

OREGON



WATER RESOURCES  
DEPARTMENT

# Oregon's Water Management and Conservation Plan Program – A Tool for Understanding Current and Future Water Needs



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## Today's discussion

- Conservation at the state level
- State-led efforts to facilitate water planning and conservation
- An overview of Oregon's Water Management and Conservation Plan Program
- Current rulemaking
- Future water demand and water availability
- Water loss and auditing
- What's on the horizon

## The Oregon Integrated Water Resources Strategy

- ‘A framework for better understanding and meeting our instream and out-of-stream needs, including water quantity, water quality, and ecosystem needs.’
- The 2017 Strategy offers recommendations in 13 different issue areas to address these challenges.

Oregon's **2017**  
Integrated Water Resources Strategy



## ( 1 ) Understand Water Resources Today

**Further Understand Limited Water Supplies & Systems**  
(groundwater, surface water, and their interaction)

**Improve Water Quality &  
Quantity Information**

**Further Understand Our  
Water Management Institutions**

### **Understanding Water Resources / Supplies / Institutions**

- 1.A Conduct additional groundwater investigations
- 1.B Improve water resource data collection and monitoring
- 1.C Coordinate inter-agency data collection, processing, and use in decision-making

## ( 2 ) Understand Instream and Out-of-Stream Needs

### Further Define Out-of-Stream Needs / Demands

(i.e., diverted water)

#### Understanding Oregon's Out-of-Stream Needs/Demands

- 2.A Regularly update long-term water demand forecasts
- 2.B Improve water-use measurement and reporting
- 2.C Determine unadjudicated water right claims
- 2.D Authorize the update of water right records with contact information
- 2.E Regularly update Oregon's water-related permitting guide

### Further Define Instream Needs / Demands

(i.e., left-in-place water)

#### Understanding Oregon's Instream Needs/Demands

- 3.A Determine flows needed (quality and quantity) to support instream needs
- 3.B Determine needs of groundwater dependent ecosystems

## ( 3 ) Understand the Coming Pressures That Affect Our Needs and Supplies

Economic Development

Water & Energy

Climate Change

Extreme Events

Population Growth

Water & Land Use

Water-Related Infrastructure

Education & Outreach

### Water & Energy

- 4.A Analyze the effects on water from energy development projects and policies
- 4.B Take advantage of existing infrastructure to develop non-traditional hydroelectric power
- 4.C Promote strategies that increase/integrate energy and water savings

### Climate Change

- 5.A Support continued basin-scale climate change research efforts
- 5.B Assist with climate change adaptation and resiliency strategies

### Extreme Events

- 5.5A Plan and prepare for drought resiliency
- 5.5B Plan and prepare for flood events
- 5.5C Plan and prepare for a Cascadia subduction earthquake event

### Economic Development & Population Growth

*(See Actions 2A and 3A)*

### Water & Land Use

- 6.A Improve integration of water information into land use planning (and vice versa)
- 6.B Improve state agency coordination
- 6.C Encourage low-impact development practices and green infrastructure

### Water-Related Infrastructure

- 7.A Develop and upgrade water and wastewater infrastructure
- 7.B Encourage regional (sub-basin) approaches to water and wastewater systems
- 7.C Ensure public safety/dam safety

### Education & Outreach

- 8.A Support Oregon's K-12 environmental literacy plan
- 8.B Provide education and training for Oregon's next generation of water experts
- 8.C Promote community education and training opportunities
- 8.D Identify ongoing water-related research needs

## ( 4 ) Meet Oregon's Instream and Out-of-Stream Needs

### Place-Based Efforts

### Water Management & Development

### Healthy Ecosystems

### Public Health

### Funding

#### Place-Based Efforts

- 9.A Continue to undertake place-based integrated, water resources planning
- 9.B Coordinate implementation of existing natural resource plans
- 9.C Partner with federal agencies, tribes, and neighboring states in long-term water resources management

#### Water Management & Development

- 10.A Improve water-use efficiency and water conservation
- 10.B Improve access to built storage
- 10.C Encourage additional water reuse projects
- 10.D Reach environmental outcomes with non-regulatory alternatives
- 10.E Continue the water resources development program
- 10.F Provide an adequate presence in the field
- 10.G Strengthen water quantity and water quality permitting programs

#### Healthy Ecosystems

- 11.A Improve watershed health, resiliency, and capacity for natural storage
- 11.B Develop additional instream protections
- 11.C Prevent and eradicate invasive species
- 11.D Protect and restore instream habitat and habitat access for fish and wildlife
- 11.E Develop additional groundwater protections

#### Public Health

- 12.A Ensure the safety of Oregon's drinking water
- 12.B Reduce the use of and exposure to toxics and other pollutants
- 12.C Implement water quality pollution control plans

#### Funding

- 13.A Fund development and implementation of Oregon's IWRS
- 13.B Fund water resources management activities at state agencies
- 13.C Invest in local or regional water planning efforts
- 13.D Invest in feasibility studies for water resources projects
- 13.E Invest in implementation of water resources projects



## The Water Resources Development Program

- Three program components:
  - Feasibility Study Grants
  - Water Project Grants and Loans
  - Place-Based Planning
- This program implements a number of the recommendations found in the IWRS

### Oregon Water Resources Development Program

#### OREGON



WATER RESOURCES  
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#### Overview

Oregon's 2017 Integrated Water Resources Strategy provides a blueprint for understanding and addressing our water resources needs and challenges, recommending that the state conduct local "place-based" integrated water resources planning and invest in the evaluation and implementation of water resource projects. The Water Resources Development Program seeks to help individuals and communities address instream and out-of-stream water resources needs now and into the future.

#### Program Components

The program includes three components to help address Oregonian's water resources needs:

- **Place-Based Planning** empowers communities to work collaboratively, in partnership with the state, to understand their instream and out-of-stream water resources needs and identify potential solutions to meet those needs;
- **Feasibility Study Grants** cover up to 50 percent of the costs of studies to evaluate the feasibility of developing water conservation, reuse, and storage projects; and
- **Water Project Grants and Loans** allow the state to invest in projects that meet instream and out-of-stream needs, while providing economic, environmental, and social/cultural benefits.

	Place-Based Planning	Feasibility Studies	Water Projects
<b>Authorization</b>	2015 – Place-Based Planning (SB 266)	2008 – Water Conservation, Reuse and Storage Grant Program (SB 1069)	2013 – Water Supply Development Account (SB 839)
<b>Funding Available</b>	N/A	~\$2.5 million for grants	~\$13.8 million for grants or loans
<b>Application Deadline</b>	N/A	October 17, 2018	April 25, 2018
<b>Website</b>	<a href="https://bit.ly/owrdplanning">https://bit.ly/owrdplanning</a>	<a href="https://bit.ly/owrdsgsgrants">https://bit.ly/owrdsgsgrants</a>	<a href="https://bit.ly/owrdprojects">https://bit.ly/owrdprojects</a>
<b>Contact</b>	<a href="mailto:placebasedplanning@wrdd.state.or.us">placebasedplanning@wrdd.state.or.us</a>	<a href="mailto:fsgrants@wrdd.state.or.us">fsgrants@wrdd.state.or.us</a>	<a href="mailto:waterprojects@wrdd.state.or.us">waterprojects@wrdd.state.or.us</a>

## Contact information for:

- IWRS
  - Alyssa Mucken ([Alyssa.M.Mucken@oregon.gov](mailto:Alyssa.M.Mucken@oregon.gov))
- Feasibility Study Grants
  - Becky Williams ([Becky.S.Williams@oregon.gov](mailto:Becky.S.Williams@oregon.gov))
- Water Project Grants and Loans
  - Becky Williams ([Becky.S.Williams@oregon.gov](mailto:Becky.S.Williams@oregon.gov))
- Place-Based Planning
  - Harmony Burrigh ( [Harmony.S.Burrigh@oregon.gov](mailto:Harmony.S.Burrigh@oregon.gov) )
  - Steve Parrett ([Steve.W.Parrett@oregon.gov](mailto:Steve.W.Parrett@oregon.gov))

- Three primary use sectors
  - Municipal (Residential) Use
  - Self-Supplied Commercial and Industrial Use
  - Agricultural Use



- **Strategies to promote conservation:**
  - Rate structure / water-related code
  - Outreach and education
  - Water system analysis / water loss reduction
  - Curtailment / emergency response
  - Technical and/or financial resources
  - System efficiencies



- Existing Programs:
  - Allocations of Conserved Water
  - Temporary transfers (instream leasing)
  - Permanent Instream Transfers
  - Registrations of Reclaimed Municipal Water
  - Water Management and Conservation Plans



# Water Management and Conservation Plans (WMCP)

## What they are:

- A plan developed by a water supplier that:
  - Describes a supplier's water system, water sources, current water use and water customers; and,
  - Explains how the water supplier will manage and conserve those supplies to meet future demands.





# Water Management and Conservation Plans (WMCP)

## Who submits them:

- Municipal water suppliers
  - Municipalities, quasi-municipalities, water use authorities, water associations, homeowner associations, etc.
- Agricultural water suppliers
  - Irrigation districts
  - Water control districts



## When is a WMCP required?

- OWRD generally requires a WMCP when:
  - New Water Use Permit Issued –
    - WMCP typically due in 1-3 years
  - MU/QM Permit Extension of Time Approved –
    - WMCP due within 3 years
  - WMCP Approved –
    - Final Order specifies due date for future WMCP Update
    - Not less than 5 years, but no more than 10 years

### WATER MANAGEMENT AND CONSERVATION PLANS

*OAR DIVISION 690, CHAPTER 86*

A Guidebook for Oregon Municipal Water Suppliers  
March 2015 (2<sup>nd</sup> Edition)







# Water Management and Conservation Plans (WMCP)

Other agencies can also require submittal of a WMCP to OWRD:

- As a condition of a grant –
  - Infrastructure Finance Authority
  - U.S. Bureau of Reclamation
- As part of a capacity analysis –
  - Oregon Health Authority's Drinking Water Program



- There are four main elements required to be in a WMCP
  - Water Supplier Description
  - Water Conservation Program
  - Water Curtailment Plan
  - Water Supply Element (Projected Demands)

## Water Supplier Description

- Describes the supplier and its water system:
  - Current service area and population served
  - Water sources & inventory of water rights
  - Water system diversion/conveyance/treatment facilities

Application	Permit	Certificate	Transfer	Claim	Source	Priority Date	Type of Beneficial Use	Authorized Date for Completion	Quantity (cfs)	Quantity (mgd)	Maximum Withdrawal To Date		2016 Average Withdrawal		Five-Year Average Withdrawal (2012-2016)
											Instant (cfs)	Annually (MG)	Monthly (MG)	Daily (MG)	Monthly (MG)
S-10168	S-8602	15180			McKenzie River	5/15/1925	Municipal	N/A	27.08	17.5	27.08	11,091 (In 2000)	746	24.5	737
S-22037	S-17358	68537			McKenzie River, tributary to the Willamette River	10/15/1946	Municipal	N/A	90	58.2	90.0				
S-35037	S-27441				McKenzie River	6/14/1961	Municipal	10/1/2083	183	118.3	4.82				
				SW 354 <sup>1</sup>	Willamette River, tributary to Columbia River	3/25/1887	Municipal	N/A	29.4	20	0				

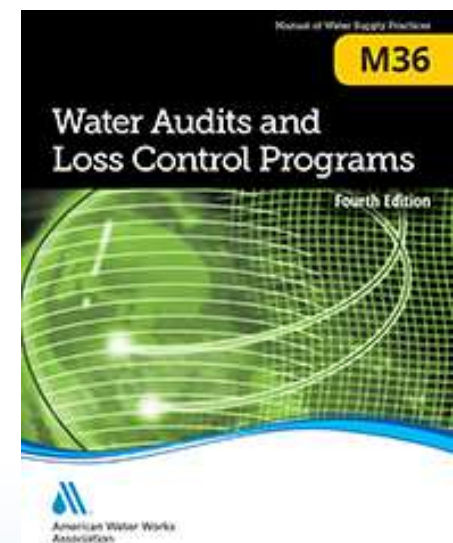
## Water Supplier Description

- Must provide an analysis of the water system, including:
  - Adequacy and reliability of water supply
  - Customers served
- Quantify present & historic use for each customer category
  - Interconnections with other water suppliers
  - Quantification of system loss



## Water Conservation Element

- Measures required of ALL municipal suppliers:
  - Full metering
  - Annual water audit
  - Meter testing and maintenance
  - Leak detection
  - Rate structure based on metered quantity
  - Public education



## Water Conservation Element

Certain municipal water suppliers must also consider implementation of:

- Leak repair or line replacement program
- Rate structure that encourages conservation
- Technical and financial assistance programs
- Retrofit/replacement programs
- Water reuse/recycling



## Water Curtailment Element

- The curtailment plan must include:
  - Description of type, frequency and magnitude of water shortages over previous 10 years
  - At least 3 stages of alert
  - A description of pre-determined levels of severity of shortage that will trigger each stage of alert
  - A list of water curtailment actions to be enacted under each stage of alert



## Water Supply Element

- Provides rationale for future supply needs and supply alternatives
  - Future service areas and population projections
  - Industrial economic development
  - Demand forecast (projected 20-year water need)
  - Comparison of projected demand and existing sources, considering:
    - Reliability of sources
    - Potential limitations





## Water Supply Element

- In addition to existing water sources, the water supplier must also consider alternative sources:
  - Water conservation measures:
    - Required in OAR 690-086
    - Other equal or lower cost conservation measures
  - Interconnection or regional water management with other water suppliers

Once submitted and approved, a WMCP must be periodically updated in perpetuity:

- Between every 5 and 10 years –
  - 5-year update if the WMCP is conditionally approved with a Work Plan.
  - 10-year update if the WMCP is fully approved with NO Work Plan requirement.



# Current Rulemaking

In the fall of 2017, the Department initiated a new rulemaking for OAR Chapter 690, Division 86 with the intent to:


- Develop a rule for small municipal water suppliers; and,
- Update other sections of the existing municipal portions of the rule (OAR 690-086-0100 to 0170 and 690-086-0900 to 0920).

## Status:

- The Department formed a Rules Advisory Committee (RAC) and presented a draft of the proposed rules for review
- The RAC has met twice and provided input

## Next steps:

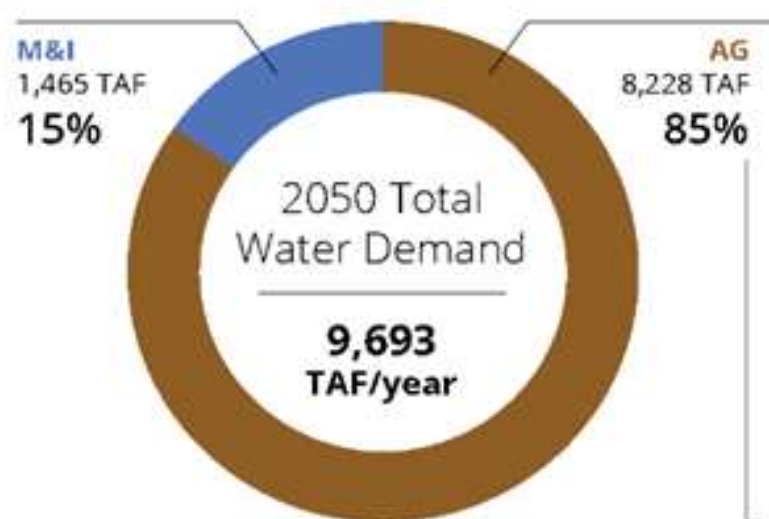
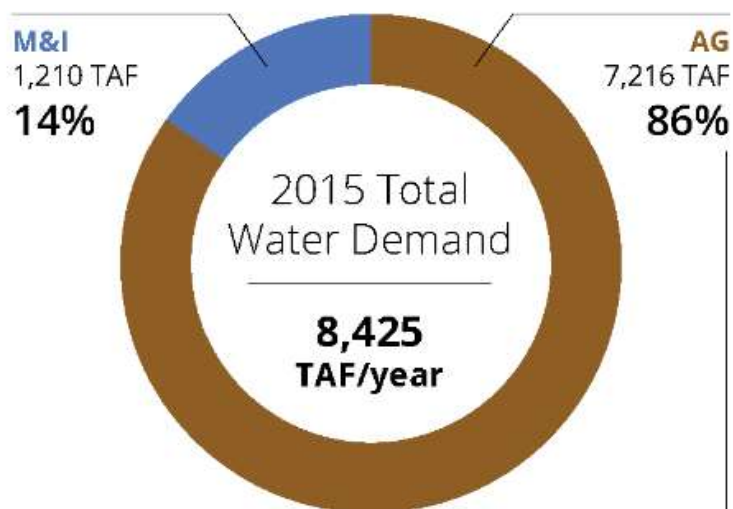
- Finalize water loss and auditing language
- Finalize RAC draft
- Public comment period
- Adoption by Water Resources Commission


An aerial photograph of a mountain valley. In the background, there are large, rugged mountains with some snow patches under a cloudy sky. The middle ground shows a valley with green fields, a small town with houses, and a road. The foreground features a large, rectangular field with a grid pattern, possibly a farm or agricultural field.


# 2015 Statewide Long-Term Water Demand Forecast

Oregon Water Resources Department  
-October 2015

## Change in Demand by 2050



 Municipal and Industrial  
255 TAF/year

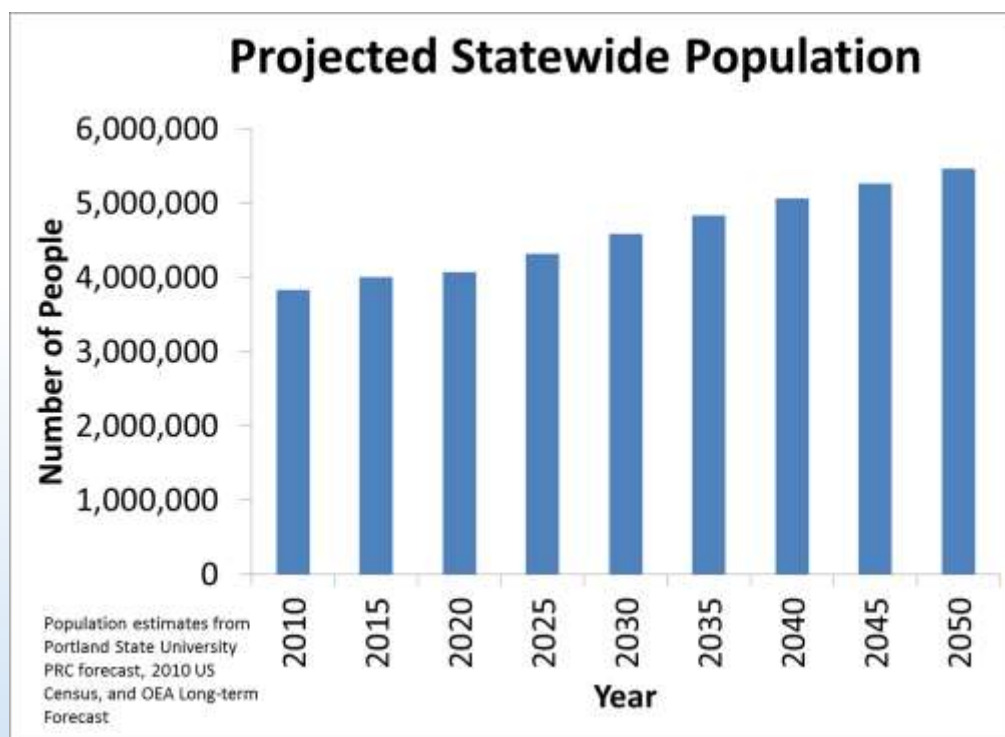
 Agricultural  
1,102 TAF/year

Statewide Diversion Demand  
~1.3 million AF/year

## Findings for Municipal and Industrial Water Demand

### Findings

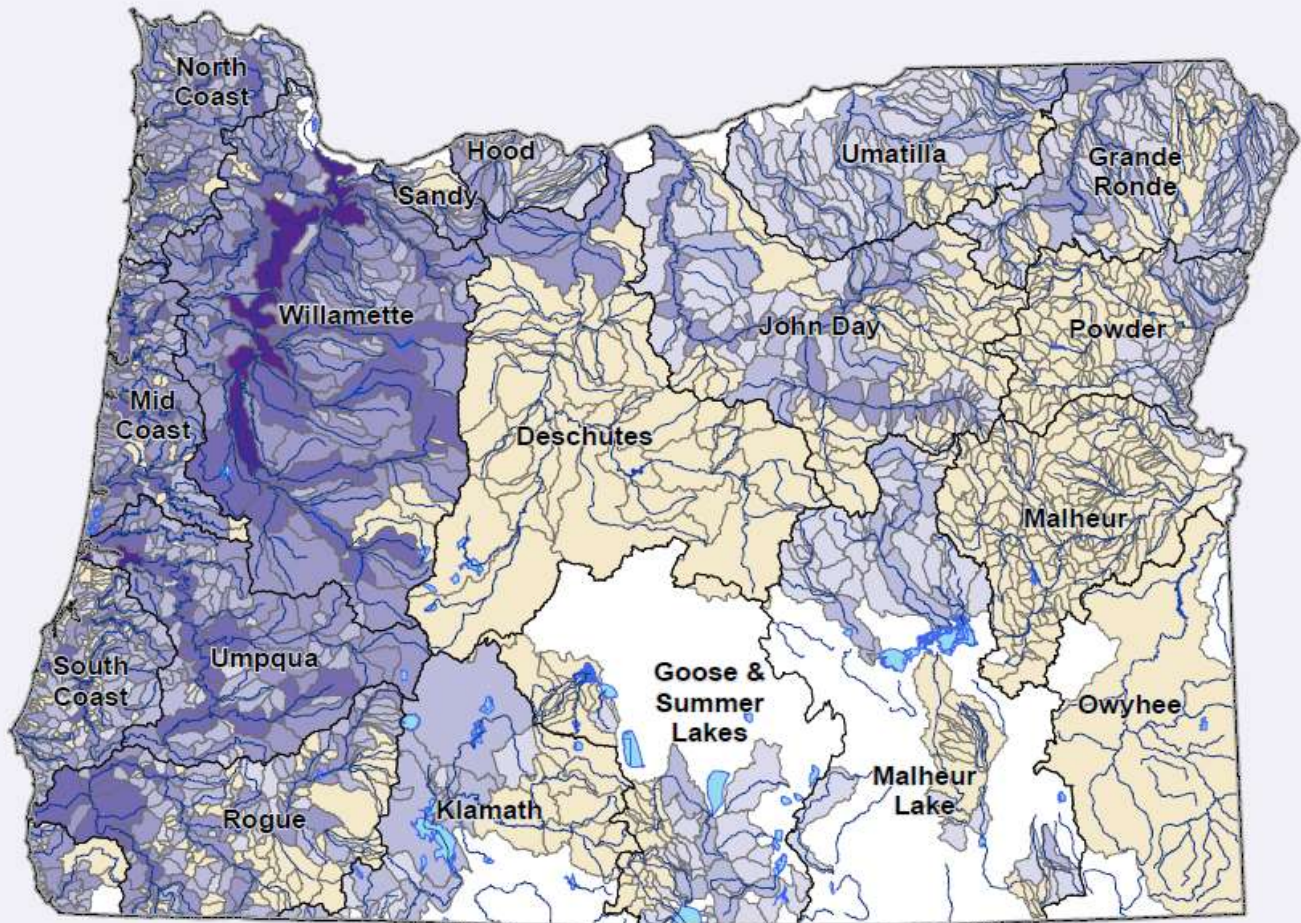
- Increase 20 percent by 2050
- Population major driver
- Combined per capita (domestic, industrial, commercial) use remains steady
- Data from WMCPs anticipate relatively minimal future savings from continued conservation



## Water Availability

- Surface Water
  - Most surface water sources are at or near full appropriation (August 80% exceedance calculations)
  - Water is available in some locations for storage during the winter months (January 50% exceedance calculations)
- Groundwater
  - Numerous areas throughout the state are classified as 'Groundwater Restricted Areas'





## January Available Streamflow Calculated at 50% Exceedance

OWRD Hydrographics (mdh), 3/7/2017, Projection: Oregon Lambert NAD 83  
 This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

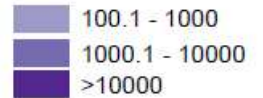
Surface Water Bodies



Administrative Boundaries



Available Streamflow (CFS)

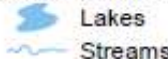




## August Available Streamflow Calculated at 80% Exceedance

OWRD Hydrographics (mth), 3/1/2017, Projection: Oregon Lambert NAD 83  
 This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

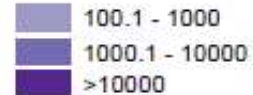
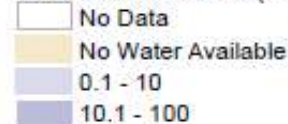
Surface Water Bodies



Administrative Boundaries

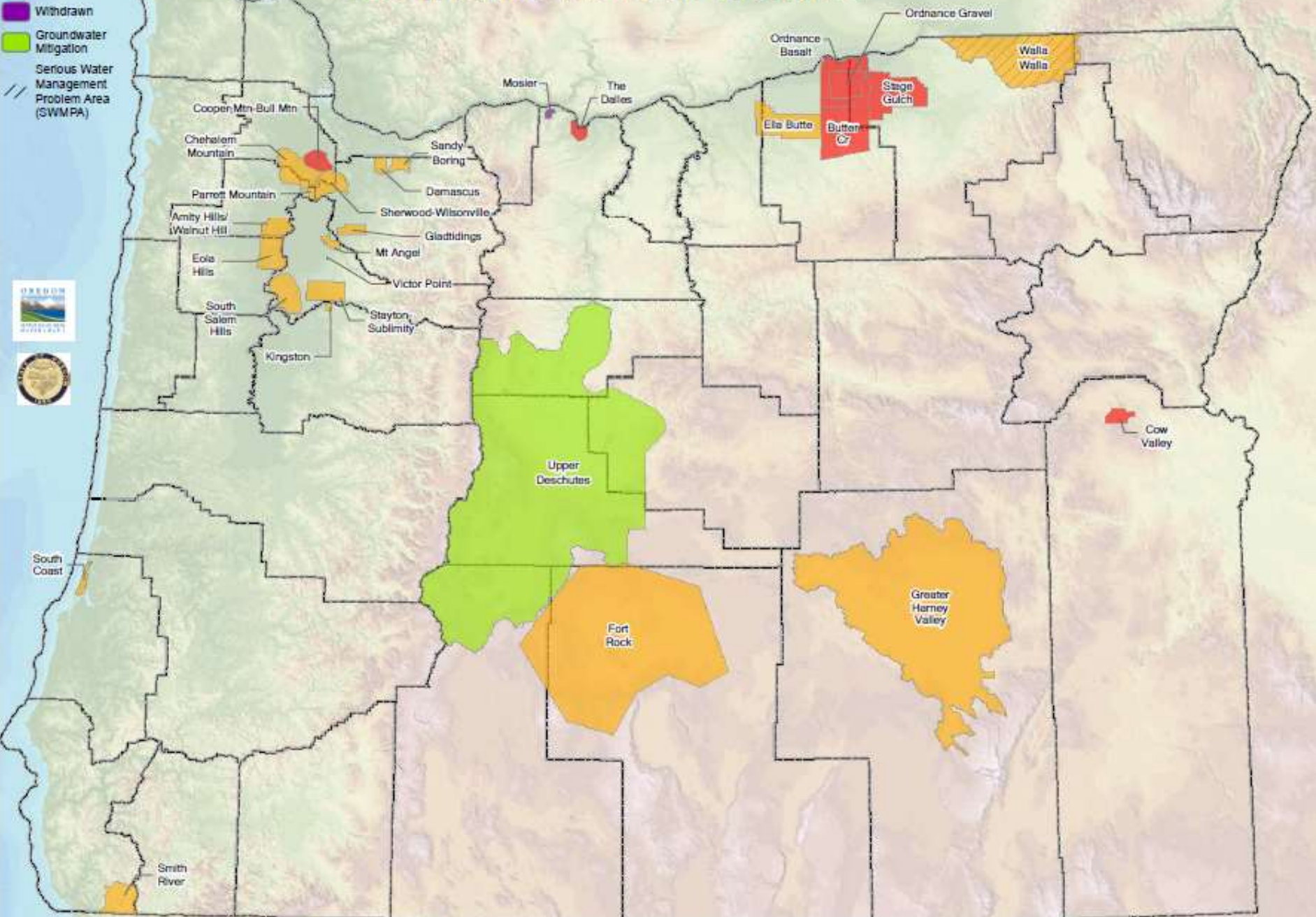


Available Streamflow (CFS)



# OREGON WATER RESOURCES DEPARTMENT GROUNDWATER RESTRICTED AREAS

- Classified
- Critical
- Withdrawn
- Groundwater Mitigation
- Serious Water Management Problem Area (SWMPA)



# Water Availability in Oregon

## Supply

- Little to no availability of new surface water supplies
- Increased regulation and management of existing sources

## Demand

- Increases in population (including migration)
- Climate change impacts

## Supply-side vs. Demand-side Conservation

- Supply-side Conservation

- Leak detection
- Meter testing and replacement
- Line replacement
- Pressure management

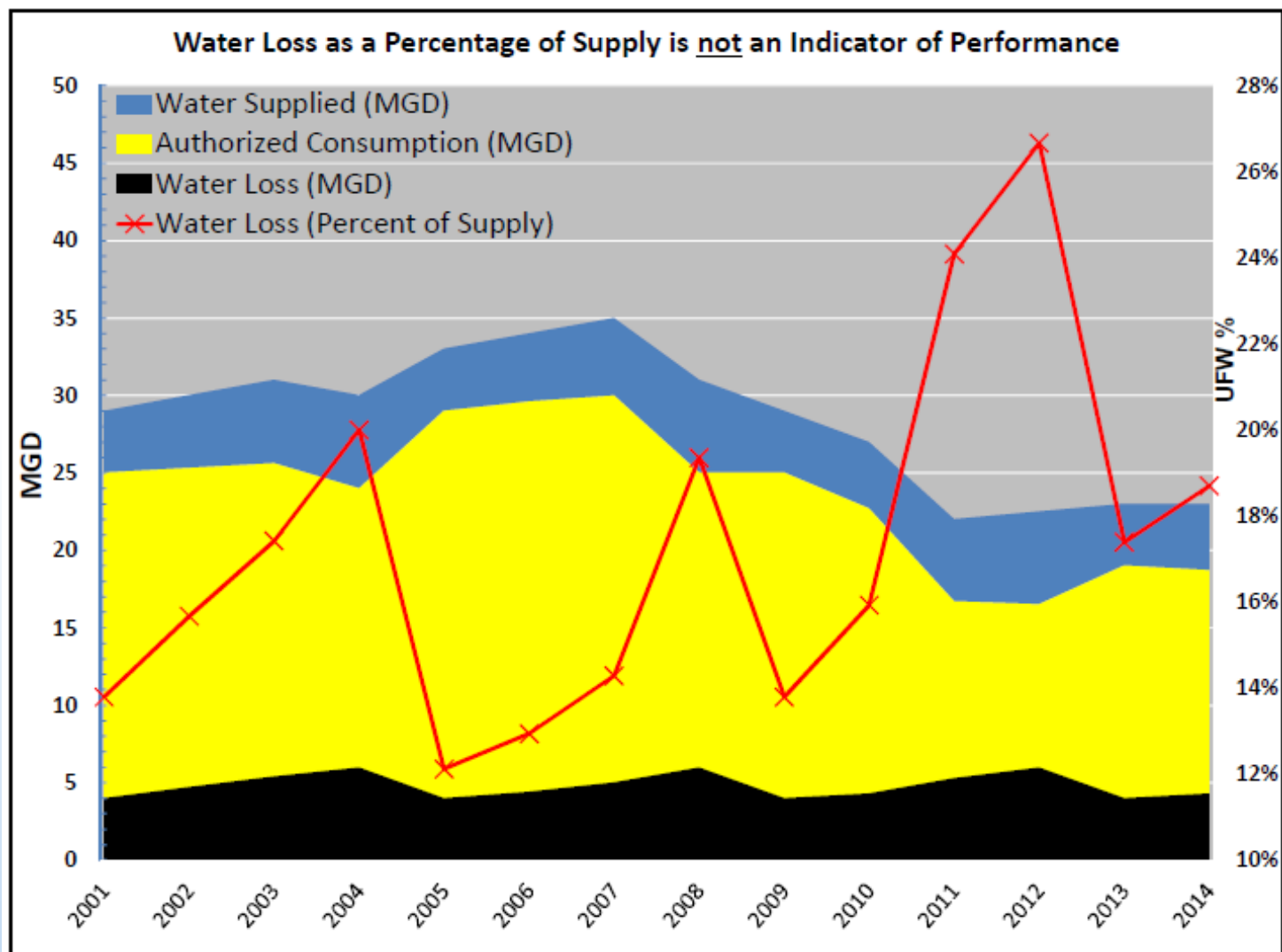
System Efficiency

- Demand-side Conservation

- Efficient plumbing fixtures
- Public outreach and education
- Irrigation efficiencies
- Rebate programs

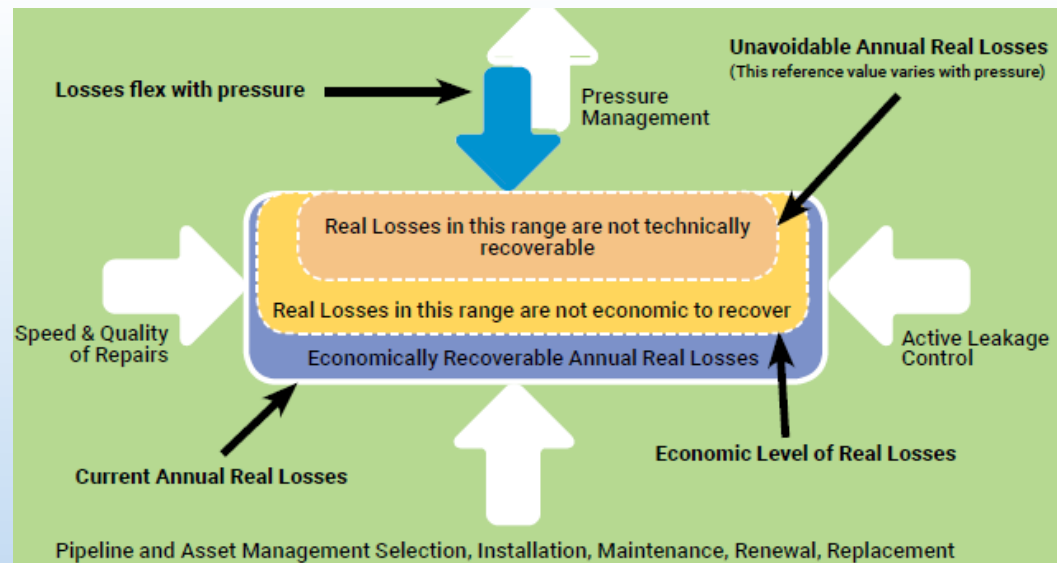
Lower Demand

# Water Loss and Auditing

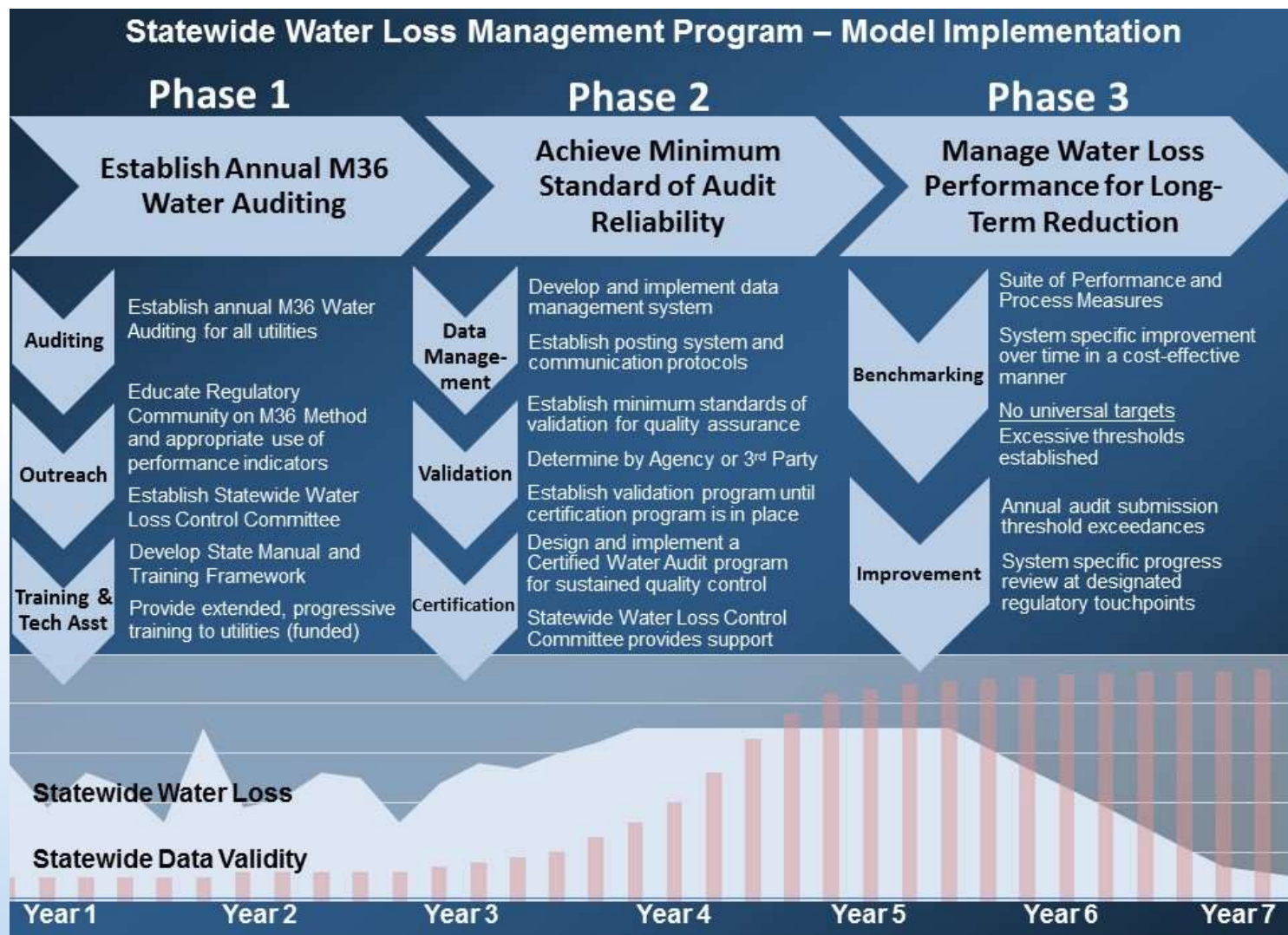


## Water Loss Control and Auditing

- Move away from percentage loss to describe system efficiency
- Target system components for repair or replacement
- Reduce the quantity of water lost (apparent and real losses)
  - Provide a new 'source' of water
  - Uncaptured revenue recuperation
- Data validity



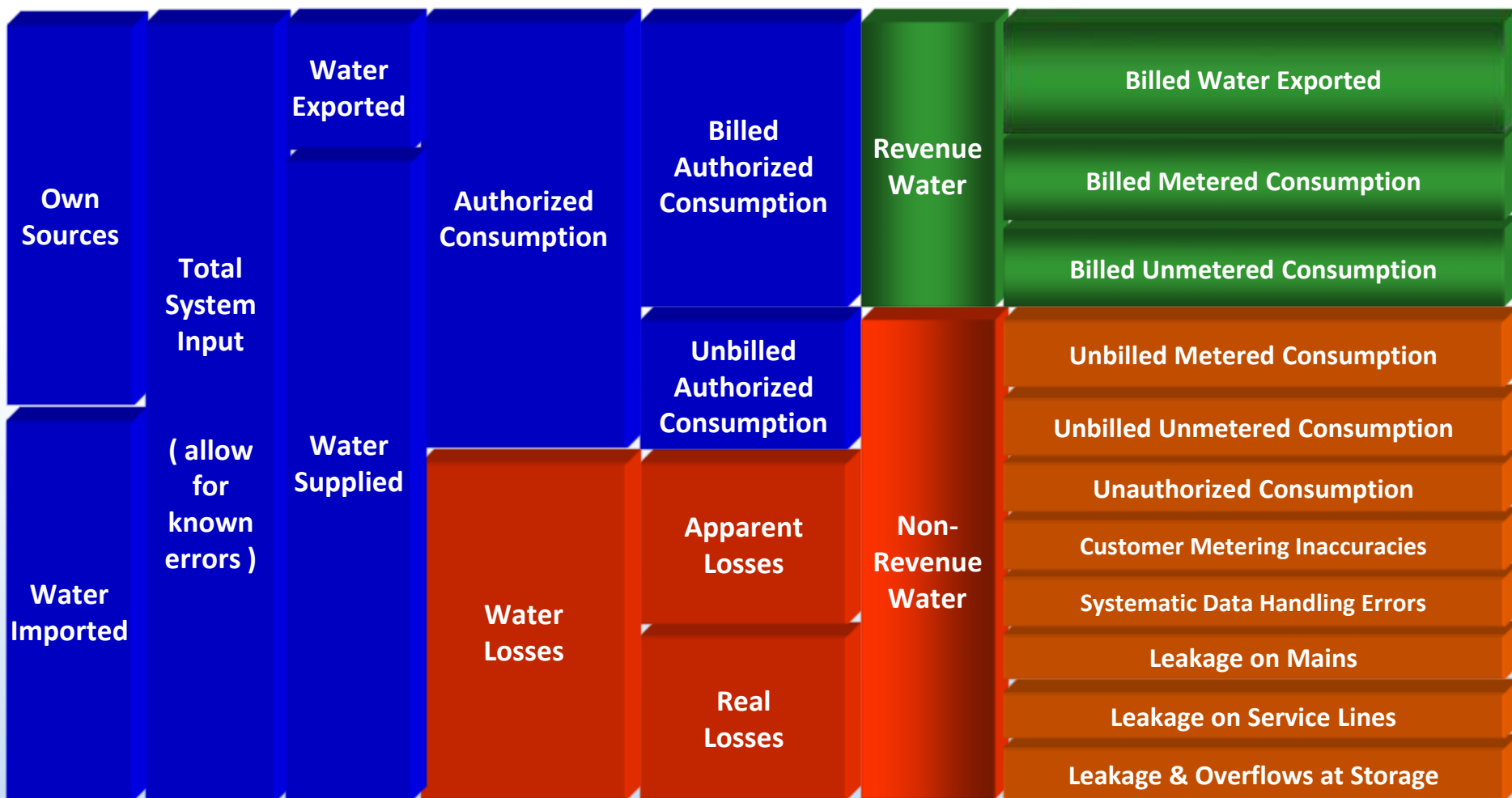
# Water Loss and Auditing



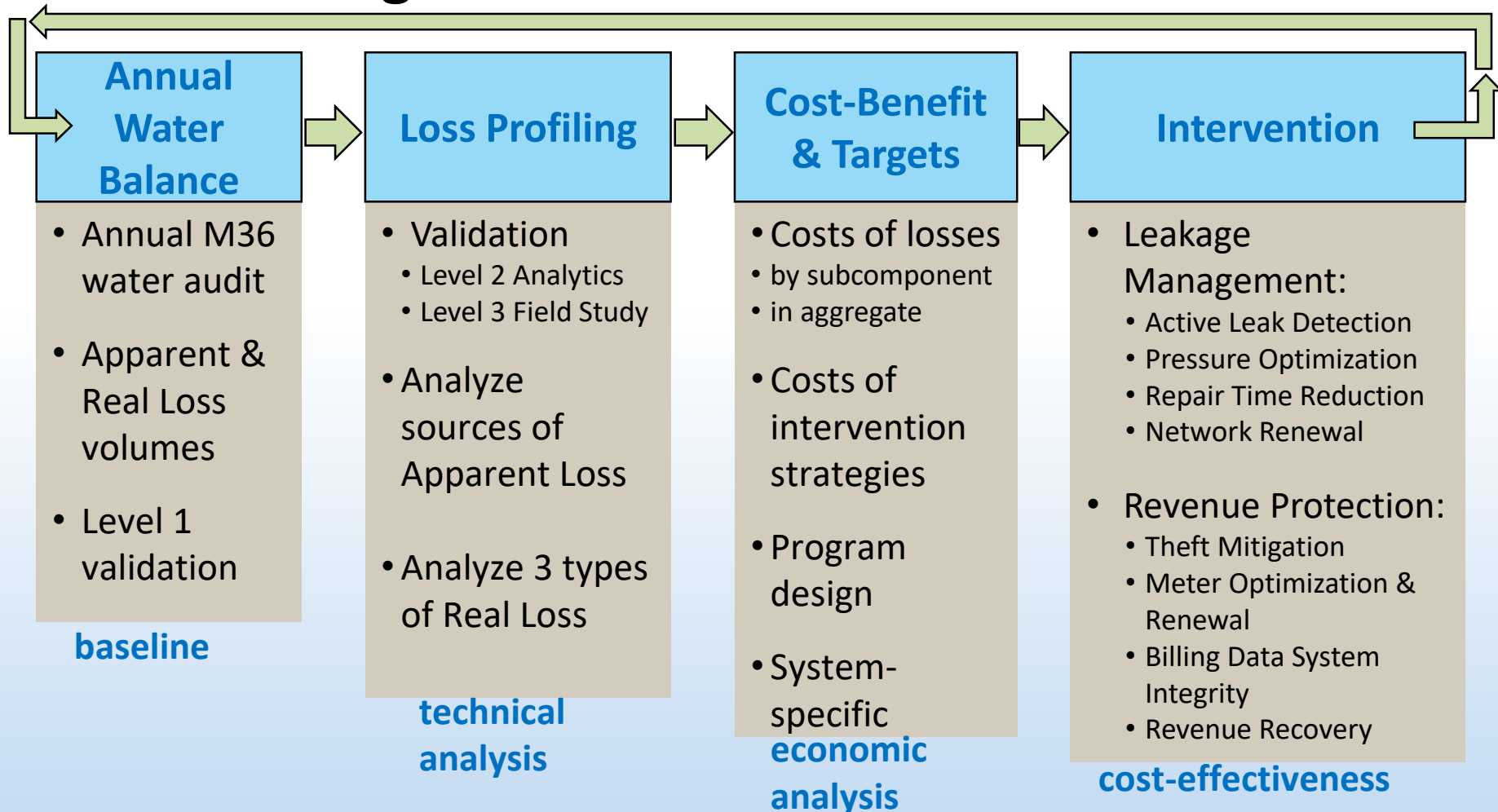




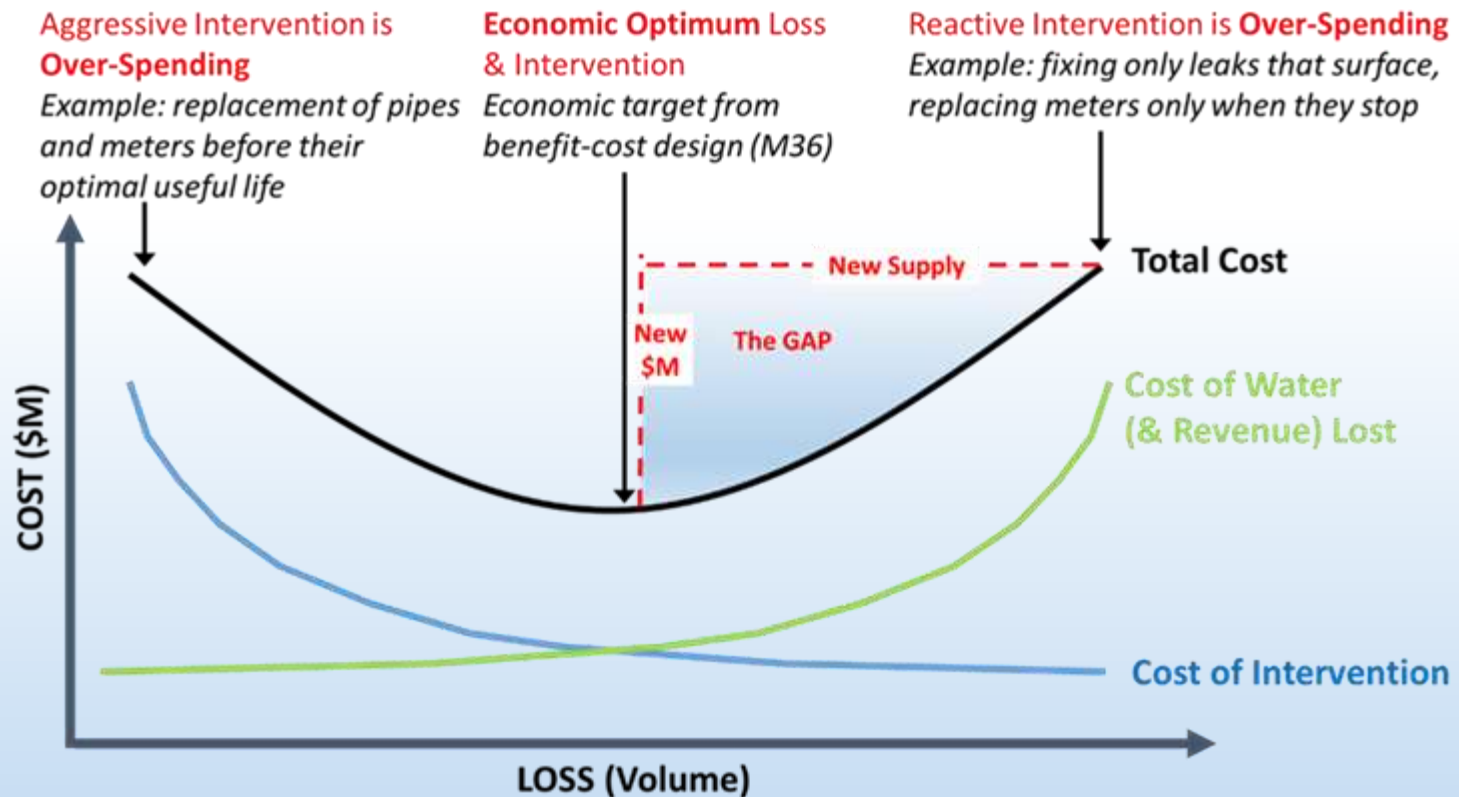
# IWA/AWWA Standard Water Balance



## The Big Picture: Economic Intervention



## Water Loss Control and Auditing



## Water Loss Control and Auditing



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**The Washington State Department of Health has developed a pilot program for water loss training & technical assistance program per the AWWA M36 Methodology.**

## On the horizon

- Finalize WMCP Rulemaking
- Continue to dialogue about water loss control and auditing
- Develop 'tool box' for WCMP development
- Establish data metrics tracking procedure





# Contact Information

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