LOTT's Reclaimed Water Program

Chehalis Basin Partnership

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What is LOTT?

Collaboration of four local governments

- **L**acey
- **O**lympia
- **T**umwater
- **T**hurston County

Board of Directors

- One elected official from each jurisdiction
- Meet monthly to oversee LOTT business

Mission: Preserve and protect public health and the environment by cleaning and restoring water resources for our communities

Dani Madrone, Olympia

Tye Menser, Thurston County

Leatta Dahlhoff, Tumwater

Carolyn Cox, Lacey

Budd Inlet Treatment Plant

- Treats 13 million gallons per day
- Highest level of treatment on Puget Sound

Treatment Success

Puget Sound Nutrient General Permit

- Employing biological nutrient removal since 1994
- Completed a major process upgrade in 2023

Resulting Treatment Performance

- Total inorganic nitrogen levels as low as 0.4 mg/L
- Average level is 1.6 mg/L
- Permit limit is 3.0 mg/L

Recovering Valuable Resources

Biogas Energy

Biosolids

Reclaimed Water

Budd Inlet Reclaimed Water Plant

- Built in 2006
- Cost approximately $3 million
- Sand filter technology
- Produces up to 1.5 mgd

Martin Way Reclaimed Water Plant

- Built in 2006
- Cost approximately $22 million
- Membrane bioreactor technology
- Produces up to 1.5 mgd


We're using water wisely by irrigating with reclaimed water
LOTT

LOTT's Hawks Prairie Recharge Basins

Groundwater replenishment

- Built in 2006
- Cost $7 million
- Capacity up to 5 mgd


Recharge Basins

Lacey and Olympia Recharge Facility

Water rights mitigation

WELCOME TO WOODLAND CREEK

Groundwater Recharge Facility

This facility is jointly owned by the Cities of Lacey and Olympia.

① Beneath this field is a state-of-the-art groundwater recharge facility that is using locally-produced Class A Reclaimed Water to replenish groundwater and streamflows in nearby Woodland Creek.

A Unique Facility

This recharge facility is the result of a joint effort by the Cities of Lacey and Olympia to ensure that stream flows in Woodland Creek are not diminished because of pumping drinking water from new wells constructed by the cities. This recharge facility consists of 4.7 miles of underground infiltration chambers underneath a four acre field. The chambers are located about three feet below ground and slowly discharge reclaimed water into the soil. Groundwater in and around the recharge facility is monitored remotely from a control center. The data collected is used to determine how much reclaimed water to release through the infiltration chambers. More water can be discharged during dry summer months, while less water is released during the wet months when groundwater levels are typically high. Depending on the month, 0.3 - 0.9 million gallons of reclaimed water are infiltrated per day.

Installation of the infiltration chambers prior to re-seeding the grassy field.

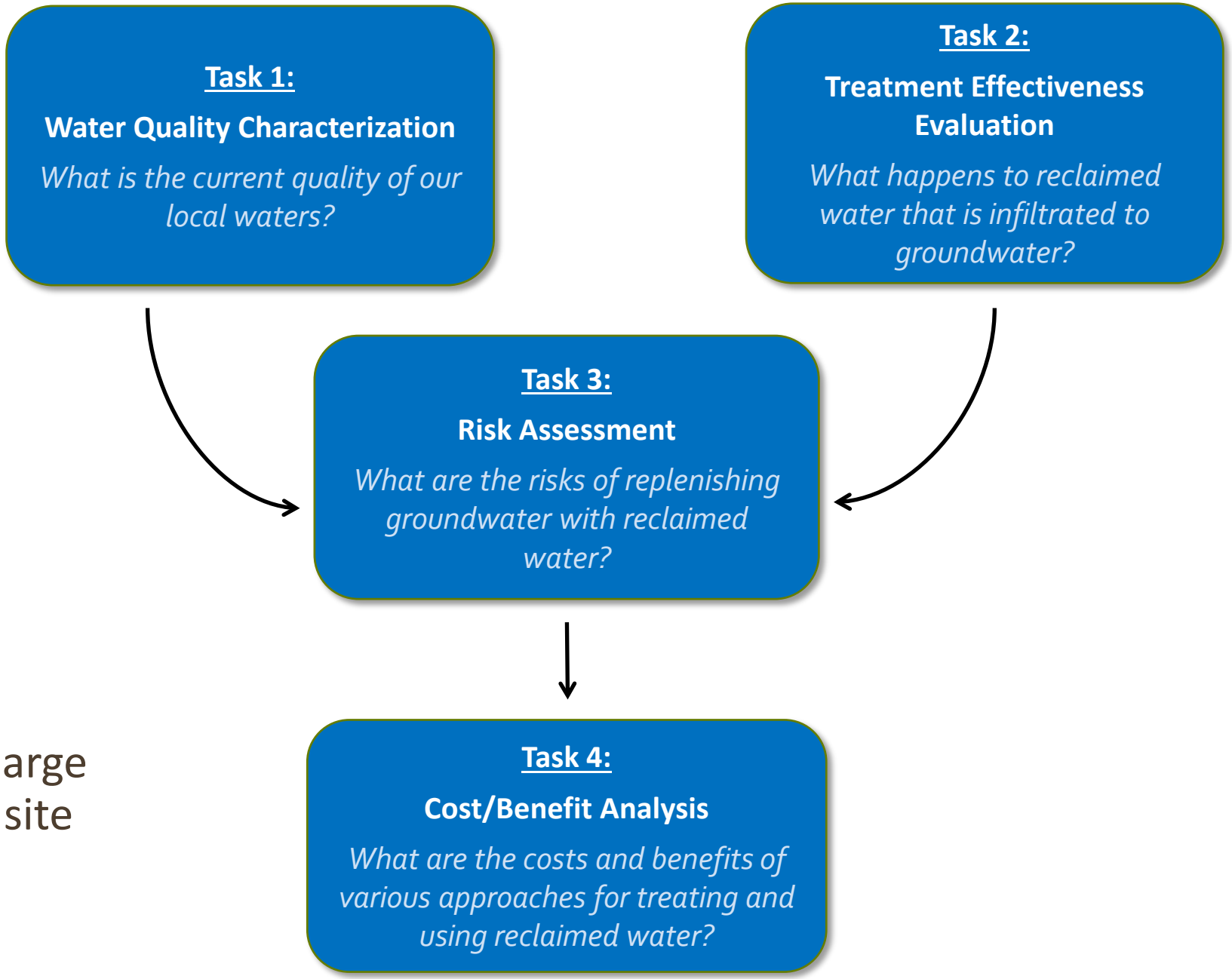
For more information, please visit www.ci.lacey.wa.us/reclaimed-water.

Reclaimed Water Infiltration Study

What are the risks from infiltrating reclaimed water into groundwater because of chemicals that may remain in the water from products people use every day, and what can be done to reduce those risks?

Study Framework

- Four key questions
- Four main study tasks
- 10-year research effort
- LOTT's Hawks Prairie recharge site served as main study site



Study Activities

- Identified representative list of residual chemicals for testing
- Established a monitoring well network
- Tested wastewater, reclaimed water, surface water, groundwater
- Used a tracer to “follow” recharged reclaimed water underground
- Sampled wells to identify residual chemical changes over time
- Created a computer model to estimate 100 years into the future
- Assessed potential risk for humans and wildlife
- Identified treatment technologies for reducing residual chemicals
- Recommended next steps, including follow-up sampling

Key Study Findings

Human Health

very low risk

Ecological Health

no risk identified

Why Reclaimed Water?

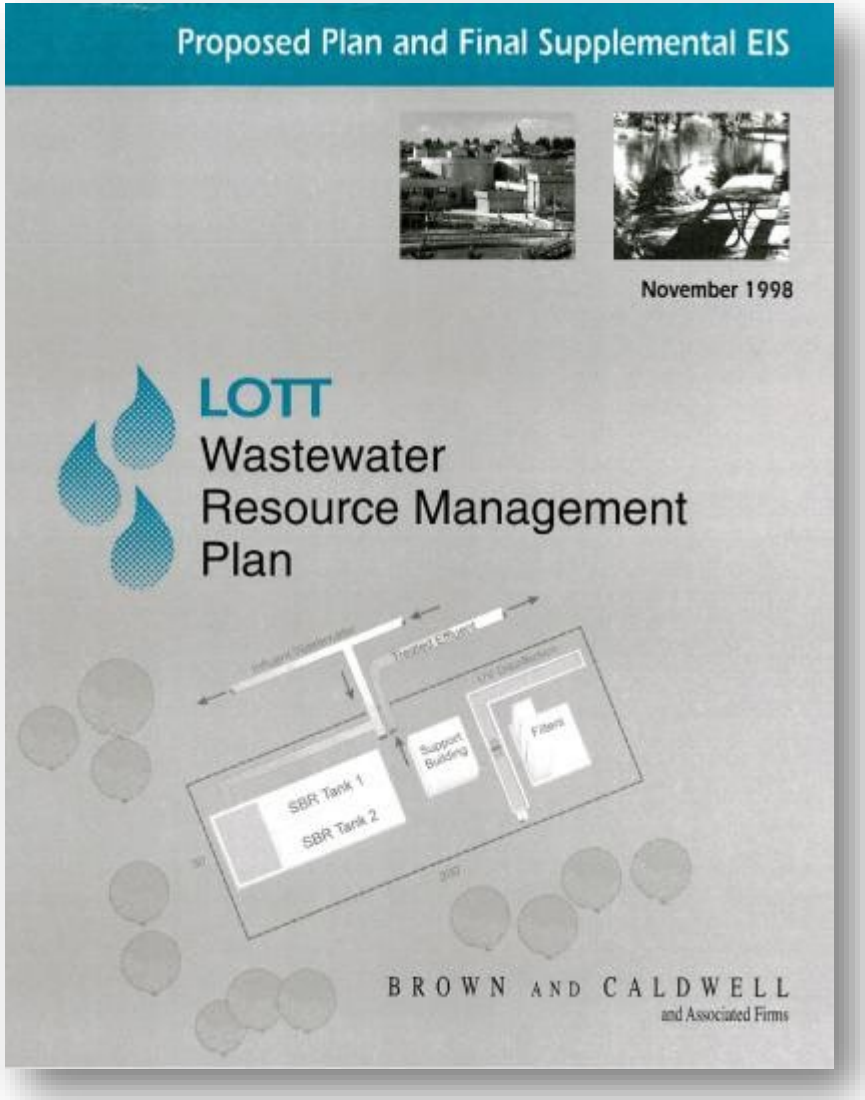
Long-range planning process in 1990s

Original driver:

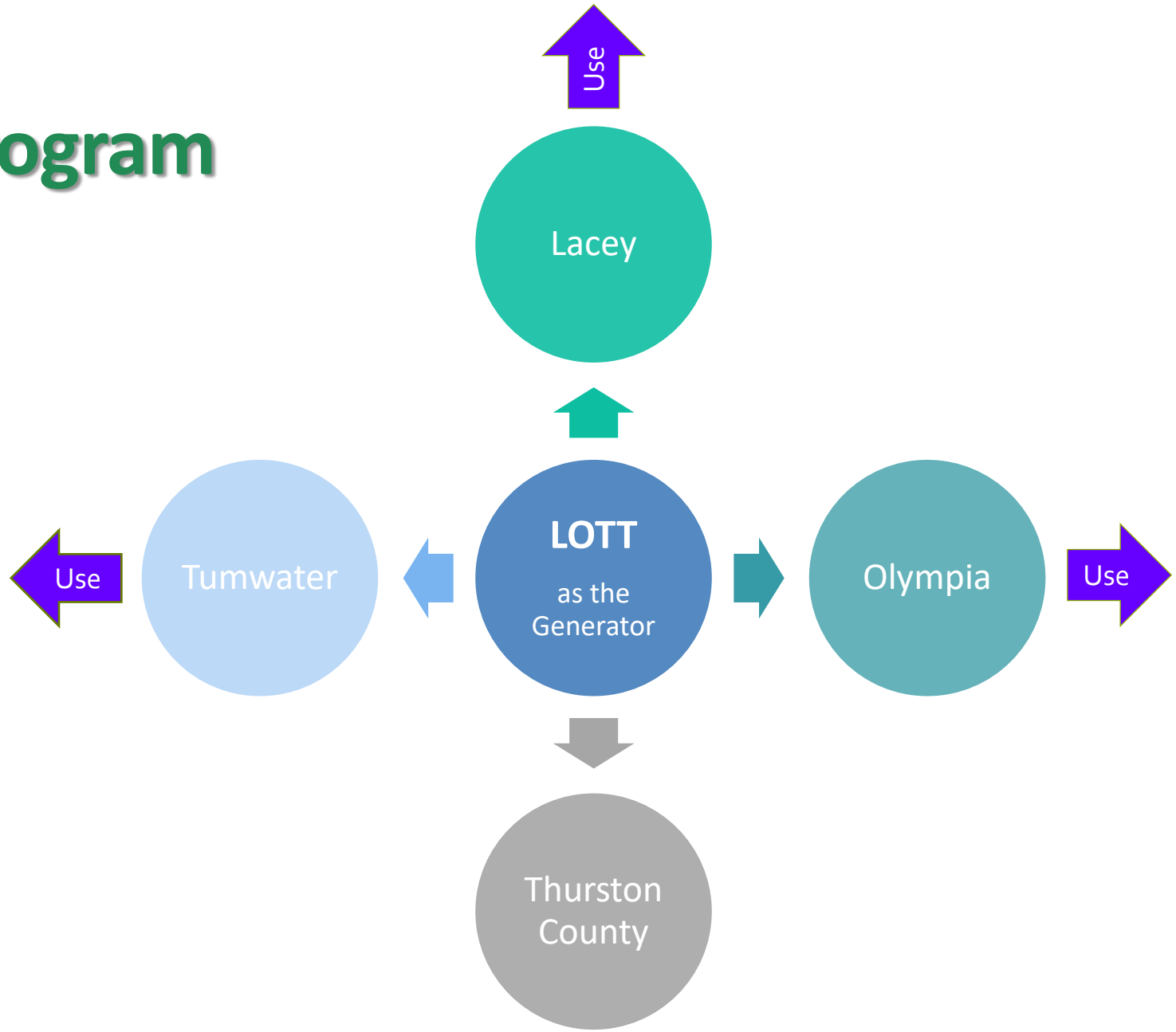
- Meet growing wastewater capacity needs over time

Public values:

- Treat wastewater as a valuable resource
- Maximize benefits to the environment
- Provide multiple community benefits

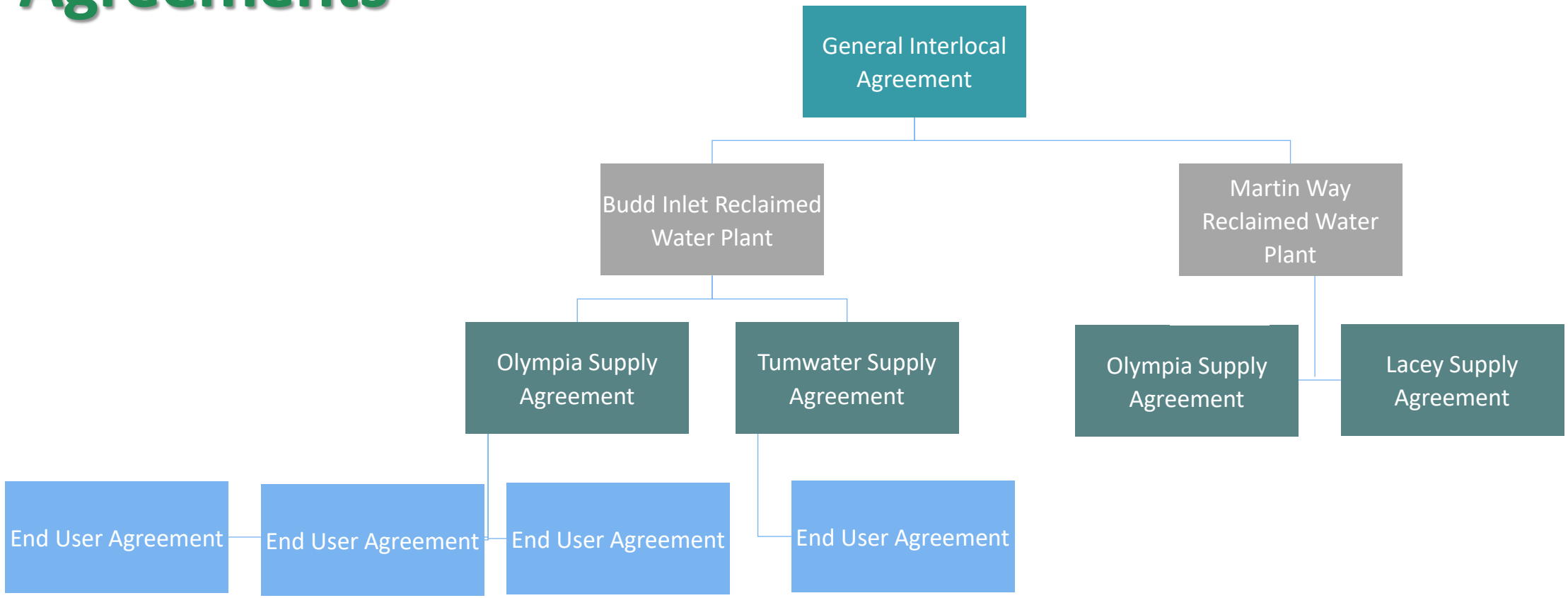


Reclaimed Water Program Framework



Reclaimed Water Agreements

Washington State Reclaimed Water Rule: RCW 90.46
Reclaimed Water Guidance: WAC 179-219



Original Program Vision

LOTT

- Reduce discharge to Budd Inlet to meet permit restrictions
- Develop multiple satellite plants and recharge sites

Partner jurisdictions

- Install network of purple pipes throughout service area
- Purvey to large users for irrigation at parks, schools, golf courses
- Conserve limited drinking water supplies

All

- Any Class A not reused could be recharged

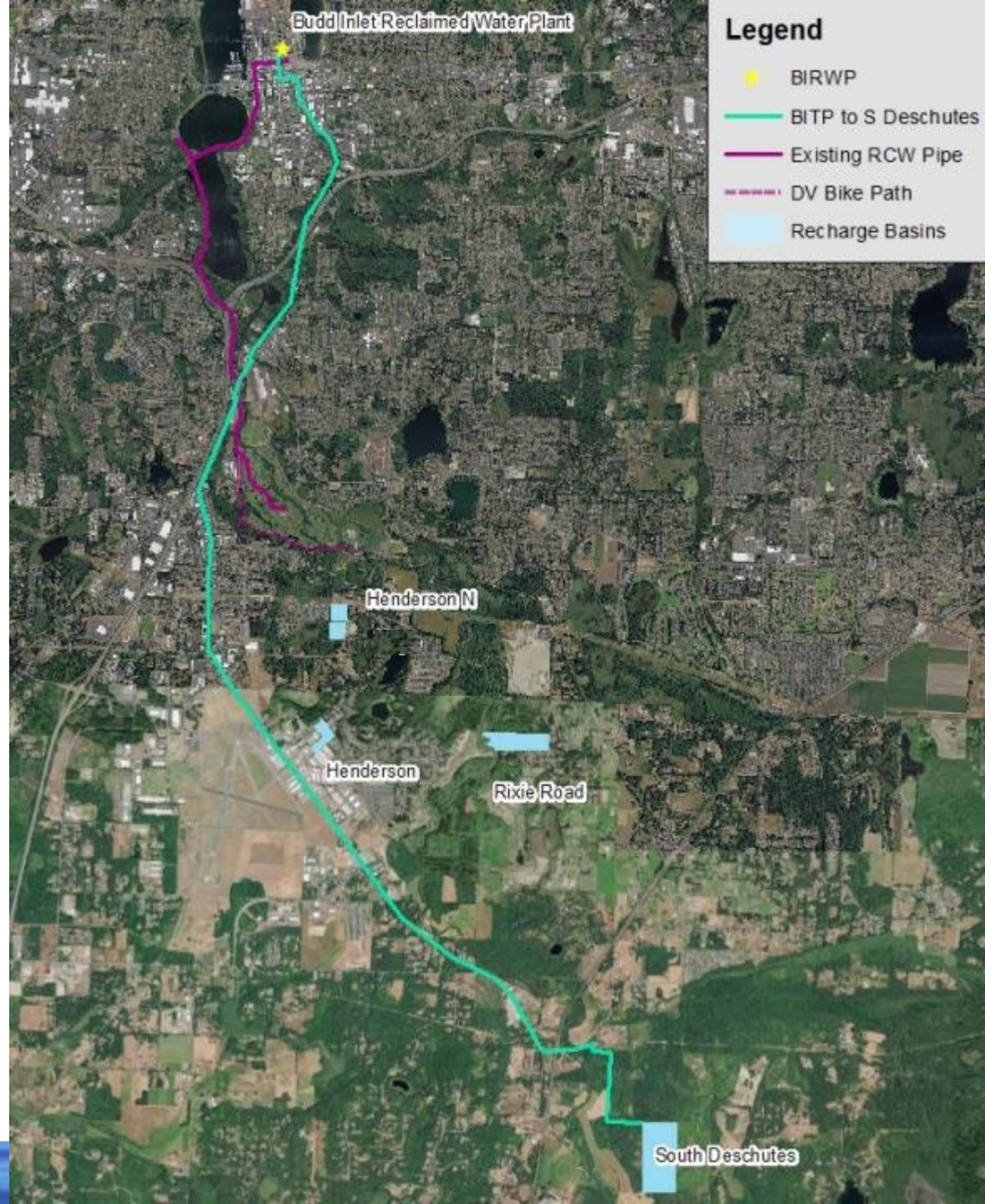
Lessons Learned

LOTT

- Decentralized facilities not cost-effective
  - Costly to build
  - Staffing intensive
- Viable recharge sites difficult to find
- Conveyance pipelines costly

Jurisdictions

- Purple pipe network very costly
- Reuse limited to areas by existing pipelines
- Greater benefit in water rights mitigation



Updated Vision for Future

- Invest in advanced treatment technology at Budd Inlet plant to meet future regulatory requirements
- Expand existing facilities based on demand for reclaimed water
- Coordinate closely with partner jurisdictions to meet their future needs
- Their current focus is mitigation through recharge

Questions?

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lottcleanwater.org