

# A Northwest Vision for 2040 Water Infrastructure

*Innovative Pathways, Smarter Spending, Better Outcomes*

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the evergreen  
state college

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# Water Infrastructure: Boring? Maybe, but it's essential!

Our communities rely on water systems to serve vital basic needs.

- ▶ Provide people an uninterrupted flow of clean water
- ▶ Process local wastewater and sewage to protect public health
- ▶ Prevent local flooding in big rainstorms



# Innovative Pathways, Smarter Spending, Better Outcomes

- ▶ In OR and WA, our utilities are spending roughly \$3B/year on water and wastewater infrastructure (*storm/flood is add'l*)

## The Multi-Billion Dollar Question:

How do we get *smarter* about how we'll invest this money?

- ▶ **'Smart Spending'** = optimize long-term community value from these investments
- ▶ **'Better Outcomes'** = Affordable-Sustainable-Resilient-Integrated



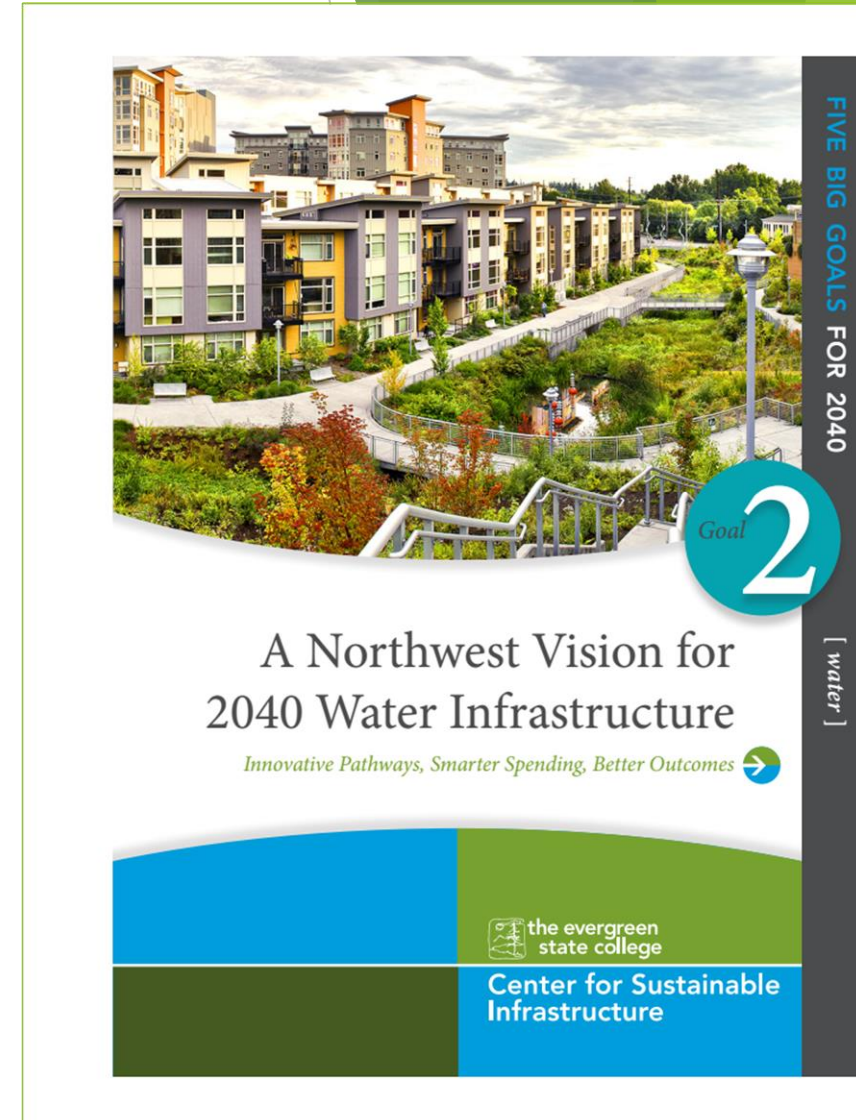


# 5 Big Goals for 2040: #2 in the Series -> WATER

## *The Design Question:*

How can Oregon and Washington develop **one of the most sustainable, resilient, and affordable water infrastructure systems in the world**

- spanning water supply, wastewater, and stormwater-flood infrastructures?



# Constructing a 2040 Northwest Vision for Water

- ▶ **Sit-down interviews** with 40 West Coast water leaders:
  - ❖ Utility execs, design innovators, engineers, non-profit leaders, tribal officials, and equity advocates
- ▶ **Thorough review** by 20-member Executive Review Team



# Great Challenges Facing Water Utilities

Important, because we need healthy utilities:

- ▶ Disruptive Efficiency
- ▶ Really Old Infrastructure
- ▶ Capacity Deficit + Retirement Wave
- ▶ New Solutions Require New Playbook
- ▶ Earthquakes and Climate Disruption



# The New Solutions Portfolio

- ▶ Water supply, wastewater, stormwater-flood infrastructure **managed much more holistically**
- ▶ Networks of **micro-infrastructure** optimally blended with legacy central systems
- ▶ **Smart sensors and cameras** inside pipes and other facilities supply real-time visibility (that is GIS-mappable)
- ▶ **Green infrastructure** at all scales reduces burden on gray infrastructure



# Micro-Infrastructure Nested in Legacy Central Systems

- ▶ **Dynamic green building movement** is pursuing 'net-zero' water buildings
- ▶ **Micro-Infrastructure examples:**
  - ❖ Cisterns that capture rainwater for onsite use and buffer stormwater flows
  - ❖ Maximize water reuse and efficiency
  - ❖ Bioswales and green roofs to capture rainwater and keep it from drains
  - ❖ Technologies to process and purify wastewater at the building/district scales





# Green Infrastructure Complements Gray

- ▶ GI deploys vegetation, natural systems to reduce the burden on legacy gray systems.
- ▶ Often costs less per gallon than expanding gray infrastructure facilities, yet adds multiple benefits for the community.
- ▶ GI works from the small- to landscape-scale.  
Examples:
  - ❖ Bioswales, rain gardens, green roofs/walls, urban wetlands and tree cover, watershed restoration, and headwaters protection.
- ▶ GI can:
  - ❖ filter water supply sources
  - ❖ cool wastewater discharge
  - ❖ slow and filter stormwater



# Some Keys to Success

- **Integrate** across supply, treatment, stormwater - One Water
- **Practice** ‘the new investment discipline’
- **Forge** cost-share partnerships for multi-benefit projects

**TOP 5 THINGS TO DO:**  
Utilities, Policymakers



# Build a Better Business Case (“Value Planning”)

- ▶ Before committing real money to business-as-usual projects and programs:
  - ▶ Invite innovative ideas
  - ▶ Thoroughly compare options to find ones with the most community-wide benefits
- ▶ Measure full benefits and costs, and to do it on a life-cycle basis.
  - ▶ Within the department silo, to government more broadly, and to the community.

## Shining Example:

Seattle  
Public  
Utilities



# Rethinking Investment Value

- ▶ Best investments ‘do more than one thing’ for the system  
- Can we stack Value Streams?
- ▶ For multi-benefit projects, can we cost-share with other investors?



# Washington's HB 1677: Smarter Spending, Better Outcomes

- ▶ HB 1677 enables the Public Works Board to make *grants to locals* for pre-construction planning that reflects the “**new investment discipline**”, specifically value planning and sustainable asset management.
- ▶ Creates a **vehicle for more comprehensive reform** -- a “System Improvement Team” looking across state infra programs to foster better integrated, more sustainable, resilient and affordable infrastructure systems.

## Other key HB 1677 text:

“In providing loans and grants for public works projects...the board may require a local government to have sustainable asset management best practices in place...and undergo value planning at the predesign project stage, where the greatest productivity gains and cost savings can be found.”



# Golden Economic Opportunity!

Infrastructure jobs = **11% national employment**

A pro-active strategy to modernize infrastructure will:

- ✓ Build the green jobs talent pipeline for **sustainable water infrastructure**
- ✓ Bring on the **next generation** of utility leaders
- ✓ Bridge the **urban-rural** divide
  - Restore gray and green infrastructure in the broader watershed
  - Modernize irrigation



LinkedIn: *Transforming Our Vulnerable Water Infrastructure* - Rhys Roth

CH2M Webinar: June 8th

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# Top 5 Things for Utilities To Do

**Action Checklist** for water, wastewater and stormwater agencies:

- ▶ Practice the New Investment Discipline
- ▶ Get on a Glide Path to Rate-Based Financing
- ▶ Bridge Silos and Forge Creative Cost-Share Partnerships
- ▶ Commit to Capacity and Innovation
- ▶ Tap Private Innovation





# Top 5 Things for Policymakers to Do

**Action Checklist** for state and local leaders can do to help optimize water infrastructure spending:

- ▶ **Align on Principles**
- ▶ **Set Goals, Get Lean**
- ▶ **Regulate to Performance, Manage for Outcomes**
- ▶ **Support Local Capacity Building**
- ▶ **Strategically Invest in Infrastructure Jobs**

