
APPENDIX F-1

GENERAL PLAN UPDATE UTILITIES AND INFRASTRUCTURE REPORT



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CITY OF SAN BERNARDINO

GENERAL PLAN UPDATE

INFRASTRUCTURE REPORT FOR HYDROLOGY, SEWER, WATER, AND WATER QUALITY

**CITY OF SAN BERNARDINO
SAN BERNARDINO COUNTY, CALIFORNIA**

PREPARED FOR:

PLACEWORKS
3 MacArthur Pl, Suite 1100
Santa Ana, CA 92707

PREPARED BY:

FUSCOE ENGINEERING, INC.
15535 Sand Canyon Ave, Unit 100
Irvine, CA 92618
949.474.1960
www.fuscoe.com

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1. INTRODUCTION & BACKGROUND

The City of San Bernardino ("City") is currently proposing a General Plan Update (referred to as GPU for the remainder of the document) which is intended to shape development and redevelopment in the City over the next 30-plus years.

PROJECT LOCATION AND EXISTING USES

The proposed project covers the entire City of San Bernardino, which encompasses approximately 62 square miles (39,680 acres), and approximately 8 square miles (5,120 acres) of unincorporated land that falls within the City's Sphere of Influence (SOI). This combined area forms the General Plan Update Area, which serves as the geographic scope for the General Plan Update.

The City is located in the Valley Region of San Bernardino County, about 60 miles east of Los Angeles, and is surrounded by major geographic features including the San Bernardino Mountains, Jurupa Hills, Box Springs Mountains, and Cajon Wash. The City borders Rialto, Colton, Loma Linda, Redlands, Highland, and the San Bernardino National Forest. Major regional roadways, including I-215, I-10, SR-210, and SR-259, traverse the area. Existing uses within the Citywide area include a range of residential, commercial, industrial, office, public facilities, institutional, parks, open spaces, and airport related uses.

See Figure 1 for the aerial location of the City's existing conditions and Table 1 for a breakdown of the existing and proposed land uses.

PROJECT OBJECTIVES

The following are project objectives for the General Plan Update. The plan is envisioned to be a place where there is:

- Neighborhoods and employment areas are well-designed, accessible, and offer opportunities to live, work, and play.
- All residents, businesses, and community groups are treated equitably and can participate meaningfully in public decision-making.
- People have access to diverse jobs, quality education, safe neighborhoods, dependable services, and a healthy environment.
- Transportation options are reliable, affordable, and environmentally responsible.
- A resilient local economy supports business growth, innovation, and a thriving downtown.
- Community life is vibrant, with strong cultural resources, historic assets, arts, and opportunities for healthy living.

To support these project objectives the General Plan Update establishes long range policies for land use mobility housing resource management and public services citywide.

EXISTING AND PROPOSED LAND USES

Under the GPU the City sets policies for land use, circulation, housing, open space, resource management, and public services over a 25-year planning horizon, to address both existing needs and anticipated growth. Table 1 below provides an overview of existing and proposed land uses in the City.

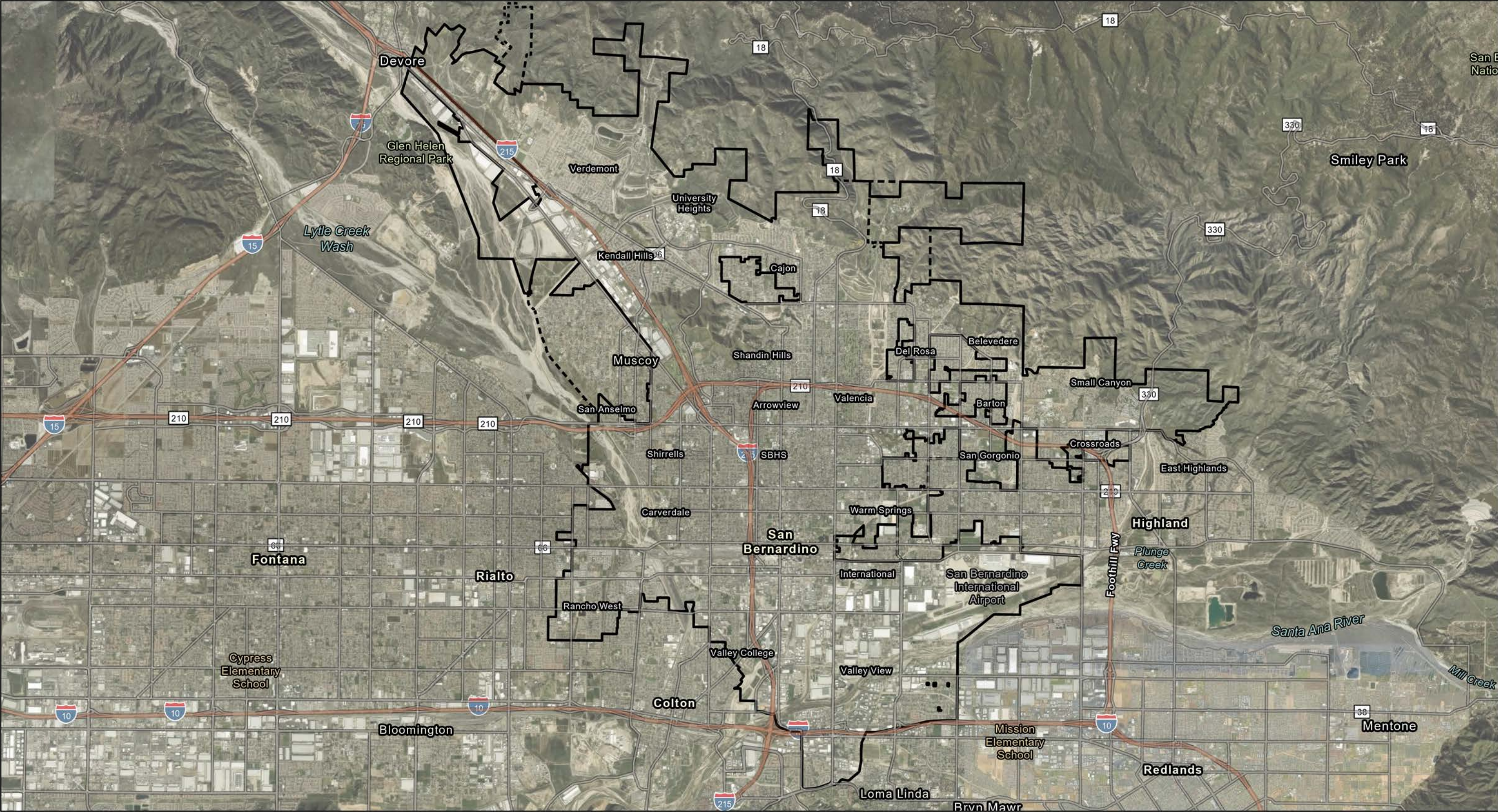
Table 1: Existing and Proposed Land Uses

Land Use	Existing Conditions (2025)	Proposed General Plan (2050)	Total Growth Over Existing
Single Family	45,635 DUs	54,744 DUs	9,110 DUs
Multifamily	28,334 DUs	53,368 DUs	25,033 DUs
Total Residential	73,969 DUs	108,112 DUs	34,143 DUs
Commercial, Office, Institutional	40,473,519 SF	66,457,507 SF	25,983,987 SF
Industrial	61,102,425 SF	76,286,799 SF	15,184,374 SF
Total Non-Residential	101,575,944 SF	142,744,306 SF	41,168,361 SF

As shown in Table 1, the proposed project would result in the net addition of up to 34,143 residential dwelling units (DUs) and 41,168,361 square feet (SF) of non-residential development in the General Plan Update. See Figure 2 for the City's proposed general plan land uses.

In comparison to the proposed GPU, the current (adopted) 2005 General Plan reflects a lower overall growth potential and will not be used as the baseline for this infrastructure assessment. Instead, the analysis compares existing conditions to the proposed GPU, as this provides a suitable approach to assess how current system demands may shift under the anticipated buildout. Therefore, for the remainder of the report, existing conditions are compared to the projected buildout of the GPU. Although some background information references assumptions developed under the 2005 General Plan, the infrastructure analysis focuses on the change between existing conditions and the proposed GPU, to assess potential increases in water demand, wastewater generation, and any associated infrastructure needs.

In particular, the analysis includes a review and summary of the baseline conditions of the storm drain system, water, and wastewater systems, and existing water quality regulations currently in place, and provides a comparison against the proposed GPU. Any significant impacts will be identified by analyzing the CEQA thresholds of significance as they relate to storm drain, water, sewer and water quality. The analysis also utilizes existing infrastructure master plans and ongoing communication with City staff.



City of San Bernardino Aerial Extent

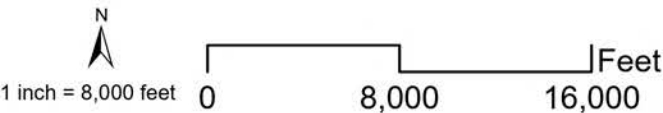
San Bernardino, CA

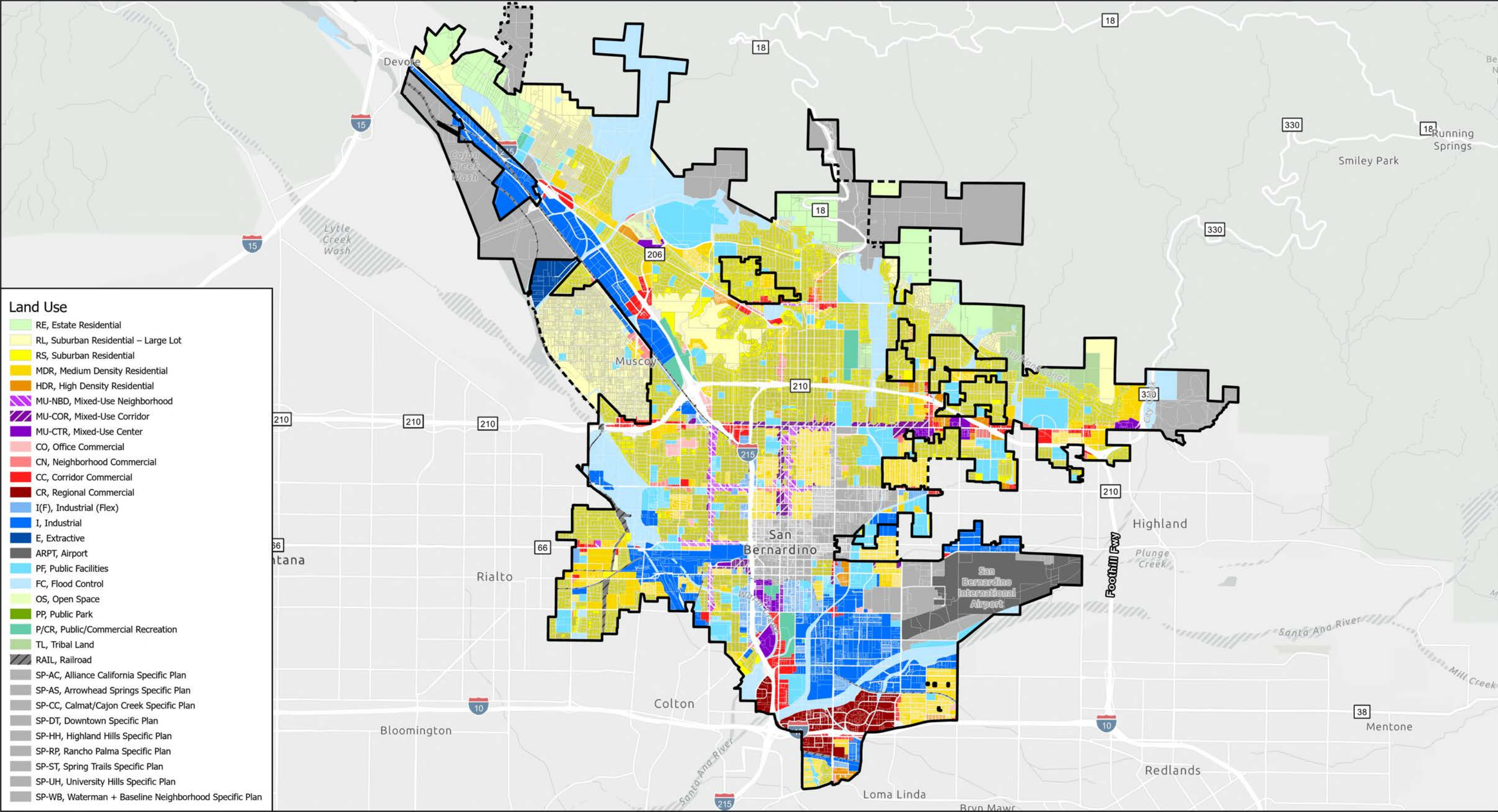


- Sphere Of Influence
- City Boundary

Figure 1

11/18/2025





City of San Bernardino Proposed General Plan Land Use

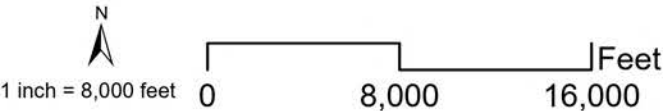
Figure 2

San Bernardino, CA

11/18/2025



City Boundary
Sphere Of Influence



2. ENVIRONMENTAL SETTING

2.1 DRAINAGE

2.1.1 WATERSHED SETTING AND EXISTING DRAINAGE FACILITIES

The City of San Bernardino is located within the Upper Santa Ana River Watershed which is regulated by the Santa Ana Regional Water Quality Board (RWQCB) and covers portions of the Counties of San Bernardino, Orange, and Riverside. The major creeks and watersheds within the City include Lytle Creek, Twin Creek, Warm Creek, and the Santa Ana River. A small portion of the San Matero Creek watershed also resides within the City near the southern boundary.

The City of San Bernardino resides within the Upper Santa Ana Valley Groundwater Basin and includes the major groundwater subbasins of Rialto-Colton and Bunker Hill.

The City is largely built out although undeveloped land exists in the outer fringes of the city limits. Stormwater runoff connects to a series of storm drain lines and channels within the City which include both City and San Bernardino County Public Works (SBCPW) drainage facilities. Most of the smaller underground facilities are under jurisdiction of the City and the larger flood control channels are maintained by SBCPW. Some of the major flood control facilities within the City include the Lytle Creek Channel, Warm Creek Channel, and the Santa Ana River.

Refer to Figure 3 City of San Bernardino Existing Storm Drain Facilities

Based on the current storm drain system, there are no major deficiencies, and no major flooding occurs during large storm events with the exception of areas identified within FEMA flood zones. However, as with many older developed areas, larger storm events can result in localized flooding and can often be improved through the addition of more catch basins and inlets to reduce localized street ponding.

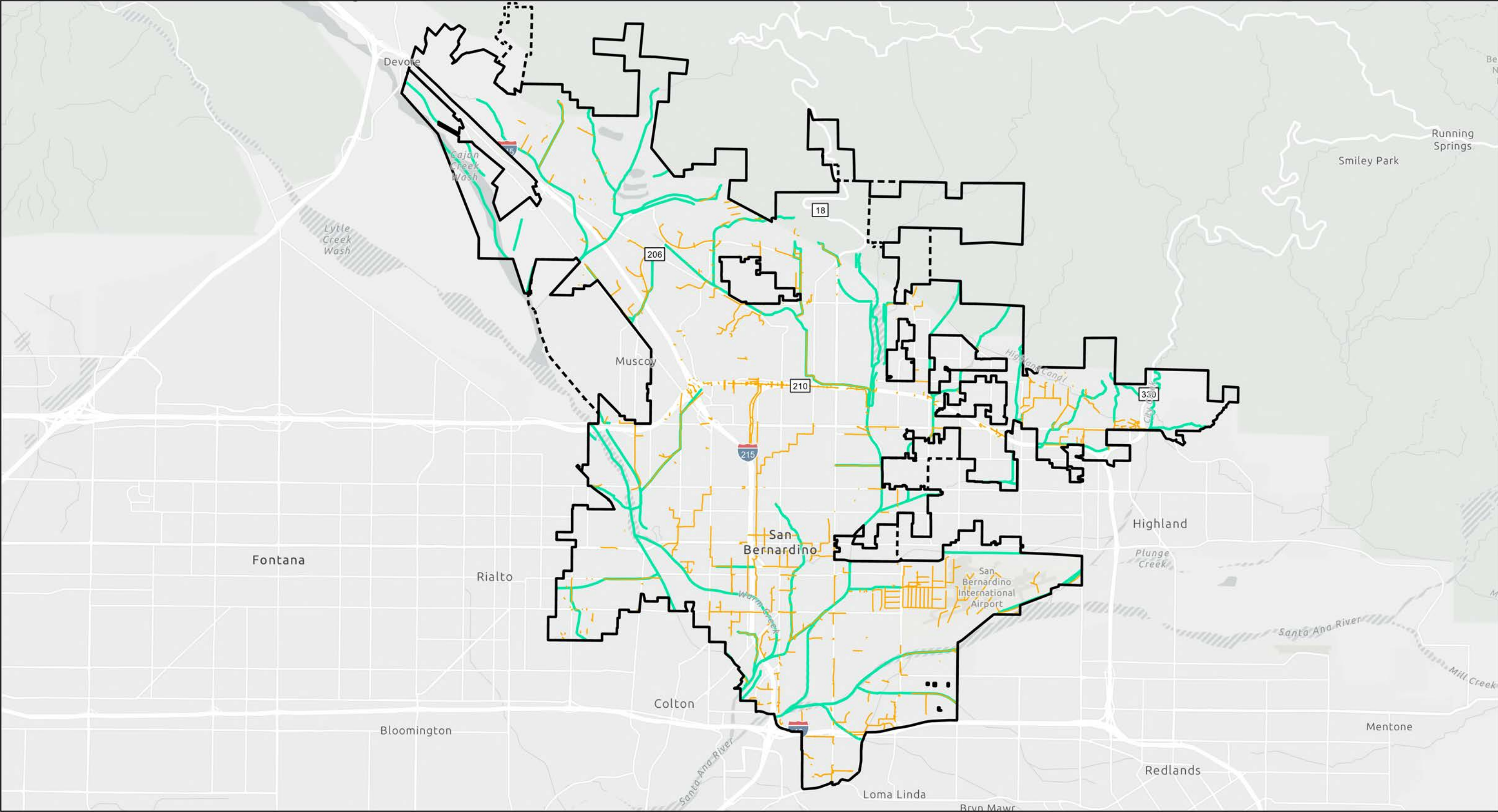
The City's Public Works/Engineering Division is responsible for the inspection and construction management of City owned storm drains in addition to streets, sewers, traffic signals, traffic signs, pavement markings, construction projects, maintenance projects; planning, design and project management of the City's 5-year Capital Improvement Program (CIP); annexations and assessment districts. As part of the CIP process, the City monitors and manages the storm drain system to prevent against flooding and ensure water quality is protected.

City of San Bernardino develops its Five-Year Capital Improvement Program (CIP) consistent with the 2020-2025 Key Strategic Targets and Goals established by the Mayor and City Council. Major capital improvements can often be complex projects requiring several years of strategic planning, design, and funding before construction begins. New developments are required to pay a

development impact fee based upon area for construction of storm drains. This fund is used for CIP Projects in the Storm Drain category of the CIP project list. Storm drain infrastructure improvements represent approximately 5% of the overall CIP funding. The City's most current approved Capital Improvement Project (CIP) budget includes approximately \$15 million for the top priority drainage improvements including the Mt. Vernon storm drain, Sierra Way storm drain, Waterman/Baseline culvert, and storm drain catch basin screen installation for trash capture requirements.

In addition to City storm drain infrastructure, the County of San Bernardino Flood Control District (SBCFCD)¹ maintains the regional storm drain conveyance systems including an extensive system of facilities, dams, conservation basins, channels, and storm drains. The purpose of these facilities is to intercept and convey flood flows through and away from the major developed areas of the County. The primary functions of this infrastructure are flood protection on major streams, water conservation, and storm drain construction. The SBCFCD's approved 2024/2025 CIP budget, and 2025/2026 CIP budget include \$137 million for large-scale flood control improvements within the City limits including Cable Creek basin, City Creek bypass channel, Del Rosa Channel and North San Bernardino Channel.

¹ SBCFCD Website. Found here: <http://cms.sbcounty.gov/dpw/FloodControl.aspx>



City of San Bernardino and SBCFCD Existing Storm Drain Facilities

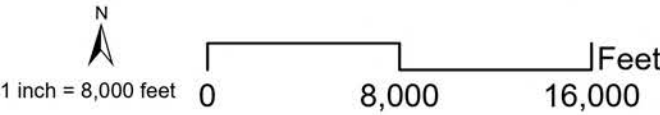
Figure 3

San Bernardino, CA

11/18/2025



- SBCFCD Drainage Facilities
- City Storm Drain
- Sphere Of Influence
- City Boundary



2.1.2 COUNTY OF SAN BERNARDINO STORM DRAIN MASTER PLAN

In 1982, the County of San Bernardino produced a Master Plan of Drainage which included the City of San Bernardino to manage the proper implementation of storm drain facilities, flood control facilities and drain inlets to safely protect people and property from flooding. Within the Master Plan of Drainage, there are more localized Comprehensive Storm Drain Plans covering specific areas. The City of San Bernardino falls within Comprehensive Storm Drain Plans # 3, #6 and #7. Although these documents are fairly old, the recommended improvement plans are still being followed today with the exception that all hydrology and hydraulic calculations must follow the most current methodology and standards.

The San Bernardino County Public Works Flood Control Planning Division is mainly responsible for long range advance planning and for coordinating flood control project development and funding with other agencies:²

- Long Range Planning involves planning investigations and project studies; project prioritization; preparing annual capital improvement reports, special reports and studies; preparing and updating Master Plans of Drainage; documenting flooding events and damages; developing and processing funding agreements; preparing and tracking grant applications; Aerial photos and Historic information archiving and updating District's maps, exhibits, and displays.
- The Division conducts meetings with City Engineers in the respective Flood Zones. The meetings are designed to familiarize the City Engineers with flood control projects in planning, development and construction phases. District budget studies are also discussed.
- The Federal Projects Section of the Division is responsible for coordinating the development of federally sponsored flood control projects with the U.S. Army Corps of Engineers. Some of the past federally sponsored projects in our County included the construction of the Seven Oaks Dam and the San Timoteo Creek Basins and Channel.
- The Division coordinates Water Spreading Activities with local water agencies that use District facilities to recharge underground aquifers.

The City of San Bernardino Public Works Department implements the Comprehensive Storm Drain Plan No. #3, No. #6 and No. #7 on behalf of the Flood Control District within the City boundaries for all city projects. As projects come online, the City collects development impact fees for drainage improvements consistent with the Comprehensive Storm Drain Plans.

² San Bernardino County Public Works website. Accessed 3-21-2022 here:
<https://cms.sbcounty.gov/dpw/FloodControl/Planning.aspx>

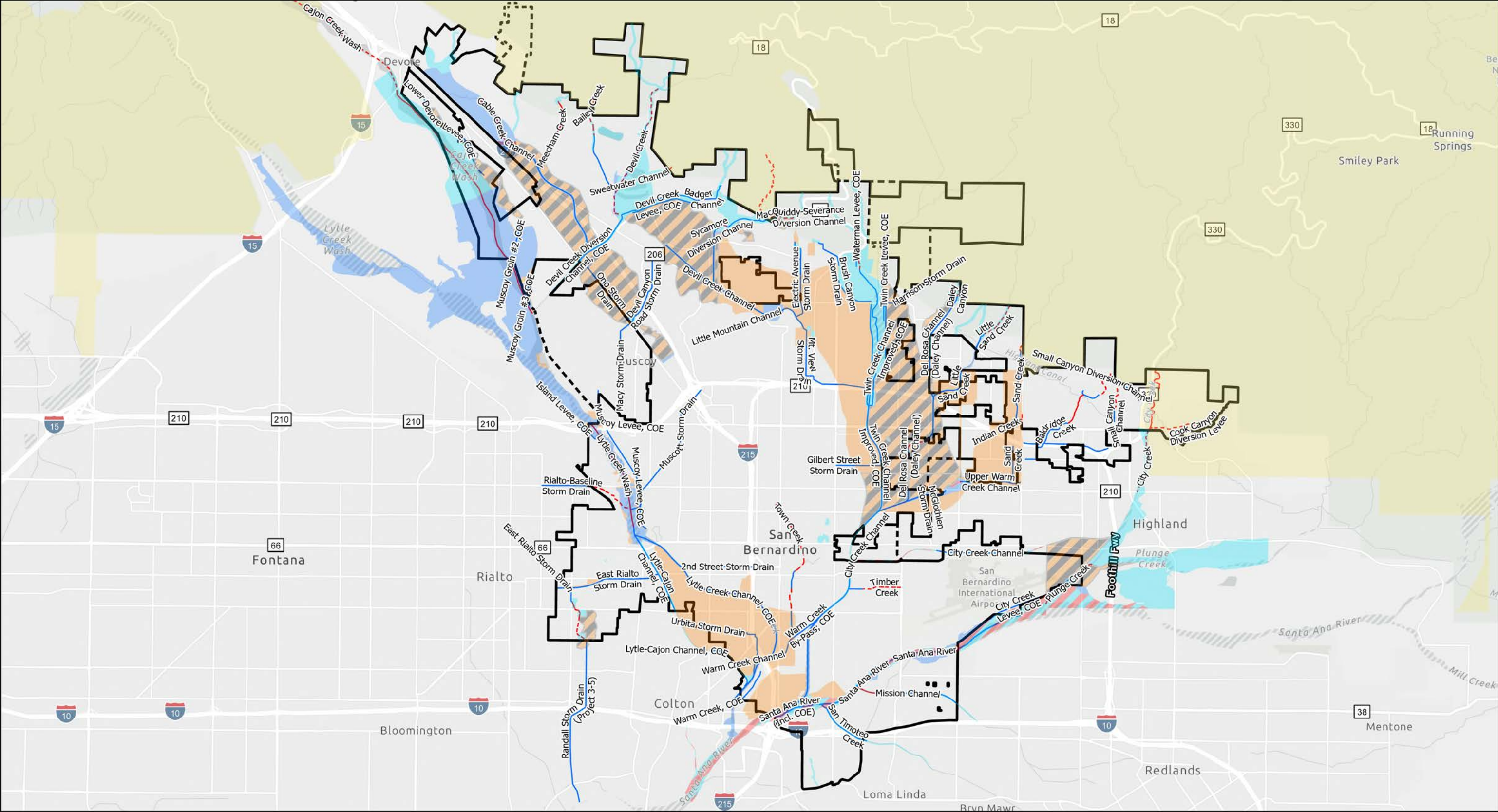
2.1.3 EXISTING FLOODPLAIN MAPPING

Flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded).

According to FEMA, there are numerous areas within the City limits that are located within SFHA flood zones (1% chance of annual flood or higher) and require flood insurance. These zones are referred to as Zone A/Zone AE flood hazard zones. Other flood zones within the City include Zone X and Zone D. Zone X (unshaded) is designated as an area determined to be either outside the 500-year flood plain (0.2%) or protected by levee from 100-year flood (1%). Zone D includes areas of undetermined flood risk.

Any development within these areas will be required to follow FEMA and the City's floodplain safety requirements including flood analysis, proper setbacks, and sufficient pad elevations.

Refer to Figure 4 City of San Bernardino Flood Zones.



City of San Bernardino Flood Zones

Figure 4

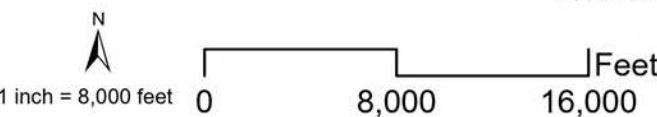
San Bernardino, CA

Flood Hazard Zones



- Zone A: 1% Annual Chance Flood Hazard
- Zone AE: 1% Annual Chance Flood Hazard
- Zone AE: Regulatory Floodway
- Zone D: Area of Undetermined Flood Hazard
- Zone X: Area with Reduced Risk Due to Levee
- Zone X: 0.2% Annual Chance Flood Hazard

- Sphere Of Influence
- City Boundary



2.2 SEWER INFRASTRUCTURE

2.2.1 EXISTING SEWER SYSTEM AND FACILITIES

The sewer system throughout GPU is managed by the San Bernardino Municipal Water Department (SBMWD) and the East Valley Water District (EVWD). The City of San Bernardino Public Works Department transferred sewer infrastructure management responsibility to SBMWD on May 1, 2017. SBMWD serves the western two-thirds of the City of San Bernardino and EVWD serves the eastern portion of the City. All sewer systems in the area eventually lead to the Water Reclamation Plant (WRP).

SBMWD's existing sewer system consists of 493 miles of pipes, 15 active lift stations, 12 siphons, approximately 38,300 sewer connections, and the WRP. The collection system consists of 493 miles of pipes ranging from 4- to 60-inches in diameter³. EVWD's existing sewer system consists of approximately 213 miles of pipeline, 4,400 sewer manholes, 7 siphons, and 5 diversion structures. The existing sewer system conveys flows into the SBMWD East Trunk Sewer which outlets to the WRP. EVWD's sewer pipeline network includes approximately 213 miles of pipeline ranging in size from 4 inches to 24 inches in diameter. EVWD's sewer system does not include any lift stations or force mains. All flow is conveyed by gravity to the East Trunk Sewer⁴.

See Figure 5 for the Existing Sewer Facilities within the City.

All flows from GPU ultimately flow to the Water Reclamation Plant (WRP), which is currently operated and maintained by SBMWD. The WRP has been operated by SBMWD since 1973 and ensures all wastewater is properly treated prior to discharging into the Santa Ana River. The WRP is a 33 MGD Secondary Treatment facility that serves a population of over 185,000 people in a service area that includes the City, the City of Loma Linda, EVWD, San Bernardino International Airport, Patton State Hospital, and areas of unincorporated San Bernardino County. After being treated at the WRP, and before discharging to the Santa Ana River, effluent is conveyed to the Rapid Infiltration and Extraction (RIX) facility in the City of Colton for tertiary treatment. The RIX facility is jointly owned by SBMWD and the City of Colton but is operated solely by SBMWD. Approximately 63% or 13.4 million gallons per day of wastewater collected at the WRP was generated within the SBMWD service area in 2020⁵ which include the WRP entire service area that covers more than the GPU. Refer to Section 4.2.3 Water Infrastructure for further details on recycled water use from WRP. In 2020, the WRP treated 23,763 AF of wastewater (21.2 MGD) and discharged the same amount to the Santa Ana River.

³ San Bernardino Municipal Water Department – Sewer Master Plan Update (2019). Found here: <https://www.sbmwd.org/364/2019-Sewer-Master-Plan>

⁴ East Valley Water District – Sewer System Master Plan (2019). Found here: <https://www.eastvalleywater.gov/media/im0af5qs/2019-ssmp-final.pdf>

⁵ 2020 Draft Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan. Found here: <https://www.sbvmd.com/reports/-/folder-1125>

Additionally, EVWD recently completed the construction of the Sterling Natural Resources Center (SNRC)⁶ and became fully operational in January 2024. The SNRC is designed to provide a sustainable new water supply to EVWD and the region with a treatment capacity of 8 MGD. The Sterling Natural Resources Center is intended to intercept flows from SBMWD's East Trunk Sewer line⁷, create additional capacity at the WRP through this diversion and recharge the groundwater basin with tertiary treated recycled water.

2.2.2 EXISTING SEWER DEMAND

Since the City includes two wastewater agencies and one agency collects wastewater flows from areas outside of the GPU area, a population analysis was completed in order to evaluate existing sewer demands within the GPU. Since the SBMWD serves only the City of San Bernardino, the agencies' 2020 UWMP along with the City's 2020 Census population data was used to determine each agencies service population. Agency specific wastewater demand factors were developed in the SBMWD Water Reclamation Plant Facilities Assessment and Master Plan (2020) and were used for this analysis to estimate the existing wastewater demand for the GPU area. See Table 2 for a breakdown of existing sewer demands per agency.

Table 2: Existing Sewer Demands

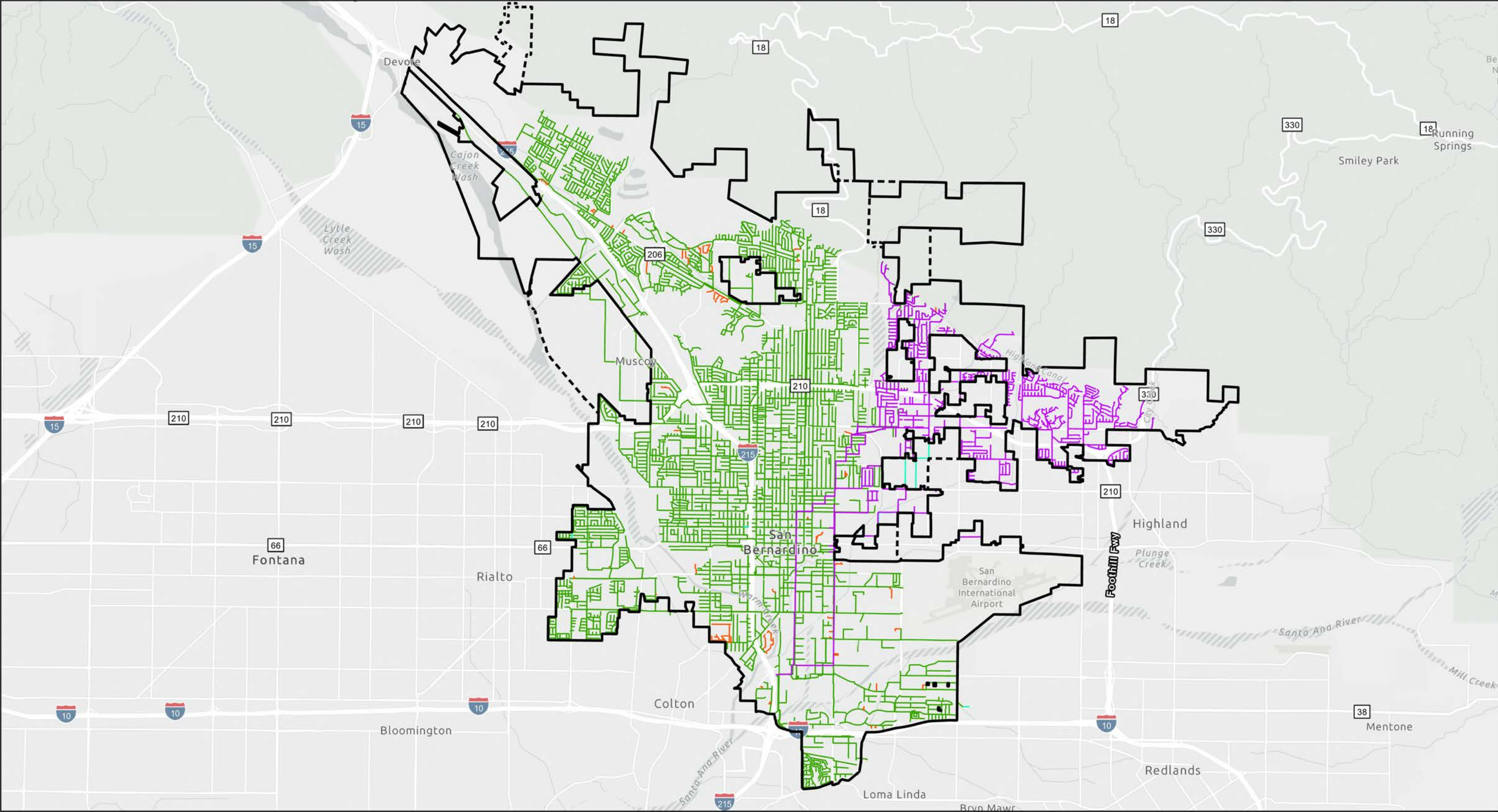
Sewer Provider	Service Area Population	Sewer Demand Factor per Capita (GPCD)⁸	Total Sewer Demand (GPD)	Total Sewer Demand (AFY)
San Bernardino Municipal Water Department	210,830	69	14,547,270	16,345.20
East Valley Water District	11,271	64	721,344	810.50
TOTALS			15,268,614	17,156

The existing sewer demand is estimated to be 17,156 acre-feet per year (AFY) for the GPU area.

⁶ East Valley Water District – Sterling Natural Resources Center. Found here: <https://www.eastvalleywater.gov/our-water/systems/wastewater-system/sterling-natural-resource-center>

⁷ East Valley Water District – Sewer System Master Plan (2019). Found here: <https://www.eastvalleywater.gov/media/im0af5qs/2019-ssmp-final.pdf>

⁸ Table 6-4 Current Influent Flow and Per Capita Usage. City of San Bernardino Municipal Water Department (May 2020). Water Reclamation Plant Facilities Assessment and Master Plan



City of San Bernardino Existing Sewer System Facilities

San Bernardino, CA



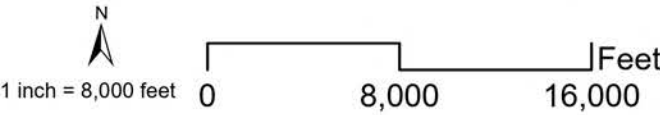
Sewer Ownership

- Others
- Private
- San Bernardino Municipal Water Department
- East Valley Water District

- Sphere Of Influence
- City Boundary

Figure 5

11/18/2025



2.2.3 SEWER CAPACITY ASSESSMENTS

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT AND EAST VALLEY WATER DISTRICT 2019 SEWER MASTER PLAN UPDATE

The SBMWD and EVWD both completed their Sewer Master Plan (SMP) Update in 2019. These SMP were developed to better understand sewer system infrastructure integrity and demands and create a hydraulic computer model to assess the capacity of the water infrastructure to meet projected demands of future developments. Both SMP were developed by Stantec and included similar analysis for each agencies respective wastewater systems.

CCTV. A closed-circuit television inspection (CCTV) was analyzed by Stantec to determine areas of sewer pipe degradation. The CCTV results were used to identify and prioritize Capital Improvement Projects.

Hydraulic Model. The hydraulic models were used to evaluate the sewer capacity in the 2019 SMP was an all-pipes model. The model build resulted in a functional hydraulic model that incorporated recent GIS database, results from recently completed LiDAR and maintenance hole surveys, as well as multiple other data sources provided by each respective agency. A depth/diameter (d/D) ratio of 0.75 for modeled pipes was used as a trigger for the analysis for both SMPs.

To evaluate sewer capacity in dry and wet weather conditions, the model was built to simulate different storm events under the full build out conditions of the existing General Plan and current zoning.

Using the water to wastewater ratios developed in each SMP Update, the general plan land use, and the Year 2060 water demand projections, the Year 2060 wastewater projections total 33.81 MGD for SBMWD and 11.79 MGD for EVWD. The projected flows for EVWD contains flows occurring from outside of the City of San Bernardino. These values represent the ultimate future build-out for the service area based on the general plan and is a conservative estimate of the ultimate conditions in the sewer collection system. This projection of 45.6 MGD exceeds the current capacity of the WRP. To accommodate future developments, the EVWD recently completed the construction of a new wastewater reclamation facility called the Sterling Natural Resource Center to treat up to 8 MGD. Tertiary treated water from the facility will be discharged into the local Bunker Hill Groundwater Basin to help supplement water supply against future droughts.

2.2.4 SEWER CAPITAL IMPROVEMENT PLANS

Oversight and maintenance of the City's sewer systems are respectively managed by San Bernardino Municipal Water Department (SBMWD) and East Valley Water District (EVWD). Both SBMWD and EVWD manage their sewer Capital Improvement Plans (CIPs) through structured, multi-year programs that identify and prioritize necessary sewer infrastructure projects. SBMWD has long-term master planning improvements and EVWD uses a rolling five-year CIP integrated into its strategic plan, both are updated annually and tracked within each agency's fiscal record. See Table 3 for an example of several projects SBMWD and EVMWD have planned for Fiscal Year (FY) 2025-26.

SAN BERNARDINO MUNICIPAL WATER DERPARTMENT (SBMWD)

SBMWD tracks sewer capital improvements such as collection system rehabilitation, lift station upgrades, and treatment plant expansions. The department prioritizes sewer projects based on environmental compliance, capacity needs, and aging infrastructure. Progress is tracked through annual reporting and budget adjustments⁹, ensuring that sewer capital improvements are completed on schedule and within budget.

EAST VALLEY WATER DISTRICT (EVWD)

East Valley Water District's Capital Improvement Program for FY 2025–26¹⁰ prioritizes reinvestment in aging sewer infrastructure, expansion of wastewater treatment capacity, and long-term reliability improvements. Sewer related projects focus on the Wastewater Collection system and the recently commenced operations of Sterling Natural Resource Center (SNRC), ensuring sustainable service and delivery. Notably the SNRC became fully operational in January 2024 and treats up to 8 million gallons of wastewater daily for recharge into the local Bunker Hill Basin and contributes to the City's increased waste treatment capacity. Altogether EVWD's CIP ensures sewer infrastructure, both collection and treatment, is modernized, resilient, and environmentally responsible.

See Table 3 for a summary of several projects SBMWD and EVMWD have planned for Fiscal Year (FY) 2025-26

⁹ San Bernardino Municipal Water Department. June 2025. Operating And Capital Improvement Budget FY 2025-26. Found here:

<https://www.sbmwd.org/DocumentCenter/View/8990/Operating-and-Capital-Improvement-Budget-FY-2025-through-2026>

¹⁰ East Valley Water District. June 2025. 2025-26 Fiscal Year Budget. Found here:

<https://www.eastvalleywater.gov/media/3zlf0dfi/final-2025-budget-document-website.pdf>

Table 3: Sewer System Capital Improvement Plans

Project Name	Project Summary
SBMWD – Annual R/R - Solids Handling Systems	This funding will address capital purchases related exclusively to the treatment and handling of the solids process stream. Examples include replacement pumps for the digesters, Digester gas system upgrades, Conveyor system upgrades
SBMWD – E Street Lift Station Rehabilitation Project	The project involves bypassing the lift station to facilitate the installation of three new valves on the main discharge header.
SBMWD – Phase 2 - Tertiary Treatment System (Design)	Construction of a five (5) MGD tertiary treatment system to meet Title 22 standards (eliminates use of groundwater for plant utility) and reduce hydraulic loading.
EVWD – Additional Membrane Bioreactor	This project adds a fifth membrane bioreactor (MBR) train at the SNRC to improve operational flexibility, better handle fluctuating flows, and reduce membrane fouling.
EVWD – Goal to Establish SNRC Maintenance Support Services	Issue competitive contracts for preventative maintenance, corrective repairs, and emergency services.
EVWD – Goal to Establish Professional Regulatory Support Services Contract	Issue a contract with professional service providers to ensure compliance with regulations set forth by State Water Resources Control Board (SWRCB) and other agencies to address compliance and maintain regulatory adherence.

As shown in Table 3, several projects fall within the scope of capital improvement plans implemented by both the San Bernardino Municipal Water Department and East Valley Water District to maintain and strengthen the City's sewer system

2.3 WATER DISTRIBUTION SYSTEM AND SUPPLY

2.3.1 EXISTING WATER SYSTEM

The GPU is served by the SBMWD and EVWD. SBMWD is a department within the City that was transferred operational responsibilities from the City's Public Works/Engineering Division in 2017. SBMWD and EVWD are responsible for the inspection and construction management of each agencies' owned water distribution lines as well as the planning, design and project management of the Capital Improvement Program (CIP). As part of the CIP process, SBMWD and EVWD monitor and manage the water distribution system to protect water infrastructure and ensure water quality is protected. SBMWD serves a majority of the City while EVWD serves the eastern portion of the City.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT (SBVMWD)

In addition to the two retail water districts that serve the City, the San Bernardino Valley Municipal Water District (SBVMWD) provides wholesale water service for SBMWD and EVWD. SBVMWD facilities include pipelines, pump stations, reservoirs, and canals that convey water to retail water districts within its service area. SBVMWD also develops and implements long-range water acquisition strategies along with other projects and programs.

All water districts serving the City's residents rely on imported water and groundwater resources as the two primary water supplies for customers. The City overlies the Bunker Hill Groundwater Basin (Basin). The San Bernardino Valley Water Conservation District (SBVWCD) ensures recharge of the Basin, using its facilities and all sources of high-quality surface water, including imported and recycled water. SBVWCD seeks to improve the supply and quality of groundwater while protecting land resources as well as balancing ecosystem responsibilities with public access and aggregate resources uses.

POTABLE WATER SYSTEM

The primary components of the SBMWD potable water system include 51 groundwater production wells, 5 groundwater treatment plants, 38 water reservoirs, 28 pump stations, approximately 67 booster pumps, and 715 miles of distribution system with pipe sizes ranging from 4" to 60" in diameter¹¹.

Refer to Figure 6 for the Existing Water System within the City.

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT & EAST VALLEY WATER DISTRICT 2020 URBAN WATER MANAGEMENT PLAN

The 2020 SBMWD & EVWD Urban Water Management Plans (UWMP) were developed as part of the San Bernardino Valley Regional Urban Water Management Plan which includes other water agencies including City of Loma Linda, Redlands, Colton, Rialto, West Valley Water District, Yucaipa Valley Water

¹¹ San Bernardino Municipal Water Department 2024 Water Master Plan

District and Riverside Highland Water Company. The formal name is titled “The Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan” (June 2021). The UWMP was created to identify and plan for water customers and demands within the region. The 2020 UWMP requires analyses of management tools and options to maximize local resources and to minimize the need to import water from other regions. An analysis of total projected water use compared to water supply sources over the next 25 years in five-year increments was conducted. Water demand and supply information was compared for normal single dry year and multiple dry year scenarios.

The SBMWD 2020 UWMP reported the City’s daily per capita water demand as 179 gallons per capita per day (GPCD) in 2020 while the 2020 Water Use Target GPCD was 203, thereby demonstrating the City met their respective goal. The UWMP also reported for 2020, total water usage was 42,182 AFY.

The EVWD 2020 UWMP reported the agency’s service area daily per capita water demand as 165 gallons per capita per day (GPCD) in 2020 while the 2020 Water Use Target GPCD was 172, thereby demonstrating the agency met their respective goal. The UWMP also reported for 2020, total water usage was 18,374 AFY.

According to the 2020 SBMWD UWMP, anticipated water demands will increase from 2025 through 2045 from 41,115 AF to 45,478 AF respectively and projected supply will increase over the same time frame from 48,585 AF to 53,603 AF mostly through additional pumping of the Bunker Hill Groundwater Basin.

According to the 2020 EVWD UWMP, anticipated water demands will increase from 2025 through 2045 from 19,702 AF to 22,283 AF respectively and projected supply will increase over the same time frame from 22,657 AF to 25,625 AF mostly through additional pumping of the Bunker Hill Groundwater Basin.

RECYCLED WATER SYSTEM

Currently, SBMWD does not use recycled water within their service areas or have any recycled water distribution lines. Wastewater is treated at the San Bernardino Water Reclamation Plant (WRP) to a secondary treatment level and is then conveyed to the Rapid Infiltration Extraction (RIX) Tertiary Treatment Facility in the City of Colton. This facility is jointly owned by SBMWD and the City of Colton and is operated under contract solely by the City. RIX further treats the wastewater to a tertiary level. All treated effluent from the facility is discharged to the Santa Ana River. A portion of the discharged water, 16,000 AFY, is provided by contract to SBVMWD to maintain flows in the Santa Ana River fulfilling SBVMWD’s downstream obligations under the Orange County Judgment¹². The remainder of the discharged amount is excess water, subject to potential reuse.

¹² 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan. Section 3.8.2 Orange County Judgement. Found here: <https://www.sbvmd.com/reports/-/folder-1125>

As of 2020, EVWD does not use recycled water within their service area. However, due to the recent completion of the Sterling Natural Resources Center that has the capability to produce recycled water, EVWD will begin exploring the opportunities on implementing recycled water throughout its service area.

2.3.2 EXISTING WATER DEMAND

Since the City includes two retail water providers and one agency serves communities located outside of the GPU area, a population analysis was completed in order to evaluate existing water demands within the GPU. Since the SBMWD serves only the City of San Bernardino, the department's 2020 UWMP along with the City's 2020 Census population data was used to determine each agencies service population. Using the SBMWD's 2020 existing 2020 water demand of 42,182 AFY and a population served of 210,830, a water demand factor per capita was developed and applied to the remaining City's population that was served by the EVWD in order to estimate an existing water demand that was specific to the City.

See Table 4 for a breakdown of existing water demands per agency.

Table 4: Existing Water Demands

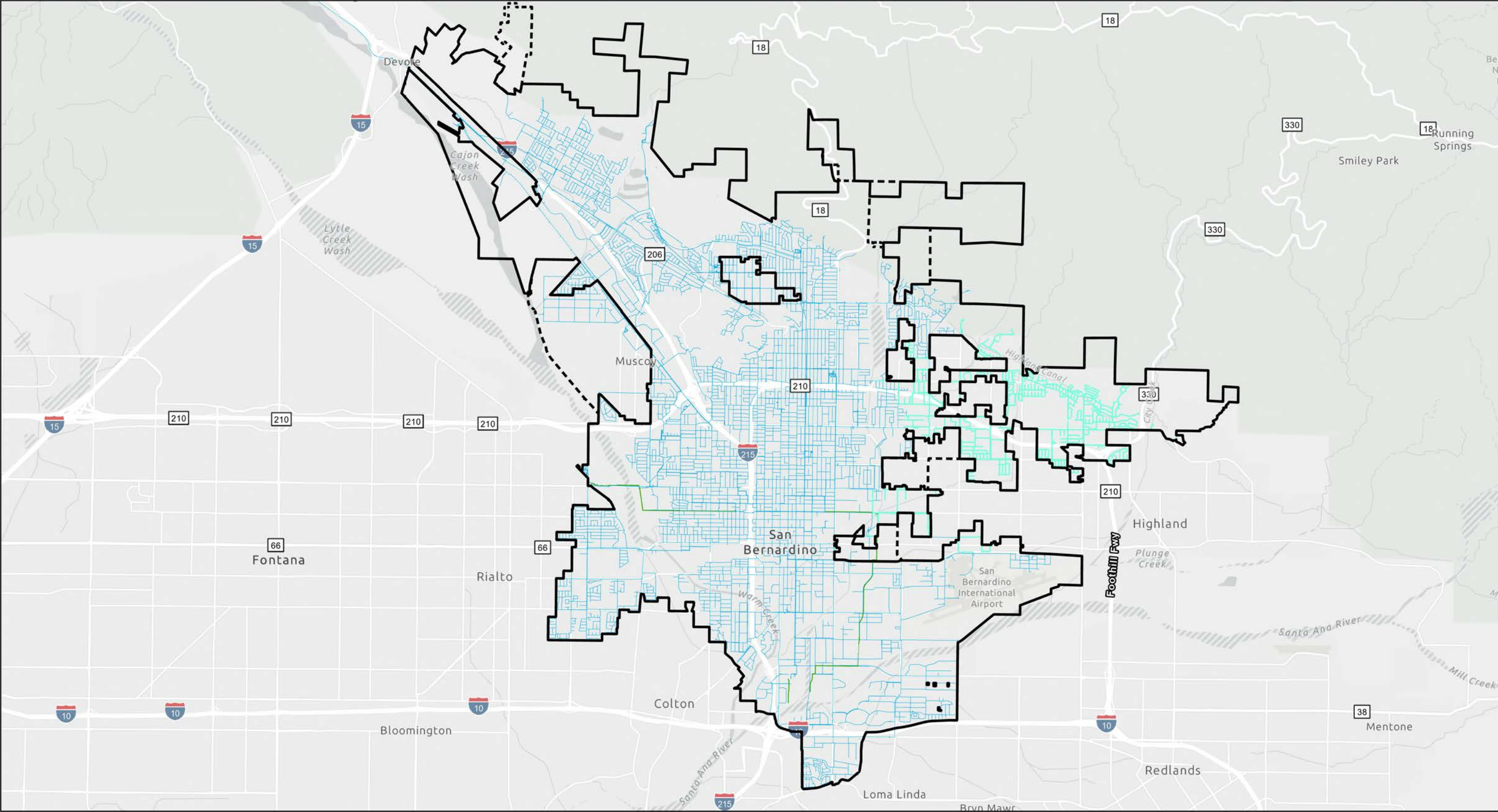
Water Provider	Service Area Population	Water Demand Factor per Capita (AFY/capita)	Total Water Demand (AFY)
San Bernardino Municipal Water Department	210,830 ¹³	-	42,182 ¹⁴
East Valley Water District	11,271	0.2	2,255
TOTALS	222,101 ¹⁵	-	44,437

The GPU area has an existing water demand of 44,437 AFY across the two retail water providers.

¹³ Table 8-1: DWR 3-1R Current and Projected Population. San Bernardino Municipal Water Department 2020 Urban Water Management Plan

¹⁴ Table 8-3: 20160-2020 Actual Water Use (AF). San Bernardino Municipal Water Department 2020 Urban Water Management Plan

¹⁵ City of San Bernardino 2020 Census Population



City of San Bernardino Existing Water System Facilities

San Bernardino, CA



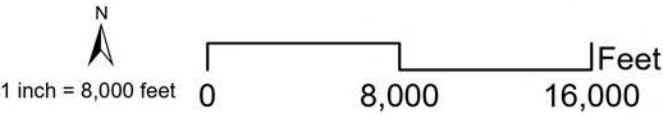
OWNERS

- East Valley Water District
- San Bernardino Valley Municipal Water District
- San Bernardino Municipal Water Department

- Sphere Of Influence
- City Boundary

Figure 6

11/18/2025



2.3.3 WATER MASTER PLANS

SBMWD's 2024 Water Master Plan serves as the Department's updated, systemwide planning document and provides a comprehensive evaluation of existing and future water system needs through 2040. The plan updates the hydraulic model using current GIS data, field verified information, and calibrated operational data to assess pressures, storage, pumping capacity, and fire-flow performance across all pressure zones. Within the 2024 update future demand projections were developed using the 2020 Integrated Regional Urban Water Management Plan, planned development information, and updated peaking factors. The Water Master Plan identifies system deficiencies under existing and projected conditions, evaluates pressure zone realignments, and recommends near-term and long-term capital improvements needed to maintain reliable service, meet fire-flow requirements, and support planned growth.

While SBMWD is the primary water service provider for most of the City, portions of northeastern San Bernardino fall within the East Valley Water District (EVWD) service area. EVWD's 2019 Water System Master Plan functions as the District's guiding infrastructure document and parallels with the purpose of SBMWD's 2024 Water Master Plan. The EVWD plan provides an updated hydraulic analysis of its potable water system, evaluates storage, pumping, and transmission requirements, and identifies needed pipeline replacements and capital projects to support future water demands. Together, these planning documents ensure coordinated, long-range water system planning for the areas of the City served by each provider.

Together, the SBMWD and EVWD master plans establish the long-range direction for water system operations and infrastructure upgrades within their respective service areas. Building on these planning frameworks, each agency also maintains a capital improvement program that identifies and prioritizes specific water system projects needed to address existing deficiencies, improve system reliability, and accommodate future growth.

2.3.4 WATER CAPITAL IMPROVEMENT PLANS

Oversight and maintenance of the City's water system is respectively managed by SBMWD and EVWD. Both SBMWD and EVWD manage their water Capital Improvement Plans (CIPs) through structured, multi-year programs that identify and prioritize necessary water infrastructure projects. SBMWD has long-term master planning improvements and EVWD uses a rolling five-year CIP integrated into its strategic plan, both are updated annually and tracked within each agency's fiscal record. See Table 5 for an example of several projects SBMWD and EVMWD have planned for Fiscal Year (FY) 2025-26.

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT (SBMWD)

For water infrastructure, SBMWD identifies needs such as pipeline replacements, reservoir rehabilitation, pump station upgrades, and treatment facility improvements. Each project is listed in the Capital Improvement

Program (CIP) section of the budget with detailed cost estimates, timelines, and funding sources¹⁶. Projects are prioritized based on system reliability, regulatory compliance, and growth demands. SBMWD also monitors progress through annual budget updates, ensuring that water capital projects align with long-term master planning reports and rate studies. This structured approach allows the department to maintain transparency and accountability while ensuring water delivery systems remain safe and efficient.

EAST VALLEY WATER DISTRICT (EVWD)

East Valley Water plans, funds, implements, and adapts its water system through a proactive, five-year Capital Improvement Program (CIP) detailed in its FY 2025–26 Budget and Active Projects documentation¹⁷. Specifically, the district integrates capital planning into its strategic financial framework, making annual CIP approvals alongside a long-range planning documents that aligns with its objectives. Altogether, EVWD’s CIP is extensive and accounts for the City’s current and prospective needs by combining strategic finance, regulatory compliance, asset resilience, and adaptive planning to ensure reliable, sustainable water services.

See Table 5 for a summary of several projects SBMWD and EVMWD have planned for Fiscal Year (FY) 2025-26

Table 5: Water System Capital Improvement Plans

Project Name	Project Summary
SBMWD – Annual Pipeline Replacement/Rehabilitation	Project involves the replacement of system wide problematic pipelines due to age, size, corrosion, and/or significant leak history.
SBMWD – 2300 Pressure Zone Infrastructure Improvement (Reservoir, Pump Station and Pipeline)	Project is the installation of a 1 million Gallon 2300 Pressure Zone tank, booster station and transmission pipeline.
SBMWD – Shandin Hills Booster Station Site Improvements	Project involves the design of site improvements at the existing Shandin Hills Booster Station.
EVWD – Tank/Reservoir Rehabilitation	The 2-million-gallon tank at Plant 140 is next in priority for rehabilitation according to a conditional assessment.

¹⁶ San Bernardino Municipal Water Department. June 2025. Operating And Capital Improvement Budget FY 2025-26. Found here:

<https://www.sbmwd.org/DocumentCenter/View/8990/Operating-and-Capital-Improvement-Budget-FY-2025-through-2026>

¹⁷ East Valley Water District. June 2025. 2025-26 Fiscal Year Budget. Found here:

<https://www.eastvalleywater.gov/media/3zlf0dfi/final-2025-budget-document-website.pdf>

Project Name	Project Summary
EVWD – Seismic Mitigation Main Replacement (Dwight/Sterling)	This project will replace approximately 34,700 linear feet of vulnerable mains in a 0.4 square mile project area bound by Pacific and Baseline Streets north and south, and Sterling Avenue and Dwight Way-east and west.
EVWD – Plant 134 Pretreatment Feasibility Study	This project will evaluate potential improvements to pre-treat raw water sourced from the Santa Ana River, prior to treatment at Plant 134

As shown in Table 5, several projects fall within the scope of capital improvement plans implemented by both the San Bernardino Municipal Water Department and East Valley Water District to maintain and strengthen the City's water system.

2.4 WATER QUALITY

2.4.1 EXISTING REGULATIONS

Numerous water quality regulations apply to the GPU and the associated new development and redevelopment that will occur with the proposed land uses.

BASIN PLAN FOR THE SANTA ANA REGION

The State Water Resources Control Board (SWRCB), through its nine Regional Water Quality Control Boards (RWQCBs), developed Regional Water Quality Control Plans (or Basin Plans) that designate beneficial uses and water quality objectives for California's surface waters and groundwater basins, as mandated by both the CWA and the state's Porter-Cologne Water Quality Control Act. Water quality standards are thus established in these Basin Plans and provide the foundation for the regulatory programs implemented by the state. The Santa Ana RWQCB's Basin Plan, which covers the City, specifically (i) designates beneficial uses for surface waters and ground waters, (ii) sets narrative and numerical objectives that must be met in order to protect the beneficial uses and conform to the state's antidegradation policy, and (iii) describes implementation programs to protect all waters in the Region. In other words, the Santa Ana RWQCB Basin Plan provides all relevant information necessary to carry out federal mandates for the antidegradation policy, 303(d) listing of impaired waters, and related Total Maximum Daily Loads (TMDLs), and provides information relative to National Pollutant Discharge Elimination System (NPDES) and Waste Discharge Requirement (WDR) permit limits.

TOTAL MAXIMUM DAILY LOADS (TMDLS)

Once a water body has been listed as impaired on the 303(d) list, a TMDL for the constituent of concern (pollutant) must be developed for that water body. A TMDL is an estimate of the daily load of pollutants that a water body may receive from point sources, non-point sources, and natural background conditions (including an appropriate margin of safety), without exceeding its water quality standard. Those facilities and activities that are discharging into the water body, collectively, must not exceed the TMDL. In general terms, Municipal Separate Storm Sewer System (MS4) and other dischargers within each watershed are collectively responsible for meeting the required reductions and other TMDL requirements by the assigned deadline.

Within the GPU area, a TMDL is proposed for Warm Creek for indicator bacteria. The TMDL is pending with an anticipated completion date of 2029.

Table 6: List of 303(d) Impairments and TMDLs

Water Body/Channel	List of 303(d) Impairments ¹	TMDL
Warm Creek (SAR Reach 5)	Indicator Bacteria	Pending TMDL (2029)

Source: Final CA 2020 California 303(d) List of Water Quality Limited Segments. Retrieved October 2020:

http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml

In addition, the California State Water Resources Control Board (State Board) has adopted the statewide Trash Provisions that requires implementation of Best Management Practices (BMPs) that mitigate or abate trash within Priority Land Use Areas (PLUs). PLUs are defined as, “high density residential, industrial, commercial, mixed urban, and public transportation stations.” The purpose of the Trash Provisions is to establish a statewide water quality objective that ensures the quality of surface waters that enter storm drains and eventually lead out to major water ways are free of trash. The City is currently undergoing the process to comply with these new Trash Provisions under the Track 1 status and would apply to SPA. All projects within GPU would be subject to requirements to implement full capture trash devices as part of the compliance with the State Trash Provisions.

COUNTY OF SAN BERNARDINO MS4 PERMIT, DRAINAGE AREA MANAGEMENT PLAN (DAMP) & LOCAL IMPLEMENTATION PLANS (LIP)

In January 2010, the Santa Ana RWQCB re-issued the San Bernardino County MS4 Storm Water Permit as WDR Order R8-2010-0036 (NPDES Permit No. CAS618036) to the County of San Bernardino, the incorporated cities of San Bernardino County, and the San Bernardino County Flood Control District within the Santa Ana Region. Pursuant to the 2010 MS4 Permit, the co-permittees were required to update and implement a Drainage Area Management Plan (DAMP) for its jurisdiction, as well as Local Implementation Plans (LIPs), which describe the Co-permittees’ urban runoff management programs for their local jurisdictions.

Under the City’s LIP, land development policies pertaining to hydromodification and low impact development (LID) are regulated for new developments and significant redevelopment projects. The use of LID Best Management Practices (BMPs) in project planning and design is to preserve a site’s predevelopment hydrology by minimizing the loss of natural hydrologic processes such as infiltration, evapotranspiration, and runoff detention. These land development requirements are detailed in the San Bernardino County Technical Guidance Document (TGD), effective September 2013, which cities have incorporated into their discretionary approval processes for new development and redevelopment projects. Projects are required to comply with the LID requirements in accordance with the LID hierarchy.

The LID hierarchy requires new developments and re-developments to implement BMPs under the LID hierarchy as described in the TGD. The LID hierarchy requires new projects to first infiltrate, then harvest and reuse, then biofilter stormwater runoff from their project site. In areas where infiltration is determined to be infeasible, either through infiltration testing or groundwater concerns, harvest and reuse BMPs may prove feasible for projects that incorporate ample landscaping and/or have high indoor toilet flushing demands (i.e. hotels). For areas that cannot infiltrate or utilize harvest and reuse systems, projects will be able to biofilter stormwater through biofiltration BMPs such as vegetated swales and bioretention basins.

2.4.2 EXISTING SURFACE WATER CONDITIONS

According to the Santa Ana River Basin Plan (Basin Plan), the channel with existing beneficial uses that serve GPU includes Warm Creek.

Table 7: List of Receiving Waters and Beneficial Uses

Upper Santa Ana River Basin – Warm Creek	
REC 1 – Water Contact Recreation	WILD – Wildlife Habitat
REC 2 – Non-Contact Water Recreation	WARM – Warm Freshwater Habitat
Sources: California Regional Water Quality Control Board, Santa Ana Region. 1995 Water Quality Control Plan for the Santa Ana River Basin (Updated 2016). Retrieved October 2020 from https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/2016/Chapter_3_Feb_2016.pdf	

Numeric water quality objectives have not been established for Warm Creek but narrative objectives for all surface waters in the Upper Santa Ana River Basin do apply.

Narrative objectives have been established for the following constituents¹⁸:

Inland Surface Waters

- | | | |
|--------------------------------|--|---------------------------------------|
| ▪ Algae | ▪ Inorganic Nitrogen, total | ▪ Radioactivity |
| ▪ Ammonia, un-ionized | ▪ Metals | ▪ Sodium |
| ▪ Boron | ▪ Methylene Blue-Activated Substances (MBAS) | ▪ Sulfate |
| ▪ Chemical Oxygen Demand (COD) | ▪ Nitrate | ▪ Sulfides |
| ▪ Chloride | ▪ Nitrogen, total inorganic | ▪ Surfactants (surface-active agents) |
| ▪ Chlorine, residual | ▪ Oil and Grease | ▪ Taste and Odor |
| ▪ Color | ▪ Oxygen, dissolved | ▪ Temperature |
| ▪ Dissolved Solids, total | ▪ Oxygen, dissolved | ▪ Total Dissolved Solids |

¹⁸ California Regional Water Quality Control Board, Santa Ana Region. 1995 Water Quality Control Plan for the Santa Ana River Basin (Updated 2016). Retrieved October 2020, from http://www.swrcb.ca.gov/santaana/water_issues/programs/basin_plan/index.shtml

- Filtrable Residue, total
- Floatables
- Fluoride
- Hardness (as CaCO₃)
- Pathogen Indicator Bacteria
- pH
- Total Filtrable Residue
- Total Inorganic Nitrogen
- Toxic Substances
- Turbidity

2.4.3 EXISTING GROUNDWATER CONDITIONS

REGIONAL GROUNDWATER CONDITIONS

The City lies primarily within the Bunker Hill Basin, a large groundwater basin that is located at the top of the Santa Ana River Watershed and receives runoff from the headwaters of the Santa Ana River, Mill Creek, Lytle Creek and other smaller tributaries. The Bunker Hill Basin serves as the primary water source for the City as well as numerous other water suppliers and individual water users. The Bunker Hill Basin extends over 120 square miles across San Bernardino Valley. The basin contains an estimated 3.5- to 5.0 million acre-feet of groundwater of which 1.5 million acre-feet is extractable.

The Bunker Hill Basin is managed by the San Bernardino Valley Water Conservation District.

The City also resides within the Rialto-Colton groundwater basin covering the southwestern portion of City. The basin contains an estimated 2.5 million acre-feet of groundwater of which 210,000 acre-feet is extractable. The Rialto-Colton groundwater basin is managed by the San Bernadino Valley Municipal Water District, the City of Rialto and the West Valley Water District.

WATER QUALITY OBJECTIVES

Specific water quality numeric objectives have been established for the San Bernardino County groundwater management zones that include the City of San Bernardino. In the Bunker Hill Basin, two separate groundwater management zones apply to the City, each with their own water quality objectives.

Table 8: Groundwater Basin Water Quality Objectives

Groundwater Management Zone	Total Dissolved Solids Objective (mg/L)	Nitrate (as N) Objective (mg/L)
Bunker Hill - A	310	2.7
Bunker Hill - A	330	7.3
Colton	410	2.7
Rialto	230	2.0

Source: Santa Ana RWQCB. Region 8 Basin Plan Map- Groundwater Management Zones. June 2019

In addition to specific numeric water quality objectives, narrative objectives for all groundwater basins in the Upper Santa Ana River Basin also apply to the Bunker Hill Basin and Rialto-Colton basins. Narrative objectives have been established for the following constituents:

- Arsenic
- Boron
- Total Dissolved Solids
- Hardness as CaCO_3
- Oil and Grease
- Sodium
- Total Inorganic Nitrogen
- Bacteria, Coliform
- Chloride
- Total Filtrable Residue
- Metals
- pH
- Sulfate
- Toxic Substances
- Barium
- Color
- Fluoride
- Nitrate
- Radioactivity
- Taste and Odor

3. THRESHOLDS OF SIGNIFICANCE

California Environmental Quality Act (CEQA) significance criteria are used to evaluate the degree of impact caused by a development project on environmental resources such as hydrology and water quality. According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would impact any of the items listed below.

3.1 HYDROLOGY & WATER QUALITY THRESHOLDS (CEQA CHECKLIST SECTION X)

Would the Project:

- A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
- B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- C. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - (i) Result in a substantial erosion or siltation on- or off-site;
 - (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
 - (iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - (iv) Impede or redirect flood flows?
- D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
- E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

3.2 UTILITIES AND SERVICE SYSTEMS THRESHOLDS (CEQA CHECKLIST SECTION XIX)

Would the Project:

- A. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?
- B. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?
- C. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the

project's projected demand in addition to the provider's existing commitments?

Should the answers to these environmental factors prove to be a potentially significant impact, mitigation measures would be required to reduce those impacts to a less-than-significant threshold.

4. ENVIRONMENTAL IMPACTS

The purpose of the proposed conditions evaluation is to determine potential infrastructure impacts associated with the proposed Specific Plan as compared to the full build out of the existing General Plan (GP) and zoning associated with drainage, sewer and water systems.

4.1 PROPOSED LAND USE CHANGES AND IMPACT ASSESSMENT APPROACH

As noted in Section 1, the proposed Specific Plan land use will increase residential units by up to 34,143 DUs and non-residential square footage will increase by approximately 41,168,362 million square feet (SF). See summary below for the methodology to assess the infrastructure systems between current and proposed land uses:

- **Drainage Assessment:** Compare the current GP land uses to the proposed land uses Identify the current processes to implement drainage improvements consistent with the approved master plan of drainage.
- **Water and Sewer Assessments:** Based on the land uses associated with the GPU, sewer and water flows are anticipated to change as compared to the existing conditions and current GP. The current GP was utilized in both the water and sewer infrastructure master planning as well as the 2020 UWMP; therefore, the comparison of current GP and proposed GPU will assist in determining any impacts to existing and proposed sewer and water infrastructure.

Additional details are provided below for drainage, sewer and water and the anticipated impacts on infrastructure.

4.2 PROPOSED DRAINAGE CONDITION

The purpose of the proposed conditions evaluation is to review areas throughout the City subject to proposed land use changes and identify and evaluate the process by which storm drain improvements will occur associated with the redevelopment areas associated with the GPU.

The proposed land use changes will focus on improving commercial corridors, creating mixed-use corridors and mixed-use centers. The commercial core areas are located throughout the City and mostly developed but do include some vacant lots that would result in new development. The proposed mix-used corridors will generally reside along the 210/Highland corridor in the east/west direction and along S Mount Vernon Ave in the north/south direction. These mix-use corridors are currently built-out and would provide opportunities for redevelopment. Similarly, the mixed-use centers are primarily located along Highland Ave, S. E St and one adjacent to CSU San Bernardino and would also provide opportunities for redevelopment. When new development on vacant lots occurs or properties are redeveloped, it provides opportunities for upgraded flood control improvements, on-site detention, reduction of localized ponding in the adjacent streets and water quality treatment.

4.2.1 PROPOSED HYDROLOGY CONDITIONS

The proposed land uses associated with the buildout of the GPU will result in changes including infill development of vacant lots, changes in impervious conditions, reduction in large parking lots replaced with mixed use and parking structures, and increased landscaping throughout the area. The proposed changes will result in changes in peak flow runoff, runoff volumes, and water quality.

Of critical importance is the continued adherence to the Master Plans of Drainage prepared by San Bernardino County Flood Control District and implemented by the City of San Bernardino throughout the City. The GPU area is covered by Comprehensive Storm Drain Plan No. 3, No 6 and 7 (San Bernardino County Flood Control District, Zone 2 & 3, 1982) and City staff continue to implement the plan as development and redevelopment projects trigger impacts or requirements drainage improvements. Due to the age of the document, all hydrology calculations must be re-calculated using the most recent hydrology methods to determine pipe sizing, improvements and development impact fees. The City of San Bernardino also has their own Storm Drain Policies and Procedures that establish criteria and acceptable practices for storm drain design¹⁹. It is the intent to maintain all runoff within the underground storm drain system (except for street flow conveyance reaching collection points) for a 10-year frequency in all areas. Major drains (36" or larger) should maintain all runoff in the system for a 25-year storm event as the minimum

¹⁹ City of San Bernardino, Department of Public Works/City Engineer Storm Drain Design Policy (1988)

criteria and 50-year and 100-year should be confined within the curb system and street right-of-way respectively. As the individual projects initiate redevelopment of the existing property, the City will require the applicant evaluate the existing versus proposed hydrology conditions. Dependent upon the impacts and the recommended drainage facilities directly serving the project and the regional facilities serving the area, the project will either be required to implement direct improvements or pay a development impact fee. The fees are then put into restricted funds and are part of CIP Capital Improvement Program to fund the local and regional improvements consistent with Comprehensive Storm Drain Plan No. 3, 6 & 7. All projects are subject to this process and the development of the vacant lots may require on-site detention systems to match existing peak flows. This may not be required depending upon the specific drainage improvement(s) identified in the Comprehensive Storm Drain Plan.

The majority of runoff within the City's storm drain network discharges into fully improved concrete lined channels owned and operated by the San Bernardino County Flood Control District. These channels are not susceptible to scour or erosion. However, some storms do discharge into more natural systems such as Cajon Creek Wash, Lytle Creek Wash and Twin Creek Levee. All discharges to natural systems are subject to the hydromodification requirements as part of the county-wide MS4 Permit. Hydromodification requirements include various detention and/or retention controls to reduce the effects of increased peak flow and volumes associated with new or redevelopment projects.

4.2.2 HYDROLOGY IMPACTS

The following impact assessments are based on the significance criteria established in Section 3.1 for hydrology.

Impact B: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Impact Analysis: The GPU will not impact any groundwater recharge areas throughout the City. New development and redevelopment under the Proposed GPU may allow for increased recharge of groundwater through the implementation of infiltration BMPs associated with the MS4 permit. All projects incorporating infiltration BMPs will require pre-treatment to protect groundwater quality. The projects within the GPU will not directly pump groundwater from the basin. All water will be provided by the SBMWD, and water supply assessments are handled separately within the EIR. Therefore, no impacts to groundwater supplies, recharge or sustainable groundwater management are anticipated.

Impact C: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or

river or through the addition of impervious surfaces, in a manner which would:

- (i) Result in a substantial erosion or siltation on- or off-site;***
- (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;***
- (iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or***
- (iv) Impede or redirect flood flows?***

Impact Analysis: Drainage patterns from proposed conditions will largely mimic drainage patterns from the existing conditions largely due to the built-out street network and existing development constraints. The development of vacant lots will also follow localized drainage patterns and tie into the local drainage system although off-site drainage improvements may be required to reduce localized ponding. Connection points and small private laterals will change with the proposed condition, but overall drainage patterns will remain similar. In certain areas, additional catch basins may be required, or storm drains may require upsizing based on the requirements of the Comprehensive Storm Drain Plan # 3, 6 & 7. Development impact fees will be collected to be used for capital improvement projects related to drainage based on the priority set by the City of San Bernardino Public Works and based on the consistency with the master plan of drainage.

For the vacant lots primarily located throughout the GPU area, impervious conditions and peak flow runoff will likely increase but the City has policies in place to require detention systems associated with new development and redevelopment projects to mitigate any flooding concerns thereby reducing the potential for increased erosion or siltation downstream or increasing runoff downstream. Any developments proposed within a FEMA floodway will be required to follow FEMA criteria and will likely include processing a Conditional Letter of Map Revision (CLORM) or a Letter of Map Revision (LOMR). A LOMR officially revises the Flood Insurance Rate Map (FIRM) to reflect changes in floodplains, floodways, or flood elevations due to completed projects. All drainage facilities will be sized in accordance with proper flood control requirements. Overall, impervious conditions and peak flow runoff are likely to remain similar to existing conditions due to the largely built out nature of the City. Vacant lots will increase impervious conditions but likely to include on-site detention and Low Impact Development BMPs consistent with the local MS4 Permit to offset impacts while redevelopment projects will likely result in more landscaping and LID BMPs over existing conditions.

In addition, the majority of the flood control channels within the city are concrete lined and not susceptible to scour or erosion (HCOC Exempt). For those channels (or washes) that are subject to potential erosion and scour,

upstream hydromodification controls are required. Therefore, erosion or siltation, increased runoff rates, and capacity of storm drain lines are considered less than significant impacts based factors noted above.

4.3 SEWER INFRASTRUCTURE

4.3.1 EXISTING VERSUS PROPOSED SEWER FLOWS (AVERAGE DAILY DEMANDS)

In order to evaluate changes in sewer flows, proposed flows for the GPU growth must be analyzed. The increase growth of residential units and densities were obtained as well as non-residential square footages and were assigned a water duty factor from the SBMWD 2015 Water Master Plan based on general plan/zoning. See Section 4.4.1 for proposed water demand calculations.

Once a proposed water demand was determined for the proposed GPU growth, approved water to wastewater ratios from the SBMWD 2019 Sewer Master Plan were used to convert daily water demand to sewer demand in order to establish sewer demands for the GPU.

Table 9: Proposed Growth Sewer Demands

Land Use	Water Demand (GPD)	Return to Sewer Ratio ²⁰	Sewer Demand (GPD)	Sewer Demand (MGD)
Single Family	2,241,060	0.66	1,479,099	1.48
Multi-Family	5,645,345	0.64	3,613,020	3.61
Commercial, Office, Institutional	1,911,211	0.85	1,624,529	1.62
Industrial	809,760	0.85	688,296	0.69
TOTALS	10,607,377	-	7,404,946	7.4

Full implementation of the proposed land use changes associated with the proposed GPU has the potential to increase sewer flows by 7.4 MGD within the limits of the GPU. These flow estimates are for infrastructure planning purposes only and are considered conservative.

4.3.2 PROPOSED SEWER/WASTEWATER SYSTEM

As shown above, sewer flows associated with the proposed growth outlined in the GPU are anticipated to increase by 7.4 MGD over existing conditions. In 2020, the SBMWD completed a Water Reclamation Plant Facilities Assessment and Master Plan that provided wastewater flow projections for the WRP service area. As mentioned, the SBMWD and EVWD service areas are tributaries to the WRP and are included within this analysis. Using each City's respective current General Plan and each agencies' respective UWMP, the Facilities Assessment

²⁰ San Bernardino Municipal Water Department 2019 Sewer Master Plan Update. Section 4.3.2.1 Water to Wastewater Ratios.

and Master Plan identified a projected wastewater demand of 26.4 MGD²¹ at full build out. The WRP has a treatment capacity of 33 MGD. The newly constructed Sterling Natural Resources Center has a treatment capacity of 8 MGD.

Together, the existing WRP and the SNRC provide sufficient treatment capacity to accommodate wastewater flows generated under the proposed GPU. Based on the projected net increase of approximately 7.4 MGD and the WRP projected planning estimate of approximately 26.4 MGD identified in the Water Reclamation Facility Assessment Master Plan, total flows would remain within the combined treatment capabilities of the regional system.

Additionally, each respective sewer agency completed a Sewer Master Plan update in 2019. Both SBMWD and EVWD developed a master plan that evaluated hydraulic capacities and d/D ratios for their respective service areas. Each Sewer Master Plan evaluated their system based on existing conditions and full build out scenarios from the current GP. A list of recommended improvement to each agencies' respective systems were developed to look in the near and long term to support full build out scenarios.

It is recommended that focused sewer flow modeling based on site-specific sewer flow monitoring data occur within the GPU area for any particular line impacted by future projects to confirm adequate capacity or identify the appropriate size line to deliver flows to the nearby trunklines. Any upsizing of sewer lines should be adequately sized for the full buildout scenario for the proposed GPU.

4.3.3 SEWER/WASTEWATER IMPACTS

The following impact assessments are based on the significance criteria established in Section 3.2 for wastewater.

Impact A. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Impact Analysis: The estimated increase of 7.4 MGD in sewer flows under the proposed GPU is not anticipated to exceed the current capacity of SBMWD's Water Reclamation Facility which has a treatment capacity of 33 MGD and EVWD's Sterling Natural Resources Center which has a treatment capacity of 8 MGD. There is sufficient capacity to accommodate the full build out of the proposed growth outlined in the GPU.

SBMWD and EVWD maintain a regularly updated Sewer Master Plan and CIP and has a process in place to assess local sewer impacts on a project-by-project basis. Both agencies' most recent Sewer Master Plan update occurred in 2019.

The 2019 Sewer Master Plan will continue to serve as a sewer infrastructure planning tool to make informed decisions about when CIP projects are warranted. As noted above, SBMWD and EVWD regularly update its CIP project list to prepare and budget for upcoming infrastructure improvements across a 5-year planning horizon as well as ensure the sewer system is functioning effectively. Therefore, at the GPU scale, the SBMWD's and EVWD's Sewer Master Plan and CIP process adequately prioritizes necessary projects as developments come online.

Construction impacts associated with sewer infrastructure to support development within GPU would primarily be confined to trenching for utility lines and connections to public infrastructure. A Construction Management Plan, which would ensure safe pedestrian access as well as emergency vehicle access and safe vehicle travel in general, will be implemented to reduce any temporary pedestrian and traffic impacts occurring as a result of construction activities. Moreover, when considering impacts resulting from the installation of any required sewer infrastructure, all impacts are of a relatively short-term duration and would cease to occur once the installation is complete. There will also be additional requirements during construction such as development of a project specific SWPPP that would prevent water quality impacts and comply with the State's Construction General Permit. Therefore, impacts from installation of new sewer infrastructure lines would be less than significant.

Impact C. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Impact Analysis: As described above, full buildout of the City's General Plan will result in a total sewer generation (33.8 GPD) which exceeds the current capacity of the WRP (33 MGD). In order to maintain sufficient capacity, East Valley Water District constructed the Sterling Natural Resource Center which is a tertiary wastewater treatment plant facility capable of handling up to treatment of wastewater up to 8 MGD. Diversion of up to 8 MGD to this new facility will allow the WRP to maintain sufficient capacity for all future projected flows.

Through updating appropriate master plans, long-term capital improvement budgets, and plant capacity assessments, it is anticipated SBMWD and EVWD will be able to receive increases in flows consistent with the buildout proposed. No impacts are anticipated to service provider capacities.

4.4 WATER INFRASTRUCTURE & SUPPLY

4.4.1 EXISTING VERSUS PROPOSED WATER DEMANDS

In order to evaluate changes in sewer flows, proposed flows for the GPU growth must be analyzed. The increase growth of residential units and densities were obtained as well as non-residential square footages and were assigned a water duty factor from the SBMWD 2015 Water Master Plan based on general plan/zoning

Table 10: Proposed Residential Growth Water Demands

Land Use	Res'd (DUs)	Max DU/Ac	Res'd Acres	Water Duty Factor (GPD/Acre) ²²	Proposed Water Demand (GPD)	Proposed Water Demand (AFY)
Single Family	9,110	24	380	380	2,241,060	2,510
Multi-Family	25,033	31	808	808	5,645,345	6,324
TOTALS	34,143	-	-	-	7,886,405	8,834

Table 11: Proposed Non-Residential Growth Water Demands

Land Use	Building Area (SF)	Building Area (Acres)	Water Duty Factor (GPD/Acre) ¹⁵	Proposed Water Demand (GPD)	Proposed Water Demand (AFY)
Commercial, Office, Institutional	25,983,987	596.51	3,204	1,911,211	2,141
Industrial	15,184,374	348.58	2,323	809,760	907
TOTALS	41,168,362	-	-	2,720,972	3,048

Full implementation of the proposed land use changes associated with the proposed GPU has the potential to increase water demands by 11,882 AFY. This represents a 267% increase over existing conditions. These flow estimates are for infrastructure planning purposes only and are considered conservative.

²² San Bernardino Municipal Water Department 2015 Water Facilities Master Plan: Table 4-2 Water Duty Factors

4.4.2 PROPOSED WATER SYSTEM EVALUATION

As shown above, water demands associated with the full buildout of the GPU would result in an increase of 11,882 AFY (10.6 MGD) over existing conditions. In order to evaluate the overall impact of the increased water demand, it requires a review of the 2015 & 2024 SBMWD Water Master Plan as well as the 2019 EVWD Water Master Plan.

Both SBMWD and EVWD developed a Water Master Plan that evaluated hydraulic capacities, storage/supply facilities, fire flow requirements and pumping capabilities within their respective service areas. Each Water Master Plan evaluated their system based on existing conditions and full build out scenarios from the current GP. A list of recommended improvements to each agencies' respective systems were developed to look in the near and long term to support full build out scenarios. Incorporation of the recommendations identified from the existing conditions and the 5-year CIP allow for the system to perform adequately for the buildout projections.

The City also has policies in place to require improvements to water infrastructure as part of new development and redevelopment occurs. The City has the discretion to require additional water hydraulic capacity studies associated with new and redevelopments and it currently requires site specific studies to determine a project's impact throughout the water system. Based on the results of these studies, the City has policies to require development fees to help support infrastructure improvements required for the water system.

4.4.3 PROPOSED WATER SUPPLY

The full buildout of the current GP would increase water demand by 11,882 AFY (10.6 MGD) over existing conditions.

According to the SBMWD 2020 UWMP²³, anticipated water demands will increase from 2025 through 2045 from 41,115 AF to 45,478 AF respectively and projected supply will increase over the same time frame from 48,585 AF to 53,603 AF mostly through additional pumping of the Bunker Hill Groundwater Basin. The net increase in water demand between 2025 and 2045 is approximately 4,363 AFY.

According to the EVWD 2020 UWMP²⁴, anticipated water demands will increase from 2025 through 2045 from 19,702 AF to 22,283 AF respectively and projected supply will increase over the same time frame from 22,657 AF to 25,625 AF mostly through additional pumping of the Bunker Hill Groundwater Basin. The net increase in water demand between 2025 and 2045 is approximately 2,581 AFY.

²³ San Bernardino Municipal Water Department 2020 Urban Water Management Plan

²⁴ East Valley Water District 2020 Urban Water Management Plan

The implementation of the GPU would utilize an additional 11,882 AFY and is anticipated to be greater than the total planned growth outlined in the agencies' 2020 UWMP.

GROUND WATER RECHARGE AND SUPPLY SUSTAINABILITY

Groundwater pumping from the San Bernardino Basins is the primary source for water supply for both agencies. This shared resource is covered by the Western-San Bernardino Judgement which does not limit groundwater pumping by any agency within the SBVMWD service area. Each agency can pump as much water as they need to meet water demands. If total pumping by all agencies exceeds the safe yield set for the groundwater basin, SBVMWD is responsible for replenishing the San Bernardino Basins. Therefore, there is sufficient water supply for the proposed growth in the GPU. Each respective agency will need to consider the proposed growth outlined in the GPU and include in the 2025 UWMPs.

Furthermore, Part 1 Chapter 3.6 of SBVMWD's Integrated Regional Urban Water Management Plan (IRUWMP)²⁵ describes the wholesale District's current and planned water supply projects and programs. These integrated basin-replenishment programs support long-term supply reliability throughout the San Bernardino Basin Area²⁶. The projects include multiple recharge spreading basins, stormwater capture sites, and recycled water recharge pipelines designed to increase groundwater storage and reduce dependence on imported water. Altogether, these replenishment actions ensure that stakeholders including retail agencies such as SBMWD and EVWD draw from a basin that is actively managed for long-term sustainability.

Seeing that the GPU relies on groundwater pumping consistent with the Western-San Bernardino Judgment, the documented recharge and recycled water programs provide credible support that sufficient supply exists to accommodate future development.

RECYCLED WATER SYSTEM

As noted under existing conditions, no recycled water is available within the GPU at this time. However, as mentioned earlier, EVWD recently completed the construction of the Sterling Natural Resources Center that will treat wastewater and create tertiary treated recycled water. Additionally, SMBWD is currently constructing a recycled water project called the Clean Water Factory (CWF) which will be a Title 22-compliance tertiary treatment facility that will supply recycled water.

²⁵ San Bernardino Valley Municipal Water District. 2021. Integrated Regional Urban Water Management Plan. Found here: https://wuedata.water.ca.gov/getfile?filename=/public%2Fuwmp_attachments%2F8834867179%2F2020%20IRUWMP_Part%201%20-%20Regional%20Context_Final.pdf

²⁶ San Bernardino Valley Municipal Water District. San Bernardino Valley Projects. 9 September 2025. Found here: <https://storymaps.arcgis.com/stories/6189f605ac984110b57d0a9d08e22cc4>

The CWF and the Sterling Natural Resources Center facility is anticipated to be used to recharge Bunker Hill Basin. Implementation of these facilities will not significantly impact potable water demand use but will increase potable water supply within Bunker Hill Basin by significant greater volume than the.

4.4.4 WATER SYSTEM IMPACTS

The following impact assessments are based on the significance criteria established in Section 3.2 for water systems.

Impact A **Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

Impact Analysis:

Implementation of proposed land uses within the GPU will have the potential for water demands to increase by 11,882 AFY. Implementation of projects consistent with the land use will require the construction of new water infrastructure where existing water lines are not sufficient to accommodate the increased demands. These determinations will be made on a project-by-project basis and include site specific fire flow tests and hydraulic pressure analyses. The proposed improvements may include upsizing water lines on-site and off-site and additions of boosters in low pressure areas. In those conditions, where hydraulic or capacity impacts affect other service areas, the developer is responsible for paying for the impacts through their connection fees. In addition, the 2025 UWMPs will be required to incorporate the proposed land use changes into their water demand and supply projections out to 2050.

The construction of the on-site and off-site water infrastructure and associated improvements will primarily include trenching for the pipelines, along with water quality testing following pipeline installation. All construction will be performed in accordance with the Construction General Permit and all associated requirements. Any work that may affect services to the existing water lines will be coordinated with the City and GSWC. When considering impacts resulting from the installation of any required water infrastructure, all construction-related impacts are of a relatively short-term duration and would cease to occur once the installation is complete. Therefore, project impacts on water associated with construction activities would be less than significant.

Furthermore, a Construction Management Plan or equivalent, which would ensure safe pedestrian access as well as emergency vehicle access and safe vehicle travel in general, will be implemented to reduce any temporary pedestrian and emergency and other vehicle traffic impacts occurring as a result of construction activities. Moreover, when considering impacts resulting from the installation of any required water infrastructure, all impacts are of a relatively short-term duration and would cease to occur once the installation is complete.

Therefore, project impacts on water associated with construction activities would be less than significant.

Once the improvements are complete, no additional environmental impacts are anticipated for the operation and on-going aspects of the water system.

***Impact B* Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?**

Impact Analysis:

As noted above, the increased growth of 11,882 AFY exceed the total anticipated growth outlined in the EVWD and SBMWD 2020 UWMP. However, the Groundwater Basin, a shared resource, is covered by the Western-San Bernardino Judgement which does not limit groundwater pumping by any agency within the San Bernardino Valley Municipal Water District (SBVMWD) service area. Each agency can pump as much water as they need to meet water demands. If total pumping by all agencies exceeds the safe yield set for the groundwater basin, SBVMWD is responsible for replenishing the San Bernardino Basins. Therefore, there is sufficient water supply for the proposed growth in the GPU. Each respective agency will need to consider the proposed growth outlined in the GPU and include in the 2025 UWMPs.

In addition, when CEQA-threshold project categories are triggered, the City is also able to track water supply on a project by project level via Water Supply Assessments (SB 610) to ensure adequate supplies exist to support new development.

4.5 WATER QUALITY

4.5.1 CONSTRUCTION ACTIVITIES

Clearing, grading, excavation and construction activities associated with implementation of GPU may impact water quality due to sheet erosion of exposed soils and subsequent deposition of particulates in local drainages. Grading activities, in particular, lead to exposed areas of loose soil, as well as sediment stockpiles, that are susceptible to uncontrolled sheet flow. Although erosion occurs naturally in the environment, primarily from weathering by water and wind action, improperly managed construction activities can lead to substantially accelerated rates of erosion that are considered detrimental to the environment.

CONSTRUCTION GENERAL PERMIT

Prior to the issuance of grading permits, the project applicants shall provide evidence that the development of projects with one acre or greater of soil disturbance shall comply with the most current Construction General Permit (CGP) and associated local National Pollutant Discharge Elimination System (NPDES) regulations to ensure that the potential for soil erosion is minimized on a project-by-project basis. In accordance with the updated CGP (Order No. 2022-0057-DWQ), the following Permit Registration Documents are required to be submitted to the SWRCB prior to commencement of construction activities:

- Notice of Intent (NOI)
- Risk Assessment (Standard or Site-Specific)
- Particle Size Analysis (if alternative risk assessment is performed)
- Site Map
- SWPPP
- Active Treatment System (ATS) Design Documentation (if ATS is determined necessary)
- Annual Fee & Certification

In accordance with the existing and updated CGP, a construction SWPPP must be prepared and implemented at all construction projects with 1 acre or greater of soil disturbance, and revised as necessary, as administrative or physical conditions change. The SWPPP must be made available for review upon request, shall describe construction BMPs that address pollutant source reduction, and provide measures/controls necessary to mitigate potential pollutant sources. These include, but are not limited to: erosion controls, sediment controls, tracking controls, non-storm water management, materials & waste management, and good housekeeping practices.²⁷

²⁷ California Stormwater Quality Association. (2003, January). *Stormwater Best Management Practices Handbook for New Development and Redevelopment*. Retrieved March 20, 2020, from <http://www.cabmphandbooks.com>

Prior to commencement of construction activities throughout the City, the project-specific SWPPP(s) will be prepared in accordance with the site-specific sediment risk analyses based on the grading plans, with erosion and sediment controls proposed for each phase of construction for the individual project. The phases of construction will define the maximum amount of soil disturbed, the appropriately sized sediment basins and other control measures to accommodate all active soil disturbance areas and the appropriate monitoring and sampling plans.

4.5.2 POST-CONSTRUCTION ACTIVITIES

With the proposed land use changes, development resulting from the proposed GPU may result in long-term impacts to the quality of storm water and urban runoff, subsequently impacting downstream water quality. Developments can potentially create new sources of runoff pollutants through changing land uses. As a consequence, developments within GPU may have the potential to increase the post-construction pollutant loadings of certain constituent pollutants associated with the proposed land uses and their associated features, such as landscaping and plaza areas.

To help prevent long-term impacts associated with land use changes and in accordance with the requirements of the City and consistency with San Bernardino MS4 permit (ORDER NO. R8-2010-0036, NPDES NO. CAS618036), new development and significant redevelopment projects must incorporate LID/site design and source control BMPs to address post-construction storm water runoff management.

Since the GPU does not include a specific or detailed development plan, project specific WQMP(s) will not be required at this time. Future project specific WQMPs, preliminary and/or final, will be prepared consistent with the prevailing terms and conditions of the City's requirements and San Bernardino County Public Works templates and forms²⁸, OC DAMP, and Model WQMP at the time of project application. Moreover, LID and water quality treatment solutions prescribed in project specific WQMPs shall be designed to support or enhance the regional BMPs and efforts implemented by the City as part of their City-wide efforts to improve water quality.

INFILTRATION BMPS

It is anticipated that infiltration BMPs associated with the individual projects within GPU will be incorporated and feasible based on regional soil conditions and high priority to promote infiltration into the Bunker Hill Basin. Potential infiltration BMP's include drywells which are well suited to infiltrate water deeper and below upper soils which may not be as conducive to infiltration; infiltration trenches which are well suited for edges of parking lots and landscape buffers;

²⁸ San Bernardino County Department of Public Works WQMP Templates and Forms. Found here: <http://cms.sbcounty.gov/dpw/Land/WQMPTemplatesandForms.aspx>

bio-infiltration facilities integrated into landscaping and edge conditions and permeable pavement to replace traditional impervious surfaces.

HARVEST AND REUSE BMPS

Based on the on-going need for water conservation practices and reduction in potable water uses, harvest and reuse BMPs should be considered. Potential harvest and reuse BMPs include rain barrels and cisterns with filters and pump for distribution. For high density projects, graywater systems integrated with stormwater capture and reuse can also be considered to collect graywater (water from bathroom sinks, showers, bathtubs, clothes washers) and stormwater and once treated, it can be for non-potable uses such as irrigation, toilet flushing, washing and cooling.

CONSISTENCY WITH THE STATE-WIDE TRASH TMDL

As part of the state-wide mandate to reduce trash within receiving waters, the City is required to adhere to the requirements of the amended CA Trash Total Maximum Daily Load (TMDL) from July 2016 onwards. The requirements will include the installation and maintenance of trash screening devices at all public curb inlets, grate inlets and catch basin inlets. The trash screening devices must be approved by the local agency and consistent with the minimum standards of the Trash TMDL.

All redevelopment projects in GPU will be required to meet all trash capture requirements consistent with the State-wide Trash TMDL.

4.5.3 WATER QUALITY IMPACTS

The impact assessments are based on the significance criteria established in Section 3.2 for water quality.

Impact A Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Impact Analysis:

The Construction General Permit (statewide regulation) and the San Bernardino MS4 permit (regional permit as required under NPDES) are designed to protect receiving water quality standards. Waste discharge requirements (WDR's) are defined for specific individual developments/entities that are required to comply with additional regulations (e.g. the industrial general permit) prior to occupancy. Through compliance with State and Local regulations covering construction and post-construction activities, storm water runoff impacts to local receiving waters will be effectively mitigated. Construction sites of 1 acre or larger will be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the Statewide CGP and subject to the oversight of the Santa Ana Regional Water Quality Control Board. The SWPPP must include BMPs to reduce or eliminate erosion

and sedimentation from soil disturbing activities, as well as proper materials and waste management to reduce the potential for pollutants to enter receiving waters. Monitoring and reporting on SMARTS are also required compliance measures within the CGP. In terms of post-construction related impacts, the incorporation of site design, LID features and BMPs as required under the San Bernardino MS4 Permit are designed to remove pollutants of concern up to specific size storm events related to land development and designed to protect water quality. Therefore, impacts to surface water and groundwater quality are considered less than significant.

Impact D In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Impact Analysis: The GPU area is not susceptible to tsunami inundation due to its inland location, situated approximately 100 miles from the Pacific Ocean. In addition, regional topography provides substantial physical barriers that prevent tsunami waves from reaching the City. The City also does not contain or border large, enclosed waterbodies capable of producing seiche activity. As a result, there is no anticipated risk of tsunami or seiche inundation affecting the GPU.

Portions of the City are located within FEMA designated 100-year flood hazard areas (Zones A or AE), which requires flood insurance and indicates a 1% annual chance of flooding. Future development within these mapped flood zones would be subject to FEMA requirements, including minimum pad elevations, setbacks, and flood standards, to ensure structures are adequately protected from inundation. Compliance with these mandatory regulations would reduce potential flood related pollutant releases to less than significant levels.

Impact E Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Impact Analysis: The City's groundwater supplies are from the Bunker Hill Basin, which is managed by the San Bernardino Valley Water Conservation District and San Bernardino Valley Municipal Water District. As described in the 2020 UWMP, these agencies have taken proactive actions to sustainably manage the groundwater basin. These actions will enable the Districts to rely on the Bunker Hill Basin as a reliable source of supply.

The proposed GPU will not impact groundwater management within the Bunker Hill Basin from a water supply or quality perspective. New development and redevelopment under the proposed GPU may allow for increased recharge of groundwater through the implementation of infiltration BMPs associated with the MS4 permit. In addition, through this BMP selection process under MS4 requirements, groundwater quality will also be protected to ensure no high pollutant land uses infiltrate that would negatively impact groundwater quality, beneficial uses or water quality objectives as stated in the Water Quality Control Plan. Therefore, no impacts to sustainable groundwater management are anticipated.

5. CONCLUSION

The City of San Bernardino, the San Bernardino Municipal Water Department and East Valley Water District utilize a robust master planning and capital improvement system to ensure that deficiencies are identified and addressed in a timely manner. No major infrastructure-related constraints to GPU throughout the have been identified and appropriate use of area development impact fees or other funding mechanisms will be utilized for site-specific infrastructure improvements to support the full buildout of the General Plan Update Area.

6. TECHNICAL ATTACHMENTS

Attachment A – Sewer and Water Demand Calculations

ATTACHMENT A

SEWER AND WATER DEMAND CALCULATIONS

Water & Sewer Demands: San Bernardino General Plan Update - Existing Conditions

Population

	Population	% of total population
City of San Bernardino Total Population (2020) ¹	222,101	
San Bernardino Municipal Water District Service Area Population (2020) ²	210,830	95%
Remaining San Bernardino Population served by East Valley Water District (2020)	11,271	5%

Water Demand Factor per Capita

San Bernardino Municipal Water District Existing Water Demand 2020 (AFY)	42,182
San Bernardino Municipal Water District Service Area Population (2020)	210,830
Demand factor per capita (AFY/person)	0.20

Existing Water Demand - 2020 (AFY)

San Bernardino Municipal Water District	42,182
East Valley Water District ³	2,255
Total Existing Water Demand	44,437

Existing Wastewater Demand - 2020

Wastewater Provider	Wastewater Demand Factor per Capita (GPCD) ⁴	Total Wastewater Demand (GPD)	Total Wastewater Demand (AFY)
San Bernardino Municipal Water District	69	14,547,270	16,345.20
East Valley Water District	64	721,344	810.50
Total Existing Wastewater Demand	-	15,268,614	17,156

¹ City of San Bernardino 2020 Census Population

² Table 8-1: DWR 3-1R Current and Projected Population. San Bernardino Municipal Water District 2020 Urban Water Management Plan

³ East Valley Water District's existing water demand for the City of San Bernardino was estimated using a water demand factor per capita of 0.2 AFY/person

⁴ Table 6-4 Current Influent Flow and Per Capita Usage. City of San Bernardino Municipal Water District (May 2020). Water Reclamation Plant Facilities Assessment and Master Plan

Water & Sewer Demands: San Bernardino General Plan Update - Growth

Residential							
Land Use	Res'd (DUs)	Max Du/Ac	Res'd Acres	Water Duty Factor (GPD/Acre)	GPD	Gal/Acre/Year	Yearly (AFY)
Single Family ¹	9,110	24	380	5,904	2,241,060	817,986,900	2,510
Multi-Family ²	25,033	31	808	6,991	5,645,345	2,060,551,019	6,324
TOTALS	34,143.00	55.00	1,187.10		7,886,405	2,878,537,919	8,834
			Residential Sewer		5,092,121		

Notes: ¹Residential Medium High (RMH); ²Residential High (RH)

Commercial/ Non-Res'd Redeveloped Areas						
Land Use Category	Building Area (SF)	Buidling Area (Acres)	Water Duty Factor (GPD/Acre)	GPD	Gal/Acre/Year	Yearly (AFY)
Commercial, Office, Institutional ¹	25,983,987	596.51	3,204	1,911,211.27	697,592,112	2,141
Industrial ²	15,184,374	348.58	2,323	809,760.35	295,562,528	907
TOTALS	41,168,362	945.09		2,720,972	993,154,640	3,048
		Non-Residential Sewer		2,312,826		

Notes: ¹Commercial Office (CO); ²Industrial Light

Total Water & Sewer Demands: General Plan Land Use			
	Total AFY	GPD	MGD
Res'd + Non-Res'd Water	11,882	10,607,377	10.61
Res'd + Non-Res'd Sewer	8,295	7,404,946	7.40

Source: San Bernardino Municipal Water Department 2015 Water Facilities Master Plan: Table 4-2 Water Duty Factors