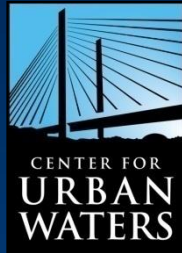
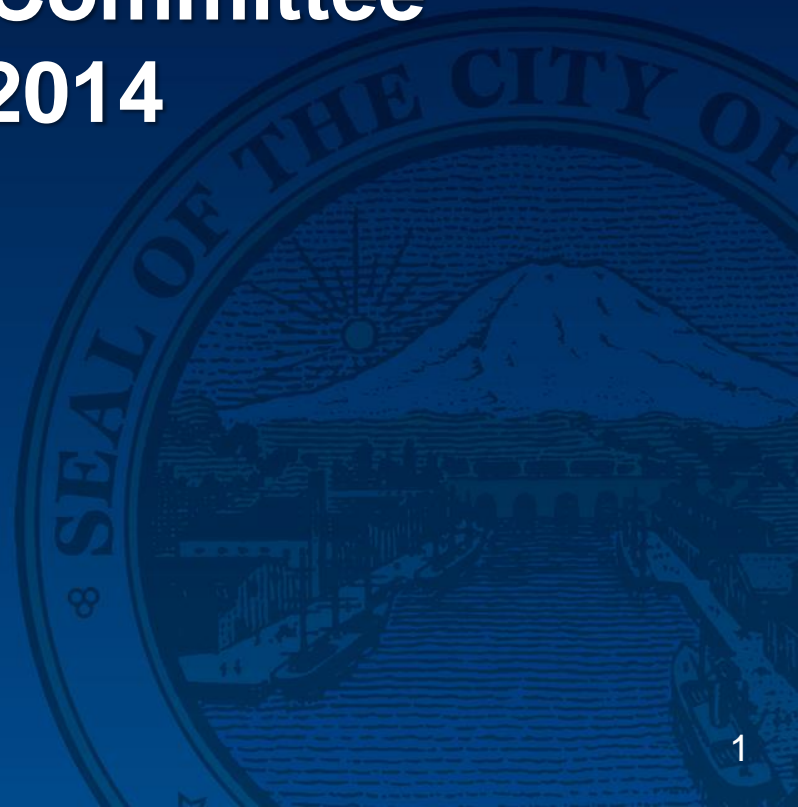


Re-envisioning Treatment and Flow Control in Tacoma – the Regional Approach

Cities in the Rain Committee
October 9, 2014



Lorna Mauren, P.E.
Dana DeLeon, P.E.
City of Tacoma
Environmental Services Department



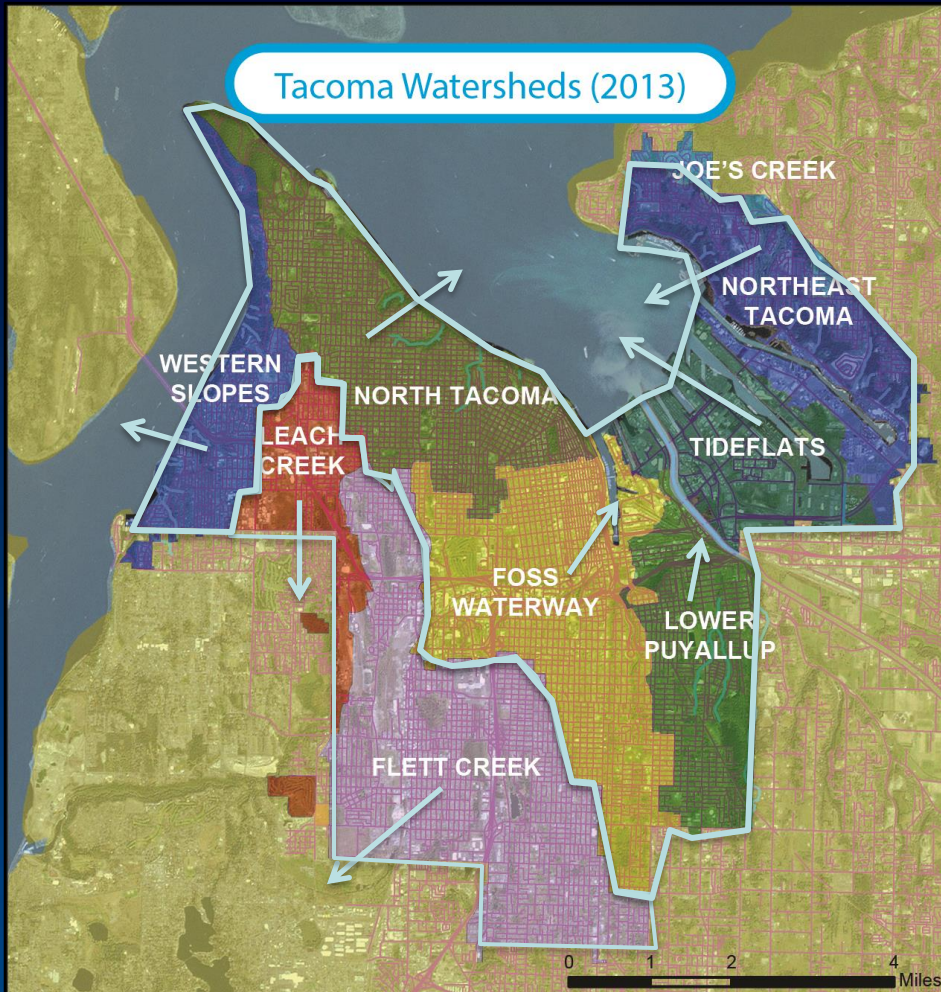
Background



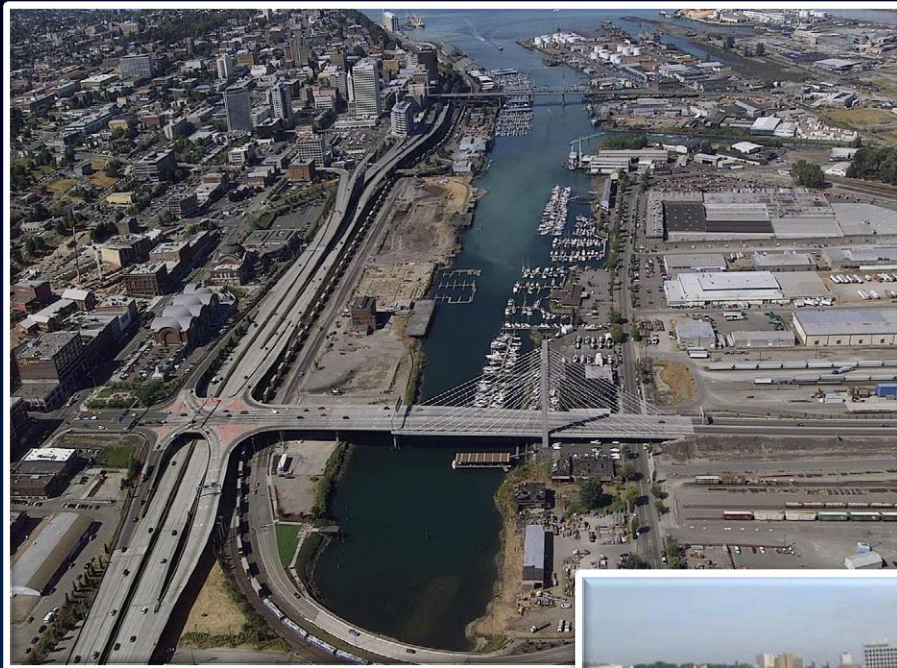
Economy

- Incorporated in 1875
- Population 202,000 (2012)
 - 10 year growth 2.5% (2010)
 - Seattle area 13%
- Median income \$48,000 (WA avg. \$57,000)
- Unemployment 8.7%
- Typical commercial rental \$20/sf
 - Vacancy 9.8% (13.1% before State Farm)

Hydrology



- 50 square miles
- 46% impervious
- 72% drains to flow control exempt receiving waters
- 500 miles of pipe



Foss Superfund Cleanup!!



Current Requirements

Issuance Date: August 1, 2012
Effective Date: August 1, 2013
Expiration Date: July 31, 2018


Phase I Municipal Stormwater Permit

National Pollutant Discharge Elimination System and
State Waste Discharge General Permit
for discharges from
Large and Medium Municipal Separate Storm Sewer Systems

State of Washington
Department of Ecology
Olympia, Washington 98504-7600

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified, or revoked, Permittees that have properly obtained coverage under this permit are authorized to discharge to waters of the state in accordance with the special and general conditions which follow.


Kelly Busewind, P.E., P.G.
Water Quality Program Manager
Department of Ecology

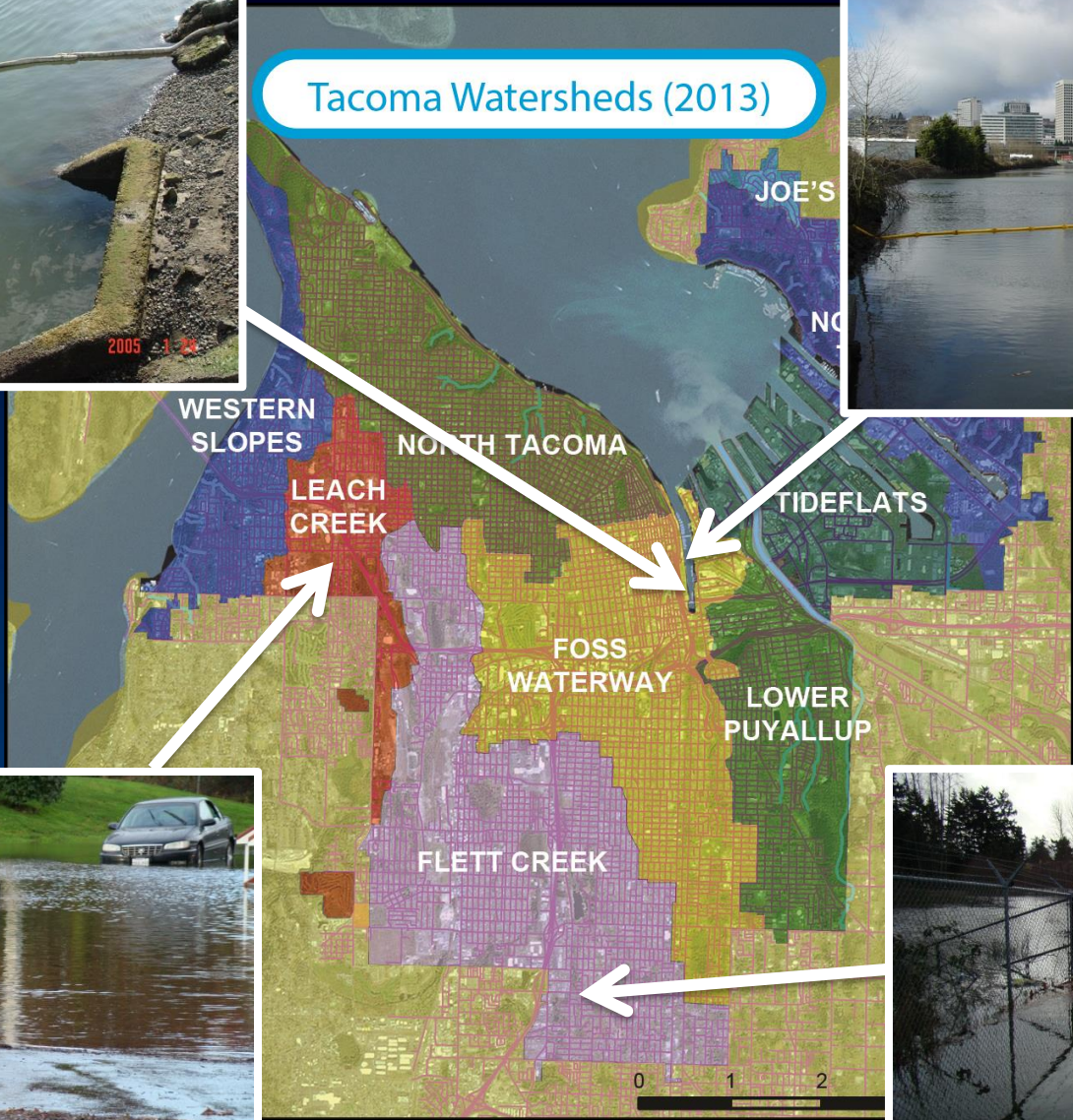
Surface Water Management Manual 2012 Edition



CITY OF TACOMA

Public Works/Environmental Services

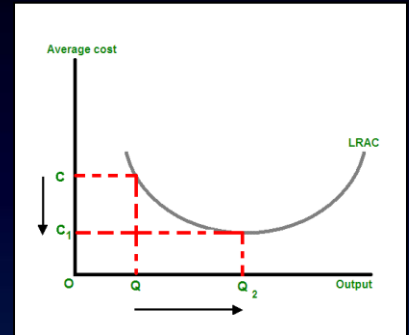
Tacoma Watersheds (2013)



Problem Statement

- **Current** - SWM Manual and on-site development / redevelopment requirements for flow control and treatment
- **Need** -
 - Treatment at levels that positively impact water quality in Tacoma's most sensitive receiving waters
 - Flow reduction in two systems that are flood prone

Bigger will be “Better” (lower unit cost)



- The economy of scale
- Cost advantages due to size or scale of operation

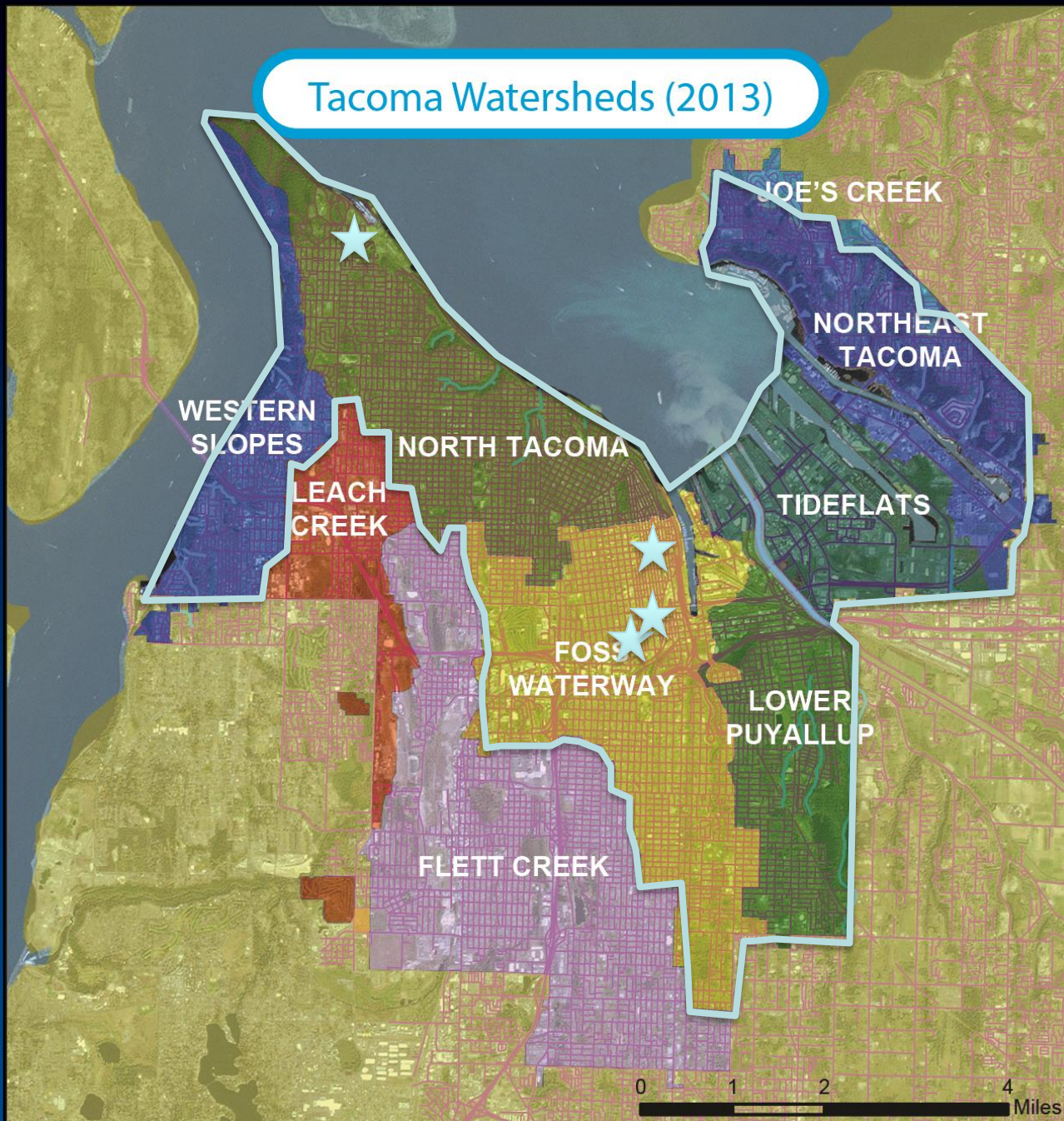
Consider the Redevelopment Community

- Generally more complex to develop in highly urbanized areas
 - Limited space
 - Demolition costs
 - Aging infrastructure
- Rents are low in Tacoma compared to other urban areas
- Ease of development or more lucrative rents can drive development elsewhere

The Vision

- Using Economy of Scale to get best unit price
- Using regional locations to get best improvement to receiving waters
 - Location
 - Operation and maintenance
- Leverage development dollars by creating a credit system for MR #6 and #7 to sell to developers
 - Use \$\$ to build the next targeted BMP

Tacoma Watersheds (2013)



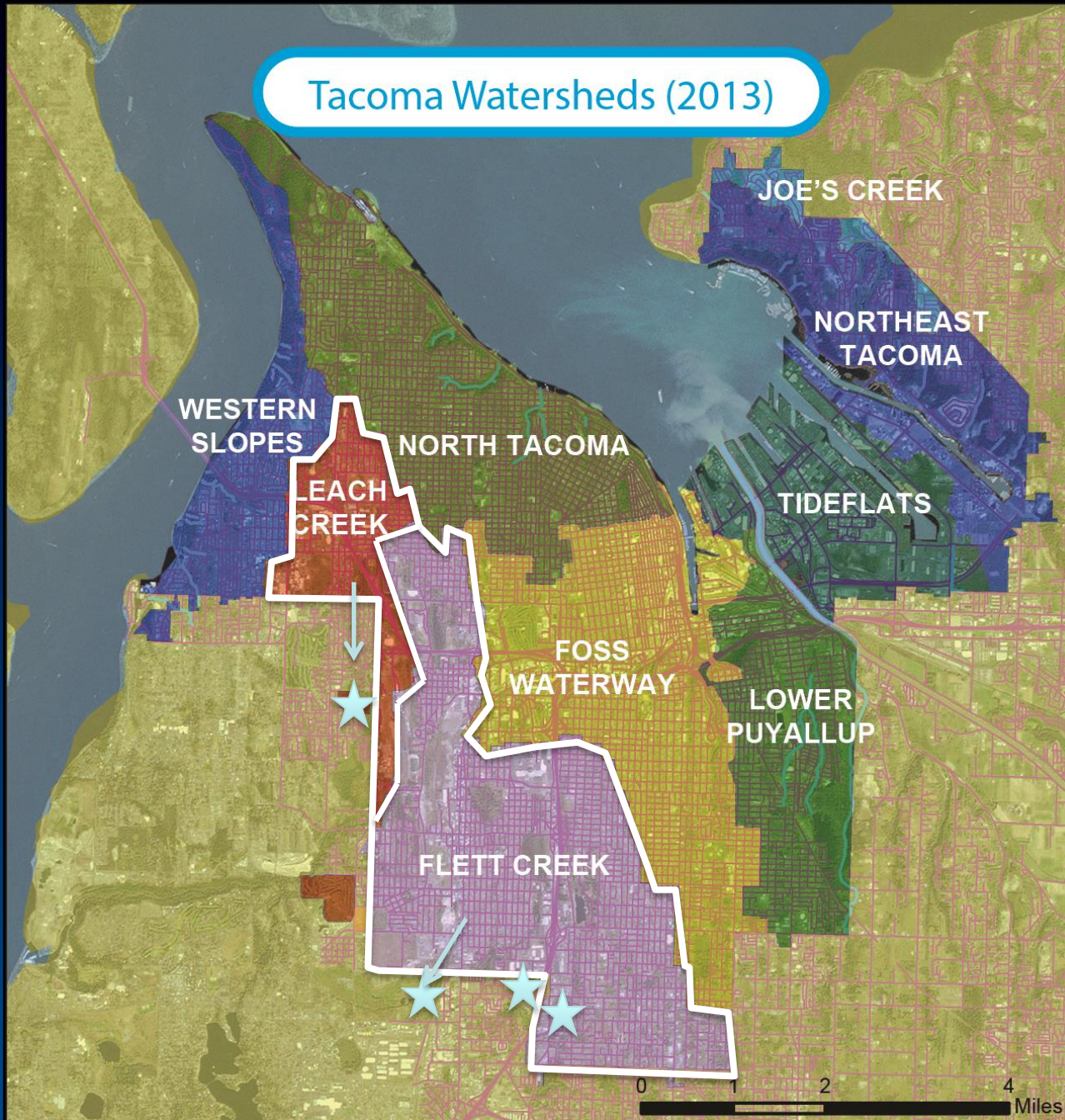
TREATMENT MR#6

SWM Manual – On-site development / redevelopment requirements

Added – Build regional treatment for Tacoma's most sensitive receiving waters

- Leverage regional treatment capacity to support development and redevelopment
- Collect developer "pay-in" to build subsequent regional facilities

Tacoma Watersheds (2013)



FLOW CONTROL/ REDUCTION MR#7

SWM Manual – On-site LID and detention ponds

Added –Reduce flows through retrofit projects

Residential Rain Garden Program

Converting to permeable surfaces

Expand existing holding basin capacity

Re-launch the “fee-in-lieu-of-detention” program to leverage development \$\$

Program Status

- Treatment Facilities are complete for projects tributary to Commencement Bay
- Flow Control and treatment projects are complete in Flett and another flow control project is under design.
- Identified opportunity for flow control in Leach Creek watershed.
- Awaiting Ecology comment prior to formal launch.

Future Project Prioritization

- Three “watersheds” (2 freshwater and 1 large saltwater).
- Urbanized – limited opportunities for facilities
 - Feasibility Analysis on potential sites
 - Project Prioritization of feasible sites

Feasibility Analysis

- Retrofit existing facilities (capacity, flow control, water quality)
- Site and Drainage Area Characteristics
- Size and Type of BMP feasible
- Social/Community Factors
- Other Factors:
 - Located in priority development area
 - Known capacity/source control issues

Project Prioritization

Factors	Ranking
Economic/cost Factors:	
Capital Cost	High -1, Medium -2, Low -3
Operation and maintenance costs	High -1, Medium -2, Low -3
Potential to replicate/leverage	Low -1, Medium -2, High -3
Hazards/risks to existing infrastructure	High -1, Medium -2, Low -3
Potential for multiple funding sources (City Surface Water fund and others, grants, other city funds, in-lieu of fees, partnerships)	Low -1, Medium -2, High -3
Social/Community Factors:	
Multiple benefits potential (walkways, parking, parks, bike trails, other CIP projects)	Low -1, Medium -2, High -3
Conflicting uses (parking in ROW, etc.)	High -1, Medium -2, Low -3
Supports Community Goals or other plans (e.g., First Creek, Wapato, other Neighborhood groups, Metro Parks, etc.)	Low -1, Medium -2, High -3
Visibility & Education Value	Low -1, Medium -2, High -3
Supports Health and Safety	Low -1, Medium -2, High -3
Other Factors to consider:	
Fish bearing Stream	No -1, Yes -3
Tacoma Ground Water Protection District	No -1, Yes -3
Protection of cleanup sites (Thea Foss Waterway, Hylebos Waterway, ASARCO, South Tacoma Field)	No -1, Yes -3
303(d) listed waterbodies	No -1, Yes -3
Locally identified capacity or pollution problems	No -1, Yes -3
Located in a priority area (redevelopment plans, mixed use centers, watershed where other public and private projects are or will be constructed)	No -1, Yes -3

Contact Information:

Dana De Leon, P.E.

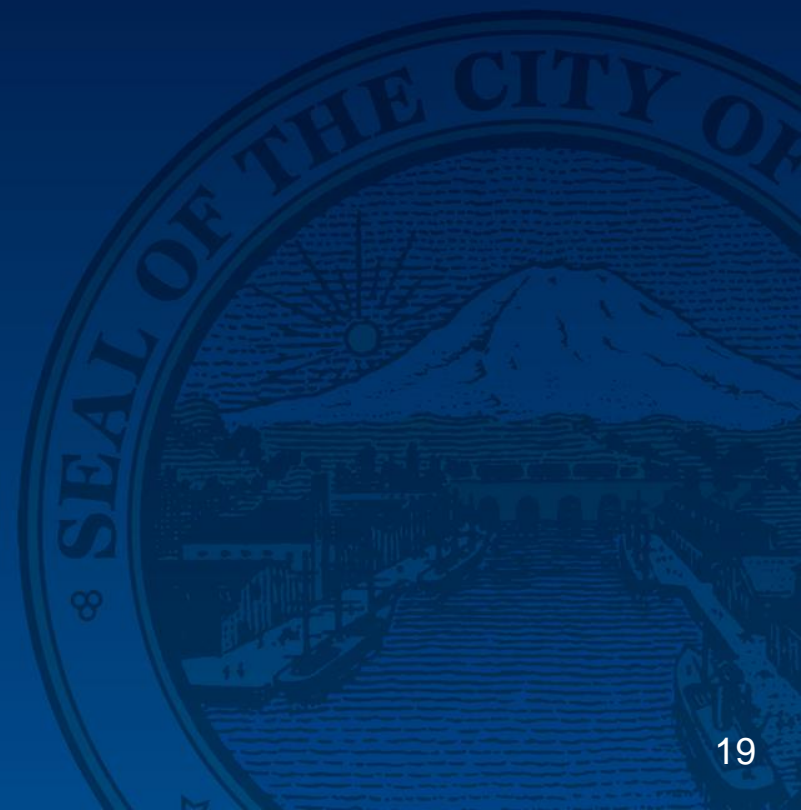
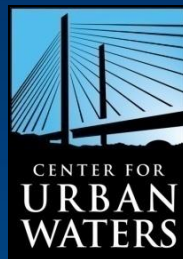
(253) 502-2109

ddeleon@cityoftacoma.org

Lorna Mauren, P.E.

(253) 502-2192

lmauren@cityoftacoma.org



Cheney Stadium

- Total 10 acres treated and infiltrated
- Tacoma's first Greenroad – Clay Huntington Way
- Includes 360 trees and bioinfiltration
- \$2.8 million construction cost



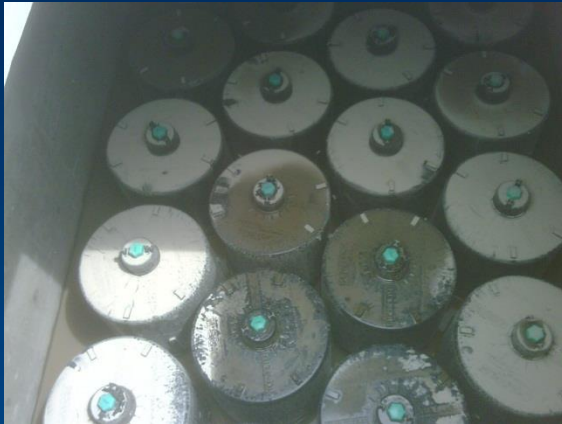
Expansion of Regional Detention

- \$3 million grant funding received
- Add 30 ac-ft detention capacity to Flett Watershed
- Capacity will be sold and provide funding for the next facility expansion



Treatment Vault – 23rd and Ferry Streets

- Treatment retrofit for 50 acres of Foss Watershed
 - 226 canisters
 - \$800k construction cost
 - Completed 2010



Pacific Avenue Streetscape

- Treatment retrofit for 5 acres of busy arterial street
 - 14 Rain Gardens + Silva Cells
 - \$2.4 million construction cost
 - Artist included in design team to enrich the rain garden appearance



Hood Street Regional Treatment

- Treatment retrofit for 42 acres of Foss Watershed
 - Filterra media basin
 - \$1.5 million construction cost
 - Completed 2014



Overview of Clark County's Alternative Flow Control Mitigation Program

John Palmer – EPA
October 2014

Background

- Ecology 2007 Phase I permit
 - Adopt new/re-development program with flow control by August 16, 2008
- Clark County adopted alternative flow control ordinance effective on April 13, 2009
- Ecology issued NOI in Nov 2009
- Ecology/County entered into an Agreed to Order in Jan 2010
 - Applicable to projects after April 13, 2009
 - Allowed for only existing conditions to be met on-site
 - Difference between existing and pre-development mitigated offsite
 - County responsible for mitigation projects within 2 years
 - Mitigation within WRIA based on County's Stormwater "Needs Assessment & CIP" programs
- Ecology Modified Phase I Permit (Appendix 10) in Sept 2010

Litigation Background

- Rosemere Neighborhood Association; Columbia Riverkeeper; and NW Env. Defense Center represented by Earthjustice appealed the Agreed to Order & permit modification
- Jan 2011, PCHB found the Agreed to Order unlawful and reversed and remanded back to Ecology
- Feb 2011, PCHB found the Phase I permit mod (Appendix 10 equivency determination) unlawful for the same reasons
- Sept 2012, upheld by Court of Appeals

Alternative program requirement permit language (S5C. 5.a.i.)

- More stringent requirements may be used, and/or certain requirements may be tailored to local circumstances *through the use of basin plans or other similar water quality planning efforts*. Such local requirements and thresholds shall provide *equal or similar protection receiving waters and equal or similar levels of pollutant control* as compared to Appendix 1.

PCHB Findings

- “Does not provide equal or similar protection”
- No basin planning or similar planning effort
- No scientific basis for metric (acre for acre)
 - No consideration of soil type, slope, receiving water uses
 - No requirement to target mitigation to ecologically important areas
- Allowed an impermissible reduction of effort required under the Phase I structural retrofit program to be used for mitigation projects to meet the new development requirements
- Excluded a large number of projects vested between Aug 16, 2008 and April 13, 2009
- Did not address the Phase I LID where feasible requirement

Building Cities in the Rain

Work Group Overview

October 9, 2014



Photo: SvR Design

Commerce: Heather Ballash

Growth Management Policy Board

“NPDES v. GMA”

NPDES v. GMA: Stormwater regulations are often more costly in ultra-urban areas than in green-fields.



NPDES & GMA/Regional Growth Strategy: How to encourage development in designated urban centers while meeting stormwater requirements?

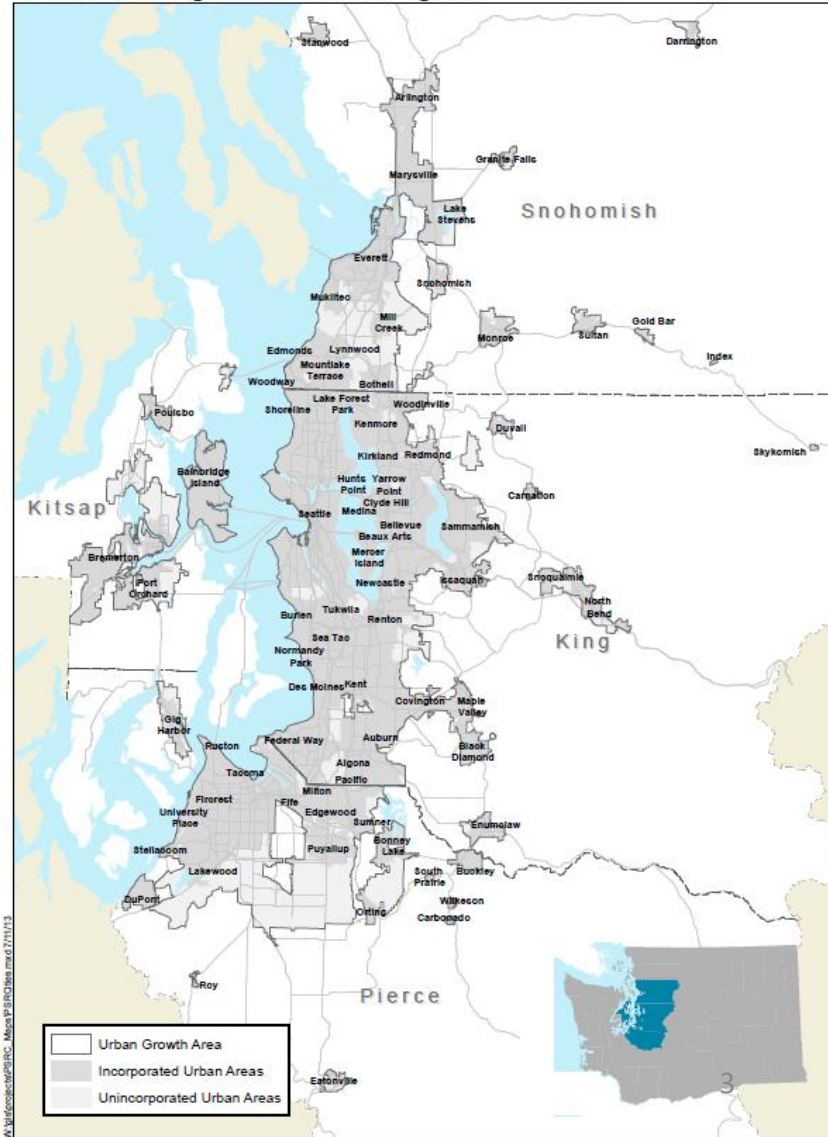


VISION 2040: Jobs & Housing for 1.7 Million



2 more Seattles + 2 more Tacomas

Central Puget Sound Region



VISION 2040

Focus on designated centers linked by transit:

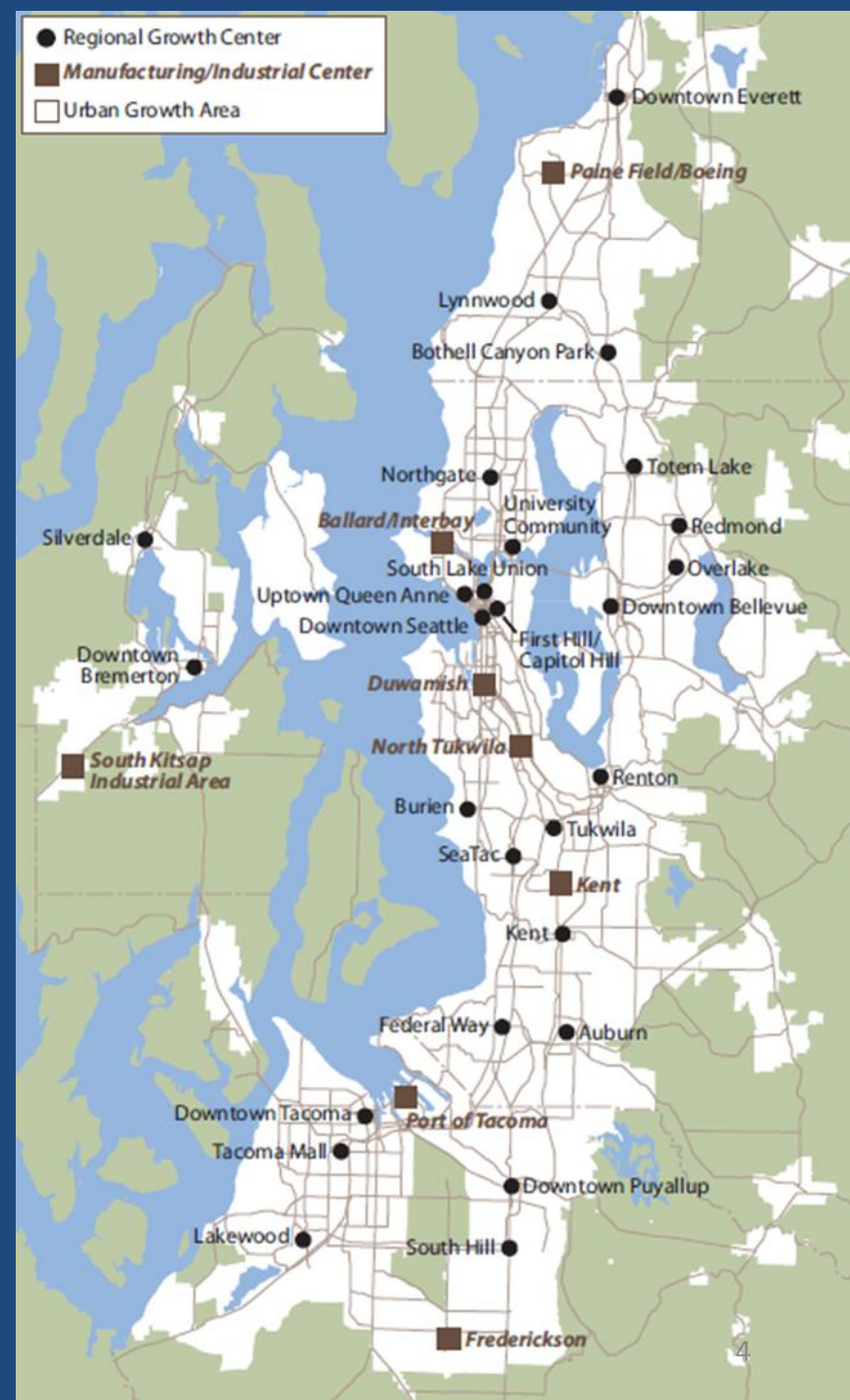
27 Regional Growth Centers

- 2.5% of total UGA (≈ 25 sq mi)
- Currently 29% of region's jobs

8 Manufacturing/Industrial Centers

- 3.7% of total UGA area

“TOD” = compact urban form; mostly *redevelopment*; less cars, roads and parking per capita



The logo for Puget Sound Partnership is centered within a light orange oval. It consists of a dark grey rectangular box containing the text "PugetSoundPartnership" in a blue, sans-serif font. Below this, in a smaller, white, all-caps font, is the tagline "LEADING PUGET SOUND RECOVERY".

PugetSoundPartnership

LEADING PUGET SOUND RECOVERY

Action Agenda

Commerce Near Term Action A1.2.1:

“Land Use Planning Barriers, BMPs and Example Policies”: address barriers to policies that encourage compact growth, increased density, water quality standards, redevelopment.....”

South Central LIO Near Term Action SC13: “Develop recommendations for incentives and cost effective tools to meet stormwater management and GMA ... to encourage infill... in urban centers instead of greenfield... and to improve water quality.”

Desired Outcome = Vibrant Designated Urban Centers + Clean Water + Restored Fish Habitat

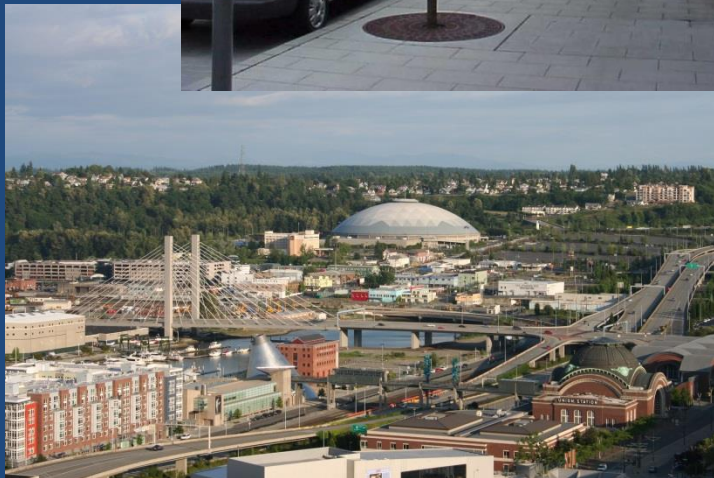
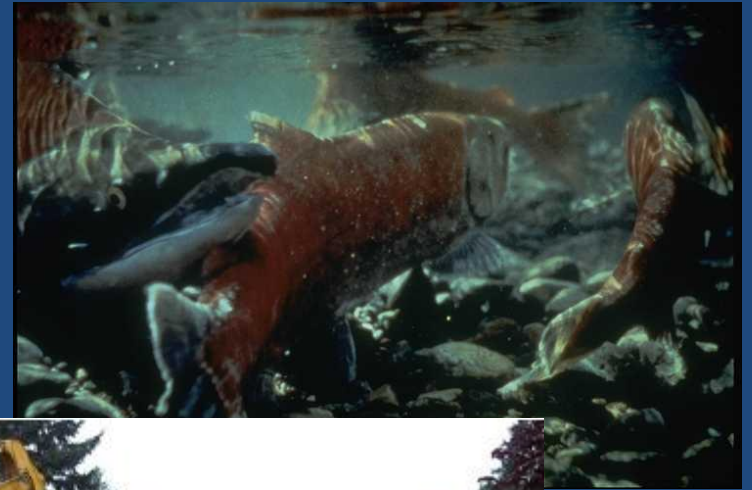
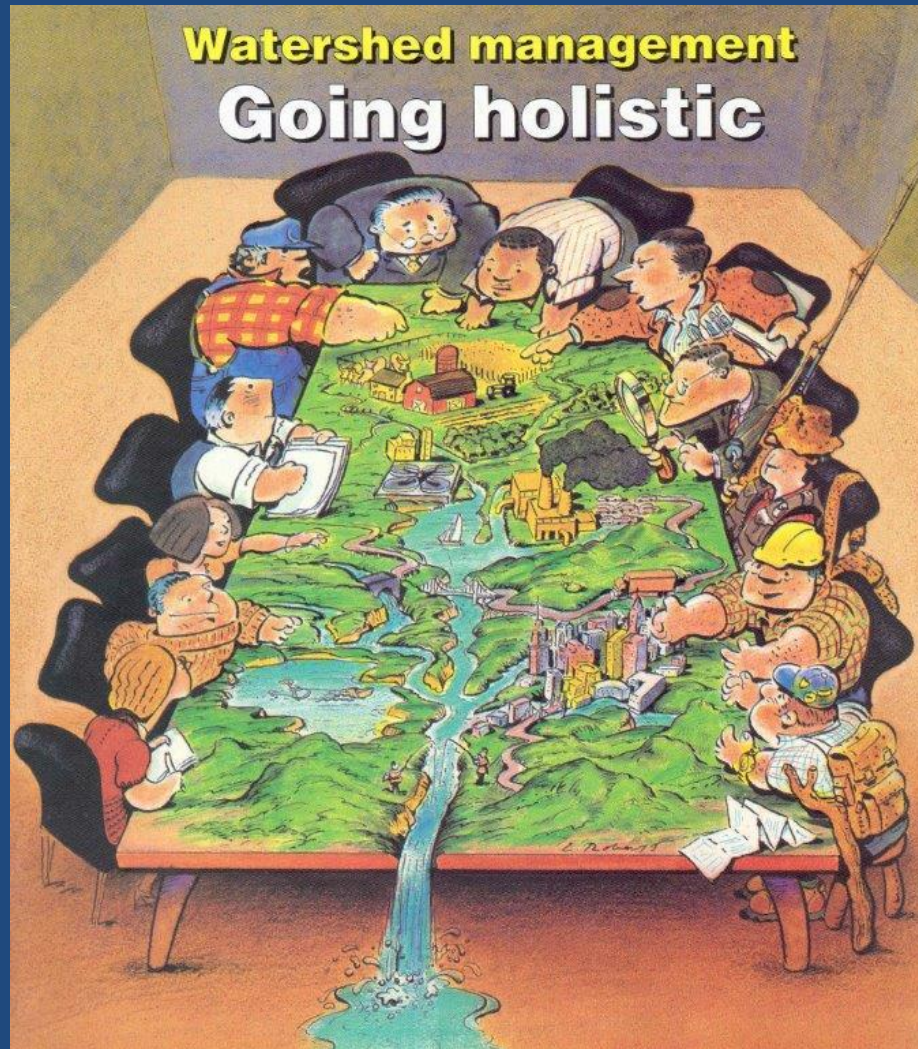


Photo: SvR Design

Desired Outcome = An Interdisciplinary Approach




Flexibility in Permit: Watershed Planning

Redmond approach approved February 2014.
Template for other cities.

Basic approach:


- Identify areas where dense development is desired; and “stormwater mitigation areas” where stormwater retrofits will have near term ecological benefits
- City builds stormwater retrofits to address hydrology and water quality issues caused by development
- Developers pay fee-in-lieu to pay back stormwater retrofits

2013
CITY OF REDMOND, WASHINGTON
CITYWIDE WATERSHED MANAGEMENT PLAN



Prepared for
City of Redmond
Public Works Natural Resources Division

Prepared by
Herrera Environmental Consultants, Inc.



HERRERA

Carefully decouples mitigation from project site

Developing Guidance and Outreach

Task	Action	Notes
Guidance	Develop guidance for identifying priority “stormwater mitigation areas” for stormwater facilities	Develop prioritization guidance that compliments/integrates with Ecology’s (developing) guidance on a stormwater control transfer program
Outreach	Communication with and engagement of stakeholders	Tribes, environmental community, cities/counties, building community, etc.

Puget Sound Ecosystem Recovery Targets
Most Closely Related to
Building Cities in the Rain Project

Bruce Wulkan, Puget Sound Partnership
Bruce.wulkan@psp.wa.gov



Purpose of this short presentation:

Remind everyone, as we develop guidance about receiving areas for mitigation, of the related indicators and targets that have been adopted to inform us of our progress in recovering Puget Sound.



Action Agenda



Ecosystem Targets, or *Vital Signs*

The Partnership uses 21 Indicators and Targets arranged into a Vital Signs Dashboard to help us track and communicate our efforts toward Puget Sound recovery

Of the Vital Signs, which are most closely linked to Encouraging Infill Development, Protecting Greenfields, and Managing Urban Stormwater? These 6:

Protecting Habitat:

- 1. Land development & cover** (including UGA target)

Water Quality:

- 2. Freshwater quality**
- 3. Marine sediment quality**
- 4. Toxics in fish**

Healthy Human Population:

- 5. Shellfish harvest**
- 6. Swimming beaches**

Two targets in greater detail:

1. Land development & Cover

Part I. Land cover change: Forest loss

- The average annual loss of forested land cover to developed land cover in non-federal lands does not exceed 1,000 acres per year, as measured with Landsat-based change detection.

Land cover change: Riparian vegetation restoration

- Restore 268 miles of riparian vegetation or have an equivalent extent of restoration projects under way.

Land development & Cover

Part 2. Land development pressure: Conversion of ecologically important lands

- Basin-wide loss of vegetation cover on ecologically important lands under high pressure from development does not exceed 0.15% of the total 2011 baseline land area over a five-year period.

Land development pressure: Growth in UGAs

- The proportion of basin-wide growth occurring within urban growth areas is at least 86.5% (equivalent to all counties exceeding their population growth goals by 3%), with all counties showing an increase over their 2000–2010 percentage.

2. Freshwater Quality Vital Sign & Targets

1. At least half of all monitored stations should score 80 or above on the Water Quality Index.
2. Reduce the number of “impaired” waters.
3. Part I. Protect small streams that currently have “excellent” Benthic Index of Biotic Integrity (B-IBI) scores; and Part II. Restore 30 streams currently scoring as “fair” to scores “good.”

How does this relate to Funding for Programs and Projects?

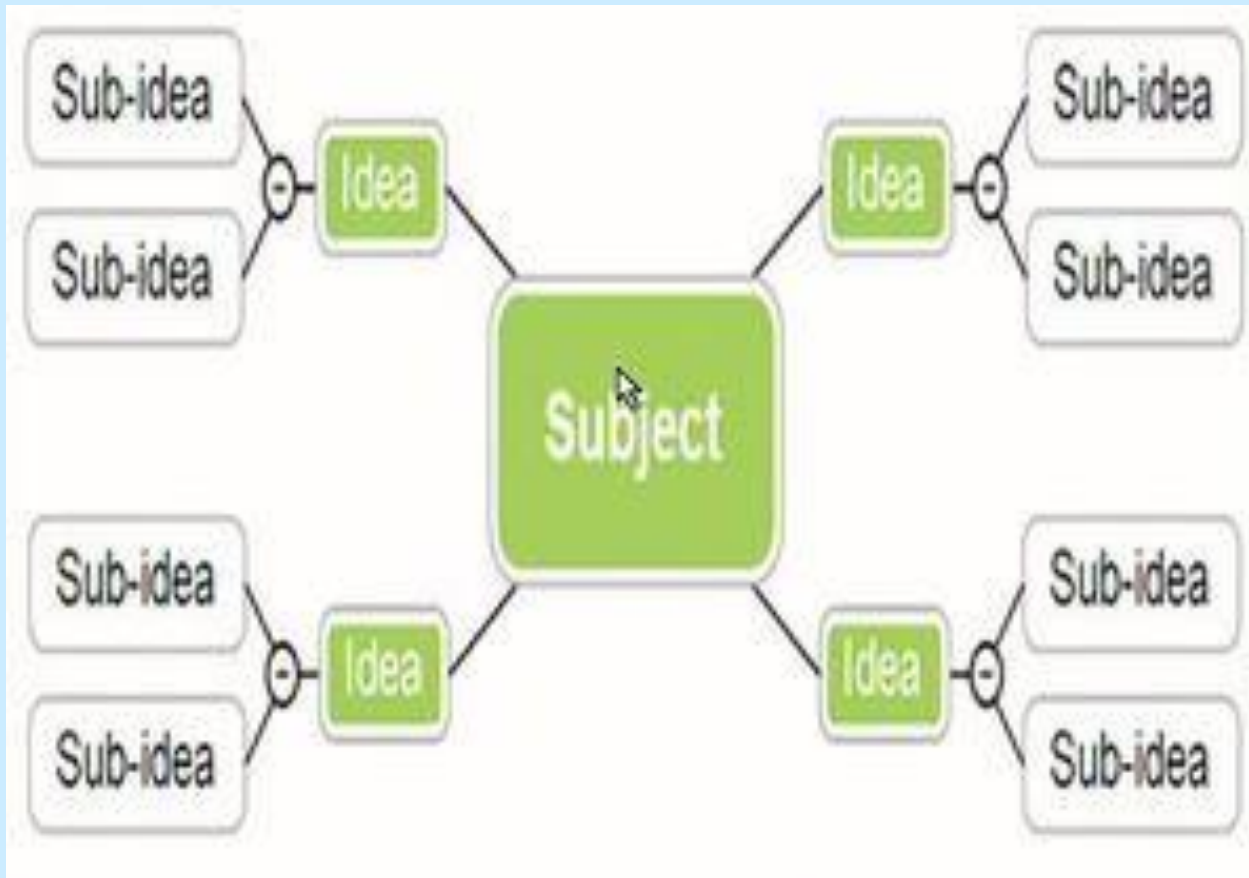
- EPA National Estuary Program (NEP) funding for Puget Sound recovery is being revised for 2016 and onward. Would affect potentially tens of millions of dollars.
- EPA draft proposal - Revise structure to focus on the 3 strategic initiatives: Habitat, Stormwater, and Shellfish.
- Implementation plans - would be developed by interagency teams, and would describe steps necessary to reach targets.
- Near term actions (NTAs) would be funded to carry out these steps.
- This project is an NTA in the 2014/15 Puget Sound Action Agenda.
- Also state funding: Ecology SW Funding Committee – Advising on \$100M in retrofits and revised grants & loans program for SW.

Brainstorming Scope of Prioritization Guidance

Mind mapping tool

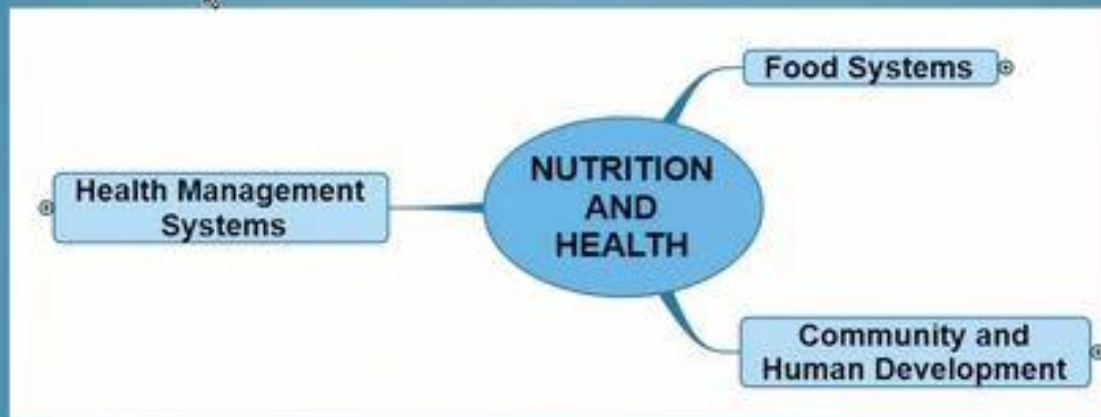


Mind Mapping Model



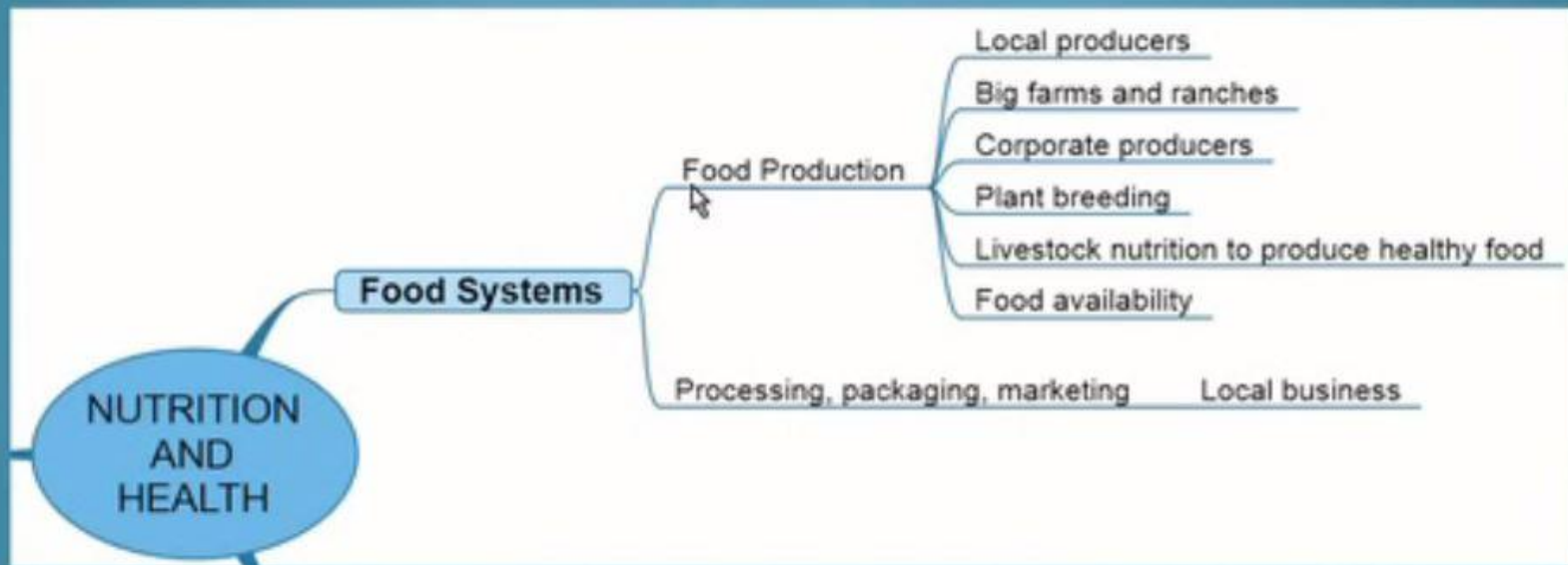
Mind Mapping Example

EXAMPLE: Western Land Grant Universities



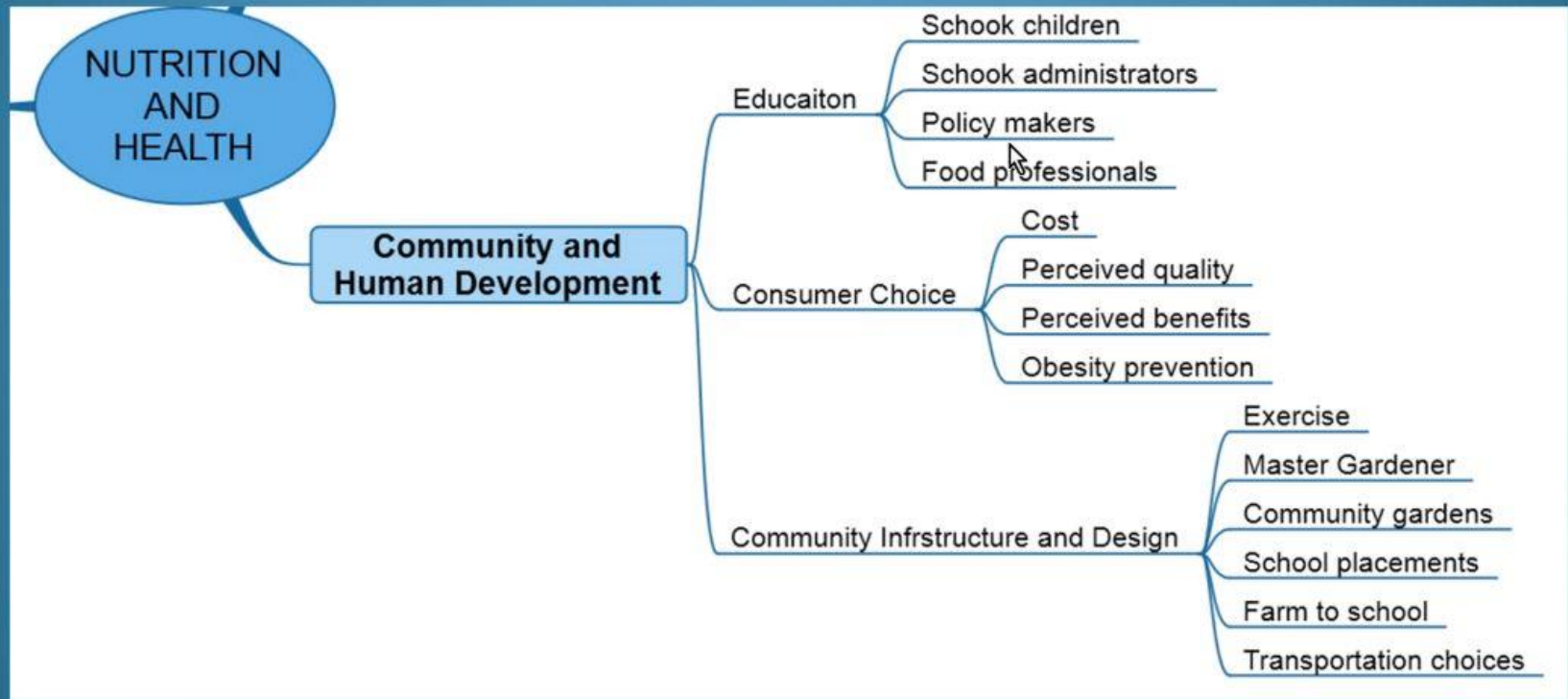
Mind Mapping Example Detail

EXAMPLE: Western Land Grant Universities

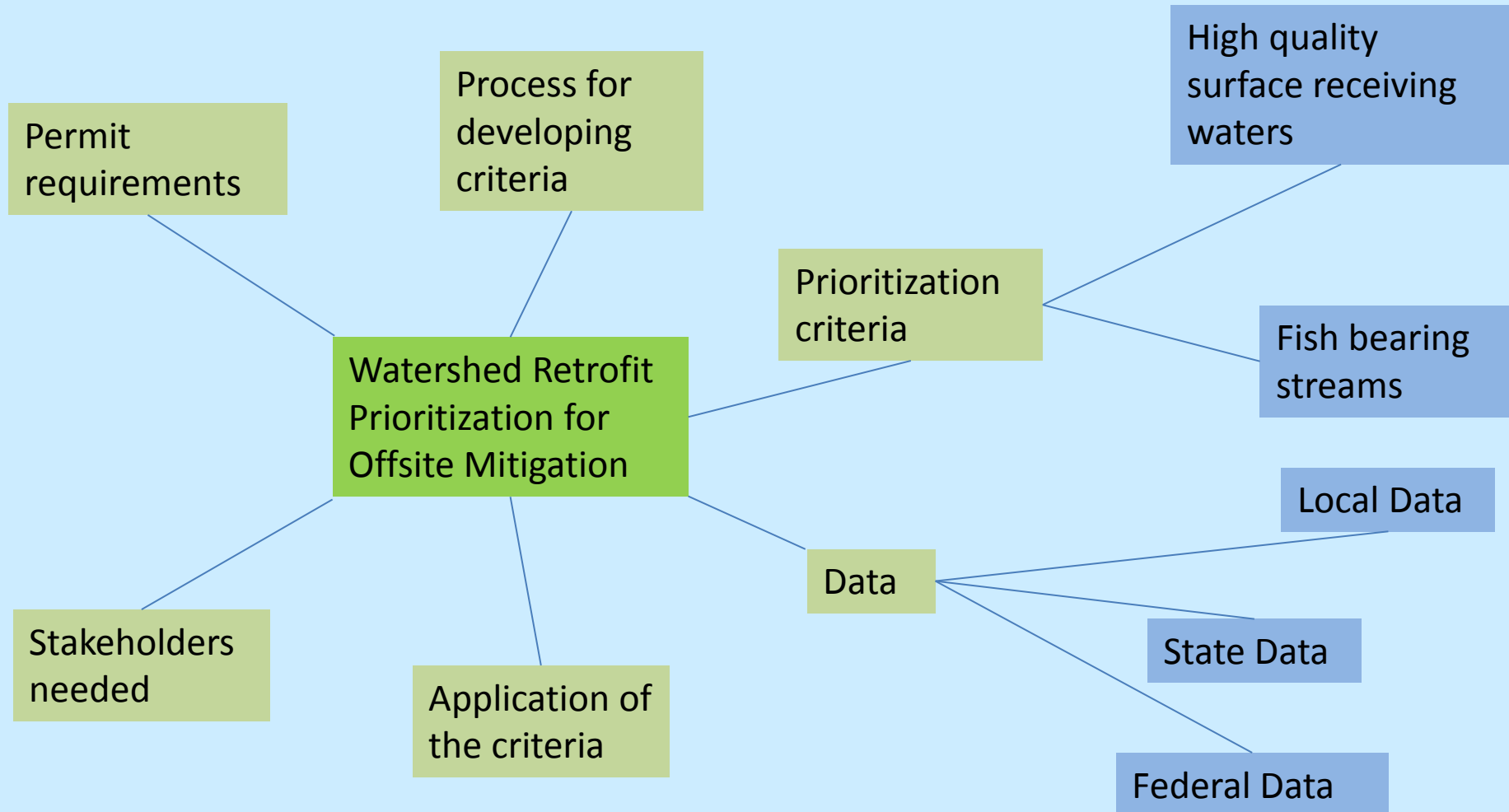


Mind Mapping Example Detail

EXAMPLE: Western Land Grant Universities



Building Cities in the Rain – Main Elements and Subtopics (just for illustration)



Building Cities in the Rain - Outline (just for illustration)

Watershed Retrofit Prioritization for Offsite Mitigation

1. Permit requirements

2. Stakeholders needed

3. Process for developing criteria

4. Prioritization criteria

a. High Quality Surface Receiving Waters

b. Fish Bearing Streams

5. Data

a. Local Data

b. State Data

c. Federal Data

6. Application of the criteria