

Clean Water Plan

Making the Right Investments at the Right Time

Mobility and Environment Committee

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Presenters:

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Clean Water Plan

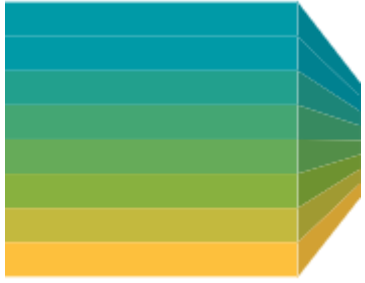
Making the right investments at the right time



Clean Water Plan Planning Process Overview



Core Planning Question: *What is the most appropriate path to ensure we direct the right public investments to the right actions at the right time for the best water quality outcomes?*



Exploring a Range of Actions Within Each Decision Area

Wastewater Treatment

What treatment plant and wet weather facility investments should be made?

Today's Discussion

Pollution Source Control and Product Stewardship

Are there more efficient or effective methods to address pollutants of concern than wastewater treatment?

Wet Weather Management

What approach should be taken to address stormwater and combined sewer overflows in King County's system?

Wastewater Conveyance

What are the best investments in collections systems to ensure sufficient capacity and improve system condition?

Asset Management, Resiliency, and Redundancy

What investments should be made to care for an aging regional wastewater system and protect the investments that have been made?

Legacy Pollution

What are the opportunities to address legacy pollution?

Resource Recovery

How should King County recover resources in wastewater?

Finance

How will regional water quality investments be financed?

Policy Considerations – Existing Policies

Metropolitan Functions – King County Code 28.86

- **Wastewater Treatment**
 - **Treatment plant policies (TPP).** ←
 - **Conveyance policies (CP).**
 - **I/I policies (I/IP).**
 - **Combined sewer overflow control policies (CSOCP).**
 - **Biosolids policies (BP).**
 - **Water reuse policies (WRP).**
 - **Wastewater services policies (WWSP).** ←
 - **Water quality protection policies (WQPP).**
 - **Wastewater planning policies (WWPP).**
 - **Environmental mitigation policies (EMP).**
 - **Public involvement policies (PIP).**
 - **Financial policies (FP).**
 - **Reporting policies.**

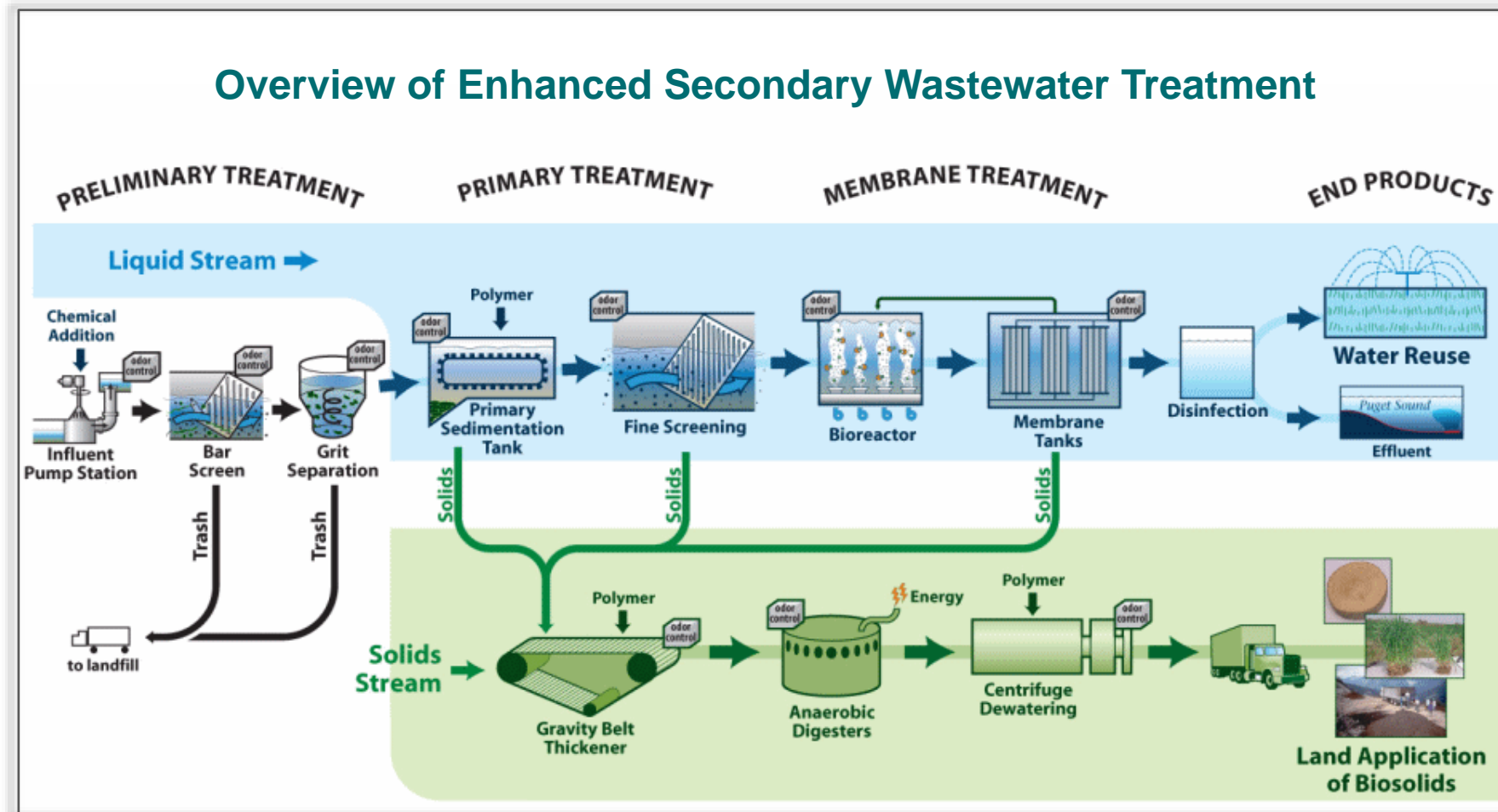
Treatment Plant Policy Examples

- **TPP-1:** “...provide secondary treatment to all base sanitary flow delivered to its treatment plants. Treatment beyond the secondary level may be provided to meet water quality standards and achieve other goals such as furthering the water reuse program or benefiting species listed under the ESA.”
- **TPP-2:** “...provide additional wastewater treatment capacity to serve growing wastewater needs by...”
- **WWSP-15:** “...will consider development and operation of community treatment systems under the following circumstances.”

Policy Considerations – Wastewater Treatment Plants

Current policy directs:

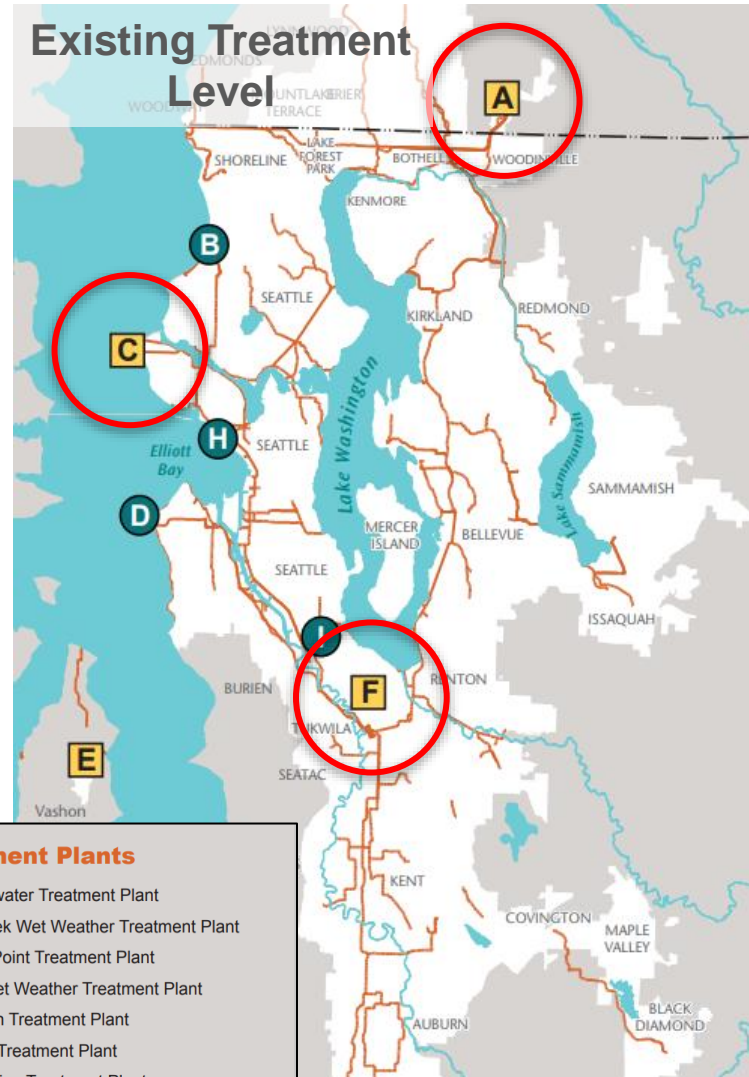
- Secondary treatment be provided to all base sanitary flows
- Wastewater treatment capacity to serve population needs



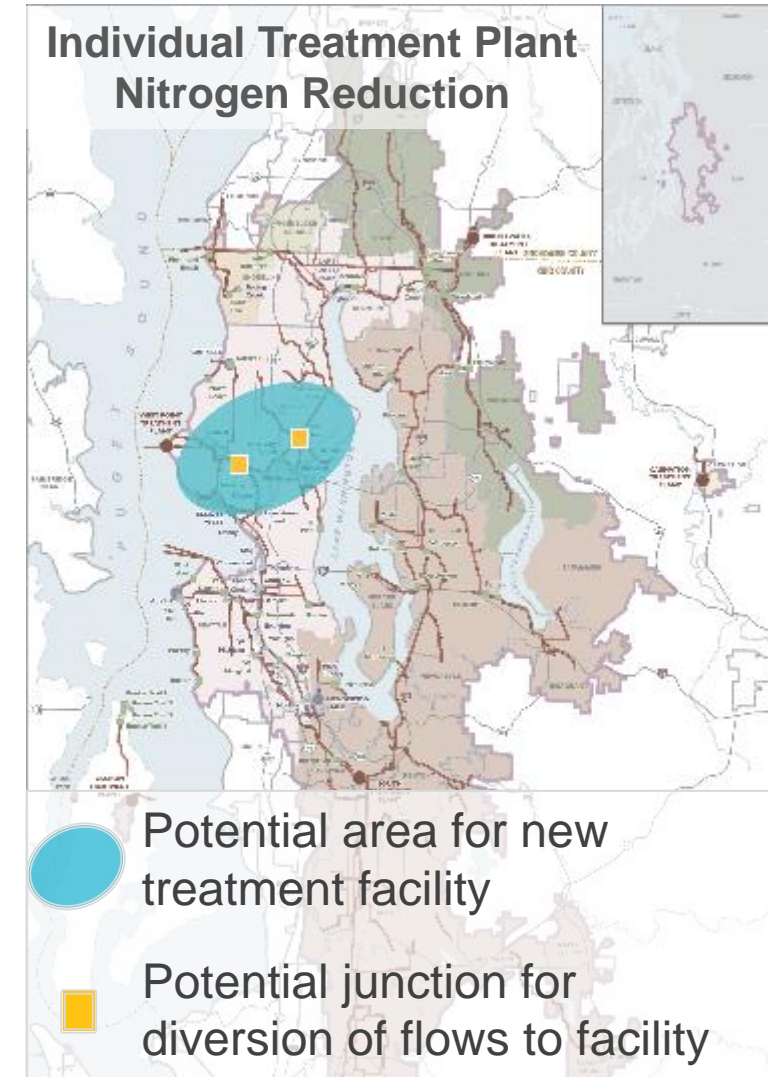
Regional Wastewater Treatment Action Concepts

Exploring range of investments:

- Existing treatment level
- Increased treatment for nitrogen reduction
 - Individual plant
 - Utility-wide
- Advanced treatment to reduce discharge to Puget Sound
- Water quality trading for nitrogen reduction



Treatment Plants	
A	Brightwater Treatment Plant
B	Carkeek Wet Weather Treatment Plant
C	West Point Treatment Plant
D	Alki Wet Weather Treatment Plant
E	Vashon Treatment Plant
F	South Treatment Plant
G	Carnation Treatment Plant
H	Elliott West Wet Weather Treatment Plant
I	Henderson Wet Weather Treatment Plant



Regional Wastewater Treatment Action Characterization

- **Existing treatment level**

- Removes regulated substances (e.g., bacteria, solids)
- \$1B to \$2B *

* Conceptual program planning estimate
(order of magnitude over 40-years)

- **Increased treatment for nitrogen reduction**

- Removes nitrogen; not designed to remove non-regulated substances (e.g., organic toxins)
- **Individual plant:** \$9B to \$22B *, including new regional treatment plant in Seattle area
- **Utility-wide:** \$4B to \$9B *

- **Advanced treatment to reduce discharge to Puget Sound**

- Measurable decrease in treated water discharged to Puget Sound
- \$7B to \$18B *

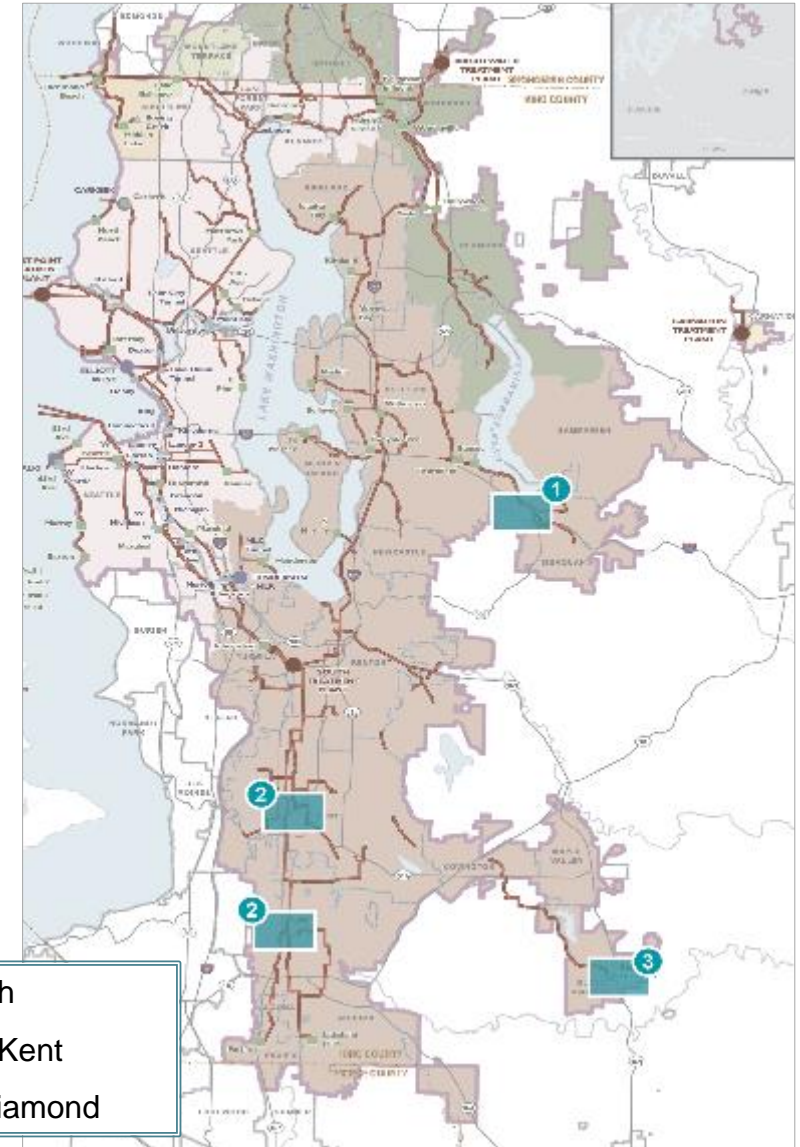
- **Water quality trading for nitrogen reduction**

- Nitrogen water quality credit trading framework for Puget Sound would need to be established
- Potential for other localized water quality and habitat benefits

Decentralized Wastewater Treatment Action Concepts

Exploring range of investments:

- Decentralized treatment at wet weather treatment stations
- City-scale decentralized treatment
- Community/neighborhood-scale decentralized treatment
- Building-scale decentralized treatment



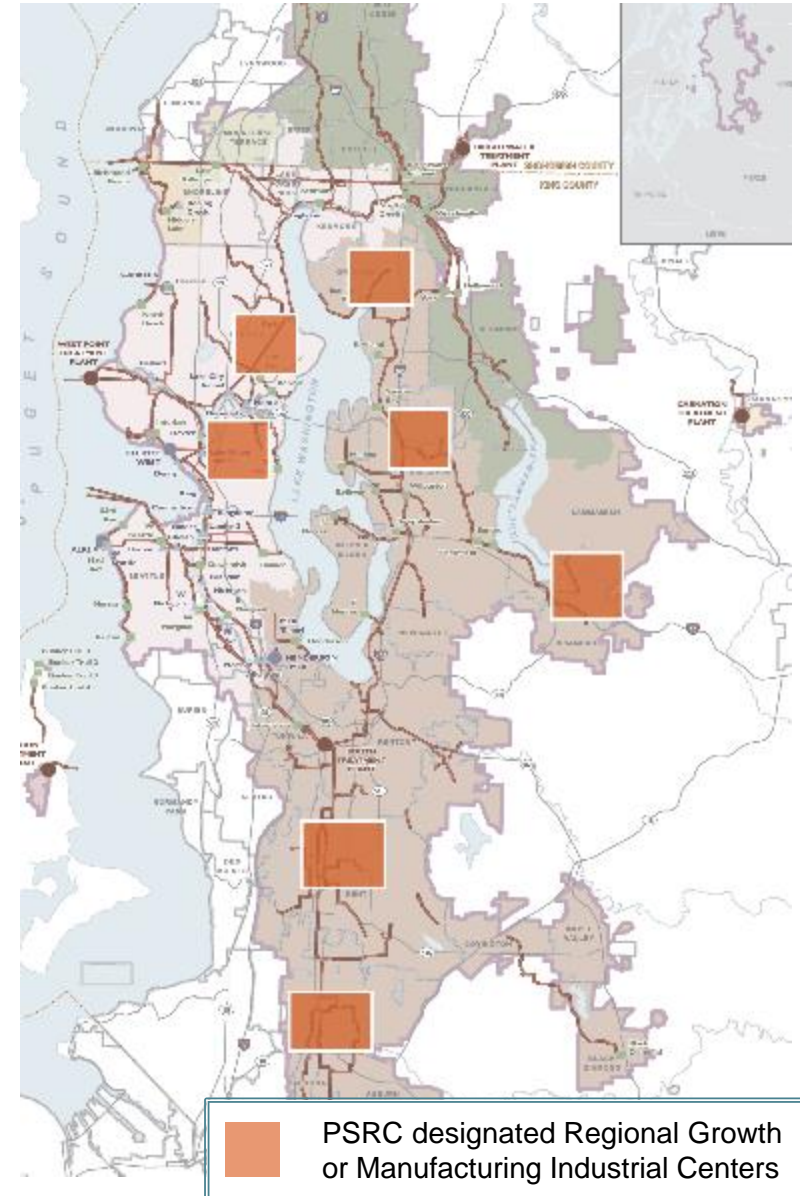
Cities explored as potential city-scale decentralized treatment areas

Decentralized Wastewater Treatment Action Characterization

- Small decrease in treated water discharged to Puget Sound
- **Decentralized treatment at wet weather treatment stations: \$1.3B to \$3.3B ***
- **Satellite decentralized treatment facilities: \$0.1B to \$1.3B ***
- Increased opportunity for partnerships to use recycled water
- **Would not defer capacity expansion needs at regional plants before 2060**

* Conceptual program planning estimate (order of magnitude over 40-years)

Regional Growth Centers explored as potential building-scale decentralized treatment areas



Potential Wastewater Treatment Plant Policy Discussions

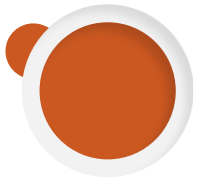
- **Affirm, update, or develop new polices to provide guidance on:**
 - **Implementation of improvements at regional treatment plants including:**
 - Level of treatment
 - Construction of additional regional treatment plant
 - **Development of a decentralized treatment program including:**
 - Establishing roles and responsibilities for administration of program
 - Establishing program standards, including permitting and integration with local building requirements
 - **Development of a water quality trading program including:**
 - Establishing roles and responsibilities for administration of program
 - Establishing cost sharing between and among other wastewater treatment service providers

Overview of Evaluations to Inform Policy Conversations



Water Quality

Pollutant parameter removals
Water body impacts (+/-)
Endpoint (e.g., fish) impacts (+/-)



Wastewater System Health and Operations

Regulatory implications
Infrastructure renewal rates
System resiliency and redundancy



Sustainability

Energy use
Greenhouse gas emissions



Cost/Financial

Capital costs
O&M costs
Funding (rate and borrowing) projections
Low-income affordability metrics



Equity and Community

Economic impacts (+/-)
Community impacts from facilities (+/-)
Cultural uses impacts (+/-)
Endpoint (e.g., human health) impacts (+/-)
Financial impacts to households (+/-)
Risk to communities from operations (+/-)

Potential 2021 Mobility and Environment Briefing Topics

Overview of Strategies – complete water quality investment approaches the County could take for the regional wastewater system and water quality

Clean Water Plan evaluation approach, including financial and water quality

Input received from external Advisory Group and Community Based Organizations

Thank you!

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King County

Department of Natural Resources and Parks
Wastewater Treatment Division

Why the Clean Water Plan?



Threats to regional water quality



Capacity needs due to growing population



Aging infrastructure



Current and expected regulations (CSO, nitrogen)



Utility rate affordability



Resiliency (climate change, natural hazards)

Core Planning Question: *What is the most appropriate path to ensure we direct the right public investments to the right actions at the right time for the best water quality outcomes?*