

MEMORANDUM

Department of Public Works



DATE: August 5, 2022

TO: Mayor and Council

THROUGH: Steve McHarris, City Manager *Steve McHarris*

FROM: Tony Ndaah, Public Works Director

SUBJECT: Ground Wells Data and City Water Source Capacity Requirements

This Information Memorandum identifies the number of wells managed by agencies countywide and provides information regarding the City's requirement to assure water supply during peak usage, drought, or emergencies per State law.

Wells by Agency

As requested by a member of the City Council, this memorandum transmits the number of wells (see attachment) managed by agencies within Santa Clara County as provided by the Santa Clara Valley Water Agency (Valley Water). This is a snapshot of wells currently managed and does not include any wells planned for or under construction. As shown in Table 1 below, there are a total of 4,818 active wells within Santa Clara County, of which 237 are owned by water retailers (City and Private Water Utilities).

Table 1: Summary of Wells (data provided by Valley Water)

Retailer Type	Active Wells
Private Water Retailers	160
Cities	77
Other Active Wells	4,581

Water Supply Requirement

As specified in Section 64558, Title 22, California Regulations Related to Drinking Water (Title 22), which is administered by the State Board's Division of Drinking Water, the City has to submit a Source Capacity Planning Study (Study) to assure water supply during peak usage, drought, or emergencies. The State Water Resources Control Board, Division of Drinking Water (DDW) is responsible for administering the California Regulations Related to Drinking Water.

In 2015, DDW sent a letter to the City requesting a formal evaluation of the City's Water Source Capacity, under Title 22 due to projected growth and the anticipated demand expected by the City's Midtown Specific Plan and Transit Area Specific Plan, wherein there was a projected increase of up to 8,875 new water service connections. In its letter, DDW noted that the City should build additional storage (i.e.: water storage tanks such as above-ground reservoirs) to meet maximum day demand (MDD) and peak hourly demand (PHD) to assure water supply during peak usage, drought, and emergencies.

In compliance with State law, the current water storage requirement is 6 million gallons in the Valley Water supply pressure zone, which would require an area of approximately 3 acres to build additional water tanks, when there's little to no vacant land and the land acquisition cost is quite high. Another above-ground option would be to construct multiple elevated tanks, which require less land than above-

ground reservoirs but may have visual impacts. In contrast, wells require much less land and tap the underground aquifer.

2020 Urban Water Management

The City's 2020 Urban Water Management Plan (UWMP), as approved by Council on June 15, 2021, includes an assessment of the City water supply needs and details that a combination of groundwater supply in conjunction with above-grade storage (tanks) is the appropriate balance to ensure compliance with Title 22.

With the use of groundwater wells and blending of the water supply from the City's two water wholesalers, the water storage reservoir requirements for the Valley Water Zone can be reduced from 6 million gallons to 2 million gallons. Additionally, expanding the City's water portfolio to include groundwater wells will supplement the loss of supply as a result of cutbacks from the wholesalers, in the event of prolonged droughts. As shown in Table 2 below, the UWMP identifies that, based on a preliminary estimate, four wells are anticipated to be required by 2040 to offset SFPUC and VW supply cutbacks due to a five-year consecutive drought. It is assumed that four wells will have been installed and operating as full-time production wells, each producing up to 1.2 million gallons of water per day, in order to mitigate such supply shortfalls.

Table 2: Number of Wells Required

Consecutive Years of Drought	Number of Wells Required			
	2025	2030	2035	2040
First Drought Year	2	2	2	2
Second Drought Year	2	3	3	3
Third Drought Year	3	3	3	3
Fourth Drought Year	3	3	3	4
Fifth Drought Year	3	3	4	4

City's Groundwater Wells

Per the information from Valley Water (see attachment), the City has three wells located in the southwestern part of the City. However, only the Pinewood Well is fully developed; and the Curtis Well and McCandless Well are groundwater wells, still in development (pending above-grade infrastructure for operation).

Pinewood Well is permitted for use as a standby emergency well and not used as an active potable water supply source. Standby emergency wells cannot be operated more than 15 calendar days per year, and not more than 5 consecutive days each year. The City currently reserves groundwater supply for emergency use in the event that SFPUC and Valley Water cannot deliver contract-treated water supplies.

The Curtis Well was drilled in 2003, but the well was not equipped with the above-grade infrastructure required for a functioning well, and the facility was never completed. As a result, bringing the Curtis Well online requires installing a submersible pump, piping, and treatment components, as well as conducting testing and permitting. Construction of the McCandless Well began in 2020 and is anticipated to be completed by 2024.

As shown in Table 2, one well is insufficient to meet State requirements, two wells are sufficient to meet State requirements for a two-year drought, and the capacity of three wells will meet State requirements for a five-year drought given anticipated population growth until 2030. Currently, California is in the third

year of the current drought, therefore, our well capacity is insufficient per State requirements. The last five-year drought spanned from 2012 to 2016.

Conclusion

State law requires the City to have an adequate water supply for peak usage, drought, or emergencies. Given the cost and scarcity of land, wells remain the best option for the City similar to other jurisdictions in the Valley. Without the Curtis and McCandless Wells, the above-grade water reservoir storage size within the Metro Plan Area would have to increase significantly and additional measures would be required to avoid running out of wholesale treated water in the event of an emergency or prolonged drought.

Attachment:

[List of Valley Water Wells](#)