

MEMORANDUM

TO: Amy Wang (David J. Powers) DATE: September 29, 2025
FROM: Leif Coponen, PE; Brett Crews, PE JOB#: DPOW.143.25
SUBJECT: 924-940 San Rafael Avenue – Utility Impact Study (DRAFT)

Executive Summary

David J Powers & Associates (DJPA) has retained Schaaf & Wheeler to determine impacts from the 924-940 San Rafael 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 western side of San Rafael Avenue between San Simeon Drive/San Pablo Drive and Terra Bella Avenue. The Project proposes to construct five three-story buildings, with 36 rowhome dwelling units, replacing two vacant structures. The project would require a General Plan Amendment to change the land use designation from General Industrial to medium Density Residential and a rezone from General Industrial to Multiple-Family Residential (R3-2-2). The project includes a lot line adjustment to create 6 parcels one for each building and one for the shared space. The Project site encompasses a total area of 1.8-acres. The Project area encompasses two existing parcels, APN 153-17-045 and 153-17-044. 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 6,762 GPD greater than the existing demand and 4,109 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 5,920 GPD under the modeled existing conditions and 5,371 GPD under modeled future cumulative 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 or planned CIPs.

Introduction

The Project proposes to construct a row-home residential development with 36 dwelling units split between five 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 6,762 GPD greater than the Existing demand and 4,109 GPD greater than the Future Cumulative demand allocated in the models. The site is currently occupied by two vacant commercial buildings. 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 April 2025. 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 served by one 8-inch water main along San Rafael 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)
924-940 San Rafael Avenue	Medium-Density Residential	36	225	8,100
Total				8,100

Table 2: Existing Model Water Demand

APN	Land Use	Modeled Water Demand (gpd)
153-17-045	General Industrial	762
153-17-044	General Industrial	576
Total		1,338

Table 3: Future Cumulative Model Water Demand

APN	Land Use	Modeled Water Demand (gpd)
153-17-045	General Industrial	3,272
153-17-044	General Industrial	718
Total		3,991

Fire Flow Requirement

The required fire flow at the Project site in the 2022 WMP is 2,500 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 4,964 gpm at the 8-inch pipe in San Rafael Avenue. There are multiple existing deficiencies to the north, east, and west of the Project. The Project demands have no impact on the available flows at these deficient locations. In the immediate vicinity of the Project, the water system has sufficient capacity to serve Project water demands and required fire flows.

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 4,973 gpm at the 8-inch pipe in San Rafael Avenue. There are existing deficiencies to the north, east, and west of the Project pre- and post-Project. The Project does not have

any impact on the available flows at the deficient nodes. In the immediate vicinity of the Project, the water system has sufficient capacity to serve Project water demands and required fire flows.

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 existing deficiencies in the Existing and Future Cumulative Condition to the north, east, and west 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 5,920 GPD greater than the Existing Condition flow and 5,371 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 April 2025. 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 sewer 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 8-inch sewer main within San Rafael Avenue.

Table 4: Project Estimated Sewer Flow

Address	Individual Use	Dwelling Units	Generation Factor (gpd/DU)	Sewer Generation (gpd)
924-940 San Rafael Avenue	Medium-Density Residential	36	200	7,200
Total				7,200

Table 5: Existing Model Sewer Flow

APN	Land Use	Modeled Sewer Generation (gpd)
153-17-045	General Industrial	564
153-17-044	General Industrial	716
Total		1,280

Table 6: Future Cumulative Model Sewer Flow

APN	Land Use	Modeled Sewer Generation (gpd)
153-17-045	General Industrial	805
153-17-044	General Industrial	1,024
Total		1,829

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 Rafael Avenue where it continues north, then turning west on Terra Bella Avenue, east at the southwest corner of 1170 Spruce St, north at the southeast corner of the 1170 Spruce St property continuing across Highway 101. Flows then turn west at La Avenida Street, until discharging into the Central Trunk Main at the intersection of La Avenida Street and N Shoreline Boulevard. The collected flow is then conveyed by the Central Trunk Main for 1.5 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

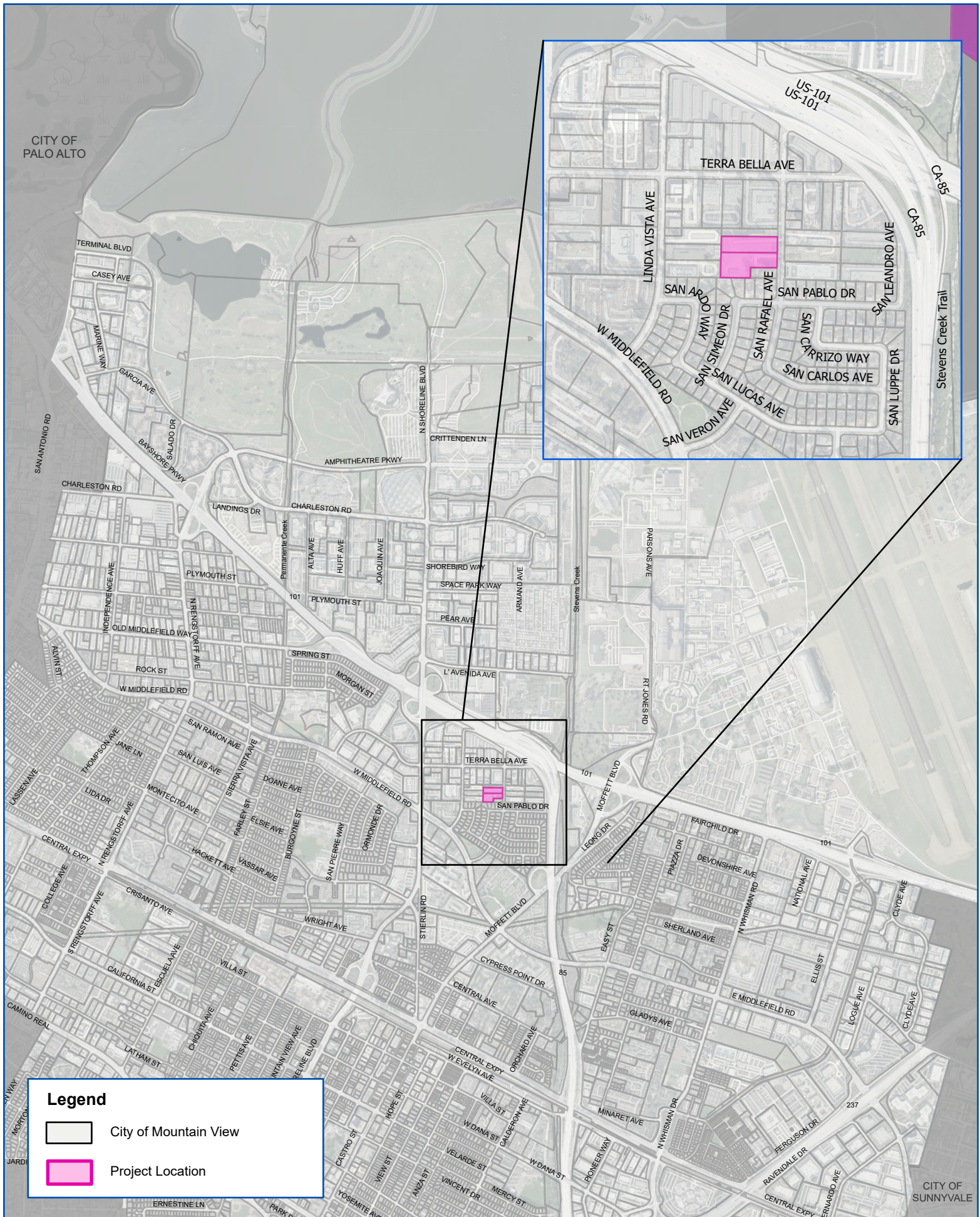
The PWWF scenario applies diurnal peaking curves for residential and non-residential flows and simulates system response as rainfall enters the system. The diurnal peaking curves are adopted from the City's 2022 SMP. Groundwater Infiltration (GWI) and rainfall-dependent infiltration (RDI/I) are included 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.

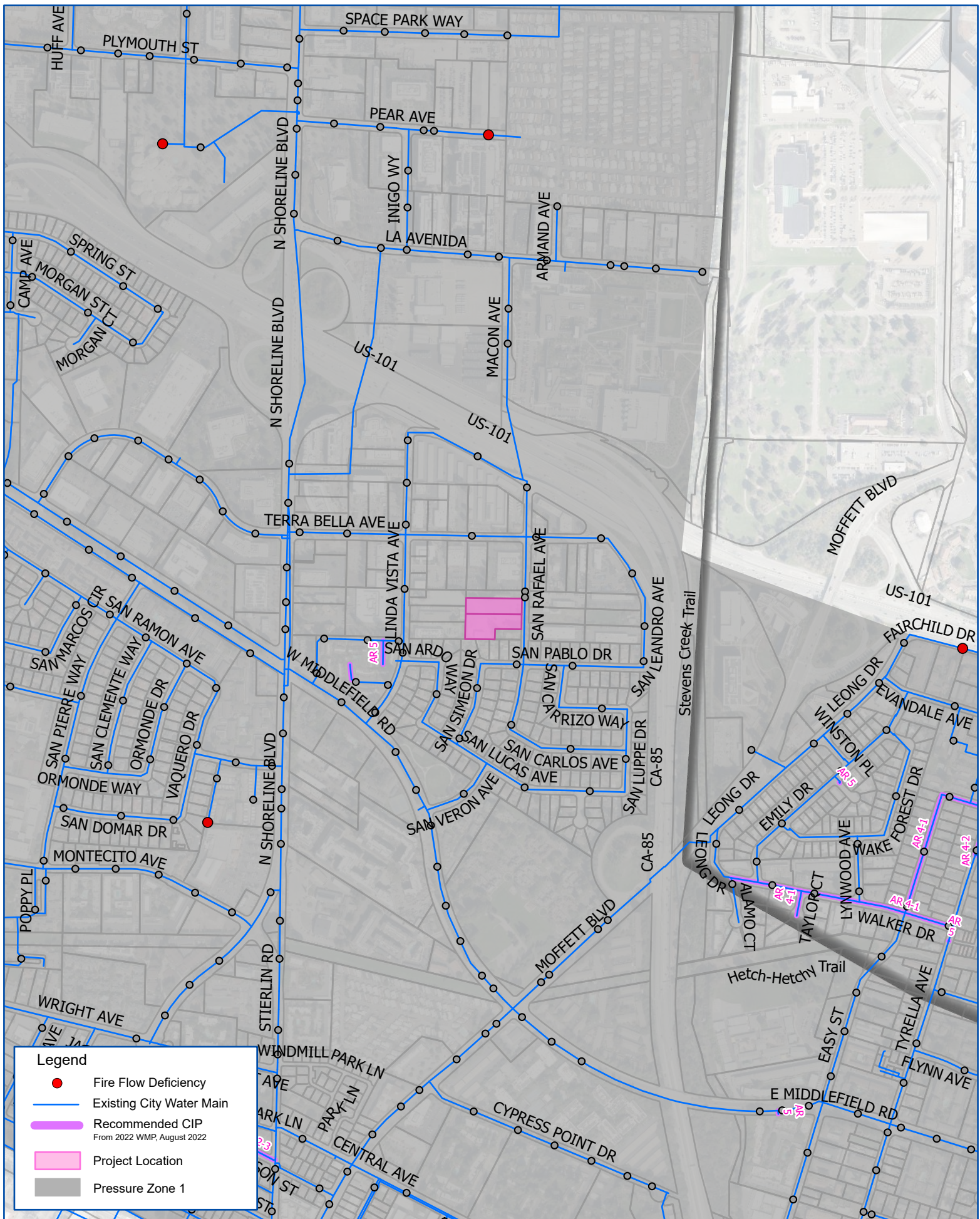
There are no deficiencies along the Project conveyance pathway in the Existing Condition nor in the Future Cumulative Condition. The increased Project flow does not generate new deficiencies. Two CIP's, CIP 5 and 6, outlined in the 2022 SMP are located along the affected sewer conveyance pathway. The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

Two sewer projects, CIP 5 and CIP 6, were identified in the 2022 SMP for condition-related repairs downstream of the Project site; these improvements are not capacity-related. There are no pipes downstream along the project sewer flow path that are recommended to be upsized as part of the 2022 SMP. Therefore, a fair share analysis is not performed.





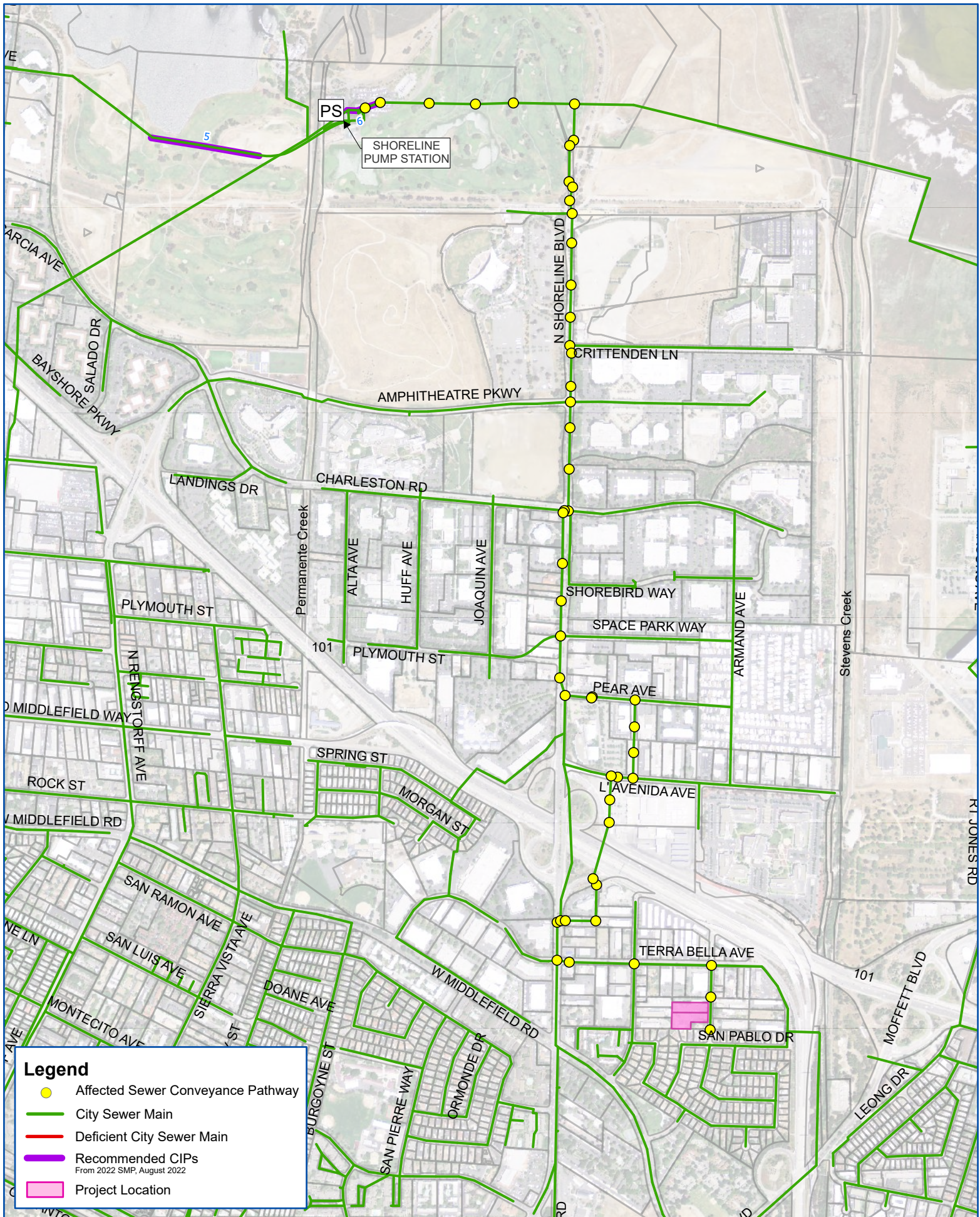


FIGURE 3:

Peak Wet Weather Flow
Sewer System Model