

# Regional Wastewater Services Plan (RWSP) Update Separated System Conveyance Policy Questions & Options

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Presented to MWPAAC

February 25, 2026

# Purpose

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Three Separated System Conveyance policy questions and associated policy options

1. Policy questions related to the management of **inflow & infiltration (I/I)**
2. Policy questions related **population growth and conveyance capacity**
3. Policy questions related to **conversion of on-site septic systems** to sewer

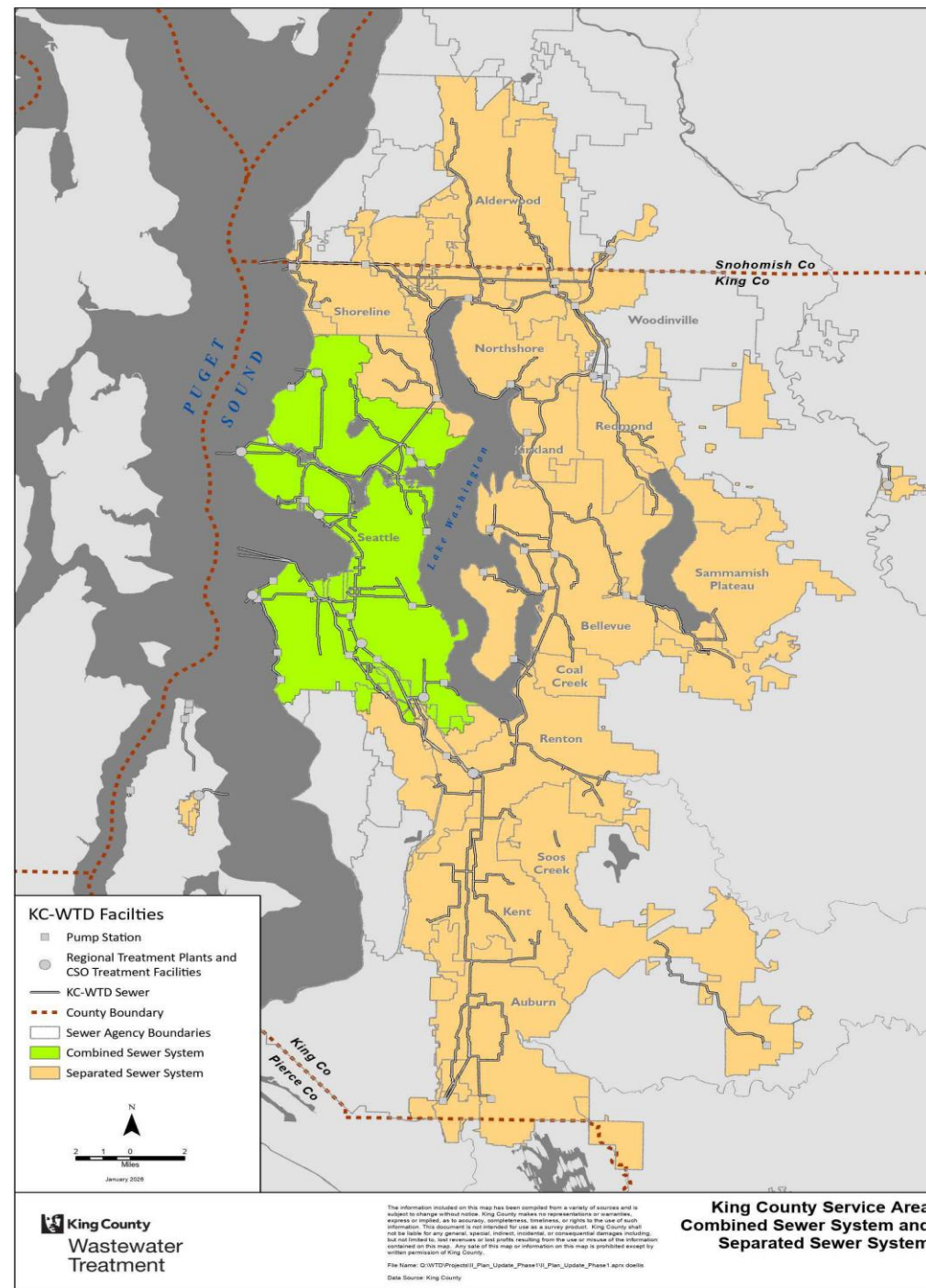
# Policy Questions on Infiltration/Inflow (I/I)

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



# Regional Separated Sewer System



# Problem Statement

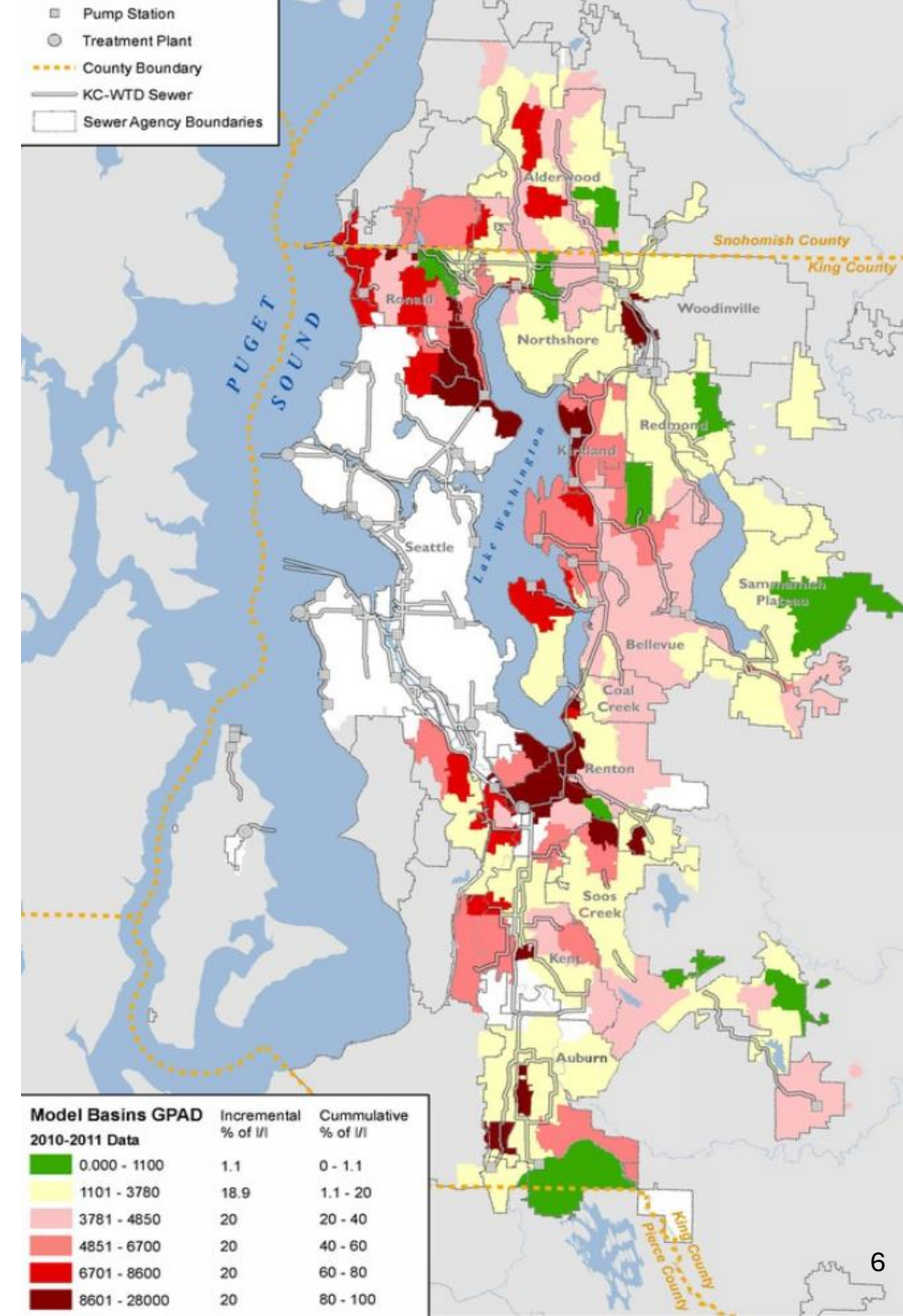
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- I/I contributes large and increasing amounts of flow to the separated conveyance system during wet weather.
- This results in the need to expand system capacity, including larger conveyance pipes, sending more flow to the treatment plants.
- The region is paying to convey and treat extraneous water.
- I/I contribution is uneven across the regional system.



# Infiltration and Inflow (I/I) in the Regional Separated System

- On average during wet weather, as much as three-quarters of peak flow is I/I
- About one-quarter of the annual separated wastewater system flow is I/I
- A majority of I/I originates from side sewer pipes on private property
- I/I contributes heavily to Sanitary Sewer Overflow (SSO) risk during wet weather



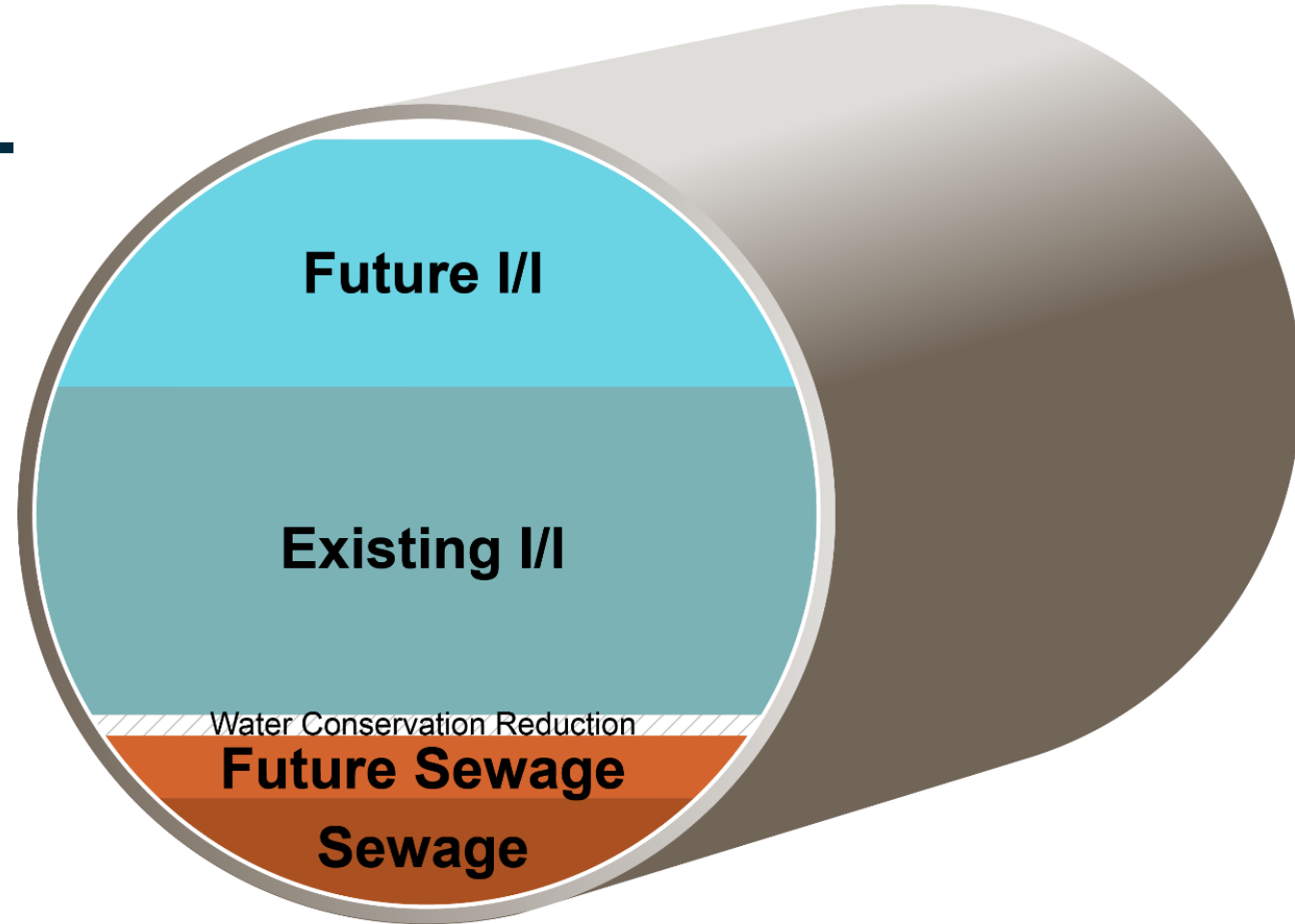
# I/I in the Regional Separated System

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**I/I drives conveyance capacity needs** in the regional system

**I/I results in approximately \$1.7 billion (2016\$) in Conveyance System Improvement (CSI) Projects through 2060**

**I/I results in approximately \$16M-\$40M per year in conveyance and treatment costs**



# Current I/I related policies and their interpretation

Relevant Policies in K.C.C.	Description
I/IP – 1	King County shall reduce I/I when cost effective
I/IP – 2	King County shall work cooperatively with component agencies to reduce I/I in local conveyance systems
I/IP – 3	King County shall consider an I/I surcharge, no later than June 30, 2006
CP – 3 (2)	Decennial Flow Monitoring (DFM) to correspond with the Federal Census conducted every 10 years.

## Current Implementation:

- Wastewater Treatment Division (WTD) evaluates every conveyance project to determine if I/I reduction is cost effective. Based on current methodology, no I/I reduction projects have been found to be cost effective.
- I/I reduction pilot projects were completed in early 2000's.
- Surcharge was not implemented due to cost of administering.
- DFM completed alongside 2020 Federal Census to update flow projections, including I/I.

# Current I/I language in Some Sewage Disposal Contracts

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- “... the City will undertake continual rehabilitation and replacement of its local sewage facilities for **purposes of preventing, reducing and eliminating the entry of extraneous water** into such facilities and will **expend annually**, averaged over five (5) years, an amount equal to **two (2) cents per inch of diameter per foot of its local sewage facilities**, excluding combined sewers and force mains, for said rehabilitation and replacement.” – City of Bellevue contract
- “An additional charge may be made for quantities of storm or ground waters entering those Local Sewerage Facilities which are constructed after January 1, 1961 in excess of the minimum standard established by the general rules and regulations of Metro.” – City of Black Diamond contract

**The County has not enforced these provisions since the language is not consistent across all contracts.**

# Range of Policy Options - Summary

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## Policy Option #1

**Maintain current policies** and expand conveyance and treatment capacity to accommodate I/I and remove I/I only when cost-effective

## Policy Option #2

**Incentivize I/I reduction** in areas with highest levels of I/I

## Policy Option #3

**Implement flow limits system-wide** and administer penalties if flow limits are exceeded due to excessive I/I

# Policy Option #1

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

# Policy Option #2

	Goal	Description	Separated System Actions	Cost Burden
#2	<b>Incentivize I/I reduction</b> in areas of high I/I to defer conveyance capacity projects and potentially reduce treatment capacity needs	<b>Provide financial support</b> to component agencies and private property owners to reduce I/I in areas with high I/I	<p><b>Capacity Management</b> – Targeted regional I/I reduction strategies addressing areas of high I/I to defer the need for capacity upgrades.</p> <p><b>Flow Monitoring</b> – Expanded permanent flow monitoring throughout the separated system to quantify levels of I/I in the local agencies’ systems.</p>	<p><b>The region will pay</b> for I/I reduction in areas of high I/I.</p> <p><b>The region will benefit</b> from the cost-savings of I/I reduction when conveyance capacity projects are deferred.</p> <p><b>Component agencies and communities in areas with high I/I will benefit disproportionately</b> from having I/I reduction subsidized.</p>

# Policy Option #3

	Goal	Description	Separated System Actions	Cost Burden
#3	<b>Maximize I/I reduction system-wide</b> to eliminate conveyance and treatment capacity projects	<b>Implement I/I limits</b> on component agencies system-wide and enforce penalties if limits are exceeded	<p><b>Capacity Management</b> – Service area wide required I/I reduction to eliminate need for capacity upgrades and reduce costs to convey and treat flows</p> <p><b>Flow Monitoring</b> – Expanded permanent flow monitoring throughout the separated system to quantify levels of I/I in the local agencies systems.</p>	<p><b>Component agencies contributing I/I will pay</b> for the cost of I/I and/or the cost of I/I reduction</p> <p><b>The region will benefit</b> from the elimination of the need for conveyance and treatment capacity projects due to I/I</p>

# Relationships to Contracts

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

- **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.
- **Policy Option #2** provides incentivizes, such as grants and loans for I/I reduction and is allowed under current contracts, as long as a net benefit to the regional system can be demonstrated according to the Attorney General's Opinion 2009 No.5.

# Relationships to Contracts

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- **Policy Option #3** implements a flow limit, and 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.

# Equity & Social Justice Impacts

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Generally, portions of WTD's service area that have the highest levels of I/I also have higher Social Vulnerability Index (SVI) scores.

- **Policy Option #1:** Socially vulnerable populations will continue to experience high sewer rates to pay for the construction of conveyance capacity projects to accept increased I/I.
- **Policy Option #2:** Could provide opportunities for positive ESJ impacts:
  - Ratepayers in high I/I areas would have opportunities to get side sewers inspected for low or no cost. Additional programs could be implemented to increase eligibility for low-income ratepayers.

# Equity & Social Justice Impacts

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- **Policy Option #3:** Compels I/I reduction through penalties and could have adverse ESJ impacts on socially vulnerable populations when:
  - Costs of the I/I reduction or the penalties from contributing excessive flows are passed down from the component agencies to the ratepayers;
  - Additional programs could be delivered in unison to mitigate the adverse ESJ impacts, such as exemptions, subsidies, or grants for low-income ratepayers.

# Q & A



King County | Wastewater Treatment

# Policy Question on Population Growth

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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 conveyance capacity to account for future population growth?



# Problem Statement

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- Need for increased conveyance capacity is due to population growth (more pipe reaches and greater pipe volume) and an increase in infiltration and inflow (I/I).
- Over a 50-year planning horizon, most of the needed expansion in conveyance capacity is due to increasing levels of I/I.
- Conveyance infrastructure is sized conservatively to ensure capacity well into the future.



# Problem Statement

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- Building infrastructure to meet larger, and perhaps unnecessary, conveyance capacity requirements is more costly than building smaller infrastructure.
- 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.



# Current population growth related policies and their interpretation

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

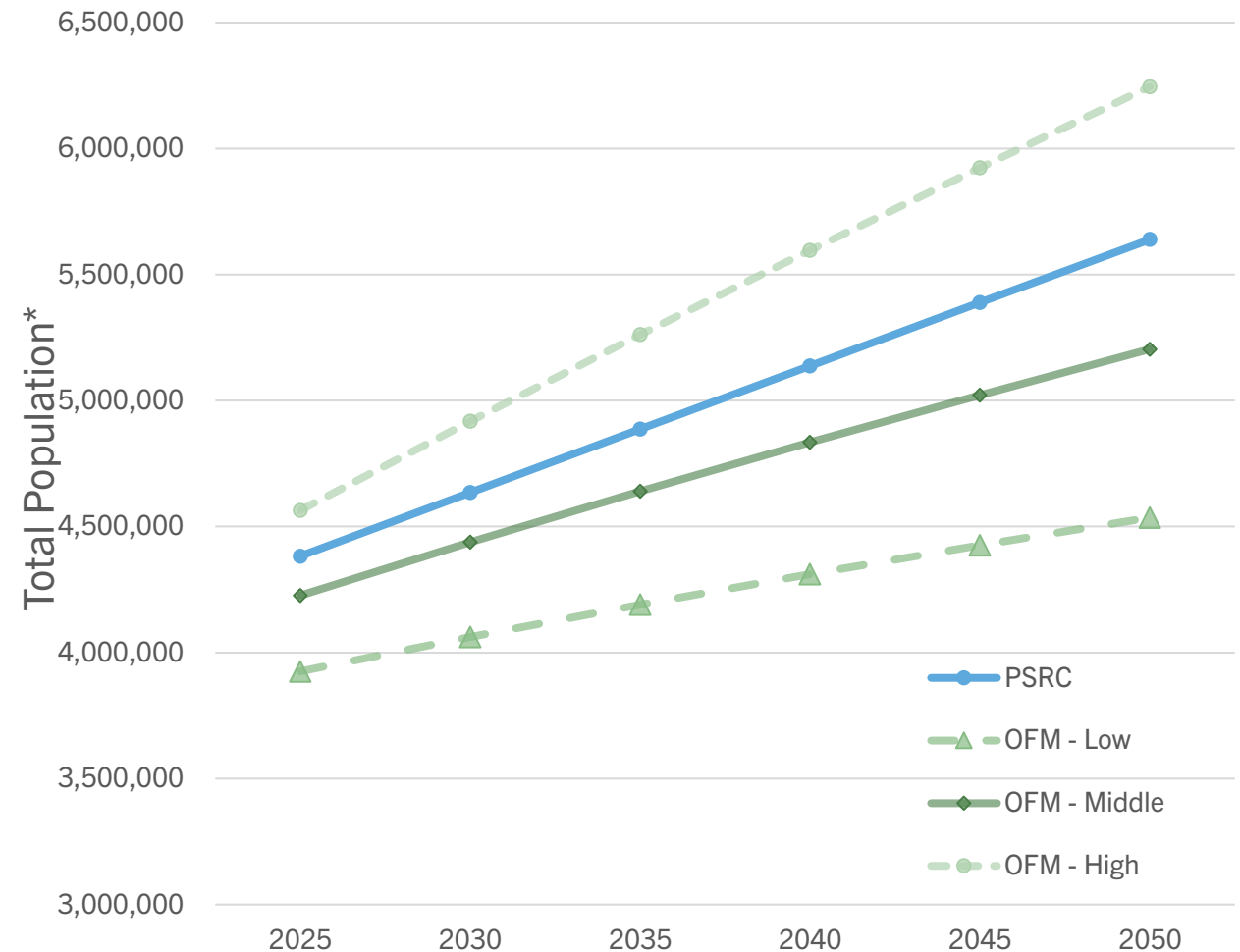
## Current Implementation:

- WTD is currently using the 20-year peak flow as expected 50 years into the future for designing new conveyance facilities
- Population and employment growth assumptions updated every decade using Puget Sound Regional Council forecasts

# Population Growth in the Regional Separated System

- WTD uses population and employment forecasts provided by PSRC
- PSRC forecasts are aggregated from parcel level to match WTD's service area
- Forecasts are provided every 10 years to correspond with U.S. Census updates

PSRC & WA State Office of Financial Management  
Population Growth Projections



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

# Policy issues, challenges and opportunities

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- Population growth is a small component of projected future flows over the 50-year planning horizon.
- I/I plays a larger factor in sizing conveyance facilities

# Range of Policy Options - Summary

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## Policy Option #1

**Maintain** current policies and practice

## Policy Option #2

Take a **less aggressive** approach to expanding conveyance capacity by reducing pipe sizing design standard and apply a less conservative guideline for identifying new capacity needs.

## Policy Option #3

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

# Policy Option #1

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	Goal	Description	Separated System Actions
#1	<b>Maintain</b> 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.	<p>Develop conceptual projects when conveyance capacity falls below a 20-year level of service (LOS); prioritize installation when conveyance capacity is at or below a 2-year LOS.</p> <p>Design conveyance capacity improvements to accommodate 20-year peak flows at the 50-year time horizon.</p>

# Policy Option #2

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	Goal	Description	Separated System Actions
#2	Take a <b>less aggressive</b> 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.

# Policy Option #3

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	Goal	Description	Separated System Actions
#3	Take a <b>more aggressive</b> 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.

# Q & A



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# Policy Questions on Onsite Septic Conversion

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1. How should the conversion of onsite septic systems to sewers in the service area be managed?
2. Should WTD implement programs to encourage conversion within the service area?



# Problem Statement(s) for the septic conversion policy questions

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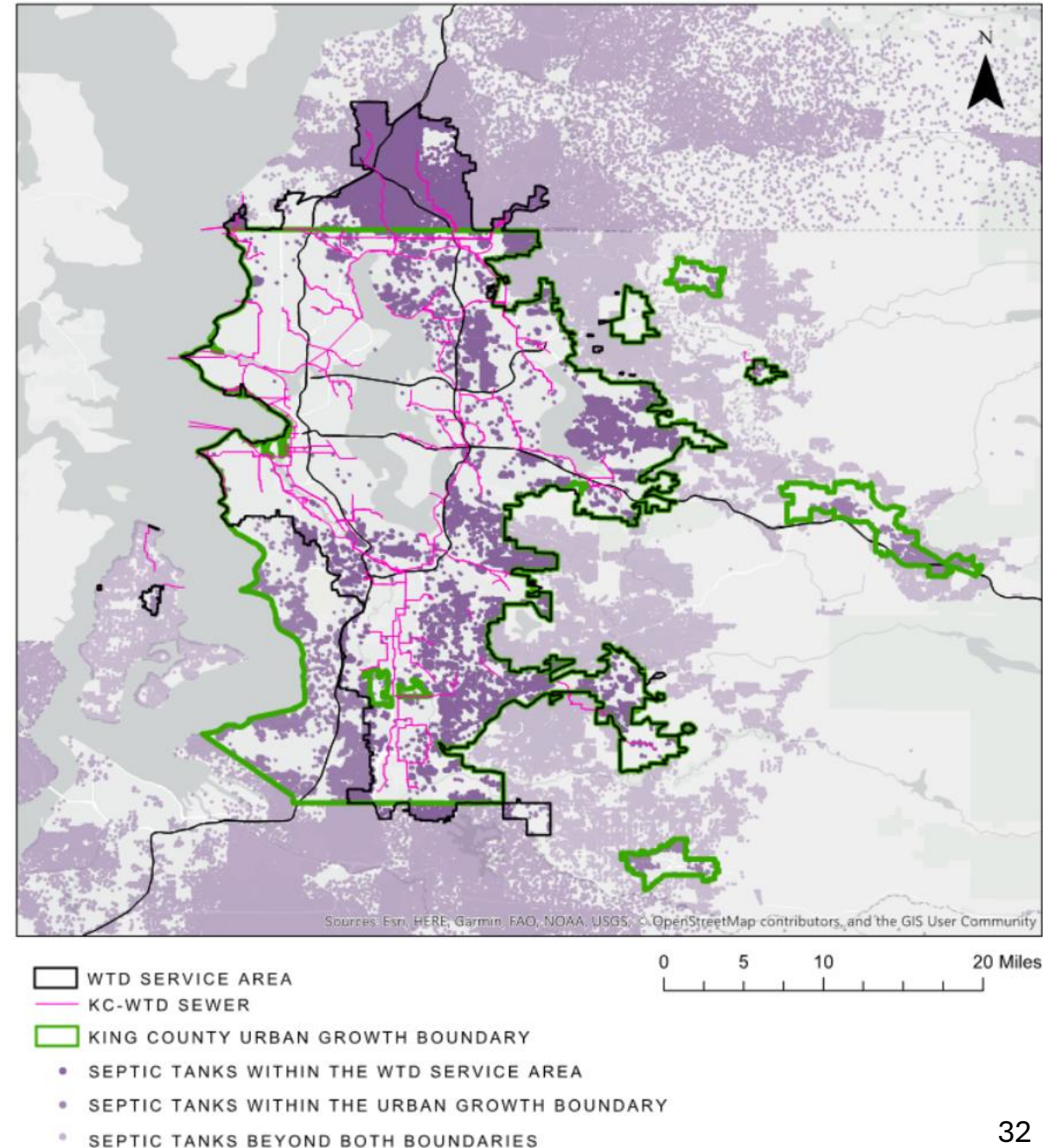
- Septic systems can fail, and untreated wastewater can enter ground or surface waters
- The number of parcels on septic in the Urban Growth Area could limit future urban growth
- Connecting to sewer may create a financial burden on property owners for both the up-front cost of sewer conversion and the ongoing payment of wastewater utility rates after conversion



# Septic Conversion in WTD's Separated System

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- Approximately 40,000 on-site septic systems are within urban King County
  - Approximately 3,000 are within 100 feet of a water body
- Connection to the sewer system can cost homeowners over \$100,000



# Current septic conversion related policies and their interpretation

## Current Implementation

- WTD relies on Public Health – Seattle King County and local jurisdictions for conversion of on-site septic systems to sewer in the wastewater regional service area

Relevant Policies in K.C.C. and WAC	Description
K.C.C. 13.04.050	KCC and WAC require property owners in urban King County to connect to public sewer if their property is a new development, or if the existing on-site septic system fails and: <ul style="list-style-type: none"><li>• <b>The property owner is unable to replace the on-site septic system</b> with a system that conforms to current standards or code</li><li>• <b>It is feasible for the property owner to connect to public sewer</b> (the property is within 200 ft of a local public sewer line, and the local sewer utility permits the connection)</li></ul>
WAC 246-272A-0025	

# System “must-dos”

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- WTD must accept all flows that it receives from the component agencies that it provides sewerage services to, which means it must accept any additional flow from on-site septic systems that convert to sewer
  - WTD recoups this cost by collecting a capacity charge from property owners for any new sewer connections

# Policy issues, challenges and opportunities

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- WTD subsidizing the cost of connecting to sewer for a subset of ratepayers or component agencies can be interpreted as service inequity
- Supporting conversion of on-site septic systems near waterbodies or with a high risk of failure proactively protects public and environmental health
- Supporting the conversion of urban properties with on-site septic systems to sewer will help King County meet housing and growth management goals

# Range of Policy Options - Summary

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## Policy Option #1

**Maintain current practice** and rely on Public Health – Seattle King County and local jurisdictions to manage on-site septic system conversion

## Policy Option #2

**Support conversion of septic to sewer on properties near waterbodies** within WTD's service area by partnering with local sewer agencies in the service area to construct local sewer lines that could serve private property owners

## Policy Option #3

**Support all septic conversion in WTD's service area** by partnering with local sewer agencies in the service area to construct local sewer lines that could serve all developable parcels by 2060

# Policy Option #1

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	Goal	Description	Separated System Actions
#1	Provide sewerage services to residents in the urban growth area within WTD's service area as they connect to the regional sewer system	<b>Maintain current practice</b> and rely on Public Health – King County Seattle and local jurisdictions to manage on-site septic system conversion	Rely on Public Health – King County Seattle and local jurisdictions to facilitate conversions due to OSS failures and/or redevelopment.

# Policy Option #2

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	Goal	Description	Separated System Actions
#2	Proactively protect environmental and public health by supporting conversion of parcels with on-site septic systems near water bodies throughout the WTD service area through supporting extension of local sewer lines to serve those parcels	<b>Support conversion of septic to sewer on properties near waterbodies</b> within WTD's service area by partnering with local sewer agencies in the service area to construct local sewer lines that could serve private property owners	Partner with local sewer agencies to convert on-site septic systems near water bodies within WTD service area

# Policy Option #3

	Goal	Description	Separated System Actions
#3	Proactively protect environmental and public health by supporting conversion of all on-site septic systems within the WTD service area to sewer through supporting extension of local sewer lines to serve those parcels	<b>Support all septic conversion in WTD’s service area</b> by partnering with local sewer agencies in the service area to construct local sewer lines that could serve all developable parcels by 2060	Partner with and/or require all developed parcels in the service area to connect to the sewer system by 2060

# Equity & Social Justice Impacts

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- About 45% of on-site septic systems nearing or at the end of their useful life in urban King County are in the top 40% of most socially vulnerable census tracts
- However, many on-site septic systems approaching the end of their useful life are in more well-resourced neighborhoods

# Equity & Social Justice Impacts

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**Policy Options #2 and #3**, which would support conversion of on-site septic systems by extending sewer lines could advance equity by:

- Subsidizing some of the connection costs for residents who are living in cities that have experienced inequitable sewer infrastructure investment
- Support urban development and housing density
  - Homes on septic could de-commission their system, convert to sewer, and construct accessory dwelling units (ADUs)
  - Vacant parcels that are too small for septic could connect to sewer and be developed

# Q & A



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