

Technical Memorandum

Subject: Sanitary Sewer Capacity Evaluation for the Proposed El Camino Real Specific Plan

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The City is proposing a Specific Plan to guide future development along the El Camino Real (ECR) corridor. At the request of the City of Santa Clara (City), Woodard & Curran evaluated potential sanitary sewer capacity impacts of the proposed Specific Plan using the City's sanitary sewer hydraulic model. This technical memorandum (TM) summarizes the approach, model input, and results of the analysis. As shown on **Figure 1**, the proposed Specific Plan redevelops multiple parcels along ECR. Parcels associated with specific ECR developments are shown cross-hatched. Parcels shown in red without cross-hatching are expected to be redeveloped as part of the overall ECR Specific Plan but are not associated with specific recently approved, pending, or pre-application stage developments. Remaining parcels along ECR were identified by the Specific Plan as "no change in land use expected".

Flow from the Specific Plan would enter the City's sanitary sewer system at various manholes along ECR as well as at unmodeled (8-inch) sewers discharging to trunks north of ECR. **Figure 2** shows the trunk sewer lines that may receive flow from ECR developments and parcels, depending on how flow is split at manholes where there are multiple outgoing pipes. As shown, flow from the ECR Specific Plan area may be conveyed through many of the trunk lines conveying flow north to the SJ/SC Regional Wastewater Facility and to the Trimble Road trunk. This evaluation addresses trunk sewers only. Unmodeled local small (6- and 8-inch) diameter sewers that may directly receive flow from the ECR developments and Specific Plan parcels were not analyzed as part of this evaluation.

It should be noted that flow from some of the ECR developments and Specific Plan parcels would discharge to sewers that would convey flow through the City's 2016 Master Plan proposed capacity improvement project P3 (Cabrillo Avenue Sewer Improvement), the recently lined 24-inch sewer along Calabazas Creek (from manhole S62-51 to S62-40 and S62-38 to S62-34), the recently discovered 19-inch constriction along the Calabazas Creek sewer, and the recently constructed project P6-Alt (Calabazas Creek Sewer Improvement). These projects are also shown on **Figure 2**. Project P3 proposed to upsize 1,600 feet of 8-inch pipe in Cabrillo Avenue between Lawrence Expressway and Nobili Avenue to a 12-inch pipe.

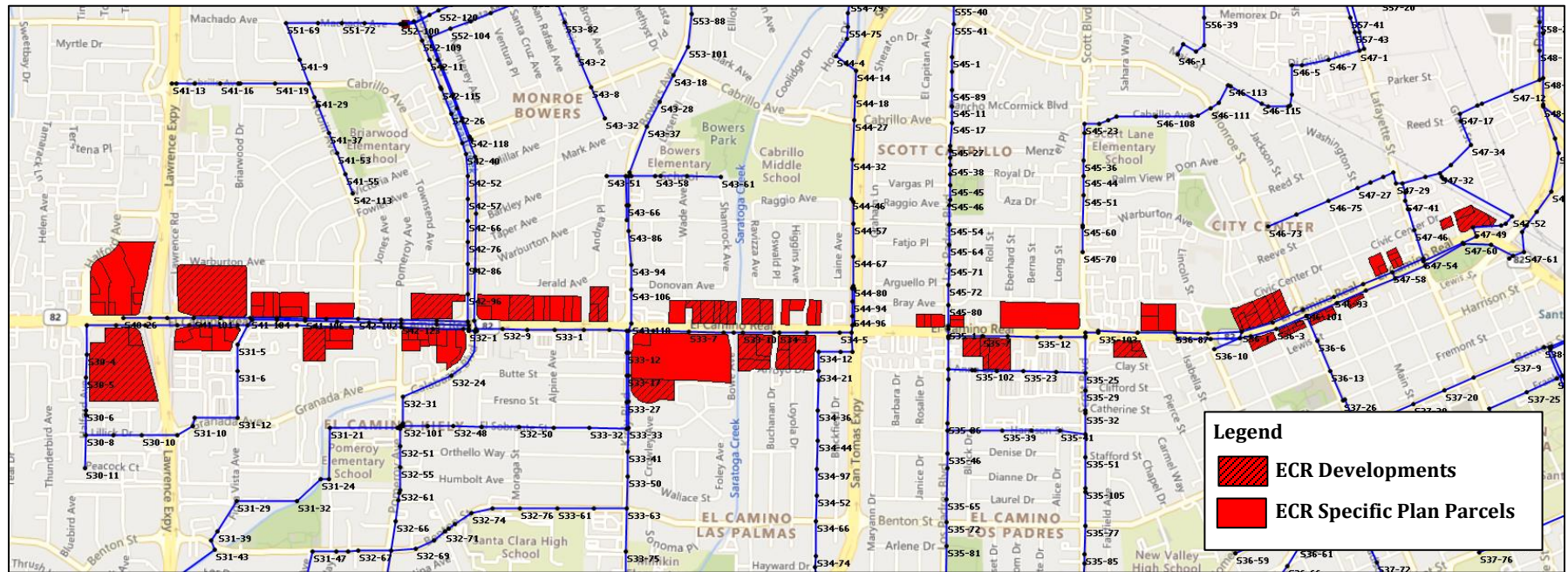


Figure 1: ECR Developments and Specific Plan Parcels

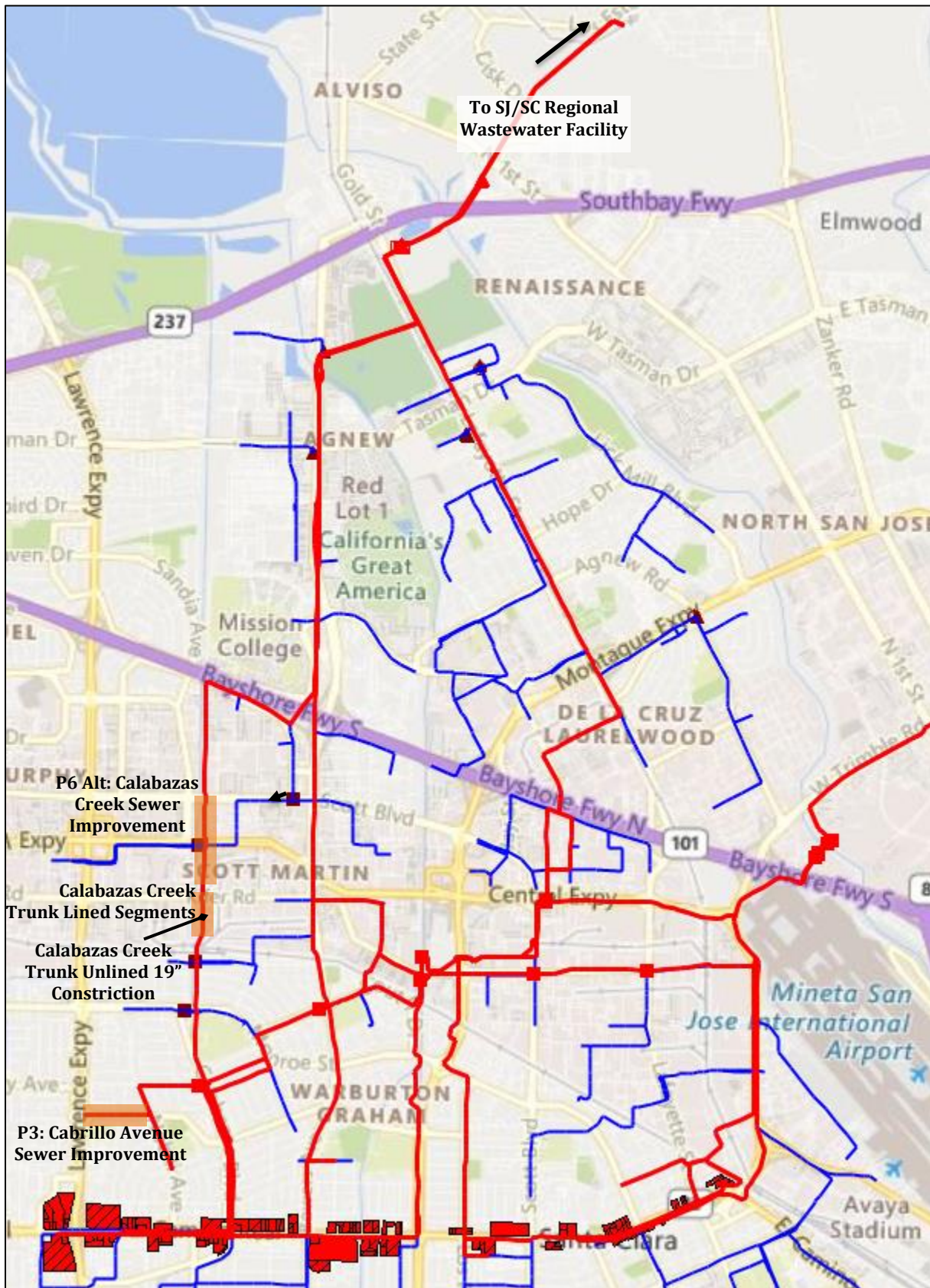


Figure 2: Trunk Sewers Downstream of the Proposed Project Site

1 Approach

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

- *Sewer network*: The City's current solution network was used. The network consists of the City's expanded trunk sewer system that was developed as part of the 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), the NVIDIA improvements (per the conformed drawings dated December 2014 with CSC tracking number 11,988-D), and the proposed improvements to the Old Ironside Drive, Tasman Drive, and the Tasman Drive Lift Station recommended as part of the Patrick Henry Drive Specific Plan capacity evaluation (refer to TM dated May 7, 2020). Projects P3 (Cabrillo Avenue Sewer Improvement) and P6-Alt (City of Santa Clara tracking number 12,175-D) are downstream of the ECR developments Specific Plan parcels.
- *Sanitary sewer load*: The Updated General Plan Phase 3 Loads (aka 2035 Loads) were used for this analysis. The 2035 loads were updated for the 2016 Master Plan, which includes updated base loads, 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 developments that have been evaluated since completion of the 2016 Master Plan including developments along ECR. Details on these developments are provided in **Section 2**. In addition to the wastewater flows generated within the City's service area, the City also receives flow from the Cupertino Sanitary District (CuSD). For planning purposes, the model capped the peak wet weather flow (PWWF) discharge from CuSD at 13.8 mgd, which is the contractual maximum flow rate that CuSD is allowed to discharge into the Santa Clara system.
- *Flow Scenario*: System capacity was evaluated based on the ability of the sanitary sewer system to convey future PDWF and PWWF under design storm conditions. This analysis used the same 10-year design storm that was used for the 2016 Master Plan.

2 Model Input

The ECR developments and Specific Plan parcels were added to the model as individual subcatchments with the following settings, based on the sewer model run request received on April 15, 2020 and subsequent information provided by the Planning Division:

- *Sanitary Sewer Loads*: For loading to the sewer model, parcels were identified as either specific developments (developments that have been approved, are pending, or have submitted pre-applications), or as general land use parcels (parcels with no specific development yet, but with future development guided by a Specific Plan land use).

The City provided a land use plan identifying the various land uses proposed for the ECR Specific Plan parcels (see **Figure 3**). The Planning Division specified the type of residential and commercial land uses for each category as follows:

- Corridor Residential – Townhomes and condominiums.
- Corridor Mixed Use – Apartments with ground floor small retail and restaurant use.
- Regional Commercial Mixed Use – Apartments with larger commercial uses such as offices, retail, and restaurants.

For estimating sanitary sewer loads, the same unit flow factors used in the 2016 Master Plan were used for the residential land uses. For the commercial land uses, the Land Use Plan did not identify

the specific square footage dedicated to general commercial (e.g. retail or office space) versus restaurant uses. The restaurant unit flow factor (1.04 gallons per day per square foot or gpd/SF) is significantly higher than the general commercial unit flow factor (0.1 gpd/SF). Therefore, for the purpose of this analysis, it was assumed that restaurant space makes up 25% of the total commercial space. This assumption results in a unit flow factor of 0.335 gpd/SF for the commercial land uses. Remaining parcels along ECR were identified by the Specific Plan as “no change in land use expected”. As a result, these parcels retained their original (2016 Master Plan) 2035 load estimates.

Attachment A includes tables detailing the two categories of loads. **Table A-1** provides a detailed summary of specific developments including the type and number of residential dwelling units, commercial square footage, their corresponding unit flow factors, the estimated average sewer flow, and the discharge manhole for each development. These specific developments are estimated to discharge a total average flow of 0.56 million gallons per day (mgd). **Table A-2** lists the parcels within the ECR Specific Plan that have no specific development yet but are defined by their general land use. The table includes each parcel’s corresponding land use, number of residential units, commercial square footage, unit flow factors, estimated sewer flow, and discharge manhole. These land use parcels are estimated to discharge a total average flow of 0.9 mgd.

Figure A-1 in Attachment A following these tables shows the locations of the developments, parcels, and modeled discharge manholes. In total, the ECR developments and Specific Plan parcels are estimated to discharge an average flow of 1.46 mgd, which will replace the General Plan 2035 flow of 0.76 mgd estimated for these parcels. **Figure A-2** in Attachment A shows which parcels discharge to unmodeled local (6- and 8-inch) diameter sewers. **Table A-3** lists the parcels APNs and the corresponding development name (if applicable).

- *Diurnal Profile:* A residential diurnal curve was applied to the residential flows, and a commercial diurnal curve was applied to retail, office, and restaurant flows.
- *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. The contributing area remained the same. This means that the RDI/I response is assumed to neither increase nor decrease with the Specific Plan.

Figure 3: ECR Specific Plan Land Uses¹



¹ Source: City's Planning Division.

3 Model Results

Model results under future (2035) PWWF conditions in the sewers receiving flow from the ECR Specific Plan (as shown on **Figure 2**) were reviewed. Profiles are provided for sewers shown to have deficiencies, sewers associated with proposed capacity improvement projects (e.g. P3 - Cabrillo Avenue Sewer Improvement), and sewers nearing full-pipe that had noticeable changes after the Specific Plan. Results were reviewed for all trunks affected by the ECR flows but profiles have not been included for every receiving pipe since there are numerous pipes receiving flow from the ECR area, and since for many trunks the change in flows and hydraulic grade line conditions was minor.

Before the Specific Plan: The scenario before the Specific Plan refers to the 2035 General Plan scenario that also includes specific developments along the El Camino Real Corridor that had been reviewed since completion of the 2016 Master Plan. Plan and profile views of model results under future (2035) PWWF for this scenario are included in the attached profiles. Sewers shown in red indicate surcharge conditions exceed the City's deficiency criteria (surcharge level above crown is one foot and greater), which occurs along the constricted section of the Calabazas Creek trunk. As shown on the profile, a segment of the 24-inch Calabazas Creek trunk is surcharged due to throttle conditions in the downstream lined segment (between manholes S62-38 and S62-34) and the 19-inch constriction (between manhole S62-37 and S62-38). These throttled segments cause backwater surcharge in the upstream sewers (from manhole S52-30 to S62-37). The maximum surcharge occurs at manhole S62-37 with 2.2 feet of surcharge above pipe crown. The minimum freeboard occurs at manhole S62-48 with 5.7 feet of freeboard remaining. As shown on the plan view, there is no other surcharge exceeding the City's criteria in the immediate downstream sewers along ECR, Calabazas Boulevard, Bowers Avenue, San Tomas Expressway, Los Padres Boulevard, or De La Cruz Boulevard.

A second plan view of model results under future (2035) PWWF for this scenario is shown indicating how full the sewers immediately downstream of the ECR Specific Plan area are. The plan view shows how full the sewers are based on their flow depth to pipe diameter ratio (d/D). Sewers that are up to 75% full are shown in blue. Sewers that are between 75 and 90% full are shown in green. Sewers that are more than 90% full but not yet surcharged are shown in orange. Surcharged sewers (due to backwater effects) are shown in pink. Surcharged sewers (due to throttle conditions, that is, the PWWF in the pipe exceeds the full pipe capacity) are shown in purple. As shown in the plan view, in general, most sewers immediately downstream of the ECR Specific Plan area are predicted by the model to be less than 75% full. There are a few sewer segments that are between 75% and 90% full and between 90% and full along El Camino Real, West of Calabazas Boulevard as well as along Calabazas Boulevard. The downstream segments of the Bowers Avenue trunk (North of Chromite Drive) are predicted to be 75% to 90% full. Sewer segments immediately upstream and downstream of the NVIDIA improvements (Walsh Avenue and San Tomas Expressway) and along Scott Boulevard are 75% to over 90% full (although not surcharged).

As shown on the profile of the proposed capacity improvement project P3 (Cabrillo Avenue Sewer Improvement), the model predicts the proposed upsized 12-inch to be 61% full.

After the Specific Plan: The scenario after the Specific Plan includes additional specific developments as well as more intense land use development on selected parcels compared to the scenario without the Specific Plan. Plan and profile views of model results under future (2035) PWWF for this scenario are included in the attached profiles. Sewers shown in red indicate surcharge conditions exceed the City's deficiency criteria, which (as with the before Specific Plan scenario) occurs along the constricted section of the Calabazas Creek trunk. The segment of the 24-inch Calabazas Creek trunk remains surcharged due to throttle and backwater conditions. However, conditions remain similar to the scenario before the Specific Plan, with the maximum surcharge being 2.2 feet above pipe crown (at manhole S62-37) and the minimum freeboard being 5.7 feet (at manhole S62-48). The small additional flow added by the ECR Specific Plan therefore has minimal impact on this deficiency. As shown on the plan view, the additional PWWFs from the Specific Plan do not cause any further deficiencies in the immediate downstream sewers along ECR,

Calabazas Boulevard, Bowers Avenue, San Tomas Expressway, Los Padres Boulevard, or De La Cruz Boulevard.

A second plan view of model results under future (2035) PWWF for this scenario is shown indicating how full the sewers immediately downstream of the ECR Specific Plan area are. The plan view shows how full the sewers are based on their flow depth to pipe diameter ratio (d/D). As shown on the profile of the proposed capacity improvement project P3 (Profile 1), the model predicts the 12-inch to be 54% to 72% full. As a result, the pipe still meets the City's sizing criteria for new sewer facilities (i.e. maximum allowable d/D of 0.75). Additional profiles have been provided for the same trunks detailed in the Before Specific Plan scenario. As shown on the plan and profile view, a few segments along El Camino Real (West of Calabazas Boulevard) are now surcharged (due to backwater conditions) and 91% full (refer to Profile 2). The Santa Maria Avenue 8-inch sewer (Profile 3) is now surcharged due to throttle conditions (in the downstream segments) and backwater conditions (in the upstream segments). The Calabazas Creek trunk (Profile 4) continues to be 77 to 98% full. The San Tomas Aquino Creek trunk (Profile 5) is now 66 to 89% full (was 59 to 74% full before the Specific Plan). The NVIDIA Improvements trunk (Profile 6) is now 88% to surcharged due to throttle conditions (was 80% to 95% full). The downstream reaches of this trunk (along Scott Boulevard) are now 87% to 95% full (was 76% to 85% full). However, none of the pipes exceed the City's hydraulic deficiency criteria.

The PWWF reaching the Rabello and Northside pump stations will be 45.7 mgd or 0.3 mgd more than the PWWF without the development (45.3 mgd). According to the City's Master Plan, the rated firm capacity of the Rabello and Northside pump stations is 20 mgd and 21 mgd, respectively. The updated total flow to the pump stations (45.7 mgd) will therefore exceed the current combined rated firm capacities (41 mgd). The City may therefore wish to consider planning for future pump station capacity improvements.

The deficiency along the Calabazas Creek trunk is caused by the newly discovered 19-inch constriction and will be addressed as part of the proposed Amendment no.1 to the agreement between the City and Woodard & Curran. As a result, the proposed ECR Specific Plan does not cause any deficiencies in the modeled trunks and no additional capacity improvement is needed to serve the proposed development.

4 Additional Considerations

As discussed in Section 1 and 3, flow from two ECR developments (3700 ECR and 3410 ECR) plus additional Specific Plan parcels discharge to sewers that convey flow to the Calabazas Creek trunk. As shown on **Figure A-3** in Attachment A, these developments and Specific Plan parcels discharge to a 10- and 9.5-inch (lined) sewer which then discharges into the 24-inch Calabazas Boulevard trunk. These parcels contribute a total average flow of 0.263 mgd to the Calabazas Creek trunk. As discussed earlier, downstream sections of the Calabazas Creek trunk are deficient. As a result, this deficiency should be addressed prior to further development of these parcels.

In addition, flow from some Specific Plan parcels (also shown on Figure A-3) would discharge to sewers that would convey flow through the City's 2016 Master Plan proposed capacity improvement project P3 (Cabrillo Avenue Sewer Improvement). These parcels would contribute a total average flow of 0.209 mgd to the Cabrillo Avenue sewer. This project should be in place prior to development of these parcels.

Development Name	APN	PLN	Load MH	Land Use ⁽¹⁾	Quantity	Unit	Unit Flow Factor ⁽²⁾	Average Flow (mgd)
1375 ECR to 1439 East ECR (Catalina and Catalina 2)	224-48-002 224-48-004 224-48-005 224-48-006 224-48-012 224-48-013	PLN2017-12726 PLN2018-13609	S36-1 S46-73 S46-100	Residential (townhomes)	93	dwelling unit (DU)	175 gpd/DU	0.016
2570 ECR	290-46-001 290-46-002 290-46-003 290-46-015 290-46-016 290-46-017	PLN2016-11686	S34-4	Residential (condominiums)	392	DU	175 gpd/DU	0.069
				Restaurant	8000	SF	1.04 gpd/DU	0.008
				Hotel	311	rooms	100 gpd/room	0.031
2780 ECR	290-16-018	PLN2017-12589 PLN2017-12669	S33-9	Residential (townhomes)	58	DU	175 gpd/DU	0.010
3402/3410 ECR	290-01-136	PLN2017-12578	S41-115	Residential (apartments)	69	DU	154 gpd/DU	0.011
				Restaurant	10300	SF	1.04 gpd/DU	0.011
				Commercial (gym)	3458	SF	0.1 gpd/SF	0.000
2232 ECR (Summerhill)	290-10-090 290-10-091	PLN2017-12723	S35-22 S35-10	Residential (apartments)	151	DU	154 gpd/DU	0.023
				Retail	5000	SF	0.1 gpd/SF	0.001
				Restaurant	5000	SF	1.04 gpd/SF	0.005
3700, 3710 ECR (Gateway Village)	313-06-002 313-06-004	PLN2012-09540	S40-28	Residential (condominium)	476	DU	175 gpd/DU	0.083
				Restaurant (small food service)	23010	SF	0.9 gpd/SF	0.021
				Restaurant (full service)	15340	SF	1.04 gpd/SF	0.016
				Retail	14750	SF	0.1 gpd/SF	0.001
				Fitness	9357	SF	0.42 gpd/SF	0.004
				Beauty Parlor	15257	SF	0.47 gpd/SF	0.007
				Medical office	9386	SF	0.51 gpd/SF	0.005
2585 ECR	216-01-008	PLN2013-09805	S44-46	Residential (condominium)	60	DU	175 gpd/DU	0.011
2525 ECR	216-01-052	PLN2011-08732	S44-46	Residential (apartments)	48	DU	154 gpd/DU	0.007
3229 ECR	220-01-056 220-01-062	PLN2013-09789	S42-105	Residential (apartments)	133	DU	154 gpd/DU	0.020
3035 ECR	220-32-059	PLN2018-13265	S43-110	Residential (condos)	42	DU	175 gpd/DU	0.007

Development Name	APN	PLN	Load MH	Land Use ⁽¹⁾	Quantity	Unit	Unit Flow Factor ⁽²⁾	Average Flow (mgd)
1890 ECR	269-01-081 269-01-082	PLN2015-11361	S35-17	Residential (condos)	56	DU	175 gpd/DU	0.010
1525 Alviso Street	224-29-034 224-29-012 224-29-032	PLN2015-11152	S47-46	Residential (townhomes)	40	DU	175 gpd/DU	0.007
1480 Main Street	269-05-107	PLN2014-10765	S47-57	Residential (apartments)	12	DU	154 gpd/DU	0.002
				Retail	1000	SF	0.1 gpd/SF	0.000
1450 ECR	269-03-148	PLN2010-08180	S36-2	Residential (apartments)	40	DU	154 gpd/DU	0.006
2615 ECR	216-01-033 216-01-036 216-01-048 216-01-012 216-01-025	PLN2013-09744	S43-60	Residential (apartments)	186	DU	154 gpd/DU	0.029
820 CivicCenterDr	224-29-022	PLN2015-11520	S47-46	Residential (single family)	4	DU	254 gpd/DU	0.001
1368 ECR	269-03-075	PLN2012-09113	S36-3	Residential (condos)	28	DU	175 gpd/DU	0.005
	269-03-068							
	269-03-067			Retail	5530	SF	0.1 gpd/SF	0.001
	269-03-142							
	269-03-143			Office	1460	SF	0.1 gpd/SF	0.000
3501 ECR	220-03-010	PLN2015-11478	S41-101	Residential (apartments)	700	DU	154 gpd/DU	0.108
			S42-113	Retail	86000	SF	0.1 gpd/SF	0.009
2250 ECR	290-10-072	PLN2016-12084	S35-3	Residential (condo)	55	DU	175 gpd/DU	0.010
2855-2895 ECR	220-31-082 220-31-083	PLN2018-13598	S43-75	Residential (condos & townhomes)	47	DU	175 gpd/DU	0.008
							TOTAL:	0.563

⁽¹⁾ Land use and values were obtained from the sewer model run request received April 15, 2020 as well as subsequent e-mails with information provided by the Planning Division (including the spreadsheet "ECR Development Project List.xlsx" received on May 27, 2020).

⁽²⁾ Unit flow factors per the City's 2016 Sanitary Sewer Master Plan Update and the San Jose/Santa Clara Water Pollution Control Plant – Sewage Treatment Plant Connection Fees, Coefficients, and Rates, Exhibit E.

APN	New Residential Units (Dus)	New Commercial SF	Land Use	Land Use Plan Designation	Residential Unit Flow Factor (gpd/DU)	Commercial Unit Flow Factor (gpd/SF)	Residential Average Flow (MGD)	Commercial Average Flow (MGD)	Total Average Flow (MGD)
220-31-079	43	4,350	CMU	Corridor Mixed Use	154	0.335	0.0067	0.0015	0.0081
220-31-080	43	4,350	CMU	Corridor Mixed Use	154	0.335	0.0067	0.0015	0.0081
220-02-049	76	0	R MED	Corridor Residential	175	0.335	0.0133	0.0000	0.0133
220-31-075	70	7,006	CMU	Corridor Mixed Use	154	0.335	0.0107	0.0023	0.0131
220-32-056	29	2,912	CMU	Corridor Mixed Use	154	0.335	0.0045	0.0010	0.0054
220-32-054	53	5,374	CMU	Corridor Mixed Use	154	0.335	0.0082	0.0018	0.0100
220-32-057	123	12,347	CMU	Corridor Mixed Use	154	0.335	0.0189	0.0041	0.0231
220-02-020	30	2,974	CMU	Corridor Mixed Use	154	0.335	0.0046	0.0010	0.0056
220-02-048	46	4,630	CMU	Corridor Mixed Use	154	0.335	0.0071	0.0016	0.0086
220-02-045	104	10,486	CMU	Corridor Mixed Use	154	0.335	0.0161	0.0035	0.0196
220-02-040	33	3,340	CMU	Corridor Mixed Use	154	0.335	0.0051	0.0011	0.0062
220-32-058	36	3,660	CMU	Corridor Mixed Use	154	0.335	0.0056	0.0012	0.0068
220-02-046	39	3,960	CMU	Corridor Mixed Use	154	0.335	0.0061	0.0013	0.0074
220-02-022	27	2,670	CMU	Corridor Mixed Use	154	0.335	0.0041	0.0009	0.0050
290-03-084	16	0	R MED	Corridor Residential	175	0.335	0.0029	0.0000	0.0029
290-03-083	13	0	R MED	Corridor Residential	175	0.335	0.0022	0.0000	0.0022
290-03-081	9	0	R MED	Corridor Residential	175	0.335	0.0016	0.0000	0.0016
290-03-085	8	0	R MED	Corridor Residential	175	0.335	0.0014	0.0000	0.0014
290-03-059	27	0	R MED	Corridor Residential	175	0.335	0.0048	0.0000	0.0048
290-03-088	33	0	R MED	Corridor Mixed Use	154	0.335	0.0051	0.0000	0.0051
290-03-087	72	0	R MED	Corridor Mixed Use	154	0.335	0.0111	0.0000	0.0111
290-03-064	21	0	R MED	Corridor Residential	175	0.335	0.0037	0.0000	0.0037
290-63-008	19	0	R MED	Corridor Residential	175	0.335	0.0033	0.0000	0.0033
290-02-102	40	0	R MED	Corridor Residential	175	0.335	0.0069	0.0000	0.0069
290-02-095	8	0	R MED	Corridor Residential	175	0.335	0.0013	0.0000	0.0013
290-02-094	32	0	R MED	Corridor Residential	175	0.335	0.0057	0.0000	0.0057
290-01-012	1	76	CMU	Corridor Mixed Use	154	0.335	0.0001	0.0000	0.0001
290-01-114	38	3,784	CMU	Corridor Mixed Use	154	0.335	0.0058	0.0013	0.0071
290-01-113	73	7,340	CMU	Corridor Mixed Use	154	0.335	0.0112	0.0025	0.0137
290-01-117	26	2,636	CMU	Corridor Mixed Use	154	0.335	0.0040	0.0009	0.0049
290-01-116	102	10,232	CMU	Corridor Mixed Use	154	0.335	0.0157	0.0034	0.0191
290-01-115	44	4,441	CMU	Corridor Mixed Use	154	0.335	0.0068	0.0015	0.0083
224-15-037	414	41,577	CMU	Corridor Mixed Use	154	0.335	0.0637	0.0139	0.0776
216-01-053	39	3,947	CMU	Corridor Mixed Use	154	0.335	0.0060	0.0013	0.0074
216-01-047	23	2,362	CMU	Corridor Mixed Use	154	0.335	0.0036	0.0008	0.0044
216-01-043	34	3,411	CMU	Corridor Mixed Use	154	0.335	0.0052	0.0011	0.0064
216-01-050	41	4,172	CMU	Corridor Mixed Use	154	0.335	0.0064	0.0014	0.0078
224-28-051	6	0	M RES	Corridor Residential	175	0.335	0.0011	0.0000	0.0011
269-03-086	7	0	M RES	Corridor Residential	175	0.335	0.0012	0.0000	0.0012
269-03-130	9	0	M RES	Corridor Residential	175	0.335	0.0016	0.0000	0.0016
213-34-008	56	4,914	RMU	Regional Commercial Mixed Use	154	0.335	0.0087	0.0016	0.0103
213-34-011	29	2,500	RMU	Regional Commercial Mixed Use	154	0.335	0.0044	0.0008	0.0053
213-34-005	29	2,500	RMU	Regional Commercial Mixed Use	154	0.335	0.0044	0.0008	0.0053
213-34-013	36	3,136	RMU	Regional Commercial Mixed Use	154	0.335	0.0055	0.0011	0.0066
213-34-012	184	16,030	RMU	Regional Commercial Mixed Use	154	0.335	0.0283	0.0054	0.0337
213-34-010	448	39,006	RMU	Regional Commercial Mixed Use	154	0.335	0.0689	0.0131	0.0820
213-34-004	358	31,154	RMU	Regional Commercial Mixed Use	154	0.335	0.0551	0.0104	0.0655
224-49-009	87	8,767	CMU	Corridor Mixed Use	154	0.335	0.0134	0.0029	0.0164
224-49-008	92	9,250	CMU	Corridor Mixed Use	154	0.335	0.0142	0.0031	0.0173
269-03-079	13	0	M RES	Corridor Residential	175	0.335	0.0023	0.0000	0.0023

APN	New Residential Units (Dus)	New Commercial SF	Land Use	Land Use Plan Designation	Residential Unit Flow Factor (gpd/DU)	Commercial Unit Flow Factor (gpd/SF)	Residential Average Flow (MGD)	Commercial Average Flow (MGD)	Total Average Flow (MGD)
269-03-131	3	0	M RES	Corridor Residential	175	0.335	0.0005	0.0000	0.0005
224-28-069	0	0	R APPROVED	Corridor Residential	175	0.335	0.0000	0.0000	0.0000
216-01-040	74	7,431	CMU	Corridor Mixed Use	154	0.335	0.0114	0.0025	0.0139
290-06-020	1,377	119,972	RMU	Regional Commercial Mixed Use	154	0.335	0.2121	0.0402	0.2523
290-06-021	63	5,446	RMU	Regional Commercial Mixed Use	154	0.335	0.0096	0.0018	0.0115
224-15-034	14	0	M RES	Corridor Residential	175	0.335	0.0024	0.0000	0.0024
224-49-012	51	5,161	CMU	Corridor Mixed Use	154	0.335	0.0079	0.0017	0.0096
224-14-111	24	0	M RES	Corridor Residential	175	0.335	0.0042	0.0000	0.0042
224-14-089	11	0	M RES	Corridor Residential	175	0.335	0.0019	0.0000	0.0019
224-14-090	15	0	M RES	Corridor Residential	175	0.335	0.0026	0.0000	0.0026
224-15-017	9	0	M RES	Corridor Residential	175	0.335	0.0016	0.0000	0.0016
224-28-067	6	0	M RES	Corridor Residential	175	0.335	0.0011	0.0000	0.0011
224-28-048	7	0	M RES	Corridor Residential	175	0.335	0.0011	0.0000	0.0011
224-28-035	0	0	R APPROVED	Corridor Residential	175	0.335	0.0000	0.0000	0.0000
224-28-050	8	0	M RES	Corridor Residential	175	0.335	0.0015	0.0000	0.0015
TOTAL:	4,903	407,304					0.76	0.14	0.90

APN	Development Name
224-48-002	1375 ECR
224-48-006	1433 ECR
224-29-034	1525 Alviso Street
224-29-032	1525 Alviso Street
224-29-012	1525 Alviso Street
269-01-082	1890 ECR
269-01-081	1890 ECR
216-01-052	2525 ECR
216-01-008	2585 ECR
216-01-048	2615 ECR
216-01-036	2615 ECR
216-01-033	2615 ECR
216-01-025	2615 ECR
216-01-012	2615 ECR
290-16-018	2780 ECR
220-31-083	2855-2895 ECR
220-31-082	2855-2895 ECR
220-32-059	3035 ECR
220-03-010	3501 ECR
224-29-022	820 CivicCenterDr
224-49-012	ECR Specific Plan Parcel
224-49-009	ECR Specific Plan Parcel
224-49-008	ECR Specific Plan Parcel
224-15-037	ECR Specific Plan Parcel
220-32-058	ECR Specific Plan Parcel
220-32-057	ECR Specific Plan Parcel
220-32-056	ECR Specific Plan Parcel
220-32-054	ECR Specific Plan Parcel
220-31-080	ECR Specific Plan Parcel
220-31-079	ECR Specific Plan Parcel
220-31-075	ECR Specific Plan Parcel
220-02-048	ECR Specific Plan Parcel
220-02-045	ECR Specific Plan Parcel
220-02-040	ECR Specific Plan Parcel
220-02-022	ECR Specific Plan Parcel
220-02-020	ECR Specific Plan Parcel
216-01-053	ECR Specific Plan Parcel
216-01-050	ECR Specific Plan Parcel
216-01-047	ECR Specific Plan Parcel
216-01-043	ECR Specific Plan Parcel
216-01-040	ECR Specific Plan Parcel
224-28-051	ECR Specific Plan Parcel
224-28-050	ECR Specific Plan Parcel
224-14-111	ECR Specific Plan Parcel

APN	Development Name
224-14-090	ECR Specific Plan Parcel
224-14-089	ECR Specific Plan Parcel
224-28-035	ECR Specific Plan Parcel
213-34-013	ECR Specific Plan Parcel
213-34-012	ECR Specific Plan Parcel
213-34-011	ECR Specific Plan Parcel
213-34-010	ECR Specific Plan Parcel
213-34-008	ECR Specific Plan Parcel
213-34-005	ECR Specific Plan Parcel
213-34-004	ECR Specific Plan Parcel

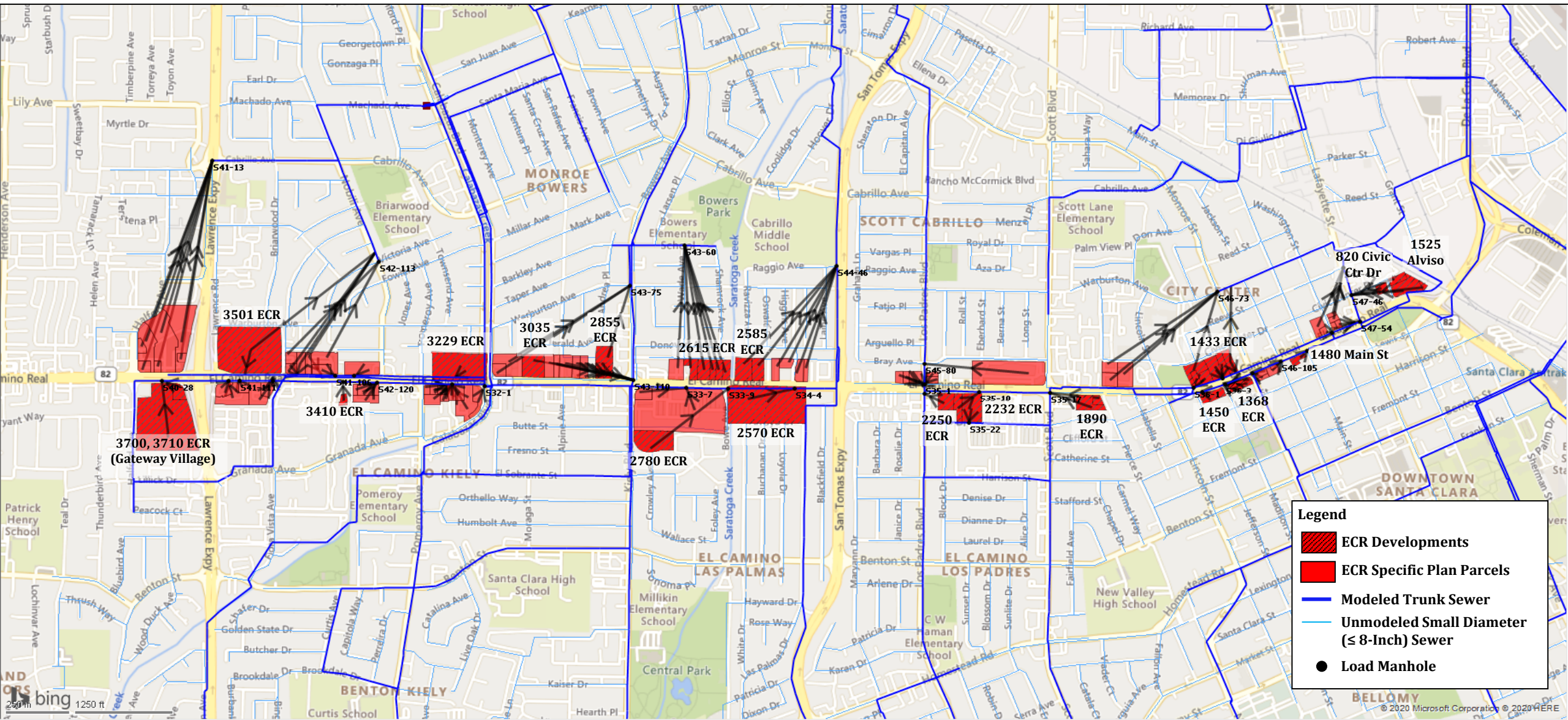


Figure A-2: ECR Development and Specific Plan Parcels Loading to Unmodeled Sewers

