



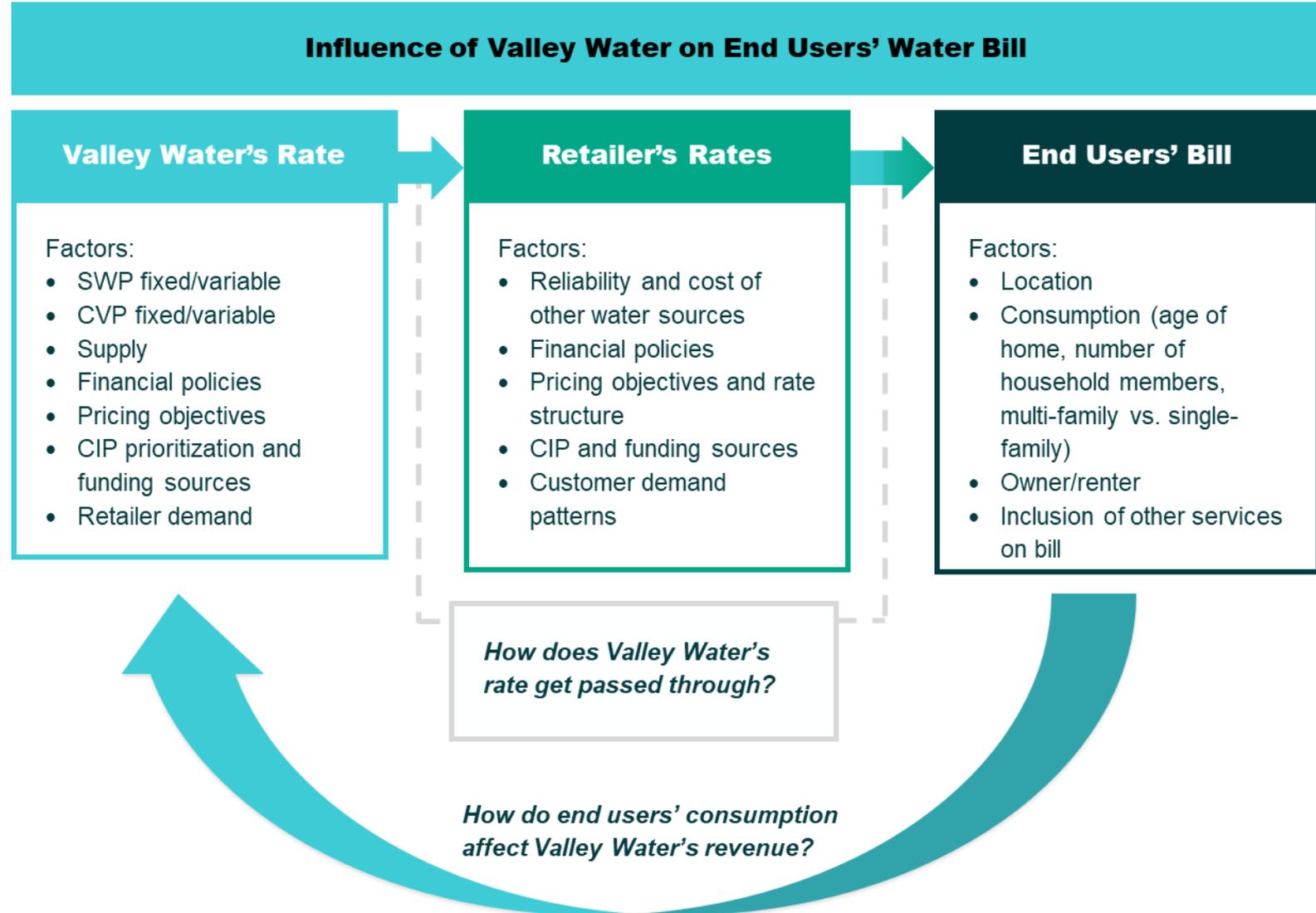
# Valley Water

**Water Use Projections,  
Water Demand Elasticity,  
and Customer Affordability Study**

Board Meeting  
June 24, 2025

# Project Goals

- Identify how Valley Water's rates impact water demand (elasticity) and affordability of water service in Santa Clara County
- Validate and/or refine water demand forecasting for purposes of annual rate setting and long-term capital planning



# Task 1: Review and Make Recommendations for Water Use Projections

- Review the existing District-managed water demand forecast which informs Valley Water's rate setting process
- Review how expected changes in the service area are utilized
- Evaluate the performance of prior water use projections
- Analyze alternative approaches against the current approach
- Identify potential improvements to Valley Water's demand forecasting
- Consider other quantitative and qualitative tools to help inform annual demand forecasting

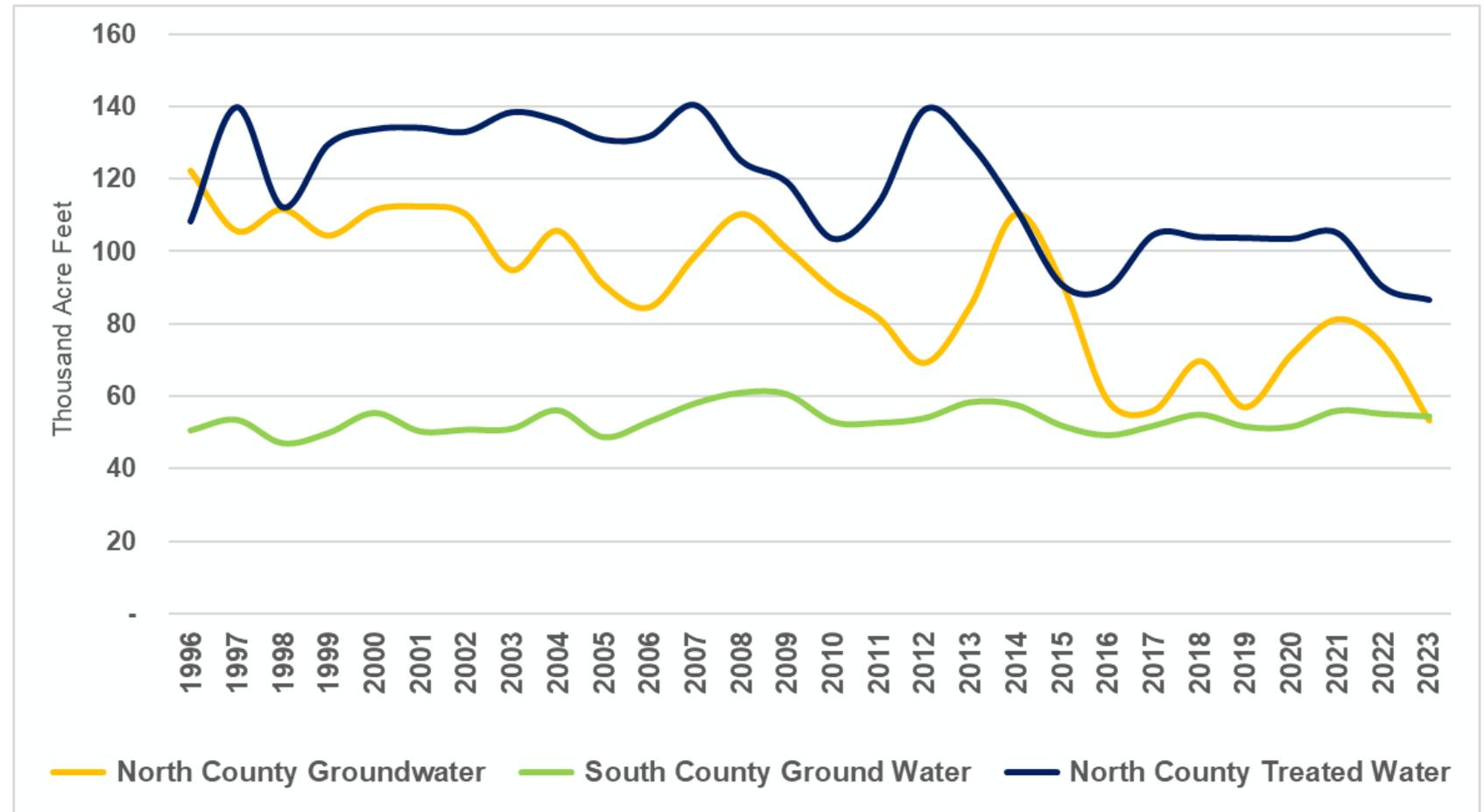
# Existing Forecasting Method (Summarized)

- ***Rate Setting Year*** (Year 1): Uses historical demand weighted toward prior year actuals, and staff's institutional knowledge and discussions with Retailers
- ***Interim Years*** (Years 2-3): Uses historical demand, the most recent year's hydrology, and staff's institutional knowledge and discussions with Retailers
- ***Longer-Term*** (Year 4 and beyond): Builds from the *Interim Years* forecast to align with incremental growth rate assumptions from the Urban Water Management Plan (UWMP)

# Historical Water Demand – Valley Water

## Observations:

- South County Groundwater demand is stable over time,
- Treated Water and North County Groundwater have declined over time (per capita reductions, drought, other supplies)
- North County Groundwater has declined by roughly half since 1996
- Water usage has not trended upward with population growth for all water types
- Drought periods result in lower demands after a return to normal hydrology (i.e. demand hardening at lower levels)



# Benchmarking to Peer Agencies

- Reviewed demand forecasting approach and water use trends against SFPUC, SDCWA, EBMUD, and MWD
- For rate setting projections, peer utilities utilize a similar approach to Valley Water's that combines historical data with forward-looking adjustments on annual climate, drought conditions, and local growth estimates
- Similar trends are observed in water sales over time

*SFPUC: San Francisco Public Utilities Commission*

*SDCWA: San Diego County Water Authority*

*EBMUD: East Bay Municipal Utility District*

*MWD: Metropolitan Water District of Southern California*

# Peer Agency Water Demand Trends – Annual Change

Agency	2015	2016	2017	2018	2019	2020	2021	2022	2023	2015 - 2023 % Change
<b>MWD</b>	N/A	-16%	-7%	5%	-12%	-1%	17%	4%	-22%	<b>-31%</b>
<b>Valley Water</b>	N/A	-15%	7%	8%	-7%	7%	7%	-9%	-12%	<b>-16%</b>
<b>SFPUC</b>	N/A	-13%	8%	11%	-3%	1%	2%	-5%	-8%	<b>-7%</b>
<b>EBMUD</b>	N/A	-7%	7%	7%	-1%	3%	0%	-7%	-6%	<b>-5%</b>
<b>SDCWA</b>	N/A	-19%	5%	-5%	-5%	-6%	9%	7%	-15%	<b>-3%</b>

# Alternatives Analysis Methods

- Objective:
  - › Compare results against Valley Water's existing approach
  - › Support Valley Water staff in identifying a range of near-term water demand estimates
  - › Provide a foundation / forensic analysis for more complex modeling that could be conducted in the future

# Water Demand Forecasting – Alternative Methods

## 1. Weather Normalization

- › Identify what volume of sales would be expected in a typical water year using historical water demand, annual rainfall, and temperature

## 2. Regression

- › Identify the relationship between the four-year moving average demand and rainfall and drought

## 3. Time Series Analysis

- › Uses a moving-average and water year categorization

*Disclaimer: All analyses are high-level, exploratory exercises, using limited data for forensic and illustrative purposes. Developing a robust water demand forecast would require additional data collection, preprocessing, and inclusion of more variables*

# Comparison of Alternative Methods – FY 2025 District-Managed Water in Thousand Acre-Feet (TAF)

FY 2025 Ranges	Valley Water Method	Time Series Method	Regression Method	<i>Average of Methods</i>
Low Range	<b>208</b>	187	221	205
Medium Range	<b>217</b>	198	230	215
High Range	<b>223</b>	204	234	220

Ranges are delineated by annual precipitation levels and classified as low (<33rd percentile), median (33rd–67th percentile), and high (>67th percentile).

# Key Takeaways

- Valley Water's Approach is consistent with peers
- Forecast-to-Actual water sales have been largely accurate, with reduced variance in recent years
- High level statistical analyses demonstrate that the current approach yields reasonable ranges for near-term demand
- Water sales overall continue to trend downward
- Tools exist to refine the forecasting method, if desired

# Potential Refinements

- Improved referencing of data sources and explicit forecasting assumptions
- Alignment of long-term demand forecast with current Urban Water Management Plan projected growth
  - › i.e., incremental growth rates
- Incorporate future anticipated conservation by water type (i.e., Treated Water, North County Groundwater, South County Groundwater, Agricultural water use)
- Additional statistical methods to supplement the existing approach

# Other Considerations

- Retailer specific adjustments in demand projections
- Consideration of spatial and sector segmentation
- Further analysis on drought rebound
- Treated Water contract provisions
- Retailer Urban Water Use Objectives
- Reserves policies

# Next Steps

- **Tasks:**
  - **Water Use (Demand) Projections:**
    - Draft of technical memorandum completed
  - **Elasticity Analyses**
    - Modeling and developing elasticities for Treated Water and Groundwater by zone, specific to Retailer
  - **Affordability Analyses**
    - Modeling local/statewide affordability metrics – AR20, hours at minimum wage, and lowest quintile income for Santa Clara county, by Retailer
- **Next:**
  - Elasticity and Affordability Updates to the WSDM Committee

# Q&A

# District Managed Water Usage

## District Managed Water Usage (TAF)

