



STAFF REPORT

City Council

Meeting Date: 11/12/2024

Staff Report Number: 24-191-CC

Informational Item: Update on the emergency water storage/supply project

Recommendation

This is an informational item and does not require City Council action.

Policy Issues

The emergency water storage / supply project (Project) is consistent with the 2016 General Plan, Policy LU-7.3 for supplemental water supply, which requires Menlo Park Municipal Water (MPMW) to “Explore and evaluate development of supplemental water sources and storage systems, such as wells and cisterns, for use during both normal and dry years.” This is consistent with California Code of Regulations, §64554(a)(1), Chapter 16, Title 22, which requires that a water system serving more than 1,000 service connections must be able to meet four hours of peak hourly demand with storage capacity, source capacity, and/or emergency connections at all times. The Project is also recommended in the 2018 Water System Master Plan and is included in the City’s Capital Improvement Plan.

Background

MPMW purchases all of its water from San Francisco Public Utilities Commission (SFPUC) and is fully reliant on that supply to meet the needs of residents and businesses for approximately half of the City through 4,400 water connections. MPMW provides water to two service areas (Attachment A): the upper zone located in the Sharon Heights area that has two water reservoirs, and the lower zone located east of El Camino Real which has no water storage / emergency supply. The Project’s objective is to develop an emergency water supply for the lower zone.

The lower zone consists of two pressure zones: regulated pressure and high pressure. The lower zone’s regulated pressure area has one emergency well located at the City’s Corporation Yard. Once this well is fully operational, it will be able to supply up to 1,500 gallons per minute (gpm) of emergency supply, which is half of the City’s 3,000 gpm goal).

To comply with the State Water Board’s emergency storage/supply requirements for MPMW, the Project consists of the following capital improvements:

- A second well (well #2), and possible third well (well #3), to provide an additional 1,500 gallons per minute capacity for the lower zone.
- A “reservoir project” that consists of the following:
 - A 2 to 3 million gallon water reservoir and booster pump station for the lower zone’s regulated pressure area; and
 - A second booster pump station for the lower zone’s high pressure area; and
 - Associated water main upgrades necessary for the Project to operate efficiently and effectively.

On March 28, 2023, staff provided an update to City Council on the status of assessments of locations / properties for emergency supply and storage (Attachment B). The investigations have included exploratory borings and groundwater monitoring wells at four sites, as listed below (Table 1).

- Willow Oaks School field at 620 Willow Rd.
- Stanford Research Institute (SRI) / Parkline at 201-333 Ravenswood Ave.
- Menlo Park Fire Protection District Station No. 1 at 300 Middlefield Rd.
- St. Patrick’s Seminary at 320 Middlefield Rd.

St. Patrick’s Seminary was reintroduced to the site evaluation in 2023 after the Seminary expressed a renewed interest in partnering with the City on this project.

Table 1: Evaluating potential well or reservoir locations			
	Evaluation	Description	Locations
Groundwater well	Exploratory boring	<ul style="list-style-type: none"> • Drilled into the deep aquifer (approximately 600 feet below ground surface) • Determines the groundwater elevation and the hydraulic conductivity of the soil • Data collected can be used to design a future well 	<ul style="list-style-type: none"> • Willow Oaks School field • SRI / Parkline • Menlo Park Fire Protection District Station No. 1¹
Underground storage reservoir	Groundwater monitoring well	<ul style="list-style-type: none"> • Drilled 30 to 50 feet below the ground surface, constructed flush with the ground, and secured with locking caps in an at-grade vault • Records hourly groundwater levels • Data can be downloaded periodically to verify that an underground reservoir be constructed above the highest recorded groundwater level 	<ul style="list-style-type: none"> • Willow Oaks School field • SRI / Parkline • St. Patrick’s Seminary

¹ The findings from the boring drilled at Fire Station 1 are also anticipated to apply to the St. Patrick’s Seminary given the close proximity of the two sites.

Feasibility of well locations

The corporation yard well was drilled in 2017 and can provide up to 1,500 gallons per minute. The City completed construction of the well facility (e.g., generator, disinfection equipment, associated piping) in mid-2020, however, due to the pandemic the State Water Board permitting was delayed but eventually amended in January 2023. Remaining tasks include flushing the well system to remove any debris, inspecting each piece of equipment, initiating testing to fine-tune disinfection set points, and final testing. In November 2023, the City released a bid to complete the remaining work, but unfortunately, did not receive any bids. Staff is investigating other options to complete the work.

The City needs another one to two wells to provide the remaining 1,500 gpm in order to meet the total goal of 3,000 gpm. Between November 2023 and February 2024, the City drilled exploratory borings at three locations to assess the potential capacity. Of the three sites evaluated, a well at either Fire Station No. 1 or SRI / Parkline, with similar comparable construction costs, has the potential of supplying the remaining 1,500 gpm needed to meet this goal (Table 2). The Willow Oaks School Field, with the low estimated well yield proved not a feasible site.

Table 2: Exploratory boring results

Potential well location	Estimated well yield, gpm	Estimated well construction cost, \$	Feasible for well?
Willow Oaks School Field	200 – 400	\$1.1 million	No
Menlo Park Fire Protection District, Fire Station No. 1 ¹	800 – 1,840	\$1.1 million	Yes
SRI	650 – 1,500	\$1.1 million	Yes

¹ The findings from the boring drilled at Fire Station 1 are also anticipated to apply to the St. Patrick’s Seminary given the close proximity of the two sites.

Feasibility of reservoir locations

Willow Oaks School field, SRI / Parkline, and St. Patrick’s Seminary were identified as potential locations for the construction of a water reservoir. Groundwater monitoring wells were drilled at each site to determine the feasibility of a potential underground reservoir.

Willow Oaks School field

In January 2021, the City installed a groundwater monitoring well at the edge of Willows Oaks Park adjacent to the Willow Oaks School field. Between March 2021 and February 2023, the highest groundwater depth recorded was 21.02 feet below ground surface, and at that time the data confirmed this location as a viable site for an underground reservoir. However, between March 2023 and June 2023, the highest groundwater depth recorded rose to 17.91 feet below ground surface, higher than the prior year due to the heavy winter rainfall. With the rise in groundwater levels, the location was determined to be too shallow and is no longer a viable option for an underground reservoir.

SRI / Parkline project

In January 2024, the City installed a two-inch diameter 50-foot deep groundwater monitoring well at 201 Ravenswood Ave. (Attachment C). Based on the quarterly reports, for the period between Jan. 26 to Sept. 11, the highest groundwater depth recorded was 29.5 feet below ground surface, which at this time makes it a likely viable location for an underground reservoir. Staff will continue to review quarterly data through January of next year.

St. Patrick’s Seminary

In 2023 the Seminary expressed interest in the potential for locating a reservoir and/or well on or near the existing sports field. The City met with the Seminary in June 2024 to discuss the Project and identify a location for the groundwater monitoring well: adjacent to the Seminary’s sports field (Attachment C). The City installed a monitoring well to record groundwater levels in August 2024. The first set of readings indicate groundwater levels are trending low enough below ground surface. While a year of data are needed, the site could be feasible for an underground reservoir.

Analysis

As discussed earlier, the Project currently is scoped to include a second well, possibly a third, a reservoir with a booster station, and a second booster pump station for the rest of the service area. These components will work together to ensure sufficient storage supply for emergencies. Table 3 summarizes the locations the City has and is currently evaluating for either a reservoir/well combination or a well only. As shown, the evaluation concluded that the SRI / Parkline site and St. Patrick’s Seminary are likely feasible sites for a reservoir. Both are also feasible locations for a well and meet the hydraulic requirements of the system (Attachment D). While the Menlo Park Fire Protection District Station No. 1 is a feasible site for a well, the agency has plans to improve the station and may not have adequate space for a well.

Table 3: Site feasibility assessment to date			
Location	Potential reservoir	Potential well	Design and construction cost estimate (not inclusive of land)
Willow Oaks School Field	No Groundwater levels are too high	No Estimated well yield too low	Not applicable
Menlo Park Fire Protection District Fire Station No. 1	No Site is too small to accommodate a well and other proposed improvements	Yes	\$4 million
St. Patrick's Seminary	Likely yes To be determined by September 2025	Yes Location is adjacent to the Fire Station and likely to provide similar well yield	\$37 million
SRI / Parkline Project	Likely yes To be determined by January 2025	Yes	\$42 million

Next steps

Staff have identified the following next steps to complete the Project:

- Financial plan and water rate study: The City Council adopted five-year water rates in fiscal year 2021-22 that did not include the full amount of capital needed for the reservoir. Staff is currently developing the scope of work for the development of a financial plan that will evaluate funding options and revenue needs. The scope of work will also include a water rate study. Staff will return to City Council in the next few months to approve the consultant agreement for the work.
- Site selection: Both SRI / Parkline and St. Patrick’s Seminary are likely suitable locations for an underground reservoir based on the groundwater data collected thus far. Both are suitable for a well. Staff would return to City Council after data collection is complete to select a preferred site.

The SRI / Parkline project draft environmental impact report (draft EIR) included the reservoir and well, which would be located beneath the proposed recreational area near the northwest corner of the property. The City is currently reviewing the project variant and is in the process of preparing the Final EIR for public review. Staff is continuing to evaluate construction timelines and the space available on site for an underground reservoir to ensure it meets the needs of the system.

Staff will continue to collect groundwater data at the St. Patrick’s Seminary location. Based on the preliminary findings, this site is also likely to be suitable for an underground reservoir. If selected as the preferred site, negotiations on a lease would follow.

- Project design and construction: Once the site is selected, staff would initiate the design for the Project. Construction would begin once the design is completed and funding is in place. The general timeframe is shown in Table 4.

Table 4: Project next steps		
Phase	Duration	
Financial plan and water rate study	12 months	
	SRI / Parkline	St. Patrick's Seminary
Affirm site feasibility	2 months	9 months
Project design	30 months	36 months ¹
Construction	30 months	30 months
Project completion	2029-30	2031-32

¹ Environmental review must also be completed for this site during design phase

Impact on City Resources

As an informational item, there is no impact on City resources. The impact on city resources will be further evaluated as the project progresses through the site feasibility assessment and financial planning.

Environmental Review

This action is not a project within the meaning of the California Environmental Quality Act (CEQA) Guidelines §§15378 and 15061(b)(3) as it will not result in any direct or indirect physical change in the environment.

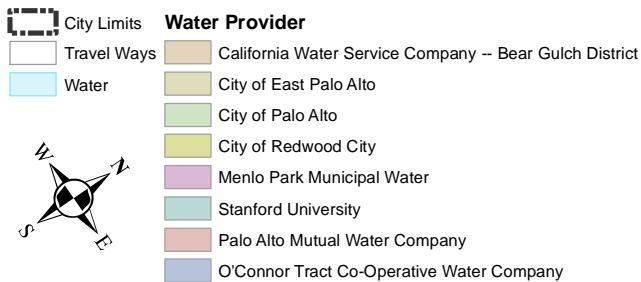
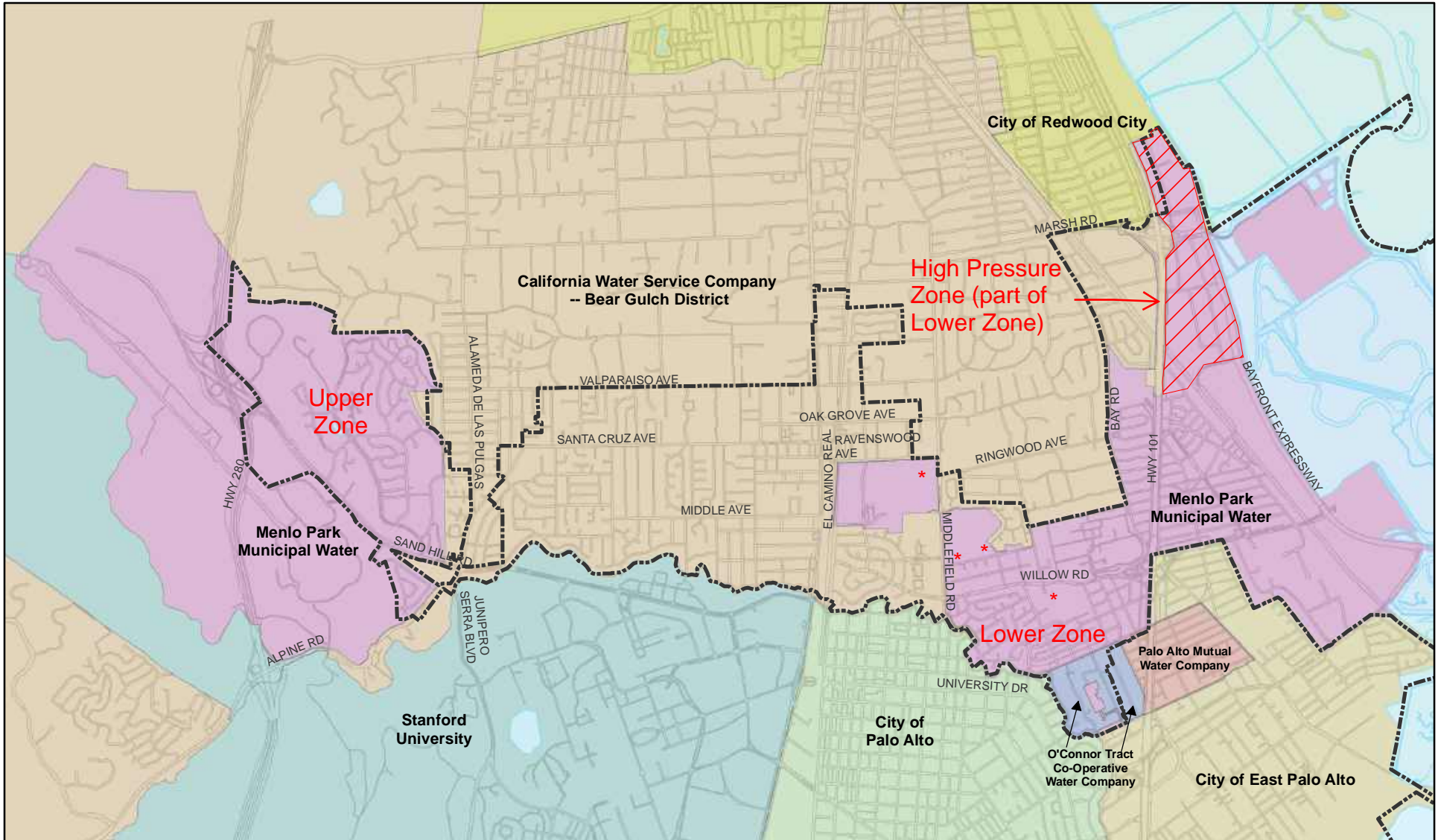
Public Notice

Public notification was achieved by posting the agenda, with the agenda items being listed, at least 72 hours prior to the meeting.

Attachments

- A. Map of MPMW service areas
- B. Hyperlink – March 28, 2023 Staff Report #23-077-CC:
menlopark.gov/files/sharedassets/public/v/2/agendas-and-minutes/city-council/2023-meetings/agendas/20230328-city-council-agenda-packet.pdf#page=185
- C. Map of groundwater monitoring well locations (SRI / Parkline and St. Patrick's Seminary)
- D. Locations and concept plans

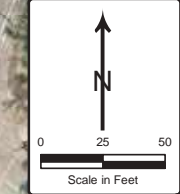
Report prepared by:
 Azalea Mitch, Public Works Director



* Possible Well or Reservoir Location

Water Agencies Within and Surrounding Menlo Park





Legend

- Proposed Monitoring Well Locations
- Site Boundary
- Menlo Park City Limits

August 2023
TODD
GROUNDWATER

Monitoring Well
Location, SRI
Menlo Park



MP-MW-1
Proposed Monitoring Well
(37°27'33.66" N
122°09'59.04" W)

ST. PATRICK'S SEMINARY

City of Menlo Park

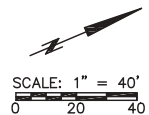
ST. PATRICK'S SEMINARY
Proposed Monitoring Well Location

EXHIBIT

A



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- LEGEND**
- Existing**
- R / W
 - Water
 - Abandoned Water
 - Sanitary Sewer
 - Storm Drain
 - Force Main
 - Storm Drain MH
 - Inlet
 - Sewer MH
- Proposed**
- WELLHEAD
 - Flush To Waste Drain Box
 - Emergency Electrical Generator
 - Hydropneumatic Tank
 - Area of New Construction
 - Product Water
 - Discharge to Storm Drain
 - Chemical Feed Facilities
 - Electrical Panel

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CITY OF MENLO PARK EMERGENCY WELLS 2 & 3 PROJECT

CONCEPTUAL SITE LAYOUT

PROPOSED WELL SITE LOCATION 8 - FIRE STATION No.1 - 300 MIDDLEFIELD RD

FIGURE
 8





NOTE:
 REFER TO SHEET -
 G4.01 FOR CONCEPTUAL VEHICULAR CIRCULATION
 AND SITE ACCESS;
 G4.02 FOR CONCEPTUAL PARKING PLAN;
 G4.03 FOR CONCEPTUAL BICYCLE CIRCULATION;
 G4.06 FOR CONCEPTUAL PEDESTRIAN CIRCULATION

Scale: 1" = 100' - 0"