5. Environmental Analysis

5.19 UTILITIES AND SERVICE SYSTEMS

The analysis in this section is based in part on the following technical reports:

- Draft Brea 265 Water System Analysis, Psomas, March 3, 2022. (Appendix P)
- Brea 265 Water Supply Assessment, Psomas, March 2022. (Appendix Q)
- Technical Memorandum, Brea 265 Sewer System Analysis, Psomas, March 3, 2022 (Appendix R)

Complete copies of these studies are included in Appendices P, Q, and R of this Draft EIR.

5.19.1 Environmental Setting

5.19.1.1 REGULATORY BACKGROUND

Water

The Urban Water Management Planning Act (California Water Code, Division 6, Part 2.6, secs. 10610 et seq.) was enacted in 1983 and applies to municipal water suppliers that serve more than 3,000 customers or supply more than 3,000 acre-feet per year (afy) of water. The Urban Water Management Planning Act requires these suppliers to prepare and update their urban water management plans (UWMP) every five years to demonstrate an appropriate level of reliability in supplying anticipated short-term and long-term water demands during normal, dry, and multiple-dry years. The Urban Water Management Planning Act specifies the data necessary to document the existing and projected future water demand over 20 years and requires that the projected demands be presented in 5-year increments for the 20-year projection.

The City of Brea adopted the 2015 Urban Water Management Plan in April 2016. The UWMP evaluates Citywide water supply and demand reliability for 25 years into the future and is a baseline document for the preparation of water supply assessments. Brea's 2015 UWMP concluded there was an adequate and reliable supply of water to provide for existing demand and estimated growth through year 2040, based on information then available.

California Green Building Standards

California Green Building Standards Code (CALGreen), Chapter 5, Division 5.3, Water Efficiency and Conservation, establishes provisions to conserve water used indoors, outdoors, and in wastewater conveyance in nonresidential development. The intent is to encourage voluntary reduction of potable water use in new or altered buildings by making building owners and/or tenants aware of their daily potable water consumption. When the meters are installed, the building operator would have the ability to establish a water consumption baseline to monitor future water use.

CALGreen Chapter 4, Division 4.3, Water Efficiency and Conservation, establishes provisions to conserve water used indoors (e.g., water closets, urinals, showerheads, and faucets), outdoors such as landscape areas, and in water reuse systems in residential development.

Local

In July 1995, the Brea City Council adopted Ordinance 967, establishing water impact fees for certain new development projects in Brea and the annexed portions of its sphere of influence. In March 2003, the Brea City Council adopted an updated water master plan, and water impact fees were modified according to the updated plan. These fees are necessary to ensure that adequate water infrastructure and facilities are provided to new development projects. The amount of fee per dwelling unit varies by a project's geographical location and elevation.

All new development projects are subject to the Water Impact Fees, except:

- Alterations to an existing building.
- Reconstruction (within two years), when a building has been destroyed by fire, wind, earthquakes, vandalism, or other natural or man-made disasters.
- Additions to a single-family or multiple-family residence and construction of public schools.

Therefore, the proposed project is subject to the water impact fees prior to the issuance of any building permits. In some cases, a developer may be required to make certain water improvements in addition to or in lieu of paying water impact fees. In such a case, however, the total cost of water improvements and/or fees will not exceed the development's fair share of providing the water infrastructure or facilities.

Sewer

State Water Resources Control Board Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer System, requires a public agency that owns or operates a sewer system to develop and implement a sewer system management plan so that the sanitary sewer infrastructure is adequately operated, maintained, repaired, and upgraded. The City of Brea adopted its Sewer Master Plan (SMP) in November 2021, replacing the City's previous 2005 Sewer Master Plan. The intent of the 2021 SMP was to update the City's sewer model, hydraulic analysis, condition assessment, and capital improvement project recommendations based on the latest available information. The sewer model geometry was updated with facilities constructed since 2005, when the model was last updated. The sewer load factors were reevaluated and refined. The sewer loads were reallocated based upon recent water use data and applied sewer return factors. Updated future planning data was utilized to estimate future sewer loads and size future sewer facilities. Existing and future capacity deficiencies were identified and improvement projects were recommended, which identified approximately \$19 million in citywide sewer improvements needed over the next 10 years.

Electricity

California's Appliance Efficiency Regulations (CCR Title 20, Parts 1600–1608) contain energy performance, energy design, water performance, and water design standards for appliances (including refrigerators, ice makers, vending machines, freezers, water heaters, fans, boilers, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings) that are sold or offered for sale in California. These standards are updated regularly to allow consideration of new energy efficiency technologies and methods.

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The 2019 Building Energy Efficiency Standards improve upon the 2016 Energy Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. Buildings whose permit applications are dated on or after January 1, 2020, must comply with the 2019 Standards. The California Energy Commission updates the standards every three years.

CALGreen (24 CCR Part 11) has mandatory requirements for new residential and nonresidential buildings throughout California. CALGreen is intended to (1) reduce GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the governor. The code reduces construction waste, makes buildings more efficient in the use of materials and energy, and reduces environmental impacts during and after construction. CALGreen contains requirements for construction site selection, stormwater control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides for design options, allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

Solid Waste

AB 939 (Integrated Solid Waste Management Act of 1989; California Public Resources Code secs. 40050 et seq.) established an integrated waste-management system that focused on source reduction, recycling, composting, and land disposal of waste. AB 939 required every California city and county to divert 50 percent of its waste from landfills by the year 2000. Compliance with AB 939 is measured in part by comparing solid waste disposal rates for a jurisdiction with target disposal rates. Actual rates at or below target rates are consistent with AB 939. AB 939 also requires California counties to show 15 years of disposal capacity for all jurisdictions in the county or show a plan to transform or divert its waste.

AB 341 (Chapter 476, Statutes of 2011) increased the statewide solid waste diversion goal to 75 percent by 2020. The law also mandates recycling for commercial and multifamily residential land uses as well as schools and school districts.

AB 1826 (California Public Resources Code secs. 42649.8 et seq.) requires recycling of organic matter by businesses and multifamily residences of five of more units generating such wastes in amounts over certain thresholds.

SB 1016 (Solid Waste Disposal Measurement Act of 2008) builds on AB 939 compliance requirements by implementing a simplified measure of a jurisdiction's performance by changing to a disposal-based indicator—the per capita disposal rate—that uses 1) a jurisdiction's population (or in some cases employment) and (2) its disposal as reported by disposal facilities.

Section 5.408 of the CALGreen requires that a minimum of 65 percent of the nonhazardous construction and demolition waste from nonresidential uses be recycled and/or salvaged for reuse.

5.19.1.2 EXISTING CONDITIONS

Water

The City of Brea Water Division serves all the city's area except the Vesuvius tract at the eastern end, which is served by Yorba Linda Water District. The City receives its water from three main sources, local well water from the La Habra Basin and the Main San Gabriel Basin, which is provided by the California Domestic Water Company (CDWC), and imported water from the Municipal Water District of Orange County (MWDOC). The City's distribution system consists of 228 miles of pipeline and seven storage reservoirs with a combined storage capacity of 69.5 million gallons (mg). The storage system is supported with five booster pump stations. The booster pumps have a total capacity of 14,800 gallons per minute (gpm) serving 18 pressure zones. In 2020, the City served 13,821 municipal connections that supplied 9,131 acre-feet (af) of water. The City also manages an irrigation well at the Brea Creek Golf Course that pumps up to 450 gpm to serve the golf course.

Annual potable water use in the City's service area has averaged 9,956 af in the past decade. In fiscal year 2019-2020, the City used 9,131 af of water—9,039 af (99 percent) potable water from CDWS and 92 af (1 percent) nonpotable water pumped from La Habra Groundwater Basin for irrigation purposes (Psomas 2022a). There is currently no recycled water use in the City's service area.

The City also extracts local groundwater from the La Habra Groundwater Basin (Basin). However, the one groundwater well owned by the City is used strictly for irrigation purposes. Table 5.19-1, *Historical City Potable Water Supply (af)*, shows the City's water supply by source for the five fiscal years from 2016 through 2020. As shown, in 2020, approximately 99 percent came from CDWC, and approximately 1 percent from local groundwater.

Table 5.19-1 Historical City Potable Water Supply (af)

	,	•			
Source	2016	2017	2018	2019	2020
CDWC Imported	7,267	7,645	7,950	8,315	9,039
MWDOC Imported	1,553	1,160	1,889	877	0
Local Groundwater (nonpotable)	87	96	107	95	92
Total	8,878	8,900	9,946	9,287	9,131

Source: Psomas 2022a. af = acre feet

The City receives water from CDWC through three metered connections. Each connection is gravity fed and comes from one of two CDWC hydraulic lift systems. The City purchases treated potable water from the Metropolitan Water District of Southern California through MWDOC. The three City supply connections with Metropolitan are OC-6, OC-29, and OC-62, with capacities of 10 cubic feet per second (cfs), 15 cfs, and 10 cfs, respectively.

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Sewer

The City of Brea provides local sewage collection within the city's corporate boundaries, portions of unincorporated Orange County, and a small portion of Placentia. The gravity system consists of over 100 miles of pipe, the majority of which is vitrified clay pipe ranging from 8 to 27 inches in diameter. The service area consists of 10 major sewer drainage areas that flow into City trunk sewers, which in turn outlet to Orange County Sanitation District (OCSD) facilities. OCSD collects sewage from cities throughout Orange County and treats it at regional facilities.

The 94.5-acre western portion of the project site, west of Valencia Avenue, is tributary to the City sewer system pipelines shown on Figure 5.19-1, *City of Brea Tributary Sewer Pipelines*. The nearest sewer to the project site to the west is an 8-inch pipeline that extends through the Brea Sports Park up to the southern edge of the project boundary. This pipeline currently serves the Brea Sports Park and Thompson Energy operations. The 8-inch pipeline discharges south to the 8-inch pipeline along Birch Street and continues east approximately 1,050 feet to Flower Hill Street where the system routes through the residential neighborhood north of Birch Street. The 8-inch pipeline transitions into a 10-inch pipeline in the neighborhood at Primrose Avenue and Foxglove Street. At this location, a substantial amount of additional sewer flows enter from the Blackstone development north of Lambert Road. The 10-inch pipeline then turns south on Starflower Street, which transitions into Ranger Street (at the intersection of Birch Street), and continues south in Ranger Street to a 15-inch pipeline along north side of the Loftus Diversion Channel. The 15-inch pipeline along the channel also serves the industrial area north of the channel and flows west to Kraemer Boulevard. Just upstream of Kraemer, the 15-inch pipeline transitions to a short reach of 12-imch pipeline with a steep slope, then the sewer flows south in a 15-inch pipeline in Kraemer to OCSD's trunk sewer at Imperial Highway.

The 167.6-acre eastern portion of the project site falls within Region 9 of the City of Brea SMP. The 33-inch OCSD Carbon Canyon Interceptor runs through the eastern portion of the project site. The former OCSD Carbon Canyon Lift Station and its associated force main were eliminated with the construction of this gravity main system. In exchange for allowing a right-of-way through the property, OCSD agreed to allow the future development on the eastern portion of the project site to discharge to the Carbon Canyon Interceptor and include stub-outs for future sewer connections at their manholes within the project site.

Orange County Sanitation District Sewer System

OCSD provides wastewater collection, treatment, and disposal services for approximately 2.5 million people in central and northwest Orange County, including in the City of Brea. The project site has an OCSD easement containing the Carbon Canyon Dam interceptor sewer, and sewage generated from the western portion of the project site would ultimately discharge to the OCSD facility at Imperial Highway.

Sewer flows from the project site would be treated by OCSD Plant No. 1 at 10844 Ellis Avenue in Fountain Valley, about four miles northeast of the ocean, and Plant No. 2 at 22212 Brookhurst Street in Huntington Beach. Plant No. 1 receives wastewater from six major trunk sewer pipes and provides advanced primary and secondary treatment. The combined maximum secondary treatment capacity of both Plant No. 1 and Plant No. 2 is 332 million gallons per day (mgd), and they currently operate with an average daily intake of 185 mgd—

120 mgd at Plant No. 1 and 65 mgd at Plant No.2 (OCSD 2019). There are no plans for expansion of the treatment capacity of either plant.

OCSD supplies the Orange County Water District with 130 million gallons a day of treated wastewater that is reclaimed and reused for treatment processes and landscaping, injected into the seawater intrusion barrier to protect groundwater, and used for the Groundwater Replenishment System.

Electricity

The project site is in Southern California Edison's (SCE) service area, which spans much of southern California—from Orange and Riverside counties on the south to Santa Barbara County on the west to Mono County on the north (CEC 2015b). Total electricity consumption in SCE's service area was 102,521 gigawatthours in 2018 (CEC 2019). Sources of electricity sold by SCE in 2017, the latest year for which data are available, were:

- 32 percent renewable, consisting mostly of solar and wind
- 8 percent large hydroelectric
- 20 percent natural gas
- 6 percent nuclear
- 34 percent unspecified sources—that is, not traceable to specific sources (SCE 2018)²

Gas

Southern California Gas Company provides gas service in Brea and has facilities throughout the city, including the project site. The service area of SoCalGas spans much of the southern half of California—from Imperial County on the southeast to San Luis Obispo County on the northwest, to part of Fresno County on the north, to Riverside County and most of San Bernardino County on the east (CEC 2015c). Total natural gas supplies available to SoCalGas for year 2018 were 3,055 million cubic feet per day (MMcf/day), and 3,385 MMcf/day for 2019 (CGEU 2018). Total natural gas consumption in SoCalGas's service area was 719,423 MMcf for 2018, which is equivalent to 1,971 MMcf/day (CEC 2019).

Solid Waste

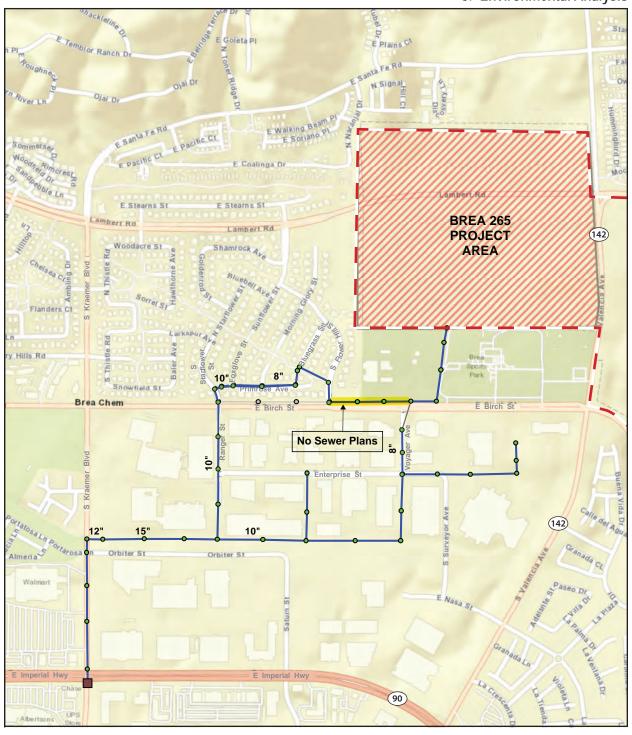
The City of Brea contracts with Republic Services, also known as Brea Disposal, for trash service and collection. The collected wastes are consolidated and sorted at local transfer stations and transported to disposal sites. Once the materials recovery facility processes solid waste from recyclable, recyclable materials are bundled and transferred for immediate shipment to domestic and international markets. Nonrecyclable waste is moved to solid waste transfer operation for final processing and consolidation before delivery to landfills.

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¹ One gigawatt-hour is equivalent to one million kilowatt-hours.

² The electricity sources listed above reflect changes after the 2013 closure of the San Onofre Nuclear Generating Station, which is owned by SCE.

Figure 5.19-1 - City of Brea Tributary Sewer Pipelines 5. Environmental Analysis



Specific Plan Boundary





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5. Environmental Analysis

Solid waste landfill capacity is provided to Brea by OC Waste & Recycling. Orange County owns and operates three active landfills: Olinda Alpha Landfill at 1942 North Valencia Avenue in Brea; Frank R. Bowerman Landfill at 11002 Bee Canyon Access Road in Irvine; and Prima Deshecha Landfill at 32250 La Pata Avenue in San Juan Capistrano. The waste generated by Brea is taken to the Olinda Alpha Landfill. The Olinda Alpha Landfill accepts a maximum of 8,000 tons per day and currently receives an average of approximately 7,000 tons per day. The landfill had an estimated remaining capacity of approximately 43.9 million cubic yards as of June 30, 2013.

To ensure that the maximum permitted daily tonnage at a particular landfill is not exceeded, waste haulers can be diverted to another OC Recycling landfill or one of the transfer stations throughout the county.

5.19.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project:

- U-1 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.
- U-2 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.
- U-3 Result in a determination by the waste water 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.
- U-4 Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
- U-5 Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

5.19.3 Plans, Programs, and Policies

Regulatory Requirement

PPP USS-1 The proposed project will be required to comply with the following regulations.

- California Building Energy and Efficiency Standards (Title 24, Part 6) and California
 Green Building Standards Code (CALGreen) (Title 24, Part 11).
- SB 610 (Chapter 643, Statutes of 2001) and SB 221 (Chapter 642, Statutes of 2001).
- California Green Building Standards Code, Chapter 5, Nonresidential Mandatory Measures, Division 5.3, Water Efficiency and Conservation.

- California Green Building Standards Code, Chapter 4, Residential Mandatory Measures,
 Division 4.3, Water Efficiency and Conservation.
- Energy Efficiency Standards for Residential and Nonresidential Buildings (24 CCR Part
 6)
- California's Appliance Efficiency Regulations (CCR Title 20, Parts 1600–1608)

5.19.4 Environmental Impacts

5.19.4.1 IMPACT ANALYSIS

The following impact analysis addresses the thresholds of significance; the applicable thresholds are identified in brackets after the impact statement.

Impact 5.19-1: The proposed project would not require or result in the relocation or construction of new or expanded wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. However, the proposed project would require new and expanded water distribution facilities. [Threshold U-1]

Water

Implementation of the proposed project would result in increased water facilities demand in the project area. As shown in Table 5.19-2, *Proposed Project Water Demand Factors for Residential Uses*, the proposed residential uses for the project would result in an average demand of 289,130 gpd or 323.9 afy (Psomas 2022a). The residential water use factors used for the project are conservatively higher than those used in the City's 2020 UWMP for new residential development.

Table 5.19-2 Proposed Project Water Demand Factors for Residential Uses

Proposed Land Use	Acres	Dwelling Units/Acre	Dwelling Units	Factor (gpd/du)	Average Demand (gpd)
West of Valencia Avenue		-	-		-
Low Density Residential (LDR)	25.2	4.2	105	380	39,900
Public Safety/Civic Uses1	n/a	n/a	n/a	n/a	330
Medium Density Residential (MDR)	49.0	10.3	507	160	81,120
Subtotal	74.2	8.2	612	198	121,350
East of Valencia Avenue					
Low Density Residential (LDR)	109.4	3.1	345	420	144,900
Medium Density Residential (MDR)	13.9	10.0	143	160	22,880
Subtotal	123.3	4.0	488	344	167,780
Total Domestic	197.5	5.6	1,100	n/a	289,130 gpd/ 323.9 afy

Source: Psomas 2022b.

gpd = gallons per day

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¹ Included in LDR land use in Planning Area 11. Average flow assumes 6 personnel and 55 gallons per capita per day. du = dwelling units

Table 5.19-3, *Proposed Irrigation Demand Factors*, shows the irrigation water demand estimate for the parks and common landscaped areas of the proposed project. The total park and recreation area within the project site includes a 13-acre sports park west of Valencia Avenue and a 2.1-acre staging area park east of Rose Drive, and 65 acres of irrigated common areas were assumed. The estimate of irrigation demands was based on a landscape irrigation factor of 2,040 gpd/acre for the project residential area and the maximum applied water allowance using evapotranspiration data for Monrovia, California. The Monrovia California Irrigation Management Information System station is the closest station to the project site, and the evapotranspiration for that station was 49.85 inches per year (Psomas 2022b). Additional details of the irrigation demand factors used in this analysis are in Appendix P.

Table 5.19-3 Proposed Irrigation Demand Factors

Land Use	Acres	Factor (gpd/ac)	Gallons per Day
Irrigated Common Areas	65.00	2,040	132,602
Parks/Recreation	15.10	2,040	30,805
Total	80.10	-	163,407 gpd/ 183 afy

Table 5.19-4, *Water Demand Summary*, summarizes the total water demand for the proposed project based on the factors shown in Table 5.19-2 for residential uses and Table 5.19-3 for parks and irrigated areas. The projected water use for the proposed project would be 452,537 gpd (507 afy). New developments are required to comply with current water conservation standards and are expected to have lower than average demand when compared to current citywide use. The recommended factors used for the water systems analysis are sufficiently conservative and appropriate for planning purposes.

Table 5.19-4 Water Demand Summary

Water Use	Gallons per Day	Acre-Feet per Year
Residential	289,130	323.9
Irrigation	163,407	483
Total Water Demand	452,537	507

Figure 3-20, Conceptual Water System, depicts the two water-pressure zones for the project site and the proposed water distribution system. Water service to the project site would be provided from two pressure zones, 790 zone (with pressure-reducing stations) and 605 zone. The City's water system was evaluated to determine impacts of the projected water demands on the existing distribution system and the potential for offsite improvement requirements that are in Appendix P. The on-site water systems analysis concluded that the City's existing water system can supply sufficient service pressure and fire flow to the project site to meet the applicable design criteria based on the City's 2021 Water System Master Plan update (2021 WMP). However, the proposed project would add an average day demand of approximately 300 gpm and a maximum day demand of approximately 500 gpm supplied primarily through the combination of Valencia Reservoir and the Berry Street high-pressure pumps (790 zone). This system is already strained during peak demand conditions, and the

City is unable to maintain water levels in Valencia Reservoir. There is also an existing pumping deficiency in the 790 zone. Added demands from the proposed project would exacerbate these issues. Therefore, without the following off-site water improvements identified in the 2021 WMP, the off-site water distribution system would not be able to adequately accommodate the proposed project, and impacts would be potentially significant:

- Addition of a high pressure pump at Berry Street booster pump station with a minimum capacity of 1,778 gpm to increase pumping capacity in the 790 zone.
- Construct new 24-inch pipelines in Valencia Avenue to increase system capacity to fill Valencia Reservoir as follows and illustrated in Appendix B of the Water Systems Analysis (see DEIR Appendix P).
 - Approximately 1,270 linear feet of new 24-inch pipeline from the reservoir inlet/outlet to Sandpiper Way, replacing existing 12-inch pipeline.
 - Approximately 2,060 linear feet of new 24-inch pipeline from Lambert Road to Birch Street, replacing existing 12-inch pipeline.

Sewer

The water and wastewater treatment needs of the proposed project would be served by OCSD, which operates two treatment/reclamation plants. The combined maximum secondary treatment capacity of Plant No. 1 and Plant No. 2 is 332 mgd (OCSD 2022c). The current available capacity of Plant No. 1 is 91 mgd, and the plant would be able to accommodate the average sewer flows generated from the proposed project, which would be 90,390 gpd (Psomas 2022c). The treatment plants currently operate with an average daily intake of 183 mgd—117 mgd at Plant No. 1 and 66 mgd at Plant No. 2. Therefore, the proposed project would contribute less than a 0.1 percent increase to the existing flow (OCSD 2022). Implementation of the proposed project would result in a less than significant impact.

Electricity

The proposed project would require construction and relocation of electrical facilities. All electrical system would be constructed underground, and the improvements would be required to achieve the current California Building Energy and Efficiency Standards (Title 24, Part 6) and CALGreen standards (Title 24, Part 11). The proposed project is anticipated to consume approximately 6,681,830 kilowatt-hours per year of electricity from uses such as heating, cooling, and ventilation of buildings; water heating; operation of electrical systems; lighting; and use of onsite equipment and appliances. (PlaceWorks 2022). Electrical service to the proposed project would be provided by SCE through connections to existing offsite electrical lines and new onsite infrastructure. While the proposed project would increase energy demand at the site compared to existing conditions, it would be required to comply with the applicable Building Energy Efficiency Standards and CALGreen. SCE is a regional public utilities company and has the capacity to provide electric power to the project site. Construction of new electric facilities and relocation of existing SCE facilities are included as part of the project description. Although implementation of the proposed project would create additional demands on electric power infrastructure, the increased demands are projected to be within the service capabilities of SCE, and impacts would be less than significant.

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Natural Gas

The proposed project would require construction and relocation of existing gas systems. All gas system would be constructed underground, and the improvements would be required to achieve the current to achieve the current California Building Energy and Efficiency Standards and CALGreen standards.

The proposed project is anticipated consume 26,432,500 thousand-British-thermal-units per year (PlaceWorks 2022). Additional gas services infrastructure would be added to the existing system by SoCalGas as necessary to meet the requirements. There are extensive and reliable gas services in the area, and the improvements would comply with the SoCalGas policies and extension rules filed with the Public Utilities Commission when the contractual agreements are made. As a public utility, SoCalGas is under the auspices of the Public Utilities Commission and federal regulatory agencies. Should these agencies take any action that affects gas supply or the conditions under which service is available, gas service would be provided in accordance with revised conditions. Construction of new natural gas facilities and relocation of existing SoCalGas facilities are part of the project description. Although implementation of the proposed project would create additional demands on natural gas supplies and distribution infrastructure, the increased demands are projected to be within the service capabilities of SoCalGas, and impacts would be less than significant.

Telecommunications

Although the project site is largely undeveloped, the area surrounding the project site is developed and served by regional telephone service such as AT&T. The proposed project would require reconfiguration and improvements to the existing telephone facilities to accommodate the proposed development. Provision of telephone service improvements would not cause substantial or unusual adverse physical impacts to the environment. Construction of new dry utilities such as telecommunication facilities and relocation of existing facilities are part of the project description. Although implementation of the proposed project would create additional demands on telecommunications infrastructure, the increased demands are projected to be within the service capabilities of various telecommunications providers such as AT&T, and impacts would be less than significant.

Level of Significance Before Mitigation: Potentially significant impact.

Impact 5.19-2: The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. [Threshold U-2]

The water supply assessment (WSA) prepared for the proposed project is included as Appendix Q. According to the WSA, the water demand for the existing land uses is accounted for in the existing demand reported in the City's 2020 UWMP. Projected water demand for the proposed project was specifically addressed as "Under Entitlement Review" in Table 3-4 of the 2020 UWMP, Developments in the City. However, the projected demographic data in the 2020 UWMP does not appear to account for enough future dwelling units to include the proposed project. Therefore, it was assumed for the WSA that the city's water demands in the 2020 UWMP are assumed to not include the increased demands attributed to the proposed project. These demands were added to the projected city demands, and the WSA concluded that although supplemental water supply would

be needed, there is sufficient and reliable water supply for the city and the proposed project. The supply data in the reliability analysis in the 2020 UWMP matched the projected demand and did not account for additional supplies available. However, the City can purchase more Metropolitan water through MWDOC, who demonstrates surplus (see Appendix Q, Table 5.4, Metropolitan Regional Water Demands Single Dry, Multiple Dry and Average Years). Therefore, the City is projected to have sufficient imported and groundwater supplies to meet normal, single-dry year, and multiple-dry year conditions with the addition of the proposed project's demands because Metropolitan has projected supply surpluses for each of these conditions (even without supplies under development and potential supplies). Also, additional groundwater supplies are available for purchase through CDWC. It should be noted that imported water supplies are increased in single and multiple dry years consistent with Metropolitan's 2020 UWMP due to the fact that in dry years Metropolitan draws water from surface and groundwater storage programs.

As shown in Table 5.19-4, the estimated water demand for the proposed project is 507 afy. However, consistent with the City's UWMP, the WSA for the project increased the estimated water demand by 5 percent to account for projected water loss. Therefore, water supply analysis is based on the estimated buildout water demand of 532 afy for the project shown in Table 5.19-5, *Projected Normal, Single Dry-Year, and Multiple Dry-Year Water Supply and Demand.* The City is projected to have sufficient imported and groundwater supplies to meet normal, single-dry year, and multiple-dry year conditions with the addition of the proposed project. Therefore, the proposed project would not result in insufficient water supplies during normal, dry, and multiple dry years, and impacts would be less than significant.

Table 5.19-5 Projected Normal, Single Dry-Year, and Multiple Dry-Year Water Supply and Demand

Supply Sources/ Demands ¹	FY 2025 (af)	FY 2030 (af)	FY 2035 (af)	FY 2040 (af)	FY 2045 (af)
NORMAL YEAR					
Supply					
CDWD	9,000	9,000	9,000	9,000	9,000
MWDOC1	960	1,112	1,108	1,142	1,162
Local Groundwater ²	115	115	115	115	115
Total Supply	10,075	10,227	10,223	10,257	10,277
Demand ³					
Total City Demand without Proposed Project ⁴	9,543	9,695	9,691	9,725	9,745
Additional Proposed Project Demand ⁵	532	532	532	532	532
Total Demand ⁶	10,075	10,227	10,223	10,257	10,277
SINGLE DRY YEAR					
Supply					
CDWD	9,000	9,000	9,000	9,000	9,000
MWDOC1	1,564	1,726	1,721	1,758	1,779
Local Groundwater ²	115	115	115	115	115
Total Supply	10,679	10,941	10,836	10,873	10,894
Demand ³					
Total City Demand without Proposed Project ⁴	10,115	10,277	10,272	10,309	10,330
Additional Proposed Project Demand ⁷	564	564	564	564	564
Total Demand ⁸	10,679	10,841	10,836	10,873	10,894

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Table 5.19-5 Projected Normal, Single Dry-Year, and Multiple Dry-Year Water Supply and Demand

Table 5.19-5 Projected Normal, Sing					
Supply Sources/ Demands ¹	FY 2025 (af)	FY 2030 (af)	FY 2035 (af)	FY 2040 (af)	FY 2045 (af)
FIRST MULTIPLE DRY YEAR					
Supply					
CDWD	9,000	9,000	9,000	9,000	9,000
MWDOC ¹	1,195	1,576	1,705	1,708	1,742
Local Groundwater ²	115	115	115	115	115
Total Supply	10,310	10,691	10,820	10,823	10,857
Demand					
Total City Demand without Project	9,766	10,147	10,276	10,279	10,313
Proposed Project Demand	544	544	544	544	544
Total Demand ⁸	10,310	10,691	10,820	10,823	10,857
SECOND MULTIPLE DRY YEAR					
Supply					
CDWD	9,000	9,000	9,000	9,000	9,000
MWDOC1	1,288	1,614	1,709	1,721	1,751
Local Groundwater ²	115	115	115	115	115
Total Supply	10,403	10,729	10,824	10,836	10,866
Demand					
Total City Demand without Project	9,854	10,180	10,275	10,287	10,317
Proposed Project Demand	549	549	549	549	549
Total Demand	10,403	10,729	10,824	10,836	10,866
THIRD MULTIPLE DRY YEAR					
Supply					
CDWD	9,000	9,000	9,000	9,000	9,000
MWDOC1	1,380	1,651	1,713	1,733	1,761
Local Groundwater ²	115	115	115	115	115
Total Supply	10,495	10,766	10,828	10,848	10,876
Demand	10,100	10,100	10,020	10,010	10,010
Total City Demand without Project	9,941	10,212	10,274	10,294	10,322
Proposed Project Demand	554	554	554	554	554
Total Demand	10,495	10,766	10,828	10,848	10,876
FOURTH MULTIPLE DRY YEAR					,
Supply					
CDWD	9,000	9,000	9,000	9,000	9,000
MWDOC¹	1,472	1,688	1,717	1,746	1,770
Local Groundwater ²	115	115	115	115	115
Total Supply	10,587	10,803	10,832	10,861	10,885
Demand	10,001	10,000	10,002	10,001	10,000
Total City Demand without Project	10,028	10,244	10,273	10,302	10,326
Proposed Project Demand	559	559	559	559	559
Total Demand	10,587	10,803	10,832	10,861	10,885
. Ctai Demana	. 5,561	.0,500	.0,502	. 5,501	. 0,000

Table 5.19-5 Projected Normal, Single Dry-Year, and Multiple Dry-Year Water Supply and Demand

Supply Sources/ Demands ¹	FY 2025 (af)	FY 2030 (af)	FY 2035 (af)	FY 2040 (af)	FY 2045 (af)
FIFTH MULTIPLE DRY YEAR					
Supply					
CDWD	9,000	9,000	9,000	9,000	9,000
MWDOC1	1,564	1,726	1,721	1,758	1,779
Local Groundwater ²	115	115	115	115	115
Total Supply	10,679	10,841	10,836	10,873	10,894
Demand					
Total City Demand without Project	10,115	10,277	10,272	10,309	10,330
Proposed Project Demand	564	564	564	564	564
Total Demand	10,679	10,841	10,836	10,873	10,894

Source: Psomas 2022a

- ¹ The amount of MWDOC imported water supply to meet demand.
- Local groundwater for irrigation uses and not utilized by the proposed project.
- 3 All normal-year demand includes 5% nonrevenue water (water loss) consistent with the City's 2020 UWMP.
- ⁴ Normal year demand based on the City's 2020 UWMP, assumed to not include the proposed project's demand.
- Project demand based on Brea 265 Specific Plan; see Table 4-1.
- ⁶ Normal year demand based on the City's 2020 UWMP plus proposed project demand.
- ⁷ Project demand based on Brea 265 Specific Plan land use and increased by 6 percent for single-dry year.
- ⁸ Single-dry year demand based on the City's 2020 UWMP plus proposed project demand.

Level of Significance Before Mitigation: Less than significant impact.

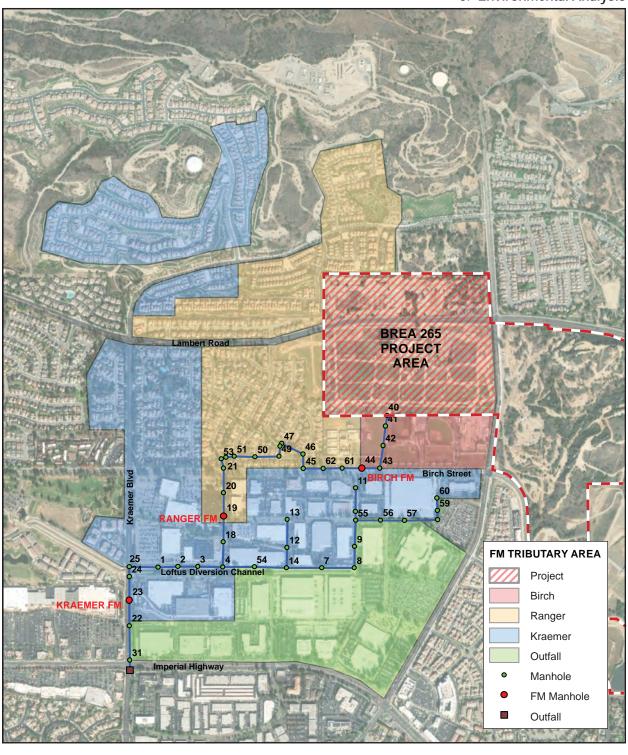
Impact 5.19-3: The proposed project would result in a determination by the wastewater treatment provider which serves the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. [Threshold U-3]

City of Brea

Implementation of the proposed project would generate an increase in wastewater. The conceptual sewer system within the project site is shown on Figure 3-21, Conceptual Sewer System. A Technical Memorandum, Brea 265 Sewer System Analysis, was prepared by Psomas on March 3, 2022 (Psomas 2022c; Appendix R), to evaluate sewer capacity impacts from development of the proposed project. Table 5.19-6, Brea 265 West Estimated Sewer Loading, and Table 5.19-7, Brea 265 West Estimated Sewer Master Plan Loading, show the estimated sewer generation summaries for the western portion of the project site. For Table 5.19-6, the projected flows were calculated based on the flow monitoring data for each of the tributary basins—Birch, Ranger, and Kraemer—and the corresponding land use within each of the areas. Sewer flow monitoring was conducted from September 12 to October 1, 2019, in the tributary areas shown on Figure 5.19-2, Tributary Area Sewer Flow Monitoring Locations. Table 5.19-6 presents a realistic projection for the future flows, and the factors in Table 5.19-7 are from the 2021 SMP. The proposed project was identified in the 2021 SMP and evaluated as a near-term project to determine any resulting capacity constraints. The 2021 SMP projected an average sewer flow rate of 145,000 gpd for the western portion of the project site and 114,600 gpd for the eastern portion of the project site. Table 5.19-7 shows the sewer loading factors used in the 2021 SMP for the uses proposed in the project site.

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Figure 5.19-2 - Tributary Area Sewer Flow Monitoring Locations 5. Environmental Analysis



Specific Plan Boundary





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Although the sewer loading factors shown in Table 5.19-6 based on flow monitoring and metered water use for similar products present a realistic projection of the future flows, factors shown in Table 5.19-7 from the 2021 SMP are used in the sewer analysis to consistent with the 2021 SMP as a conservative planning estimate. The resulting average dry weather flow (ADWF) for the western study area is 154,553 gpd.

Table 5.19-6 Brea 265 Western Area Estimated Sewer Loading

	Dwelli		Dwelling	Factor	Average Flow		
Land Use	Acres	Unit/acre	Units	(gpd/du)	gpd	gpm	
Low Density Residential	25.2	4.2	105	230	24,150	16.8	
Public Safety/Civic Uses ¹	n/a	n/a	n/a	n/a	330 ²	0.2	
Medium Density Residential	49	10.3	507	236	65,910	45.8	
Subtotal	74.2	n/a	612	240	90,390	62.8	

Source: Psomas 2022c.

Included in LDR land use in Specific Plan (PA 11).

² Average flow assumes 6 personnel at 55 gallons per capita per day.

gpd = gallons per day gpm = gallons per minute

du = dwelling unit

Table 5.19-7 Brea 265 Western Estimated Sewer Master Plan Loading

		Dwelling	Dwelling	Factor	Averaç	je Flow	Peak D	ry Flow
Land Use	Acres	Unit/acre	Unit	(gpd/du)	gpd	gpm	gpd	gpm
Low Density Residential	25.2	4.2	105	270	28,350	19.7	56,487	39.2
Public Safety/Civic Uses1	n/a	n/a	n/a	n/a	330 ²	0.2	658	0.5
Medium Density Residential	49	10.3	507	248	125,736	87.3	250,528	174
Parks/Recreation	13	n/a	n/a	10.5	137	0.1	272	0.2
Open Space and ROW	7.3	n/a	n/a	n/a	0	0	0	0
Subtotal	94.5		612		154,553	107.3	307,945	213.9

Source: Psomas 2022c.

Included in LDR land use in Specific Plan (PA 11).

² Average flow assumes 6 personnel at 55 gallons per capita per day.

gpd = gallons per day

gpm = gallons per minute

du = dwelling unit

ROW = right-of-way

Sewer flow for the eastern side of the project site is shown in Table 5.19-8. It is assumed that flows from the eastern side would discharge to OCSD's Carbon Canyon Interceptor. The location of the connection point or points, along with the on-site sewer collection system, are to be determined during preliminary design.

Table 5.19-8 Brea 265 Eastern Estimated Sewer Master Plan Loading

		Dwelling Dwelling Factor Average FI		e Flow	Peak D	Peak Dry Flow		
Land Use	Acres	Unit/acre	Unit		gpd	gpm	gpd	gpm
Low Density Residential	109.9	3.1	345	270	93,150	64.7	188,349	130.8
Medium Density Residential	13.9	10.0	143	248	35,464	24.6	71,708	49.8
Parks/Recreation	2.1			10.5	22	0	45	0
Open Space and ROW	41.7							
Subtotal	167.6		488		128,636	107.3	260,098	180.6

Source: Psomas 2022c. gpd = gallons per day gpm = gallons per minute du = dwelling unit ROW = right-of-way

The sewer technical memo used the sewer loads based on the flow monitoring data and corresponding land uses to model the existing land uses within the tributary areas and added the proposed project flow using the sewer master planning criteria in Table 5.19-7. The model assumed that all sewer flow from the project area west of Valencia Avenue to discharge south to manhole (MH) 40. The SMP criteria uses peak dry weather flow (PDWF) and peak wet weather flow (PWWF) to evaluate pipe capacity. Detailed sewer model output for simulated PDWF and PWWF with and without the proposed project is in Appendix C of the sewer technical memorandum (see DEIR Appendix R). The model output found capacity constraints to sewer reaches along Birch Street and through the neighborhood north of Birch Street from project implementation, as shown on Figure 5.19-3, *Deficient Sewer Reaches With Project*. As shown, eight sewer reaches exceed the PWWF criteria from MH 44 downstream to MH 50; and one from MH 53 to MH 21 along Birch Street and through the neighborhood north of Birch Street. Therefore, without providing improvements as described below and shown on Figure 5.19-4, Recommended Sewer Improvement Option 1, or Figure 5.19-5, Recommended Sewer Improvement Option 2, sewer facilities impacts would be potentially significant.

- Reduce sewer flow downstream of MH 44 by providing one of the following options:
 - Option 1: Divert the sewer on Birch Street to the sewer in Voyager Avenue at MH 44 by constructing approximately 300 feet of 8-inch pipeline from MH 44 to MH 11 in Voyager Avenue (see Figure 5.19-4). All flow originating upstream of MH 44, including the proposed project, would be diverted to Voyager Avenue, with the existing pipeline that continues down Birch Street plugged at MH 44.
 - Option 2: Construct approximately 1,900 feet of new 10-inch sewer in Birch Street, diverting all flow tributary to MH 44 westward in Birch Street to MH 21 at Birch Street and Ranger Street (see Figure 5.19-5). Because there are no plans available for the identified deficient reaches along Birch Street, manholes should be surveyed to confirm inverts, pipeline slopes, and modeling results.

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Figure 5.19-3 - Deficient Sewer Reaches with Project 5. Environmental Analysis



Specific Plan Boundary





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Figure 5.19-4 - Recommended Sewer Improvement Option 1
5. Environmental Analysis



Specific Plan Boundary





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Figure 5.19-5 - Recommended Sewer Improvement Option 2
5. Environmental Analysis



Specific Plan Boundary





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OCSD Facilities

Sewage collected by the City of Brea tributary from the west of the project site would ultimately connect to the 21-inch OCSD sewer trunk at the Kraemer Boulevard interceptor at Imperial Highway, and the sewage from the 167.4 acres east of the project site would flow directly to the 33-inch OCSD Carbon Canyon Dam interceptor sewer trunk. OCSD's strategic planning uses maximum population densities and very conservative flow factors, which are appropriate for regional level planning. Therefore, it is assumed that any project-generated flows are accounted for in OCSD's projections and planning. In addition, OCSD provides ongoing analysis of the sewer system within its jurisdiction, ensuring the long-term functionality of OCSD facilities. The proposed project would result in less than significant impacts to OCSD sewer facilities.

Level of Significance Before Mitigation: Potentially significant impact.

Impact 5.19-4: The proposed project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. [Threshold U-4]

Waste from the project site would be transported to the Olinda Alpha landfill, which has an average daily disposal rate of 7,000 tons per day, although it is permitted up to 8,000 tons per day; thus, the landfill has a remaining daily intake capacity of 1,000 tons per day (OCWR 2018). The landfill has the capacity to serve residents and businesses until 2030 (OCWR 2018). The remaining capacity of the landfill is 34,200,000 cubic yards (CalRecycle 2018).

The California Department of Resources Recycling and Recovery (CalRecycle) calculates California's statewide per capita disposal using SB 1016's measurement system (CalRecycle 2019). Under this system, California had a per-resident disposal rate of 5.2 pounds/resident/day and a "diversion rate equivalent" of 58 percent. As described in Section 5.14, *Population and Housing*, of this DEIR, the proposed project is anticipated to result in an increase of 3,102 residents. Therefore, the proposed project is projected to generate approximately 16,130 pounds per day of solid waste at buildout. This increase would be 0.8 percent of the landfill's remaining daily allowable intake and could be accommodated.³ Therefore, the project impacts on landfill capacity would be less than significant.

Level of Significance Before Mitigation: Less than significant impact.

Impact 5.19-5: The proposed project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. [Threshold U-5]

Solid waste would be generated during construction and operation of the proposed project. The proposed project would comply with all regulations pertaining to solid waste, such as the California Integrated Waste Management Act and the City's recycling and waste programs. The City and its construction contractor would comply with all applicable laws and regulations and make every effort to reuse and/or recycle the construction

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³ 16,130 lbs = 8.065 tons 8.065 tons /1,000 tons = 0.008065 = 0.8%

debris that would otherwise be taken to a landfill. Hazardous waste, such as paint used during construction, would be disposed of only at facilities permitted to receive them in accordance with local, state, and federal regulations. The proposed project would comply with all applicable federal, state, and local statutes and regulations related to solid waste disposal. Therefore, impacts would be less than significant.

Level of Significance Before Mitigation: Less than significant impact.

5.19.5 Cumulative Impacts

Water Supply

The cumulative water supply and distribution system impact area would be the City's service area. The City's 2020 UWMP projects water demands from citywide growth, and the proposed project and other cumulative projects in the city are within the projected growth forecast. As discussed in Impact 5.19-2, surplus water can be purchased from Metropolitan to supplement the water demands for the proposed project and other cumulative projects if needed. Therefore, the total water supplies available to the City during normal, single-dry, and multi-dry year conditions within a 20-year projection would meet the projected water demand of the proposed project and future growth in the City's water service area. Furthermore, as discussed in Impact 5.19-1, the proposed project's impacts to offsite water distribution system would be reduced to less than significant by incorporating mitigation (Mitigation Measure USS-1) and meeting the City's 2021 Water Master Plan standards. Other development projects in the City would also be developed in compliance with the 2021 Water Master Plan and provide appropriate improvements so that no offsite water systems impacts occur. Therefore, no cumulatively significant water supply impact is anticipated.

Sewer

The proposed project would increase flows to the area sewer system, resulting in deficient sewer segments for the City's system west of Valencia Avenue. Development of other cumulative projects could also incrementally increase demand on sewer facilities, but other cumulative projects in the City of Brea's sewer system would not flow to the same sewer tributary as the proposed project before reaching the OCSD trunk. Provided that the proposed project's individual sewer impacts are reduced to less than significant by incorporating mitigation (Mitigation Measure USS-2), no cumulatively significant wastewater facilities impacts are anticipated to the City's system. The proposed project would also flow directly to OCSD's sewer facilities from the development east of Valencia Avenue. When combined with other cumulative development projects, the proposed project would incrementally increase demands on OCSD's facilities, including treatment demands in the OCSD service area. However, OCSD's strategic planning uses maximum population densities and very conservative flow factors, as appropriate for regional level planning. It is assumed that any project-generated flows are accounted for in OCSD's projections and planning. Moreover, OCSD provides ongoing analysis of the sewer system within its jurisdiction, ensuring the long-term functionality of OCSD facilities. Therefore, development of the proposed project, along with other cumulative projects in the City's and OCSD's sewer service area would not result in individually significant impacts with mitigation, and impacts would not be cumulatively considerable.

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Electric Power

The proposed project would result in increased demand for electrical services. The projected citywide growth per the adopted General Plan would also increase demands for electrical services. However, SCE has adequate electric power capacity to serve the city's projected growth. Because the project site and the surrounding area are already served by SCE, no major infrastructure improvements would be necessary that could result in significant environmental impacts. Additionally, SCE already has an appropriate payment mechanism in place to fund and provide necessary improvements. No significant cumulative impacts are anticipated.

Natural Gas

The proposed project would result in increased demand for natural gas services. The projected citywide growth per the adopted General Plan would also increase demands for gas services. However, SoCalGas has adequate natural gas capacity to serve the city's projected growth. Because the project site and the surrounding area are already served by SoCalGas, no major infrastructure improvements would be necessary that could result in significant environmental impacts. Additionally, SoCalGas already has an appropriate payment mechanism in place to fund and provide necessary improvements. No significant cumulative impacts are anticipated.

Solid Waste

The proposed project would result in increased demand for solid waste compared to the existing uses. However, the proposed project, combined with other cumulative projects in the city, are required to comply with the existing recycling and waste programs to reduce and divert solid waste, and there is remaining capacity in the landfills that serve the city to accommodate the proposed project and the cumulative projects. Therefore, the proposed project would not cumulatively affect long-term solid waste collection infrastructure in excess of the existing capacity.

5.19.6 Level of Significance Before Mitigation

Upon implementation of the plans, programs, and policies, the following impacts would be less than significant: 5.19-2, 5.19-4, and 5.19-5.

Without mitigation, the following impacts would be **potentially significant**:

- Impact 5.19-1 The off-site water distribution system would not be able to adequately accommodate the proposed project.
- Impact 5.19-3 Implementation of the proposed project would result in potentially significant sewer facilities impact to the City of Brea sewer lines.

5.19.7 Mitigation Measures

Impact 5.19-1

USS-1

The project applicant shall coordinate with the City of Brea to make payments to fund its fair share of the following capital improvements related to offsite water systems, as identified in the City of Brea 2021 Water System Master Plan Update:

- Increase pumping capacity to the 790 Zone at Berry Street booster pump station (BPS) by providing an additional high-pressure pump at Beery Street BPS with a minimum capacity of 1,778 gallons per minute (gpm).
- Construct new 24-inch pipelines in Valencia Avenue to increase system capacity to fill Valencia Reservoir.
 - Approximately 1,270 linear feet (LF) of new 24-inch pipeline from the Reservoir inlet/outlet to Sandpiper Way, replacing existing 12-inch pipeline.
 - Approximately 2,060 LF of new 24-inch pipeline from Lambert Road to Birch Street, replacing existing 12-inch pipeline.

Impact 5.19-3

USS-2 The project applicant shall coordinate with the City of Brea to make payments to fund its fair share of the following capital improvements:

- Reduce sewer flow downstream of MH 44 by providing one of the following options:
 - Construct a new 8-inch sewer line (approximately 300 feet) from MH 44 southward
 in Birch Street to MH 11 in Voyager Avenue. All flow originating upstream of MH
 44 shall be diverted to Voyager Avenue, with the existing pipeline that continues down
 Birch Street plugged at MH 44; or
 - Construct a new 10-inch sewer line (approximately 1,900 feet) in Birch Street diverting all flow tributary to MH 44 westerly in Birch Street to MH 21 at Birch and Ranger Street.

5.19.8 Level of Significance After Mitigation

The mitigation measures identified above would reduce potential impacts associated with utilities and service systems to a level that is less than significant. Therefore, no significant unavoidable adverse impacts relating to utilities remain.

5.19.9 References

Arcadis. 2021, June. City of Brea 2020 Urban Water Management Plan. https://agenda.ci.brea.ca.us/docs/2021/CC/20210601_916/3167_Brea_2020_UWMP_FINAL_DR AFT-2021.05.11.pdf

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