

UTILITIES 9

As development proceeds in the Plan Area, wet utility infrastructure will need to be improved, and public services extended. This chapter summarizes the modifications and upgrades required to support the Specific Plan development. In particular, this chapter addresses needs for the water supply system, sanitary sewer system, storm water drainage system, and electrical/dry utilities.

9.1 Utilities Goals and Policies

Goal UTIL-1: Water, wastewater, and stormwater infrastructure that is adequate to support new development.

- Policy UTIL-1.1 Ensure that development projects construct on-site components of the water, sewer, and storm drain utility systems as described below in Tables 9.4, 9.5, and 9.6 (and in *the RBD Utility Impact Study*). As appropriate, identify the responsibility of developers for constructing off-site improvements, confirm these off-site improvements with the City Engineer and document them in Development Agreements and/or Conditions of Approval.
- Policy UTIL-1.2 Ensure that utility improvements are constructed per the standards identified in this Specific Plan and other applicable City standards (including Veolia and EPASD), and that each project contributes at least its proportionate fair share towards infrastructure, as detailed in the Nexus Study.
- Policy UTIL-1.3 When publicly accessible streets are replaced/reconstructed, it is the City’s expectation that any existing utilities will be concurrently replaced/upgraded.
- Policy UTIL-1.4 Partner with a developer to build one or more large (1.5 MGD+) water storage tank(s) within the Plan Area, with a likely location being at the end of Demeter and Purdue Streets.
- Policy UTIL-1.5 Ensure that development of each parcel includes an adequate sanitary sewer infrastructure to prevent discharge of untreated water to surface waters.
- Policy UTIL-1.6 Ensure that the future storm water system in the Plan Area is designed and built to provide adequate capacity for peak rain events, including both the southern and

northern parts of the Plan Area, as well as the University Village neighborhood. functionality of existing storm water infrastructure.

Goal UTIL-2: Effective coordination with sanitary sewer service providers.

- Policy UTIL-2.1 Work with the sanitary sewer provider and regional wastewater agency to ensure that additional wastewater treatment capacity is available as development occurs under the Specific Plan. Partner on the engineering study required when 80% of City capacity is reached to redefine the future needs of the treatment plant.
- Policy UTIL-2.2 Encourage West Bay Sanitary District (WBSD) to conduct increased inspection and maintenance of the sanitary sewer system and repair any points of entry for rainwater.

Goal UTIL-3: Development that responds to the Plan Area's geological context and protects itself and its neighbors against sea level rise and flooding.

- Policy UTIL-3.1 Ensure that developments are effectively integrated with the future SAFER BAY levee improvement project to be constructed primarily within the BCDC jurisdictional area.
- Policy UTIL-3.2 Ensure projects' site design accommodates potential SAFERBAY flood control improvements and construction of a new pump station adjacent to the outfall at the end of Runnymede Street.
- Policy UTIL-3.3 Through easements and/or Development Agreements, property owners shall convey all rights to construct, operate and maintain, repair, rehabilitate and replace the levee, access roads, and associated facilities to the City.
- Policy UTIL-3.4 Ensure that new development in the Specific Plan area complies with the City's Water Conservation and Landscaping Ordinance and maximizes the use of features such as permeable paving, roof catchment systems, irrigated landscaping, or other means to enhance on-site infiltration of runoff or landscape irrigation water.

Goal UTIL-4: Mechanisms to facilitate sufficient funding, financing, and long-term maintenance of infrastructure in the Plan Area.

- Policy UTIL-4.1 Explore the formation of a Special Funding and Financing District by the City. Study the potential for an “Enhanced Infrastructure Financing District” (EIFD), “Communities Facilities District” (CFD), “Climate Resilience District” (CRD), or “Community Revitalization And Investment Authority (CRIA)” to fund shared infrastructure improvement needs in the Plan area.

- Policy UTIL-4.2 The City will require applicants and property owners to form a Landscaping and Lighting Maintenance Districts to support the long-term maintenance of infrastructure, streetscapes, and parks in the Specific Plan Area. Alternatively, the City may support the formation of a Property Owners Association for this same purpose. Two separate entities may be appropriate; one to cover Four Corners and one for the Business District (or a single district with different zones/assessments).

- Policy UTIL-4.3 Implement maintenance agreements or relevant Conditions of Approval with all developers, to assure the lifecycle replacement and upkeep of new streets, utilities, and park facilities built as part of their projects, or require that developers join and support existing financing or Maintenance Districts (if a district financing entity or Maintenance District has already been formed, individual agreements/conditions are not necessary).

- Policy UTIL-4.4 In order to streamline new development (or expansion of existing development) consistent with the Specific Plan, the City shall work collaboratively with land owners and developers to address infrastructure issues. Projects and their required infrastructure are encouraged to be phased, pursuant to each project providing adequate infrastructure consistent with this Plan.

Policy UTIL-4.5 Credit will be provided for new infrastructure that is built to the standards and system designs of the RBDSP/UIS.

Policy UTIL-4.6 The City will seek to maximize its competitiveness for future infrastructure grants, and grant monies should be prioritized to pay for initial/first phase infrastructure to support development.

9.2 General Utility Standards

1 Construction of required capital improvements. All projects shall be required to pay utility impact fees, but to the maximum extent feasible, larger projects over 150,000 square feet in size will be required to construct the public infrastructure improvements that are needed to support their development, rather than pay impact fees to the City.

- a. New developments are generally required to construct the utility improvements identified within the 2023 Utilities Impact Study, this chapter, and the Implementation chapter of this Specific Plan, and other future utility studies including updates to the City's Storm Drain Master Plan.
- b. Each development project will build the necessary on-site/in-tract improvements to serve the utility needs of the district as well as any mitigations required through CEQA.
- c. In addition, each development will provide a combination of off-site improvements and impact fees/funding to satisfy the dollar value established by the City Council (guided by the results of the nexus study). The City's strong preference is for construction of improvements over payment of fees.
- d. Development projects shall receive a credit or offset to their impact fee obligations for the value of utility improvements provided above and beyond the required impact fee valuation. Projects may enter into a reimbursement agreement with the City, if necessary.
- e. After offsets, contributions in excess of the value required by impact fees towards transportation, parks, utilities, flood control, or similar improvements will be considered community benefits (and can be calculated as part of a project's benefits valuation).

2 Fairshare improvements. Development projects shall construct - or where infeasible, fund - the required proportion of the water, sewer,

and storm drainage improvements which are identified in the Nexus Study as the 'fair share responsibility' of the applicant's project. The specific allocation to each project for capital improvement contributions will be established through individual Development Agreements or through a subsequent nexus study. In either case, there will be a clear proportionality or 'nexus' between the required improvements and each project's impacts (such as LOS delay impacts or percentage of added daily trips).

- 3 Future maintenance.** Private developments shall be responsible for maintenance of all lighting, sidewalks/paths, and street trees on privately owned streets, as well on Bay Road and Pulgas Ave. The City will support the developers in establishing BIDs or assessment districts (two separate entities or one entity with two different zones may be appropriate: one for Four Corners and one for all other projects in the Employment District/along the Waterfront).
- 4 Credit towards impact fees.** The City will grant credits or offsets towards required impact fees for certain improvements. Not all improvements will qualify - for example, improvements to a project's own street frontage would not be considered for credit; while constructing a traffic calming project within an adjacent neighborhood could be considered for credit or potentially as a community benefit. Similarly, building a water main within a project is not a benefit. Credit is not provided for required CEQA mitigations. Similarly, no credit is offered for improvements needed to comply with City requirements such as NPDES-required green infrastructure in the public right of way. The phasing of any infrastructure and credits provided for infrastructure built shall be approved by the City Engineer.
- 5 Reimbursement agreements.** If a development project is required to construct or provide funding for initial phase infrastructure in excess of the project's individual requirements, a reimbursement agreement can be established to receive payments from later developers who benefit from early improvements. Reimbursements to/from district entities may also be negotiated with Public Works.
- 6 Detailed improvements phasing.** A phasing plan for project-specific improvements shall be determined through project-specific EIRs based on an individual project's relative contribution to impacts (such as a project's percentage of added daily trips or utility system capacity).

- 7 Easement requirements.** New developments shall provide easements in perpetuity to the City for mobility and utility improvements as required.
- 8 Existing deficiencies.** City resources (such as CIP funds) should be prioritized for resolving existing deficiencies that are unrelated to future growth in the Plan Area.

9.3 Water Supply and System Standards

9.3.1 Water Supply

East Palo Alto's municipal water system, which serves the Plan Area, is operated by Veolia North America (Veolia) under a contract with the City that expires in 2026. As of 2020, the City serves 4,058 connections within its service area. All municipal water supplied to the City of East Palo Alto is provided to Veolia by the San Francisco Public Utilities Commission (SFPUC). Small areas within the City boundaries are served by the O'Connor Tract Cooperative Water Company and the Palo Alto Park Mutual Water Company.

The water system for the City is primarily served with purchased water delivered through the SFPUC Supply Turnouts. The main source of the SFPUC's water, approximately 85 percent, is from the Hetch Hetchy Reservoir in the Sierra Nevada. The remaining 15 percent of the SFPUC's water supply comes from Bay Area reservoirs in the Alameda and Peninsula watersheds.

Per the Water Supply Agreement between the City and SFPUC, the City has a total capacity of 3.56 million gallons (MG) per day (Average Daily Demand). The City's need is only a fraction of this, with an average demand of 552 MG per year on average between 2016 and 2020. Taking into account historical water use, expected population increase and other growth, climatic variability, and other assumptions, water demand within the City is projected to increase to 1,078 MG by 2045, a projected increase of 89% compared to the water demand of 572 MG in 2020.

A groundwater well located at the intersection of Bay Road and Gloria Way in the City is the only other source of water besides SFPUC. Groundwater is treated at the well site. The City operates and maintains over 66 miles of pipe, as well as a groundwater well and a water treatment facility. The City does not currently have any water storage tanks; however, two water storage tanks and associated booster pump stations are high priority CIPs in the 2022 Master Plan. It also does not currently supply non-potable or recycled water to customers.

The City has sufficient supply to meet the demands for development proposed in the Specific Plan. The Ravenswood Business District Project (RBD Project) is projected to increase water demand to 1,027 MG at build-out with a net incremental increase of 100 MGD. As the 2035 General Plan did not account for the incremental increase from the RBD Project above the 2013 RBD Specific Plan EIR and SEIR, the increase in water use at the Site has not been accounted for in the projected growth in water use shown in the 2020 UWMP.

Table 9-1: Water Demand Summary

Land Use Type	Total Demand
Previously Projected Total Demand (2035 General Plan & 2013 Specific Plan)	267 MGD
Updated 2024 Specific Plan Area Total Demand	367 MGD
Net Increase of Updated Specific Plan	+100 MGD

The City of East Palo Alto water service has sufficient existing water supply to support the Maximum Development Scenario under normal year conditions. Under normal conditions, the City is not projected to experience supply shortfalls. Shortfalls of up to 58% are projected for single dry-years and for multiple dry-years assuming the Bay Delta Plan is implemented. Under all conditions, the City may need to impose water conservation measures, per East Palo Alto Municipal Code, Section 13.24 Article III and Article VI and Section 17.04, to reduce demand. The implementation of these measures would result in supply remaining sufficient for the projected future demand even in multiple dry years.

Table 9-2: Water Supply Assessment Summary, Normal Year

Land Use Type	2025	2035	2045
Potable Water Supply	1,271	1,271	1,271
Citywide Projected Demand	692	778	1,078
Net Increase of Specific Plan	+100	+100	+100
Total Potable Demand	792	878	1,178
Difference (MG)	479	393	93

Supply capacity may be subject to change from SFPUC based on drought conditions.

WATER SYSTEM STANDARDS

1 Minimum fire flows. Provide the following fire flows in new developments:

- Single-Family Residential and Townhouse: 1,000 PSI
- Multi-Family Residential: 4,000 PSI
- Non-Residential: 4,000 PSI

Projects (especially small ones) may deviate from these flows at the discretion of the Menlo Fire District, taking into account project-specific building size, occupancy rating, and other building code variables not known at the time of Plan adoption.

2 Required Capital Improvements. Projects shall provide the capital improvements described in Table 9-3.

3 Backflow preventers. The City may request the installation of backflow preventers in private development utility systems; however, the preference shall be to integrate in-tract piping with public mains as shown on Figure 9-1.

9.3.2 Water System Improvements

Table 9-2: Water Usage Demand Factors

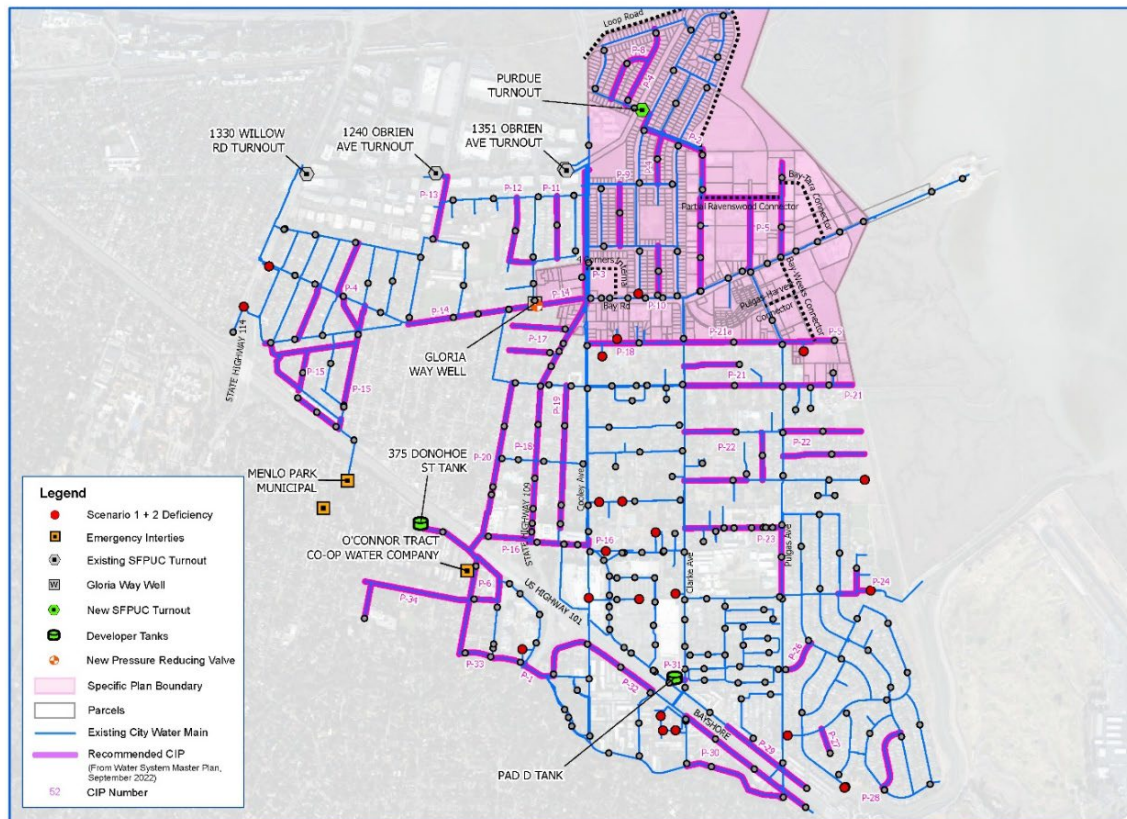
Land Use Type	Demand Factor
Industrial Warehouse	110 GPD/1,000 SF
Industrial R&D/Lab	375 GPD/1,000 SF
Commercial - Office	110 GPD/1,000 SF
Retail/Restaurant	160 GPD/1,000 SF
Civic/Amenities	110 GPD/1,000 SF
Residential - Single Family	260 GPD/DU
Residential - Multi-family	160 GPD/DU

Table 9-3: Required Capital Improvements to Water Supply Infrastructure

Project Description	CIP #	Feet	Diameter	Cost (\$)	Cost Share
New Purdue Turnout Along Purdue Avenue and pipeline	P-2	1,240	16	\$1,423,000	80% RBD
University between O'Brien and Bay Rd	P-3 (underway)	1,800	12	\$1,778,200	75% RBD
In-Tract Piping	P-5	8,180	12 & 16	\$7,850,000	100% RBD
New Storage Tank*	WS-03A	N/A	N/A	\$6,000,000	80% RBD
Subtotal: CIPs Needed for Plan	P-2, P-3, P-5, WS-03A			\$17,051,200	
<i>Remaining CIPs recommended in the 2022 WMP</i>	<i>P-21a, P-14, P-8, P-9, P-10, P-21, P-4</i>	<i>Varies</i>	<i>Varies</i>	<i>\$65,099,800</i>	<i>Varies</i>

**Location of water storage tanks is to be further studied in a City-led water storage siting study (one potential site is at the end of Purdue & Demeter).*

Figure 9-1: Water System Improvements



Water System Phasing

- CIPs #P-2, P-3, and P-5 are expected to be built during the earlier phases of development.
- In-tract piping shall accompany all private developments in a concurrent fashion.
- Ideally, the water storage tank(s), WS-03A should be built in the earlier phases of development if possible as this will facilitate additional future supply and redundancy.
- Other remaining CIPs are a lower priority.

9.4 Sanitary Sewer System Improvements

9.4.1 Sanitary Sewer Supply

Wastewater conveyance and treatment services to the northern half of the Plan Area are provided by the West Bay Sanitary District (WBSD). The East Palo Alto Sanitary District (EPASD) serves the southern half of the Plan Area, which has greater development potential.

The EPASD serves portions of the City and the City of Menlo Park through a collection system comprised of approximately 35 miles of gravity sewer mains, ranging from 6-inch diameter to 24-inch diameter pipe. Wastewater collected by the EPASD is treated at the Palo Alto Regional Water Quality Control Plant (PARWQCP). The City of Palo Alto owns, maintains and upgrades the PARWQCP, and the contributing jurisdictions, including East Palo Alto, purchase capacity rights. The EPASD collected approximately 438 MG of wastewater from the City's service area in 2020.

The WBSD serves customers within the northern portion of the City, as well as other customers within the cities of Menlo Park, Atherton, Portola Valley, and Woodside, and unincorporated San Mateo and Santa Clara Counties. The WBSD collection system conveys wastewater to the Menlo Park Pumping Station, where it is then transported to the Silicon Valley Clean Water (SVCW) facilities in Redwood City for treatment and discharge to the San Francisco Bay. The WBSD collected approximately 52 MG of wastewater from the City's service area in 2020. The SVCW wastewater treatment plant (WWTP) is jointly owned and operated by WBSD and the Cities of Redwood City, Belmont, and San Carlos. The water recycled by the SVCW WWTP is reused in Redwood City.

The City is contractually supplied with 2.9 Million Gallons per Day (MGD) of treatment capacity. Per the Basic Agreement, the partnering agencies agree to conduct an engineering study when their respective service area reaches 80% of their contractual capacity rights (2.32 MGD). Projected demand under the Future Cumulative Condition will exceed the 100% capacity threshold (2.96-3.14 MGD). The City will partner on the required engineering study when 80% of capacity is reached (after approximately 2.25-2.5 million square feet of non-residential development is built) to redefine the anticipated future needs of the treatment plant.

SANITARY SEWER STANDARDS

- 1 Adequate Treatment Capacity.** Projects shall confirm with the local sewer provider and regional wastewater agency that sufficient wastewater treatment capacity.
- 2 West Bay Sanitary District Capacity.** Peak wet weather flows of wastewater shall not increase above the present maximum, despite any increase in development.
- 3 Required Capital Improvements.** Projects shall build to the maximum extent feasible the CIPs in Table 9-3.

Table 9-4: Required Capital Improvements to Sanitary Sewer Infrastructure

Project	Model ID	Length (ft)	Existing Diameter (in)	Deficiency / CIP Diameter		
				Future Pre-Project	Scenario 1	Scenario 2
Bay Road	290	239	14	Yes / 16"	Yes / 16"	Yes / 16"
	639	181	14	Yes / 16"	Yes / 16"	Yes / 16"
	262	80	14	Yes / 16"	Yes / 16"	Yes / 16"
	263	244	14	Yes / 16"	Yes / 16"	Yes / 16"
	264	124	15	Yes / 18"	Yes / 18"	Yes / 18"
	266	61	15	Yes / 18"	Yes / 18"	Yes / 18"
	268	181	15	Yes / 18"	Yes / 18"	Yes / 18"
	269	299	15	Yes / 18"	Yes / 18"	Yes / 18"
	270	435	15	Yes / 18"	Yes / 18"	Yes / 20"
	275	296	15	Yes / 18"	Yes / 18"	Yes / 20"
	276	155	15	Yes / 18"	Yes / 18"	Yes / 20"
	281	14	15	Yes / 18"	Yes / 18"	Yes / 20"
	282	369	18	No	No	Yes / 20"
Eastern Main Trunk	283	345	18	Yes / 24"	Yes / 24"	Yes / 24"
	22	234	18	Yes / 24"	Yes / 24"	Yes / 24"
	21	162	18	Yes / 24"	Yes / 24"	Yes / 24"
	20	356	18	Yes / 24"	Yes / 24"	Yes / 24"
	19	306	18	Yes / 24"	Yes / 24"	Yes / 24"
	18	282	18	Yes / 24"	Yes / 24"	Yes / 24"
	17	317	18	Yes / 24"	Yes / 24"	Yes / 24"
	16	446	18	Yes / 24"	Yes / 24"	Yes / 24"

	13	332	24	Yes / 28"	Yes / 28"	Yes / 28"
	12	500	24	Yes / 28"	Yes / 28"	Yes / 28"
	11	540	24	Yes / 28"	Yes / 28"	Yes / 28"
	10	482	24	Yes / 28"	Yes / 28"	Yes / 30"
	9	34	28	No	No	Yes / 30"
Dual Trunk to RWQCP	PN-1	478	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-2	504	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-3	482	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-4	326	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-5	447	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-6	498	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-7	502	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-8	481	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-9	382	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-10	352	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-11	475	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-12	500	18	Yes / 21"	Yes / 21"	Yes / 24"
	PN-15	506	18	Yes / 21"	Yes / 21"	Yes / 24"
In-Tract	274	288	6	No	Yes / 8"	Yes / 8"
	273	412	6	No	Yes / 8"	Yes / 8"
	272	485	6	No	Yes / 8"	Yes / 8"
	271	418	6	No	Yes / 8"	Yes / 8"
	280	340	6	No	Yes / 8"	Yes / 8"
	279	214	6	No	Yes / 8"	Yes / 8"
	278	442	6	No	Yes / 8"	Yes / 8"
	287	311	6	No	Yes / 8"	Yes / 8"
	286	234	6	No	Yes / 8"	Yes / 8"
	285	253	6	No	Yes / 8"	Yes / 8"
	284	251	6	No	Yes / 8"	Yes / 8"

Pipe diameters are based on nominal pipe sizes and are assumed to be HDPE DR17 Pipe to remain consistent with the CIPs proposed in the 2020 Sewer Master Plan.

Notes:

1. For Future Pre-Project, deficiency is based on pipe diameters that include

Existing CIPs as outlined in Table 5-4. Future Pre- Project assumes Base Scenario demands are included.

2. For Future Post Project, deficiency is based on pipe diameters that include Future CIPs.

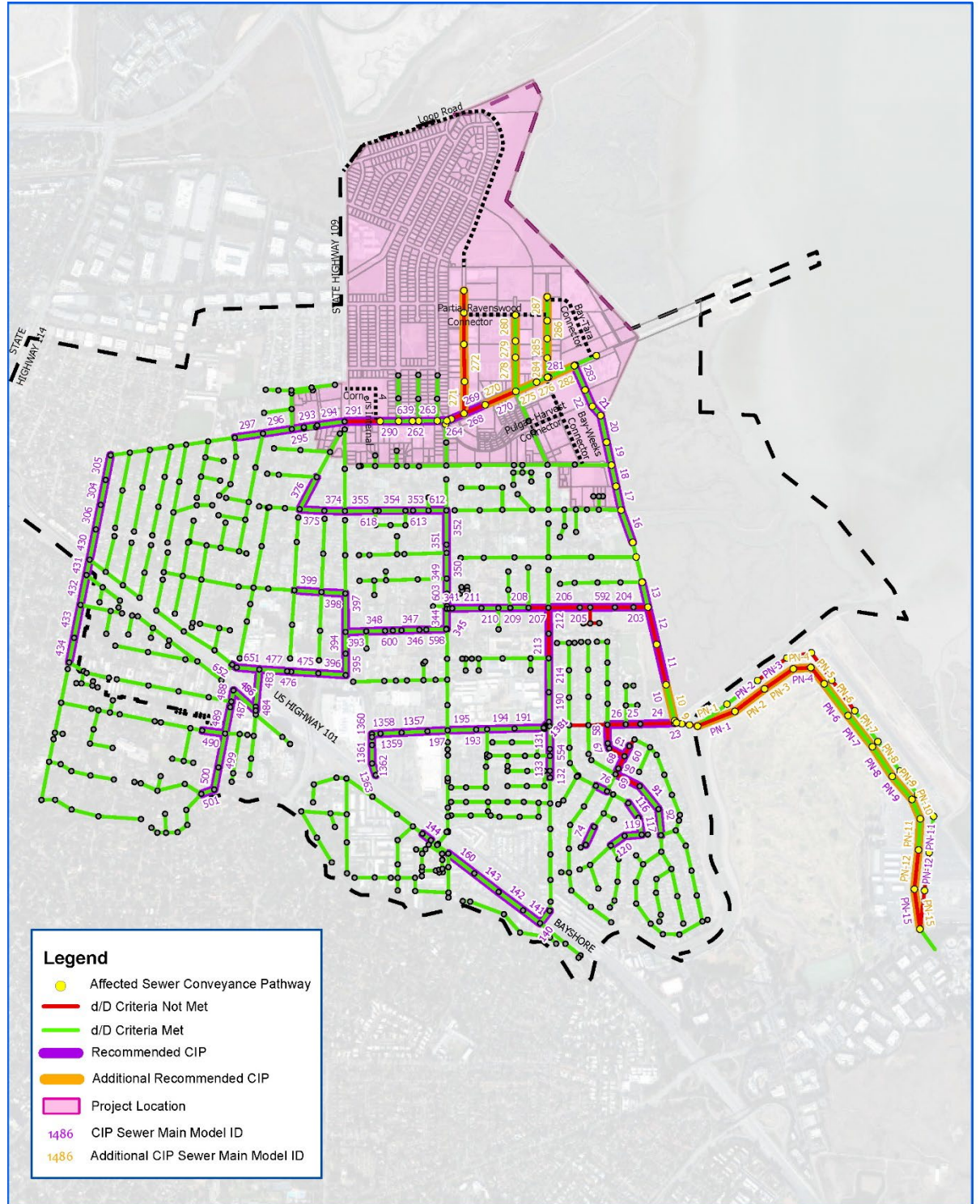
Table 9-5: Required Capital Improvement Projects for Sewer System

Project Description	Existing Pre-Project Deficiency	Future Project Condition
Bay Road	\$550,560	\$2,926,090
Eastern Main Trunk	\$2,892,240	\$7,366,800
Dual Trunk To RWQCP	\$6,526,300	\$9,255,480
In Tract	\$0	\$1,678,080
Total	\$9,969,100	\$21,226,450

Sewer System Phasing

- Additional study should be completed in the pre-development phases to review CCTV records of the existing sanitary system.
- Bay Road CIP should be completed during an early phase, particularly if multiple north of Bay Road projects occur.
- Dual trunk CIP should be completed concurrently with construction of SAFERBAY shoreline infrastructure and/or upgrades to O’Connor Pump Station.

Figure 9-2: Sanitary Sewer System Improvements



9.5 Stormwater System Improvements

The East Palo Alto storm drain system is comprised of several different watersheds that primarily gravity discharge to the Bay. Stormwater in East Palo Alto drains into two major drainage systems: the Runnymede Storm Drain System and the O'Connor Storm Drain System. The Plan Area is closest to the Runnymede Storm Drain System. Stormwater infrastructure within the Plan Area is inadequate. Many of the streets do not have storm drains, and those that do are unable to handle stormwater during peak events.

Stormwater for the Runnymede Storm Drain System is carried through a 72-inch reinforced concrete pipe and ultimately flows into the San Francisco Bay. During peak stormwater events and certain high tides, the existing stormwater pipes are unable to handle stormwater flow.

The O'Connor Pump Station receives stormwater from throughout the city and an at-grade canal, which runs along the eastern city limit. The O'Connor Pump Station distributes stormwater outfall into San Francisquito Creek. The Storm Drain Master Plan (SDMP) capital improvement program concept eliminates individual local gravity outfalls and conveys storm water south to the existing O'Connor Pump Station, thereby eliminating the influence of Bay tides on the storm drain system. New stormwater infrastructure will be designed to function under Future Conditions, with increases in flooding, sea level rise, and groundwater rise in mind.

STORM DRAINAGE STANDARDS

- 1 C.3 Permit.** New development shall conform to C-3 Municipal Permit stormwater regulations as required by City and County law.
- 2 Runoff limitations.** Development projects may not cause an increase in run-off compared to pre-project conditions.
- 3 Future conditions design.** New developments shall build stormwater infrastructure designed to function under Future Conditions as identified in the Plan and Utilities Impact Study, following a Modified SDMP Alternative 2 design, as detailed in Table 9-6.
- 4 Future flooding design.** New developments shall adhere to FEMA flood elevation and other Community Rating System flood prevention/management requirements. See Chapter 6, Development Standards, for additional information.
- 5 Avoid adjacent flooding.** New developments shall ensure that proposed site topography and connection to the City's storm drain

system does not cause new or additional flooding to City streets and other properties. The City Engineer shall have final determination over the direction/flow of drainage. See Figure 9-5 for Mass Grading Plan.

- 6 Design storm condition.** The City Engineer shall have final determination of the design storm condition required to be used by applicants. At time of adoption, the standard is a 10-year storm condition.
- 7 Responsibility.** All development projects that are proposing storm drain systems that drain to a City pump station share responsibility in constructing and/or funding improvements to the Storm Drainage system.

9.5.1 Recommended Storm Drain Improvements

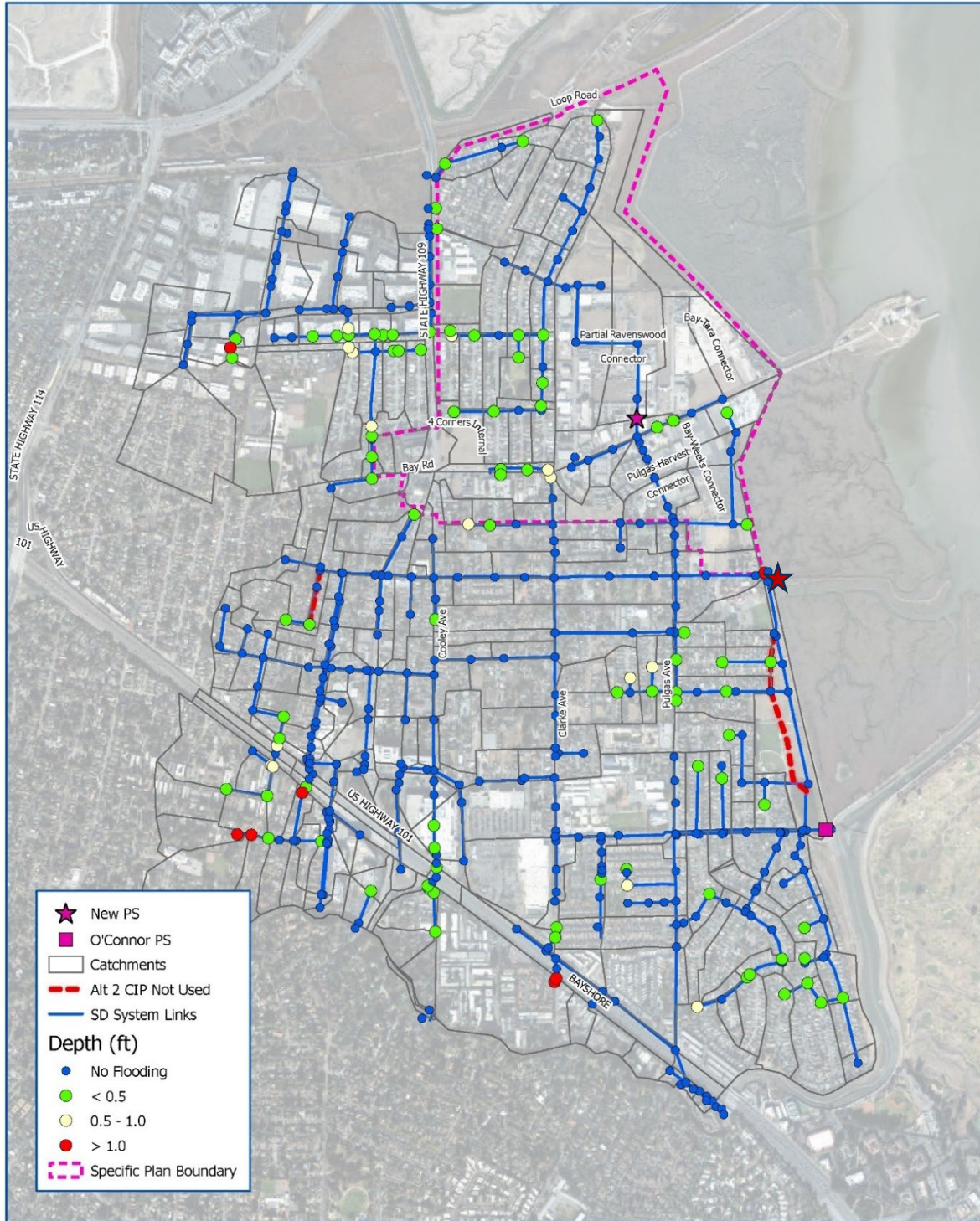
Table 9-6: Required Storm Drainage Capital Improvements (Modified SDMP Alternative 2 with Runnymede Pump Station)

Pump Station CIPs	Feet	Cost Estimate (2023)
Bay Road Pump Station	n/a	\$5,800,000
Runnymede Pump Station*	n/a	\$10,400,000
SDMP Pipe CIPs Required to Mitigate Impact of New Developments	Feet	Cost Estimate (2023)
Harvest-Weeks Pipe		\$1,400,000
Illinois-Purdue Pipe		\$2,100,000
Purdue-Bay Pipe (along Pulgas)		\$3,100,000
		\$22,800,000
SDMP Pipe CIPs Required to Mitigate Impact on Illinois System	Feet	Cost Estimate (2023)
Michigan Ave Pipe	252	tbd
Notre Dame and Illinois Pipe	1,360	tbd
Illinois-O'Connor Pipe	586	tbd

Depending on which development occurs first, the required storm drainage improvements may change. Depending on timing of the Runnymede Pump Station construction, additional CIPs may be required to provide sufficient capacity and mitigate

new development impacts. If Runnymede Pump Station is not built, Public Works will identify the alternative pipe CIPs needed to mitigate SD impacts.

Figure 9-3: Storm Drain System Improvements, with Runnymede Pump Station



Storm Drainage System Phasing

- Phasing of improvements depends substantially on the sequencing of major private developments. The need and timing for constructing the two new pump stations depends primarily on the phasing of major developments, and their early phase storm pipe improvements.
- A new Bay Road Pump Station (CIP #Storm SD-14) will be required as soon as significant development is constructed on the north side of Bay Road - including any development that is unable to drain to the existing public system on Bay Road by gravity or private pumps. Significant development on the north side of Bay Road also triggers the need for at least a portion of the Illinois-O'Connor CIP.
- The addition of the Bay Road Pump Station necessitates subsequent downstream improvements to mitigate impacts on Bay Road. Replacement and upsizing of the 2018 Pulgas Avenue system or construction of the Runnymede Pump Station should follow not long after construction of a Bay Road Pump Station, if not completed beforehand.
- When The Landing/Harvest project is constructed, complete the SD connection between Weeks Street and Pulgas Ave but leave the outfall in place until additional downstream CIPs are completed.
- Development at Four Corners is expected to construct the Notre Dame and Illinois CIP. This improvement will mitigate impacts of this project.

9.6 Fill & Grading

STANDARDS

- 1 Site Grading Study.** New construction and major renovations shall prepare a site-specific grading and drainage study to ensure compliance with Municipal Regional Stormwater Permit C.3 requirements, determine site storm water runoff, assess impacts to neighboring properties and buildings, and impacts to the City's storm sewer infrastructure. The study shall provide site design mitigation measures for identified impacts.
- 2 District Grading and Drainage Plan.** Development projects are expected to grade their sites and/or design their stormwater flows in accordance with Figure 9-5.

3 Finish Floor Elevation for Flood Hazards. As per Chapter 15.52 of the Municipal Code, ensure that at the time a project is proposed in the Plan Area that each proposed new structure in the 100-year flood plain as identified in the current Flood Insurance Rate Map (FIRM) is elevated so that the bottom of the lowest floor is at least 2.5' above the base flood elevation (BFE) for residential structures, and elevated and/or flood-proofed to at least 2.5' above BFE for non-residential structures. See Figure 6.5 for required Design Flood Elevations, which increase to +3.5' BFE and +4.5' BFE as buildings are closer to the shoreline. This standard is based on OneShoreline guidance which takes future sea level rise into account for the expected life of future development projects.

4 Submittal Requirements Related to Grading. Applicants proposing fill or significant grading on site shall provide:

- a. Cross-sections/profile drawings of stormwater improvements (to understand grade).
- b. A geotechnical report calculating the building load and placement of fill for each development. This report shall include an assessment of flood risks to the building itself and the impacts on neighboring structures from displacement of flood waters due to new buildings and site fill/grading. The report shall consider the cumulative flood risks to other structures from the building and site fill/grading in addition to other known, planned, and reasonably foreseeable development.

Projects shall be prepared to submit a C-LOMR (Conditional Letter of Map Revision Letter) to FEMA to obtain approval for changes to FIRM flood insurance maps.

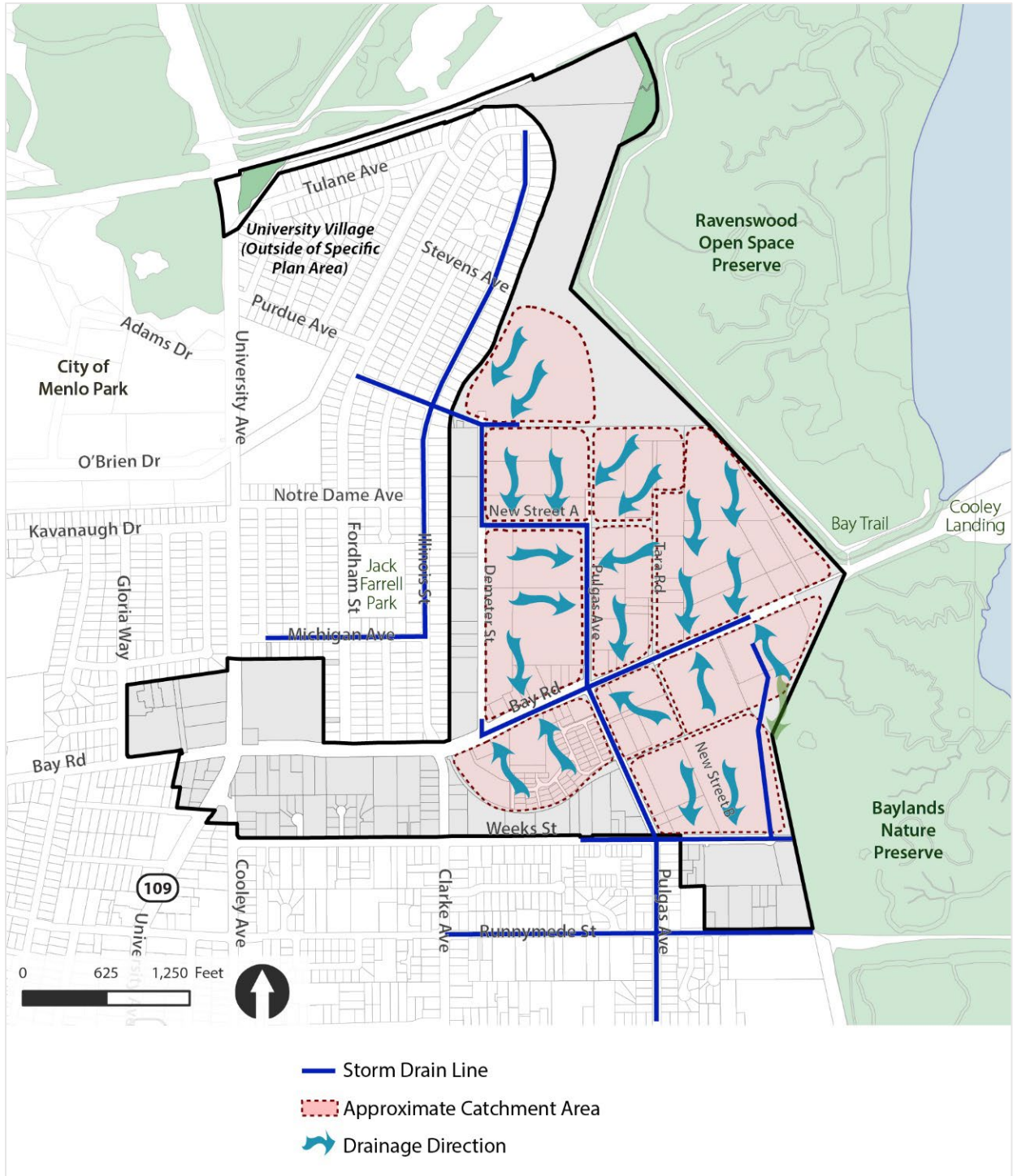
5 BCDC approval. All final plans will be approved by BCDC; ensure that projects seek shoreline development approval from BCDC after being granted planning entitlements from the City. Applicants are strongly encouraged to engage in the pre-application process with BCDC (the pre-application process will typically include a project review by the Commission's Design Review Board and/or Engineering Criteria Review Board).

6 JPA review. All final plans for waterfront-adjacent projects should be developed in consultation and coordination with the JPA.

7 Utility connections over grade. Storm water discharge may be routed to the city system regardless of the raised grade of development pads relative to public piping.

- 8 Fill over existing utilities.** Projects shall reconstruct existing utilities that would be buried under fill (of 1 or more feet).
- 9 Maximum slope of fill along street-facing frontages.** Where private development projects meet public roads, the slope of any fill shall not exceed 1:1 (45-degree angle). The maximum slope for publicly accessible vehicular streets/driveways over top of fill is 10:1. Areas used for ADA compliance must not exceed an 8% slope (ramps or switchbacks can be utilized).
- 10 Minimum setbacks.** Substantial fill (more than 2 feet in depth) shall begin no less than five feet from the property line, with the exception of frontages where sites coincide with the SAFERBAY shoreline installation.
- 11 Permitted soils.** Applicants shall utilize only permitted soil types to avoid excess settlement or disturbing deep soil contamination. Consult BCDC and other relevant regional agencies for information on soil types.
- 12 Retaining walls.** Developments are permitted to construct temporary retaining walls during construction, in between major phases of construction, or to facilitate integration of site topography/grade with SAFERBAY shoreline infrastructure.

Figure 9-4: District Grading and Drainage Plan



9.7 Shoreline-Adjacent Development Requirements

STANDARDS

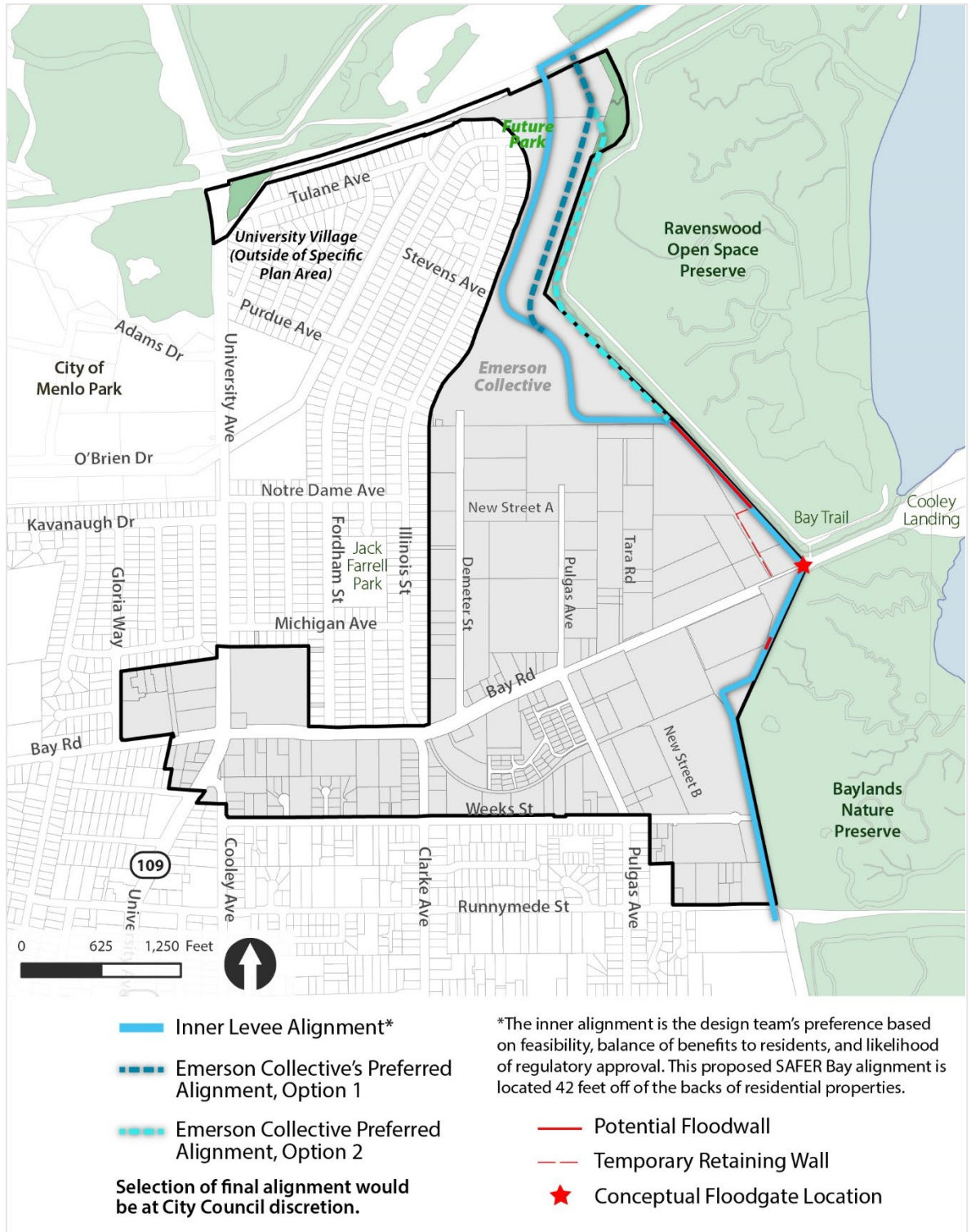
- 1 Shoreline Construction Standards.** For development projects within or coincident with any portion of BCDC jurisdiction:

 - New buildings on fill or near the shoreline shall be set back at least fifty feet from the inner top edge of the SAFERBAY levee improvement.
 - As per Section 9.5 Fill and Grading, new construction and substantial renovations subject to flooding hazards shall meet a minimum elevation of finished floors. See Chapter 6 for minimum Design Flood Elevations.
 - New developments shall elevate critical mechanical equipment above the Design Flood Elevation.
 - New developments shall be graded and elevated/designed such that they are aligned with a future design elevation for the levee top of 16.5 feet (NAVD 88).
 - New development projects shall anticipate that this final ground elevation above the levee will be increased with additional material to address future settlement, and that the levee will be designed to allow for future increases to the height of levee for sea level rise.
- 2 OneShoreline Site and Development Plan Review.** Proposed shoreline-adjacent projects within or coincident to any portion of BCDC’s jurisdiction shall submit site plans and civil engineering plans to OneShoreline (the San Mateo County flood district) for a non-binding review of proposed construction in relation to the below standards. If there is a conflict, the standards imposed by the City Engineer shall supersede voluntary OneShoreline guidance.
- 3 Bay Shoreline Access.** Shoreline-adjacent developments shall provide improvements to the Bay Trail and provide maximum feasible public access to the Bay Trail/shoreline as defined by BCDC.
- 4 SAFER Bay Shoreline Protection.** New construction on properties within 100 feet of the San Francisco Bay shall include shoreline protection infrastructure (or leave adequate width for future infrastructure to be constructed by the City or other public entity) that incorporates natural features to the greatest extent practicable. *The shoreline infrastructure will be primarily constructed approximately along the alignment indicated in Figure 9.5, most of*

which is within the BCDC shoreline jurisdictional area which stretches 100 feet landward of the Mean High Water Line (MHWL); in marshlands this jurisdiction extends five feet inland.

- 5 Disclosure of Hazards.** Hazards related to sea level rise and flooding shall be disclosed in real estate transactions in areas subject to such hazards.
- 6 Shallow Groundwater Vulnerability Assessment and Mitigation.** Shoreline-adjacent development projects shall perform a geotechnical assessment of the project’s vulnerability to shallow groundwater rise and submit a list of project measures that will monitor and mitigate seasonal and permanent emergent groundwater impacts, including: buoyancy, seepage, infiltration, liquefaction, corrosion, and contaminant mobilization hazards.
- 7 Utility Pipes.** Pipes serving public and private utilities may be permitted to run over the levee, if required to construct the systems identified in this Plan and the UIS.
- 8 Exceptions.** Projects may seek limited exceptions to the above standards, subject to the discretion of the City Engineer.

Figure 9-5: SAFER Bay Preferred Alignment and Options



9.8 Electricity, Phone, Cable, and Internet

The Plan Area would continue to be served with electric, gas, telephone, cable, and internet service from private companies, as detailed below (see Table 9-8).

Existing overhead electric lines would be removed and undergrounded on streets in the Plan Area. Several electricity transfer stations would be built along the underground lines. Some of the buried conduits would be placed in joint trenches carrying electrical power, cable TV, phone, fiber optic, and gas lines. Table 9-9 describes the changes and additions to the existing system.

Table 9-8: Dry Utility Providers

System	Provider
Electricity	Pacific Gas & Electric Company (PG&E)
Gas	PG&E
Telephone	AT&T + Sonic + others
Cable TV and Internet	Comcast, AT&T + others

Table 9-9: Recommended Priority for Electric Undergrounding

Priority	Street	Location	Description
High	Pulgas Avenue north of Bay Road	From the new connector road to Bay Road	Overhead electric wires to be removed and undergrounded when street is redone
High	East of Tara Street	From ~300 feet north of Bay Road to Bay Road	Overhead electric wires to be removed and undergrounded when development occurs
High	Tara Street	From just north of the connector road to Bay Road	Overhead electric wires to be removed and undergrounded when street is redone
Medium	Demeter Street	From Purdue Avenue to Bay Road	Overhead electric wires to be removed and undergrounded when street is redone