

MEMORANDUM

TO: Nick Townstopiat (David J. Powers) DATE: May 21, 2025
FROM: Leif Coponen, PE; Brett Crews, PE JOB#: DPOW.141.24
SUBJECT: 922-950 San Leandro Avenue – Utility Impact Study (DRAFT)

Executive Summary

The David J Powers & Associates (DJPA) has retained Schaaf & Wheeler to determine impacts from the 922-950 San Leandro Avenue Project (Project) on the City of Mountain View's (City) potable water and sanitary sewer systems. This memorandum and its findings will be used to assist DJPA with CEQA compliance. The Project site is located on the western side of San Leandro Avenue between San Pablo Drive and Terra Bella Avenue. The Project proposes to construct four three-story buildings, with 38 rowhome dwelling units, replacing an office/industrial building and two single-family residential units. The Project site encompasses a total area of 1.69-acres. The Project area proposes a merger of two existing parcels, APN 153-18-026 and 153-18-031. The Project site is shown in Figure 1.

This memo is a confirmation of existing studies and does not include a detailed impact study. The incremental difference in potable water demand and sanitary sewer flow is estimated for the proposed Project development and the impact of the incremental differences on the utility systems are evaluated for both an Existing and Future Cumulative Condition. The Existing Condition is evaluated to determine any Project impacts on the City's utility systems with current infrastructure and current land use throughout the City. The Future Cumulative Condition is evaluated to determine any Project impacts on the City's utility systems with future planned infrastructure and future planned land use and growth. Previous technical studies encompassing the Project area include: 2022 Water Master Plan (WMP) and 2022 Sewer Master Plan (SMP). Projected potable water demand and sanitary sewer flow generation for the proposed multi-family residential Project are based on updated unit duty factors determined as part of the North Bayshore Precise Plan Phase II (NBPPPII) Utility Impact Study (Schaaf & Wheeler, October 2016).

Based on the findings and recommendations of the previous technical studies, the Project does not contribute to additional deficiencies in the water system. The proposed Project increases the total base water demand for the site by 6,476 GPD greater than the existing demand and 3,150 GPD greater than future cumulative modeled conditions. The system is sufficient to maintain minimum pressures under peak hour demand (PHD) with and without the Project demand in the Existing and Future Condition. There is sufficient capacity in the water system to serve fire flows at and around the Project site in the Existing & Future Condition. The Project does not contribute to new deficiencies. There are no CIPs nor Annual Replacement Projects directly adjacent to the Project, nor are the nearby CIPs necessary to serve the Project. The associated Project water demands do not significantly impact the water system in the Future Cumulative Condition assuming CIPs are constructed. The City's water system is sufficient to support future cumulative demands and required fire flows at the Project site.

Based on the findings and recommendations of the previous technical studies, the Project does not contribute to additional deficiencies in the sewer system. There are no deficiencies along the flow path in the Existing Condition nor in the Future Cumulative Condition pre- and post-Project. The proposed Project increases the total base sewer generation for the site by 6,227 GPD under the existing modeled conditions and 4,070 GPD under future cumulative modeled conditions. There are two CIPs in the 2022 SMP that outline improvements at the Shoreline Pump Station and Interceptor Trunk along the project flow path. The increased Project sewer flows do not significantly impact the sewer system.

Introduction

The Project proposes to construct a row-home residential development with 38 dwelling units split between four buildings. This study estimates the incremental difference in water demand and sewer flow resulting from Project development and evaluates impacts compared to previous study findings. The incremental difference is added to the City's existing models for Existing and Future Cumulative Conditions. The Existing and Future Cumulative Conditions use the City's models developed as part of the 2022 WMP and SMP. Projected increases in demands across the City in the Future Cumulative Condition model are consistent with growth projections from the 2020 Urban Water Management Plan (UWMP) for the planning horizon year 2030.

Water System Impact

Incremental Project Contribution

The incremental difference in Average Daily Demand (ADD) with the Project is 6,476 GPD greater than the Existing demand and 3,150 GPD greater than the Future Cumulative demand allocated in the models. The site is currently occupied by an office/industrial building and two single-family residential homes. The ADD is an estimated average daily demand based on totalized annual water use.

Project water demand is estimated from the number of dwelling units provided in the Project Drawings dated October 2024. Table 1 shows the Project demand estimation using water unit duty factors for single-family residential land use from Table 2-2 in the NBPPPII UIS to represent the medium-density residential land use Project. There is not an applicable NBPPPII UIS medium-density residential water unit duty factor so the more conservative single-family residential factor was used to represent the larger row home style medium-density development. Table 2 presents the water demand in the City's hydraulic models for the Existing Condition, and Table 3 shows the water demand for the Future Cumulative Condition. The Project site's potable water demand is serviced by one 8-inch water main along San Leandro Avenue. The Project is in the City's Pressure Zone 1.

Table 1: Project Estimated Water Demand

Project	Individual Use	Dwelling Units	Generation Factor (gpd/DU)	Water Demand (gpd)
922 & 950 San Leandro Avenue	Medium-Density Residential	38	225	8,550
Total				8,550

Table 2: Existing Model Water Demand

APN	Land Use	Modeled Water Demand (gpd)
153-18-026	Office/Industrial	747
153-180-031	Single-Family Residential	1,327
Total		2,074

Table 3: Future Cumulative Model Water Demand

APN	Land Use	Modeled Water Demand (gpd)
153-18-026	Office/Industrial	756
153-180-031	Single-Family Residential	4,644
Total		5,400

Fire Flow Requirement

The required fire flow at the Project site in the 2022 WMP is 3,500 gpm base for existing and future conditions, respectively. The Project required fire flow is 1,875 gpm based on building size and construction type as defined in the California Building Code. The Project fire flow assumes a reduction of 50% of the fire flow requirement when the building is equipped with an approved automatic sprinkler system. The actual fire flow requirement may change as the planning process continues and project-specific requirements are determined by the City Fire Marshal.

Model Results

The water system is evaluated under Peak Hour Demand (PHD) to ensure a minimum pressure of 40 psi can be maintained per the City's design performance criteria. A peaking factor of 1.73, taken from the 2022 WMP, is applied to the average daily water demand. There are no existing hydraulic deficiencies per the minimum pressure requirements near the Project site pre- or post-Project in either the Existing or Future Cumulative condition. The system has capacity for the increased Project demand while meeting PHD performance criteria and does not affect previous study findings.

The water system is also evaluated to ensure adequate capacity is available to convey fire flows under Maximum-Day Demand (MDD) conditions while maintaining a minimum pressure of 20 psi in the system. A peaking factor of 1.25, taken from the 2022 WMP, is applied to the ADD to represent MDD conditions for which the fire flow analysis is conducted. From the previous studies, the planning-level fire flow requirement is met at the Project site in the Existing Conditions as shown in Figure 2. In the Existing Conditions, pre- and post-project available fire flow is 4,017 gpm at the 8-inch pipe in San Leandro Avenue. There are multiple deficiencies to the north, east, and west of the Project. The Project demands have no impact on the available flows at these deficient locations.

The Future Cumulative Conditions planning-level fire flow requirements are met at the Project site assuming all CIPs outlined in the 2022 WMP, are constructed. In the Future Cumulative Conditions, pre and post-Project available fire flow is 3,841 gpm at the 8-inch pipe in San Leandro Avenue. There are deficiencies to the north and south of the Project pre- and post-Project. The Project does not have any impact on the available flows at the deficient nodes.

There are no CIPs nor Annual Replacement Projects adjacent to the Project, nor are the nearby CIPs necessary to serve the Project. There are many segments of pipe to the west and southeast of the Project that are a portion of Annual Replacement Project 4-1, 4-2, and 5. These CIPs address other deficiencies not related to the Project.

Project Contribution to Existing Deficiencies

There are no deficiencies at the Project site in the Existing Condition nor in the Future Cumulative Condition. The system has sufficient capacity to serve the Project. There are multiple deficiencies in the Existing and Future Cumulative Condition to the north and south of the Project. The Project flows have no impact on the available flows at these deficient locations.

Sewer System Impact

Incremental Project Contribution

The incremental difference in Base Wastewater Flow (BWF) with the Project is 6,227 GPD greater than the Existing Condition flow and 4,070 GPD greater than the Future Cumulative Condition flow estimate in the computer models. Base wastewater flow (BWF) is from residential, commercial, institutional, office and industrial sources and represents a daily average for wastewater flows and is used to model City-wide demands.

Project generated sewer flow is estimated from the number of residential units provided in the plans dated October 2024. The single-family residential sewer duty factor is used from Table 4-2 in the NBPPPII Utility Impact Study to estimate sewer flow for the medium-density residential Project. There is not an applicable NBPPPII UIS medium-density residential water unit duty factor so the more conservative single-family residential factor was used to represent the larger row home style medium-density development. Table 4 provides the estimated Project sewer flow. Table 5 presents the sewer generation in the City's hydraulic models for the Existing Condition, and Table 6 shows the sewer generation for the Future Cumulative Condition. The proposed sewer system connection is assumed to be to the existing 15-inch sewer main within San Leandro Avenue.

Table 4: Project Estimated Sewer Flow

Address	Individual Use	Dwelling Units	Generation Factor (gpd/DU)	Sewer Generation (gpd)
922 & 950 San Leandro Avenue	Medium-Density Residential	38	200	7,600
Total				7,600

Table 5: Existing Model Sewer Flow

APN	Land Use	Modeled Sewer Generation (gpd)
153-18-026	Industrial	494
153-180-031	Medium Density Residential	879
Total		1,373

Table 6: Future Cumulative Model Sewer Flow

APN	Land Use	Modeled Sewer Generation (gpd)
153-18-026	Industrial	494
153-180-031	Mixed Use	3,036
Total		3,530

Model Results

The affected area of roughly 2.5 miles of gravity system evaluated for the Project impact begins at the eastern side of the property along San Leandro Street where it continues north, then turning west on Terra Bella Avenue until discharging into the Central Trunk Main at the intersection of Terra Bella Avenue and N Shoreline Boulevard. The collected flow is then conveyed by the Central Trunk Main for 2 miles to the Shoreline Sewage Pump Station. The Project sewer conveyance pathway is highlighted in Figure 3.

Sewer capacity is analyzed under Peak Wet Weather Flow (PWWF) and Average Dry Weather Flow (ADWF). PWWF is used to determine hydraulic deficiencies according to the performance criteria in Table 7, and ADWF is used to determine Project flow contribution when determining fair-share allocation for improvement costs. Once pipes are considered deficient, the design criteria outlined in Table 8 shall be used to size the CIP to correct the deficiency.

Table 7: Sewer System Performance Criteria

Criteria	Entire System
Minimum Freeboard in Each Manhole (ft)	5.0

Table 8: CIP Design Criteria

Criteria	Pipe Diameter ≤ 12 inch	Pipe Diameter > 12 inch
Maximum Flow Depth/Pipe Diameter (d/D)	0.50	0.75

The PWWF scenario applies diurnal peaking curves for residential and non-residential flows and simulates system response as rainfall enters the system. The diurnal peaking curves are adopted from the City's 2022 SMP. Groundwater Infiltration (GWI) and rainfall-dependent infiltration (RDI/I) are included but are not peaked. The ADWF scenario is developed in the model by adding BWF and groundwater GWI. GWI is modeled as a constant inflow and includes base infiltration (BI) and pumped groundwater discharged to the sewer system. Since the ADWF scenario models average daily flows, BWF and GWI are not peaked.

There are no deficiencies along the Project conveyance pathway in the Existing Condition nor in the Future Cumulative Condition. The increased Project flow does not generate new deficiencies. Two CIP's, CIP 5 and 6, outlined in the 2022 SMP are located along the affected sewer conveyance pathway. The CIPs are improvements relating to the Shoreline Pump Station and Interceptor Trunk downstream of the Pump Station. The future cumulative condition results for both existing and post-project identify no deficiencies along the project pathway under the assumption the two CIP's are constructed.

Project Contribution to Deficiencies

There are no deficiencies along the Project conveyance pathway in the Existing Condition or in the Future Cumulative Condition.

There are two sewers projects identified for condition repairs downstream of the Project site from the 2022 SMP, CIP 5 and 6. There are no pipes downstream along project sewer flow path that are recommended to be upsized as part of the 2022 SMP. Therefore, a fair share analysis is not performed.





