Integrated Resource Plan (IRP)

Project Update
Tacoma Public Utility Board
March 26, 2025

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Agenda

- Objectives of 2025 IRP Update
- Public Advisory Committee (PAC)
- Changes in Future Supply and Demand Since 2018 IRP
- Water Yield, Supply, and Demand Model (WYSDM)
- Resource Adequacy Standard (RAS)
- Analysis of Current Supply Portfolio
- Analysis of Future Supply Alternatives
- Direction Forward / Action Plan

Objectives of 2025 IRP Update

- Incorporates large system changes into Tacoma Water's Planning Processes
- Combines water supply and demand into a single analysis
- Addresses trends and uncertainties in both
- Projects the ability of current and future supplies to meet increasing water demands
- Investigate groundwater system
- Aligns with other strategic planning activities
- Builds upon original 2018 IRP

Public Advisory Committee (PAC)

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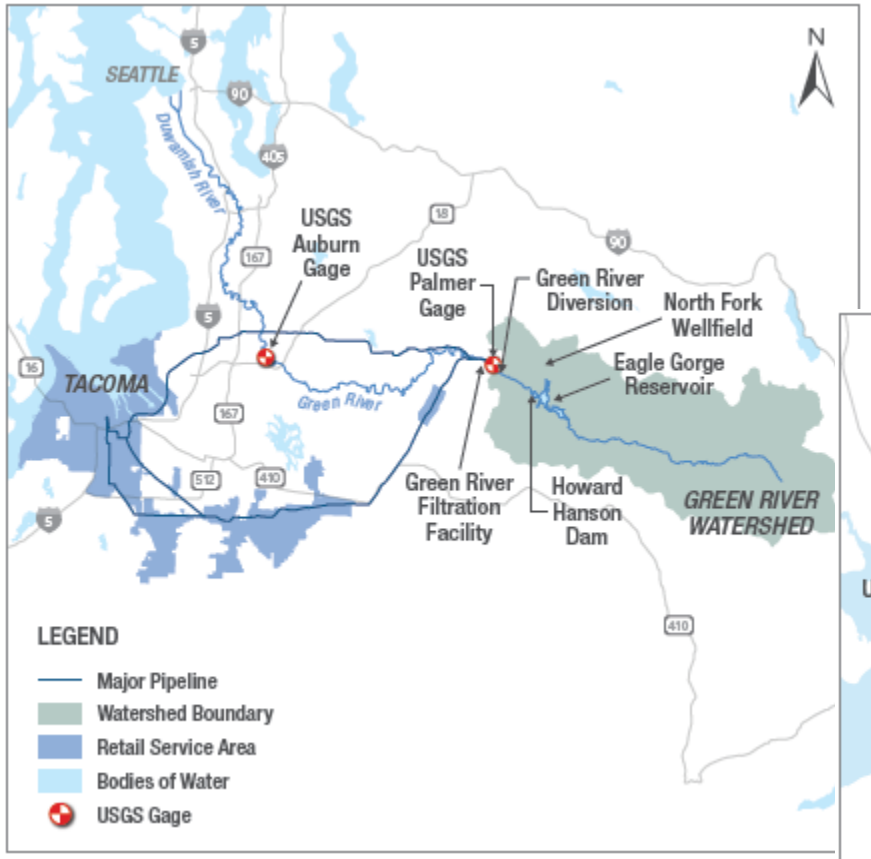
- **Formed in early 2024; met 5 times.**
- **Provided valuable input on these items**

Purpose and objectives of IRP	Updates to the Water Yield, Supply and Demand Model (WYSDM)	Influence of "Home in Tacoma" housing shift on future demands
Future scenarios of population growth, economic development, and technological changes	Treatment of climate change in the IRP process	Water conservation program continuation
Regulations in the South Tacoma Groundwater Protection District (STGPD)	Future wholesale water demands and treatment in WYSDM	Communication of results in IRP

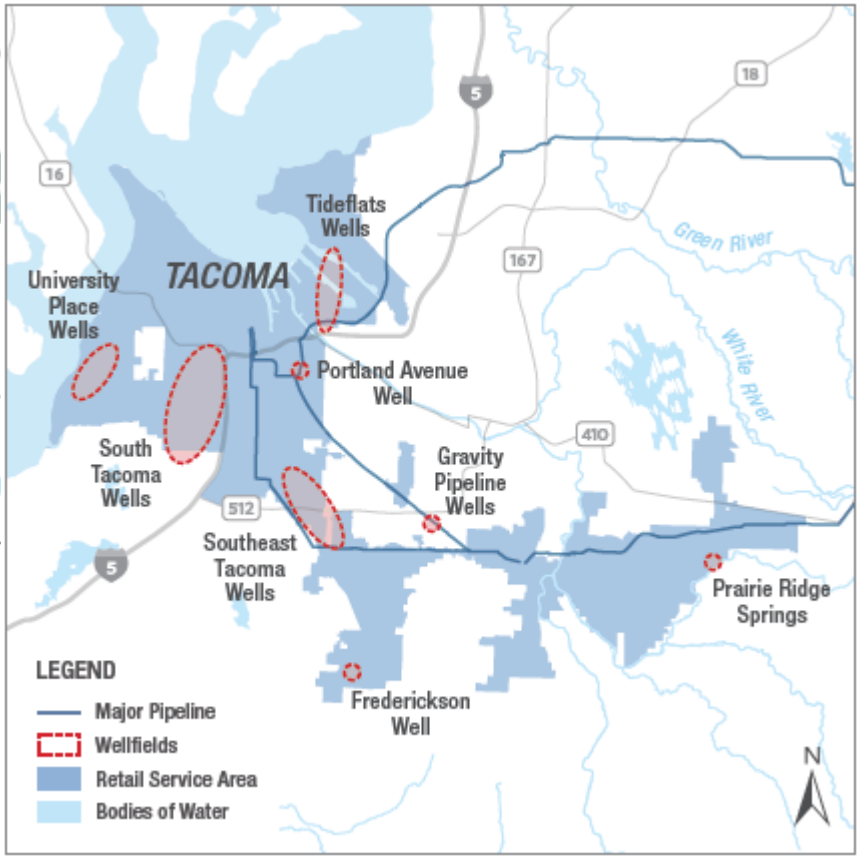
Changes in Future Supplies since 2018

- Working toward completion of Additional Water Storage Project Phase 1 (fish passage to be operational in early 2031)
- USACE Forecast Informed Reservoir Operations (FIRO); by early 2030s, allows for filling of Eagle Gorge Reservoir to begin earlier than can be done now
- Wells Master Plan (supply increasing to 42mgd by 2041, and up to 46.8mgd by 2061)
- South Tacoma Wellfield PFAS Treatment Evaluation, and other planning efforts underway



Surface Water System

Groundwater Supplies



*MGD = Millions of gallons per day

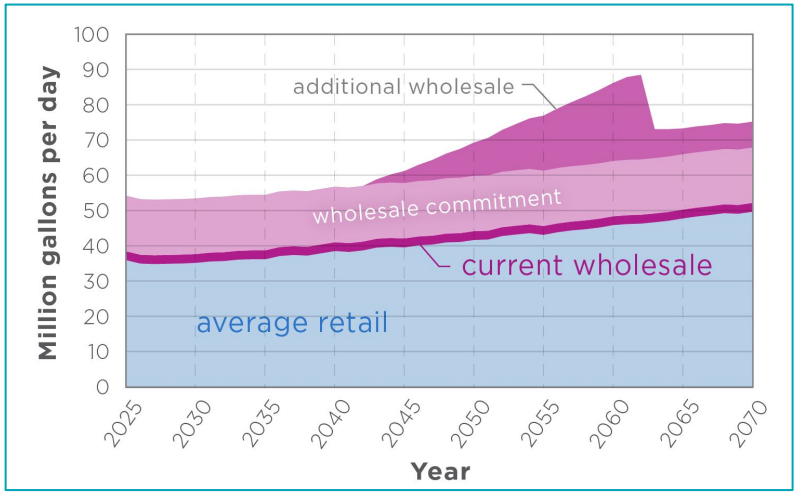
Changes in Future Demands since 2018

- Closure of West Rock in 2024
- Changing future zoning and densities (“Home in Tacoma”)
- Updated retail demand forecasts, informed by growth projections in PSRC Vision 2050 and Pierce County Coordinated Water System Plan
- Consideration of additional wholesale customer demands
- Retail demand range reflects range of growth rates and conservation effects

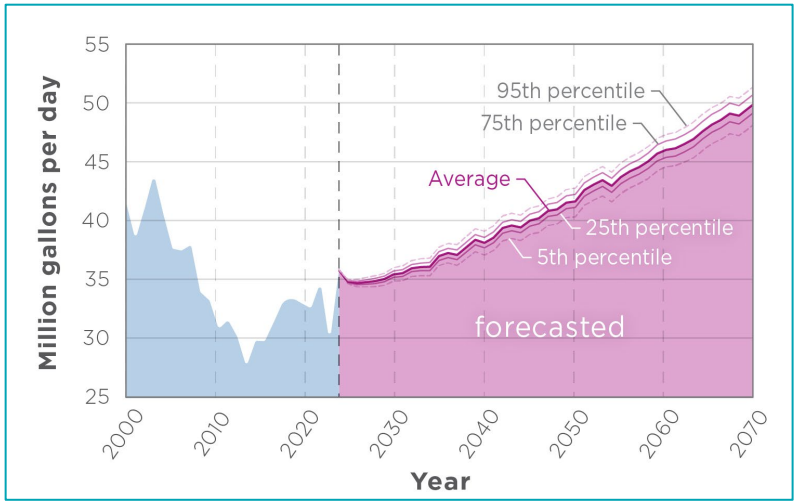
Total demand (assuming full wholesale utilization) projected to grow from ~54mgd in 2024, to ~88mgd in 2061

*MGD = Millions of gallons per day

Total Customer Demand



Retail Component of Demand



Water Yield, Supply, and Demand Model - WYSDM

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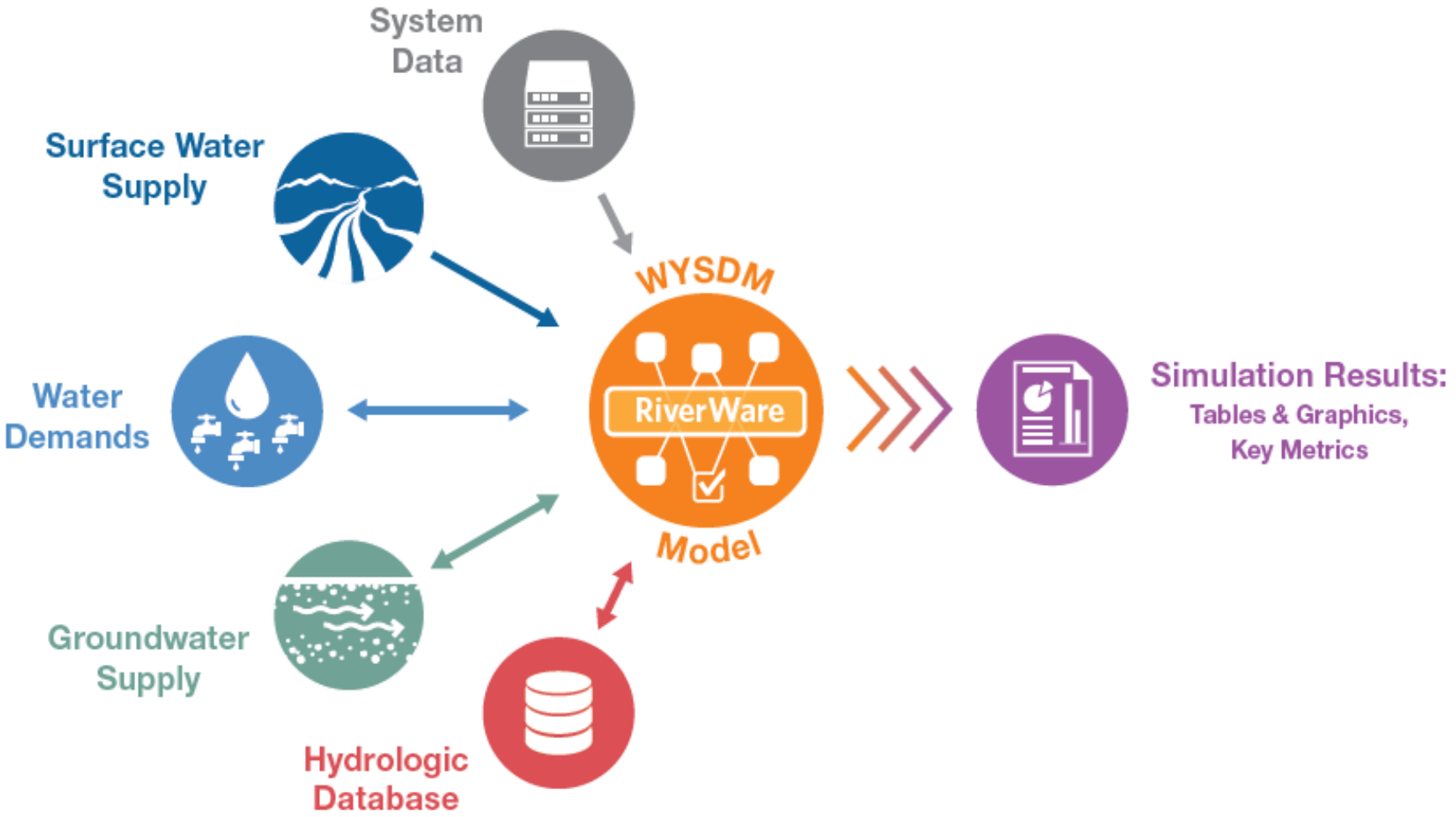
Primary tool for analyzing reliability of the water supply system



Resource Adequacy Standard (RAS)

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"Water sources and system will be sufficient to meet demands such that mandatory curtailments will occur not more than once in 25 years, as a long-term average."

- **Fixed measure of system performance that can be applied over a range of hydrologic conditions, growth rate assumptions, and supply system improvements**
- **Recognizes that occasional curtailment of water use is not a system failure, if infrequent. It is best use available resources.**
- **Curtailment of water use in the Tacoma system is managed through the Water Shortage Response Plan (WSRP). The WSRP provides a "menu" of ways to work through a water shortage. One of the largest and easiest methods is for customers is to temporarily alter their outdoor watering.**

Facilities Included in Modeling

- **Groundwater well usage**
  - Increase capability to ~42mgd by 2041, and ~47mgd by 2061
- **Additional Water Storage Project Phase 1 - FPF**
  - Gives access to full 20,000 acre-feet of storage
- **Forecast Informed Reservoir Operations (FIRO)**
  - Allows earlier storage of water at Howard Hanson Dam to more reliably fill
- **Green River Filtration Facility (GRFF) rerated from 150mgd to 168mgd**
  - Already considered in original design and construction

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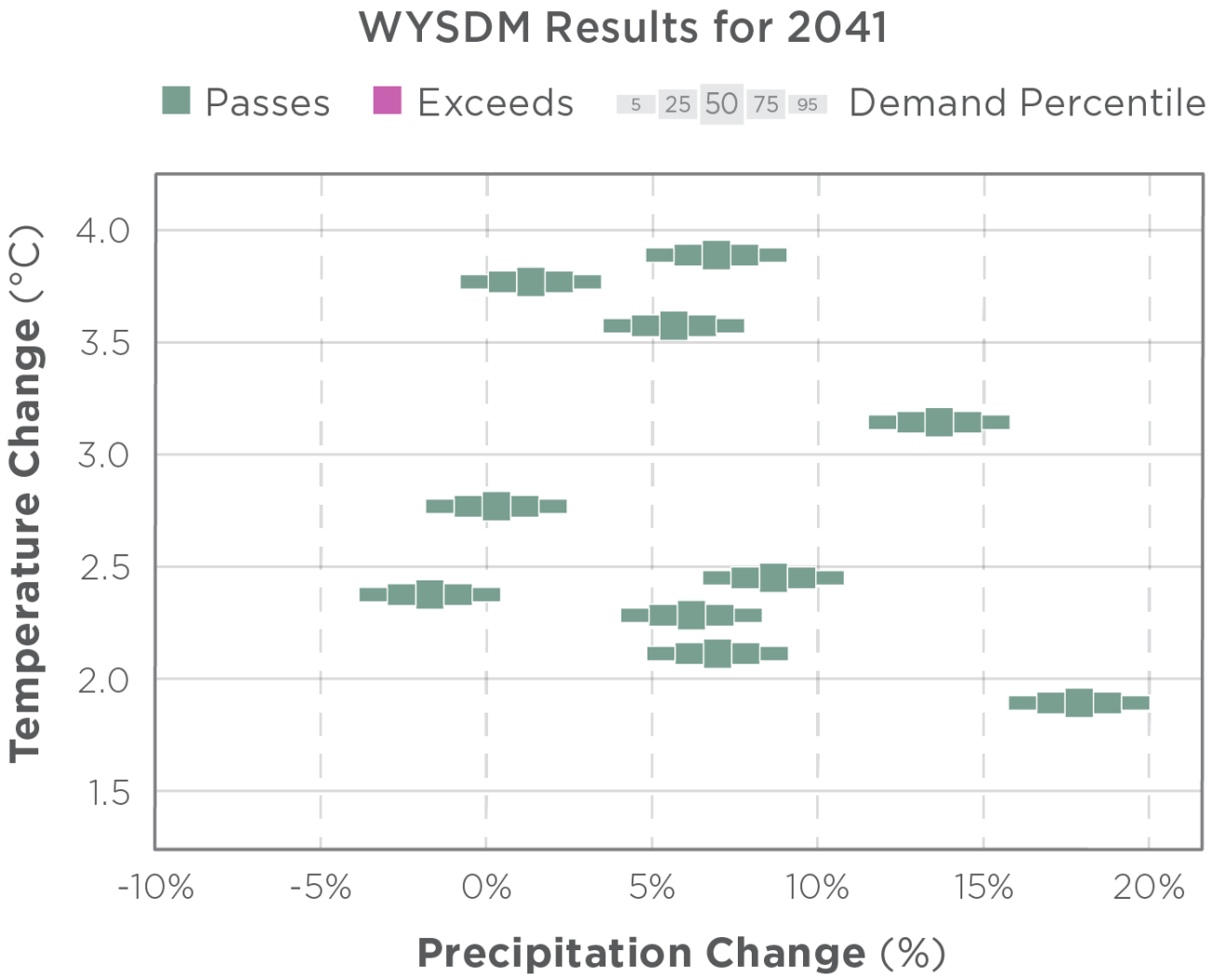
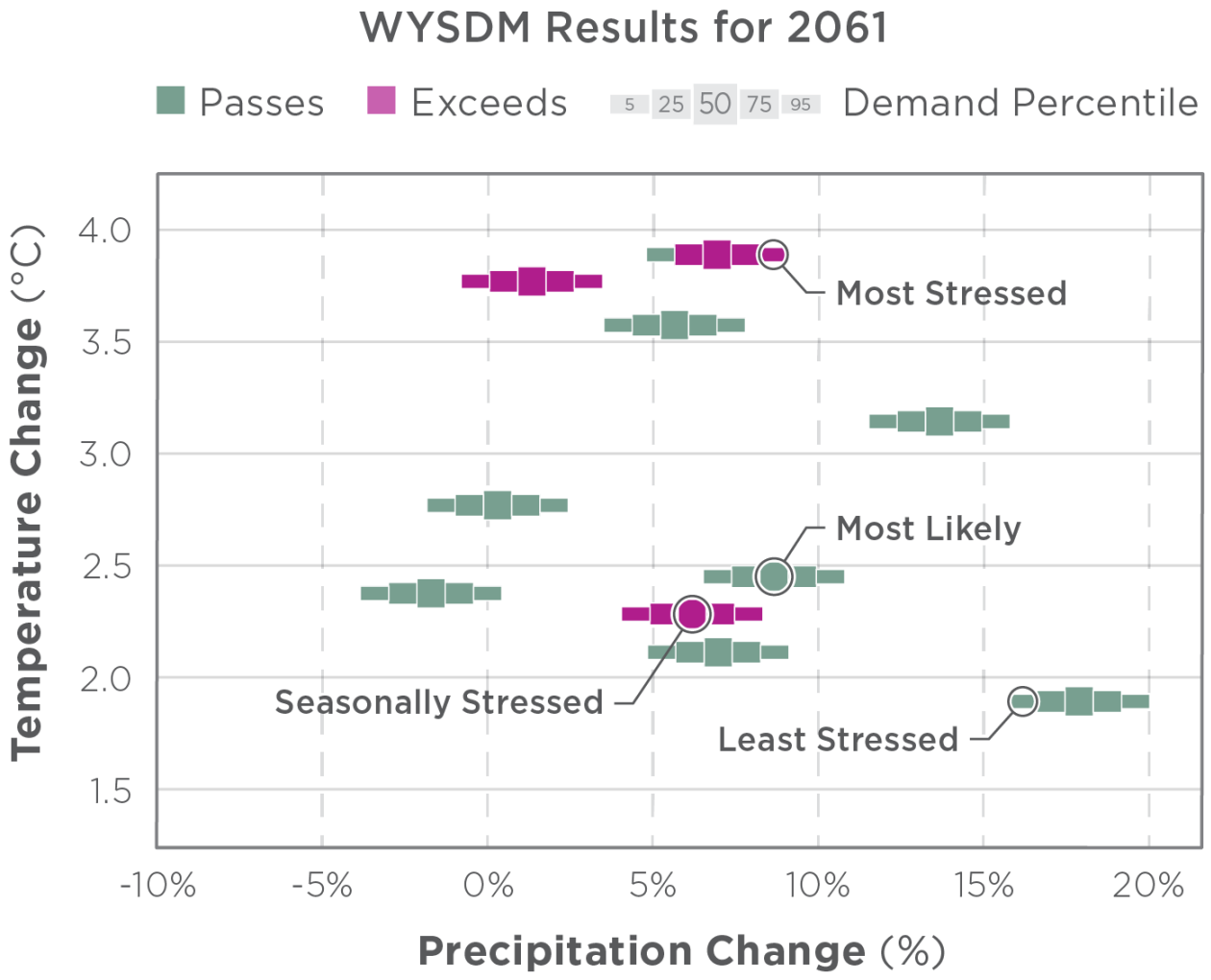
Analysis of Current Supply Portfolio (2041 Demands and Climate)

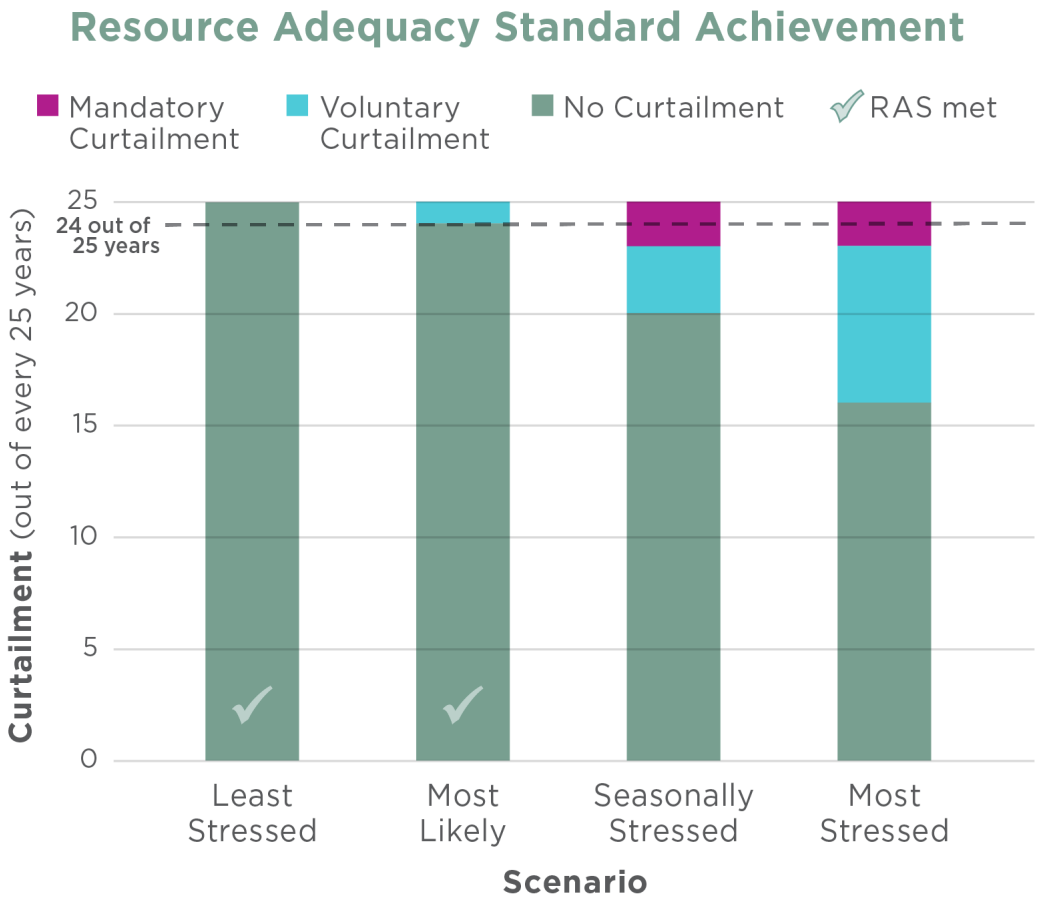


- **50 scenarios run in WYSDM**
  - 10 climate change models
  - 5 demand conditions
- **RAS is met in all scenarios for year 2041**

Analysis of Current Supply Portfolio (2061 Demands and Climate)



Four scenarios were selected to represent the range of possible conditions in 2061 (shown without source/system improvements):



Analysis of Current Supply Portfolio (Summary)

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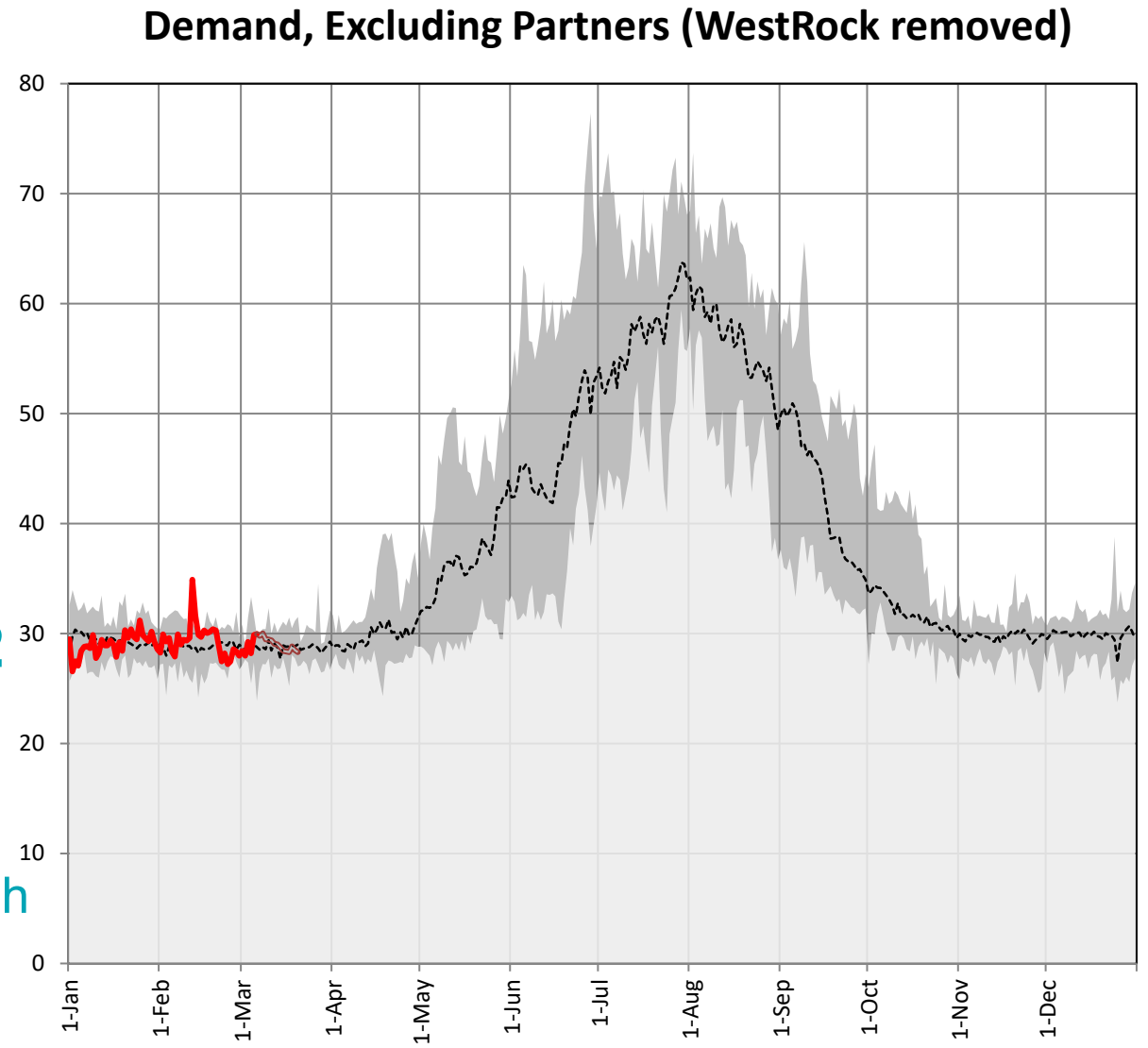
- **In 2041, RAS is met in all scenarios**
- **In 2061, RAS is met under Least Stressed and Most Likely conditions**
  - RAS is not met under Seasonally Stressed or Most Stressed conditions

	Least Stressed	Most Likely	Seasonally Stressed	Most Stressed
Number of voluntary curtailments (out of 25 years)	0	1	3	7
Number of mandatory curtailments (out of 25 years)	0	0	2	2
Is the RAS met?	Yes	Yes	No	No

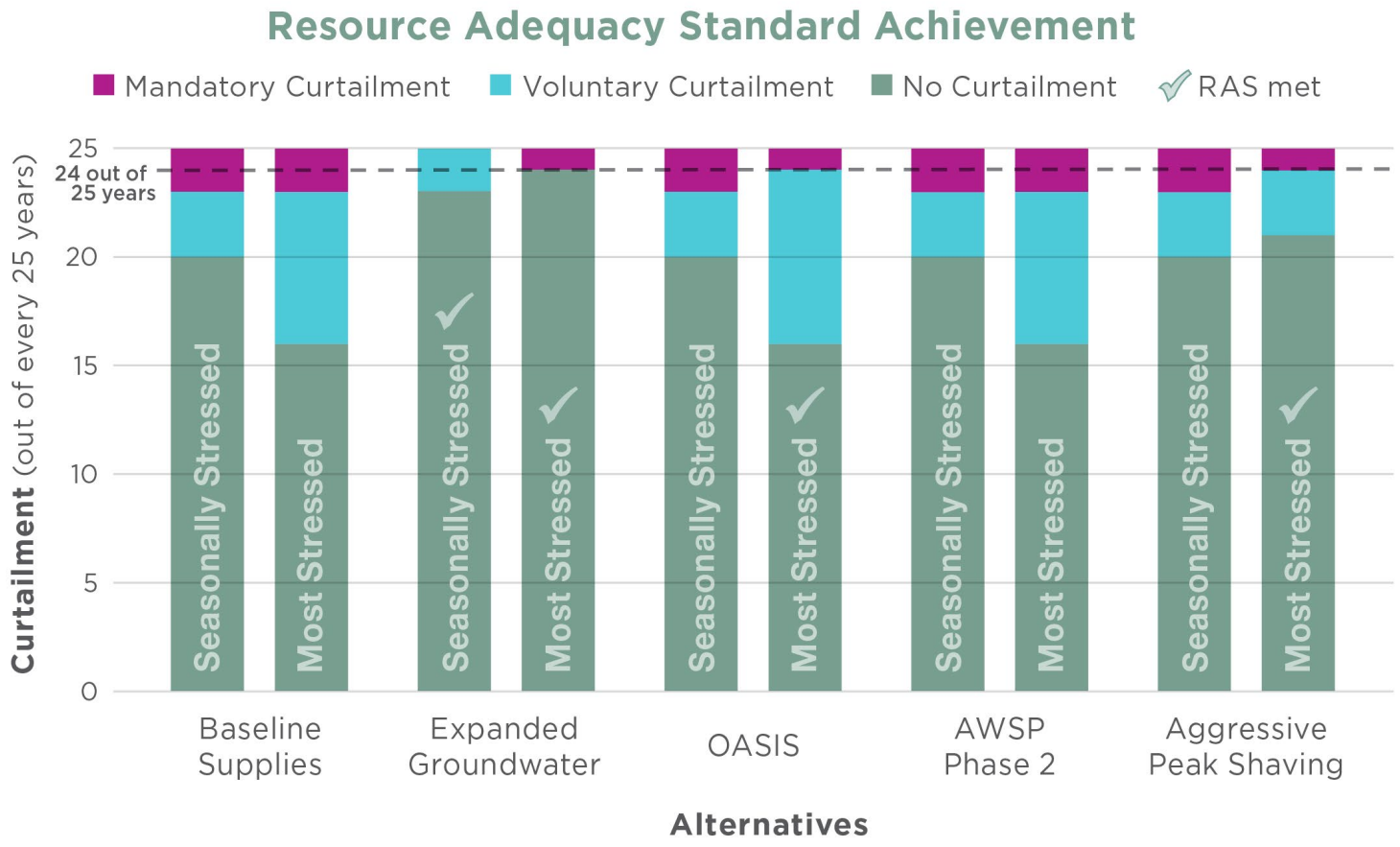
Future Supply Improvement Alternatives

- **Develop Additional Groundwater**
  - Increase annual use capability, as-needed.
- **Lakehaven Water and Sewer District's Optimizing Aquifer Storage for Increased Supply (OASIS) program**
  - Aquifer Storage and Recovery System (ASR) - Additional storage of winter Green River water in aquifer system in Federal Way.
- **Additional Water Storage Project Phase 2**
  - Raises storage pool elevation.
- **Aggressive Peak Shaving**
  - Substantial changes in customer behavior through policies supporting low-to-no irrigation practices, rate structure modifications, etc.



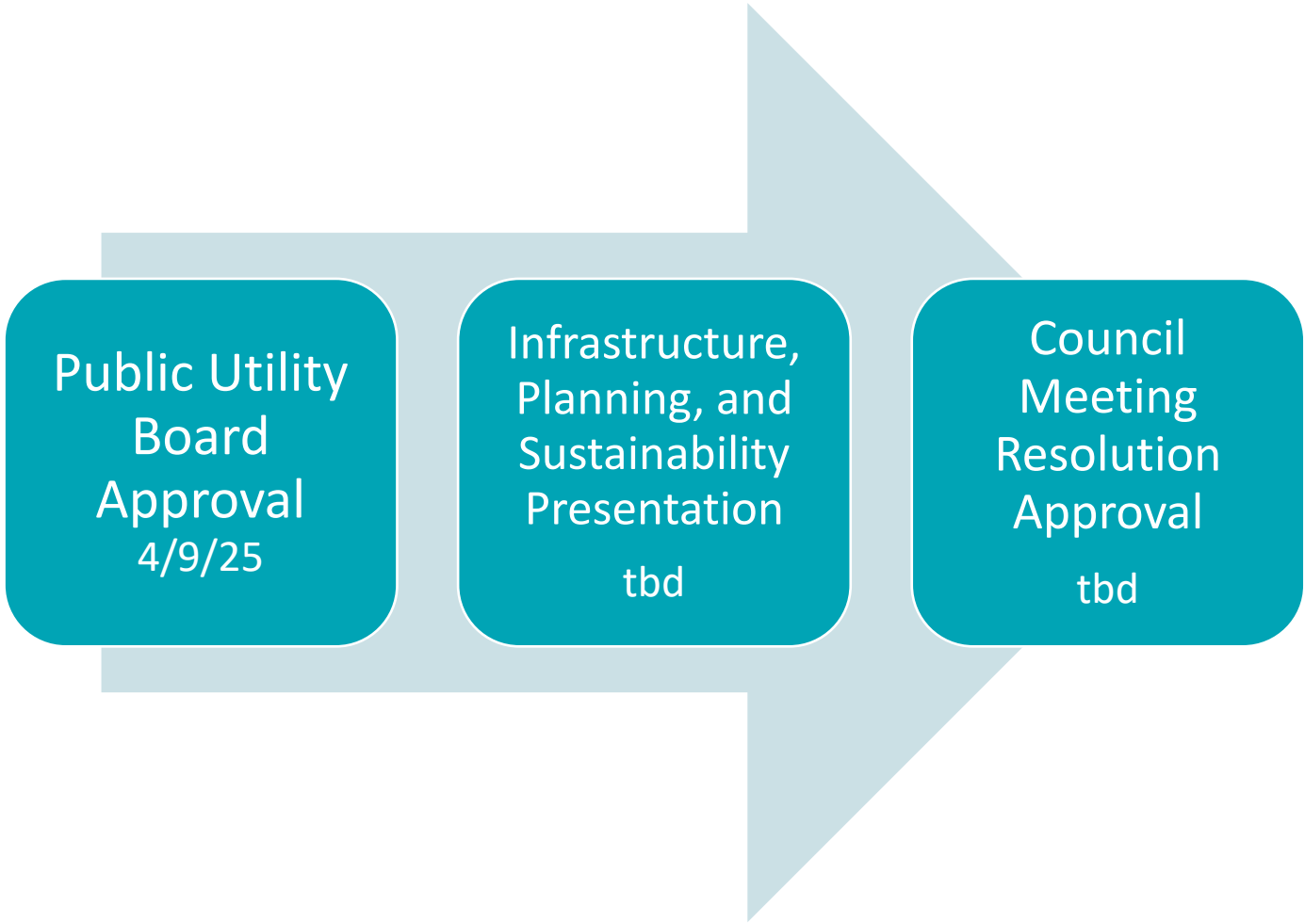
Analysis of Future Supply Alternatives

- Expanded groundwater meets RAS under all conditions
- OASIS and Aggressive Peak Shaving meets RAS under Most Stressed Condition
- AWSP Phase 2 does not provide significant aid in meeting RAS



Direction Forward / Action Plan

- **Continue Efforts related to AWSP Fish Passage Facility and FIRO**
- **Improvements to groundwater production (Wells Master Plan v2.0)**
  - Leverages existing facilities
  - Uses existing water rights
  - Increases emergency (seismic) resiliency as well as drought resiliency
  - Details on timing and costs to come through tactical planning (Wells Master Plan – Revision to begin later in 2025 after other planning efforts)
- **Continue to support Lakehaven's planning for OASIS, when appropriate**
- **Lobby federal government regarding AWSP Phase 2, when appropriate**
- **Consider additional conservation program adjustments over time**



Questions / Discussion