



MEMORANDUM

FC 14 (08-21-19)

TO: Board of Directors

FROM: Aaron Baker, P.E.
Chief Operating Officer

SUBJECT: IBMR I-24-0006: Water Supply Master Plan
2050 Demands

DATE: June 20, 2024

Director Beall requested clarification on the water demand scenarios used in the Water Supply Master Plan (WSMP) development, opportunities to address drought rebound, and water conservation opportunities through Board Member Request 24-0006.

Valley Water develops long-term demand forecasts to support Valley Water's water supply infrastructure investment decisions. These demand forecasts are key inputs for determining how much new water supply or infrastructure Santa Clara County may need in the future. For the WSMP 2050 currently in development, Valley Water is using two demand scenarios: stable demand and high demand. This memorandum will summarize the demand model and WSMP demand scenarios. More detail can be found in Attachment 1 of the January 9, 2024 Board item (<https://scvwd.legistar.com/gateway.aspx?M=F&ID=55bc01c7-1f9d-4087-88ac-f30d2b5c9bb0.pdf>)

Demand Model and WSMP Scenarios

Since Valley Water cannot predict what the future weather or economy will be, Valley Water developed an econometric demand model that projects the normal demands – i.e., expected water use under average weather conditions and an average economy. The demand model was built using historic water use, demographic, economic, and climate data. Staff then developed scenarios for forecasting future demands using Association of Bay Area Governments (ABAG) data and information provided by the cities/retailers.

To help evaluate future uncertainties, Valley Water developed two demand forecasts: a stable and a high demand forecast (table 1). The stable demand assumes a small drought rebound by 2030 with demands remaining flat after 2030. Despite forecasted housing and economic growth and climate change, Valley Water would be assumed able to maintain stable demands through its aggressive conservation program and water use resolutions. The high demand assumes climate change impacts and housing and economic growth cause water use to increase significantly. In this scenario, there is increased outdoor and indoor water use from increased evapotranspiration and cooling demands, respectively.

Table 1. Normal and Drought Year Demands for 2050 (Rounded to nearest 5 TAF)

Demand Scenario	Normal (TAFY)	Drought (TAFY)
Stable	330	295
High	365	310

Role of Conservation

When evaluating future investment needs, Valley Water considers both long-term and short-term conservation. The normal demands described above and in Table 1 account for long-term conservation savings from Valley Water's on-going water conservation program activities. The normal demands assume 99 thousand acre-feet per year (TAFY) by 2030, 110 TAFY by 2040, and 126 TAFY by 2050 in water conservation savings. The WSMP analysis also accounts for short-term conservation that occurs during droughts.

During droughts, the Board of Directors may request the community to reduce their water use to support drought response. These water use reductions are applied in the analysis only during drought years. The demand forecasts during drought years for both scenarios are shown in Table 1. These additional drought reductions include calls for further reducing outdoor watering, following agricultural lands, as well as more efficient use indoors, including shorter showers. They are not permanent reductions like converting landscapes, although the landscape rebate program sees very high interest in participation during droughts.

Following a drought, water demand typically rebounds to normal water use, although it may still remain lower than pre-drought. Rebounds occur, in part, because agriculture may cease following their lands, parks and other landowners restart full irrigation of functional turf (e.g., game fields and play areas), and the community returns to other pre-drought activities such as maintaining vegetable and community gardens. While the rebound from the 2012-2016 drought was initially smaller than historic rebounds and then interrupted by the 2020-2022 drought, the water use from 2017-2020 indicates rebounds may still occur. Since rebounds have historically occurred in Santa Clara County and California as a whole, it is a conservative and reasonable approach to include separate demands for drought and normal years in the WSMP analysis.

Opportunities to Address Drought Rebound

Through Valley Water's long-term water conservation program activities, drought rebound can be controlled. While eliminating drought rebound may not be feasible, Valley Water can help reduce the rate and magnitude of drought rebound through conservation messaging and offering conservation options to the community. For example, if Valley Water maintains drought-level investment in the Landscape Rebate Program, it will help reduce the proportion of the population that returns to watering their lawns. Instead, more residents will convert their lawns to drought-resilient landscapes.

Valley Water offers a comprehensive set of over 20 programs that help all sectors (e.g., residential, agricultural, commercial, industrial, and institutional) reduce their water use and now performs outreach on water conservation year-round. In addition, Valley Water continues to track technological innovations and regulations that can support demand management and help mitigate drought rebound. Maintaining a strong long-term conservation program is critical to ensuring Santa Clara County makes "water conservation a way of life" and limits the magnitude of drought rebound. The full list of programs can be found at <https://www.valleywater.org/saving-water/rebates-surveys>.

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Aaron Baker

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Chief Operating Officer

Water Supply Division

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