Downtown West

Infrastructure Plan

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1. INTRODUCTION / PROJECT DESCRIPTION

1.1. Purpose

This Infrastructure Plan is an exhibit to the Development Agreement by and between Google LLC (hereafter "Project applicant") and the City of San José (City), with said agreement referred to hereafter as the "Development Agreement." The Infrastructure Plan describes the infrastructure improvements (also referred to as horizontal improvements) to be constructed as part of the Downtown West Mixed-Use Plan (hereafter "Project"). The Infrastructure Plan, in tandem with the Planned Development Permit (inclusive of the Downtown West Improvement Standards (DWIS), Infrastructure Plan Sheets and the Downtown West Standards and Guidelines (DWDSG)) and Maintenance Matrix (Exhibit to the DA), set forth City and Project applicant responsibilities relating to the design, construction, ownership, acceptance, and operation and maintenance of horizontal improvements on the site as contemplated by the Development Agreement. Additionally, this document describes the interface of proposed horizontal improvements with existing City systems, networks and other portions of the public realm.

1.2. Project Description

The Downtown West Mixed-Use Plan encompasses approximately 81 acres of land owned by the Project applicant, the City, PG&E, VTA and Caltrain, which is proposed to be redeveloped. The Project will entail demolition of existing buildings along with construction in phases of up to 7.3 million gross square feet (gsf) of office space; up to 500,000 gsf of active uses (which would include retail, restaurant, arts, cultural, institutional, educational, non-profit and small-format office uses); hotel uses with up to 300 guest rooms; up to 800 rooms of limited-term corporate accommodations; a 100,000 gsf event facility that could host various events and assemblies; up to 5,900 residential dwelling units in buildings, some with active use spaces as discussed above at the ground level; an open space program within an aggregate of approximately 15 acres across the site; and onsite parking.

The proposed Project would include public realm improvements aimed at leveraging regional transit connectivity in the immediate vicinity (BART, Caltrain, VTA, and potentially future high-speed rail service), enhancing local pedestrian circulation (via additional connectivity, trail extensions and enhancements), and improving bicycle linkages to downtown for residents and visitors.

To support the Project, significant investment into public infrastructure would be made including streets and utility systems. The Project proposes to extend portions of certain streets and remove sections of other streets to improve circulation through the Project area. Most notably, the proposed Project would extend Cahill to enhance north-south connectivity throughout the length of the Project site. Public utility improvements will include new utilities within new streets, relocations within reconstructed streets, and upgrades to aging or undersized utility systems. Public utility improvements would include domestic and fire water, storm drain and stormwater management, and sanitary sewer systems. Franchise utility improvements would include electrical, natural gas, and communications systems including the undergrounding of much of the overhead power lines within the Project area.

In addition to the public and franchise utilities, significant private infrastructure improvements would be built to support the Project's office, residential, and retail development. The private infrastructure systems have been conceptualized to be sustainable at their core while meeting a number of Project objectives as outlined in the Infrastructure Plan Overview below. These private infrastructure improvements include thermal heating and cooling system, electrical power, wastewater and solid waste collection, recycled water, and communications.

Additional off-site improvements for the Project will include reconstruction of the existing West San Fernando Street bridge and channel restoration of Los Gatos Creek from W. Santa Clara to W. San Carlos Street bridges to significantly reduce overbank flooding during a 100-year event, as further described in Section 10.1.4.

1.3. Infrastructure Plan Overview

The proposed Project would bring substantial development to the Diridon Station area. The approach builds on the strengths of the existing infrastructure while closing gaps to prepare a platform for a high-quality development as articulated in the December 2018 Memorandum of Understanding between the City of San José and the Project applicant. The existing street grid would largely be maintained and enhanced through circulation improvements. The open space systems would take cues from the local ecology and would be improved and expanded, enhancing connectivity with the Diridon Station area as well as the city as a whole. In most cases, parking provided by surface lots in the existing condition would be replaced with underground or podium parking garages thereby decreasing the parking footprint and increasing opportunities to reduce impervious spaces and improve the public realm. Municipal utility systems would be maintained and improved as necessary to support the Project development. This infrastructure plan aligns with the Project objectives as described in the Project's EIR. Through the implementation of district-wide infrastructure and systems in combination with a high-density mix of land uses, the Project aims to achieve outstanding environmental performance through resource efficiency across water, energy, and waste flows.

This Infrastructure Plan builds upon previous work done by the City of San José during the Diridon Station Area Plan (DSAP) planning process. Horizontal infrastructure improvements proposed in the DSAP included work both within the DSAP boundary and impacts outside of the DSAP Project boundary as identified in the DSAP EIR. Substantial horizontal improvements identified in the Diridon Station Area Analysis Final Report dated January 31, 2017 included:

- Reconstruction and extension of Autumn Street,
- Reconstruction of San Carlos Street, Park Avenue, and Julian Street,
- Storm drain improvements along Stockton Avenue and San Carlos Street,
- Sanitary sewer upsizing along Autumn Street,
- Extension of reclaimed water into the Diridon Station Area,
- Undergrounding of overhead distribution utilities.

Based on Project-specific analyses conducted, proposed upgrades to the existing horizontal infrastructure may differ from the proposed DSAP improvements. Additional detail can be found in sections 6, 7, 8 and 9.

1.4. District Systems and Utilities

The existing Project area is currently served by several public utilities including domestic (potable) water (DW), sanitary sewer (SS), storm drain (SD), PG&E electrical (ELEC), natural gas, and telecommunications (COMM). The Project as a result of an intensification of use will require new connections to these public systems, which will necessitate upgrades to the utilities, and may warrant construction of new thermal, electric, sanitary sewer, recycled water, and potable water private district systems. It should be noted that full electrification of the site is committed over the use of natural gas with the potential exception of natural gas for limited cooking applications in up to 20,000 SF of retail only.

The Project proposes a district-systems approach to deliver resources via on site systems for energy, wastewater, recycled water and solid waste flows. A "district" system essentially entails the development of an onsite generation or treatment of resources locally with an accompanying network separate from, though sometimes linked to, the City or regional networks. District systems are most commonly used for building space heating and cooling, but may also be employed to generate electricity, collect and treat wastewater and stormwater, and the like. A small mutual water system serving a rural area is another common example of a district system. District systems have additional benefits for the Project. For instance, district thermal systems deliver heating and cooling resources more efficiently as compared to individual and building-specific systems. District water services enable local management of the Project's resource demands, thereby reducing burdens on existing municipal systems while increasing Project resiliency. Business-as-usual utility connections will be provided to the development for potable and fire water, with joint trench services provided and maintained by service providers. Additionally, in some cases buildings within the Project area may not connect to the proposed district systems and instead connect to existing utilities; these limitations are noted in the private utilities section within this document.

The district-systems would serve the Project area via a utility corridor ("utilidor") which would be constructed within private parcels to the maximum extent feasible and will cross public right-of-way at some locations to provide system distribution continuity. The utilidor may be a building-integrated structure as further described in the following sections. Business-as-usual utility systems will be run within the right-of-way and joint trench as normal. The scope and extent of the services within the right-of-way is described in further details within the plan.

Integral to the district systems approach would be the construction and operation of central utility plants (CUPs) in up to two infrastructure zones on the Project site. The approximately 130,000 total square-foot CUPs would house mechanical, thermal, power, water reuse, and supporting equipment to service the proposed Project area. An option exists to co-locate the automated waste collection system (AWCS) terminals within the infrastructure zones. Each system is further described in the following sections.

The CUPs would allow for consolidation of services, centrally addressing resource demands, reducing the burden on existing municipal systems, and increasing the Project's resilience. Moreover, consolidation of services within the CUPs would result in greater spatial efficiency, user density, and productivity by eliminating areas within individual buildings dedicated to these facilities and services. Managing energy and infrastructure services across the site at a district wide scale is anticipated to yield further operational and spatial efficiencies. For example, consolidation of solid waste collection through automated waste collection at a consolidated terminal could reduce the area required in each building for waste collection and storage. Furthermore, by consolidating waste collection to the AWCS terminal, truck traffic would be less distributed along local streets.

Google is proposing to connect District Systems to the majority of buildings within the Project's boundaries. However due to phasing and property ownership the scope of connections may be restricted in areas of the plan. A summary of the extent of service and variants for each District System is listed below.

Wastewater and Recycled Water. The Project is maintaining two distinct alternatives for wastewater and recycled water servicing, outlined below.

The District Systems alternative consists of an onsite district water reuse facility(s), which will collect wastewater from the development for treatment, producing recycled water for non-potable uses, such as for water closet and urinal flushing, irrigation, and cooling. A private wastewater collection system and recycled water distribution network will be installed to facilitate operations.

A City alternative is also being considered, which will connect individual buildings to the municipal wastewater system via typical sewer lateral connections. In this alternative, the Project will connect to the South Bay Water Recycling (SBWR) recycled water network and extend the network to individual buildings and systems within the Project's boundaries.

Microgrid. The Project is proposing to service the Project with electricity from a microgrid, distributing 12.47kV/21kV electrical networks across the plan to service the Project. The Microgrid to the fullest extent will service all properties within the plan area, with potential limitations on servicing some residential buildings, existing assets and first phase buildings.

Thermal Heating and Cooling. The Project is proposing to service the development with an all electric thermal heating and cooling District System, distributing energy via a thermal network contained within the utilidor. The production of heating and cooling energy will be via the central utility plants (CUPs). The District Heating and Cooling systems to the fullest extent will service all properties within the plan area, with potential limitations on servicing some residential buildings, existing assets and first phase buildings.

Automatic Waste Collection System (AWCS). The Project is considering the option of an alternative means of collecting solid waste from the Project via an AWCS. This system will collect the majority of waste from potentially all buildings within the plan area. This is an alternative system to a traditional building by building approach to solid waste collection and management.

1.4.1. Temporary Phasing of Equipment

The Project phasing strategy may require temporary equipment (including heating and cooling equipment) to some buildings while the CUPs are constructed. Temporary equipment will be required for parcels where entitlements and construction proceed ahead of those for the CUP parcel. This may be due to early construction on some parcels, the additional required regulatory approvals for the combined CUP parcel, or the need to complete civil infrastructure from the CUP through multiple parcels which may present short term sequencing challenges relative to service connections. Provisions for temporary equipment to be removed when the CUPs are commissioned will be made.

1.5. Mapping & Permitted Encroachments

The applicant will apply for one or more vesting tentative maps or tentative maps, each of which may permit phased final maps as otherwise authorized by the City of San José Municipal Code and the Subdivision Map Act (Cal. Gov. Code §§ 66410 et seq.). Improvements to service the various subdivisions as described on final maps will correspond with this Infrastructure Plan as it may be amended from time to time and related provisions of the proposed Project's General Development Plan and Planned Development Permit. As otherwise described herein, improvements required as a condition of approval for any vesting tentative map or tentative map will correspond with this Infrastructure Plan and related

provisions of the proposed Project's General Development Plan and Planned Development Permit. It is anticipated that any required street or easement vacations will be completed prior to approval of a final subdivision map encompassing the area proposed for vacation. Dedications of public improvements will conform to the requirements of the Municipal Code and the Subdivision Map Act. The applicant will obtain City, State or other property-owner approval (including, e.g., Major Encroachment Agreement) for any encroachments contemplated herein prior to effectuating such encroachment.

1.6. Project Datum & Coordinate System

All elevations referred to herein are based on the North American Vertical Datum of 1988 (NAVD88).

The Downtown West Project is based on the ground coordinate system. Per the topographic survey dated August 2019, the calculated bearing of south 02° 43' 35" west taken between the record position of GPS control point 2218 and GPS control point 1049, as shown on that certain record of survey filed for record on June 21, 1996, in book 677 of maps at page 54, official records of Santa Clara County was taken as the basis for all bearings shown hereon.

1.7. Project Phasing

If approved, construction of the Project's proposed buildings, street network changes, and infrastructure would occur in three primary phases (each of which may be subdivided pursuant to multiple final or parcel maps). Construction would begin in 2021 and is conservatively assumed to continue through 2031. The duration of each phase of construction would vary, with the end of one phase and the start of the subsequent phase sometimes overlapping one another. Actual phased implementation could be constrained by external factors such as market forces and construction staging for the BART Downtown extension, and thus could extend over a longer period. Each phase would include development parcel(s) and associated infrastructure to serve the incremental build-out of the Project.

The Project would phase demolition on the principle of adjacency and as needed to facilitate a specific proposed development phase. It is anticipated that certain infrastructure preparation such as abatement, demolition, environmental management, grading, geotechnical improvements, and utility construction may be required or desired at an earlier stage of development and will be addressed in future street improvement, site and building permit packages as applicable.

2. SUSTAINABILITY

The Project applicant is seeking to create a sustainable place through integrated design. The Project aims to achieve this goal through a number of sitewide and building specific sustainability strategies. These may include district systems, green roofs, building-integrated photovoltaics, dense, walkable development with mixed income housing, and measures to reduce vehicular traffic and emphasize transit, biking, and walking. Through certification under California Assembly Bill 900 (AB 900), the Project has committed that the master plan will be designed in pursuit of LEED for Neighborhood Development Gold Certification, with vertical office buildings designed to meet LEED Gold Certification.

The Project applicant's commitments to the Project's contribution to regional and global greenhouse gas (GHG) emissions are provided in the Environmental Leadership Development Project (AB 900) application. As part of the commitments through the AB 900 process, the Project would offset its

emissions in part through a combination of design measures intended to reduce energy consumption, switch to equipment utilizing lower emission energy sources, water use and vehicular movement, which in turn would reduce GHG emissions. GHG emissions offsets would be purchased for remaining emissions not reduced through design measures. These design measures and the purchase of offsets are discussed in the AB 900 application.

District systems form a key strategy in reducing emissions and resource use. District systems consolidate infrastructure such as heating and cooling generation, electricity generation and distribution, and wastewater treatment and water reuse at a neighborhood scale. By bringing together these services district systems can take advantage of efficiencies across building types and resource systems. Strategies that leverage efficiency may include heat exchange with wastewater treatment and cooling generation, rejection and absorption of heat via a ground loop, and thermal exchange between commercial and residential buildings. Consolidation enables greater energy and water efficiency by enabling the use of technologies that would otherwise not be cost-effective at the building or municipal scale. While district systems are intended for use across the Project, limitations on extent may be required due to Project phasing or physical considerations; final determination on the extent of systems will be made prior to permitting of parcels and infrastructure. Subsequent sections in this narrative outline the potential extent of each system.

A more detailed explanation of the sustainability features of the proposal can be found in the Sustainability Chapter of the Downtown West Design Standards & Guidelines.

3. ENVIRONMENTAL

Portions of the Project site have a long history of development, including industrial uses that may have resulted in subsurface contamination of soil, soil gas and/or groundwater. During the initial Project phase, the Project team must review the available environmental due diligence for the Project site, and collaborate with the Google EHS Environmental Manager to determine the specific Project needs based on the available environmental information, as well as the redevelopment plans.

As part of its development process, the Project team must summarize known environmental conditions on and adjacent to the Project site and would address the potential for hazardous materials impacts to result from implementation of the proposed Project. All remediation, demolition and excavation work would comply with codes and regulations.

4. DEMOLITION, SOIL DISTURBANCE AND IMPACTS ON RESOURCES

Soils disturbance, excavation and earthmoving are anticipated in order to implement utilities and district systems, and horizontal infrastructure on the site. Project construction activities may result in potential environmental impacts associated with hazardous soils; potential archeological resources, and tribal cultural resources; ground-water inundation and dewatering; seismic/structural design considerations.

Additionally, some existing utilities may require demolition, upgrading and/or relocation to accommodate the proposed street grid, parcel configuration and building design. Refer to Sections 7 - 9 of this document for additional detail on rerouting for individual utilities. All demolition work will comply with applicable codes and regulations.

4.1. Archeological Resources

The Project's Environmental Impact Report finds that there is high sensitivity across most of the Project site for prehistoric archeological resources to be present and the proposed Project has a high potential to uncover previously undiscovered archeological resources. The Project Mitigation Monitoring and Reporting Plan (MMRP) defines mitigation measures to reduce potential impacts on archaeological resources including cultural resources awareness training for construction and field personnel involved in soil disturbance and archeological testing, evaluation, and treatment. The City of San Jose sent letters to the culturally affiliated Native American tribes requesting consultation regarding tribal cultural resources impacts in line with the requirements of PRC Section 21080.3.1 (b) and California Government Code 65352.3. No responses were received and the consultation is considered complete.

5. GEOTECHNICAL CONDITIONS

Localized geotechnical assessments were previously completed as part of other development Projects in the area, and further detailed analysis will be completed to support the Project's development in conjunction with the issuance of street improvement, site or building permits as applicable. A general description of the geologic setting for the area is provided in the Diridon Station Area Plan Existing Conditions Report and included herein for reference. "The Project site is located in northern Santa Clara County, an alluvial valley between the Mt. Hamilton Range (east) and Santa Cruz Mountains (west). The area is underlain by Quaternary-aged unconsolidated, moderately compressible, alluvial soils consisting of soft to stiff silts, clays, and loose to dense sands. The area is relatively flat with an average elevation of approximately 100 feet above mean sea level. Soils are of the Yolo association and have moderate to high shrink/swell potential. The entire Bay Area is located within the San Andreas Fault Zone, a complex of active faults where moderate to strong earthquakes have been generated. For this reason, the Bay Area is classified as Zone 4, the highest risk category for seismic risk. Regional active faults include the San Andreas, Hayward, and Calaveras; however, no faults cross the Project area. Much of the Santa Clara Valley, including the Project area, is located within a Liquefaction Hazard Zone (Field Paoli, Diridon Area Station Plan Existing Conditions Report, City of San José, 2019).

6. STREETS AND TRANSPORTATION

6.1. Scope of Service

Within the Project boundary, the Project proposes changes to the street network. The Project does not propose changes to the street network outside of the Project boundary.

6.2. Changes to the Street Network

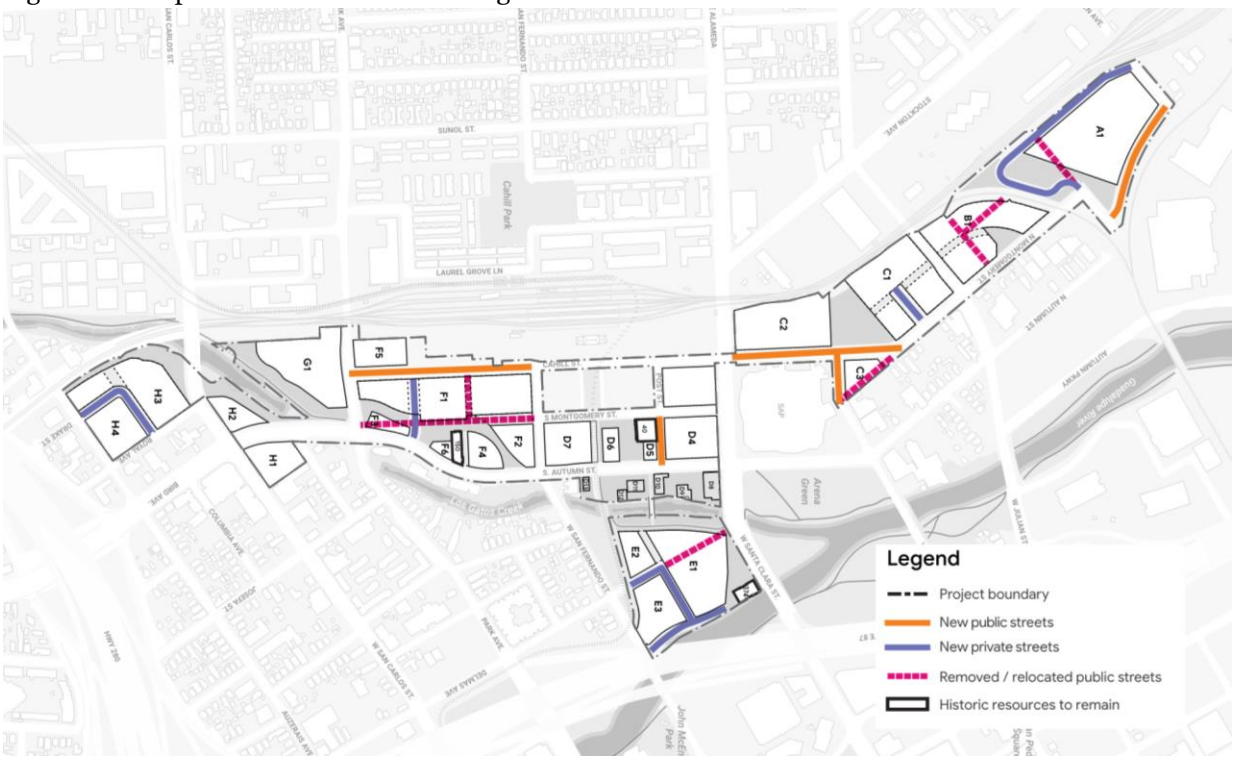
The Project proposes to extend portions of certain streets across the Project site and remove sections of other streets as shown in Figure 6.1. Notably, the proposed Project would extend Cahill Street from its current terminus at West Santa Clara Street to North Montgomery Street in the north and from West San

Fernando Street to Park Avenue in the south to enhance north-south connectivity throughout the length of the Project site.

North of the SAP Center, West St. John Street would be extended to connect with the extended Cahill Street. North of the Union Pacific Railroad tracks, circulation would be reconfigured with a perimeter street framing new development. The Project would create a new block-long east-west extension of the roadway to the south of West Santa Clara Street between South Montgomery and Autumn Street, a new east-west private street between Cahill Street and Autumn Street between San Fernando and Park Avenue, and a new L-shaped street linking Royal Avenue and Auzerais Street through the Project site.

The proposed Project would remove a number of street segments within the Project site: Cinnabar Street west of North Montgomery Street, North Montgomery Street between West St. John and Cahill Streets, Delmas Avenue between West Santa Clara and West San Fernando Streets, South Montgomery Street between West San Fernando Street and Park Avenue, and Otterson Street west of South Montgomery Street. The southern portion of the segment of Delmas Avenue to be removed as a through street would be reconfigured as a private roadway serving as driveway access from San West Fernando Street to provide parking access and egress to and from the proposed development on the portion of the Project site between Los Gatos Creek and the Guadalupe River.

Figure 6.1. Proposed Street Network Changes



6.3. Street Improvements

Refer to the Mobility Chapter of the Downtown West Design Standards & Guidelines for additional detail on proposed street improvements. Street improvements proposed by the applicant as part of improvement plan submittals will be deemed acceptable so long as they substantially comply with street

sections for appropriate typologies as shown on DWDSG and any cross section for the associated street segment shown on an approved tentative map or vesting tentative map.

A local transportation analysis (LTA) for the Project is included as an appendix to the EIR. The LTA identifies potential adverse effects of the proposed Project on the surrounding transportation system. The LTA would typically include specific site access and on-site circulation evaluations, including driveway operations, sight distance, and other relevant metrics. However, as proposed, the Project includes a land use concept with general areas of specified development. This means the Project currently does not include a specific site plan that designates exact building location and access for each parcel. As development phases are initiated, after approval of tentative or vesting tentative maps and before approval of phased final maps and improvement plans, the focused LTAs will be developed for the Project area to address site access and on-site circulation, in addition to evaluation of multimodal access within the Plan area.

6.4. Fire Department Access

All existing easements, including fire department access, are recorded in the Vesting Tentative Map (VTM). Fire Department Access will be evaluated as part of the subdivision process. The Project applicant will be required to dedicate any necessary easements to the City on privately-owned property to ensure access for the Fire Department or other emergency vehicles.

6.5. Logistics

The Project is proposing the option of a hybridized approach for managing the everyday delivery of goods. The principal logistical components of this approach include up to two delivery warehouse-like "mini-hubs," dynamic curb space and loading docks supporting individual buildings. Collectively, these components aim to reduce the size and quantity of trucks entering the district thereby increasing the quality of the pedestrian experience.

For security and efficiency the applicant's delivery operations will utilize the off-site consolidation center and the mini-hub warehouses. From the mini-hubs to end-delivery point, the applicant may utilize a combination of last-mile equipment including trucks, electrically-powered vehicles and manual equipment. The mini-hubs and their associated routes to the buildings may be located on the surface, underground or both. The movement of goods may take place partially underground within limited sections of the utilidor.

The applicant's supply chain is managed and operated independently of other site tenants. All deliveries to third-party (non-applicant) site tenants will be able to utilize a combination of nearby flex-curb zones and assigned loading dock of their respective building. Loading docks will be designed in accordance with City of San Jose requirements. These facilities will be located at individual buildings or have shared loading docks to serve multiple buildings. The loading docks will be situated away from the front entrances of buildings and avoid opening to residential uses to the greatest extent practical. Loading docks will be situated to avoid trucks reversing in the public ROW. Details on individual loading docks to be addressed during the subsequent building permit process.

7. PUBLIC UTILITIES

7.1. POTABLE WATER SYSTEM

7.1.1. Scope of Service

The existing potable water system in the Project area is owned and maintained by San José Water Company (SJWC). Project impacts to the existing water mains are based on a conceptual, parcel-specific fire flow analysis completed 7/28/2020. See subsequent sections for additional detail. All proposed new water mains will be constructed, owned and maintained by SJWC.

7.1.2. Existing Distribution System

The Project area is served by San José Water Company (SJWC), an investor-owned public utility serving the greater San José metropolitan area. The water supply for this area of San José is primarily sourced from the Santa Clara groundwater basin. Water mains in adjacent streets vary from 4" to 16" in diameter and may be over 100 years old in some streets. Table 7.1 lists the backbone water lines serving the Project area. Backbone infrastructure lines are based on the Diridon Station Area Infrastructure Analysis, dated January 31, 2017.

Table 7.1: Backbone Water Infrastructure

Water Line	Pipe Size
West Santa Clara Street	12" - 16"
Delmas Avenue	12" & 6" parallel lines
South Autumn Street	16"
Park Avenue	12" - 12.75"

7.1.3. Proposed Distribution System

Approximately 5,810 linear feet of new water mains will be needed to serve both building demands and fire hydrants within new proposed streets as shown in Figure 7.1 and Table 7.2. The proposed development will connect to the SJWC system at each building to serve both domestic and fire water needs. The sizes shown below were determined by the SJWC.

Upgrades to existing water lines will also be required to accommodate increased fire demands including line size upgrades and the addition of new fire hydrants. See Table 7.5 for the required system upgrades for fire flow.

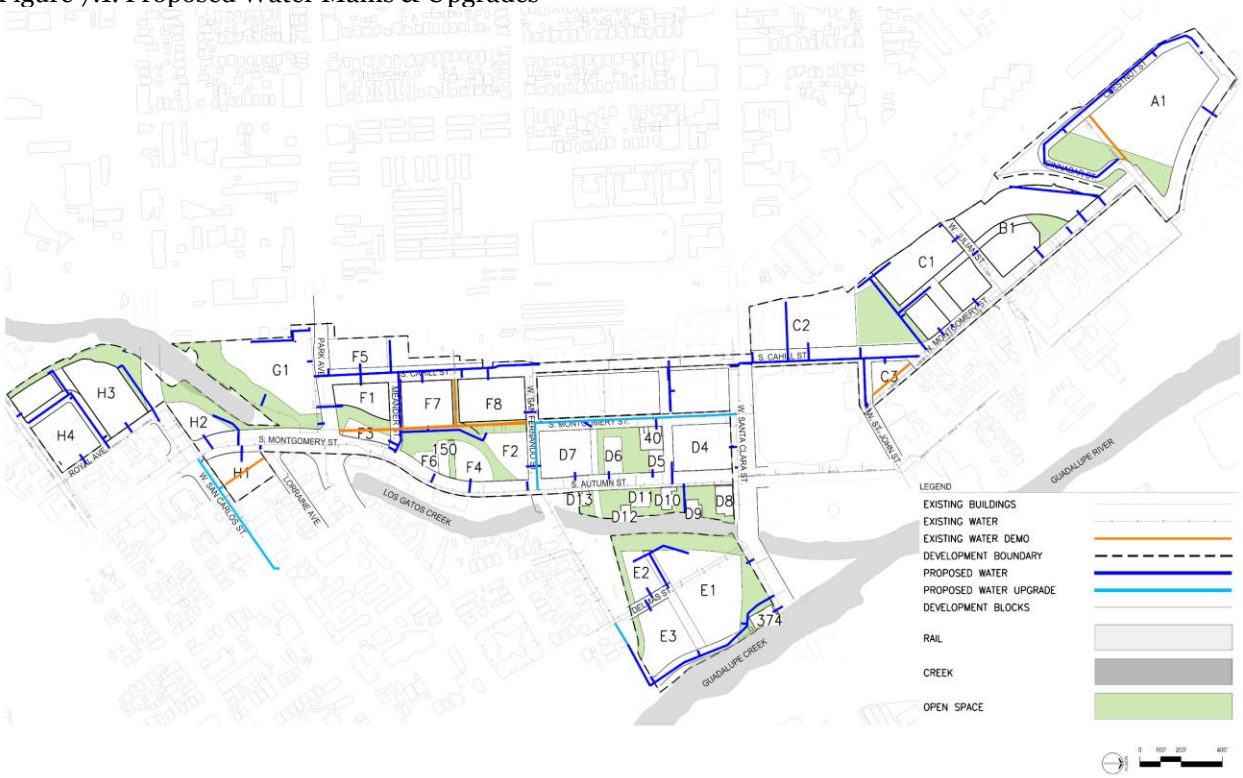
The Project proposes to remove segments of the existing water line aligning with the removal of portions of South Montgomery Street and North Montgomery Street, as well as the reroute of Cinnabar Street and the change to Delmas Avenue. Work will be completed by SJWC and may require the lines to either be demolished or abandoned in place. The removal of these existing water line segments will be phased with the construction of new water lines to ensure no service interruptions.

Booster pumps may be needed at each building in order to supply enough pressure for either potable water or fire water service. See Section 7.1.5 below for additional detail on the proposed fire water demands.

Table 7.2. Proposed New Water Mains in Public & Private ROWs

Street	Extent	Proposed Size	Length
L-shaped street linking Royal Avenue and Auzerais Street	Perpendicular to Auzerais Ave	12”	200’
	Perpendicular to Royal Ave	10”	240’
Lorraine Avenue	Perpendicular to S Montgomery St	6”	50’
Cahill Street (South)	Park Ave to W San Fernando St	8”	1,135’
Cahill Street (North)	W Santa Clara St to N Montgomery St	10”	935’
Private Service Street in D-Block	S Autumn St to Cahill St	10”	420’
West San Fernando Street & E-Block Loop	CA-87 towards Delmas Ave and between W San Fernando St and W Santa Clara St	8”	925’
West St John Street	Existing N Montgomery St intersection to Cahill St	10”	240’
Cinnabar Reroute & Chestnut Street	N Montgomery St to Lenzen Ave	10”	1,415’

Figure 7.1. Proposed Water Mains & Upgrades



7.1.4. Project Potable Demands

Projected potable water demands are provided in Table 7.3 as an engineering estimate only. This anticipated water consumption for the proposed development has been developed based on similar, high density urban developments as well as utilizing demand factors required by CalGreen and LEED. As a part of the environmental review process, a Water Supply Assessment (WSA) is required to be completed by SJWC and then approved by the SJWC Board. SJWC issued the WSA for the Project in January 2020. The applicant has reviewed the demand factors used to estimate the Project's water demand, as provided in Table 7.4. Proposed factors include reduced demand factors for office, residential, hotel/corporate accommodation, retail, event center, and logistics/warehouse land uses, and an increased demand factor for restaurant use, which would decrease the overall water demand for the Project. Therefore, the anticipated water use is less than that reflected in the WSA.

SJWC provided a development-specific water capacity modeling based on fire flows, not potable water demands. Refer to Section 7.1.6 for detail on the modeling analysis.

Potable demands do not account for the non-potable demands from water closet and urinal flushing, irrigation, or mechanical processes (such as cooling tower make-up).

Table 7.3: Average potable water demands

Program	**Average Daily Potable Demand (gal/d)**	**Average Annual Potable Demand (MGY)**
Office	227,200	83
Residential	263,100	96
Retail	2,000	0.7
Restaurant	195,600	71.4
Hotel	14,000	5.1
Event space	2,000	0.7
District Systems	1,000	0.4
Logistics/Warehouse	1,000	0.4
Total	**705,900**	**258**

Table 7.4: Comparison of SJ Water typical demand factors and Project proposed demand factors
Demand factors include both potable and non-potable water demands.

SJ Water Typical Land Use Types	Units	SJ Water Typical Demand Factors[1]	Proposed Demand Factors for the Project				Proposed Land Use Types
			Total Demand	Non-Potable		Potable	
				Cooling Demand	Interior (water closet and urinal flushing)		
Office Space	gal/sf-d	0.1	**0.055**	0.010	0.010	0.035	Office
Residential/ Apartment	gal/unit-d	340[2]	**71.8**	7.00	8.64	56.2	Residential
Hotel	gal/room-d	100	**64.1**	4.27	9.60	50.3	Hotel
Hotel	gal/room-d	100	**35.0**	4.27	4.80	26.0	Corporate Accommodations
Retail/ Commercial	gal/sf-d	0.2[3]	**0.10[4]**	0.01	0.05	0.04	Retail
Retail/ Commercial	gal/sf-d	0.2[3]	**0.25[5]**	0.01	0.00	0.24	Restaurant
Movie Theater	gal/sf-d	0.1	**0.035**	0.010	0.010	0.015	Events
Light Industrial	gal/sf-d	0.18	**0.07**	0.01	0.05	0.01	Logistics/ Warehouse
Open Space/Park (Native Plants)	AFY/acre	2.6	**2.6[6]**	n/a			Irrigation

Notes:

1. *Project demand factors estimated based on the average of values presented in previous WSAs in San José including: Samaritan Medical Center (2015), Downtown Strategy 2040 (2018), Santana Row Expansion (2014), 1410 South Bascom Avenue (2019), Envision San José 2040 (2010), and 237 Industrial Center (2017).*
2. *A range of 300-400 gal/unit-d was presented for Residential/Apartments in the WSAs.*
3. *A range of 0.10-0.25 gal/sf-d was presented for Retail/Commercial in the WSAs.*
4. *The lower value presented in the Retail/Commercial values in the WSA range is appropriate for proposed retail.*
5. *The higher value presented for the Retail/Commercial land type in the WSAs is appropriate for proposed restaurant.*
6. *Irrigation demand will be met with recycled water.*

7.1.5. Project Fire Demands

The Project engaged with SWJC to complete a conceptual, parcel-specific fire flow analysis for the proposed Project, received on 7/28/2020. While the majority of the water lines highlighted in the SJWC analysis are the new water lines to be installed as part of the proposed Project, the approximately 2,025

linear feet of existing lines shown in Table 7.5 will require upgrading to serve the Project with adequate fire flows. These lines are also shown in Figure 7.1.

Table 7.5. Upgrades to Existing Water Mains Required for Adequate Fire Flows

Street	Extent	Existing Size	Proposed Size	Length
W San Carlos Street	Josefa Street to Bird Avenue	4”	8”	500’
W San Fernando Street	S Autumn Street to S Montgomery Street	4”	8”	330’
W San Fernando Street	Delmas Avenue towards CA-87	4”	8”	2000’
S Montgomery Street	W San Fernando Street to W Santa Clara Street	5”	8”	995’

Future coordination will be required with the Fire Marshall to refine individual building fire demands based on requirements of the San José Fire Code.

7.1.6. Project Supply

The Project will continue to be supplied by the SJWC via water mains within the public rights of way. The WSA conducted by SJWC confirmed that the Project’s potable demands would be within the 2040 demand Projections for the SJWC service areas. As noted in the WSA, the SJWC would be able to meet the needs of its service area as a whole through 2040 for average years, and through 2035 for single dry years, without a call for water use reductions. In 2040, water use reductions would be required to meet Projected demand during single dry years.

The WSA also assumed that all water demands for the Project would be met with potable water, thus demonstrating that the full water demand for the Project could be met by the SJWC without the use of recycled water.

7.1.7. Water System Phasing

It is anticipated that SJWC will design and install the new water mains for the Project area. The Project team met with SJWC to review the proposed development and noted that their involvement will begin during the design phase. The Project team will work closely with SJWC staff during the design phase to determine timing of work effort and ensure coordinated design. Domestic and fire water laterals and required pumps and storage within buildings would be constructed on a parcel-by-parcel basis. Temporary water connections may be constructed and maintained by the Project applicant as necessary to maintain potable water and fire protection services to existing buildings and buildings under construction.

7.2. SANITARY SEWER SYSTEM

7.2.1. Scope of Service

The existing sanitary sewer system in the Project area is owned and maintained by the City of San José. The Project proposes two alternatives (“City” and “District Systems”) to connect to the City’s sanitary sewer system, which have different impacts to the existing system. Refer to Section 7.2.5 for details of each alternative.

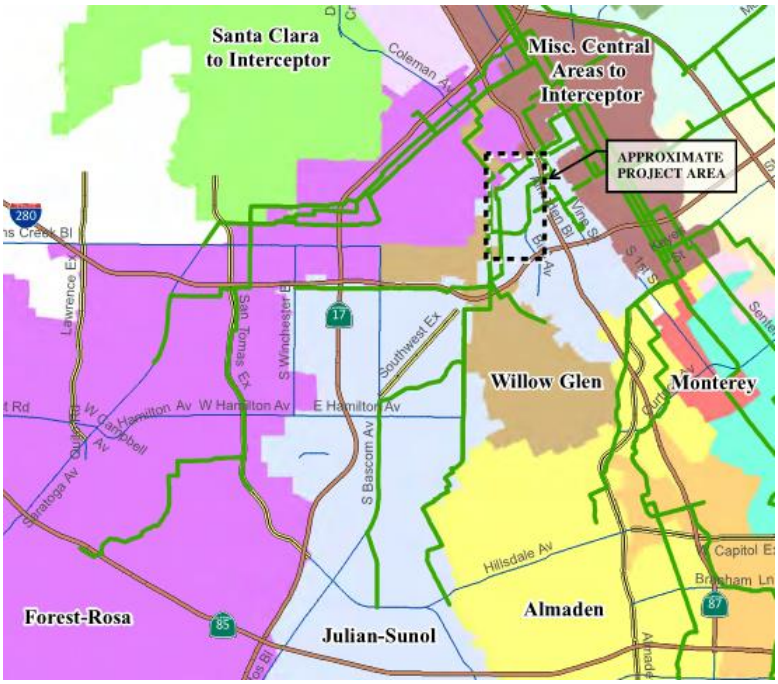
Under the City alternative, the Project impacts existing sanitary sewer mains within the development boundary. It is expected that the City would be responsible for maintenance of the public sanitary sewer system improvements installed by the Project applicant upon acceptance, unless the City, at its discretion, agrees to an alternate arrangement.

Under the District Systems alternative, the Project does not generate the need for any on-site sanitary sewer upgrades due to a private sanitary sewer discharge connection. Refer to Section 9.2.4.3 for detail on the discharge connection and the scope of service for the private system.

7.2.2. Existing Gravity Collection System

The Project area is currently served by the City's existing sanitary sewer network which flows north to the SJ-SC WRF. There are three sewersheds which currently serve the greater Diridon area as shown in Figure 7.2.

Figure 7.2. Excerpt: Figure 1-5 Trunk System Basins. *Sanitary Sewer Master Plan Capacity Assessment, Phase II and Update of Phase I, April 2013.*



Referring to the City of San José published GIS data, there are five existing sanitary sewer siphons that carry wastewater from the site to the San José-Santa Clara Regional Wastewater Facility, as outlined in Table 7.6. These siphons transfer wastewater from the west to the east side of Guadalupe River, Guadalupe Creek, and Los Gatos Creek. Pipe materials include ductile iron (DI), cast iron (CI), and cast-in-place (CIP). Twin siphons are assumed to have two pipes running adjacent to one another for redundancy. There is at least one structure at the beginning and end of each siphon to tie it back into the sewer main.

Table 7.6: Siphon locations from north to south, per City of San José GIS data.

Street Crossing	Stream Crossing	Size	Siphon Type	Facility Identifier
Old West Julian Street	Guadalupe River	24”	Twin Siphon	81713
West St John Street	Guadalupe River	30”	Twin Siphon	81718
West Santa Clara Street	Los Gatos Creek	10”	Twin Siphon	29561
West Santa Clara Street	Guadalupe Creek	12”	Siphon	28806
West San Fernando Street	Guadalupe Creek	16”	Twin Siphon	42534

7.2.3. Existing Sewer Flows

The City of San José maintains a sanitary sewer model for the Diridon Station Area. This model was used as the basis for the City’s Project-specific analysis to determine expected Project impacts as discussed in Section 7.2.5.

7.2.4. Proposed Connections

In order to align with the proposed updated street grid, the Project proposes to remove segments of existing sanitary sewer where the proposed design conflicts with the existing infrastructure. New segments will be realigned with the updated street grid to ensure connectivity for all existing buildings to remain.

The Project proposes to construct a private, low-pressure connection network with one or two district onsite water reuse facilities (WRFs). Based on this design, there would be up to two sanitary sewer discharge connections to the City’s system. Individual models were run for a one versus two WRF scenario. Refer to Section 9.2.4 for additional detail on the WRF(s), discharge connections, and impacts of this design.

As an alternative, a collection system with individual buildings connected to the City’s existing sanitary sewer system is also being considered. Under the City alternative, individual buildings will connect to the municipal wastewater system via typical sewer lateral connections. Results from the City’s sanitary sewer modeling of this business-as-usual approach are detailed below.

The existing sanitary sewer main located along the south side of Park Avenue will need to be relocated to avoid conflicts with the proposed building design and changes to the parcel boundaries. A conceptual relocation strategy is shown in Figure 9.3 within parcel G1, which connects back to the existing sanitary sewer main within Park Avenue. Additional studies will be required when the parcel and building reach a more detailed level of design.

7.2.5. Sanitary Sewer Capacity Model

Business-as-Usual Scenario

For the business-as-usual scenario, the modeling results show that two upgrades would be required: (1) at North Autumn Street between Howard Street and West Julian Street and (2) at West Santa Clara Street between South Montgomery Street and South Autumn Street. Model results for the business-as-usual scenario were provided by the City of San José to the Project team on July 31, 2020; preliminary results

were also provided by the City on March 20, 2020. The City sanitary sewer modeling of this business-as-usual approach presented in the December 12, 2019 meeting also concluded that:

- The Project increases the wastewater flows expected for the area by 150% compared to the General Plan.
- The Project contributes 5% of total flows to the Fourth Major Interceptor.
- There are no impacts to the sanitary sewer siphons.

If any upgrades to the existing siphons emerge, those upgrades would require approval from multiple federal, state, and local agencies.

The City is in the process of upgrading the Fourth Major Interceptor, one of four large diameter sanitary sewers running in parallel streets from 7th and Empire streets to the San José-Santa Clara Regional Wastewater Facility, under their Sanitary Sewer Capital Improvement Program (CIP). The 2017 Diridon Station Area Infrastructure Analysis did not consider the downstream capacity of the interceptor sewers a Project constraint. Upgrades to the interceptor sewers are documented in the 2013 *Sanitary Sewer Master Plan Capacity Assessment: Phase II and Update of Phase I*. There are seven segments, or phases, of the interceptor sewer. The Phase VI upgrades are under construction and the design of the Phase VII upgrades are due to start towards the end of 2021. The Phase VII upgrades were identified in an August 1986 report titled, "Preliminary Design Report for a Fourth Major Interceptor" (2013 Master Plan). As described in the *2020-2024 Proposed Capital Improvement Program*, "[c]ompletion of the Phase VIIA Project will conclude capacity improvements for the Fourth Major Interceptor system between the intersections of North 5th Street and Commercial Street, and North 7th Street and Empire Street."

Water Reuse Facility(s) Scenario

The City of San José modeled three water reuse facility scenarios to determine the Project's Projected impacts to the sanitary sewer system:

1. Scenario 1, One or Two WRFs: Discharge via a pipeline to the West San Fernando Bridge, with one point of connection to the sanitary sewer along Almaden Boulevard.
2. Scenario 2, One WRF: Discharge into the sewer main in Park Avenue, with one point of connection to the sanitary sewer.
3. Scenario 3, Two WRFs: Discharge into sewer mains in Park Avenue and West Julian Street, with two points of connection to the sanitary sewer.

Model results for the three water reuse facility scenarios were provided by the City of San José to the Project team on March 20, 2020; as shown in Figures 7.3, 7.4 and 7.5. The City also provided a *Sanitary Sewer Level of Service Council Policy* (dated June 15, 1982), which defines any pipe having a level of service (LOS) lower than "D" or flowing full at peak flow as deficient and therefore requiring improvement. The 1982 LOS policy (Council Policy 8-7) is "currently under review to ensure it is in alignment with recent regulatory changes and the planned growth identified in the 2040 General Plan" as documented in the October 16, 2019 City Council meeting minutes. In addition to the LOS policy, the City has capacity management and condition assessment programs that help the City comply with the Statewide General Waste Discharge Requirements (GWDR) to prevent sanitary sewer overflows (SSOs). The City also has an Exfiltration Abatement Program to minimize the risk of wastewater leaching from the sanitary system as required by the 2016 Baykeeper Consent Decree (City Council meeting minutes, February 16, 2010).

Model results for the water reuse facility scenarios with the Phase VII upgrades
Under Scenario #1 (Figure 7.3, right), where wastewater would enter the City's sanitary sewer system at Almaden Boulevard, the City's model analysis indicates that no upgrades will be needed to the existing infrastructure in order to accommodate these flows. Under Scenario #2 (Figure 7.4, right), where wastewater would enter at Park Avenue, the model results indicate "surcharge due to capacity limitations" from the connection point to Guadalupe Parkway plus "surcharge due to backwater" just upstream of the connection point. Under Scenario #3 (Figure 7.5, right), where the wastewater would be split between Park Avenue and West Julian Street, the model results indicate that the discharge from the southern WRF would result in "surcharge due to capacity limitations" along portions of Park Avenue and South Autumn Street and along West St. John Street from North Autumn Street to Guadalupe Parkway. The discharge from the northern WRF to West Julian Street resulted in "surcharge due to backwater" along West Julian Street. It should be noted that backwater represents a Level "D" under the City's LOS policy, which is acceptable. The WRF(s) connection(s) and anticipated discharges are discussed in more detail in Section 9.2 District Wastewater Collection System.

Model results for the water reuse facility scenarios without the Phase VII upgrades
Under Scenario #1 (Figure 7.3, left), the model results indicate "surcharge due to backwater" with some "surcharge due to capacity limitations" along the Almaden Boulevard line from Carlysle Street to Jackson Street, ending beyond the limits of the mapped results. Under Scenario #2 (Figure 7.4, left), the model results indicate "surcharge due to capacity limitations" mixed with "surcharge due to backwater" from the connection point along the sanitary sewer line to Jackson Street, ending beyond the limits of the mapped results. Under Scenario #3 (Figure 7.5, left), the model results indicate that the discharge from the southern WRF would result in "surcharge due to capacity limitations" along portions of Park Avenue and South Autumn Street and along West St. John Street from North Autumn Street to Almaden Boulevard. The discharge from the northern WRF to West Julian Street would result in "surcharge due to capacity limitations" along portions of North Pleasant Street and Bassett Street from the Guadalupe River to Jackson Street, ending beyond the limits of the mapped results. The surcharged sections downstream of the intersection of Almaden Boulevard and West St. John Street are the same for all three model scenarios without the Phase VII upgrades.

Figure 7.3. Scenario 1, One or Two WRFs with one point of connection along Almaden Boulevard

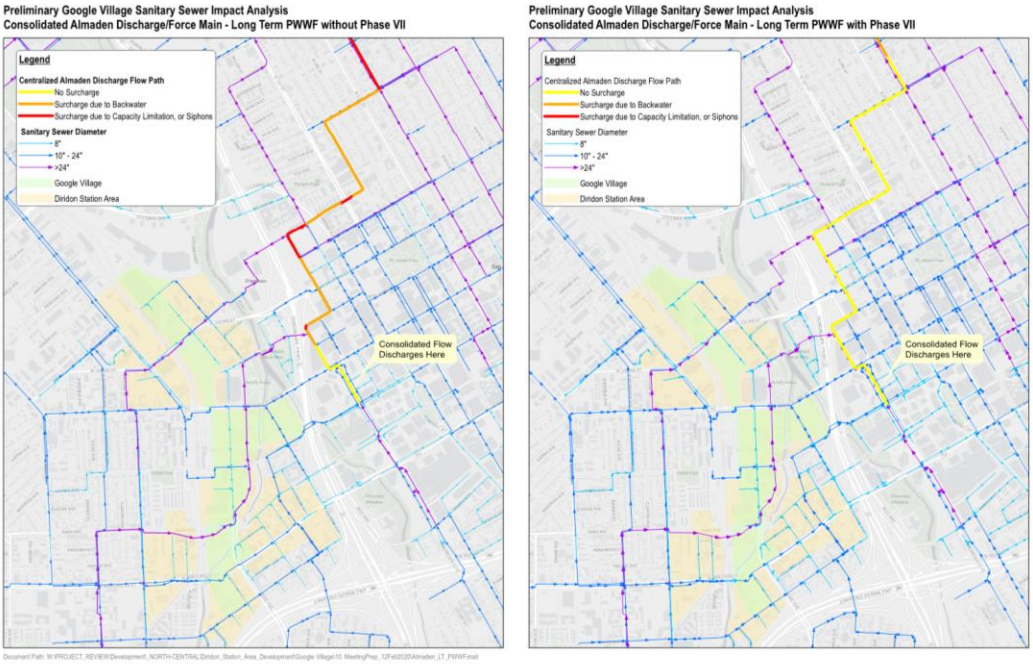


Figure 7.4. Scenario 2, One WRF with one point of connection at Park Avenue

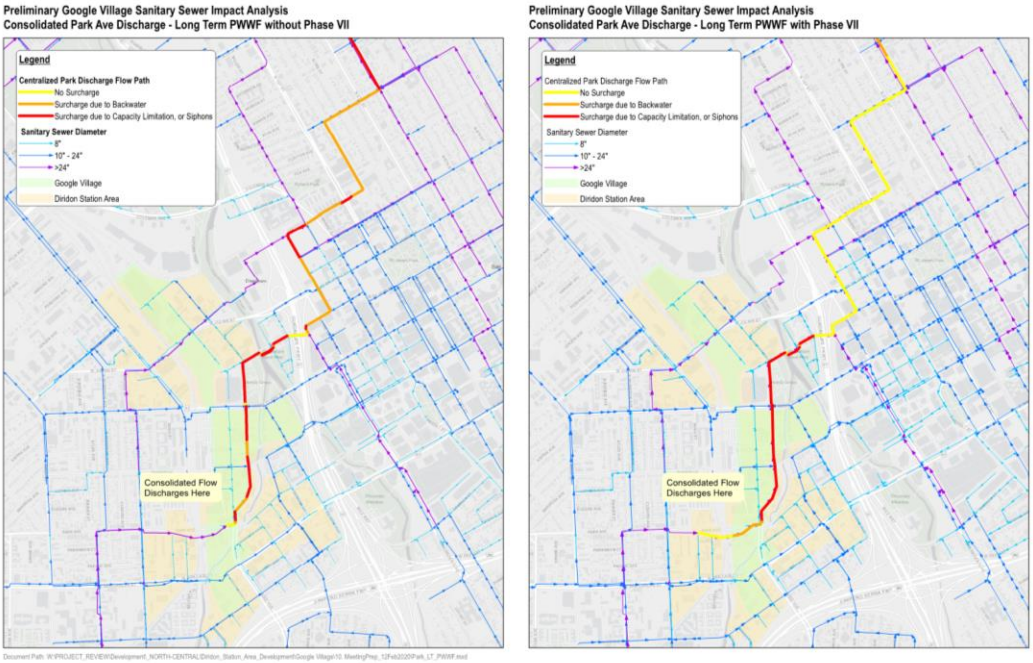
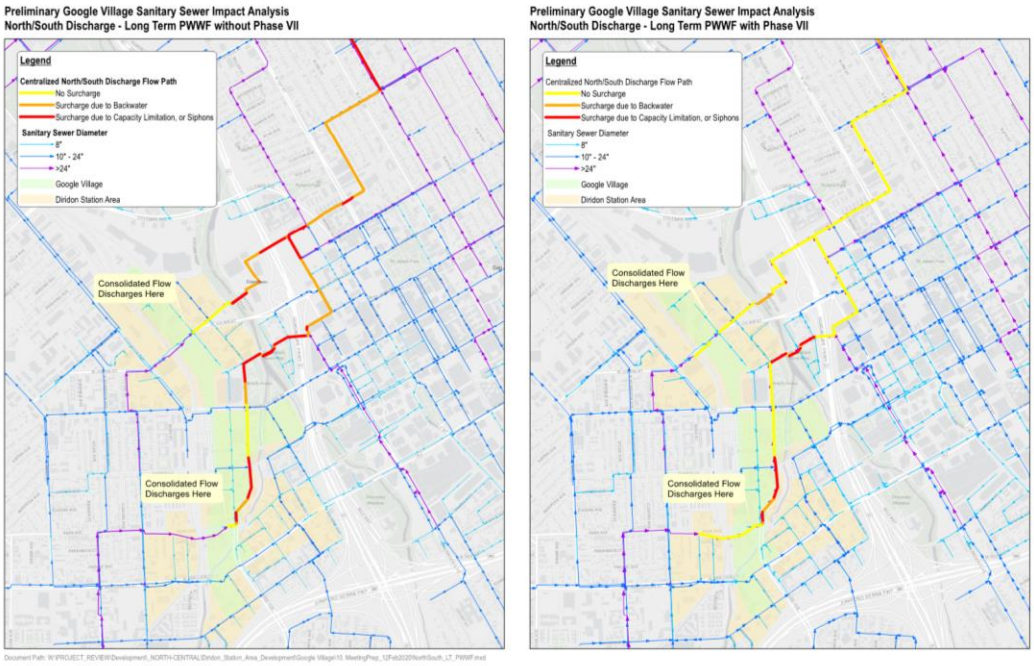


Figure 7.5. Scenario 3, Two WRFs with two point of connections at Park Avenue and West Julian Street



7.3. RECYCLED WATER SYSTEM

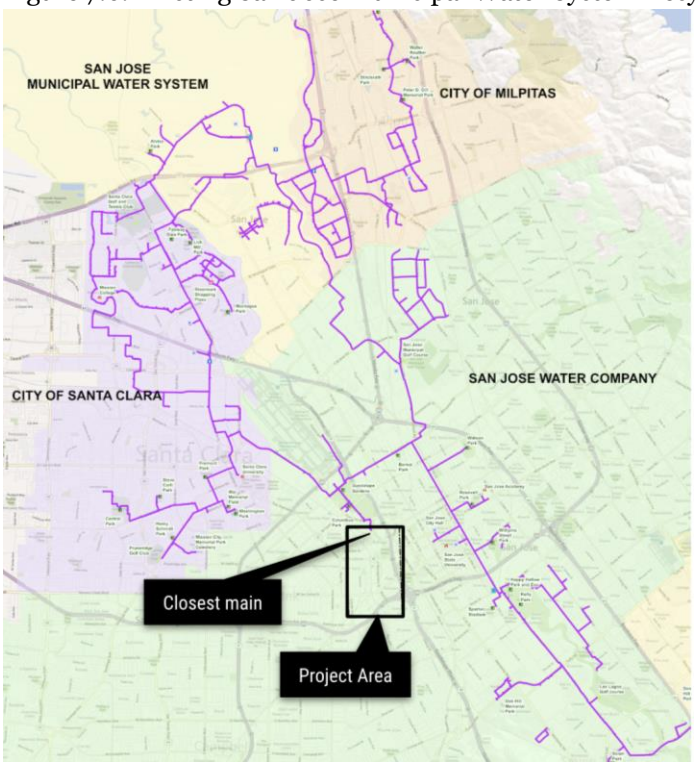
7.3.1. Scope of Service

The Project is maintaining an option to extend the existing recycled water system to the Project boundary. The potential impacts to the existing recycled water system are discussed below.

7.3.2. Existing Recycled Water System

Recycled water is not currently available within the DSAP area. There is an existing 8" recycled water pipeline offsite currently terminating at Autumn Parkway north of the Union Pacific Railroad tracks that carries recycled water provided by South Bay Water Recycling (SBWR). The pipeline itself is owned and operated by San José Water Company (SJWC). This existing line serves both Guadalupe River Park and Columbus Park.

Figure 7.6. Existing San José Municipal Water System Recycled Water Pipeline (2011)



Based on discussions with the City, there are currently no plans to extend the recycled water network into the Diridon Station Area and no technical feasibility studies have been conducted for the extension. The Diridon Station Area Infrastructure Analysis recommended expanding the City's recycled water system into the DSAP area from its current nearby terminus in Autumn Parkway on the north side of the UPRR tracks. However, the Infrastructure Analysis also notes that the City does not currently have any planned improvements programmed.

7.3.3. Future Recycled Water System

Although recycled water is not currently provided to or planned for the DSAP area, the Project could be served in the future by municipal recycled water. Based on the 1997 Wholesaler-Retailer Agreement between the City of San José and the SJWC plus amendments in 2010 and 2012, SJWC is the recycled water retailer for the DSAP area and as approved by Wholesaler and Retailer, may construct additional recycled water infrastructure that would be owned, operated, and maintained by SJWC. Note, the Agreement referenced above only applies to recycled water infrastructure which would be connected to SBWR and funded by SJWC.

To serve the Project through the SBWR system, the existing recycled water system would need to be expanded to the Project site. Options for connecting to the existing system include connecting at Coleman Avenue, Autumn Parkway and/or West Hedding Street. The Coleman Avenue pipeline is understood to be 12" based on discussions with the City and would not be adequate to serve the entire Project based on discussions with SJWC. The Diridon Station Area Infrastructure Analysis states that the Autumn Parkway line from Coleman Road is 8"; this line would also not be adequate to serve the entire Project.

In West Hedding Street (within a mile of the Project), there is a 20" recycled water main according to discussions with SJWC; an appropriately-sized connection here could be sufficient to serve the Project - perhaps in addition to a connection at Autumn Parkway. A hydraulic study conducted by SJWC would be required to confirm the alignment, pipe size and necessity for two parallel connections (i.e., new connection from West Hedding Street and a connection at Autumn Parkway). In addition, SBWR would need to confirm that adequate recycled water supply could be provided including storage and re-pressurization if needed.

In addition to the connection(s) to the north of the Project site discussed above, a loop system could also be considered between the Downtown pipeline terminating at South 4th Street and East San Fernando Street and the north connection point to improve reliability.

Refer to Section 9.3 for detail on the proposed district non-potable water supply.

7.4. STORM DRAIN SYSTEM

7.4.1. Scope of Service

The storm drain system in the Diridon Project Area is owned and maintained by the City of San José. The City developed stormwater main upgrades within and outside the Project boundary that will require further negotiation and may result in revisions to the proposed improvements described herein. All new and upgraded mains within the stormwater collection infrastructure are proposed as publicly owned and maintained utility lines. It is expected that the City would be responsible for maintenance of storm drain system improvements installed by the Project applicant upon acceptance.

7.4.2. Existing Collection System

The storm drain system in the Diridon Project Area is owned and maintained by the City of San José. The Project area is served by approximately 3.5 miles of backbone storm drain pipe of 18-inches in diameter or larger, which drain via 17 existing subwatersheds into Los Gatos Creek, Guadalupe Creek or Guadalupe River, which are all under the jurisdiction of the Santa Clara Valley Water District (SCVWD).

There are 3 existing pump stations within the proposed Project area. The first is located on the northeast corner of the existing San José Fire Department Training Center along Park Avenue. The second is located at the northeast corner of SAP Center parking lots A, B, & C along Julian Street. The third is located on West Santa Clara Street at the rail crossing underpass.

There are 17 outfalls of interest in the Project area which have been indicated for analysis. Refer to Fugure 7.7 for the Storm Drain Plan which shows existing outfall locations.

7.4.3. Existing Capacity

Currently the City of San José does not maintain an on-going storm drain assessment program to identify existing conditions of storm drain pipes. The Diridon Station Area Infrastructure Analysis found that the existing storm drain conveyance infrastructure does not have the capacity to convey existing flows. As shown in the analysis completed by Schaaf & Wheeler in August 2020, the existing storm drain network is under capacity for a 10-year, 24-hour storm event in the existing land use condition.

7.4.4. Proposed Drainage Areas

The Project proposes to maintain existing storm drainage watersheds to the highest extent feasible. New streets and redeveloped parcels will generally drain into the same collection networks they presently drain to.

7.4.5. Storm Drain Capacity Model

As shown in the storm drain analysis completed by Schaaf & Wheeler in August 2020, improvements would be required to eliminate flooding within the Diridon Project Area during a 10-year, 24-hour storm for the proposed land uses. To mitigate flooding near the proposed Diridon developments, two improvements were modeled and are described below.

7.4.6. Proposed Storm Drain Collection System

The Project proposes to connect into the existing storm drain mains in the public ROWs. Approximately 6,300 linear feet of new storm drain mains will be added to proposed streets in order to serve new development, new streets, or streets with new stormwater treatment. Additionally, new laterals would be added to connect all Project parcels to the storm drain system. All new pipes shall be designed for the 10-year storm capacity to flow underground and would meet all additional standards as described in the DPW Development Manual (2002).

The Project proposes to remove two street segments to align with the new street grid: South Montgomery Street between West San Fernando Street and Park Avenue; and North Montgomery Street for approximately 200 linear feet north of West St. John Street. These upgrades are proposed to mitigate existing flooding, as the proposed development does not increase discharge to the storm drain mains.

Additional upgrades to the existing storm drain system will be required to eliminate existing flooding to accommodate the proposed development and provide capacity for the upstream watershed. These improvements have been divided into two categories, upgrades within the Google Downtown West boundary proposed by this project and improvements within the wider Diridon Station Area to be led by the City as part of future development.

New pipes in Cinnabar Street from Caltrain to N. Autumn Street will mitigate existing flooding along Cinnabar Street and N. Autumn Street as well as provide capacity for the upstream watershed to the west. The pipe in Montgomery will be increased to 18”. The proposed new pipe to be constructed by the Platform 16 development in N. Autumn Street will connect to an adequately sized proposed outfall that will be built by the City which eliminates the need to construct a new outfall to Guadalupe River. Future improvements to the upstream system along Stockton Avenue may occur as part of the larger Diridon Station Area.

The proposed larger pipes in West Santa Clara Street will eliminate existing flooding in the respective area and improve capacity in the upstream system outside the project boundary. This Project will reconstruct the existing outfall to Los Gatos Creek, upsizing the existing pipe from 18” to 33”. The outfall, located underneath the West Santa Clara Street overcrossing, will require a new larger flap gate to accommodate the larger pipe and to control exit conditions. Future improvements to the system upstream of Cahill Street to Stockton Avenue may occur as part of the Diridon Station Area improvements.

Additional upgrades within the Diridon Station Area to be led by the City as part of future development include pipe upgrades in W San Carlos Street from Sunol Street to a reconstructed 72" outfall with flap gate and pipe upgrades from Delmas Avenue to a 27" outfall with flap gate at Park Avenue. These improvements provide 10-year capacity within the Diridon Station Area and upstream watershed but are not required or proposed as part of this project and are included herein for reference.

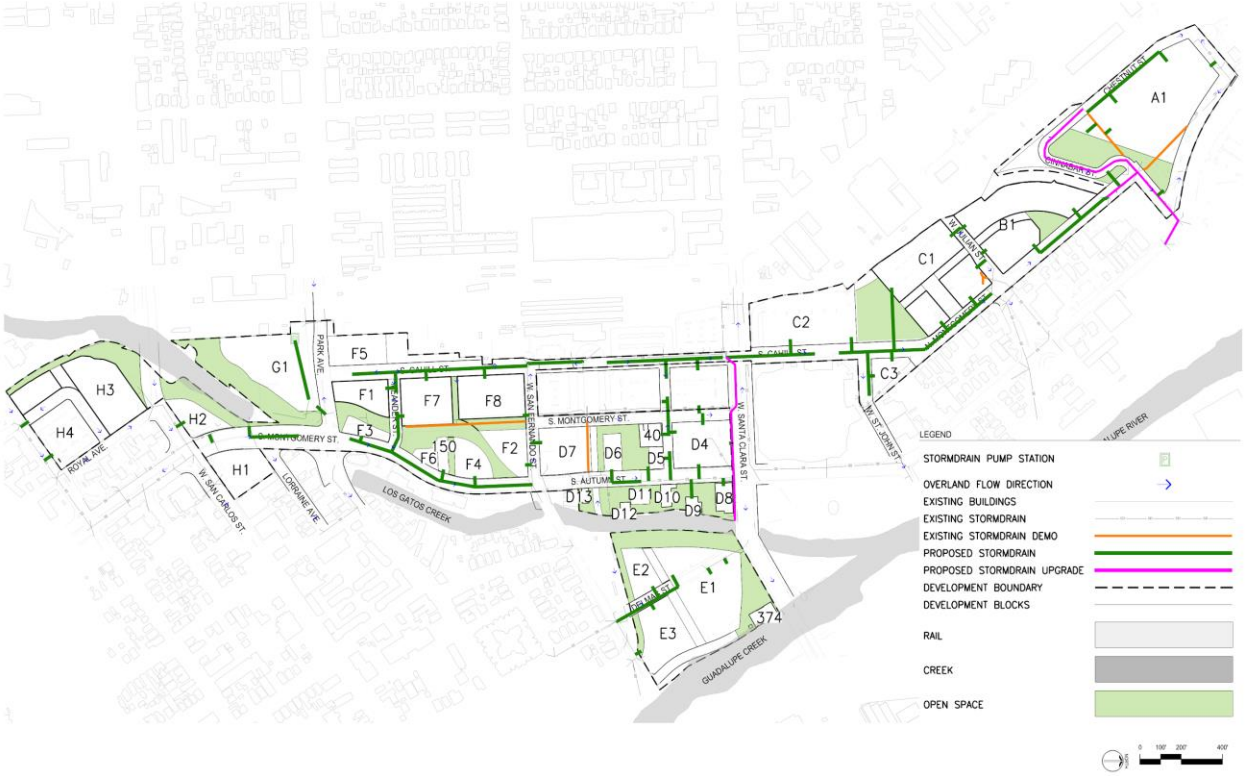
Table 7.7: Proposed Storm Drain Pipe Upgrades

Pipe Location	**(E) Pipe Diameter**	**Length**	**Proposed Pipe Diameter**
Cinnabar St & N Autumn St – Montgomery St to Railroad	27" RCP	~880'	66" RCP
N Montgomery St - South of Cinnabar St	8" RCP	~185'	18" RCP
Santa Clara St - Cahill Street to Los Gatos Creek	18" RCP	~840'	33" RCP

The existing pump station located along Park Avenue will need to be relocated in order to avoid conflicts with the proposed building design and changes to the parcel boundaries. This pump station may be relocated either within the same parcel, or within the existing ROW if there is available space. A conceptual relocation strategy is shown in Figure 7.7 within parcel G1, which connects back to an existing outfall via gravity flow. A conceptual relocation strategy is shown in Figure 7.7 within parcel G1, which connects back to an existing outfall via gravity flow.

Refer to Figure 7.7 for the Conceptual Storm Drain Plan. Refer to Section 10.3 of this report for proposed stormwater management design both in the public ROW and within private development.

Figure 7.7. Proposed Storm Drain, New and Upgraded Mains



7.4.7. Overland Flow (100-year Flood Event)

In the existing condition, the lowest elevations are located on the north side of the Project and at the existing top of bank of Los Gatos Creek. Proposed grading does not intend to change existing grades within ROWs in order to maintain overflow flow paths to the highest extent feasible.

Per the City's DPW Development Manual (2002), new proposed streets should be designed to have capacity to convey runoff from the 100-year storm event without overtopping curbs. However, it should be noted that overland flows from adjacent creek overflows exceed the capacity of the roadways in some locations under existing conditions. See Figure 7.7 for conceptual overland flow paths.

7.4.8. Storm Drain System Phasing

The Project will design and install the new storm drainage mains based on the principle of adjacency and as needed to facilitate a specific proposed development phase, completing improvements downstream as needed to ensure capacity. Storm drain laterals will be constructed on a parcel-by-parcel basis. Temporary storm drain connections may be constructed and maintained by the Project applicant as necessary to maintain service to existing buildings.

7.5. UTILITY RELOCATIONS IN THE ROW

The Project proposes street improvements within the limits of the Project. As part of this effort, some existing utilities within the ROW may require relocation in order to avoid conflicts between proposed streetscape elements and existing utilities. One of the major components of the new streetscapes are stormwater treatment areas and tree planters which require subgrade area. The following figures show

example utility relocation studies for three (3) street sections at West Santa Clara Street, North Montgomery Street, and South Montgomery Street/Bird Avenue. Figures 7.8 through 7.11 are preliminary, shown for reference only. Final street sections to be included in the Vesting Tentative Map (VTM) and are subject to approval by the City of San José.

Figure 7.8: Utility Section Key Plan

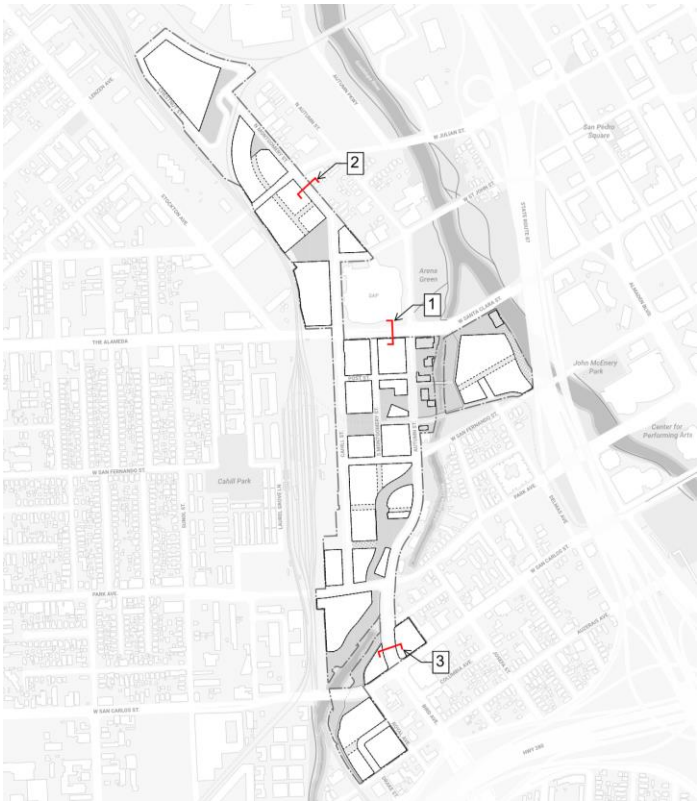


Figure 7.9: Conceptual Street Section 1. West Santa Clara Street - existing utility relocations

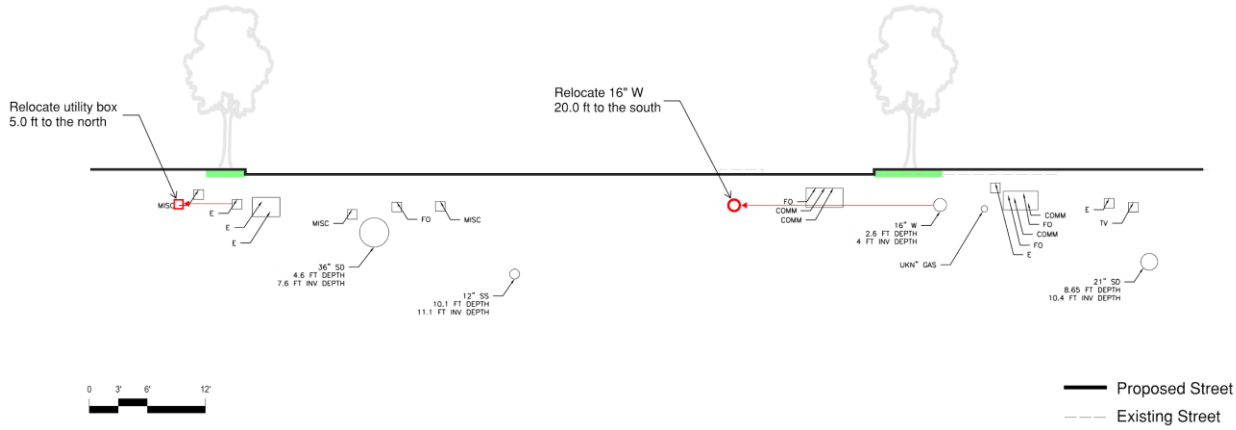


Figure 7.10 Conceptual Street Section 2. North Montgomery Street - Minor existing utility relocations required

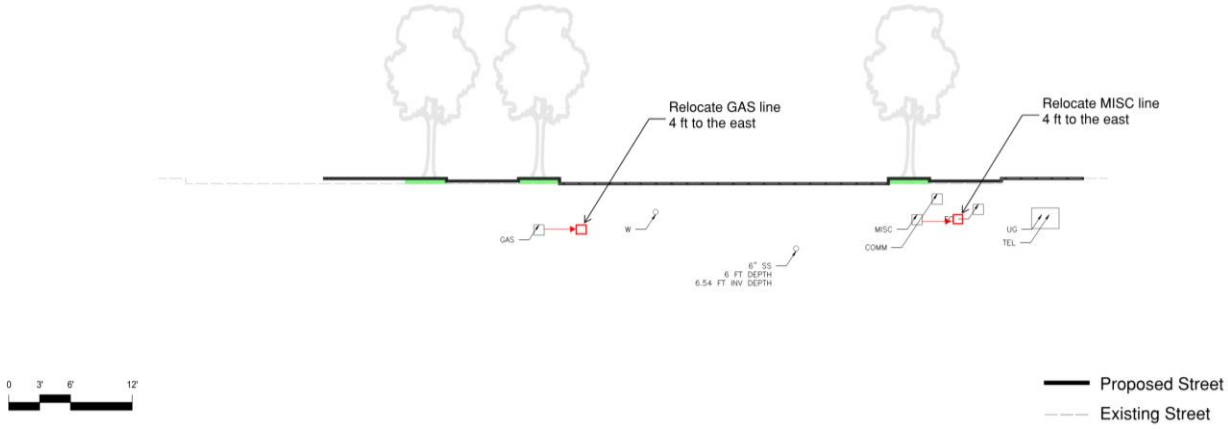
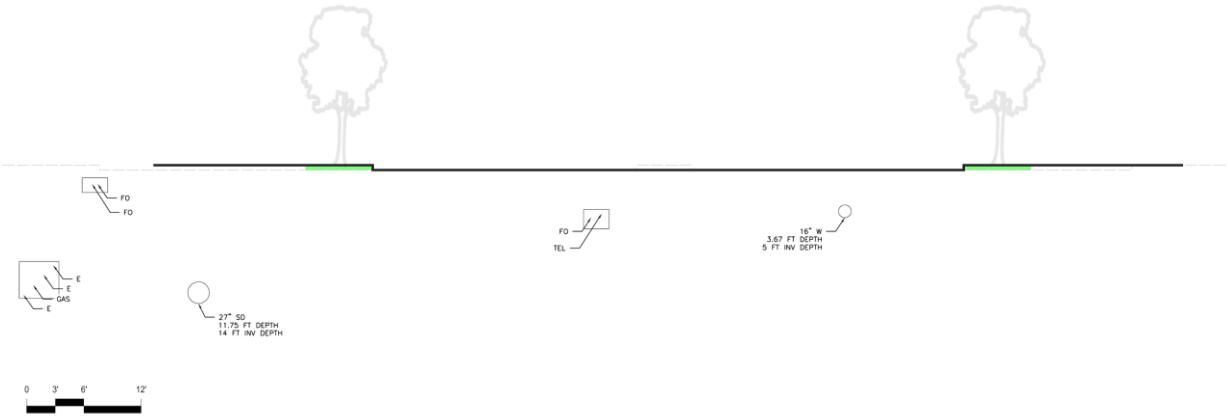


Figure 7.11: Conceptual Street Section 3. South Montgomery Street / Bird Avenue - No existing utility relocations required



8. FRANCHISE UTILITIES

8.1. ENERGY SYSTEMS

8.1.1. Scope of Service

Existing electrical systems in the Project area are owned and operated by Pacific Gas and Electric (PG&E) and San José Clean Energy (SJCE). Proposed modifications, upgrades, and undergrounding of the existing systems are proposed to extend beyond the development boundary. Refer to Sections 9.3.1 and 9.3.2 for the extent of the proposed work. It is expected that PG&E and SJCE will continue to own and operate these upgraded systems.

Existing natural gas systems within the Project area are owned and operated by PG&E. The Project may relocate some existing gas lines into the proposed joint trenches as needed.

8.1.2. Existing Electric

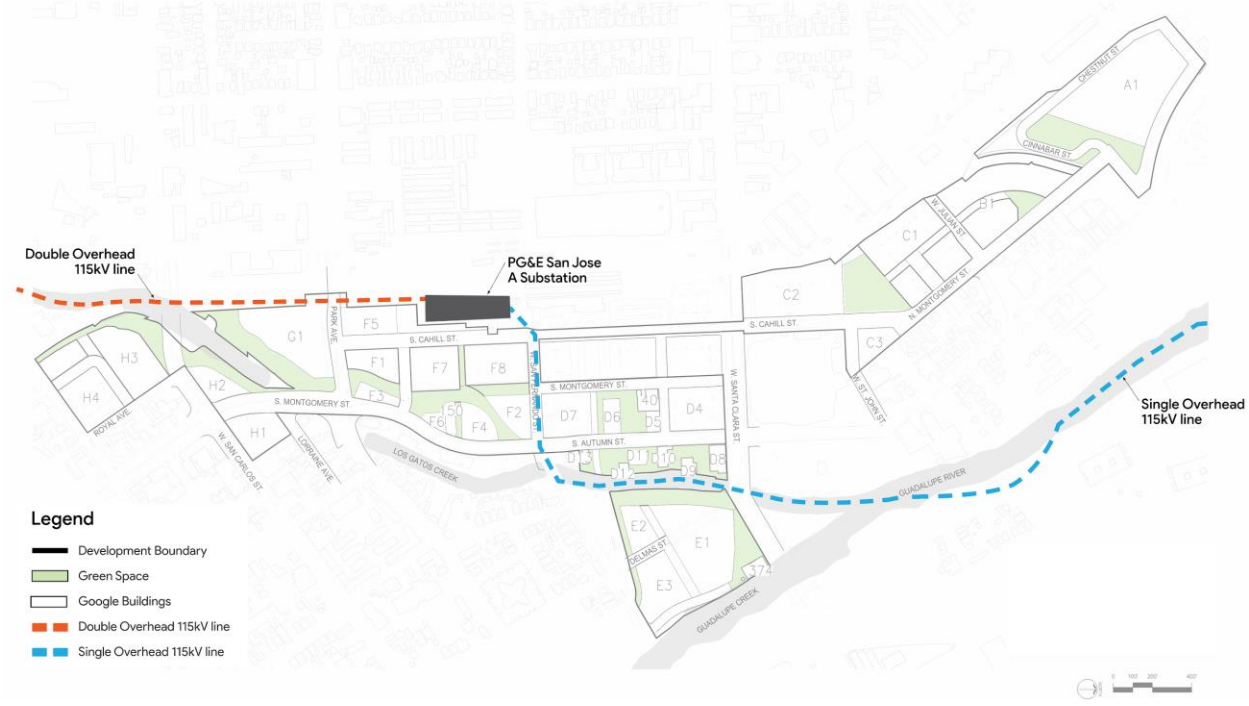
The Project area is served with power from Pacific Gas and Electric (PG&E) and San José Clean Energy (SJCE). SJCE is a community choice energy agency governed by the San José City Council as a City department. SJCE purchases energy directly from the energy source and delivers to customers through existing PG&E infrastructure. There is an existing PG&E transmission to distribution substation, 'San José A', located adjacent to Diridon station.

San José A receives a double 115kV circuit from the El Patio substation to the southwest. This circuit is overhead on existing electrical towers. From San José A, there is an additional single 115kV circuit to the San José B substation in the north. This circuit is also overhead.

San José A has two available distribution voltages, 12.47kV and 4.16kV. Within the Project area there are overhead and underground PG&E distribution systems and overhead and underground secondary distribution and service systems for various voltages below 600V. These circuits serve customers both within the Project area and elsewhere in the city. Parcels within the Project area are also served by San José B.

San José A, in the current configuration, has around 5MW of capacity remaining on the 12.47kV network. The 4.16kV system is a legacy voltage and not available for new customers.

Figure 8.1. Existing electrical infrastructure.



8.1.3. Existing Natural Gas

The site is currently served from the existing PG&E gas network. Gas lines exist and serve parcels within the Project area from most roadways within and adjacent to the Project site, including:

- Auzerais Avenue
- Cinnabar Street
- Cahill Street
- Montgomery Street
- West Santa Clara Street
- Delmas Street
- Julian Street
- Autumn Street
- West San Fernando Street
- Stover Alley
- Lorraine Avenue
- Park Avenue
- Royal Avenue
- West San Carlos Street

Within the Project site, gas mains exist within sections of Cinnabar Street, Delmas Street, Autumn Street, W. San Fernando Street, and Stover Alley. Existing parcels serviced by gas infrastructure connect either to these interior lines or lines in adjacent roadways; not all existing parcels are served by natural gas connections. Gas mains running through the site connect to buildings outside the Project site as well and will be required to be maintained during and after the Project.

A gas transmission line terminates near the site at the corner of Julian Street and Autumn Street which serves mains within the Project site. The transmission line originates north and east of the termination and does not pass through the Project site.

8.1.4. Proposed Electricity and Gas System

Electrical delivery for the Project is expected to be served from PG&E at transmission voltage (115kV) via a switching station to a Project area substation. The exact size of both the utility switching station and customer substation would be confirmed based both on further design of the Project and supply capacity from PG&E. The electrical infrastructure will be located within the Southern Infrastructure Zone and PG&E Substation - San Jose A . The project subject to design and phasing may also be served via a direct PG&E distribution service from San Jose A, in this option the project would not require a new dedicated customer substation and switching station, and would be served with 12 kV supplies directly from San Jose A. The ultimate Project load and capacity that PG&E have studied is for up to 48MW of electrical capacity. Ownership and management of the customer substation is also undergoing negotiation, with the final ownership agreement to determine the permitting required to construct the substation. Planning with PG&E has commenced for transmission supply to the required capacity levels (48MW) required to support the Project's total land use. The 115kV electricity would be stepped down from the PG&E switching station at a Project area substation to either 21kV or 12.47kV and distributed to the various buildings within the development. The proposed scope of electrical work to service the Project are outlined below and shown in Figures 9.7 and 9.8:

New Project Area Substation: The new substation will require a transmission voltage connection to be built to the distribution substation with the following criteria:

- Gas insulated high voltage 115kV incoming switchgear, arranged in a redundant configuration with utility metering
- Two 45MVA, fan assisted transformers to provide redundant power to the district
- 21kV or 12.47kV distribution switchgear
- It is estimated that the customer substation would be approximately 110 feet x 110 feet and be 40 feet high.

Power Distribution within the Project Area: The substation is intended to serve only the Project area initially. Depending on final ownership of the substation, additional customers may be connected in the future at the discretion of the owner and based on power availability. To serve the Project area, the following distribution will be required:

- Install a 21kV or 12.47kV distribution network to provide power to all Project areas. This is to be located within the utilidor or direct-buried in a joint trench.
- Each individual building, or groups of buildings would then contain step-down transformers to provide building level 480V power.

8.1.5. Required Utility Upgrades

PG&E have been engaged to determine the necessary upgrades required on their system to provide the necessary amount of power at 115kV to service the Project area. This section details the utility system modifications needed to facilitate this. Upgrades to PG&E existing substations and protection settings serving their transmission systems would occur within PG&E's existing footprints.

San José A Substation: The following upgrades are understood from PG&E to be necessary at the San José A Substation as part of the Project:

- Provide capacity mitigation to the 115kV transmission lines to allow for the Projects full build out capacity
- Construct new ancillary control building with associated battery building.
- Install new protective devices.
- Remove redundant protective relays.
- Install telecommunication equipment.
- Install two 115kV overhead to underground transition risers to connect the underground looped 115kV feeders to San Jose A.
- There is an option subject to detailed design to accommodate the switching station within San Jose A the following upgrades would apply under this scenario;
    - The proposed upgrades would include removing and replacing existing substation equipment. The 115kV open-air bus would be replaced with gas-insulated equipment. A new building would be erected on site to house both the 115 kV bus and the control room. Building size would be an estimated 110 feet x 55 feet x 40 feet tall.
    - The existing 115 / 12 kV power transformer would be replaced with a similar unit of higher capacity
    - The existing open-air 12kV bus would be replaced with a 12 kV metal-clad switchgear. The switchgear would connect into the existing 12 kV distribution circuits within the substation

- The two existing 115 /4 kV power transformers would be replaced with smaller 12 /4 kV auto transformers. The open-air 4 kV bus would be replaced with a 4 kV metal-clad switchgear. The switchgear would connect into the existing 4 kV distribution circuits within the substation
- The El Patio and Station B 115kV lines, which currently feed the open-air 115kV bus, would be modified to connect into the gas insulated 115 kV bus equipment

El Patio Substation: The following upgrades are understood from PG&E to be necessary at the El Patio Substation as part of the Project:

- Provide capacity mitigation to the 115kV transmission lines to allow for the Projects full build out capacity
- Install new protective devices.
- Remove redundant protective relays.
- Replace an existing circuit breaker.

San José B Substation: The following upgrades are understood from PG&E to be necessary at the San José B Substation as part of the Project:

- Install new protective devices.
- Remove redundant protective relays.
- Install telecommunication equipment.

New Switching Station:

- Install a gas-insulated substation (GIS) two-bay, six (6) circuit breaker, 115kV Breaker-and-a-Half (BAAH) layout operated as a ring bus. The footprint of the land requirements from PG&E, which includes access requirements are estimated at 150 feet x 110 feet. The minimum building size would be an estimated 110 feet x 55 feet x 40 feet tall with an additional basement of 12 feet. However, the customer substation may be sited on top of the switching station and therefore the physical size of the switching station may be 110 feet x 110 feet to match the dimensions of the customer substation. Access would be required to the building from street level.

Transmission Line Scope of Work: Additional work is required for the transmission lines within the Project site.

The switching station would receive 115 kV power from looping PG&E's El Patio – SJ Station A 115 kV line through the switching station 115 kV bus. The developer requests that PG&E place approximately 1300 feet of the El Patio – SJ Station A line underground starting just north of West San Carlos Street north and into Station A. The loop providing power to the switching station would also be located underground. To accommodate this, PG&E would install a steel transition pole north of West San Carlos Street and transition the circuit underground. The circuit would be routed north for about 1000 feet in the same alignment as the overhead line and across Park Avenue. The circuit would then turn to the east into the new switching station. The other part of the loop would exit the switching station to the west and turn north in the same alignment as the overhead line and into Station A. At Station A, the circuit would transition back overhead and reconnect to the 115 kV bus.

The customer substation would be provided with two 115kV feeds from PG&E's switching station into the adjacent customer-owned 115 / 21 or 12kV substation. How the two 115 kV feeds are routed, and their length, would depend on the site geometry. It is anticipated that the circuits would be very short and only between the two adjacent sites.

These are detailed in Section 9.5, but a summary of required work includes:

- Provide capacity mitigation to the transmission line serving San José A.
- Provide a transition station at the existing electrical tower north of San Carlos to transition the double El Patio / San José A circuit to underground.
- Provide double circuit underground duct bank and cabling.
- Provide a transition station in a yet to be identified location to transition the single San José B / San José A circuit to underground.
- Provide single circuit underground duct bank and cabling.
- Loop the 115KV San José A - El Patio line into the New Switching Station.
- Provide connections at San José A substation.

Proposed electrical infrastructure is shown in Figures 9.7 and 9.8.

In the option of a direct PG&E 12 kV distribution service being provided from San Jose A, the following changes would apply;

- PG&E would construct up to four underground circuits between Station A and the customer's development. Each circuit would be approximately 500 to 1000 feet long depending on the route and site chosen by the customer. The circuits would be installed either within franchise areas of public streets or within easements obtained from private property owners.
- The required substation A modifications to facilitate direct service by PG&E include the replacement of the 115 kV, 12 kV and 4 kV buses and replace the three existing transformers and control room within the existing substation property. The 115 kV bus and control room would be housed in a new building. The 12 kV and 4 kV buses would be housed within metal-clad switchgear buildings. The power transformers would be located on outdoor concrete pads.

8.1.6. Undergrounding of Overhead Transmission

The existing PG&E overhead transmission circuits, as part of this development and other developments, will be placed underground at certain locations on PG&E's network.

In order to facilitate this, transition stations (from overhead to underground) are required at the locations of existing PG&E electrical towers. Proposed electrical infrastructure is shown in Figure 9.8. Undergrounding the transmission lines will take place according to PG&E standards and will typically be in underground duct banks with associated vaults and access points.

Should the existing PG&E double circuit overhead line be placed underground, the likely location for the 100' x 75' footprint (including the existing tower) transition station would be the PG&E's existing electrical tower, to the north of San Carlos.

Should the existing PG&E single circuit overhead line be placed underground the likely location for the 50' x 75' footprint (including the existing tower) transition station would be within an identified zone as depicted in Figure 9.8.

In the case that the switching station is located on PG&E San Jose A land PG&E would construct two underground circuits between Station A and the customer-owned substation. Each circuit would be approximately 500 to 1000 feet long depending on the route and site chosen for the customer-owned

substation. The two circuits would be installed either within franchise areas of public streets or within easements obtained from private property owners.

8.1.7. Proposed Natural Gas

There is a desire to minimize natural gas throughout the Project to meet the Project's sustainability goals. However natural gas use may be required for certain end uses, such as retail cooking in up to 20,000 GSF of total developed area. Where required, natural gas would be served from the existing PG&E network within the Project area. Using California Plumbing Code and California Green Building Standards Code, natural gas pipe sizes to each building will be determined.

8.2. COMMUNICATION SYSTEMS

8.2.1. Scope of Service

The existing Project site is served by the incumbent local exchange carrier, AT&T, and franchised competitive local exchange carriers such as Comcast and others., which each own and operate their individual systems. The Project design team is in the process of mapping and verifying existing joint trench routing and will coordinate carriers on final configuration in the future to provide uninterrupted service to adjacent property owners.

8.2.2. Existing Communication Systems

The telecommunications serving the Project area consists of above-ground and buried telecommunications circuits from several providers, primarily AT&T and Comcast. There is a combination of coaxial cables and strand-mounted active equipment for Comcast service. There are medium count copper cables to provide voice services to businesses and residents in the area. There are also fiber-optic cables for high-speed data service.

North of the SAP Center/The Alameda the circuits are a mix of pole mounted communications cables on the PG&E poles with undergrounding at rail crossings and major street intersections. In the area to the south and east of the SAP Center the cabling has been undergrounded.

South of The Alameda telephone and cable TV lines are primarily above-ground mounted on electrical poles with a few dedicated telecommunications poles. Undergrounding occurs at major intersections, creek/river crossings, and rail crossings.

There are also train signaling cables in the Project area. From the main Caltrain trunk to the rail crossing between Cinnabar Street and N. Autumn Street there is an above-ground, pole-mounted signaling cable. In the green area to the east of Diridon Station at Crandall Street before the tracks emerge aboveground, there are light rail communications and signaling circuits.

The Project area contains one cross-connect box at the southeast corner of Cinnabar Street and North Montgomery Street. While outside the Project area, the cross-connect box and an active equipment controlled environment vault at the Northwest corner of West St. John's Street and North Autumn Street may be close enough to be of concern. This appears to serve the SAP Center.

There are four pole mounted cellular telephone sites in the Project area:

- Southeast corner of North Montgomery Street
- Mid-block on South side of West Julian Street
- Mid-block on the east side of South Montgomery Street south of Crandall Street
- Mid-block on the west side of South Montgomery Street adjacent to the Fire Training Center

There is a radio transmission tower in the PG&E substation south of Diridon Station.

The central office that serves the Project area is the AT&T San José A central office at 95 Almaden Avenue (CLLI Code SNJSCA02). This central office serves, but is located outside, the Project area.

There is an AT&T service center located at 145 S. Montgomery Street. While this is no longer identified as a central office, there is an underground telecommunications structure on S. Montgomery Street and a large telecommunications structure consisting of multiple underground vaults in both the north and south lanes of Park Avenue. Further research is required on this facility as it may still act as a wire center even if it is no longer a central office so cables may need to be relocated.

Intelligent Transportation System

The existing Intelligent Transportation System (ITS) provides connectivity for enabling and enhancing mobility to provide centrally controlled and monitoring services for different modes of transport and traffic management. This enables users to be better informed and make safer, more coordinated, and 'smarter' use of transport. The pathways that are used for ITS also provide pathways for general fiber optic cabling to connect other city resources.

There are traffic signals at:

- W. Julian Street at N. Montgomery Street
- W. Julian Street at N. Autumn Street
- W. Julian Street at Autumn Parkway
- W. Julian Street at N. Pleasant Street
- W. Santa Clara Street/The Alameda at White Street/Stockton Ave
- W. Santa Clara Street at Cahill Street
- W. Santa Clara Street at S. Montgomery Street
- W. Santa Clara Street at S. Autumn Street
- W. San Fernando at Delmas Avenue
- S. Autumn Street at VTA crossing
- Park Ave at Delmas Avenue
- S. Autumn at S. Montgomery Street
- S. Autumn at W. San Fernando
- Park Avenue at S. Montgomery Street
- W. San Carlos Street at S. Montgomery Street/Bird Avenue
- Bird Avenue at Auzerais Avenue
- Bird Avenue at Interstate 280

These signals are connected together with singlemode fiber optic cable that rout to the individual devices via a series of trunks and branches.

- Main north-south trunk
    - Routed along Bird at the south of the Project area, along S. Autumn to W. Julian St. The trunk turns east at S. Julian and is routed away from the Project area
    - Trunk contains varying amounts of fiber, up to 500 strands
- East-west trunk along Park Avenue crossing the Project area
    - Up to 144 strands in multiple sheaths
- East-west edge cable along W. Julian Street crossing the Project area
    - Small count fibers up to 36 strands in multiple sheaths
- East-west edge cable along W. Santa Clara Street crossing the Project area
    - Small count fibers up to 12 strands in a single sheaths
- Edge fibers feeding traffic signals at the intersections noted above
    - The fibers are used by multiple entities, including City of San Jose, SJ DOT, and Silicon Valley ITS. The entities responsible for the fiber is being ascertained, as it is likely different from the user.

The intersection of S. Autumn Street and the VTA lines has rail signal equipment in addition to traffic lights for pedestrian crossing.

The extent of city fiber within the area is being studied. City fiber maps were made available on August 14 and are being studied and validated against the Project plans.

Information regarding existing conditions and facilities have been obtained from publicly available sources and have not been verified in the field or with the service providers. Validation will be required prior to design efforts and are underway.

Access to the Project area requires careful planning as it is bordered by multiple forms of transit and the Guadalupe River and Los Gatos Creek. The Caltrain/Amtrak tracks on the west side will likely require an indefeasible right of use agreement, as will crossings of State Highway 87 on the east side and I-280 on the South.

Within the Project site the primary dedicated streets will require agreements with the city for crossings to create a distribution loop for the cable within the Project. The south area of the Project will have to contend with crossing beneath Los Gatos Creek to create a connectivity loop for the four proposed buildings south of the Creek.

The discontinuous nature of the Project area at The Alameda/SAP center suggests that special attention will be needed to create diverse pathways or a distribution loop, as is typically requested by the Project sponsor.

The building at 145 S. Montgomery was an AT&T central office and wiring center. Based on correspondence with AT&T, it has been decommissioned and is no longer owned by AT&T. The large duct structure on Park Avenue south of 145 s. Montgomery is indicated as still owned by AT&T.

City fiber within the Project area will be protected or rerouted based onsite conditions. Joint trench conduit pathways for city and other fiber providers are being designed as part of the public joint trench

design package. Extent of the modifications to the City has yet to be determined. The Project is waiting on the city to provide information regarding locations of city fiber.

8.3. JOINT TRENCH

8.3.1. Scope of Service

Due to the proposed street vacation and new roads, existing public dry utilities will require relocation and/or overhead to underground conversions. The joint trench scope includes proposed relocation of existing public dry utilities in preparation for future developments and to maintain utility clearance requirements within new site conditions. The joint trench team is in the process of performing field verifications to identify existing utility infrastructure and begin planning the proposed joint trench routing to accommodate these relocated utilities.

8.3.2. Proposed Joint Trench

The joint or common trench system to be included in the public ROW may include underground electric, gas, phone, cable TV and streetlight facilities. This trench would be separate from the utilidor (described in Section 9.1.3) as it will not provide routing for private utilities systems, only Franchise and City utilities.

The joint trench will allow for separate, dedicated pathways for: city services, including ITS; incumbent local exchange carriers (such as AT&T and Comcast); and competitive local exchange carriers.

9. PRIVATE UTILITIES

9.1. DISTRICT UTILITIES

9.1.1. Scope of Service

The proposed district utilities are designed to serve only privately owned parcels within the development boundary with the option of serving public Parks within the Project boundary and will run almost exclusively within private parcels within the development boundary. Private systems will be owned, operated and maintained by the Project applicant.

9.1.2. District Systems

The Project proposes a district-systems approach for wastewater, energy, and solid waste flows most efficiently, meaning that such services would be delivered through shared district-wide infrastructure, rather than individual and building-specific systems. Providing district systems and services enables local management of the Project's resource demands, thereby reducing burdens on existing municipal systems while increasing Project resiliency.

9.1.3. Utilidor Distribution

The proposed Project could include new utility corridors ("utilidors") for the conveyance of private utilities to serve the Project area. These private utilities may include thermal systems (chilled and hot water), communications, electrical distribution, sanitary sewer collection, recycled water distribution, and automated waste collection. Additionally, the utilidors could include additional clear space to allow for the movement of goods and other logistics operations. Refer to Figure 9.1 for the Conceptual Utilidor Plan and Figure 9.2 for a conceptual utilidor section.

The utilidors will be constructed as a combination of direct-bury utility trenches, utilities within basement parking, or underground tunnel structures. The utilidors would seek to minimize impacts to existing utilities within right-of-way crossings, where practical. When crossing Los Gatos Creek, the proposed utilidors may be constructed using a jack-and-bore method, or integrated into a proposed bridge structure.

In future design phases, the utilidor will be designed for liquefaction potential and to mitigate differential settlement. Soil prep and additional soil enhancement may be required for installation of new or upgraded public and/or private utilities. Alternative pipe materials choices may also aid to mitigate differential settlement.

Buildings that are proposed to receive tenant improvements only are not intended to connect into the proposed utilidor system, but instead would connect directly to existing utilities within the ROW. However, there is a possibility that these buildings could connect into the private utilidor system which would be determined in future design phases on a building-by-building basis.

Figure 9.1. Conceptual Utilidor Layout

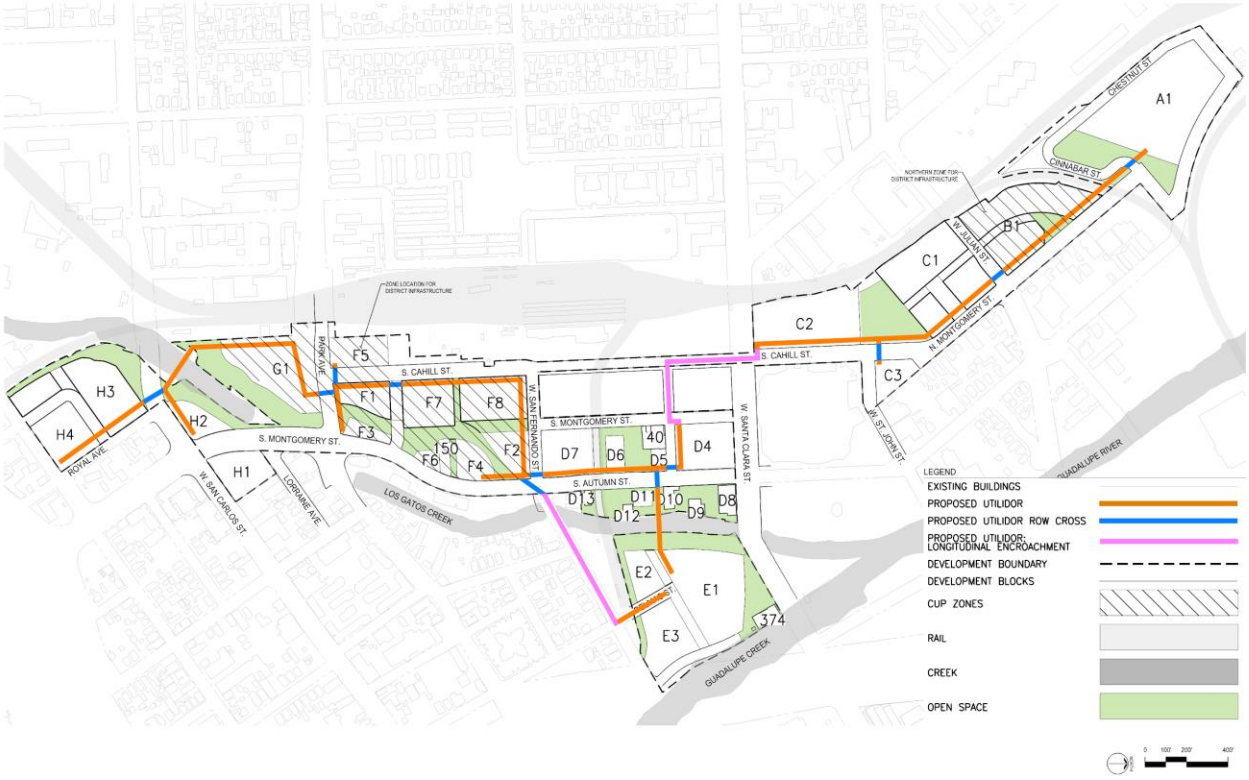
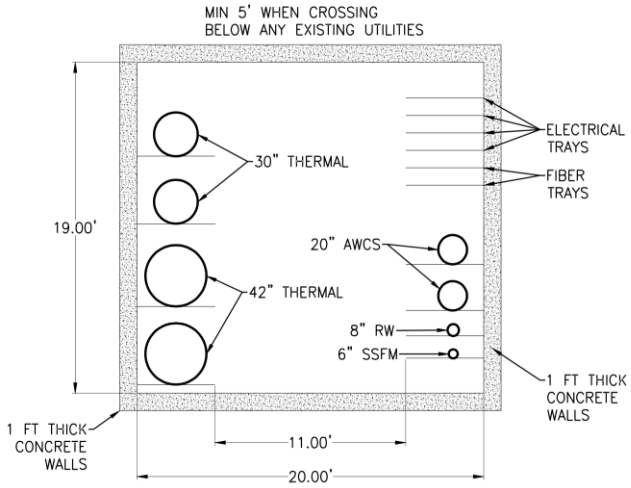


Figure 9.2. Conceptual Utilidor Tunnel Section



9.1.4. Central Utility Plant

The Project proposes to consolidate district utility services via the construction of one or more Central Utility Plants (CUPs). Consolidating the Project utility services CUP(s) improves equipment spatial and operational efficiency, helping the Project achieve its stated sustainability goals. There may be up to two infrastructure zones, one in the southwest portion of the site (parcels north and south of Park Avenue between the railway and Cahill Street) and one in the northern portion of the site (at the corner of Julian St. and N Montgomery St) as shown in Figure 9.1.The Project's phasing strategy may also require a temporary thermal utilities to serve some parcels prior to the construction of the CUPs.

The central utility plant(s) (CUP) will provide a consolidated location for the following utilities:

- Water reuse facility to treat privately-collected wastewater and produce recycled water for non-potable uses. This facility would meet California Code of Regulations Title 22 disinfected tertiary (unrestricted reuse) recycled water standards.
- Central utility plant to provide heating hot water and chilled water. Equipment in this facility would comply with Title 24 energy code requirements.
- A CUP may be co-located with a proposed logistics center (including AWCS facilities) to further consolidate infrastructure.
- The proposed electrical substation and switching station may be co-located with the CUP as well to further consolidate infrastructure.
- The plant may also include back up facilities for resilience and life safety including generators and battery storage.

9.2. DISTRICT WASTEWATER COLLECTION SYSTEM

9.2.1. Scope of Service

The district wastewater collection system will only serve the majority of the proposed parcels within the development area and will be located within the proposed utilidor system. A small portion of the sanitary sewer system which will provide a discharge connection from the water reuse facility will be located outside of the utilidor and will extend beyond the development boundary, along W San Fernando Street to Almaden Blvd. Refer to Section 9.2.4.3 for additional description of the discharge connection. The Project applicant will be responsible for ownership and maintenance of the onsite district water reuse system and private sanitary sewer collection system.

9.2.2. Collection Areas

The proposed sewer system would collect wastewater from the majority of the Project's proposed development parcels via a private collection network owned by the Project applicant and connected to an onsite district water reuse facility (WRF). See section 9.2.4 below for additional detail on the WRF. Some development parcels (eg: Parcel H1) may connect directly to the city's sanitary sewer network as identified in Figure 9.3.

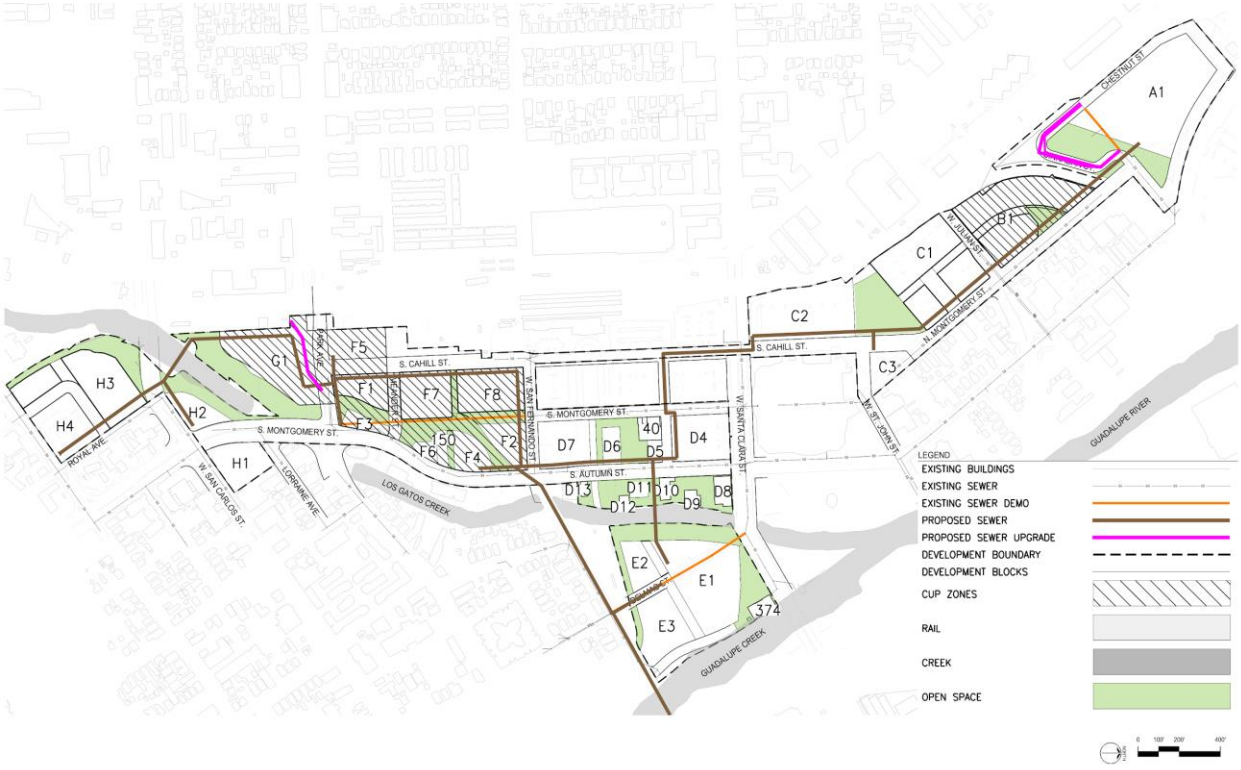
9.2.3. Proposed Low-Pressure Collection System

The proposed design for wastewater collection includes a private, low-pressure sanitary sewer collection network which would be integrated into the proposed utility corridor alignment as shown in Figure 9.3. Sanitary waste would be collected in a small pump station in each building basement. The pump stations would include a collection tank and a pump to feed into a low-pressure force main, routed within the proposed utility corridor. Pumps would be selected to adequately transfer wastewater solids through the network to the WRF.

A low-pressure collection system (also known as a pressure sanitary sewer, PSS) is proposed as it allows for the controlled transfer of sewage in a more efficient footprint than conventional gravity systems. A pressurized system would allow for wastewater to be collected in smaller diameter pipes within the utilidor whereas a gravity system would require that a dedicated trench be constructed with larger diameter pipes to achieve adequate slope for flow. A PSS operates through a sealed system, eliminating leakages (exfiltration) and stormwater inflow and infiltration (I/I) while also reducing odor issues. The pump station wet wells associated with the PSS will be vented as required by CPC to prevent odorous conditions. If needed, air blowers and odor control units (e.g., carbon filters) may be incorporated into the pump station design.

The inclusion of PSS and WRF avoids the upsizing of buried gravity mains, which would be a much larger construction Project and would involve trenching within public roadways. Additionally, a PSS allows for system optimization, as the operator can program the system's operating periods and stagger peak loads. This flexibility could potentially reduce the discharge volume that would be sent to the City.

Figure 9.3. Proposed Wastewater Collection Network



9.2.4. Onsite District Wastewater Treatment and Water Reuse Facilities

9.2.4.1. Facility Design

Up to two private onsite district water reuse facilities (WRFs) are proposed to treat Project-generated wastewater for reuse to meet non-potable demands; where a second WRF would be constructed if the existing Sharks parking lots are not included in the Project. The WRF(s) would meet California Code of Regulations Title 22 disinfected tertiary (unrestricted reuse) recycled water standards through a multi-stage treatment system, including primary treatment, secondary treatment, tertiary filtration, and disinfection. The WRF(s) have been sized to treat up to a maximum wastewater production flow of 1 million gallons per day (MGD). Water that has been tertiary filtered and disinfected would be stored in a non-potable storage tank before being distributed for uses such as water closet and urinal flushing, irrigation, and cooling. Treated non-potable water would be distributed via a pressurized distribution network within the private utilidor.

9.2.4.2. Treatment Standards

The proposed onsite district WRF(s) would treat wastewater to California Code of Regulations Title 22 disinfected tertiary (unrestricted reuse) recycled water standards. These are the same public health standards met by the recycled water produced by the San José-Santa Clara Regional Wastewater Facility (SJ-SC RWF) and distributed by South Bay Water Recycling (SBWR). The WRFs would be co-located with the mechanical and thermal equipment in the CUP locations outlined in Section 9.4.

The recycled water produced at the WRF(s) will be regulated by the State and meet the same water quality as the SBWR system, which produces disinfected tertiary (unrestricted reuse) recycled water. This level of treatment allows for unrestricted reuse for approved non-potable end uses including spray irrigation. The

Project will have the capacity to irrigate public areas with recycled water produced at the WRF thereby leaving potable water available for other uses.

9.2.4.3. Discharge Connection

As described above, the private district system would tie into the City's sanitary sewer network to discharge excess wastewater from the water reuse facility and, potentially, for disposal to the City sewer system of residual solids (sludge). This connection would allow the water reuse facility to discharge excess wastewater to the City's sanitary sewer system if there is a lower demand for recycled water or the district system is offline for any reason. These discharges would incur a fee based on the City's monitored industrial discharge rates. This arrangement would add redundancy to the proposed WRF and would avoid the need for the Project applicant to permit a treated water discharge into the environment.

Industry standards typically referenced by the State Water Quality Control Board, define 'sludge' as the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially used as soil amendment pursuant to federal and state regulations."

This sanitary sewer discharge connection would connect across Los Gatos Creek via the proposed utility corridor and Guadalupe Creek via the West San Fernando bridge. An existing 33" RCP City sanitary sewer trunk line has been identified running within Almaden Boulevard where a connection is proposed. The point of connection would be determined in coordination with City staff. The discharge infrastructure may require some installation within existing roadways once it exits the proposed utilidor. Discharge infrastructure outside of the proposed utilidor would require an encroachment permit within the ROW.

If a northern WRF is constructed, a second sanitary sewer discharge connection to the City system would be required outside of the proposed utility corridor.

9.2.4.4. Solids Management and Corrosion

The sludge from the treatment plant would be predominantly liquid, with a very low percentage of solids. The primary solids are preliminarily estimated to be 2% (20,000 mg/L) total suspended solids flow, while the secondary solids are preliminarily estimated to be 1% (10,000 mg/L) total suspended solids flow.

One alternative being considered is discharge of these low solids concentrations to the City sanitary sewer. Based on the *2012 Sanitary Sewer Flow Monitoring Service Order No. 6*, the City's sanitary sewers have adequate flow to carry these solids to the SJ-SC RWF. As such, it is not anticipated that this discharge would create a high corrosion potential in the sewer lines.

The Project is also studying onsite solids management alternatives. Any product of onsite treatment would be beneficially reused and would not be taken to the SJ-SC RWF. For example, the sanitary solids produced as a by-product from the onsite district WRF(s) could be managed onsite through pyrolysis, generating biochar (a high-quality soil amendment), and/or through anaerobic digestion, generating biogas that could be used in fuel cells to generate electricity. Should anaerobic digestion be implemented, co-digestion with food waste collected via the automated water collection system would increase the amount of biogas and biosolids production. The digested biosolids would be dewatered and reused beneficially as soil amendment.

California Senate Bill 1383 requires a 50 percent reduction in organic waste disposal from 2014 levels by 2020, and a 75 percent reduction by 2025. Onsite beneficial reuse will help the City to meet that goal by diverting this organic waste from the landfill. Any products of the onsite solids management will be used with the Project boundaries or as close to the Project site as possible; the hauling distance will be minimized to the greatest extent feasible.

The City of San José currently has a robust condition assessment program. As stated in the Sanitary Sewer Corrosion and Odor Potential letter provided to the City dated March 13, 2020, the Project applicant does not expect the discharge from this Project will exacerbate any corrosion or odor potential in the sewer lines based on its initial analysis.

9.2.4.5. Odor Control

At the initial stage of treatment, raw wastewater is screened to remove inorganic solids, which are collected in a roll-off bin and periodically hauled off-site. Preliminary screening of wastewater is intended to remove large materials from the flow stream that may damage or clog subsequent treatment equipment and reduce overall treatment reliability. Screens can either be coarse or fine depending on the size of material intended for removal. Materials captured by the screens are called screenings and can include rags, plastics, and paper. Screenings are composed of primarily inorganic wastes that are not biodegradable and not beneficial for post processing and resource recovery. As such, screenings are typically washed, compacted and hauled off site at regular intervals for disposal in a permitted landfill.

Grit such as sand, gravel, coffee grounds and eggshells are removed to prevent their accumulation in downstream processes such as aeration basins and anaerobic digesters. These materials are typically removed via gravity settling; scour air or another abrasion process can be used to more effectively separate grit from other suspended solids. Similar to screenings, grit does not have a resource recovery value and is hauled off site.

The screenings and grit would need to be managed to not create nuisance odors; wastewater treatment plant odors are subject to the jurisdiction of the Bay Area Air Quality Management District. Handling and disposal would require screenings and grit to be washed and drained, and the wash water may be recycled to the front of the treatment train. Once washed and dewatered, the screenings and grit will be stored in refuse containers satisfying the City's requirements, and routinely hauled offsite to a permitted landfill. Refuse containers would have to be odor proof and contained within an area draining to the sanitary sewer in the case of a rain event. Odor control measures may also include housing primary screenings in a ventilated enclosure at the WRF.

Primary treatment and management of primary and secondary solids will also produce odors. The WRF will have appropriate odor controls to manage any objectionable odors from these processes. The headspace of tanks with the potential to produce odors will be vented. If needed, air blowers and odor control units (e.g., carbon filters) may be incorporated into the wastewater treatment design. Specific solutions will be developed as the Project moves into design.

9.2.5. Private Sewer System Phasing

The sanitary sewer collection system would be built out as buildings come online through the three phases of construction as described in Section 1.7 Project Phasing. Sewer laterals and all required pumps would be constructed on a parcel-by-parcel basis.

9.3. DISTRICT NON-POTABLE WATER

9.3.1. Scope of Service

The non-potable water pipe is proposed to serve only parcels within the development boundary with the option of serving public parks within the Project boundary. The non-potable system will be located on Project applicant property and within the utilidor system. The non-potable water systems will be owned and maintained by the Project applicant.

9.3.2. Project Demands

In the proposed development, non-potable recycled water may be used for water closet and urinal flushing, irrigation, and mechanical cooling tower use. Use of recycled water may help the Project comply with the City of San José's New Construction Green Building Requirements which require meeting LEED Silver with a goal of reaching LEED Gold. All Google office buildings in line with the AB900 certification will achieve LEED Gold and water incentives will be a contributor to the overall performance.

Estimated average non-potable water demands based on unit demands for similar developments are given in Table 9.1. Non-potable demands do not account for potable water uses such as drinking water. A preliminary water balance shows an excess of non-potable water during winter months. Additional winter season non-potable demands would be investigated to use this surplus. As described in Section 7.1, Project water demands are provided here as an engineering estimate for informational purposes only.

Table 9.1: Average non-potable demands

Program	**Average Daily Non-Potable Demand (gal/d)**	**Average Annual Non-Potable Demand (MGY)**
Office	62,100	23
Residential	44,900	16
Retail	10,200	3.7
Restaurant	-	-
Hotel	2,900	1.1
Event space	600	0.2
District Systems	5,100	1.9
Logistics/Warehouse	5,100	1.9
Subtotal: Interiors	130,900	48
Cooling	99,100	36
Irrigation	63,400	23
Subtotal: Seasonal	162,500	59
Total	**293,400**	**107**

9.3.3. Proposed Non-Potable Water Supply

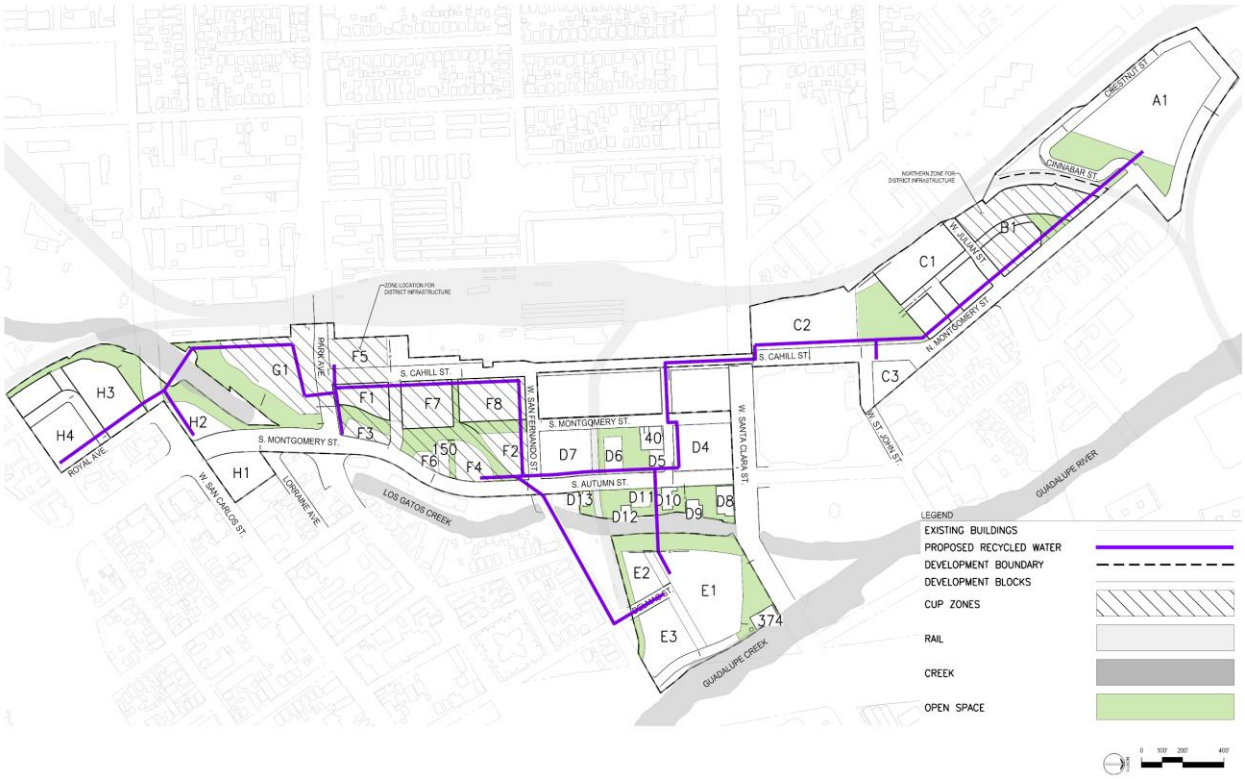
As outlined above, the non-potable water supply to the Project site would be provided by up to two onsite district WRFs that would treat sanitary sewer flows produced by the Project for non-potable reuse throughout the Project.

City-supplied potable water would be used as a backup supply to the recycled water system. Due to the phasing of the Project, potable water would also be used as a supply for non-potable uses until the water reuse facility(s) are constructed and brought online.

9.3.4. Proposed Distribution System

Treated non-potable water would be distributed to all or most Project development parcels through a private distribution system. The non-potable pipe would be routed through the utility corridor and connect to all proposed buildings as a non-potable supply for water closet and urinal flushing and irrigation. The non-potable supply would also be sent to the proposed central utility plants (CUPs) as a makeup water supply for the cooling towers.

Figure 9.4. Non-Potable Water Distribution



9.3.5. Non-Potable Water System Phasing

The non-potable water distribution network would be built out as buildings come online through the three phases of construction as described in Section 1.7. Non-potable laterals and any required booster pumps would be constructed on a parcel-by-parcel basis. As described above, the majority of the onsite district WRFs would be built during the proposed Project's initial phase, to ensure that a non-potable supply would be available for buildings as they are developed.

9.4. DISTRICT THERMAL SYSTEMS

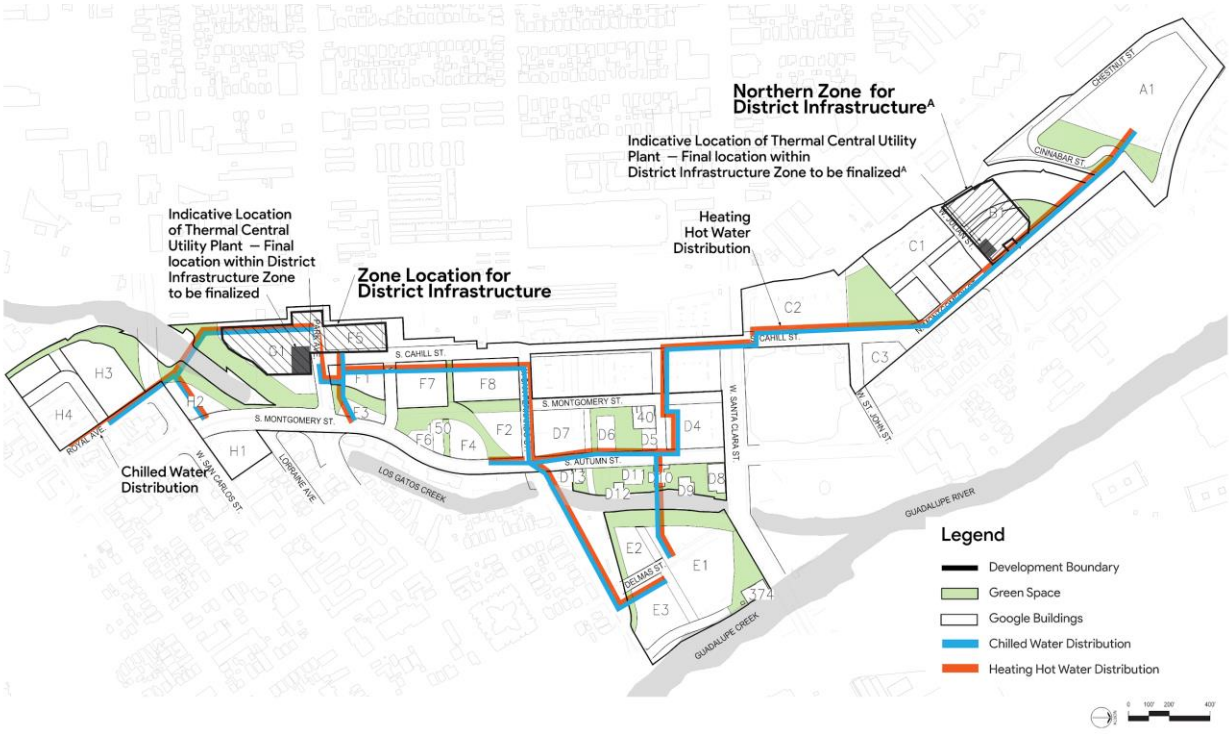
9.4.1. Scope of Service

The proposed thermal systems would serve the full proposed Project, with some buildings being serviced by standard BAU systems depending on phasing constraints, as noted below. The CUPs and distribution of heating hot water and chilled water would be owned and managed by the Project applicant.

9.4.2. Proposed Thermal System

There is no existing heating hot water or chilled water system serving the site. Thermal energy for the Project is proposed to be served from up to two central utility plants (CUPs). The Project phasing strategy may require temporary thermal service to some buildings while the CUPs are constructed. Provision for temporary heating and cooling equipment to be removed when the CUPs are commissioned will be made. The CUPs would provide heating hot water and chilled water to the majority of the buildings within the Project area via underground heating hot water and chilled water pipes located within the utilidor and/or direct-buried.

Figure 9.5. Thermal Energy Layout



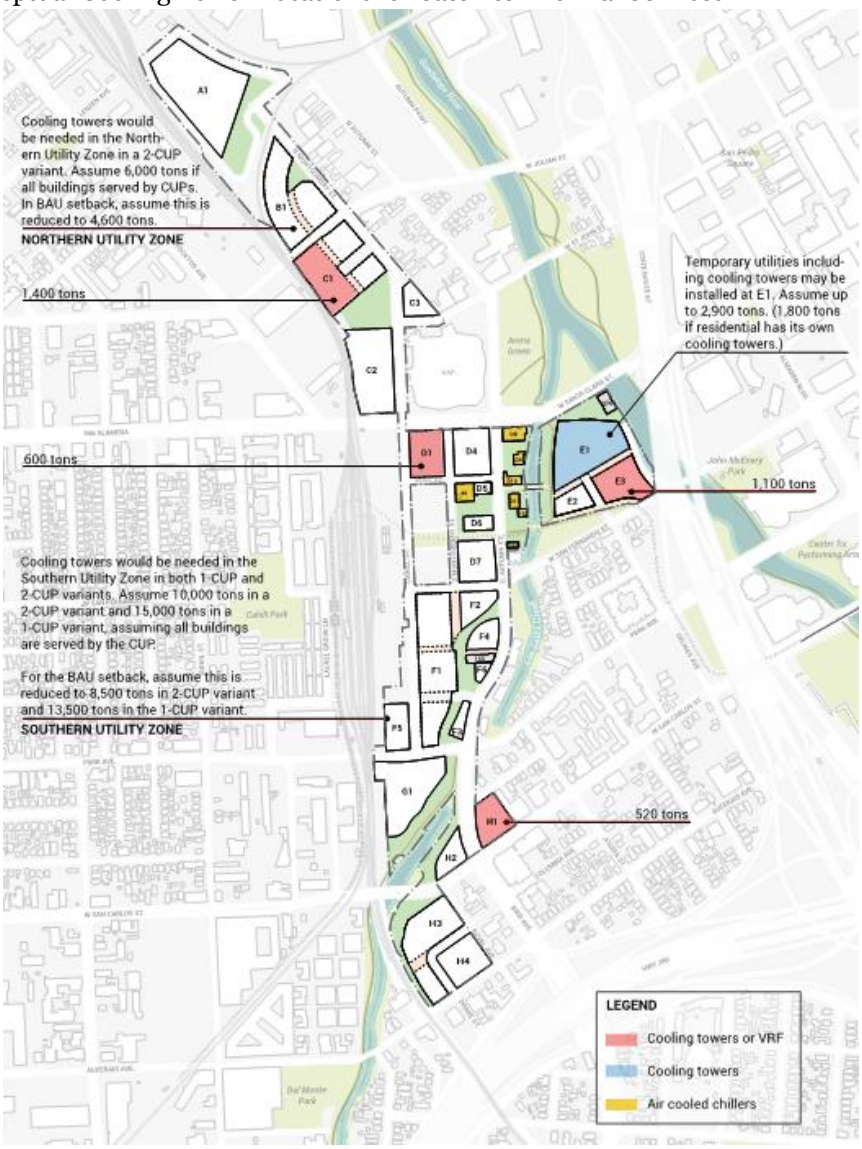
Equipment at the plant would be selected to comply with Title 24 energy code requirements and support achievement of LEED-ND Gold for the Project and LEED Gold for the office buildings. Additional energy, carbon, and water savings are possible through centralization and heat recovery between buildings within the Project. Centralizing thermal production also allows for improved operating efficiency of primary cooling and heating equipment, reducing electricity and natural gas use for the Project.

Central cooling generation for most buildings in the Project area is currently proposed via water cooled chillers and heat recovery chillers rejecting heat to cooling towers mounted on the roof of the CUP building. Heat rejection via a localized ground loop utilizing structural piles or mat foundations within the Project area may be utilized as well. Heating is proposed to be all-electric via air source heat pumps located on the roof of the CUP building, heat recovery chillers, and water source heat pumps connected to a ground loop located within the mat foundation and/or structural piles of the CUP and nearby buildings. Alternate means of heat exchange would be subject to additional approval. Centralizing thermal equipment provides greater operational efficiency as well as a means to exchange heat between residential and commercial buildings, as well as reduce water consumption required for cooling towers. The Project may also include wastewater heat exchange from the district non-potable water system, thermal energy storage, and anaerobic digestion of onsite generated organic waste for use as biogas for fuel cells onsite.

Several buildings within the Project area may not be connected to the CUP. These include existing buildings that will remain within the development area, certain residential buildings, and parcels which may be constructed prior to the CUP and hot and chilled water lines being complete. Where appropriate, temporary thermal service may be located at these parcels with a connection to the CUP replacing the temporary service. In other cases, the parcels will maintain stand-alone thermal equipment unconnected to the CUP. In all cases, non-CUP thermal equipment will meet all required standards under California's Title 24 building Energy Efficiency Standards. The map below indicates the parcels for which local cooling towers may be utilized.

Heating hot water and chilled water distribution would be via pipes located either in the proposed utilidor or where necessary direct buried. A condenser water pipe between buildings may additionally be required to connect the ground loop within the mat foundation and energy piles.

Figure 9.6. Conceptual Cooling Tower Locations for Satellite Thermal Services



9.5. DISTRICT ELECTRICAL SYSTEM

9.5.1. Scope of Service

The proposed microgrid electrical distribution and thermal systems would serve the full proposed Project. The final ownership and operation of the systems is under review to ensure that the benefits are realized from an environmental and economic perspective. The proposed modifications and upgrades to PG&E Systems which extend beyond the development boundary are described in further detail in Section 8.1.

9.5.2. District Microgrid and Renewable Energy

Renewable generation technologies including photovoltaic arrays and building-integrated photovoltaic products may be located on building rooftops and facades, with an anticipated minimum peak generation

capacity of 7.8 MW. In addition, storage technologies such as batteries may also be deployed within the substation area, the CUP, or within buildings throughout the development. Such storage technologies could be used to provide both resilience and/or backup power services in addition to the proposed generators. Both storage and generation on-site would allow the realization of Project benefits such as:

- Provide power to key Project area loads in the event of a utility wide grid outage.
- Allow renewable energy to be shared between buildings.
- Allow the generation and storage technologies to provide grid services and balance demand and onsite generation with grid import and export.

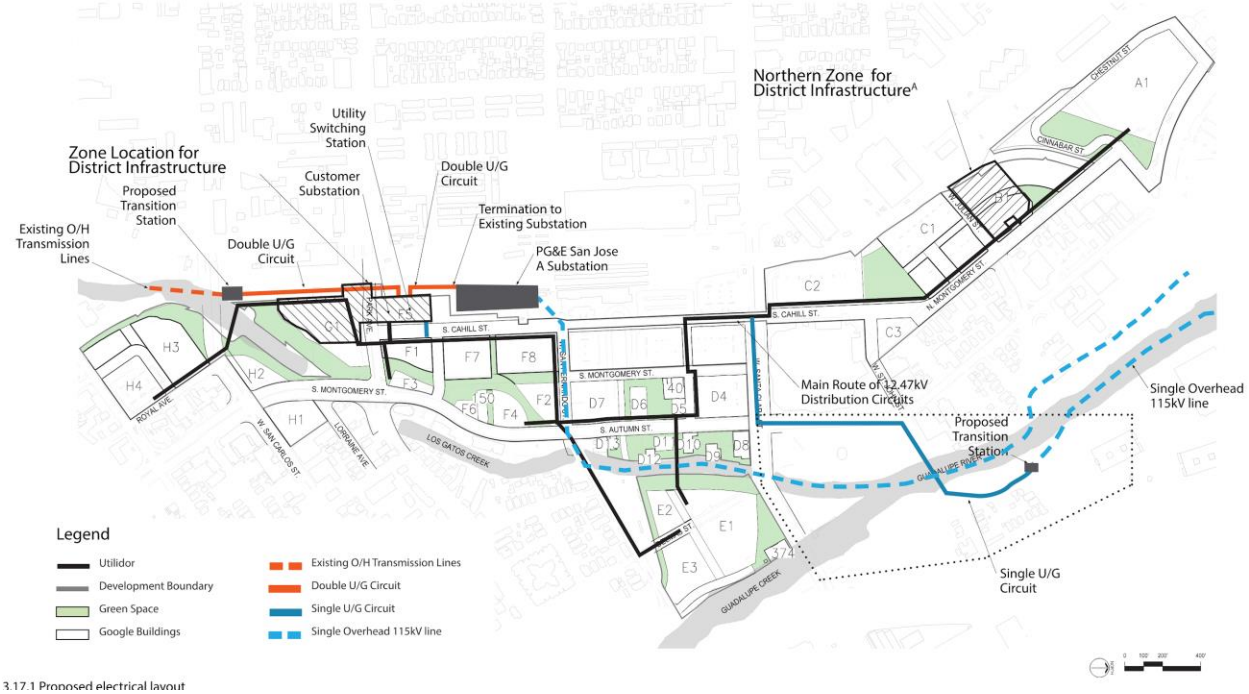
The Project is also proposing providing localized 12.47/21 kV infrastructure from a dedicated transmission substation to connect the majority of buildings within the development area in a microgrid with one or more connections to the PG&E transmission system. The microgrid would include controls to share power between buildings across the microgrid distribution, and controls to operate any below substation generation and storage disconnected from the grid in the event of an outage. It is not anticipated, however, that the microgrid will have sufficient renewable energy and storage to operate for an extended period in an islanded scenario due to the high-density nature of the Project. The intent of a microgrid topology is primarily to enable sharing of renewable power and storage and provide limited resilience to critical functions in the event of an outage on the transmission network.

A limited number of buildings may not connect to the microgrid; these include existing buildings which will remain in the development area, some residential buildings, and parcels which may require power prior to construction of the CUP and microgrid due to phasing. These are noted in the figure below. In this event, electrical distribution to these buildings will be provided by PG&E to the main meter for the building via distribution lines in the public right of way rather than the private utilidor. Renewable generation and storage assets located at these buildings will not contribute to the microgrid.

Figure 9.7. Locations of buildings which may be provided with power from PG&E directly instead of the CUP and microgrid.

The Project's microgrid distribution would be housed within the proposed utilidors as described in Section 9.1.3.

Figure 9.8. Proposed Electrical Upgrades and Conceptual Microgrid Layout.



3.17.1 Proposed electrical layout

9.6. DISTRICT COMMUNICATIONS

9.6.1. Scope of Service

The Project's infrastructure obligations include the design and construction of the proposed communication utility systems to serve the development. These systems encompass a combination of Project applicant-owned, franchise-owned, and city-owned communications pathways and cabling. Privately-owned cabling will be located within the proposed utilidor, while other cabling will be located within the proposed joint trench.

9.6.2. Proposed Communication Systems

The proposed improvements for communications and data infrastructure include a combination of privately-owned and franchise-owned systems.

Singlemode fiber-optic cabling to each new building with diverse routing to provide resiliency. Based on previous campus Projects this could take the form of multiple self-healing rings based on geographic zones.

Modifications and additions to franchise communications systems include the following:

- Undergrounding or removal of existing telecommunications fiber and copper in the Project area.
- Provision for communications connectivity to residential areas of the Project including data connectivity and connectivity for cable-television and voice services. Connections to residences

will likely be provided by fiber-optic cable, regardless of who provides the service. Within the residences this may transition to copper cable or remain on fiber.
- Modifications to the City communications fiber optic cable to place in the joint trench and modify City ITS fiber based on changes to traffic signaling extent and locations.
- Provision for installation of future 5G cellular service. The trajectory of 5G service is being developed and will remain under study, but the timing of this Project and the rollout of 5G services nationwide would indicate a substantial 5G infrastructure including small cell equipment and fiber backhaul. Provision for 5G should be allowed for in the joint trench.

9.7. SOLID WASTE COLLECTION

9.7.1. Scope of Service

The proposed automatic waste collection system (AWCS) would serve the full proposed Project with solid waste collected at centralized terminal facility(s). Additional residual waste streams not transported by the AWCS would be collected by a vehicle from each building. All components of the waste management system would be owned and managed by the Project applicant, and interface with the City's waste franchisee for waste hauling.

9.7.2. Existing Solid Waste Collection Infrastructure

The site is currently served by truck-based municipal waste collection. There is no existing underground infrastructure onsite for solid waste collection.

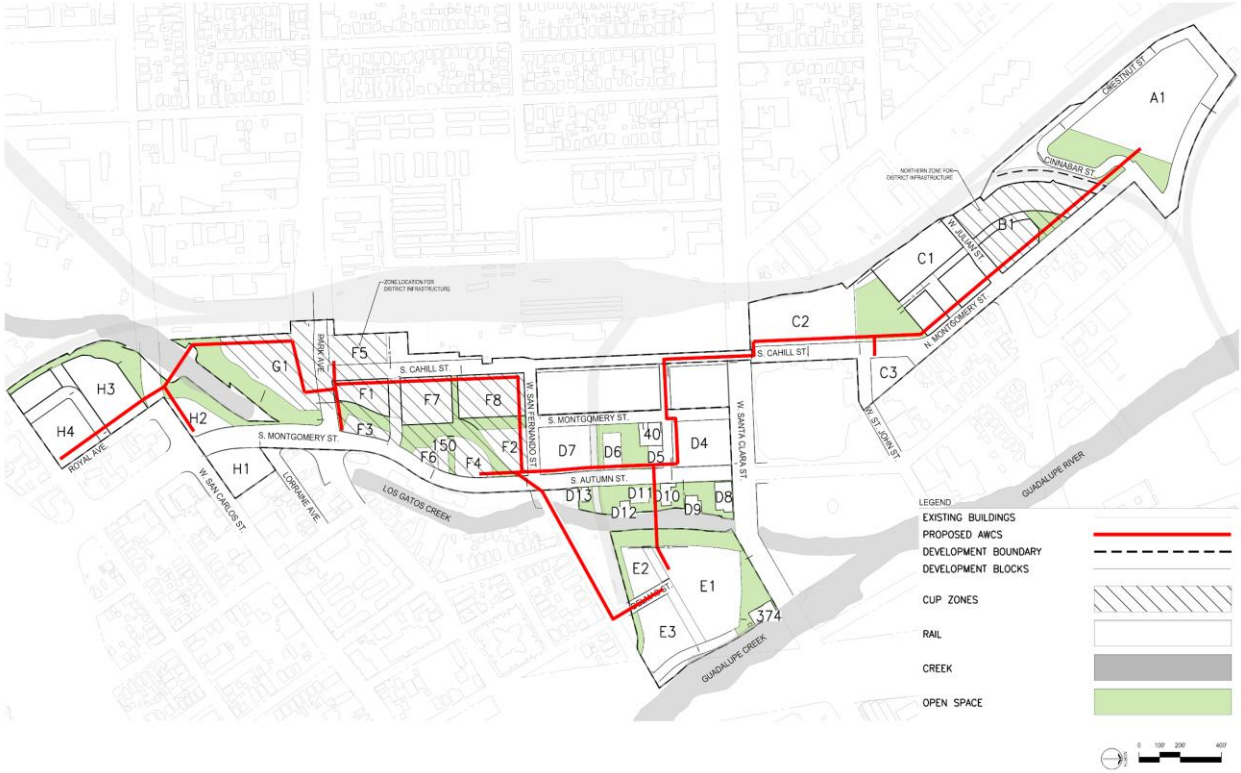
9.7.3. Proposed Automated Waste Collection System

The Project is considering various strategies to manage solid waste, including an automated waste collection system (AWCS). The AWCS option comprises a main pressurized pneumatic pipe that runs below grade, primarily within the proposed utilidors. Individual buildings are connected to the main AWCS trunk via below-grade laterals. The computer-controlled system would allow for the collection of a variety of solid waste streams via waste inlets distributed within the buildings and at select exterior locations. The waste is transferred through a single-pipe that pneumatically pulls the waste to one or more central terminal facilities, where each waste stream is deposited into the appropriate container. A flatbed waste collection truck would then arrive at the terminal facility to haul away a full container, while delivering an empty replacement container. These terminal facilities, collectively sized at approximately 15,000 square feet would be located within one or both of the infrastructure zones and/or near the CUP(s) or an onsite logistics hub.

This system is expected to support three primary waste streams: wet, dry, and a customized single stream (CSS). The Project is considering a custom food scrap stream to allow for direct transfer to an anaerobic digestion facility (ZWED), bypassing an intermediate waste sorting facility. Alternatively, the separated food waste could be co-digested with solids from the wastewater treatment process at the water reuse facility(s). The co-mingling of these organic waste streams would allow for better energy recovery onsite. Solid waste is placed in bags then deposited in an inlet specific to the given waste stream. Waste streams remain separate via the automated process that evacuates one stream at a time. The AWCS supports glass if it is mixed with other waste within the dry stream; glass-only bags of waste would need to be hauled via traditional means. Cardboard will generally not be used in AWCS but hauled via traditional means. Waste bags used in the AWCS will be selected for the purpose, reducing instances of bag breakage.

Other residual waste streams not transported by the AWCS will be collected by a vehicle from each building. These residual streams will be sorted as wet and dry, in accordance with San Jose standards. Further details of the overall solid waste management strategy can be addressed in a subsequent stand-alone narrative.

Figure 9.9. Conceptual AWCS Layout



9.7.4. AWCS Phasing

The AWCS option would be implemented and extended throughout the construction phases beginning with the terminal facility and associated pneumatic pumps in phase 1. AWCS laterals and required trunk extensions would be constructed on a per-parcel basis. Inlets for the system would be constructed on a per-building basis.

10. SITE DESIGN

10.1. FLOOD MANAGEMENT

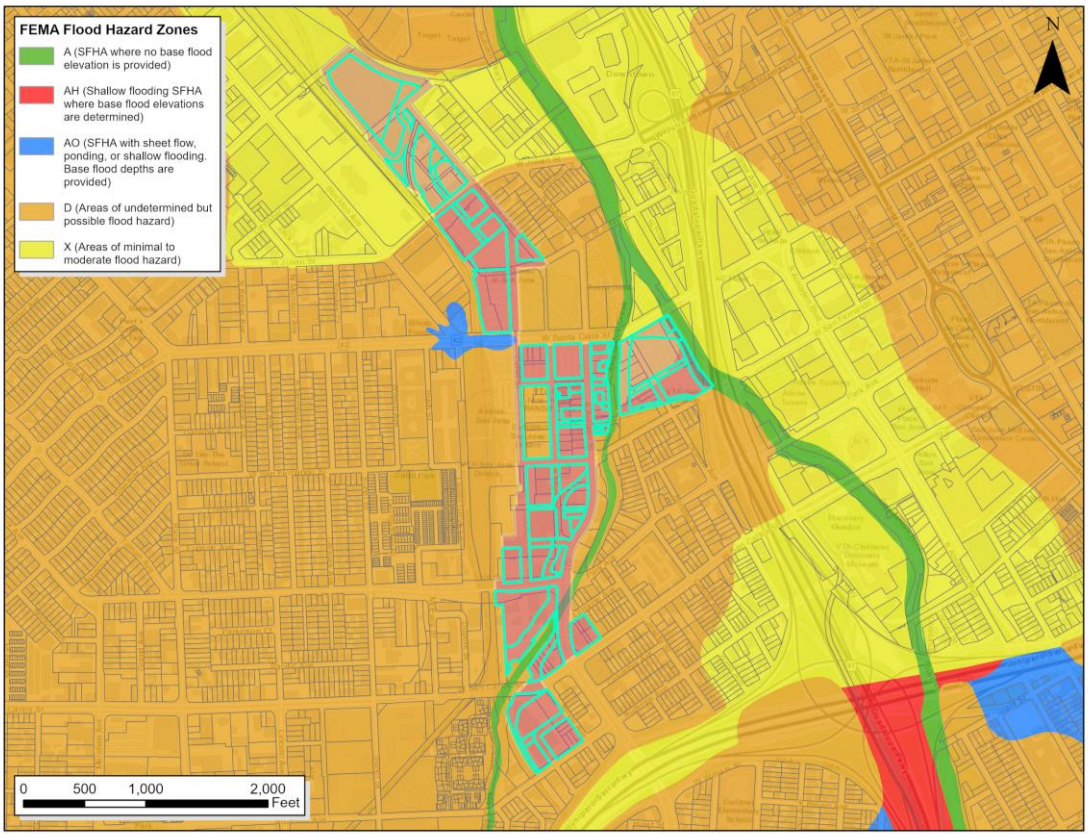
10.1.1. Scope of Service

The Project is required to design proposed buildings to meet flood-proof design standards for all proposed buildings. Additionally, the Project proposes alternatives which can reduce existing flooding within the development boundary. The effects of the alternatives may provide additional flood relief outside of the Project boundary, depending on which alternative is chosen.

10.1.2. Existing Conditions

The effective FEMA Flood Insurance Study (FIS) Number 06085CV001B dated February 19, 2014 depicts all 100-year flows are contained within Los Gatos Creek and Guadalupe River as shown in Figure 10.1 The development parcels outlined are located within Zone X and Zone D which have no development requirements. Some parcels abut Zone A and Zone AO floodplain designations, however there are no proposed structures located in a mapped special flood hazard area (SFHA) Zone A or AO.

Figure 10.1. Effective FEMA 100-year Floodplain Map

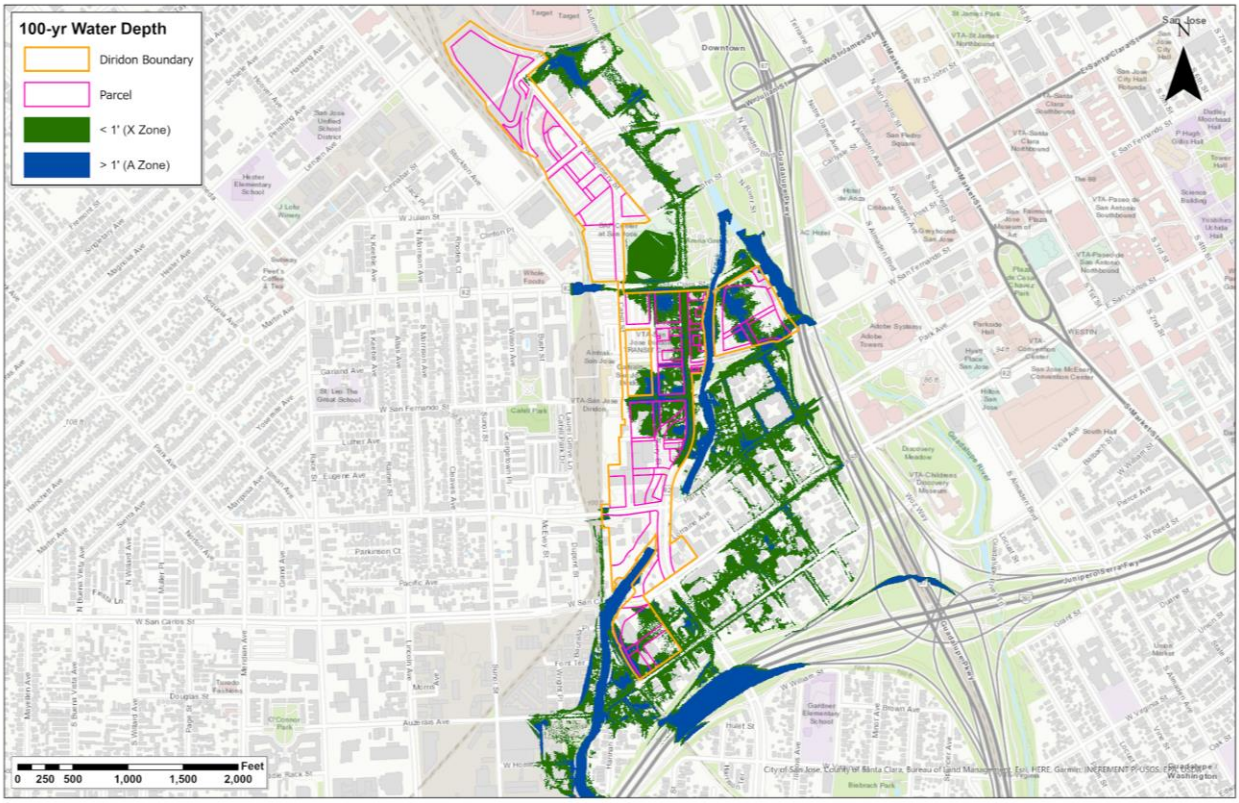


10.1.3. Hydraulic Modeling

The Santa Clara Valley Water District (Valley Water) has developed a two-dimensional hydraulic HEC-RAS model of Los Gatos Creek which represents the best available floodplain data within the watershed. The creek model identifies a deficiency of capacity in the channel that results in overbank flooding during the 100-year event that is not identified on the FEMA FIRM. As such, this Project will need to address the updated floodplain within the design to meet all local and federal requirements.

The results of the Valley Water hydraulic model shown in Figure 10.2 for the 100-year floodplain extent. Where water depths exceed one foot an A Zone designation is shown, whereas depths less than one foot are classified as X Zone. FEMA and the City require the elevation or floodproofing of structures within A Zones as described below.

Figure 10.2. Valley Water Best Available 100-year Floodplain Map (Existing Condition)



10.1.4. Proposed Conditions

Channel rehabilitation and the reconstruction of the Los Gatos Creek bridge at West San Fernando Street are considered as Project alternatives which would help mitigate existing 100-year flood impacts. Portions of this work would be located outside of the Project boundary as described in the Project's EIR but would be considered a Project improvement.

10.1.4.1. Channel Rehabilitation

An in-channel rehabilitation Project would both improve creek ecology and improve user experience adjacent to the creek as well as lessen impediments to flow and improve channel hydraulics thereby reducing overbank flooding.

The existing channel has a high roughness coefficient which slows flow, reduces capacity, and results in overbank flooding. Existing condition roughness coefficients could be reduced by approximately 0.01 through removal of trash, debris, dead and live trees, and invasive plant species. Ongoing maintenance (in perpetuity) would also help reduce the roughness coefficient by preventing the accumulation of additional debris and re-growth of select trees to lower flow obstruction.

The rehabilitation Project could extend from the West Santa Clara Street bridge to the West San Carlos Street bridge and occur on both banks.

10.1.4.2. Reconstruction of San Fernando Bridge

The existing West San Fernando Street bridge represents an impediment to flow due to columns and abutments within the channel and a low bridge deck. In conjunction with the channel rehabilitation Project, reconstructing San Fernando bridge to a clear span would significantly reduce overbank flooding during a 100-year event. In order to accomplish this, the bridge would need to be reconstructed so that the abutments are located outside of the channel with no supports within the channel. This requires an approximate 100-foot free span with a minimum soffit elevation of 91.8 feet.

10.1.4.3. Design Alternatives

With channel rehabilitation and bridge reconstruction, structures located on five (5) parcels would remain in a Zone A designation and would require elevating or flood protection measures per Section 11.2.2.

If neither of these improvements is implemented, buildings on fourteen (14) parcels located in Zone A would need to be elevated. The ground level of these buildings would be at an elevation of, at minimum, one foot above the base flood elevation levels determined to be adequate by flood modeling conducted for the Project or dry floodproofed to that same elevation.

All residential land uses will be elevated. Dry floodproofing will only be used for non-residential structures; i.e. commercial, office and mixed-use. Underground parking for structures in the floodplain shall only occur for mixed-use, office and commercial buildings. Mixed-use structures may include ground floor retail or office use with elevated residential uses above.

A separate floodplain memo will be submitted during detailed design establishing FEMA Zone A and AO base flood elevations (BFE's) for parcels touching an effective mapped SFHA. Proposed structures will be located outside of the FEMA mapped A Zone, floodproofed or elevated accordingly.

10.2. GRADING & EARTHWORK

10.2.1. Scope of Service

The Project proposes to maintain existing grades within existing roads to the maximum extent feasible. Grading outside of the development boundary is not anticipated. Some proposed buildings may need to be raised to meet flood-proof design standards.

10.2.2. Existing Site Conditions

The site is generally graded to fall from south to north, towards the San Francisco Bay, sloping at an average of 0.5%. Existing elevations range from approximately 79 ft to 103 ft.

10.2.3. Proposed Grading Requirements

Proposed site grading would provide Americans with Disabilities Act (ADA) accessible pathways throughout and adjacent to the parcels, meeting Building Code accessibility standards.

Per the City of San José Building Code, the lowest floor of development (FFE) within Flood Zone A must be elevated at or above the base flood elevations (BFE) as described in Section 10.1. San José has adopted the California Building Code (CBC) to require additional freeboard for a minimum FFE one foot above the BFE. Non-residential may be floodproofed to the same elevation.

The Project would provide for proper overland flow conveyance during peak rainfall/flood events to ensure that the 100-year design storm drains through the Project area and does not substantially worsen existing conditions within the larger DSAP area.

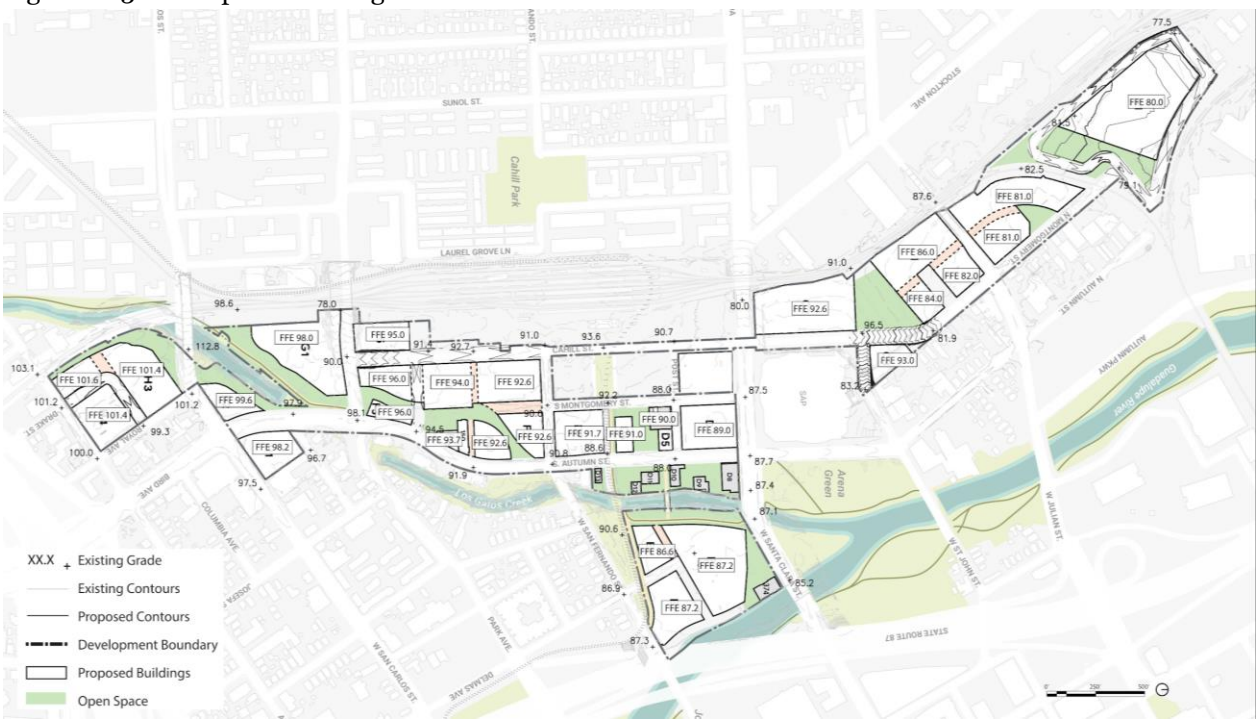
10.2.4. Proposed Site Grading Design & Conforms

The Project applicant would be responsible for the design and construction of the proposed grading plan for the Diridon Site. Proposed grading designs for the development would match the existing south to north drainage pattern of the existing site. Accessible paths of travel would be designed on a parcel-by-parcel basis to provide ADA access to all proposed buildings. Proposed grading and earthwork activities are anticipated to be limited to the development parcels and conform to existing grades at the edge conditions along the parcel boundaries and rights-of-way. Although improvements would be made to the streetscapes, the Project strives to minimize elevation changes within the existing ROWs.

Dependent on which Project alternative is chosen for the Project from Section 10.1.4, a different quantity of buildings may need their FFE artificially raised. Raising of grades can be done with either fill or by raising a subgrade parking garage to partially exposing the exterior structure. Additionally, any building with a raised FFE will require fill, ramps, and/or stairs to ensure there are accessible paths from the existing streets to entrances which meet ADA standards.

As an alternative to elevating structures by fill, flood barriers and floodproofing may be used. Buildings within Flood Zone A should be externally floodproofed up to the minimum FFE. The top elevation of any proposed floodgates must also reach the minimum FFE. Flood barrier design can be flexible to meet building design, spatial and aesthetic requirements. Barriers that may be considered include (but are not limited to) permanent standing barriers, automated barriers integrated into the ground or building walls, or removable barriers. Floodproofing may only be used for non-residential buildings, which includes mixed-use buildings where residential uses are elevated at least one foot above the BFE.

Figure 10.3. Conceptual Grading Plan



10.2.5. Phases of Site Earthwork

The Project applicant would grade the Project site based on the principle of adjacency and as needed to facilitate a specific proposed Development Phase. Interim grading may be constructed and maintained by the applicant as necessary to maintain existing facilities impacted by proposed development phases.

10.3. STORMWATER MANAGEMENT

10.3.1. Scope of Service

Proposed stormwater management will occur within the development boundary under three conditions: private parcels, public rights-of-way and public open spaces. Public open spaces are defined in the Vesting Tentative Map. The Project applicant will be responsible for maintenance of stormwater management facilities within private parcels. It is anticipated that the City would be responsible for maintenance of stormwater management infrastructure improvements installed by the applicant within the public ROW and within dedicated public open spaces upon acceptance.

10.3.2. Existing Conditions

The Project area currently serves mostly industrial and commercial development, with many large, asphalt parking lots and minimal existing landscaped areas, making it approximately 95% impervious. The existing developments do not treat stormwater runoff prior to discharge to the City's collection network.

10.3.3. Hydromodification

This Project is not subject to hydromodification requirements based on the "Classification of Subwatersheds and Catchment Areas for Determining Applicability of HMP Requirements" (SCVURPPP 2016).

10.3.4. Stormwater Management Requirements

The Project is pursuing an integrated approach to stormwater management which can provide multiple benefits and addresses both the quality and quantity of stormwater runoff. Properly designed and sized stormwater treatment facilities can reduce flooding within streets and sites, provide traffic calming benefits in roadway design, provide additional detention capacity to the existing storm drainage system, and prevent the most polluted runoff from entering the natural water systems. Additional potential benefits of stormwater treatment include infiltration and groundwater recharge, if existing soil conditions permit.

The Project will at a minimum comply with all stormwater management requirements for both quantity and quality as provided by the City of San José Green Stormwater Infrastructure Plan (GSI) dated September 2019. Runoff from public and private parcels is anticipated to be treated separately before entering the existing storm drain system. GSI facilities can be sized based on the water quality volume and/or water quality flow of runoff from all contributing impervious surfaces per the SCVURPPP GSI Handbook (as referenced by the San José GSI Plan).

10.3.5. Proposed Treatment in the Public ROW

Stormwater from all public street ROW improvements will be treated to meet the GSI Plan requirements. Stormwater calculations have been completed for each street in order to ensure that enough square footage is available within each proposed street section. Refer to the Mobility Chapter of the DWDSG for plans and sections which show additional detail for the proposed stormwater management strategy.

The Project will meet all treatment requirements by implementing green infrastructure strategies suggested by the City of San José Green Stormwater Infrastructure Plan which may include bioretention, flow-through planters and/or pervious paving. Typical standard details for these stormwater management strategies are provided in the SCVURPPP GSI Handbook (as referenced by the San José GSI Plan), and Typical standard details are provided as part of the Infrastructure Plan Sheets. Minimum indicative treatment areas assuming treatment is achieved through flow-through planters are shown in Figure 10.4 and Table 10.1.

10.3.6. Proposed Treatment on Private Parcels or within Public Open Spaces

All development within private parcels will design stormwater facilities on a parcel-by-parcel basis and will submit detailed stormwater management plans as part of site grading permit approvals. The impervious area percentages vary parcel by parcel as per the master plan. Preliminary calculations for the proposed development parcels range from 40% to 100% impervious. This percent imperviousness may be refined as each phase is developed during the detailed design. However, the intent is to increase the quantity of pervious surfaces from the existing condition to help promote infiltration and evapotranspiration, as well as further reduce stormwater runoff rates and volumes. Proposed natural landscapes areas would be planted with a wide variety of native species with a focus on habitat creation and stormwater treatment functions.

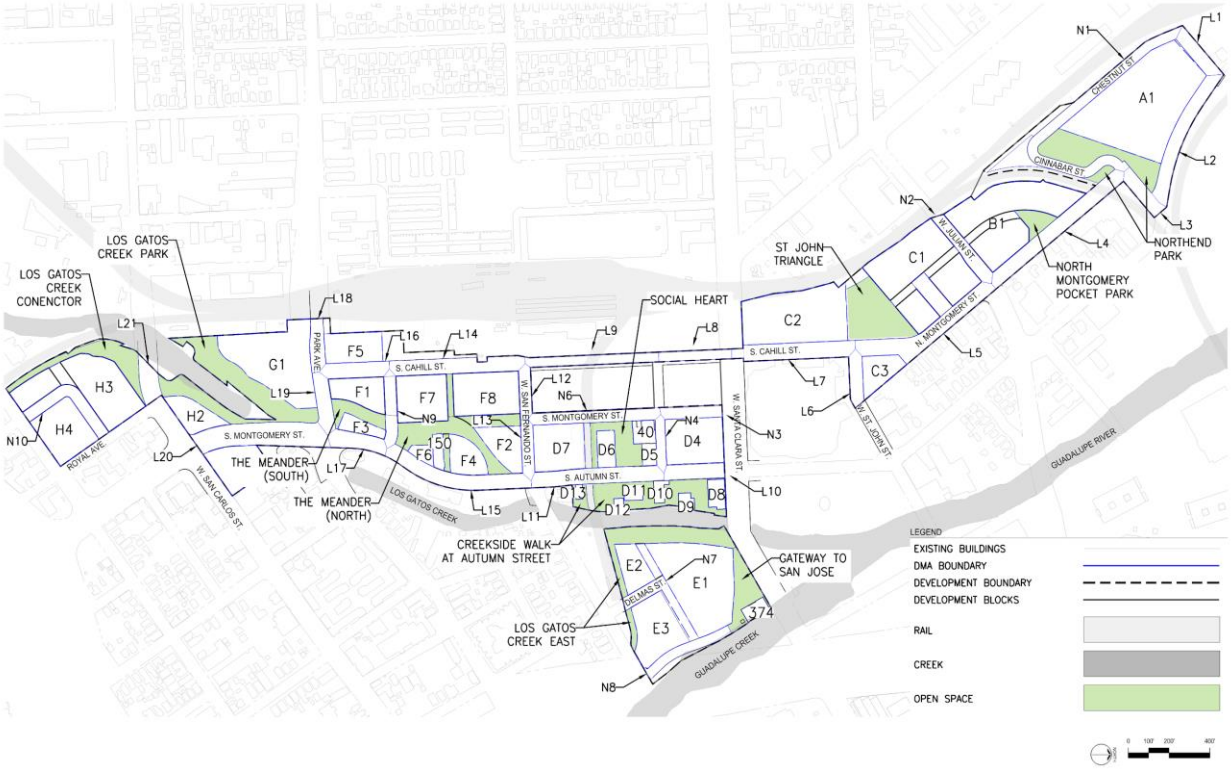
A Stormwater Evaluation Form attached to the Infrastructure Plan Sheets serves as a high-level summary of the entire development area. Each parcel would be designed to meet the GSI Plan requirements and submit a Stormwater Evaluation Form and updated, detailed stormwater management plan as part of the grading permit application process. At the master plan level, each parcel is considered its own drainage management area (DMA). DMAs shown are schematic in nature and would be refined at the time of grading permit application to align with legal parcel boundaries. Refer to Sheet 3.19 for the Conceptual Stormwater Control Plan which includes the proposed DMAs, preliminary stormwater treatment facility areas, and notes on source control measures, site design measures, biotreatment soil requirements and stormwater controls.

Treatment area calculations are based on the “4% Rule” which represents a simplified sizing method based on runoff from 0.2 inches per hour intensity rainfall. Refer to Table 10.1 for an overall summary; detailed calculation tables are provided as part of the Infrastructure Plan Sheets. The Project will meet all treatment requirements by implementing green infrastructure strategies suggested by the SCVURPPP Green Stormwater Infrastructure Handbook which may include bioretention, flow-through planters, suspended pavement systems, pervious paving, and/or green roofs, and possibly rainwater harvesting or infiltration facilities. Typical standard details are provided as part of the Infrastructure Plan Sheets.

Table 10.1. Site Summary Treatment

Summary	
Total Development Area (sf)	3,452,518
Total Development Area (ac)	79.26
Overall Existing % Impervious	97%
Overall Proposed % Impervious	88%
Total Treatment Area (sf)	~ 126,587

Figure 10.4. Drainage Management Areas



10.3.7. Stormwater Management Phasing

The Project would design and install the new stormwater treatment facilities based on the principle of adjacency and as needed to facilitate a specific proposed Development Phase. These facilities would provide treatment in accordance with GSI standards. The Project will ensure that all treatment facilities must be fully operational prior to completion of private parcel developments and acceptance of public ROW improvements by the City. Stormwater runoff from private parcels and construction of treatment facilities would be managed on a parcel-by-parcel basis.