Regional Wastewater Services Plan (RWSP) Update: Treatment Policy Questions and Options

MWPAAC

August 26, 2026

Policy analysis schedule

11 “Groups” of Policy Analyses with policy options for MWPAAC & RWQC:

March	Group #1: Separated System Conveyance
April	Group #2: Pollution Source Control & Legacy Pollution
May	Group #3: Asset Renewal & Replacement
June	Group #4: Climate Impact Preparedness & Natural Hazard Resiliency
July	Group #5: Affordability Metrics
August	Group #6: Combined System Management
September	**Group #7: Treatment**
October	Group #8: Resource Recovery
Nov / Dec	Group #9: Finance/Rate Structure
Throughout	Group #10: Equity & Social Justice
Throughout	Group #11: Relationship to Contracts

Major Policy Questions: Treatment (1 of 3)

Policy Memo #10

- **Level of Treatment (1):** Should the County evaluate costs and plan for levels of treatment beyond current legal requirements?

- **Level of Treatment (2):** How should the County anticipate, engage with, and plan for future nutrient permit requirements, regulations related to Contaminants of Emerging Concern (CECs) such as PFAS, or other future regulatory changes?

Major Policy Questions: Treatment (2 of 3)

Policy Memo #11

- **Treatment Capacity:** Given the uncertainties in future growth rates reported by Washington State and the Puget Sound Regional Council, how aggressively beyond legal requirements should WTD expand *[treatment plant]* capacity to account for future population growth?

- **Site Use & Expansion:** To what extent should WTD prioritize use of existing facility sites vs. acquiring new property to accommodate future treatment needs (including capacity)?

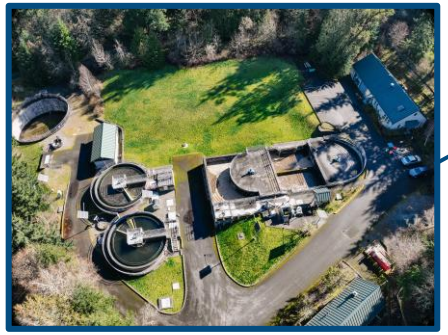
Major Policy Questions: Treatment (3 of 3)

Policy Memo #12

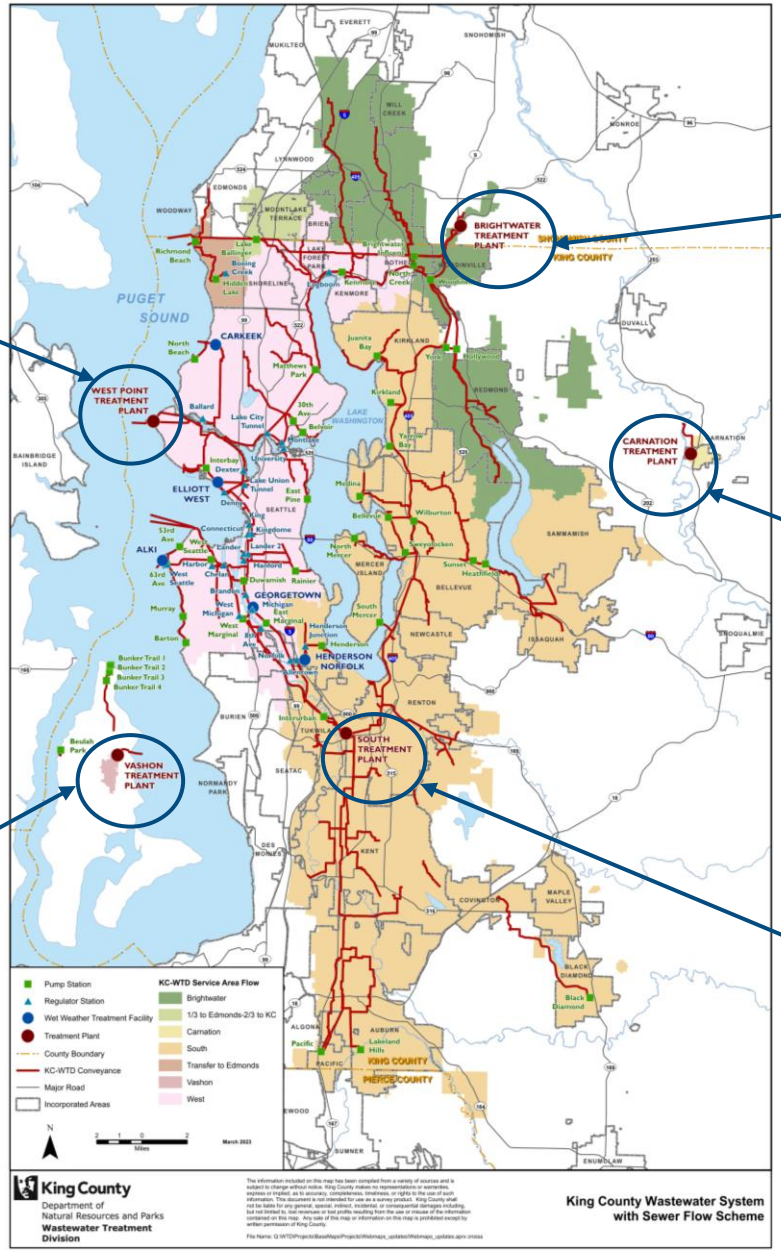
- **Regional Strategy:** Should the region continue to provide a centralized approach for regional wastewater treatment, or should the region move towards a more decentralized approach?

King County's Wastewater Treatment System

West Point Treatment Plant



Vashon Treatment Plant

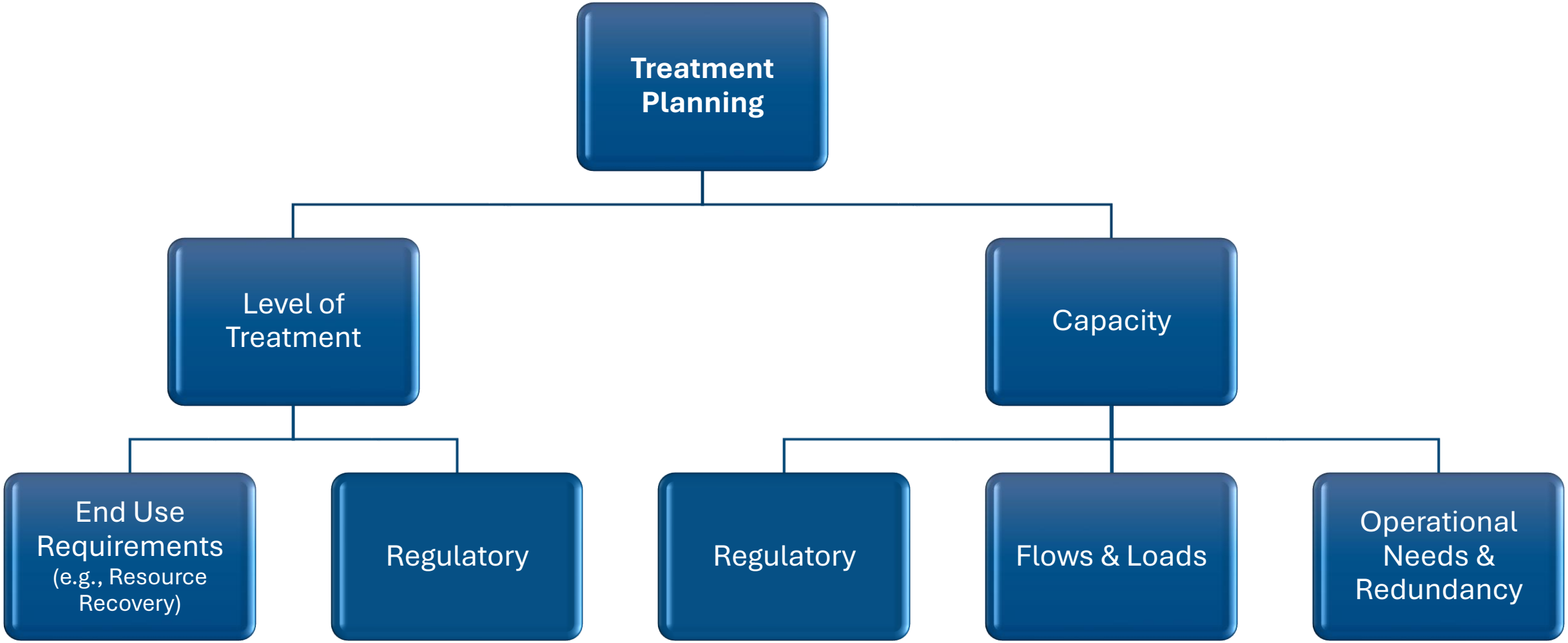


Brightwater Treatment Plant

Carnation Treatment Plant

South Plant Treatment Plant

Wastewater Treatment Planning Big Picture



Treatment: relationships to other RWSP topics

1. **Resource Recovery:** Resource recovery goals and policies can be a driver to implement treatment technologies that produce particular qualities or quantities of recovered products, e.g., biogas, biosolids, or recycled water.

2. **Separated System Conveyance:** Conveyance planning and treatment planning share many data inputs and assumptions, such as projections for population and flows. In some cases, conveyance decisions directly impact treatment plant influent volumes and characteristics.

3. **Pollution (Source Control and Legacy):** Source control activities can prevent toxic contaminants from entering the wastewater system and potentially reduce the need for additional treatment.

4. **Asset Renewal and Replacement:** Asset R&R supports day-to-day treatment reliability.

Current and Forecasted Expenditures – *Treatment Capacity*

From the 2027 Sewer Rate Forecast:

- First decade (2026-2036)
  - Treatment is about 8% of the forecast
  - Current treatment projects are approximately $366 million
- Both decades (2026-2046)
  - Treatment forecast is about $4.0 billion (with much uncertainty)

These estimates include wastewater treatment-related project costs in the capacity improvement and regulatory portfolio categories; but not substantive investment for nutrient regulations.

Level of Treatment (1)

RWSP Scoping Document: "Major Policy Questions" – Level of Treatment

- **Level of Treatment:** Should the County evaluate costs and plan for levels of treatment beyond current legal requirements?
- Level of Treatment: How should the County anticipate, engage with, and plan for future nutrient permit requirements and regulations related to CECs such as PFAS, or other future regulatory changes?
- **Treatment Capacity:** Given the uncertainties in future growth rates reported by Washington State and the Puget Sound Regional Council, how aggressively beyond legal requirements should WTD expand capacity to account for future population growth?
- **Site Use and Expansion:** To what extent should WTD prioritize use of existing facility sites versus acquiring new property to accommodate future needs?
- **Regional Strategy:** Should the region continue to provide a centralized approach for regional wastewater treatment, or should the region move towards a more decentralized approach?

Problem statement: Level of Treatment

- Current planning **focus is on existing and near-term anticipated regulatory requirements**
- More proactive evaluation could identify opportunities to improve public health and environment
- **Potential underinvestment areas**:
    - Long-term strategic **resilience**
    - **Reducing unregulated contaminants** flowing through the system
    - Expanding or **maximizing resource recovery**
- Core challenge: deciding how far planning should go beyond compliance-driven approaches
- **Future-focused planning may require anticipating major shifts** in regulatory, environmental, political, and market conditions

Level of treatment – Existing policies in code and/or practice

Relevant policy question(s): Should the County evaluate costs and plan for levels of treatment beyond current legal requirements?

Level of Treatment

Relevant policies and plans	Description
TPP-1	Secondary treatment at all plants for base flows. Treatment beyond secondary level to achieve other goals.
TPP-5*	Conduct feasibility studies for discharge of reclaimed water into freshwater systems.
TPP-8*	Continue water reuse and explore opportunities to expand at existing and new facilities.
NPDES permits	Regulations for discharge requirements for each plant.

* TPP-5 and TPP-8 relate to Resource Recovery topics

Current interpretation:

- Plan and implement projects to **meet permit requirements, including treating flows to at least secondary level**.
- **Treat portions of flows to higher levels** to meet requirements for recycled water.
- **Explore opportunities with local agency partners to expand water reuse**.
- **Plan for anticipated near-term permit requirements** to understand potential capital needs.

Range of policy options - summary

Major policy question: Should the County [in its ongoing treatment planning efforts] evaluate costs and plan for levels of treatment beyond current legal requirements?

	Policy option #1	Policy option #2	Policy option #3*
	Plan as needed to prepare for **current and near-term** anticipated conditions.	Plan for targeted treatment **beyond current requirements** to provide **community or environmental benefits** or **prepare for currently unregulated harmful pollutants.**	Plan for treatment levels to **maximize resource recovery.**
Goals/ Outcomes:	**Maintain compliance.** **Focus on established drivers.**	**Increase agility.** **Increase readiness for emerging issues and potential future needs.**	**Additional revenue possibilities.** **Improve environmental outcomes and resiliency.**

* Policy Option #3 specifically responds to the resource recovery policy goals under development in Group 8. Options #1 and #2 may still support resource recovery but are not driven only by Group 8 goals.

Level of Treatment (2)

Major policy question: How should the County anticipate, engage with, and plan for future nutrient permit requirements and regulations related to CECs such as PFAS, or other future regulatory changes?

Nutrient and other future regulations (1 of 3)

- The RWSP Update needs to meet or exceed regulatory and legal requirements – i.e., the Plan must be submitted to Department of Ecology for approval as the County's General Sewer Plan Update.

- WTD anticipates future nutrient treatment requirements, but we do not know exactly what the requirements will be or the timing for the next phase in nutrient regulation.

- WTD is working on nutrient upgrade planning to identify treatment upgrade options, costs, and rate impacts, as well as present our case for the All Known Available and Reasonable Technology (AKART) alternative for treating nutrients.
    - The nutrient plan and AKART alternative will be submitted to Ecology for its consideration in enacting future regulatory requirements.
    - WTD and other Puget Sound utilities are proactively engaging with Ecology to find an effective, adaptable, and affordable approach to managing nutrients.

- The RWSP will incorporate this nutrient planning to ensure the Plan is aligned with anticipated future nutrient requirements. If a new legal and enforceable framework is approved by the EPA and Ecology, the Plan will be adjusted.

Nutrient and other future regulations (2 of 3)

- Additionally, and separate from the RWSP process, WTD is exploring options with its regulators to balance nutrient regulations with other concurrent regulatory requirements and address financial sustainability and affordability (as outlined in the Executive's Sewer Rate and Capital Work Plan).

    - WTD is exploring tools authorized by the Clean Water Act, such as Integrated Planning, to improve water quality outcomes with a financially sustainable and predictable rate path. King County will need buy-in from the EPA and Ecology;
    - Integrated Planning can help prioritize regulatory obligations and asset management needs in a way that benefits communities;
    - WTD is working with other Puget Sound utilities to advocate for robust engagement with interested parties and an adaptive management approach to nutrient regulation;
    - Regulators have signaled willingness to have a regional dialogue on nutrient management

Potential PFAS and CEC regulations (3 of 3)

- **Policy and regulation**: WTD will monitor and engage on proposed regulatory requirements for treatment of PFAS and CECs under consideration by federal or state regulatory entities.

- **Management actions**: Source control remains the most effective management tool for PFAS and CECs through tools like consumer education and advocacy for bans on CECs in products.

- **Research**: WTD will continue to sample, track, and participate in research on PFAS and CECs in wastewater and resource recovery products.

- **Technology evaluation**: WTD will continue to evaluate emerging wastewater treatment technologies to prepare for future regulation, or as a driver for resource recovery.

Treatment Capacity

RWSP Scoping Document: "Major Policy Questions" – Treatment Capacity

- **Level of Treatment (1):** Should the County evaluate costs and plan for levels of treatment beyond current legal requirements?
- **Level of Treatment (2):** How should the County anticipate, engage with, and plan for future nutrient permit requirements and regulations related to CECs such as PFAS, or other future regulatory changes?
- **Treatment Capacity**: Given the uncertainties in future growth rates reported by Washington State and the Puget Sound Regional Council, how aggressively beyond legal requirements should WTD expand capacity to account for future population growth?
- **Site Use and Expansion:** To what extent should WTD prioritize use of existing facility sites versus acquiring new property to accommodate future needs?
- **Regional Strategy:** Should the region continue to provide a centralized approach for regional wastewater treatment, or should the region move towards a more decentralized approach?

RWSP Scoping Document : "Major Policy Questions" – Site Use and Expansion

- **Level of Treatment:** Should the County evaluate costs and plan for levels of treatment beyond current legal requirements? How should the County anticipate, engage with, and plan for future nutrient permit requirements and regulations related to CECs such as PFAS, or other future regulatory changes?
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Additional Context on Treatment Capacity Planning

- Under current regulations (which do not include nutrient removal upgrades) and available capacity information, WTD does not anticipate space constraints at any treatment plant before 2060.
- Future regulatory changes requiring higher levels of treatment (such as for nutrient removal) could introduce new space constraints.
- Space constraints due to capacity are expected soon after 2060, so WTD will need to *plan* for addressing them before that time.
- Ongoing treatment planning (to address regulations and capacity) will determine whether constraints may occur earlier.
- Evaluating different approaches to addressing regulations and capacity will require weighing their benefits, costs, and potential negative impacts.

Problem Statement: Treatment Capacity & Site Use/Expansion

- **Long-term population uncertainty** can complicate planning the scale and timing for future expansions.
- WTD already plans capacity well ahead of regulatory thresholds, helping to **avoid both under- and over-building**.
- Current approach does not fully resolve whether future expansion should occur within existing facility sites
- Some sites may be able to accommodate treatment needs in the long term, while others may in the future face physical limitations that require new property.
- Challenge will be deciding when and where to invest in additional site space.

Treatment capacity – existing policies in code and/or practice

Major policy question: Given the uncertainties in future growth rates reported by Washington State and the Puget Sound Regional Council, how aggressively beyond legal requirements should WTD expand capacity to account for future population growth?

Treatment capacity

Relevant policies and plans	Description
TPP-2	Build Brightwater. West Point maintains rated capacity of 133 mgd. South Plant capacity to serve east and south King County, with exceptions for specific named flows. Expanding West Point and South Plant retained for unexpected circumstances.
NPDES permits	NPDES permits require WTD to maintain adequate capacity. Triggering conditions for capacity planning: 1) actual flow or waste load reaches 85 percent of design criteria for three consecutive months or 2) projected plant flow or loading would reach design capacity within 5 years.

Current interpretation:

- WTD projects flows and loadings for both separated conveyance and treatment planning using a consistent set of data inputs, statistical methods, and technical assumptions.
- WTD projects flows and loadings decades (30-40+ years) into the future and updates these forecasts at least every 10 years to inform long-term planning and develop a high-level conceptual understanding of future capacity needs.
- If influent data or WTD projections indicate flows or loads are approaching Ecology's thresholds, WTD begins planning in more detail the projects needed to provide additional capacity.
- WTD has a degree of operational flexibility to adjust plant conditions to manage capacity constraints within a plant on a short-term basis with higher operational risks.

Answer in brief

Major policy question: Given the uncertainties in future growth rates reported by Washington State and the Puget Sound Regional Council, how aggressively beyond legal requirements should WTD expand [treatment] capacity to account for future population growth?

Short answer	Rationale
WTD should maintain current policies and practices in treatment capacity planning for population growth.	1. Through its NPDES permits, Ecology requires WTD to initiate prudent planning in advance of approaching treatment capacity constraints. 2. Implementing capacity expansion projects larger or sooner than needed risks overbuilding and • operational challenges • costly underutilized infrastructure if future treatment needs change 3. WTD can manage growth uncertainty to a degree by adjusting operations to manage capacity constraints while maintaining effective treatment.

Site Use and Expansion

RWSP Scoping Document: "Major Policy Questions" – Site Use and Expansion

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Site use and expansion – existing policies in code and/or practice

Major policy question: To what extent should WTD prioritize use of existing facility sites versus acquiring new property to accommodate future needs?

Site Use and Expansion

Relevant policies and plans	Description
TPP-2	Build Brightwater. West Point maintains rated for 133 mgd. South Plant capacity to serve east and south King County, with exceptions for specific named flows. Expanding West Point and South Plant retained for unexpected circumstances.
TPP-3	Changes to West Point must comply with terms of West Point settlement agreement.
TPP-7	Explore possibility of satellite treatment plants to produce reclaimed water.
NPDES permits	NPDES permits require WTD to maintain adequate capacity. Triggering conditions for capacity planning: 1) actual flow or waste load reaches 85 percent of design criteria for three consecutive months or 2) projected plant flow or loading would reach design capacity within five years.

Current interpretation:

- Since Brightwater was built, WTD has been able to **meet capacity expansion needs at existing facility sites.**
- WTD is projected to be able to **accommodate capacity needs at existing treatment sites** for the next several decades.
- The **West Point settlement** agreement guides WTD's planning and decision-making related to site use, operations and maintenance, and construction management.
- WTD regularly updates its projections for flows and loadings and **plans capacity expansion projects to address capacity needs** ahead of time.

Answer in brief

Major policy question: To what extent should WTD prioritize use of existing facility sites versus acquiring new property to accommodate future needs?

Short answer	Rationale
WTD should assess both existing sites and potential new property to determine the best approach to meet future treatment and capacity needs, considering the full range of risks, costs, and benefits.	1. Long-term planning clarifies when and why additional space may be needed. 2. WTD is projected to be able to accommodate capacity needs at existing treatment sites for the next several decades 3. WTD will continue to evaluate whether future treatment and capacity needs can be met at existing sites, require new property, or could be addressed either way. 4. If existing sites approach buildout, potential alternatives include • Increasing process intensity within current footprints • Expanding existing facility footprints • Adding targeted facilities near current sites • Acquiring property for a treatment facility or additional regional treatment plant 5. Each option presents distinct risks, benefits, and operational implications. Some approaches may limit flexibility, require major capital investment, or face land-use or community constraints. 6. WTD can manage uncertainty by refining analyses over time to support well-grounded decisions about site use or property acquisition.

Regional Strategy

RWSP Scoping Document: "Major Policy Questions" – Site Use and Expansion

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Answer in brief (1 of 2)

Major policy question: Should the region continue to provide a centralized [i.e., regional plants] approach for regional wastewater treatment, or should the region move towards a more decentralized [i.e., satellite plants] approach?

Short answer

The region should continue to provide a regional plants approach for regional wastewater treatment, with satellite treatment plants as appropriate.

Rationale

- ❑ The regional system is primarily a centralized system with three regional plants serving large subregional geographies, but also has two small satellite plants serving specific communities not connected to the regional system
- ❑ A regional plant approach:
  - ❑ treats wastewater often far away from source of generation
  - ❑ has a proven success protecting public health & the environment, cleaning wastewater for nearly 2 million people every day, year-round
  - ❑ allows for efficient and coordinated infrastructure planning
  - ❑ allows planning across local sewer agency boundaries using a watershed-based approach
  - ❑ allows for cost sharing, which lowers overall costs and increases affordability in areas with concentrations of people with lower incomes
  - ❑ provides an ability for innovation, as large plants support technologies that require scale to be cost-effective

Answer in brief (2 of 2)

Major policy question: Should the region continue to provide a centralized [i.e., regional plants] approach for regional wastewater treatment, or should the region move towards a more decentralized [i.e., satellite plants] approach?

Short answer

The region should continue to provide a regional plants approach for regional wastewater treatment, with satellite treatment plants as appropriate.

Rationale

- A satellite treatment plant approach
  - treats wastewater closer to the source of generation
  - would be a shift in how the region manages wastewater and would require realignment of regulatory, administrative, and operational practices
  - could reduce the scale of systemwide risk by distributing risk across multiple sites, and may be closer to resource recovery opportunities, making them more feasible
  - would cost more to build, operate, and maintain (limited economy of scale) at multiple satellite plants
  - result in more complex operations, maintenance, and regulatory oversight

Q&A

King County | Wastewater Treatment