

**Appendix G**  
Sanitary Sewer Study

*Great America Parkway and Tasman Drive Office Project*

# Technical Memorandum

---



**Subject:** Sanitary Sewer Capacity Evaluation for 2901 Tasman Drive (APN: 104-49-026 and 104-49-025)

**Prepared for:** Evelyn Liang, City of Santa Clara

**Prepared by:** Nuria Bertran-Ortiz, P.E. California License No. C68537

**Reviewed by:** Gisa Ju, P.E. California License No. C31823

**Reference:** Project 0011096, Task 2.25

**Date:** December 7, 2021

---

At the request of the City of Santa Clara (City), Woodard & Curran evaluated potential sanitary sewer capacity impacts of the proposed project at 2901 Tasman Drive using the City's sanitary sewer hydraulic model. This technical memorandum (TM) summarizes the approach, model input, and results of the analysis. The proposed development is located on two parcels with assessor parcel number (APN) 104-49-026 and 104-49-025, bounded to the north by Bunker Hill Lane, to the west by Old Ironside Drive, to the south by Tasman Drive, and to the east by Great America Parkway (GAP). The developer is proposing to build a 1,070,344 square foot (SF) office and research and development (R&D) building. The new development would replace two existing office buildings with a combined area of 202,690 SF.

Flow from the development would enter the City's sanitary sewer system at existing manhole S93-21 located on the 30-inch GAP west trunk. Flow then travels north and reaches a connecting sewer at manhole S103-22, where it combines with the flow from the GAP east trunk and continues north on both the west and east parallel GAP trunks. Flow then turns northeast along the Santa Clara Golf and Tennis Club. It then discharges into two parallel 42-inch trunks that run northwest along Lafayette Street to the Rabello and Northside pump stations where it is pumped to the San Jose/Santa Clara Regional Wastewater Facility for treatment. **Figure 1** shows the site and surrounding modeled sewers. **Figure 2** shows the sewer lines that are affected by the flow from this development (affected lines in red).

Figure 1: Modeled Sewers around Proposed Project Site

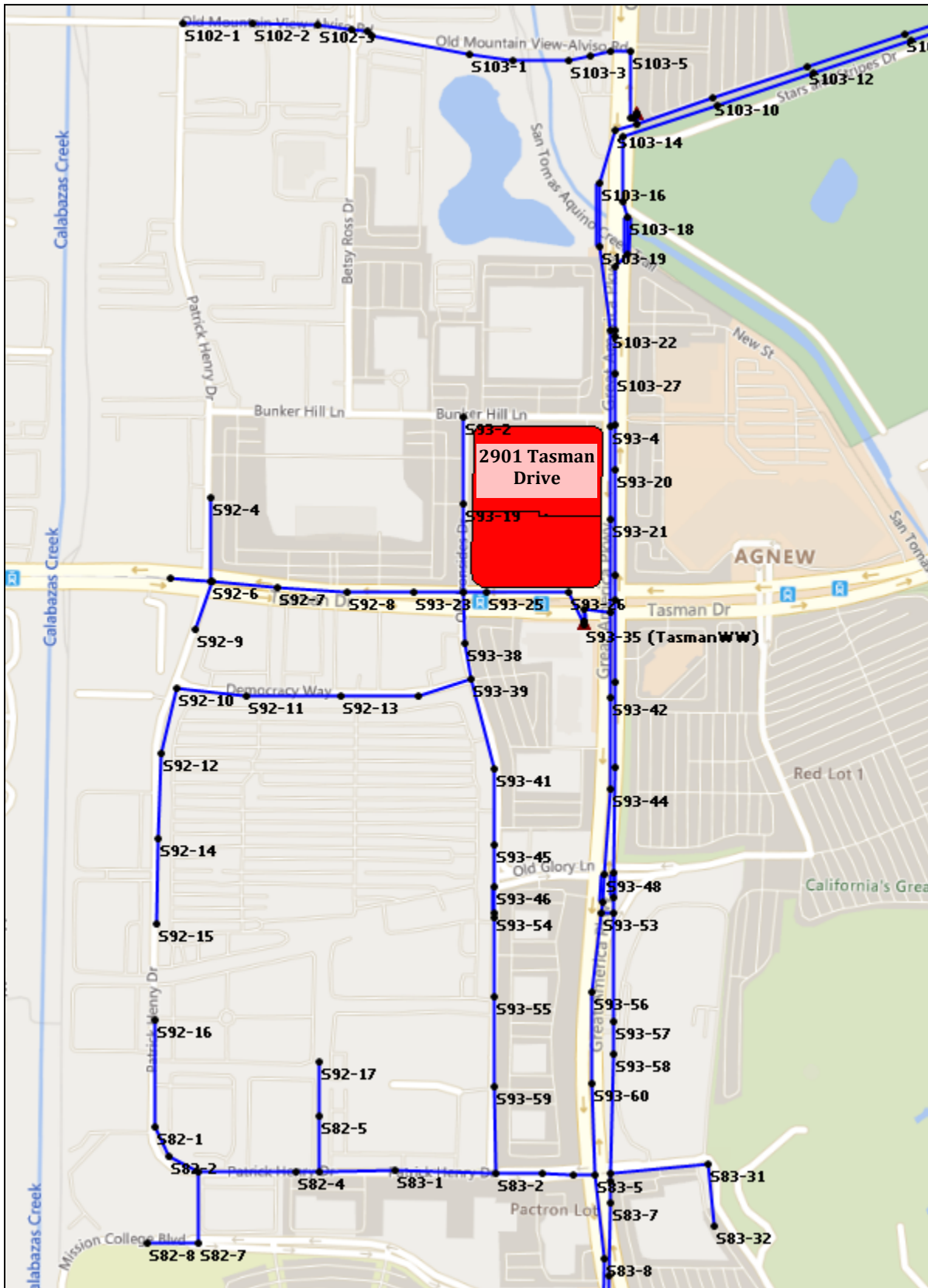
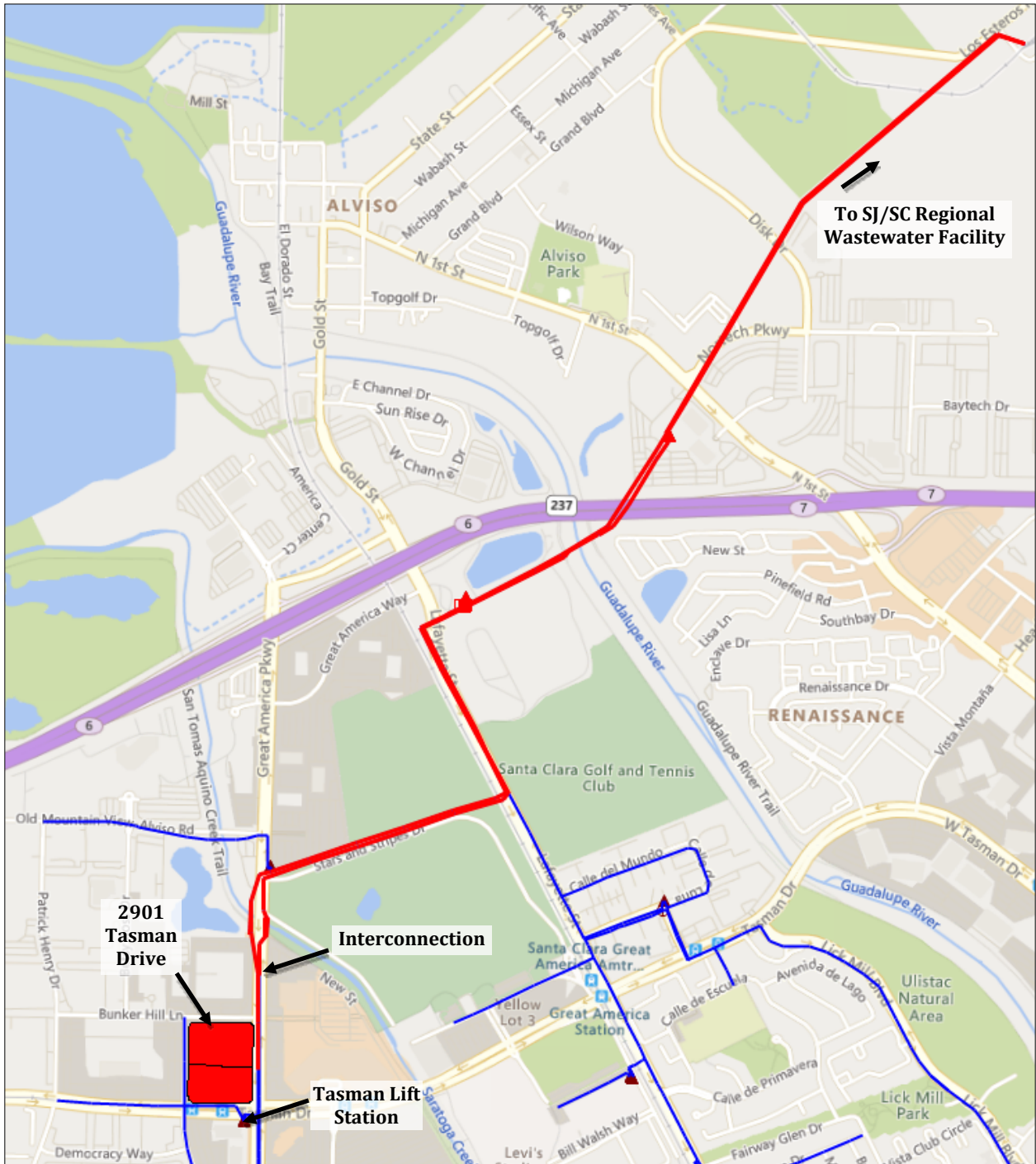


Figure 2: Trunk Sewers Downstream of the Proposed Project Site



## 1 Approach

To evaluate the potential sewer capacity impact of the proposed data center, the following model configurations were used:

- *Sewer network*: The City's current solutions network was used. The network consists of the City's expanded trunk sewer system that was developed as part of the 2016 Sanitary Sewer Master Plan Update (2016 Master Plan). The network includes the improvements recommended by the 2016 Master Plan (P1, P2, P3, P4, P5, and E1 Modified) as well as the recent construction of project P6 alternative (per the conformed drawings dated September 2019 with City of Santa Clara tracking number 12,175-D) and the NVIDIA improvements (per the conformed drawings dated December 2014 with CSC tracking number 11,988-D). In addition, the network includes the modified Alternative 1 (Calabazas Creek trunk) improvements recommended recently (draft description dated September 28, 2021) to account for the Cupertino Sanitary District (CuSD) increase in future peak wet weather flow (PWWF). The network also includes the City's recently selected Alternative 3 (Gravity Scenario E) to address improvements needed to convey development flows from the Patrick Henry Drive (PHD) Specific Plan. These improvements are described in the recently completed PHD Evaluation of Capacity Improvement Project Alternatives TM (dated December 3, 2021). It should be noted that the Alternative 3 improvements include upsizing and lowering a portion of the GAP west trunk (from PHD to manhole S93-53). The Alternative 3 improvements are upstream of the 2901 Tasman Drive development's discharge manhole (S93-21). There are no proposed capacity improvement projects downstream of this development.
- *Sanitary sewer loads*: The Updated General Plan Phase 3 Loads (2035 Loads) were used for this analysis. The 2035 loads were updated for the 2016 Master Plan and include updated base loads (based on the average water use during the four winter periods between December 2010 and February 2014), updated development assumptions consistent with the City's 2035 General Plan, and projected loads for additional developments that were approved between 2009 (after the completion of the original 2035 Loads) and the completion of the 2016 Master Plan. The model also includes other developments that have been evaluated since completion of the 2016 Master Plan including the recent PHD Specific Plan (Scenario A).
- In addition to the wastewater flows generated within the City's service area, the City also receives flow from the Cupertino Sanitary District (CuSD). CuSD recently provided an update to their projected future peak wet weather flow (PWWF) discharge into the Santa Clara system. The updated PWWF is 14.5 mgd, which is slightly above the 13.8 mgd PWWF assumed for the City's 2016 Master Plan (equivalent to their current contractual maximum flow rate). The model has been updated to reflect the most recent PWWF discharge projection of 14.5 mgd. It should be noted that CuSD flows impact the Great America Parkway trunks that are downstream of the proposed 2901 Tasman Drive development.
- *Flow Scenario*: Capacity impacts are typically evaluated under peak wet weather flow (PWWF) to determine if the additional flow from a proposed development would trigger downstream deficiencies under a design storm event.

## 2 Model Input

The development was added to the model subcatchment representing the two parcels (ID 800) with the following settings, based on the sewer model run request dated April 26, 2021:

- *Sanitary Sewer Loads*: The development is proposed to connect to existing manhole S93-21 located on the GAP west trunk. The developer is proposing to construct an office building consisting of 1,070,344 square feet (SF) for office and research and development (R&D) uses. The resulting average base wastewater flow will be 0.16 mgd (based on a unit flow factor of 0.15 gallons per day per SF). The development will replace a proposed 2035 load of 2,567 gpd (0.003 mgd) of

residential flow and 15,127 gpd (0.015 mgd) of commercial flow (and associated residential and commercial diurnal curves) as estimated in the 2035 Master Plan model for these parcels.

- *Diurnal Profile:* A commercial/office diurnal curve was applied for the proposed development.
- *Rainfall Event:* The rainfall event used was the same 10-year design event used for the City's 2016 Sanitary Sewer Master Plan Update.
- *Contributing Area and RDI/I Parameters:* The RDI/I parameters used were the calibrated parameters from the City's 2016 Sanitary Sewer Master Plan Update. This means that RDI/I response is assumed to neither increase nor decrease with the development.

### 3 Model Results

Hydraulic profiles and predicted PWWF under future (2035) conditions in the sewers downstream of the loading manhole S93-21 of the development were reviewed.

***Without the development:*** Model results show segments of the 30-inch GAP trunk (from the Bay Division Pipelines to the San Tomas Aquino Creek crossings or from manhole S93-48 to S103-19) throttled (i.e., sewers are under capacity) or under backwater surcharge conditions. However, the surcharge level does not exceed the City's PWWF deficiency criteria (exceeds 1 foot above pipe crown). The surcharge level at Tasman Drive (manhole S93-36) is 9 inches above pipe crown. One additional sewer segment is throttled downstream of the San Tomas Aquino Creek crossing between manholes S103-10 and S103-12 (surcharge is less than 1 inch above the pipe crown) although the surcharge does not exceed the City's PWWF deficiency criteria.

***With the development:*** Model results show the same 30-inch GAP trunk segments throttled (from the Bay Division Pipelines to the San Tomas Aquino Creek crossing) or under backwater surcharge conditions. However, the surcharge level does not exceed the City's PWWF deficiency criteria. The surcharge level at Tasman Drive (manhole S93-36) is slightly higher at 10 inches above pipe crown. As in the model run without the development, one additional sewer segment is throttled downstream of the San Tomas Aquino Creek crossing between manholes S103-10 and S103-12 although the surcharge does not exceed the City's PWWF deficiency criteria (surcharge is less than 1 inch above the pipe crown).

As shown on the profiles, the flow increase under PWWF conditions from the proposed 2901 Tasman Drive development would not result in deficiencies, therefore, **no capacity improvement is needed** to serve the proposed development at 2901 Tasman Drive.

This development also contributes flow to the Northside and Rabello pump stations. The development increases peak wet weather flow to the pump stations by only about 0.22 mgd, and therefore does not significantly change the projected pump station inflows. It should be noted, however, that the combined model predicted future PWWF to the pump stations (47 mgd) slightly exceeds their estimated firm capacities (capacity with the largest pump out of service) of 46.1 mgd (or 19.7 mgd for the Northside Pump Station and 26.4 mgd for the Rabello Pump Station). Although this exceedance does not warrant expanding pump station capacity at this time, the City may wish to consider planning for future pump station capacity improvements as additional developments are proposed.