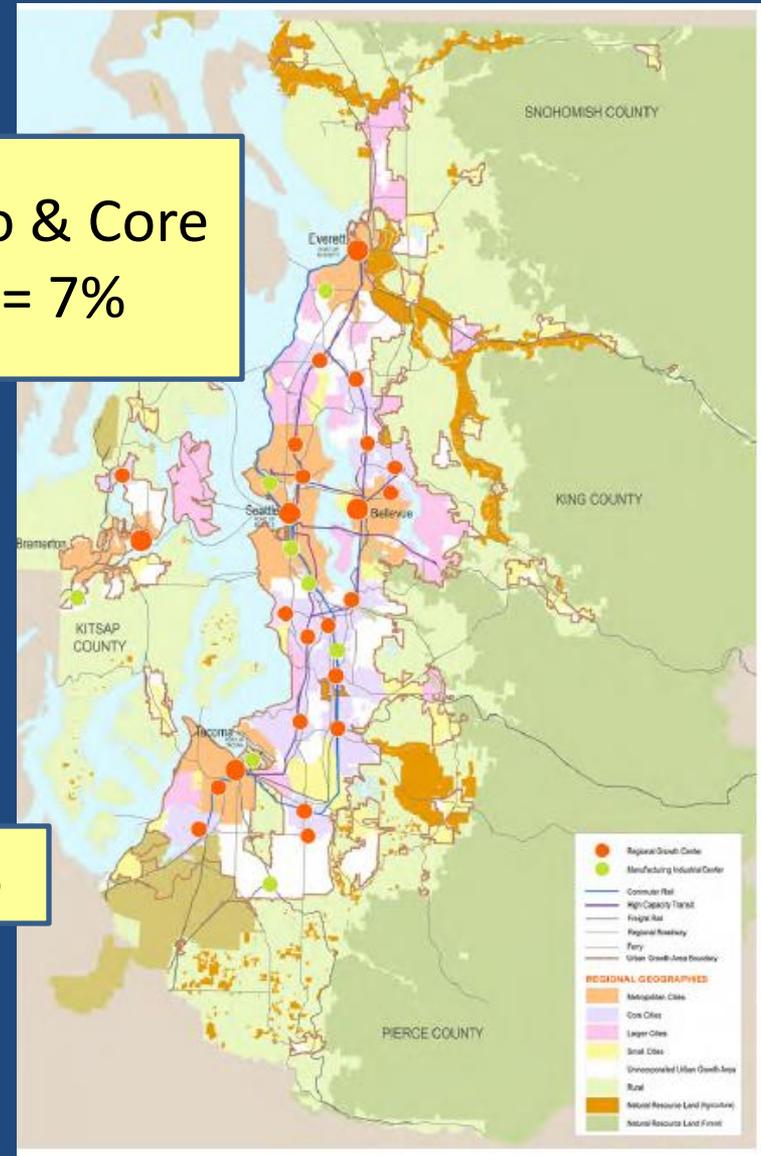
Project review

VISION 2040: anti-sprawl growth strategy

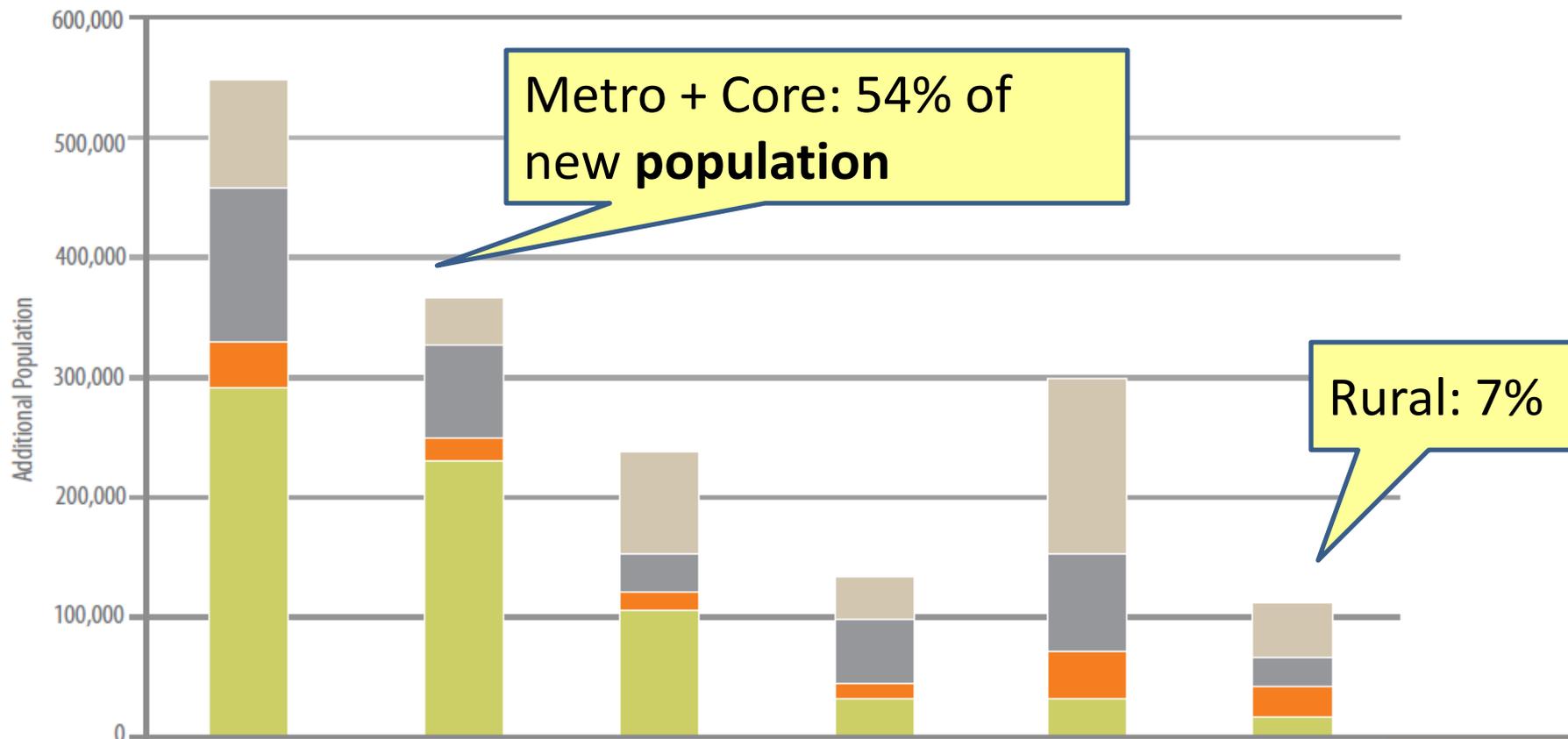
Regional geography	Sq miles
5 Metro Cities	222
14 Core Cities	212
18 Larger Cities	167
46 Small Cities	136
Unincorporated UGA	260
Rural Areas	1,464
Resource Lands	3,863
TOTAL	6,324

Metro & Core cities = 7%

23%



Population Growth by Regional Geography and County, 2000-2040

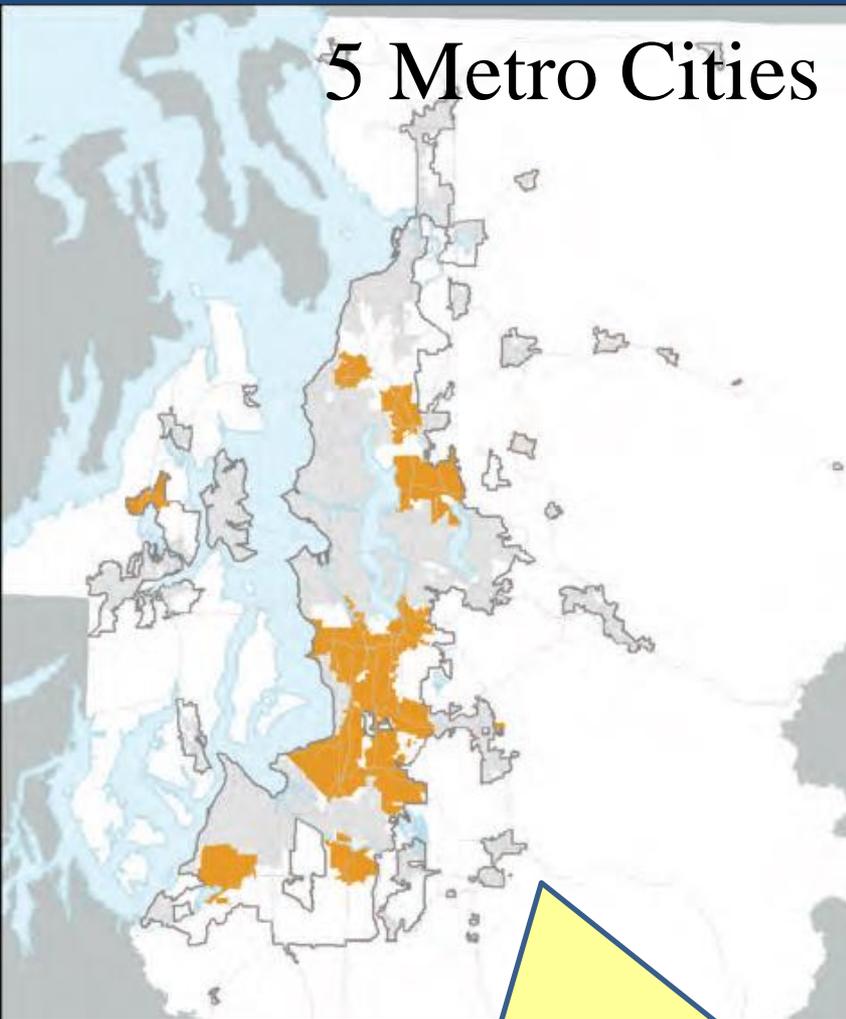


Metro + Core: 54% of new population

Rural: 7%

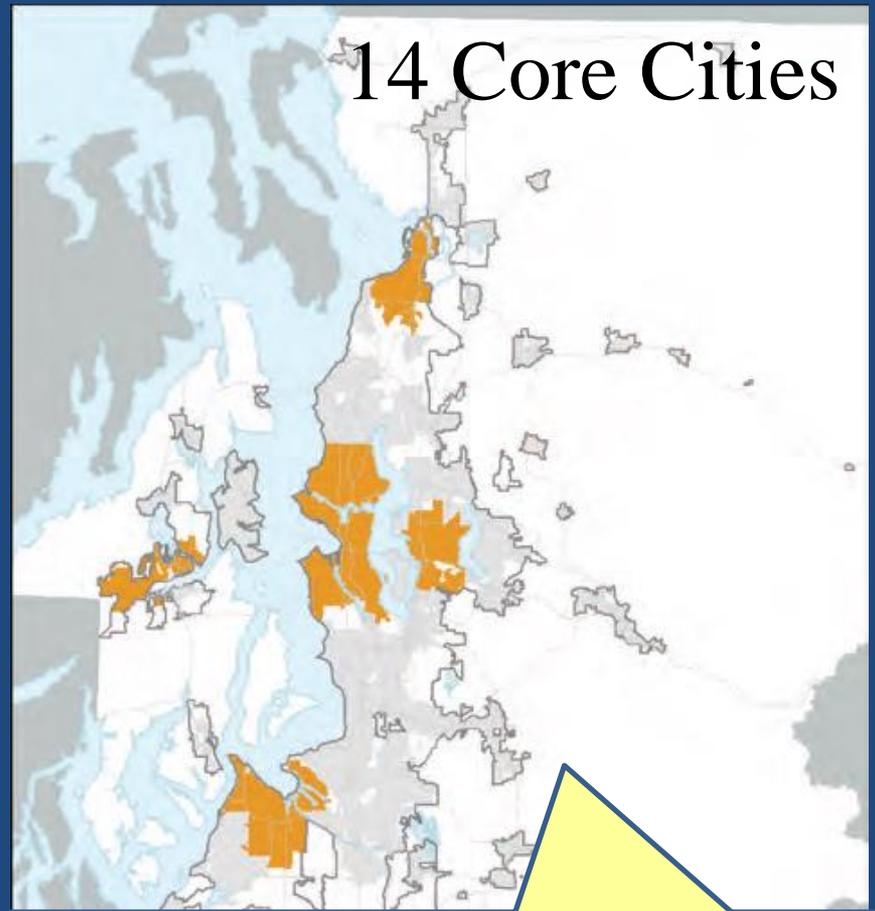
	Metropolitan Cities	Core Cities	Larger Cities	Small Cities	Unic'd UGA	Rural	Total
Snohomish County	20% - 90,000	9% - 40,000	19% - 85,000	8% - 37,000	33% - 148,000	10% - 46,000	26% - 446,000
Pierce County	32% - 127,000	20% - 77,000	8% - 32,000	13% - 52,000	21% - 81,000	6% - 24,000	23% - 393,000
Kitsap County	26% - 39,000	13% - 19,000	11% - 16,000	8% - 12,000	26% - 39,000	16% - 25,000	9% - 149,000
King County	41% - 294,000	32% - 233,000	15% - 108,000	5% - 35,000	5% - 34,000	3% - 20,000	42% - 724,000
Total Increase	32% - 550,000	22% - 369,000	14% - 240,000	8% - 136,000	18% - 302,000	7% - 115,000	100% - 1,712,000
2000 Base	1,007,000	601,000	403,000	210,000	586,000	470,000	3,276,000

5 Metro Cities



Bellevue, Bremerton, Everett,
Seattle, and Tacoma

14 Core Cities



Auburn, Bothell, Burien,
Federal Way, Kent, Kirkland,
Lakewood, Lynnwood,
Puyallup, Redmond, Renton,
SeaTac, Silverdale, and Tukwila.

Multicounty planning policies

MPP-DP-2: maximize development potential of existing urban lands

MPP-DP-15: Transform key underutilized lands, such as brownfields and greyfields, to higher density, mixed-use areas

MPP-DP-5: Focus a significant share of population and employment growth in designated **regional growth centers**.

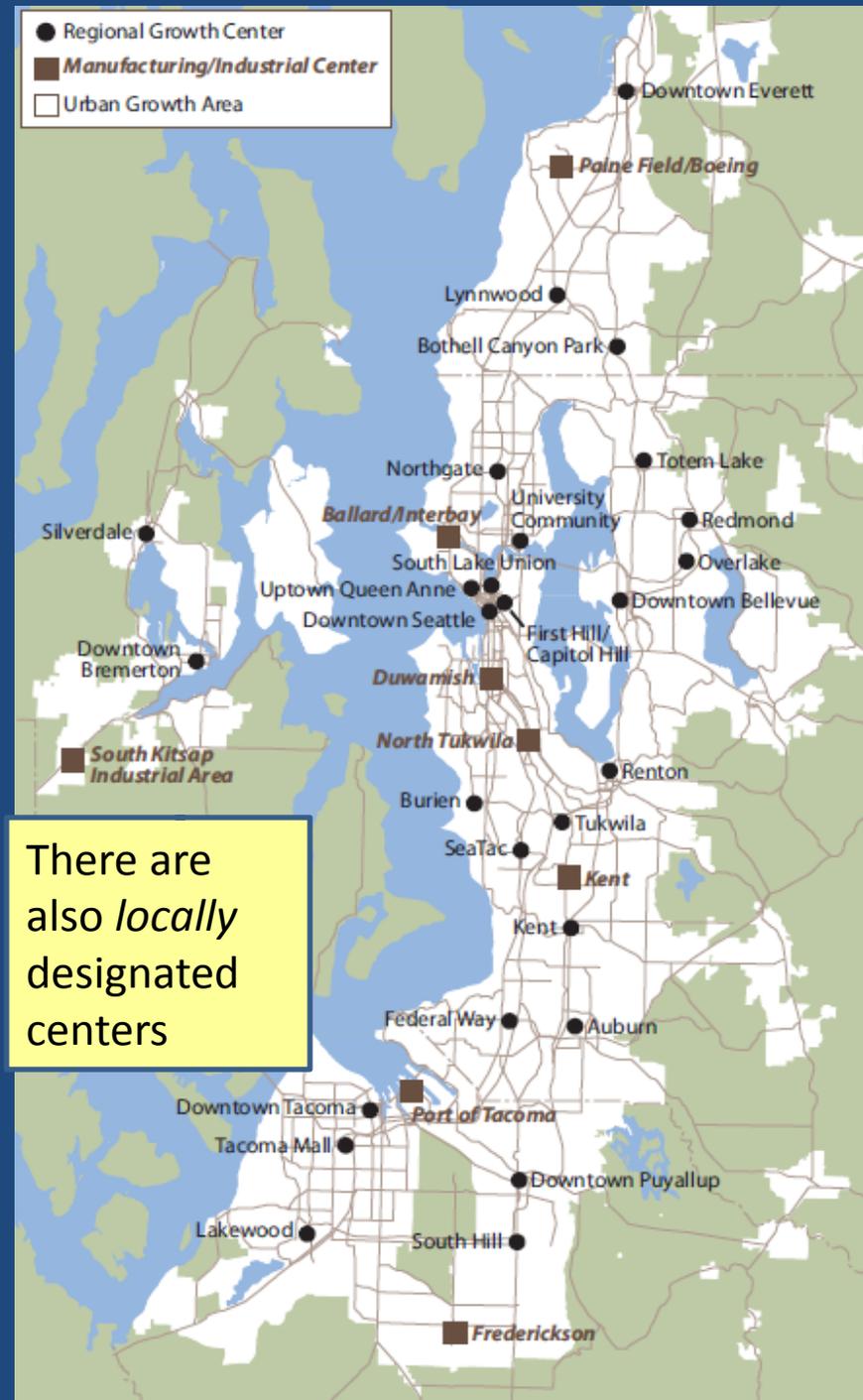
Regional Growth Centers

27 Regional Growth Centers:

- 2.5% of total UGA area (~25 sq miles)
- Currently 29% of regions jobs

8 Manufacturing/Industrial Centers:

- 3.7% of total UGA area



Centers linked by transit

- Voters approved \$15 billion for rail, bus, streetcar service

The Growing Transit Communities Strategy
Final Draft, October 2013

Growing Transit Communities

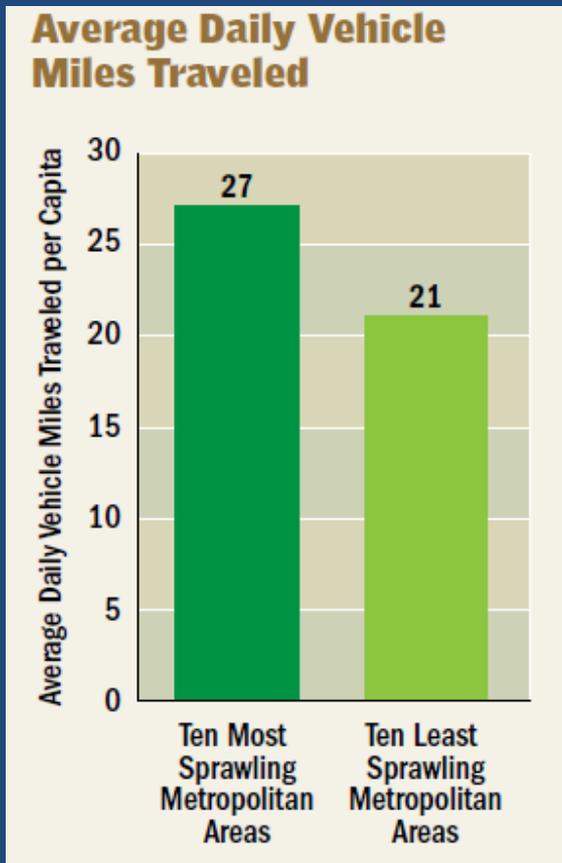
Puget Sound Regional Council
PSRC

Transportation 2040

	Existing	Transportation 2040
Rapid Transit		
Bus Rapid Transit		
Light Rail		
Commuter Rail		
Highway		
State Highway		
Interstate		
Passenger City Ferry		
Water Ferry		
Bicycle Pedestrian		
Transit Station		
Park and Ride		
Regional Growth Center		
Urban Growth Area		
Military Base		

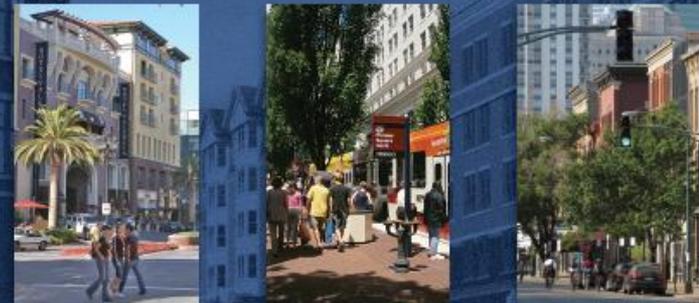
Climate change

Transportation: 50% of WA greenhouse gases



GROWING COOLER

THE EVIDENCE ON URBAN DEVELOPMENT AND CLIMATE CHANGE



ULI Urban Land Institute

REID EWING
KEITH BARTHOLOMEW
STEVE WINKELMAN
JERRY WALTERS
DON CHEN

Nat'l study: compact cites = 1/3 fewer miles driven than sprawl scenarios.

Center subarea plan

“Transit-Oriented Community”
(light rail destination)

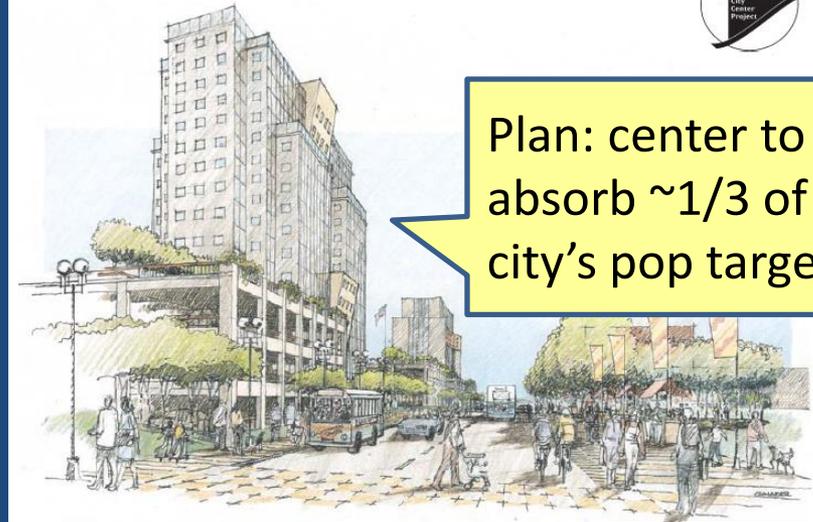
Dense, mixed-use, pedestrian-friendly center (buildings up to 350')

New roads; parks; activity centers; quality urban design.

Existing:
Car-oriented, superblocks,
one-story single use
buildings, parking lots

City of Lynnwood **CITY CENTER SUB-AREA PLAN**

September, 2007



Plan: center to absorb ~1/3 of city's pop target



Lynwood City Center NPDES cost analysis

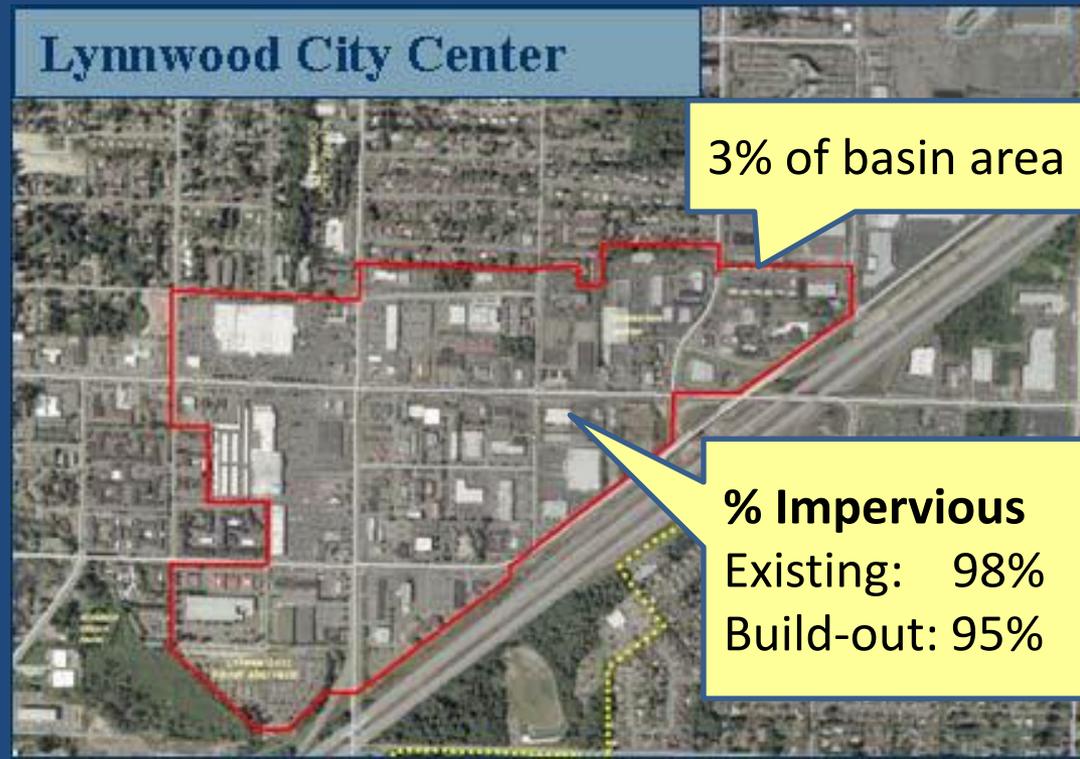
Herrera modeled creeks with Center at full build-out.

Environmental result:

Erosive floods would decrease from 7 ½ hours/year to 6 hours/year.

Cost: \$120 Million for detention facilities to match forested conditions.

- Outside “40/20” zone
- Can’t pipe to exempt waters
- Bad soils for infiltration



Explore in-lieu fee option for redevelopment?

- Focus on **Regional Growth Centers**: “sending areas”
- Each development still treats water quality on-site
- Developers pay fee-in-lieu for flow control (avoiding design costs and expensive land-consuming vaults)
- Spend \$ on targeted improvements to stream hydrology where it makes sense

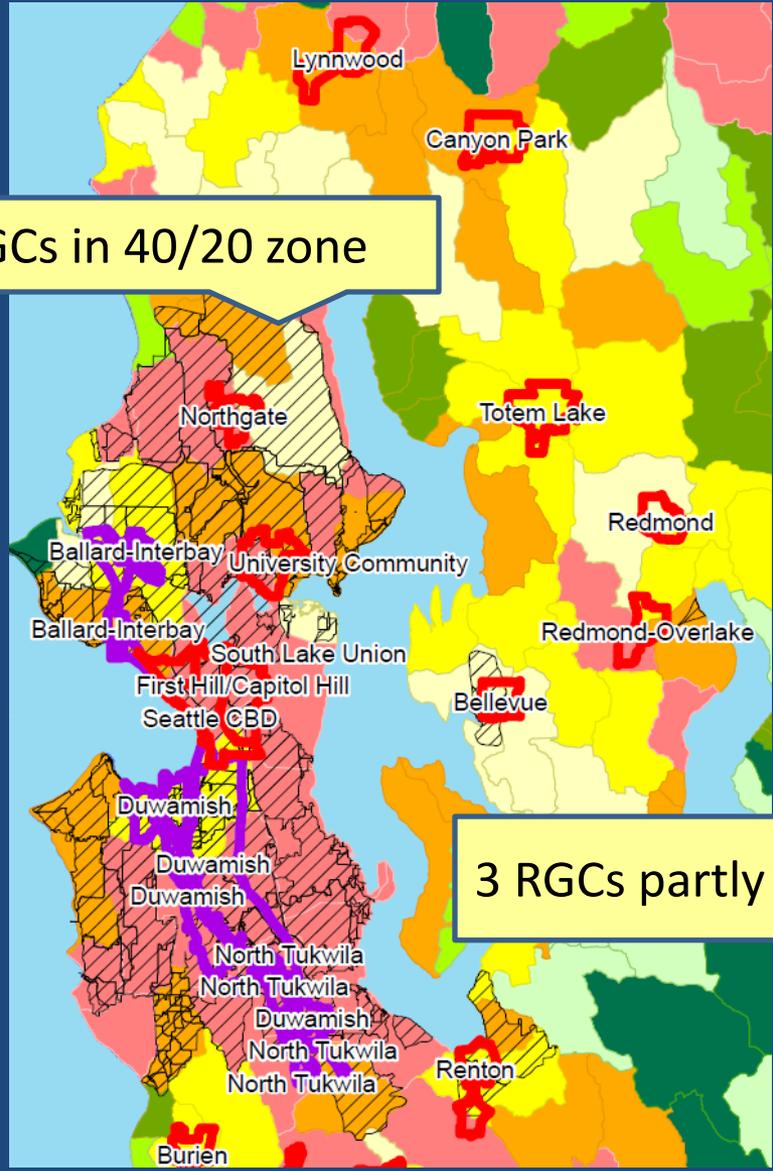
- Similar to Redmond’s watershed plan
- Variation of failed Clark County approach: more detail and accountability



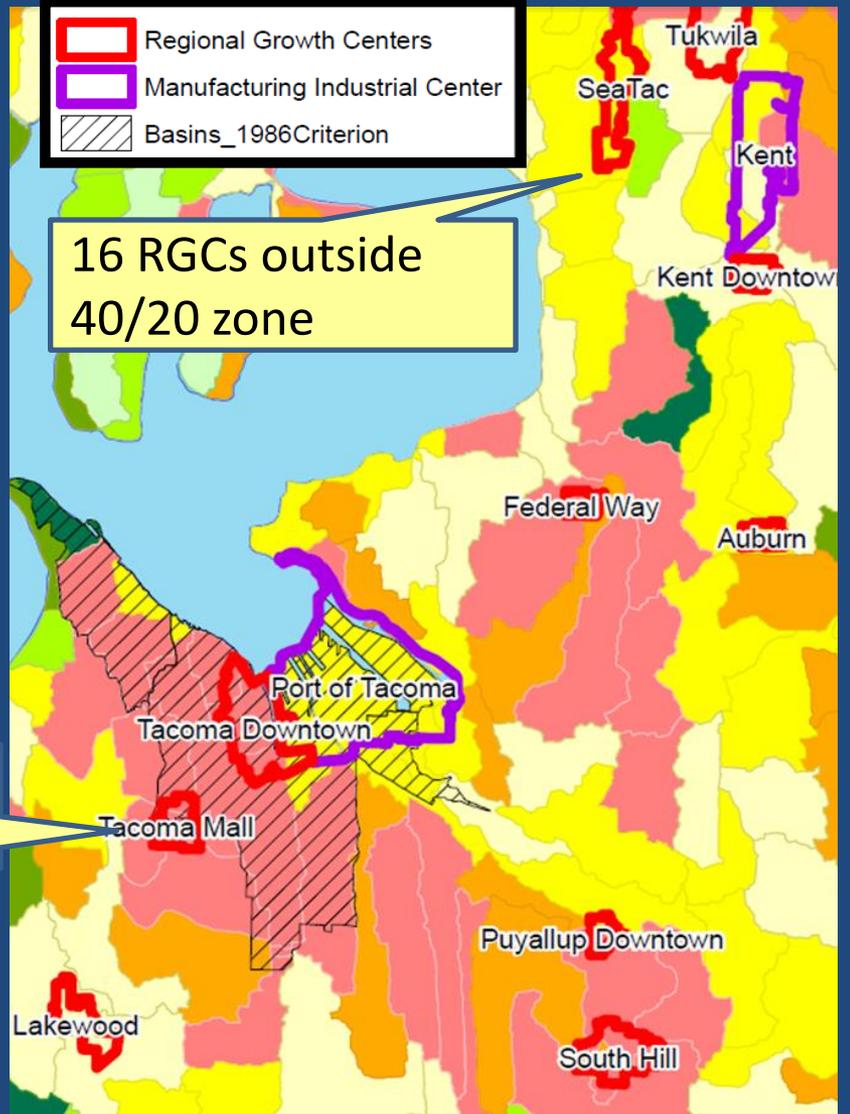
Use Ecology characterization?



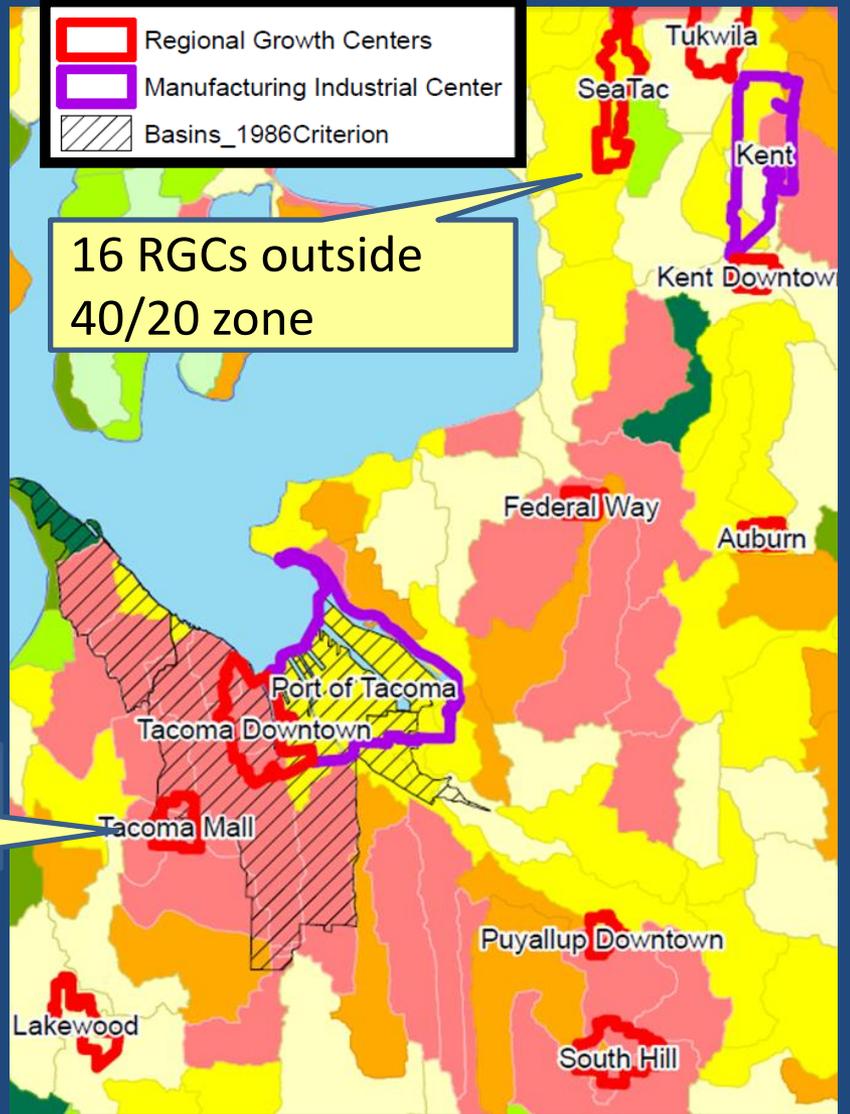
8 RGCs in 40/20 zone



16 RGCs outside 40/20 zone



3 RGCs partly in



Next steps

Ecology review of in-lieu fee option

Profile innovative approaches to manage stormwater for multiple benefits (SvR contract).

Growth Management Policy Board presentation (~Feb 2014).

PS Partnership Ecosystem Recovery Board (~March 2014)

Contact:

tim.gates@commerce.wa.gov

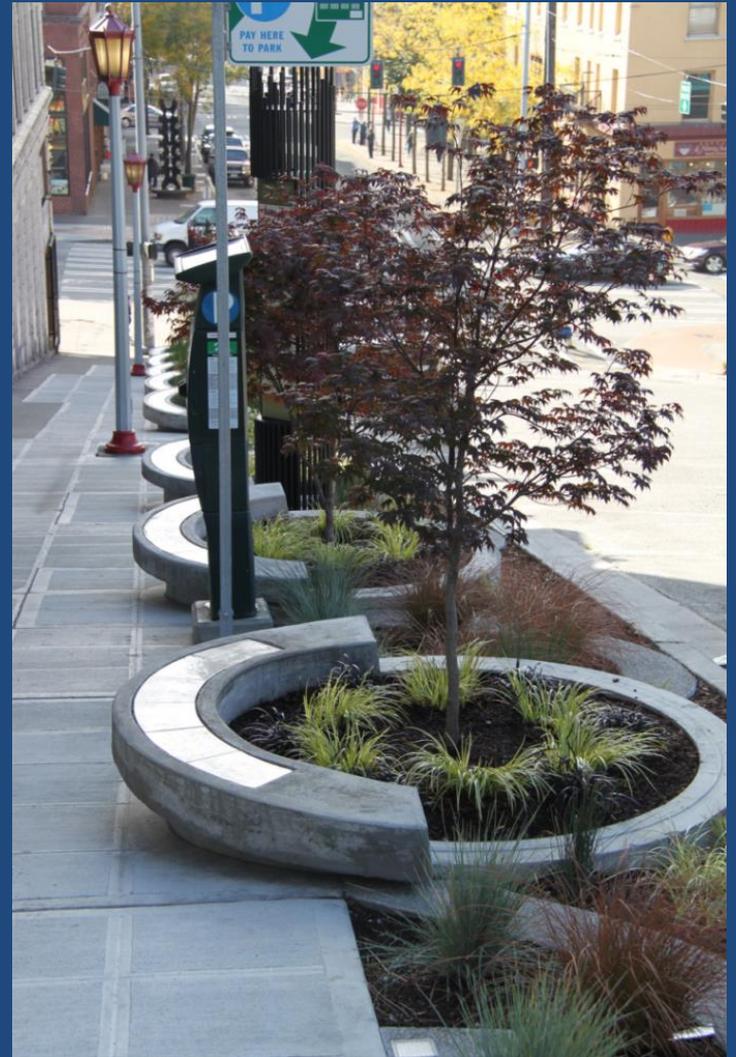


Photo courtesy SvR Design.