

Analysis for Regional Wastewater Services Plan Policy Questions

March 1, 2026



King County

Contents

I.	Proviso Text	3
II.	Executive Summary	4
III.	Background	5
A.	Department Overview	5
B.	Historical Context.....	5
C.	Current Context	6
D.	Report Methodology.....	7
IV.	Report Requirements	7
A.	Framework for Policy Question Analysis, including Identifying Topics Addressed	7
B.	Proposed Reporting Format	8
C.	How Policy Analysis Will Inform RWSP Update for Each Question	9
D.	Timelines for Analysis for Each Policy Question	9
E.	Problem Statement Corresponding to Each Policy Question	10
F.	How Complete Analysis will be Addressed for Questions Falling under Multiple Sections of RWSP Update.....	10
G.	Two “Proof of Concept” Policy Question Analyses.....	10
Proof of Concept 1.....		10
Proof of Concept 2.....		11
H.	Proposed Modifications to List of Policy Questions	11
V.	Conclusion and Next Steps	12
VI.	Appendices	13

I. Proviso Text

[Ordinance 20023](#), Sections 115 and 132, Department of Natural Resources and Parks, pp. 146, 183.¹

SECTION 115. WASTEWATER TREATMENT

P1 PROVIDED THAT:

Of this appropriation, \$250,000 shall not be expended or encumbered until the executive transmits a plan describing the proposed analysis to be completed for the policy questions identified in the Regional Wastewater Services Plan Update scope document as adopted by regional water quality committee resolution 2025-01, and a motion acknowledging receipt of the plan, and motion acknowledging receipt of the plan is passed by the council. The motion should reference the subject matter, the proviso's ordinance, ordinance section, and proviso number in both the title and body of the motion.

- A. The plan shall be developed with input from the regional water quality committee and describe how the policy questions identified in the Regional Water Services Plan Update Scope document as adopted by the regional water quality committee resolution 2025-01 will be analyzed, including but not limited to:
 1. A framework for the analysis of the policy questions which identifies the topics that shall be addressed as part of policy analysis;
 2. The proposed format for reporting the analysis; specifying whether the analysis will be available as standalone reports presentations, or in other formats;
 3. For each policy question, how the policy analysis will inform the RWSP Update;
 4. Timelines for the analysis for each policy question;
 5. A problem statement corresponding to each policy question; and
 6. In instances where the analysis of a policy question is anticipated to occur in more than one section of the Regional Wastewater Services Plan Update, the plan required by this proviso shall identify how the complete analysis for the policy question will be addressed.
- B. The plan shall also include policy analysis for at least two policy questions from the RWSP scope document as adopted by the regional water quality committee resolution 2025-01. The analysis of these policy questions is intended to serve as a proof of concept for the level of analysis of the remaining policy questions.
- C. The plan may also propose modifications to the list of policy questions identified in the Regional Water Services Plan scope document, and, if modifications are proposed, the topics in subsections A. and B. of this proviso shall be discussed in relation to the alternate proposal.

The executive should electronically file the plan and motion required by this proviso by March 1, 2026, with the clerk of the council, who shall retain an electronic copy and provide an electronic copy to all councilmembers, the council chief of staff, and the lead staff for the transportation, economy, and environment committee or its successor, and the lead staff for the regional water quality committee or its successor.

¹ [Link to Ordinance 20023](#)

SECTION 132. CAPITAL IMPROVEMENT PROGRAM

P3 PROVIDED FURTHER THAT:

Of the appropriation for capital project 1134066, Regional Wastewater Services Plan (RWSP) Update, \$7,382,000 shall not be expended or encumbered until the council passes the motion required by section 115, Proviso P1, of this ordinance.

II. Executive Summary

The Regional Wastewater Services Plan (RWSP) serves as King County’s comprehensive wastewater plan, providing policy and operational direction for capital improvements and future development of King County’s wastewater system across the service area. The RWSP was adopted in 1999 and planned through 2030, with the foundational Robinswood Agreement establishing core financing principles that guided capital project funding.² In 2024, King County’s Wastewater Treatment Division (WTD) began the effort to update the RWSP to prepare for the future and to plan for new and emerging challenges, a process called the RWSP Update.

The RWSP Update process began with the adoption of the RWSP Scoping Document in early 2025 by the Regional Water Quality Committee (RWQC), which outlines the overall approach and highlights 29 “Major Policy Questions” requiring analysis. Throughout 2025, WTD began the first phase of work for the update, which focused on current conditions and brainstorming early actions and policy options in response to the Major Policy Questions, setting the foundation for future planning.

WTD will prepare policy memos for each Major Policy Question requiring analysis; WTD will also prepare presentations summarizing the policy analyses for certain Major Policy Questions to be discussed at RWQC meetings. WTD will work with the RWQC Chair and RWQC staff to determine which policy analyses are most important to present and discuss during RWQC meetings. Policy memos and Major Policy Questions will be grouped into topics and brought to RWQC on a rolling basis. Questions that overlap with multiple topics will have multiple touchpoints and will be considered holistically near the end of each step in the process.

WTD will use a two-step approach to provide analyses of the 29 Major Policy Questions:

Step 1 will include:

- a. Problem Statement
- b. Contextual and Baseline Information
 - i. What is known about the topic and current conditions
 - ii. Current policies in policies in code, contract, or in practice
 - iii. The system “must-dos”
 - iv. Current and budgeted expenditures
 - v. Summary of science/data (if applicable)
- c. Example practices from other jurisdictions/industry
- d. Policy issues, challenges and opportunities related to the policy question
- e. Range of policy options with associated actions and considerations (including qualitative description of costs)

² [“Robinswood Agreement” Letter](#)

- f. Interested and affected parties WTD will engage to gather input
- g. Rate structure considerations (if applicable)
- h. Relationship to contracts with local sewer agencies
- i. Equity and Social Justice (ESJ) impacts

Step 2 will include:

- j. Planning-level cost estimates
- k. Evaluation of outcomes: identify impacts and outcomes of each option

The responses to the Major Policy Questions will form the foundation of the Draft RWSP Update, which will contain a full suite of options to consider without recommendations, before the Executive-Proposed RWSP Update is put forward. The plan put together in this report will help ensure that King County fully considers and addresses each Major Policy Question, in addition to supplemental technical work, for a successful RWSP Update process.

III. Background

A. Department Overview

The Department of Natural Resources and Parks (DNRP) includes the Parks, Solid Waste, Wastewater Treatment, and Water and Land Resources divisions. The Wastewater Treatment Division (WTD) protects water quality and public health in the central Puget Sound region by providing high-quality and effective treatment to wastewater collected from 34 local sewer agencies in King, Pierce, and Snohomish counties.

WTD serves about two million people within a 424-square-mile service area, which includes most urban areas of King County and parts of south Snohomish County and northeast Pierce County. WTD seeks to protect public health and the environment by conveying, treating, and reclaiming wastewater and by-products; operating and maintaining wastewater facilities; and planning to meet future wastewater needs.

B. Historical Context

The Regional Wastewater Services Plan (RWSP) is King County's comprehensive plan for wastewater. RWSP policies provide direction for the operation and further development of the wastewater system, its capital improvement program, and, as necessary, the development of subsequent policies.³ The RWSP and its related components form King County's General Sewer Plan, which was approved by the Department of Ecology.

The current RWSP is a supplement to the original Comprehensive Water Pollution Abatement Plan, which was adopted in 1959 by the Metropolitan Council. The Municipality of Metropolitan Seattle (Metro) was formed by public vote in 1958 to address water quality concerns in Lake Washington and Metro later drafted the Comprehensive Water Pollution Abatement Plan. Until the formation of Metro, effluent was discharged into Lake Washington by 10 treatment plants operated by different sewage

³ RWSP policies are set forth in King County Code 28.86.010 and 28.86.040 through 28.86.150.

districts.⁴ This discharge led to poor water quality that was unsafe for fishing or swimming. After the formation of Metro to address these concerns as a region, the first comprehensive sewage plan was published.

The Comprehensive Water Pollution Abatement Plan was the region's first of its kind and led to the construction of new treatment plants at West Point, Renton (South Plant), Carkeek Park, and Richmond Beach, as well as new tunnels and pipelines that carried sewage to these new facilities. Many of the capital assets that were created during this time are still operational.

The plan proposed that a central agency be established for financing, constructing, operating, maintaining, and administering the proposed sewerage projects. It also covered a wide variety of topics, including increasing population, sewage overflow concerns, discharges of untreated sewage, and capacity concerns, among others.

In 1994, Metro and King County merged in response to a 1990 Federal District Court ruling.⁵ As a result, King County assumed the responsibility for treating wastewater from 34 jurisdictions and local sewage agencies. A few years before this, in 1991, Metro had begun planning efforts to update the Comprehensive Water Pollution Abatement Plan, which was adopted in 1999 as the RWSP, amending the original plan and codifying RWSP policies in King County Code.

The Robinswood Agreement was foundational to the approval of the RWSP by King County Council. In October 1998, the King County Executive and the Regional Water Quality Committee (RWQC) held a retreat at Robinswood House in Bellevue to discuss financing the implementation of the RWSP. This resulted in the creation of the Robinswood Agreement that guided the funding of RWSP capital projects. At this retreat, the core principles of “all for one and one for all” and “growth pays for growth” were established, forming the basis of the financial policies for the RWSP.

The RWSP's planning horizon covered capital plans and projects through 2030. WTD began planning efforts in 2019 to update the RWSP, then called the Clean Water Plan. In 2021, the Clean Water Plan process was paused to consider feedback and regulatory uncertainty. Planning restarted in 2024 as the Regional Wastewater Services Plan Update (RWSP Update).

C. Current Context

In January 2025, the RWQC adopted a resolution in support of the RWSP Update Scoping Document.⁶ This scoping document describes the overall approach that will be used and some of the major policy issues and questions that will be analyzed to update King County's RWSP. The document incorporates input and feedback from members of the RWQC and Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) on the scope of the RWSP Update.

⁴ Effluent is used water from homes, industries or stormwater that flows out from a treatment plant or system into the environment after undergoing treatment.

⁵ [*Cunningham v. Municipality of Metropolitan Seattle*, 751 F.Supp. 885 \(W.D. Wash. 1990\)](#)

⁶ [RWSP Update Scoping Document](#)

In February 2025, the RWQC adopted a resolution in support of the RWSP Update Charter.⁷ This Charter is similar to a Memorandum of Understanding and is an agreement representing the shared goals, roles and responsibilities, and agreed-upon process between WTD and MWPAAC for the RWSP Update. It describes the intent of the parties but does not create any legally binding obligations. The Charter resulted in the formation of an RWSP Working Group as a forum for MWPAAC and RWQC member staff to collaborate with WTD’s RWSP Update project team.

Throughout 2025, WTD began preliminary work on the RWSP Update. This preliminary work has been referred to as “Module 1,” with the primary goal of understanding current conditions of the regional system and initial brainstorming of alternatives for long-range planning. This was the first phase of RWSP Update planning work in a series of modules to be presented to the RWSP Working Group, MWPAAC, and RWQC. WTD began to develop presentations on current conditions and to brainstorm potential actions to respond to the 29 Major Policy Questions in the Scoping Document. The Major Policy Questions are the focus of the Proviso P1 in Ordinance 20023, and subsequently the focus of this report.

D. Report Methodology

This report was prepared by the comprehensive planning group at WTD, alongside members of the Government Relations Team within the Director’s Office at WTD. The two proof of concepts were prepared by subject matter experts in the Separated System Conveyance team within the planning group at WTD. The materials for the proof of concepts include previously completed work for the RWSP Working Group in 2025 and are supplemented by work completed to address the contents of the policy analyses specifically.

On December 3, 2025, RWQC provided input on the initial approach for this report. Further input from RWQC was received on January 7, 2026, on the timeline and schedule of the delivery of the policy analyses for the 29 Major Policy Questions. WTD received feedback from councilmembers that they preferred to receive policy analyses as a written document, or policy memo, and as a PowerPoint presentation used at the RWQC meeting. RWQC also confirmed that a two-step approach for each policy question and analysis is sufficient and that it is appropriate to group the policy questions by topic. RWQC suggested using the RWSP Working Group to help with the grouping and sorting of questions by topic.

IV. Report Requirements

A. Framework for Policy Question Analysis, including Identifying Topics Addressed

The Major Policy Questions are clustered by common topics, and WTD will schedule these groupings and sequence RWQC briefings to ensure a Draft RWSP Update is produced by 2027.

Information for the Major Policy Questions will be developed, and the questions will be analyzed, in consultation with the RWSP Working Group and MWPAAC, in the following two-step process:

⁷ [RWSP Update Charter](#)

Step 1:

- a. Problem Statement
- b. Contextual and Baseline Information
 - i. What is known about the topic and current conditions
 - ii. Current policies in policies in code, contract, or in practice
 - iii. The system “must-dos”
 - iv. Current and budgeted expenditures
 - v. Summary of science/data (if applicable)
- c. Example practices from other jurisdictions/industry
- d. Policy issues, challenges and opportunities related to the policy question
- e. Range of policy options with associated actions and considerations (including qualitative description of costs)
- f. Interested and affected parties WTD will engage to gather input
- g. Rate structure considerations (where applicable)
- h. Relationship to contracts with local sewer agencies
- i. Equity and Social Justice (ESJ) impacts

The analysis conducted as part of Step 1 will be brought to RWQC on a rolling basis over the course of 2026, beginning in March 2026. A detailed template for Step 1 is available in the attached Appendix A: Policy Memo Template. The template includes a short description of each section within Step 1, including estimated lengths and sources of information.

Analyses for ESJ Impacts and Relationship to Contracts policy questions will be integrated into each group of questions brought to RWQC.

Step 2:

- j. Planning-level cost estimates
- k. Evaluation of outcomes: identify impacts and outcomes of each option

The analysis conducted as part of Step 2 will be brought to RWQC on a rolling basis over the course of 2026-2027, tentatively set to begin in October 2026. Step 2 will be amended to the Step 1 policy analysis memo after planning-level cost estimates and evaluations are completed.

B. Proposed Reporting Format

WTD will use two different formats for reporting the analyses on all Major Policy Questions: a policy memo and a PowerPoint slide deck for those specific analyses to be presented at RWQC meetings.

WTD will prepare a policy memo using the template in Appendix A for the Major Policy Questions that is grouped and brought to RWQC.

WTD will prepare a PowerPoint for the policy question(s) brought to RWQC to be shared prior to the meeting. The PowerPoint slide deck will be consistent with the current WTD Visual Design Style Guide.

C. How Policy Analysis Will Inform RWSP Update for Each Question

WTD will ensure all policy issues associated with the Major Policy Questions are included and addressed in the Draft RWSP Update. The analyses of the Major Policy Questions will intentionally guide and specifically inform development of RWSP policy options included in the Draft RWSP Update. RWQC can use analyses to identify any additional policy options for further analysis, which WTD will include in the Draft RWSP Update. Policy Options that do not meet legal requirements will be identified and reviewed by legal counsel before being included in the Draft RWSP Update.

WTD will begin a three-step process with RWQC to evaluate and consider the policy analyses, and for RWQC to provide feedback to influence WTD's development of the Draft RWSP Update in the planning and development stages of the work:

Step 1: RWQC can share its initial and general preferences with WTD during and after Committee discussion on parts "a" to "i" of the policy analysis for a given policy question, particularly the proposed policy options.

Step 2: Upon completion of cost estimates for the policy options, WTD will provide follow-up analyses to include costs and evaluation of impacts and outcomes as parts "j" and "k" for all policy options, inclusive of those RWQC expressed desire to see evaluated. Equipped with this additional information, RWQC will have a second opportunity to identify its policy option preferences, and WTD will include those policy options in the Draft Plan.

Step 3: WTD will integrate RWQC's policy option preferences into development of a full range of policy options that will be included in the Draft RWSP Update for a State Environmental Policy Act (SEPA) process.⁸

The completed policy analyses will be used following the Draft Plan SEPA process for development of the Executive's Preferred Plan. The analyses may also be used in decision-making by RWQC members and King County Council members for the Council-adopted Plan following transmittal of the Executive's Preferred Plan to the County Council, which is scheduled for 2029.

A parallel effort outside the RWSP Update process will explore alternate regulatory strategies to achieve positive water quality outcomes. This process requires approval from the Washington State Department of Ecology and United States Environmental Protection Agency. If a change results from this effort, policy options and actions will be revised or added as appropriate.

D. Timelines for Analysis for Each Policy Question

The Major Policy Questions are grouped by category of capital investment as described in the RWSP Charter supported by RWQC via Resolution RWQC2025-02. The analyses of these questions will be brought to RWQC on a monthly cadence. See the attached Appendix B: Schedule for Policy Analyses for the planned schedule for 2026. This schedule includes groupings of policy questions and the order in which each grouping will be presented to RWQC in 2026. The schedule for 2027 will be planned in January 2027 in conjunction with RWQC.

⁸ SEPA stands for the Washington State Environmental Protection Act

E. Problem Statement Corresponding to Each Policy Question

Problem statements will be written for each Major Policy Question as the policy analyses are completed. These problem statements will help frame the answers or policy solutions that each policy question raises. The problem statements will help policymakers consider the adequacy of policy options in answering each policy question. For more information, see Section A. Framework for Policy Question Analysis, including Identifying Topics Addressed.

F. How Complete Analysis will be Addressed for Questions Falling under Multiple Sections of RWSP Update

Some of the Major Policy Questions need to be addressed through multiple topics in the RWSP Update. These questions will be evaluated holistically in the topic where they most naturally reside. However, for these questions that have relevance to other topics, WTD will explicitly identify and explain the connection in the Step 1 analysis of a related topic and will dedicate a section in the policy memo to address the relationship a given question has with these other topics.

For example, Questions 25 and 26 in Appendix B, having to do with sewer rate structure, will be holistically addressed in the Group #9 policy analyses focused on Finance. However, these two rate structure questions also have relevance to Question 1, related to Inflow and Infiltration (Group #1), Question 6, related to Asset Renewal and Replacement (Group #3), Question 15 related to the Combined System (Group #6), and Question 18, related to Treatment (Group #7). Therefore, in the policy analyses for these related questions, WTD will dedicate a section in each policy memo to address the rate structure questions through the lens of Inflow and Infiltration, Asset Renewal and Replacement, Combined System, and Treatment, respectively.

In Appendix B, the questions that cover multiple topics, which will be evaluated in the manner described above, are shown in italics.

G. Two “Proof of Concept” Policy Question Analyses

Two of the Major Policy Questions from the RWSP Scoping Document have been analyzed as part of this report. These policy memos serve as a “proof of concept” for the level of analysis of the remaining policy questions.

Proof of Concept 1

See attached Appendix C: Policy Memo Proof of Concept 1, which is a policy memo that addresses the policy question:

How should I/I be managed and how can costs be fairly apportioned? Should system capacity be expanded to account for increases in I/I? Should I/I policies change to support reducing the capacity needed for I/I?

Proof of Concept 2

See attached Appendix D: Policy Memo Proof of Concept 2, which is a policy memo that addresses the 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?

H. Proposed Modifications to List of Policy Questions

WTD is proposing modifications to the Major Policy Questions identified in the RWSP Scoping Document in accordance with the proviso requirements. WTD does not propose modifications to the 29 Major Policy Questions outlined by the RWSP Scoping Document. However, WTD does propose adding three additional questions to cover important topics that were not fully captured by the existing questions.

Below are three additional policy questions that WTD proposes to be analyzed and discussed with RWQC.

Proposed New Policy Questions	Rationale
What approach should WTD use to fund asset renewal and replacement projects?	This question guides analysis on the different tools available to fund asset renewal and replacement projects, as proposed by the Asset Management Steering Committee, in coordination with the RWSP Working Group.
How should WTD best upgrade the combined system to address regulatory requirements, regional water quality, and West Point operations? How can combined system costs be fairly apportioned?	These questions introduce discussion on the combined system and the associated regulatory requirements.
How should WTD maximize recovery of new resources? How should WTD prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?	These questions encompass the potential for WTD to expand into new resource recovery areas.

Table A: Proposed Additions to Major Policy Questions

Appendix E: Major Policy Questions List shows the complete list of Major Policy Questions with proposed modifications included.

Given the large volume of policy memos WTD plans to deliver to RWQC (25 in total) and the time constraints placed upon RWQC members to evaluate all the policy memos, WTD will consult with the

Chair of RWQC if, and when, appropriate to consider prioritizing or deprioritizing certain policy memos listed in Appendix E for delivery to RWQC.

V. Conclusion and Next Steps

This report summarizes the plan to address the requirements of the Proviso. The plan will be implemented beginning in March 2026 until all policy analyses have been completed. Policy analyses for the Major Policy Question will be conducted in a two-step analysis, beginning with Step 1, which includes a problem statement, background context, policy options, and more, followed by Step 2, which includes an analysis of planning-level costs and outcomes. These questions will be grouped into categories and sequenced with RWQC throughout 2026 and 2027, leading to the production of a Draft RWSP Update, currently scheduled to be published in 2027. The Draft RWSP Update will present a full suite of policy options to consider before the Executive's Proposed RWSP Update is put forward, currently scheduled to occur in 2028.

VI. Appendices

Appendix A:	Policy Memo Template
Appendix B:	Schedule for Policy Analyses
Appendix C:	Policy Memo Proof of Concept 1
Appendix D:	Policy Memo Proof of Concept 2
Appendix E:	Major Policy Questions List

RWSP Update - [Topic]

A. Policy Question

This memo is focused on the policy questions related to the [Topic] topic of the Regional Wastewater Services Plan (RWSP) Update. The policy question[s] explored in this memo [is/are]:

- i. [Insert Policy Question(s)]

B. Problem Statement

[~100-200 words to summarize the current challenges identified by the policy question]

C. Contextual and Baseline Information

- i. **What is known about the topic and current conditions**

Subheading

[Information based on previously completed “101” materials for MWPAAC Engineering and Planning Subcommittee. Subheadings should break down into key themes or concepts, (e.g., *Separated Sewer Systems* and *Infiltration and Inflow in the Regional System*).]

- ii. **Current policies in policies in code, contract, or in practice**

[Insert King County policy reference number and/or source(s) into the table below. May also include policies from outside King County Code, including the County’s Comprehensive Plan, as needed.]

Relevant Policies in K.C.C.	Description
[Policy Number]	[Copy and paste from K.C.C. or other sources.]
[Policy Number]	[Copy and paste from K.C.C. or other sources.]

[For each Policy Number, include a brief summary (~50-100 words) and current implementation as paragraphs below the policy table.]

- iii. **The system “must-dos”**

[Describe any regulatory or legal requirements related to the question. E.g., sanitary sewer overflows, combined sewer overflows, NPDES permits, other permits, etc.]

iv. Current and budgeted expenditures

[Include a short introduction to the current and budgeted expenditures table, highlighting key information from the table. Include a table with project names and 2025-2035 cost estimates included in the CIP.]

v. Summary of science/data (if applicable)

[As needed, describe any science or data related to the policy question.]

D. Example Practices from Other Jurisdictions/Industry

Subheading

[~100-200 words per example. Highlight key tools, strategies, or programs as relevant to the policy question and proposed policy options or actions. Include where these examples are found.]

E. Policy Issues, Challenges, and Opportunities

[Use numbered list, with brief title and description (<100 words) for each policy issue, challenge or opportunity that may be related]

F. Range of policy options with associated actions and considerations (including qualitative description of costs)

[Include policy question again. Include high-level bullet preview of policy options. Include a summary table with the following format for each policy option related to the policy question. After the table, include a write-up for each policy option, including justification, considerations, and a qualitative description of costs.]

Summary of Policy Options

	Goal	Description	[Category] Actions	Examples
#1	[Goal of the policy option]	[Description of the policy option]	[List Relevant Actions]	[~25-50 word example(s)]
#2				
Etc.				

*Columns may be added or deleted for the topic, as appropriate

Policy Option #1 – [Description]

Justification

[A more detailed description of the policy option]

Considerations

[]

Policy Option #2 – [Description]

Justification

Considerations

[Etc.]

G. Interested and affected parties WTD will engage to gather input

[A sentence or short paragraph describing all groups that will be engaged to gather input]

H. Rate structure considerations (if applicable)

[Description of the potential relationship with these Policy Options and financial policy questions]

I. Relationship to contracts

According to the current sewer contracts, [Example text: WTD must accept all sewage and waste delivered for treatment and disposal from the component agencies]. The sewer contracts also state that the contracts may be modified from time to time through changes to King County Code.

[~100-200 words describing the potential different contract changes that would be required for each Policy Option]

J. Equity and Social Justice (ESJ) impacts

K. Planning-level cost estimates

This section will be added into the policy memo as the “Step 2” analysis later.

L. Evaluation of outcomes: identify impacts and outcomes of each option

This section will be added into the policy memo as the “Step 2” analysis later.

RWSP Update Schedule for Policy Analysis

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
<u>Group #1</u> Separated System Conveyance Step #1: March 2026 Step #2: Nov 2026 (<i>tentative</i>) Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each policy memo. See Group #10 and Group #11 for details.	1	1	How should I/I be managed and how can costs be fairly apportioned? Should system capacity be expanded to account for increases in I/I? Should I/I policies change to support reducing the capacity needed for I/I?	Separated System Conveyance (including infiltration/inflow)
		25	<i>Is there a better rate structure for the sewer rate?</i>	<i>Finance/Affordability</i>
		26	<i>Will WTD maintain a single uniform sewer rate per residential customer equivalent (Robinswood “one for all, all for one”), or consider alternative cost recovery rate structures to reflect other system impacts?</i>	<i>Finance/Affordability</i>
	2	2	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?	Separated System Conveyance (including infiltration/inflow) <i>(see also: Treatment Group #7)</i>
	3	3	How should the conversion of on-site septic systems to sewers in the service area be managed and should WTD implement programs to encourage conversion within the service area?	Separated System Conveyance (including infiltration/inflow)

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
<u>Group #2</u> Pollution (Source Control and Legacy) Step #1: April 2026 Step #2: Dec 2026 (<i>tentative</i>) Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each policy memo. See Group #10 and Group #11 for details.	4	4	What upstream or source control actions should the region undertake to prevent contaminants and reduce costs?	Pollution (Source Control and Legacy)
	5	5	How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?	Pollution (Source Control and Legacy) (see also: <i>Treatment Group 7 and Resource Recovery Group 8</i>)
<u>Group #3</u> Asset Renewal and Replacement Step #1: May 2026 Step #2: Jan 2027 (<i>tentative</i>) Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each policy memo. See Group #10 and Group #11 for details.	6	6	How proactive vs. reactive should WTD be when deciding to refurbish or replace aging infrastructure?	Asset Renewal and Replacement
		7	What level of redundancy of critical systems should WTD have? What level of risk tolerance should WTD accept?	Asset Renewal and Replacement (see also: <i>Climate Impact Preparedness and Natural Hazard Resiliency Group 4</i>)
		8 (added question)	What approach should WTD use to fund Asset R&R projects?	Asset Renewal and Replacement (see also: <i>Finance/Affordability Group 9</i>)
		25	Is there a better rate structure for the sewer rate?	Finance

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
		26	<i>Will WTD maintain a single uniform sewer rate per residential customer equivalent (Robinswood “one for all, all for one”), or consider alternative cost recovery rate structures to reflect other system impacts?</i>	Finance
<u>Group #4</u> Climate Impact Preparedness and Natural Hazard Resiliency Step #1: June 2026 Step #2: Feb 2027 (tentative) Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each policy memo. See Group #10 and Group #11 for details.	7	9	What level of resiliency should WTD plan for regarding seismic and other natural hazards to avoid or minimize risks? What level of risk tolerance should WTD accept? How can these considerations be best informed by the long-term capital motion work in progress?	Climate Impact Preparedness and Natural Hazard Resiliency
		7	<i>What level of redundancy of critical systems should WTD have?</i>	Climate Impact Preparedness and Natural Hazard Resiliency <i>(see also: Asset Renewal and Replacement Group 3)</i>
	8	10	Should existing wastewater policy language (KCC 28.86) be revised to specifically call out planning for future climate conditions in addition to population growth and other environmental factors?	Climate Impact Preparedness and Natural Hazard Resiliency
		11	How should WTD prepare and adapt to climate impacts (e.g., precipitation/storm intensities, sea level rise, river flooding, etc.) in line	Climate Impact Preparedness and Natural Hazard Resiliency

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
			with the Strategic Climate Action Plan? What level of climate impact risk tolerance should WTD plan for to avoid or minimize risks to the system?	
	9	12	How much should WTD reduce energy use and reduce greenhouse gas emissions?	Climate Impact Preparedness and Natural Hazard Resiliency
<u>Group #5</u> Finance/Affordability July 2026 Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each policy memo. See Group #10 and Group #11 for details.	10	13	How will WTD measure customer affordability for contract agencies and ratepayers?	Finance/Affordability
	11	14	What other rate relief approaches should WTD implement to improve affordability for those who may struggle to pay their sewer bill?	Finance/Affordability
<u>Group #6</u> Combined System Management Step #1: August 2026 Step #2: March 2027 (tentative) Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each	12	15 (added question)	How should WTD best upgrade the combined system to address regulatory requirements, regional water quality, and West Point operations? How can combined system costs be fairly apportioned?	Combined System Management
		25	<i>Is there a better rate structure for the sewer rate?</i>	<i>Finance/Affordability</i>
		26	<i>Will WTD maintain a single uniform sewer rate per residential customer equivalent (Robinswood “one for all,</i>	<i>Finance/Affordability</i>

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
policy memo. See Group #10 and Group #11 for details.			<i>all for one”), or consider alternative cost recovery rate structures to reflect other system impacts?</i>	
<u>Group #7</u> Treatment Step #1: September 2026 Step #2: April 2027 (tentative) Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each policy memo. See Group #10 and Group #11 for details.	13	16	Should the County evaluate costs and plan for levels of treatment beyond current legal requirements?	Treatment
		17	How should the County anticipate, engage with, and plan for future nutrient permit requirements, regulations related to CECs such as PFAS, or other future regulatory changes?	Treatment
		5	<i>How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?</i>	Treatment (see also: Pollution and Resource Recovery Group 2)
	14	2	<i>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?</i>	Treatment (see also: Separated System Conveyance Group 1)
	15	18	To what extent should WTD prioritize use of existing facility sites vs. acquiring new property to accommodate future treatment needs (including capacity)?	Treatment

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
		25	<i>Is there a better rate structure for the sewer rate?</i>	<i>Finance/Affordability</i>
		26	<i>Will WTD maintain a single uniform sewer rate per residential customer equivalent (Robinswood “one for all, all for one”), or consider alternative cost recovery rate structures to reflect other system impacts?</i>	<i>Finance/Affordability</i>
	16	19	Should the region continue to provide a centralized approach for regional wastewater treatment, or should the region move towards a more decentralized approach?	Treatment
<u>Group #8</u> Resource Recovery (Biosolids, Energy, Recycled Water) Step #1: October 2026 Step #2: May 2027 (tentative) Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each policy memo. See Group #10 and Group #11 for details.	17	20	Energy production and heat recovery – Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?	Resource Recovery
	18	21	Biosolids – Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolid recovery policies to get to Class A?	Resource Recovery (Biosolids, Energy, Recycled Water)
		5	<i>How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?</i>	Resource Recovery <i>(see also: Pollution Group 2 and Treatment Group 7)</i>

Appendix B: Schedule for Policy Analysis

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
	19	22	Recycled Water – Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?	Resource Recovery
		5	<i>How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?</i>	Resource Recovery <i>(see also: Pollution Group 2 and Treatment 7)</i>
	20	23 (added question)	How should WTD maximize recovery of new resources? How should WTD prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?	Resource Recovery
<u>Group #9</u> Finance	21	24	Should WTD update the rate structure for the capacity charge to align with current industry standards? (Note: The capacity charge rate structure was updated in 2021. A capacity charge methodology study is in progress.)	Finance/Affordability

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
Q4 2026: Full analysis of the rate structure policy questions 21, 22, 23 (both Capacity Charge and RCE) & March, May, Aug, Sep. 2026: WTD will begin to address the rate structure question sequentially where relevant as we move through Policy Question Groups 1, 3, 6, 7. This will allow RWQC members to see how the rate structure issue relates to various topics. Each relevant analysis would include a specific section dedicated to addressing “rate structure considerations” alongside the policy options. e.g. the policy memo 2 analysis will introduce and begin to address the rate structure question as it relates to the I/I issue. RWQC may choose to form a subcommittee focused on the rate structure question and/or WTD may propose a consultant-separate track for this discussion. Elements that relate to the Relationship to Contracts and Equity and Social Justice policy questions will be addressed as part of each policy memo. See Group #10 and Group #11 for details.	22	25	Is there a better rate structure for the sewer rate? (Note: WTD has identified a work plan to further evaluate the residential customer equivalent conversion factor of 750 cubic feet per month)	Finance/Affordability <i>(see also: Separated System Group 1, Asset Renewal and Replacement Group 2, Combined System Management Group 6, and Treatment Group 7)</i>
	23	26	Will WTD maintain a single uniform sewer rate per residential customer equivalent (Robinswood “one for all, all for one”), or consider alternative cost recovery rate structures to reflect other system impacts?	Finance/Affordability <i>(see also: Separated System, Asset Renewal and Replacement, Combined System Management, and Treatment)</i>

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
<u>Group #10</u> Equity and Social Justice Analyses for these questions will be integrated into each of the analyses for Groups 1 through 9. May 2027: A comprehensive ESJ analysis for these questions across all topics/groups will be completed.	24	27	What actions should WTD take to increase equity and social justice for the regional wastewater system?	Equity and Social Justice
		28	How will equity and social justice be interwoven in the update: community engagement, rate structure analysis, etc.?	Equity and Social Justice
		29	How should the regional wastewater system address environmental justice concerns as described in the 2021 Healthy Environmental for All Act, such as addressing the disproportionate environmental health impacts of vulnerable populations and overburdened communities?	Equity and Social Justice
<u>Group #11</u> Relationship to Contracts Analyses for these questions will be integrated into each of the analyses for Groups 1 through 9. June 2027 tentative (following completion of step #2 for all Groups of questions)	25	30	Are major policy updates aligned with component agency contracts?	Relationship to Contracts
		31	How will WTD implement the RWSP Update consistent with direction and requirements expected of contract agencies?	Relationship to Contracts

Appendix B: Schedule for Policy Analysis

Timeline (RWQC Discussion)	Policy Memo Number	Major Policy Question Number	Major Policy Questions from Scoping Document	Major Policy Question Topic
Will be addressed across all 25 policy memos	NA	32	How should WTD efforts support the water quality of Puget Sound and applicable inland waterways?	All topics

RWSP Update – Separated System Conveyance

Policy Memo #1

A. Policy Question

This memo is focused on the policy questions related to the Separated System Conveyance topic of the Regional Wastewater Services Plan (RWSP) Update. The policy questions analyzed in this memo are:

- i. How should Infiltration/Inflow (I/I) be managed and how can costs be fairly apportioned?
- ii. Should system capacity be expanded to account for increases in I/I?
- iii. Should I/I policies change to support reducing the capacity needed for I/I?

B. Problem Statement

I/I currently drives the need to increase the capacity of King County Wastewater Treatment Division's (WTD) separated system conveyance facilities. The majority of conveyance facilities have capacity to convey base flows and flow from future population growth, but require upgrades due to the amount of I/I entering the system during rain events. I/I makes up the majority of flow entering the separated system during wet weather events. Though it is impossible to remove all I/I, removing excessive I/I can significantly decrease the need for conveyance capacity capital upgrades. In the 2017 Conveyance System Improvement Plan, approximately \$1.7B (2016 dollars) in conveyance capacity upgrades were projected to be needed over the next 40 years, and one of the major drivers for these upgrades is increases in I/I. As conveyance facilities are upgraded with larger pipes and pumps, more I/I is also being conveyed to the treatment plants increasing the need for capacity upgrades at the treatment plants.

I/I is not distributed evenly. I/I levels vary throughout the region and by component agency based on numerous factors, including condition of existing infrastructure, groundwater levels, soil conditions, and other hydrologic factors. It is also estimated that up to 75% of I/I in the region originates from side sewers that connect private property residences and businesses to the separated sewer system. When WTD upgrades infrastructure due to I/I, agencies pay for projects equally through WTD's region-wide sewer rate, regardless of the amount of I/I the agency contributes to the regional separated system.

C. Contextual and Baseline Information

i. What is known about the topic and current conditions

Separated Sewer Systems

Separated sewer systems consist of sewers designed to convey sanitary sewage but not stormwater. In the urban landscape, the separated sewer system works in concert with separate stormwater collection systems to manage sanitary and wet weather flows, respectively. Separated sewer systems comprise an interconnected system of pipes, pump stations, and other infrastructure that convey wastewater from homes and businesses to local wastewater collection systems and then to the regional wastewater treatment facilities. Despite the intended separation between wastewater and stormwater, separated sewer systems are vulnerable to wet weather infiltration and inflow (I/I).

Typically, sewers built after the 1950s do not combine sanitary and stormwater into a single sewer system. WTD owns and maintains about 250 miles of separated sewer system conveyance, which represents about 65% of WTD's pipe system. Wastewater from homes and businesses within all the cities and sewer agencies within the WTD service area, except most of Seattle, is collected through around 5,900 miles of locally managed pipes, which then are connected to the regional separated system.

WTD's separated sewers convey flow primarily to South Treatment Plant and Brightwater Treatment Plant for treatment. West Point Treatment Plant treats flow primarily from combined sewers but also serves a portion of the separated sewer system in Kenmore, parts of Kirkland, Lake Forest Park, Shoreline, and parts of North Seattle.

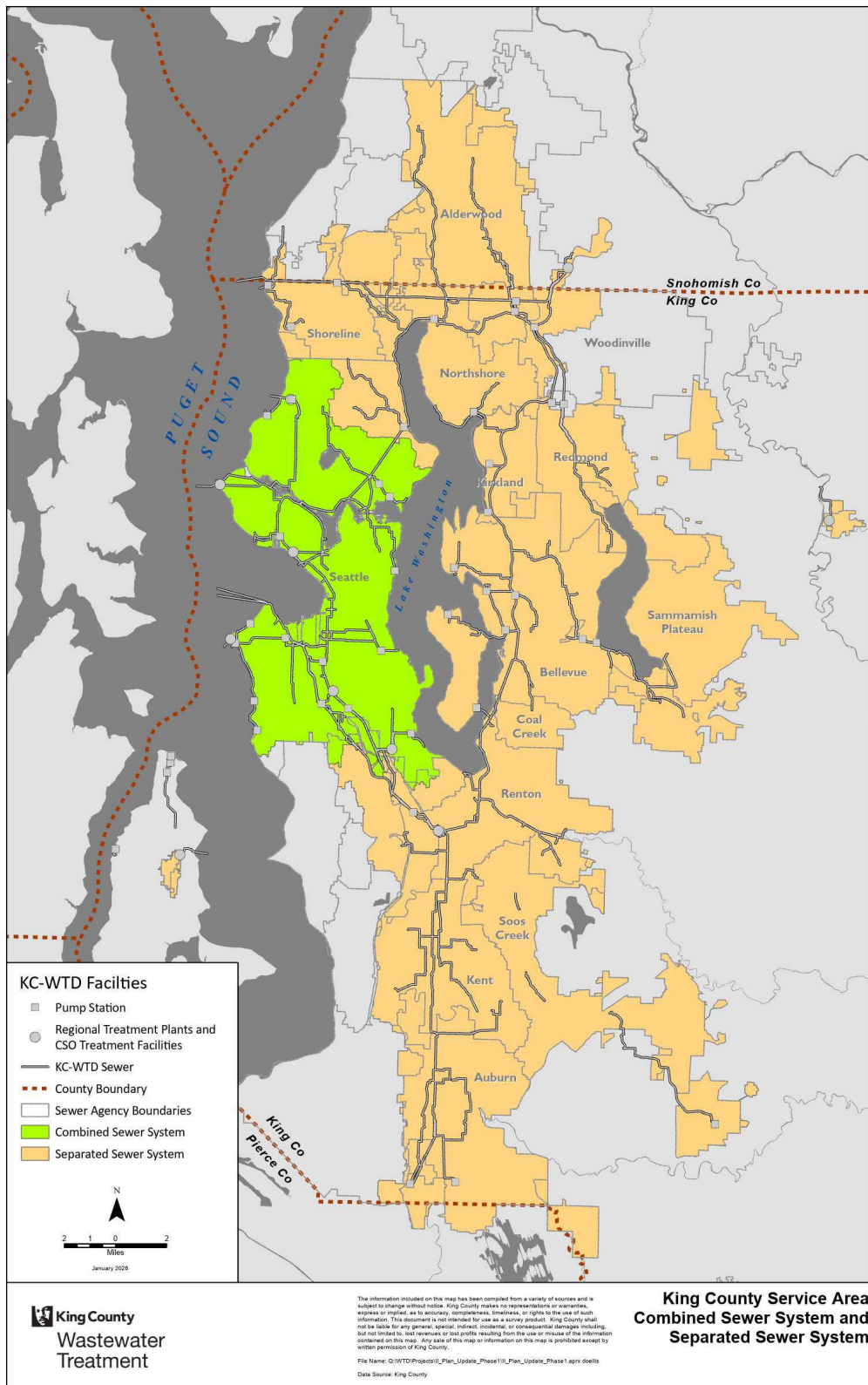


Figure 1. King County Service Area Combined and Separated Sewer Systems

Infiltration and Inflow in the Regional System

I/I is the unwanted entry of extraneous water into the sanitary sewer system. Infiltration occurs when groundwater seeps into sewer pipes through cracks, leaky pipe joints, root intrusion, and/or deteriorated maintenance holes. Inflow is stormwater that enters the sewer system through sump pumps, roof or foundation drains illegally connected to the sewer system, uncapped cleanouts, and/or faulty maintenance hole covers. Together, inflow and infiltration place a burden of additional flow on the regional separated system and treatment plants.

I/I in the regional system not only contributes heavily to sanitary sewer overflows (SSOs) but also drives most conveyance capacity and flow-based treatment needs. On average, as much as 75% of peak flows in the regional separated system are comprised of I/I and approximately 25% of the annual flow treated at Brightwater and South Plant is I/I. While I/I levels currently vary throughout the regional system, as infrastructure ages, I/I levels are expected to increase.

Based on flow monitoring conducted in the early 2000's, where WTD deployed over 800 flow meters in both local and regional pipes, WTD estimates that up to 75% of I/I originates from private properties. Although a majority of I/I is believed to originate at private properties, I/I is diffuse and addressing only private properties is not expected to significantly reduce or eliminate I/I in the area as I/I can enter other parts of the system where defects or illicit connections have not yet been addressed.

ii. Current policies in code, contract, or in practice

King County Code (K.C.C. 28.86, Wastewater Treatment) guides WTD's work in the separated conveyance system regarding I/I. The policies relevant to this memo are:

Relevant Policies in K.C.C.	Description
I/IP – 1	King County is committed to controlling I/I within its regional conveyance system and shall rehabilitate portions of its regional conveyance system to reduce I/I whenever the cost of rehabilitation is less than the costs of conveying and treating that flow or when rehabilitation provides significant environmental benefits to water quantity, water quality, stream flows, wetlands or habitat for species listed under the ESA.

I/IP – 2	King County shall work cooperatively with component agencies to reduce I/I in local conveyance systems utilizing and evaluating I/I pilot rehabilitation projects, and developing draft local conveyance systems' design guidelines, procedures and policies, including inspection and enforcement standards. Evaluations of the pilot rehabilitation projects and a regional needs assessment of the conveyance system and assessments of I/I levels in each of the local sewer systems will form the basis for identifying and reporting on the options and the associated cost of removing I/I and preventing future increases. The executive shall submit to the council a report on the options, capital costs and environmental costs and benefits including but not limited to those related to water quality, groundwater inception, stream flows and wetlands, and habitat of species listed under the ESA. No later than December 31, 2005, utilizing the prior assessments and reports the executive shall recommend target levels for I/I reduction in local collection systems and propose long-term measures to meet the targets. These measures shall include, but not be limited to, establishing new local conveyance systems design standards, implementing an enforcement program, developing an incentive-based cost sharing program and establishing a surcharge program. The overall goal for peak I/I reduction in the service area should be thirty percent from the peak twenty-year level identified in the report. The county shall pay one hundred percent of the cost of the assessments and pilot projects.
I/IP – 3	King County shall consider an I/I surcharge, no later than June 30, 2006, on component agencies that do not meet the adopted target levels for I/I reduction in local collection systems. The I/I surcharge should be specifically designed to ensure the component agencies' compliance with the adopted target levels. King County shall pursue changes to component agency contracts if necessary or implement other strategies in order to levy an I/I surcharge
CP – 3 (2)	King County shall periodically evaluate population and employment growth assumptions and development pattern assumptions used to size conveyance facilities to allow for flexibility to convey future flows that may differ from previous estimates. The following activities shall take place to confirm assumptions and conveyance improvement needs: 1. Field verification of wastewater flows and conveyance component conditions prior to implementation of regional conveyance capital projects that are intended to expand capacity of the system; and

	2. Decennial flow monitoring to correspond with the Federal Census conducted every ten years.
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I/I Policy 1 (I/IP-1) requires WTD to evaluate every conveyance capacity project to determine if I/I reduction would be more cost effective than the cost of conveying and treating the flow. Typically, a desktop analysis is sufficient to determine the cost effectiveness of I/I reduction. Through these analyses, WTD has found that conveyance upgrades are almost always less expensive to complete than I/I reduction. Sometimes projects require additional analysis to confirm the cost effectiveness of I/I reduction. The most recent I/I reduction analysis was completed for the Thornton Creek Trunk. The project included development of I/I reduction alternatives to address the conveyance capacity need. After extensive evaluation, it was determined that I/I reduction would be significantly more expensive for WTD to complete than upgrading the existing trunk line.

I/I Policy 2 (I/IP-2) was meant to support the development of the original I/I Control Program in the early 2000's. This policy requires WTD to:

- Work cooperatively with component agencies to complete I/I reduction pilot projects
- Develop voluntary draft local conveyance systems' design guidelines, procedures and policies, including inspection and enforcement standards
- Identify levels and sources of I/I in each local agency system through flow monitoring
- Develop a cost-benefit methodology to identify cost-effective I/I reduction projects
- Develop a recommended long-term I/I control plan

The work culminated in the 2005 Executive's recommended I/I Control Program Plan. The plan directed WTD to identify and complete demonstration scale projects to confirm the effectiveness of the I/I reduction techniques used in the I/I pilot projects on a larger scale. WTD identified the Skyway I/I Reduction project which was completed in early 2014. This project was the first attempt at completing I/I reduction in lieu of constructing a conveyance capacity capital project – the Bryn Mawr Storage Tank. The results of the Skyway I/I Reduction project showed that though there was a significant amount of flow reduction at the local level, there was considerably less flow reduction downstream in the regional system, and the Bryn Mawr Storage Tank project was subsequently not deferred.

I/I Policy 3 (I/IP-3) directed WTD to consider implementation of a surcharge, a monetary fine, for exceeding adopted levels of flow. The surcharge was considered as part of the development of the I/I Control Program's development but was ultimately not

implemented. The County and component agencies found that implementing a surcharge, as contemplated in the King County Code, would be costly to administer and would pose difficulties in verifying violations. Component agencies were also concerned that a surcharge would be pointless because WTD had agreed to pay for cost-effective I/I reduction. There were additional concerns regarding WTD taking a regulatory role that would expend ratepayer dollars on enforcement and monitoring activities. Instead, component agencies preferred to own the decision to complete I/I reduction based on their system needs.

Conveyance Policy 3 (2) (CP-3 (2)) requires WTD to conduct Decennial Flow Monitoring (DFM) alongside the United State (U.S.) Census. DFM consists of installing additional flow meters, to be used alongside the existing 130 permanent flow meters in the separated portions of the regional conveyance system, to provide a more comprehensive review of flow for conveyance improvement planning. DFM data is also used to identify levels of I/I in each model basin. The most recent DFM project took place between 2019 and 2022 and collected data to coincide with the 2020 U.S. Census.

iii. The system “must-dos”

WTD must meet Washington State requirements, which are derived from and expand upon U.S. Law and Code (Clean Water Act, Pub. L. 92-500; 33 U.S.C. § 1251 et seq.).

The Washington Administrative Code (173-220-020):

“No pollutants shall be discharged to any surface water of the state from a point source, except as authorized by an individual permit issued pursuant to this chapter or as authorized by a general permit issued pursuant to chapter 173-226 WAC.”

The separated sewer system must be built to convey all expected flows, to prevent sanitary sewer overflows (SSOs), which may occur due to improperly maintained or sized sewer collection systems. Due to WTD’s position as a wholesale provider of sewerage services, WTD must properly maintain and operate the regional system, while sizing its facilities large enough to accept base flow as well as I/I from component agencies to prevent SSOs.

WTD is not permitted for SSOs under the National Pollutant Discharge Elimination System (NPDES) permits issued by the Washington Department of Ecology. Even discharges that do not reach waters of the U.S. can be violations of the federal Clean Water Act permit requirements under some circumstances.

iv. Current and budgeted expenditures

In July 2025, WTD provided a list of conveyance capacity projects to the Regional Water Quality Committee (RWQC). 11 are related to conveyance capacity upgrades, totaling \$736M or approximately 6.5% of WTD's total capital improvement program (CIP) between 2025 and 2035. The conveyance capacity projects and the costs included in the CIP include:

Project Name	2025-2035 Cost Estimates
North Mercer Island and Enatai Interceptors Upgrade	\$ 38,415,620
Richmond Beach PS Upgrade	28,789,079
Richmond Beach Edmonds Interceptor Parallel	10,513,782
Black Diamond Trunk Capacity Upgrade	164,391,988
Garrison Creek Interceptor Replacement, Realignment, and Diversion	14,173,165
Lake Hills and NW Lake Sammamish Interceptor Upgrade	152,451,573
Boeing Creek Trunk Replacement and Parallel	835,661
Coal Creek Siphon and Trunk Parallel	153,671,044
Medina Pump Station Upgrade	43,618,526
Sammamish Plateau Diversion (Phase 1)	112,165,420
Soos Creek Cascade Relief Interceptor No. 2 Upgrade	16,796,707
	\$ 735,822,565

** The cost estimates described here are what were presented in July 2025 and may be updated as capital projects are advanced and further defined.

v. Summary of science/data

The figure below shows the peak I/I flow rate for each of the 181 model basins in the regional separated sewer system in WTD's service area. This figure was developed using flow monitoring information from the 2010 Decennial Flow Monitoring effort. During development of the 2005 Executive's Recommended I/I Control Program, Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) and WTD identified 3,500 GPAD (Gallons Per Acre Day) based on the peak 20-year hourly flow as an agreed-upon target limit that could be reached through I/I rehabilitation. Currently 108 out of 181 model basins exceed that limit.

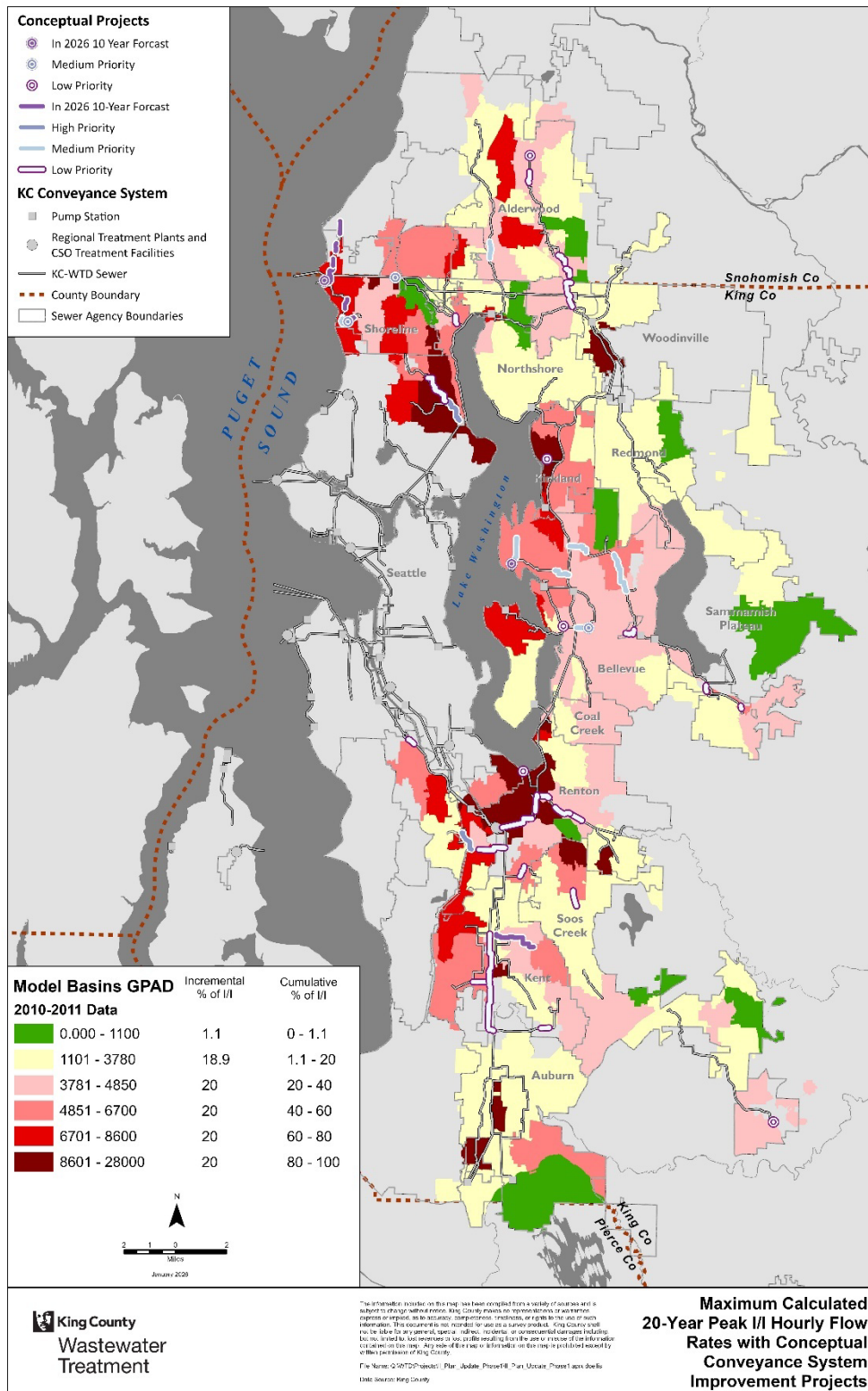


Figure 2. Inflow / Infiltration in WTD's Separated System Service Area 181 Model Basins

D. Example Practices from Other Jurisdictions/Industry

On multiple occasions since the early 2000's, WTD has interviewed other regional sewerage agencies across the United States to investigate how the organizations are approaching I/I mitigation efforts, including the inspection and rehabilitation methods they are using, I/I reduction effectiveness, and the successes and challenges they have encountered. Some agencies conduct I/I mitigation work in their region due to regulatory actions, such as consent decrees, that require them to reduce I/I or prevent SSO's. Other agencies conduct I/I mitigation because it is more cost-effective than upgrading conveyance facilities.

Rehabilitation/Replacement of Sewer System Components

Many agencies focus on targeted or comprehensive rehabilitation or replacement of sewer system components, similar to WTD's work in Skyway. This work typically involves systematic rehabilitation, replacement, or upgrade of public and private sewer system components to reduce I/I. The approach can be targeted based on measured or predicted I/I rates, needed downstream infrastructure improvements, or other location-specific factors. This type of action is typically highly effective at reducing I/I in areas with high I/I severity, known defects, and appropriate stormwater conveyance system availability. Work is usually only completed when it is considered to be more cost effective than upgrading conveyance capacity. Some agencies who have used this approach to I/I mitigation include Clackamas County, Northeast Ohio Regional Sewer District, Hampton Roads Sanitation District, and Miami Dade County.

Private Side Sewer Inspection and/or Certification Programs

East Bay Municipal Utility District and Pinellas County are two agencies that have implemented a private side sewer inspection and certification program. This action includes systematic assessment and/or improvement of the condition of private side sewers, which can be a significant source of I/I, as is assumed in WTD's service area. Through inspection and/or certification, defects can be identified and repairs required. Side sewer inspection and certification can be required at the time of property sale or triggered when certain types of building permits are submitted (e.g., demolition, change to occupancy content, etc.). I/I reduction effectiveness can be difficult to quantify unless all properties in an area have been inspected and rehabilitated, but noticeable decreases in I/I are expected over time. East Bay Municipal Utility District has had success with this action in their service area.

Peak Flow Limitation Program

Other regional agencies use enforceable flow thresholds for local agencies to control peak I/I flows. Under this action, when peak flow rates exceed defined limits, agencies are required to initiate investigations, flow monitoring, or mitigation planning. This action may also impose a surcharge, restrict new connections, or invoke other governmental consequences. By establishing flow limits as triggers for action or accountability, this action creates strong incentives for I/I reduction and aligns wastewater planning with system capacity constraints. Under this action, a gradual reduction of peak I/I flows are anticipated over many years. Agencies that WTD has interviewed that have implemented a peak flow limitation program include Northeast Ohio Regional Sewer District, Miami Dade County, and Metropolitan Council Environmental Services (MCES).

MCES has a flow-based policy to compel component agency I/I control. MCES sets a peak flow limit by taking the 10-year average and applying standard peaking factors specific to each component agency to establish a threshold for peak hourly flow. When a component agency exceeds the peak flow, they receive notification from MCES. MCES currently charges component agencies \$461,000 per million gallon per day (mgd) of flow exceedance. Instead of paying the surcharge, component agencies are able to spend an equivalent amount on work to investigate and mitigate excess I/I sources. Component agencies are given four years to complete the work, but MCES allows for extensions, if needed. The component agencies are required to report on the status of work annually to MCES. Work is complete once all money from the surcharge has been expended or when the sources of I/I are found and mitigated.

E. Policy Issues, Challenges, and Opportunities Related to the Policy Question

Addressing I/I presents a set of unique challenges, as well as potential opportunities for the region.

1. WTD's authority as a wholesaler is limited

WTD lacks authority to mandate actions for private property owners. WTD's ability to compel I/I reduction work extends only to the component agencies that it serves. Cities have authority to mandate I/I reduction on private property where a significant portion of I/I originates from. Additionally, sewer districts that have contracts with WTD do not have the same legal authority as cities, limiting their ability to mandate I/I reduction.

2. Sources of I/I are diffuse

There is not a quick fix to removing I/I from the system because sources of I/I are diffuse and spread across the WTD service area. I/I reduction requires multiple approaches that rehabilitate both private side sewers and public sewer systems.

3. The benefits of I/I reduction are sometimes difficult to see downstream

The benefits of I/I rehabilitation work are most apparent close to where the work is performed in the local system. Benefits are sometimes more difficult to see downstream in the regional system, as evidenced from the Skyway Demonstration Project. As a regional provider at the downstream end of the sewer system, WTD accepts and ratepayers pay the costs of all I/I from local agencies and their customers. If the benefits of reductions in I/I are not seen at the regional level, then the cost-savings from I/I reduction work are not realized at the regional level as conveyance capacity will still need to be expanded.

4. Effectively reducing I/I may benefit the treatment plants as well as the conveyance system

Reducing influent flow through I&I control could positively benefit WTD's ability to meet future treatment needs, including nitrogen management, by reducing flow capacity-driven sizing of treatment improvements. It could also provide operational cost savings associated with running treatment processes at lower flows. Reducing flow capacity-driven improvements could contribute to the ability of WTD to meet forecasted population growth within the footprint of our existing treatment plants, which may be constrained due to nitrogen reduction-related requirements further into the future.

F. Range of Policy Options with Associated Actions and Considerations (including qualitative description of costs)

The policy options presented below describe potential choices and Separated System Actions that could be implemented to address the following policy questions:

- How should I/I be managed and how can costs be fairly apportioned?
- Should system capacity be expanded to account for increases in I/I?
- Should I/I policies change to support reducing the capacity needed for I/I?

The policy options include:

- Maintaining the current policies, including expanding conveyance and treatment capacity and removing I/I when cost-effective

- Amend or add new policies to either focus on incentivizing I/I reduction in areas of greatest I/I, or implementing flow limits systemwide and administering penalties if flow limits are exceeded due to I/I

Summary of Policy Options

	Goal	Description	Separated System Actions	Cost Burden
#1	Expand conveyance and treatment capacity to accommodate I/I and remove I/I when cost effective	Maintain current I/I policies and continue to accept all component agency flows and complete I/I reduction when the cost of rehabilitation is less than the cost of constructing a project to convey and treat the flow on a project-by-project basis	Capacity Management – WTD conducts I/I reduction when cost-effective; component agencies conduct I/I reduction according to internal policies and procedures Flow Monitoring – Conduct extensive regional flow monitoring every decade to correspond with the U.S. Census to supplement permanent flow monitoring	The region will pay for conveyance and treatment capacity projects to accept I/I unless it is cost-effective to remove The region will benefit from having expanded conveyance and treatment capacity in the regional separated system Component agencies contributing excessive I/I will disproportionately benefit by having the region pay to accept excessive I/I that is contributed from their systems

	Goal	Description	Separated System Actions	Cost Burden
#2	Incentivize I/I reduction in areas of high I/I to defer conveyance capacity projects and potentially reduce treatment capacity needs	Provide financial support to component agencies and private property owners to reduce I/I in areas with high I/I	Capacity Management – Targeted regional I/I reduction strategies addressing areas of high I/I to defer the need for capacity upgrades. Flow Monitoring – Expanded permanent flow monitoring throughout the separated system to quantify levels of I/I in the local agencies' systems.	The region will pay for I/I reduction in areas of high I/I. The region will benefit from the cost-savings of I/I reduction when conveyance capacity projects are deferred. Component agencies and communities in areas with high I/I will benefit disproportionately from having I/I reduction subsidized.
#3	Maximize I/I reduction system-wide to eliminate conveyance and treatment capacity projects	Implement I/I limits on component agencies system-wide and enforce penalties if limits are exceeded	Capacity Management – Service area wide required I/I reduction to eliminate need for capacity upgrades and reduce costs to convey and treat flows Flow Monitoring – Expanded permanent flow monitoring throughout the separated system to quantify levels of I/I in the local agencies systems.	Component agencies contributing I/I will pay for the cost of I/I and/or the cost of I/I reduction The region will benefit from the elimination of the need for conveyance and treatment capacity projects due to I/I

Policy Option #1 – Maintain current I/I policies and continue to accept all component agency flows and complete I/I reduction when the cost of rehabilitation is less than the cost of constructing a project to convey and treat the flow on a project-by-project basis

Justification

This policy option would maintain the current I/I policies with WTD continuing to accept all component agency flows as described in the current sewer contracts. This policy option would also allow component agencies to prioritize and conduct I/I reduction on their systems when it makes sense based on their capital portfolio priorities.

Considerations

The continued implementation of these actions could result in no I/I reduction being completed at the regional or local level, as I/I reduction has not proven to be less expensive than the cost of constructing a project to convey and treat I/I using the current cost-benefit ratio. The cost-benefit ratio would need to be updated to be more comprehensive of cost-savings for I/I reduction to be deemed cheaper than constructing a capital project. Additionally, if component agencies are left with the choice to complete I/I reduction on their systems, component agencies would be less incentivized to complete I/I reduction as WTD is required to accept all component agency flows as part of the sewer contracts.

WTD would continue implementation of ongoing permanent flow monitoring as well as expanded regional flow monitoring concurrent with the U.S. Census to identify conveyance capacity needs in the separated sewer system.

This cost would be borne by the region and the benefits of expanded treatment and conveyance capacity in the system would be experienced by the region, but the agencies who contribute excessive I/I would benefit disproportionately as they could defer I/I rehabilitation on their systems.

Policy Option #1 would have lower near-term costs compared to Policy Options #2 and #3 as WTD and the component agencies would need to invest in I/I reduction only when it is cost-effective. But Policy Option #1 would have higher long-term costs as I/I is the most significant contributor of conveyance capacity needs and not addressing it would require the region to continue to build conveyance capacity projects to accommodate I/I into the future.

Policy Option #2 – Provide financial support to component agencies and private property owners to reduce I/I in areas with high I/I

Justification

This policy option would amend the current I/I policies to allow WTD to provide financial support to certain component agencies and private property owners to complete I/I reduction in areas with high levels of I/I. This policy option would incentivize component agency rehabilitation of local infrastructure to reduce I/I and incentivize private property owners to rehabilitate their side sewers, where a large portion of I/I enters the system by off-setting some or all the costs of rehabilitation. This policy option would reduce the amount of peak wet weather flow entering the regional sewer system and offer component agencies or private property owners the opportunity to improve the local public or private sewer system at lower or no cost. If enough flow is removed, then conveyance capacity projects could be deferred.

This policy option in action could include:

- Matching grants for I/I rehabilitation projects that component agencies could apply for
- Side sewer inspection rebate program
- Low-interest loan program for private property owners to get their side sewers inspected or repaired

Considerations

This policy option would provide regional funds to component agencies and private property owners in areas with high I/I, and the cost of I/I reduction would be borne by the region, as opposed to being borne by the agencies who are contributing the I/I. Conversely, areas with high levels of I/I are generally areas with lower average income, older systems, areas with higher groundwater tables, or are located in lower lying areas near bodies of water making their systems more vulnerable to I/I. These conditions present an equity opportunity, as this policy option could help more socially vulnerable communities improve their systems, as well as acknowledging conditions that the component agencies serving those communities do not have control over, such as geographical conditions.

Additionally, to implement this policy option, a net benefit must be demonstrated when providing funds to component agencies or private citizens. Analysis must demonstrate that funding I/I reduction would defer a capacity capital project or reduce operation and

maintenance needs that are equal or greater to the cost of the reduction. Any funds distributed through this policy option would need to be evaluated on a case-by-case basis.

WTD would need to implement enhanced ongoing permanent flow monitoring and continue with expanded regional flow monitoring concurrent with the U.S. Census to identify and confirm conveyance capacity needs and areas with high levels of I/I.

The costs would be borne by the region. The benefit of deferring conveyance capacity capital projects and reducing treatment capacity needs also would be experienced by the region. Agencies who are contributing excessive I/I would benefit disproportionately, as they would also have I/I rehabilitation subsidized by the region.

In the near-term Policy Option #2 would cost more than Policy Option #1 but would likely realize cost-savings long-term as Option #2 would defer capacity projects as excessive I/I is removed.

Policy Option #3 – Implement I/I limits on component agencies systemwide and enforce penalties if limits are exceeded

Justification

This policy option in action would set peak I/I limits from component agencies to reduce the amount of peak wet weather flow entering the regional sewer system. This policy option compels I/I reduction by administering penalties to component agencies who contribute flows that exceed the limit. It could also enforce penalties on component agencies that do not complete required I/I reduction work. If enough flow is removed, then conveyance and treatment capacity projects could be eliminated. This policy option in action could look like:

- A surcharge fee that is calculated based on the amount of flow exceeded
- Requirements to develop an I/I reduction plan for agencies that exceed limits

Considerations

This policy option would require I/I reduction by administering penalties on component agencies contributing excessive flow to the regional system. Flow monitoring in the past has shown that areas with high I/I are generally areas that have lower average income and older systems and this policy could impose excessive financial burden on those agencies and their ratepayers. Supplemental programs could be implemented to mitigate this, such as offering component agencies who serve more socially vulnerable communities a “grace period” to reduce the amount of flow they are contributing before administering surcharge fees. Component agencies can also be offered the option to invest the dollar amount of the

fine that is administered into rehabilitation of their systems and submit a report of what rehabilitation was implemented, instead of paying the amount of the fine to WTD.

Policy Option #3 would create significant costs to launch the program. A considerable amount of resources would need to be dedicated to increase permanent flow monitoring, research and identify flow targets, and validate any flow exceedances before penalties could be administered.

The costs would be borne by component agencies contributing excessive I/I to the regional system, as they would be required to either pay fines or invest in rehabilitating their sewer systems. The region would benefit from the elimination of the need for conveyance and treatment capacity projects due to I/I.

Policy Option #3 would likely be the more expensive to implement both in the near-term and the long-term compared to Policy Option #2. Option #3 would require more resources to launch a program that involves enforcing fines or surcharges on component agencies, and there would be more scrutiny on the flow monitoring required to enforce penalties.

Relative to Option #2, Policy Option #3 would have higher long-term costs as managing an enforcement program would be more resource intensive than managing an incentive program. Relative to Option #1, Policy Option #3 would likely cost less in the long-term as capacity projects would be eliminated due to removal of excessive I/I.

G. Interested and Affected Parties WTD will Engage to Gather Input

MWPAAC and the component agencies that WTD provides sewerage services to are the primary audiences that need to be engaged on the I/I policy options. Additional engagement with tribes, community based organizations (CBOs), and environmental non-governmental organizations (NGOs) may be conducted during implementation planning.

H. Rate Structure Considerations (if applicable)

All three of the forementioned policy options could have potential impacts to WTD's overall rate structure. The 1999 'Robinswood' agreement focused on a regional 'all for one and one for all' approach where all member jurisdictions would contribute equally to dealing with I/I, and a uniform rate structure would be in place throughout WTD's service area. Policy Options #1 and #2 both maintain this approach, with WTD providing financial support for upstream projects that reduce the overall cost of I/I to WTD. Any financial benefits or costs to WTD would thus be shared proportionately throughout the service area.

Policy Option #3, which could create an I/I surcharge rate class, would be a departure from this previous approach. WTD currently has only one customer class outside of the general sewer rate (high-strength dischargers), who pay the marginal operating cost of treating high-strength wastewater. If WTD were to implement a surcharge for I/I and apply the revenue to existing and planned obligations, the general sewer rate would be lower than it otherwise would be. This situation would result in Local Sewer Agencies (LSAs) with a high I/I flow paying more, and LSAs with low I/I flow paying less. Any I/I surcharge would need to be calculated in accordance with cost-of-service principles and is unlikely to substantially reduce the general sewer rate.

However, I/I is not the only cost driver within WTD's service area that is concentrated within a specific geographic zone. Because the combined conveyance system (roughly approximate to the City of Seattle) is designed to convey stormwater, it would not be charged through a potential I/I surcharge. However, it is possible that an I/I surcharge would need to be paired with a CSO surcharge that assesses all or some of the impacts of the Combined Sewer Overflow program on LSAs within the combined system area. Any detailed discussion of moving away from the Robinswood agreement's 'all for one and one for all' approach will likely not be constrained to only an I/I surcharge.

There are also potential impacts to the general sewer rate structure. If surcharges were implemented, the general sewer rate would need to recover less revenue than it otherwise would. WTD's general sewer rate currently consists of a uniform rate structure, where all single-family residences (SFR) are assumed to equal one Residential Capacity Equivalent (RCE). Non-SFR customers are measured based on flow, and a conversion factor of 750 cubic feet per month is equal to one RCE. There is evidence that a lower conversion factor would be more appropriate and reflect real world conditions. WTD has identified a work plan to evaluate the conversion factor, in line with Financial Policy 15.4, "*King County shall periodically review the appropriateness of this factor to ensure that all accounts pay their fair share of the cost of the wastewater system...*".

Any I/I based surcharge would likely be flow-based, which could have 'knock-on' effects in terms of measuring the number of flow-based RCEs in each LSA. In addition, I/I based surcharges would be more variable than WTD's existing rate structure and likely result in greater fluctuation in month-to-month revenues. If WTD were to adopt a more variable rate structure, some financial policies may need to be reexamined as well.

I. Relationship to contracts

According to the current sewer contracts, WTD must accept all sewage and waste delivered for treatment and disposal from the component agencies. The sewer contracts

also state that the contracts may be modified from time to time through changes to King County Code.

Policy Option #1 would not pose a change to the sewer contracts, as WTD would continue to accept flow from the component agencies as detailed in the contracts, and complete I/I reduction when cost effective. Implementing a flow limit, as with Policy Option #3, would require an update to the sewer contracts, or an update to King County Code. Modifying the sewer contracts presents unique challenges as there are two sets of expiration dates for the contracts - 25 contracts run through July 2036 and nine contracts run through July 2056.

Providing incentivizes, such as grants and loans for I/I reduction as with Policy Option #2 is allowed as long as a net benefit to the regional system can be demonstrated according to the Attorney General's Opinion 2009 No.5, and does not directly conflict with language in the sewer contracts.

J. Equity and Social Justice (ESJ) impacts (if applicable)

The policy options described have the potential to have positive or adverse ESJ impacts if selected. Generally, portions of the WTD service area that have the highest levels of I/I also have higher Social Vulnerability Index (SVI) scores.

SVI is a metric used by the Center for Disease Control (CDC) that assesses each census tract's vulnerability to disasters and public health threats. Many of those factors overlap with equity considerations, such as poverty, age, disability, and housing. SVI scores are assigned from 0 (least vulnerable) up to 1.0 (most vulnerable). Areas in the WTD service area that have a peak I/I rate of 3,500 GPAD or more have an average SVI score of 0.43 compared to the WTD Service Area average of 0.38 and the King County average of 0.40.

Policy Option #1 proposes the least amount of I/I reduction across the region, and the costs of constructing treatment and conveyance capacity projects in lieu of conducting I/I reduction are distributed across the service area through the sewer rate. Socially vulnerable populations across the region will continue to experience a higher sewer rate to pay for the construction of capacity projects to accept the increased I/I.

Policy Option #2 could provide opportunities for positive ESJ impacts. Ratepayers who live in high I/I areas would have opportunities to participate in programs to get their side sewers inspected for low or no cost. Additional programs could be implemented to increase the amount that the ratepayers may be eligible for if they are low-income.

In contrast, Policy Option #3 compels I/I reduction through penalties and could have adverse ESJ impacts on socially vulnerable populations – especially if the costs of the I/I

reduction or the penalties from contributing excessive flows are passed down from the component agencies to the ratepayers. If the policy includes programs that directly impact ratepayers like a private side sewer inspection program, then additional programs could be delivered in unison to mitigate the adverse ESJ impacts, such as exemptions, subsidies, or grants for low-income ratepayers.

K. Planning-level cost estimates

This section will be added into the policy memo as the “Step 2” analysis later.

L. Evaluation of outcomes: identify impacts and outcomes of each option

This section will be added into the policy memo as the “Step 2” analysis later.

RWSP Update - Separated System Conveyance

Policy Memo #2

A. Policy Question

This memo is focused on policy questions related to the Separated System Conveyance topic of the Regional Wastewater Services Plan (RWSP) Update. The policy question analyzed in this memo is:

- i. 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?

For the purposes of this memo, this capacity question is analyzed through the lens of separated system conveyance, particularly focusing on project sizing and project timing. This capacity-related question will also be analyzed in a policy memo dedicated to treatment capacity scheduled for completion in September 2026.

B. Problem Statement

King County's Wastewater Treatment Division (WTD) uses a set of planning assumptions to estimate the need for infrastructure expansion to meet future conveyance capacity needs. The need for increased capacity is due to population growth (i.e., a need for more pipe reaches and greater pipe volume) and an increase in infiltration and inflow (I/I) that results both from expansion of the system (more pipe surface area that can harbor leaks or illicit connections) and degradation of existing pipes. Over a 50-year planning horizon, most of the volume expansion needed in a planned capacity improvement is due to increasing levels of I/I.

After assessing capacity needs, conveyance infrastructure improvements are then sized conservatively to ensure that new infrastructure can support capacity well into the future. Due to capital funding constraints, these improvements are often installed just before the old structure reaches full capacity.

Building infrastructure to meet larger—and perhaps unnecessary—capacity requirements is more costly than building smaller infrastructure. Similarly, installing capacity improvements before they are needed ties up capital that could be used for other improvements. However, building undersized infrastructure risks needing additional capacity upgrades more quickly, while delaying a project until its need is imminent could precipitate construction cost risks.

C. Contextual and Baseline Information

ii. What is known about the topic and current conditions

WTD's Separated Sewer System

Typically, sewers built after the 1950s do not combine sanitary and stormwater flows into a single sewer system. In the urban landscape, the separated sewer system works in concert with distinct stormwater collection systems to manage sanitary and wet weather flows, respectively. Separated sewer systems comprise an interconnected system of pipes, pump stations, and other infrastructure that convey wastewater from homes and businesses to local wastewater collection systems and then to the regional wastewater treatment facilities.

WTD owns and maintains about 250 miles of separated sewer system conveyance, which represents about 65% of WTD's pipe system. Wastewater from homes and businesses within all the cities and sewer agencies within the WTD service area, except most of Seattle, is collected through around 5,900 miles of locally managed pipes, which then are connected to the regional separated system.

WTD's Separated Sewer Planning Process

WTD plans for capacity upgrades to the separated sewer system through updates to the Conveyance System Improvement (CSI) Plan. Each decade, with the start coinciding with U.S. Census years, WTD undertakes an extensive Decennial Flow Monitoring effort to document flows throughout its conveyance system. This large decennial flow monitoring effort temporarily augments a system of permanent flow monitors that WTD continuously maintains. This flow data and a set of planning assumptions are used to model future flows in each segment of conveyance. The planning assumptions include estimates of population growth, water usage, and expected infiltration and inflow (I/I) across the planning horizon. Increases in I/I are the largest contribution to increasing conveyance capacity needs.

Through this process, WTD can determine which segments of conveyance have inadequate capacity to manage future flows. Once these conveyance capacity needs are identified, WTD then develops conceptual projects to meet future capacity needs. Current practice for how this process is implemented is described below.

iii. Current policies in code, contract, or in practice

King County Code (K.C.C. 28.86, Wastewater Treatment) guides WTD's work in the separated conveyance system. The policies relevant to this memo are:

Relevant Policies in K.C.C.	Description
CP-1(1)	The twenty-year peak flow storm shall be used as the design standard.
CP-2	King County shall construct the necessary wastewater conveyance facilities to convey wastewater from component agencies to the treatment plants.
CP-3	King County shall periodically evaluate population and employment growth assumptions.

Current Practice—Developing Capacity Improvement Projects

The process used to develop capacity improvement projects first determines whether conveyance facilities can convey a 20-year peak flow without surcharging (filling and backing up through the pipe) under current conditions. Pipes that surcharge are at risk of overflowing. Facilities that can convey this estimated peak flow are assigned a level of service (LOS) of greater than 20. Facilities that cannot convey a peak flow are assigned a LOS of less than 20; for example, a LOS below 5 means there is a one-in-five chance that surcharging will occur in any given year.

Conceptual projects to increase capacity are then developed for infrastructure with a LOS of less than 20. These conceptual projects are sized to accommodate the 20-year peak flow projected for 50 years from the year of the last major flow monitoring effort; these peak flows include both increased flow due to projected PSRC population growth and increased I/I. For example, in the 2017 CSI report, based on flow monitoring that began in 2010, the 20-year peak flow expected in 2060 was used as the basis for sizing new pipe.

Although the project planning process begins for all conveyance needs once they are identified as being below a 20-year LOS, the conceptual projects are not advanced through WTD's project development pipeline until later. Capacity improvements are generally implemented when the capacity-limited infrastructure reaches a 2-year LOS.

Current Practice—Estimating Population Growth

WTD currently updates population and employment growth assumptions every decade using Puget Sound Regional Council (PSRC) forecasts, which correspond with decadal

updates to the U.S. Census. These PSRC forecasts are aggregated from the parcel level to match WTD's service area. PSRC does not extend its forecasts to the time horizon that WTD considers for conveyance planning, so WTD's planning and modeling teams extend the PSRC data using simple extrapolation methods.

iv. The system “must-dos”

WTD must meet Washington State requirements, which are derived from and expand upon U.S. Law and Code (Clean Water Act, Pub. L. 92-500; 33 U.S.C. § 1251 et seq.). WTD must also abide by the growth management policies of Washington State by providing services to the local urban growth area, and WTD must account for projected population growth in its General Sewer Plan.

Essentially, the separated sewer system must not be underbuilt for the projected population growth. The system must be built to convey all expected flows from the population, with no sanitary sewer overflows (SSOs). Even overflows that do not reach waters of the U.S. can be violations of the federal Clean Water Act permit requirements under some circumstances. WTD's National Pollutant Discharge Elimination System (NPDES) permits, issued by the Department of Ecology, do not allow for SSOs in the separated conveyance system.

The Revised Code of Washington (RCW 36.70A.110) states:

“(2) Based upon the growth management population projection made for the county by the office of financial management, the county and each city within the county shall include areas and densities sufficient to permit the urban growth that is projected to occur in the county or city for the succeeding twenty-year period [...] As part of this planning process, each city within the county must include areas sufficient to accommodate the broad range of needs and uses that will accompany the projected urban growth including, as appropriate, medical, governmental, institutional, commercial, service, retail and other nonresidential uses.”

The Washington Administrative Code (WAC 173-240-050) states:

“(3) The general sewer plan shall include the following information [...]

(e) The population trend as indicated by available records, and the estimated future population for the stated design period.”

v. Current and budgeted expenditures

In July 2025, WTD provided a list of conveyance capacity projects to the Regional Water Committee (RWQC). 11 projects are related to conveyance capacity upgrades, totaling \$736M or approximately 6.5% of WTD's total Capital Improvement Plan (CIP) between 2025 and 2035. The conveyance capacity projects and the costs included in the CIP include:

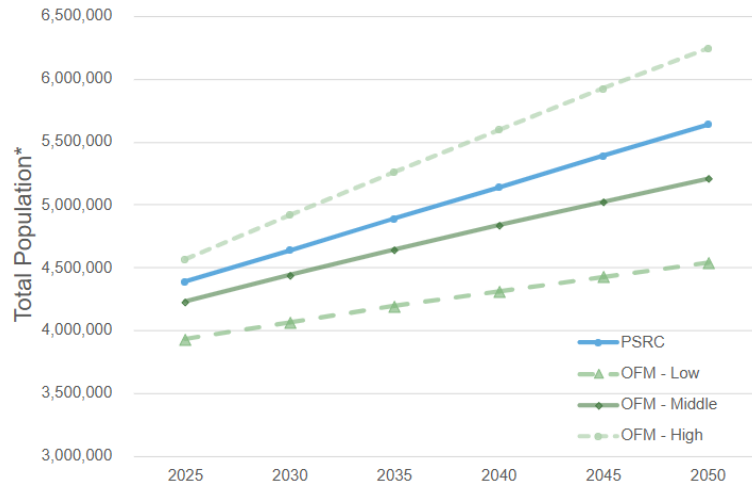
Project Name	2025-2035 Cost Estimates
North Mercer Island and Enatai Interceptors Upgrade	\$ 38,415,620
Richmond Beach PS Upgrade	28,789,079
Richmond Beach Edmonds Interceptor Parallel	10,513,782
Black Diamond Trunk Capacity Upgrade	164,391,988
Garrison Creek Interceptor Replacement, Realignment, and Diversion	14,173,165
Lake Hills and NW Lake Sammamish Interceptor Upgrade	152,451,573
Boeing Creek Trunk Replacement and Parallel	835,661
Coal Creek Siphon and Trunk Parallel	153,671,044
Medina Pump Station Upgrade	43,618,526
Sammamish Plateau Diversion (Phase 1)	112,165,420
Soos Creek Cascade Relief Interceptor No. 2 Upgrade	16,796,707
	\$ 735,822,565

** The cost estimates shown above were presented to RWQC in July 2025 and may be updated as capital projects are advanced and further defined.

vi. Summary of science/data (if applicable)

Population Growth

The Washington Office of Financial Management (OFM) provides ranges of possible population growth scenarios for Washington counties, from low to high. The PSRC forecast through 2050, included in the graph below, falls within this range. Note that WTD's service area is not the entirety of these three counties; this data is provided to show consistency across agencies that issue the raw data WTD uses to develop service-area estimates.



*Based on total population for King, Pierce, and Snohomish Counties

Sanitary Sewer Overflows

WTD's system modeling strategy focuses on surcharging (the backing-up of flow within a pipe) rather than SSOs because (1) surcharging is much easier to predict and detect, and (2) surcharging is a more conservative standard. Surcharging is a necessary precondition to overflow, but pipes that surcharge do not necessarily overflow.

Understanding WTD's experience with SSOs can provide context for the region's risk tolerance in relation to determining how large and how quickly conveyance capacity projects are constructed.

Sanitary sewer overflows are relatively rare across WTD's system. SSOs attributable to capacity limitations tend to be concentrated in specific problematic locations.

Between 2019-2024, WTD experienced six SSOs that can be attributed to capacity limitations. Three were at Medina pump station. Some improvements to the Medina pump station have since been made, and further improvement projects for the Medina conveyance and the Medina pump station are in the CIP.

Over the same time period, WTD experienced another 26 SSOs that were attributed to asset or operational failure or another non-capacity-related cause.

D. Example Practices from Other Jurisdictions/Industry

Wastewater utilities across the country use different standards for designing for future capacity. Following King County Code, WTD designs conveyance capacity to a 20-year peak flow standard, using a 50-year planning horizon.

This 20-year peak flow standard is a conservative standard nationwide. For example, East Bay Municipal Utilities District, which provides sewage treatment services for the communities east of San Francisco Bay in California, uses a 5-year design storm standard that accounts for elevated groundwater.

E. Policy Issues, Challenges, and Opportunities

There are a few challenges to consider when considering population growth as it relates to conveyance system capacity.

1. Population growth is a relatively small component of projected future flows.

Infiltration and inflow (I/I) are much larger factors in sizing new conveyance facilities. Because the planning process to determine conveyance size and improvement installation timing accounts for total flows, including both population changes and I/I, the policy question here overlaps with policy questions for I/I. That is, risks and opportunities associated with project sizing and timing could be impacted by policy decisions to reduce I/I.

2. WTD accepts all flows sent to the regional system from its component agencies, and component agencies are required to provide sewer services within the Urban Growth Area. WTD cannot refuse to accept these flows.

F. Range of policy options with associated actions and considerations (including qualitative description of costs)

The policy options presented below describe potential choices and Separated System Actions that could be implemented to address the policy question:

- How aggressively beyond legal requirements should WTD expand capacity to account for future population growth?

WTD expects the need for increased sewer conveyance capacity to extend well into the future. Most of this conveyance capacity need is driven by increasing I/I; options for reducing that need are provided in a separate policy memo dedicated to the I/I topic. Given increasing capacity needs and the mandated prevention of SSOs, several policy options to answer this question include:

1. Maintain current policies and practice
2. Take a less aggressive approach to expanding conveyance capacity by reducing pipe sizing design standard and applying a less conservative guideline for identifying new capacity needs.

3. Take a more aggressive approach to expanding conveyance capacity by installing planned capacity improvement projects more quickly.

Summary of Policy Options

	Goal	Description	Separated System Actions
#1	Maintain current policies and practice in conveyance capacity planning for population growth	Continue to identify needs and develop conceptual projects based on the 20-year design standard but take on risk in implementation timelines to allow for flexibility in capital allocation.	Develop conceptual projects when conveyance capacity falls below a 20-year LOS; prioritize installation when conveyance capacity is at or below a 2-year LOS. Design conveyance capacity improvements to accommodate 20-year peak flows at the 50-year time horizon.
#2	Take a less aggressive approach to conveyance capacity planning due to population growth	Reduce short-term construction costs by reducing pipe sizing design standard and applying a less conservative guideline for identifying new capacity needs.	Identify needs and develop conceptual projects when conveyance capacity falls below a 5-year LOS (depending on chosen I/I Policy Options); prioritize installation when conveyance capacity is at or below a 2-year LOS. Design conveyance capacity improvements to accommodate 5-year peak flows at the 50-year time horizon.
#3	Take a more aggressive approach to conveyance capacity planning due to population growth	Better protect against risk of SSO by installing planned capacity improvement projects more quickly.	Develop conceptual projects when conveyance capacity falls below a 20-year LOS; prioritize installation when conveyance capacity is at or below a 5-year LOS.

Policy Option #1 – Maintain current policies and practice in conveyance capacity planning for population growth.

Justification

This policy option would maintain the current approach to managing separated system conveyance capacity due to population growth. It maintains a conservative design standard but allows WTD more flexibility in allocating the capital budget to different projects as needed.

Considerations

This policy option would result in the continued implementation of current practice, meaning that sizing requirements for the separated conveyance system would not change, and WTD would implement projects as capital funding is available but before severe risk of SSO. In practice, this means that projects are sized conservatively, but that their installation is deprioritized for other system-wide capital needs that are driven by more stringent regulatory requirements.

Policy Option #2 – Take a less aggressive approach to conveyance capacity planning due to population growth.

A less aggressive approach would reduce the design standard specified in King County Code to be less than the 20-year peak flow at the planning horizon. By choosing a reduced design standard, such as a 5-year peak flow instead of a 20-year peak flow, WTD would design slightly smaller conveyance projects. Note that the design standard would still be applied to the extent of the 50-year planning time horizon; e.g., the estimated 5-year peak flow in 2070 based on flow monitoring from 2020.

Justification

The current 20-year peak flow design standard is very conservative compared to other design standards used by other utilities nationally. Lowering the standard would decrease the number of conveyance capacity projects included within the 50-year planning horizon of the Conveyance System Improvement Plan (as WTD would only plan upgrades for sections of conveyance that are at the 5-year design capacity).

Considerations

In the short term, with Option #2 conveyance capacity projects would require fewer resources overall since there would be fewer capacity projects in the 50-year planning

horizon. Those projects constructed would have smaller pipe sizes and, thus, often be less expensive to build. So, in the short term, individual conveyance projects and the overall cost of all conveyance capacity projects under Option #2 may be less costly than Option #1. Note though, that the majority of the costs of major conveyance projects are not in the size of pipes, but in other construction costs.

Long-term, by using a reduced design standard, WTD may need to construct conveyance capacity projects more frequently, as the full capacity of the pipe could be reached more quickly. More conveyance capacity projects more frequently could result in higher total costs for conveyance capacity over the longer term.

Determining capacity needs in the planning process as pipe capacity falls below a 5-year LOS rather than a 20-year LOS would have the effect of postponing projects from the CIP, potentially allowing for more flexibility in capital allocations across the agency.

Additionally, when pipes are built to a 5-year design standard, larger storms would result in a higher risk of SSOs, due to less volume in the pipe to accommodate large amounts of I/I.

Overlap with I/I Policy Options:

If more aggressive approaches to reducing I/I are chosen as part of this update to the Regional Wastewater Services Plan (see Policy Memo #1), potential conveyance capacity needs would still need to be identified well in advance to have enough time for an I/I reduction project to reduce or eliminate the need for a capacity improvement. Identifying projects according to the 5-year standard suggested here would not provide enough time; however, a 20-year standard could still be used to identify needs and develop projects, while the design standard is set at 5 years.

Policy Option #3 – Take a more aggressive approach to conveyance capacity planning due to population growth.

A more aggressive approach to conveyance capacity would prioritize installing capacity improvement projects more rapidly, when a 5-year LOS is reached rather than a 20-year LOS.

Justification

By prioritizing capacity improvements at a 5-year LOS, WTD could better protect against risk of SSO.

Considerations

Earlier construction of conveyance capacity projects may result in projects from other categories of WTD's capital program being deferred. This could result in further exacerbating the backlog of WTD capital projects that would need to be built in the near term to reach compliance. Compared to Options #1 and #2, this would result in more spending on capacity improvement upgrades in the separated system in the short-term.

G. Interested and affected parties WTD will engage to gather input

WTD's component agencies and MWPAAC are the primary audiences that need to be engaged on separated sewer capacity population growth policy options.

H. Rate structure considerations (if applicable)

There are no known rate structure considerations for this policy question.

I. Relationship to contracts

There are no known contract implications for this policy question.

J. Equity and Social Justice (ESJ) impacts

Based on the definition of equity and social justice in the King County Equity and Social Justice Plan 2016-2022, there are no known equity and social justice impacts for this question.

K. Planning-level cost estimates

This section will be added into the policy memo as the "Step 2" analysis later.

L. Evaluation of outcomes: identify impacts and outcomes of each option

This section will be added into the policy memo as the "Step 2" analysis later.

Policy Questions for the RWSP Update

Below are 32 policy questions to be analyzed as part of the RWSP Update process. 29 policy questions were identified in the RWSP Update Scoping Document. WTD is proposing to add three new questions (question 8, 15, and 23), which are italicized below, to address additional topics or areas that WTD wants to analyze for policy implications.

1. 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?
2. How should I/I be managed and how can costs be fairly apportioned? Should system capacity be expanded to account for increases in I/I? Should I/I policies change to support reducing the capacity needed for I/I?
3. How should the conversion of on-site septic systems to sewers in the service area be managed and should WTD implement programs to encourage conversion within the service area?
4. What upstream or source control actions should the region undertake to prevent contaminants and reduce costs?
5. How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?
6. How proactive vs. reactive should WTD be when deciding to refurbish or replace aging infrastructure?
7. What level of redundancy of critical systems should WTD have? What level of risk tolerance should WTD accept?
8. *What approach should WTD use to fund Asset R&R projects?*
9. What level of resiliency should WTD plan for regarding seismic and other natural hazards to avoid or minimize risks? What level of risk tolerance should WTD accept? How can these considerations be best informed by the long-term capital motion work in progress?
10. Should existing wastewater policy language (KCC 28.86) be revised to specifically call out planning for future climate conditions in addition to population growth and other environmental factors?
11. How should WTD prepare and adapt to climate impacts (e.g., precipitation/storm intensities, sea level rise, river flooding, etc.) in line with the Strategic Climate Action Plan? What level of climate impact risk tolerance should WTD plan for to avoid or minimize risks to the system?
12. How much should WTD reduce energy use and reduce greenhouse gas emissions?
13. How will WTD measure customer affordability for contract agencies and ratepayers?

14. What other rate relief approaches should WTD implement to improve affordability for those who may struggle to pay their sewer bill?
15. *How should WTD best upgrade the combined system to address regulatory requirements, regional water quality, and West Point operations? How can combined system costs be fairly apportioned?*
16. Should the County evaluate costs and plan for levels of treatment beyond current legal requirements?
17. How should the County anticipate, engage with, and plan for future nutrient permit requirements, regulations related to CECs such as PFAS, or other future regulatory changes?
18. To what extent should WTD prioritize use of existing facility sites vs. acquiring new property to accommodate future treatment needs (including capacity)?
19. Should the region continue to provide a centralized approach for regional wastewater treatment, or should the region move towards a more decentralized approach?
20. Energy production and heat recovery – Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?
21. Biosolids – Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolid recovery policies to get to Class A?
22. Recycled water – Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?
23. *How should WTD maximize recovery of new resources? How should WTD prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?*
24. Should WTD update the rate structure for the capacity charge to align with current industry standards? (Note: The capacity charge rate structure was updated in 2021. A capacity charge methodology study is in progress.)
25. Is there a better rate structure for the sewer rate? (Note: WTD has identified a work plan to further evaluate the residential customer equivalent conversion factor of 750 cubic feet per month.)
26. Will WTD maintain a single uniform sewer rate per residential customer equivalent (Robinswood “one for all, all for one”), or consider alternative cost recovery rate structures to reflect other system impacts?
27. What actions should WTD take to increase equity and social justice for the regional wastewater system?
28. How will equity and social justice be interwoven in the update: community engagement, rate structure analysis, etc.?

Appendix E: Major Policy Questions List

29. How should the regional wastewater system address environmental justice concerns as described in the 2021 Healthy Environmental for All Act, such as addressing the disproportionate environmental health impacts of vulnerable populations and overburdened communities?
30. Are major policy updates aligned with component agency contracts?
31. How will WTD implement the RWSP Update consistent with direction and requirements expected of contract agencies?
32. How should WTD efforts support the water quality of Puget Sound and applicable inland waterways?