Integrating Climate Resilience Into

Water System Planning

in Washington State

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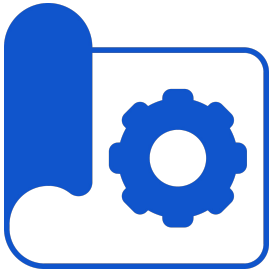
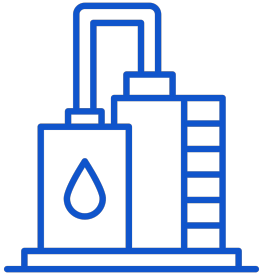
Project Purpose

How can we advance climate resilience among **small and medium sized water systems** so they can meet current and future demands, and continue to deliver safe and reliable drinking water in the face of climate change?



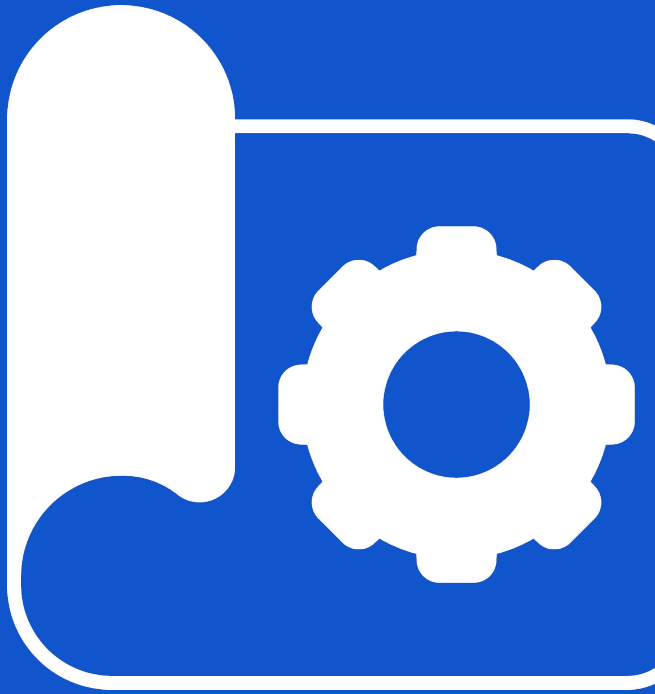
Systematic Review of Water System Plans



Recommendations + Case Studies

Virtual Workshop with Small Water System Operators

Water System Plan Review

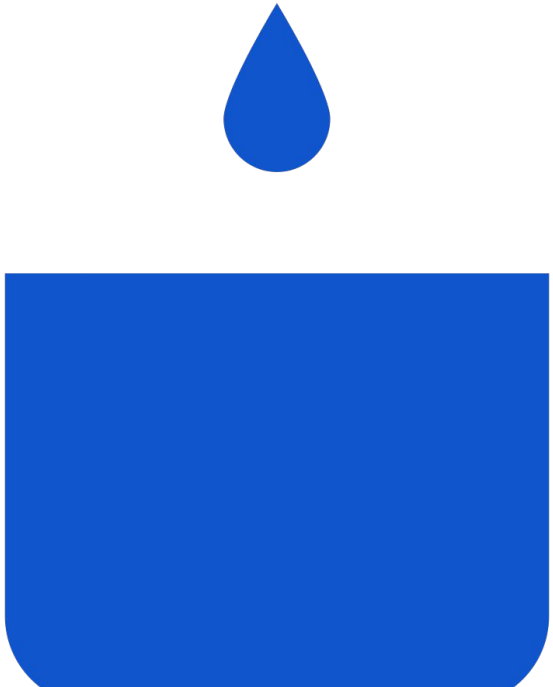


Why Water System Plans?

WSPs requires drinking water systems to demonstrate their capacity to provide safe and reliable drinking water and how the system address present and future needs in a manner consistent with other relevant plans and local, state, and federal laws

The water system planning process is not the only pathway for integrating climate resilience into water system management and operations.

However, as the requirement for water system planning already exists, WSPs present an opportunity to integrate adaptation into an established planning process without developing new policies or requirements.



To what extent are drinking water systems in Washington State already considering climate change impacts in their existing WSPs?

How do climate change considerations in WSPs vary by water system size, supply source, and location?

Which required elements of WSPs could be further leveraged for climate resilience planning?

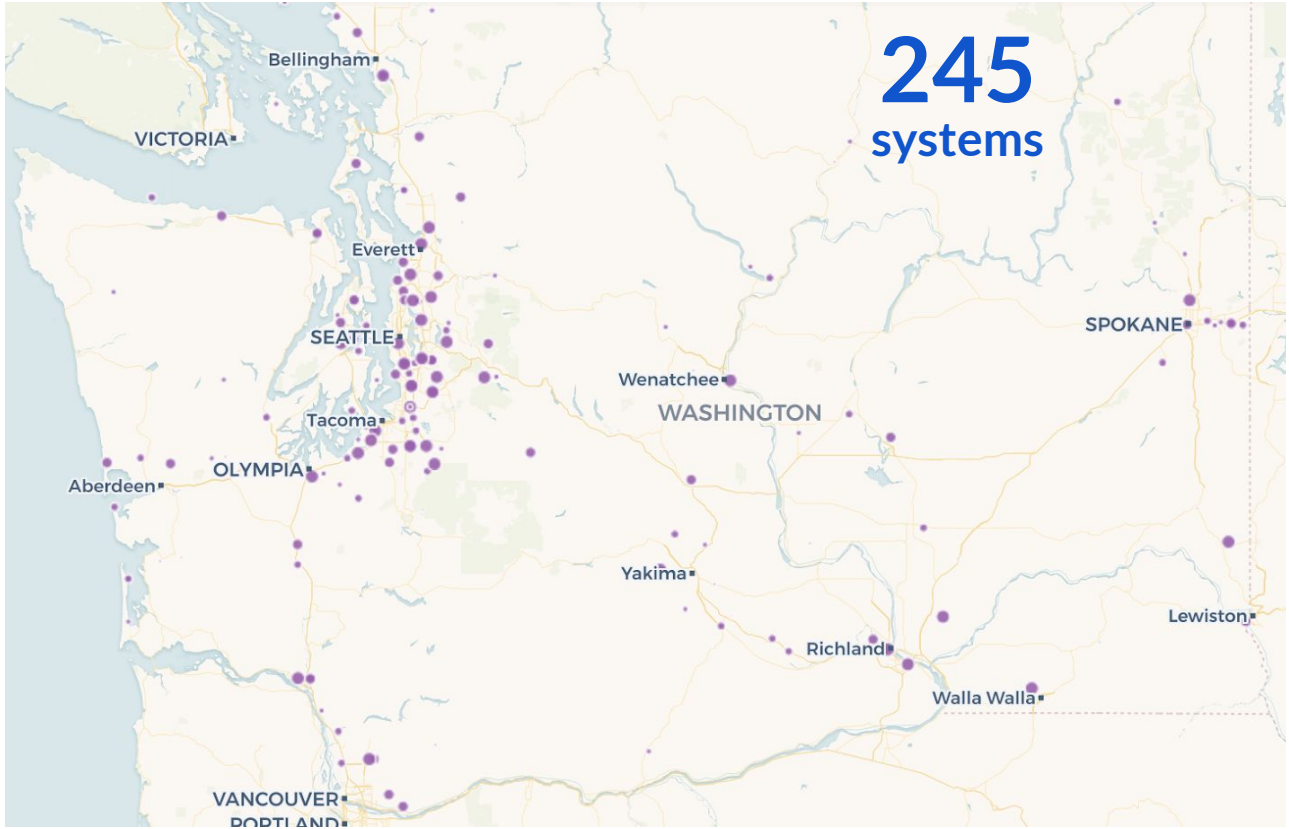
What lessons can be learned from WSPs that already include climate change considerations?

Which systems are required to develop a Water System Plan?

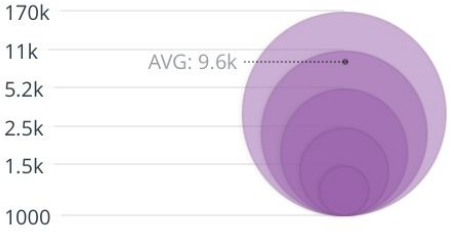
Group A Systems serving 1,000 or more service connections*

Public water systems that serve either 15 or more connections, or 25 or more people per day for 60 or more days per year. Group A systems have comprehensive monitoring requirements under the United States Environmental Protection Agency's (EPA) Safe Drinking Water Act.

Active Group A Systems with over 1,000 service connections



Total Service Connections

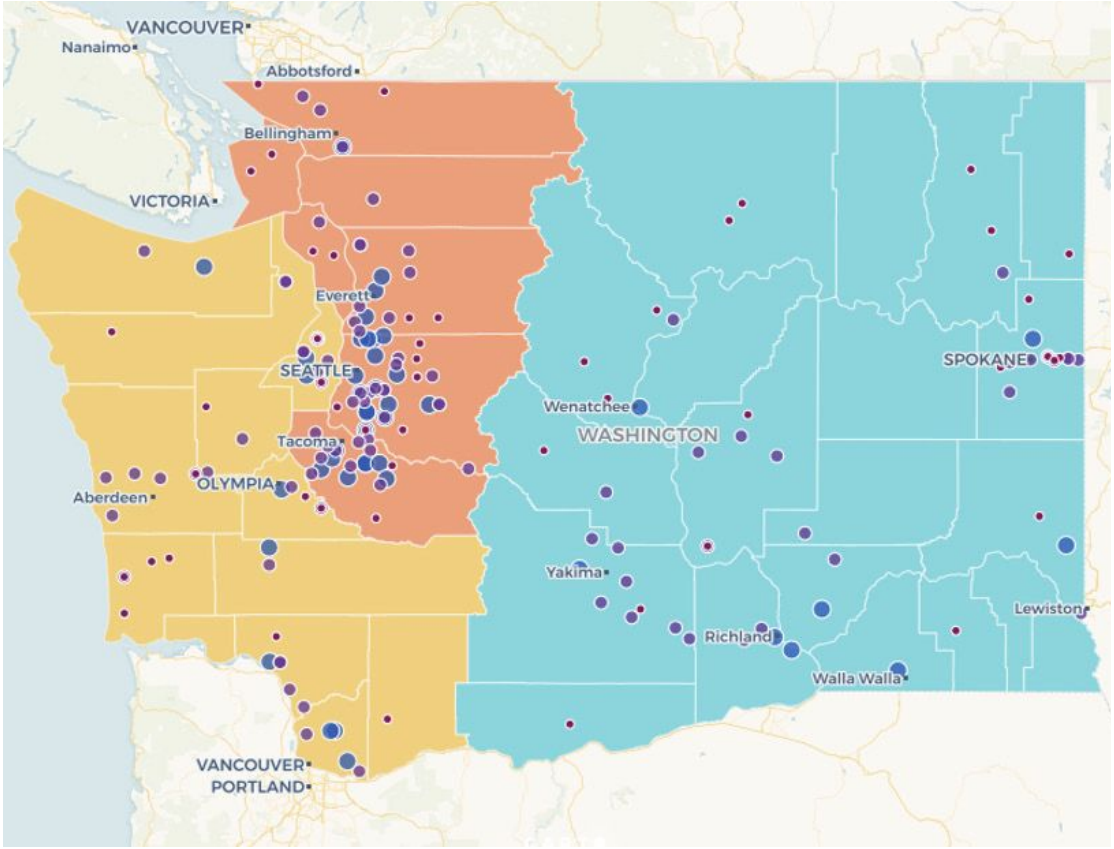


Ownership Type

CITY/TOWN	132
SPECIAL DISTRICT	71
ASSOCIATION	12
INVESTOR	10
PRIVATE	8
OTHER	10

Representative Sampling

15% = 36 Plans



By DOH ODW Planning Regions

- **Southwest**
- **Northwest**
- **Eastern**

By Water System Size

- **Large**
  Over 25,000 max total pop.
- **Medium**
  5,001 - 25,000 max total pop.
- **Small**
  Up to 5,000 max total pop.

Water System Plan Review

Results

Climate Change

Drought

Wildfire

Flooding

Findings

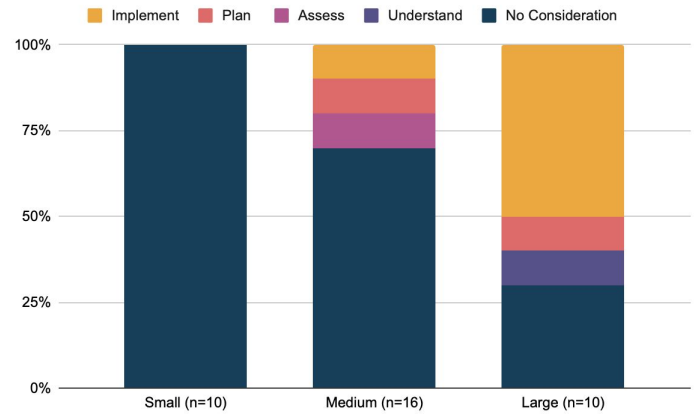
Climate Change

72%

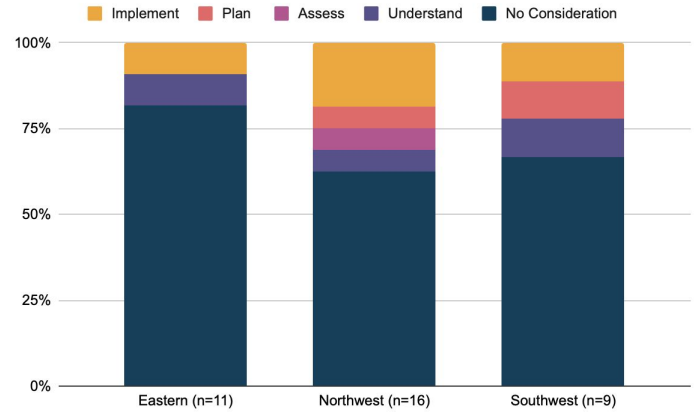
of Water System Plans reviewed did not explicitly acknowledge climate change.

Climate resilience planning is most prevalent among large, municipally owned water systems.

Climate Change in WSPs by Size



Climate Change in WSPs by Region



Findings

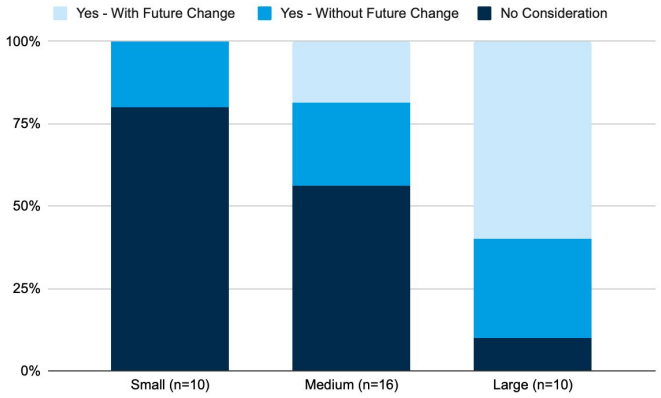
Drought

50%

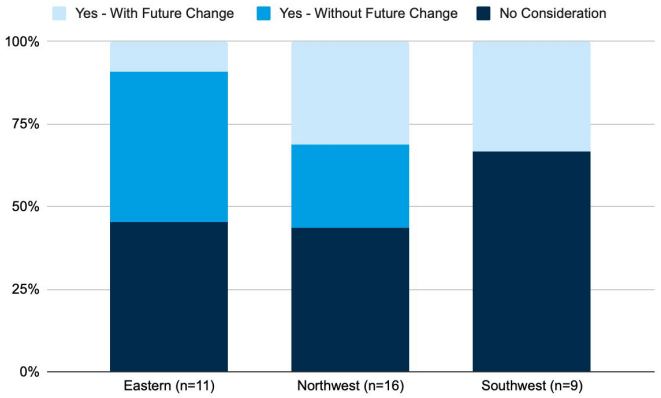
of WSPs reviewed contained direct mention or consideration of drought.

But, only 8 of these plans linked drought to climate change.

Drought in WSPs by Size



Drought in WSPs by Region



Seen in Plan Elements:

- Demand Forecasting & Source Analysis
- Water Shortage Response Plan
- Water Use Efficiency Program
- Emergency Response Plan

Findings

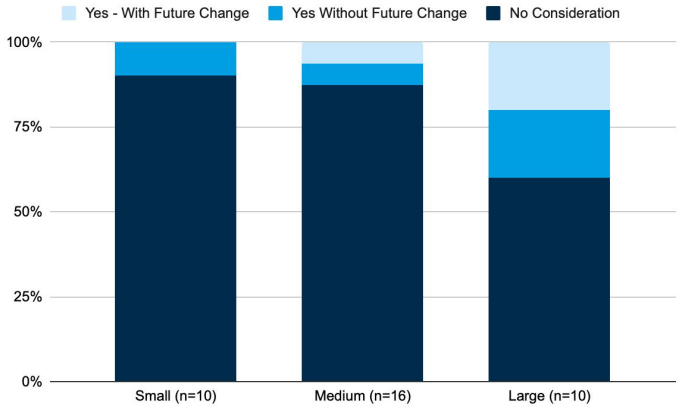
Wildfire

80%

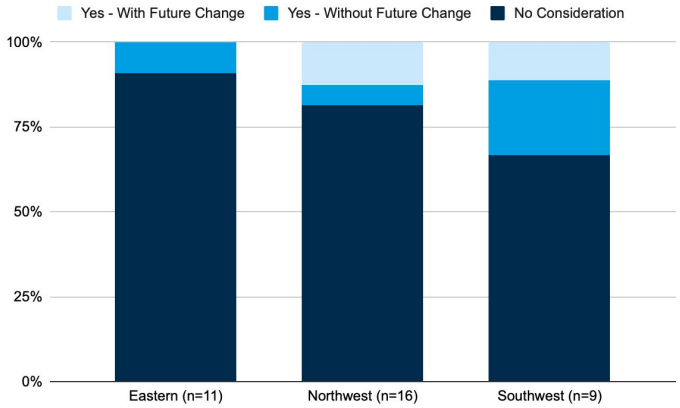
Of WSPs reviewed did not include any wildfire considerations.

Nearly all WSPs that DID consider wildfire have surface water as their main source of supply.

Wildfire in WSPs by Size



Wildfire in WSPs by Region



Seen in Plan Elements:

Source Water Protection Program

Findings

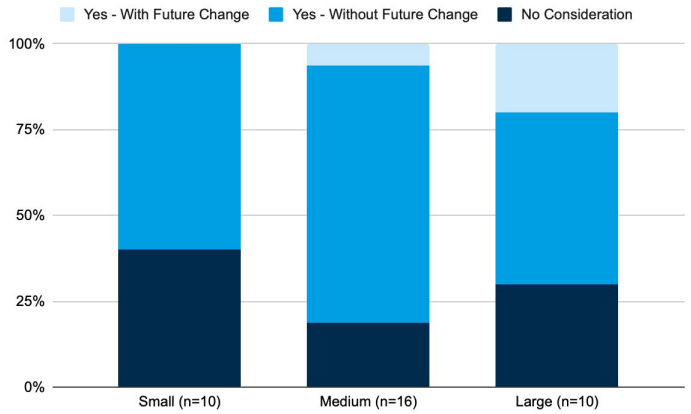
Flooding

72%

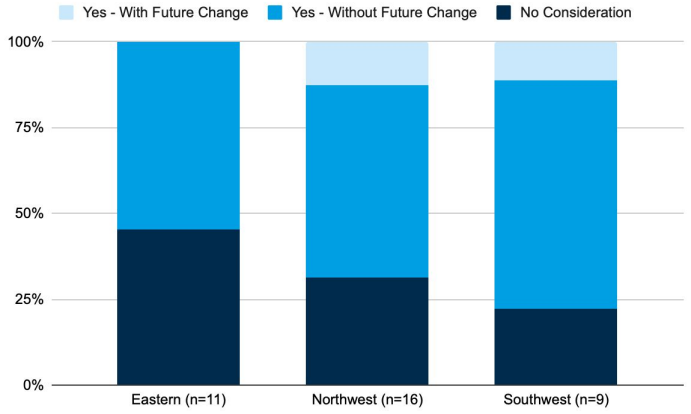
Of all WSPs Reviewed included preparedness or response actions related To flooding

But,
only 3 plans acknowledged future changes in the frequency or severity of flood conditions.

Flooding in WSPs by Size



Flooding in WSPs by Region



Seen in Plan Elements:

Emergency Response Plan

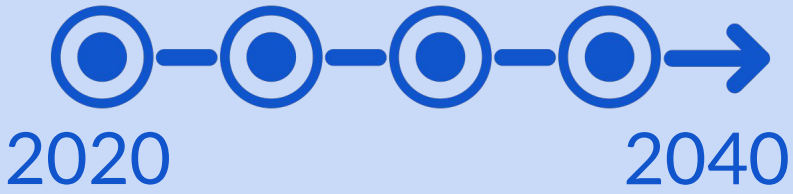
Water Shortage Response Plan

Source Water Protection Program

Capital Improvements Program

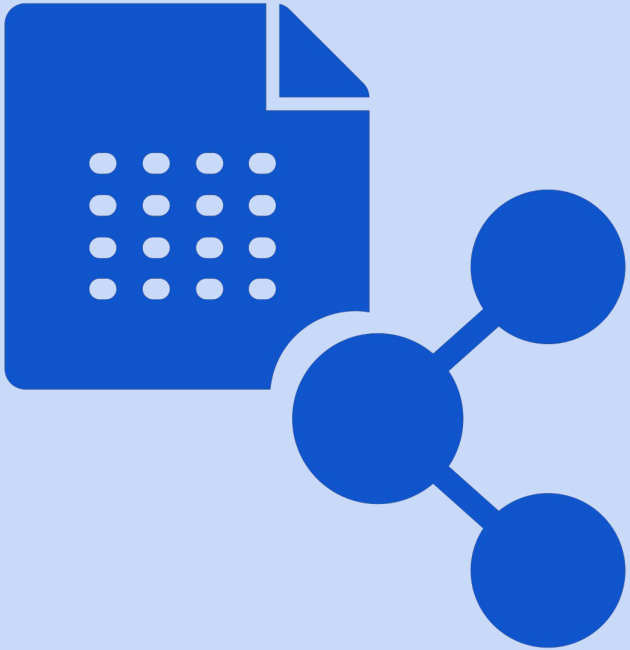
Conclusions + Recommendations

For the small to medium systems who are required to develop WSPs, who make up about 72% of all active Group A community systems with over 1,000 service connections, there are existing pathways within the current regulatory framework for water system planning that could be leveraged to advance climate resilience.



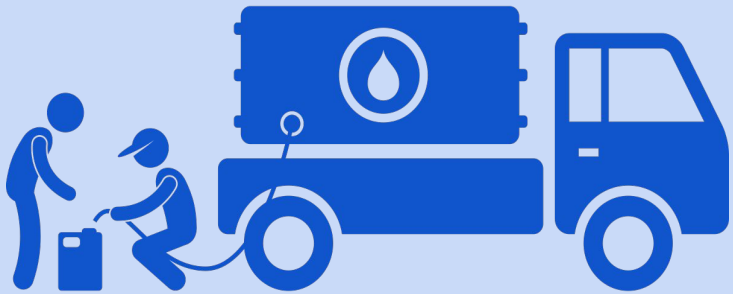
Recommendation 1

The **required 20-year planning horizon** for supply and demand analysis could support the integration of future climate trends and projections into WSPs.



Recommendation 2

The requirement of **consistency with local government planning** could enable climate resilience planning among municipal water suppliers.



Recommendation 3

Emergency Response Plans and Water Shortage Plans enable water systems to assess and anticipate the impacts of acute climate-related natural hazards on their operations, but these plans are not a substitute for a comprehensive climate resilience planning process because they are intentionally designed for short-term system recovery.

Recommendation 4

Water Use Efficiency programs are ongoing and could be a mechanism to plan and prepare for some climate impacts, such as extreme heat and drought, because they are a strategy to manage increases in year-over-year consumer usage.

Recommendation 5

Climate resilience planning for water systems could be advanced by including an element in WSPs that **centralizes climate data** and responses to facilitate the evaluation of internal consistency in WSPs.

Next steps for advancing climate resilience among

Small Water Systems

1,971

Group A systems with less than 1,000 service connections

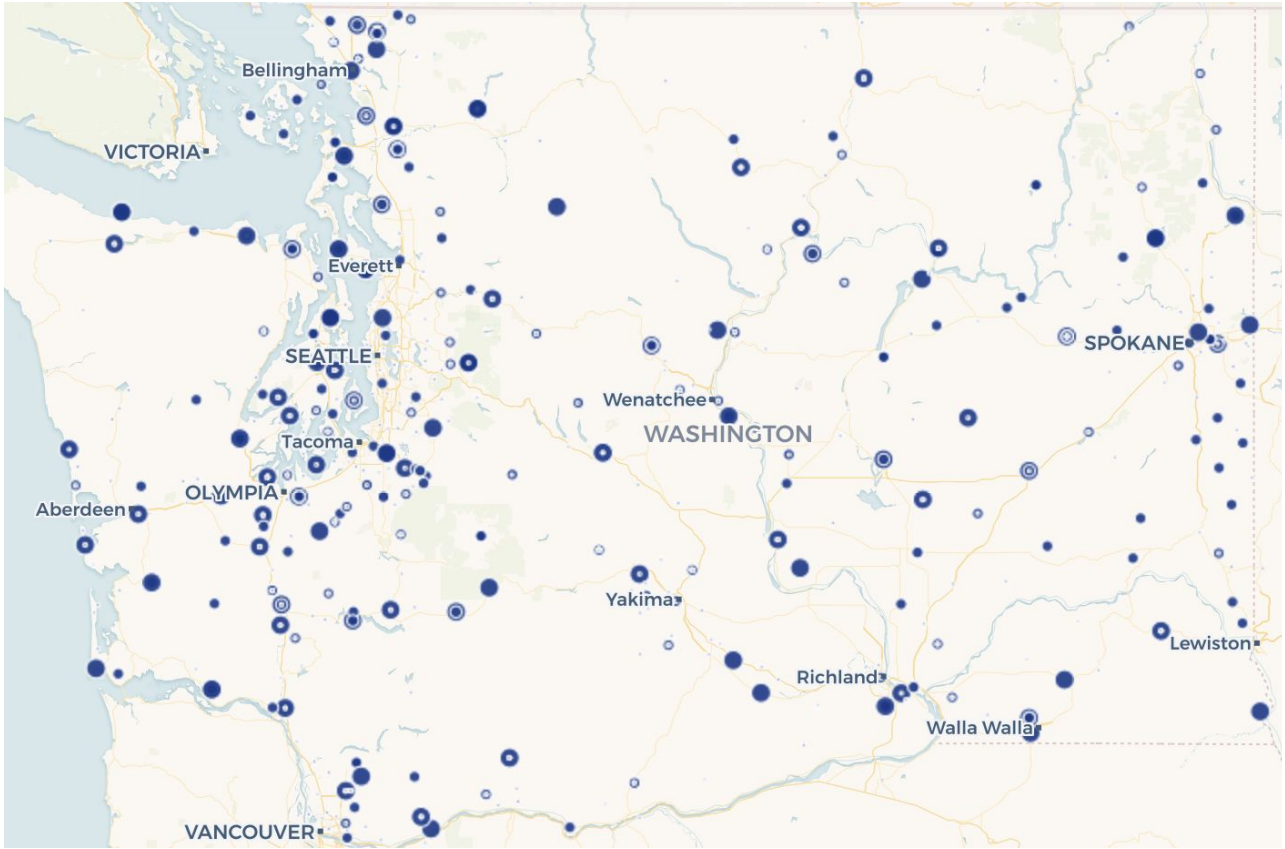
13,517

Group B Systems

725,000

residents receive water from Private Wells

Group A Community Systems with less than 1,000 Service Connections



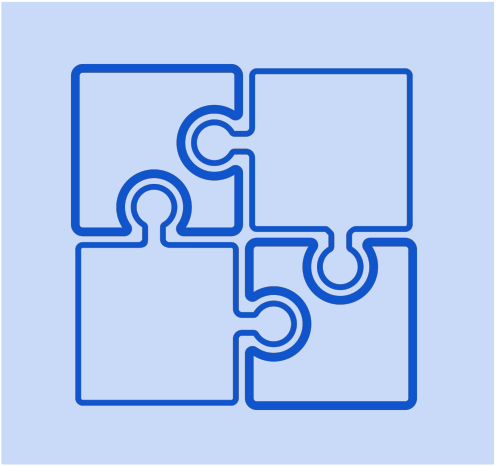
Total Service Connections

Ownership Type

INVESTOR	2.2k
PRIVATE	1.9k
ASSOCIATION	782
SPECIAL DISTRICT	461
CITY/TOWN	406
OTHER	659

Recommendation 6

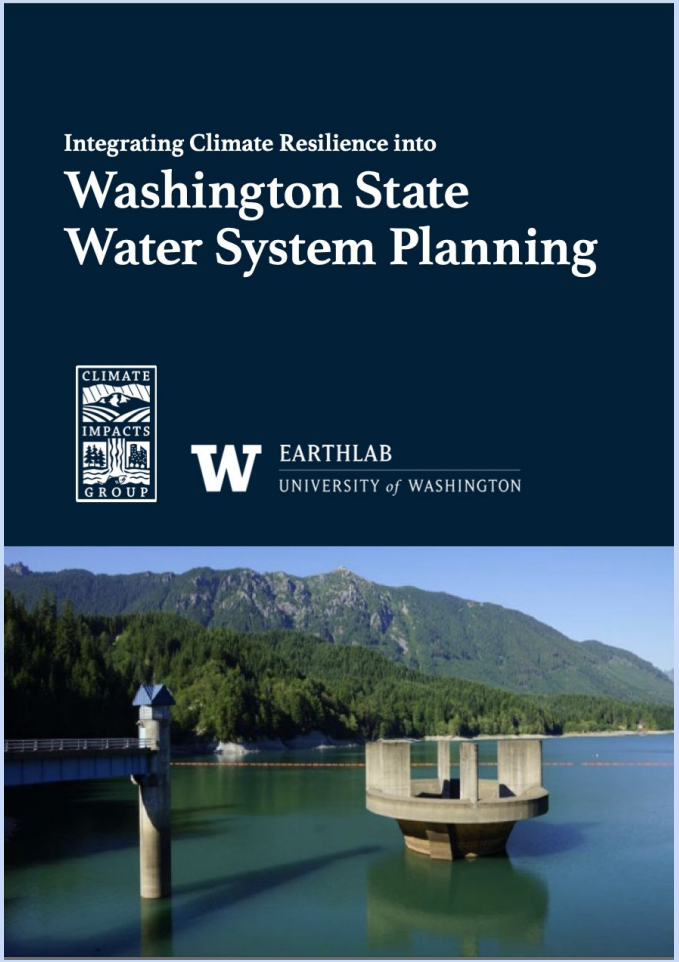
Requiring climate resilience in planning for very small systems, such as the Small Water System Management Program, has the potential to increase climate resilience for very small systems if requirements are supported with provisions that **increase resources, training, and technical assistance** for these systems to support implementation.



Recommendation 7

Regional and collaborative approaches to climate impacts assessment and resilience planning could effectively scale up climate resilience efforts by meeting the needs of the many very small systems simultaneously.

Thank you!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