

Appendix G

Water Supply Assessment



Water Supply Assessment
City of Fountain Valley, Orange County, CA

Draft Report

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Water Supply Assessment

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Appendix A Fountain Valley 2020 Urban Water Management Plan Link



Executive Summary

This Water Supply Assessment (WSA) is for the 16800 Magnolia Housing Project (Project) in Fountain Valley, California. This WSA was conducted in conformance with the requirements of the California Water Code (CWC). The purpose of this WSA is to determine whether the projected potable water supplies available to the City are adequate to serve the projected water demands established in the City of Fountain Valley’s 2020 Urban Water Management Plan (UWMP) (prepared by Arcadis U.S., Inc) and the additional water demands generated by the Project. The UWMP incorporated the City’s existing and planned future water uses for 2025 to 2045. This WSA assumes that the Project will be fully built out by 2029 and was not included in the UWMP.

Using the estimated developable area and duty factors, the build-out water demand for the Project was calculated. The site has existing water demands; therefore, the additional water demand for the Project was calculated to be 155 AFY by subtracting the site’s existing average water demand from the proposed build-out water demand (Table ES-1).

Table ES-1: Project Water Supply and Demand Comparison

Proposed Project Water Demand (AFY)	Site’s Existing Average Water Demand (AFY)	Estimated Project Additional Water Demand (AFY)	Additional Supply Required (AFY)
167	11.75	155	155

The 2020 UWMP concluded that the City’s water supply would meet demand during normal, single, and multiple dry year conditions from 2025-2045. This projection is based on the City’s ability to pump more groundwater beyond their established Basin Pumping Percentage (BPP) and purchase imported water from Metropolitan Water District of Southern California (MET) water through a connection with the Municipal Water District of Orange County (MWDOC) as needed.

In the event of a consecutive five-year dry period, the City’s projected potable water demand in 2045, including the proposed Project, is 9,497 AFY (as shown in Table ES-2). Assuming the City’s BPP will be held at 85%, without obtaining additional sources of water, the City will likely need to purchase 15% of its potable water supply over the next 25 years to meet demands.

Table ES-2: Projected Additional Project Demand and Supply Comparison

	2025	2030	2035	2040	2045
Fifth Year					
UWMP Projected Supply (AF)	9,188	9,105	9,225	9,325	9,325
UWMP Projected Demand (AF)	9,188	9,105	9,225	9,325	9,325
UWMP Projected Demand with Additional Project Demand (AF)	9,188	9,271	9,391	9,491	9,491
Demand Increase	0%	2%	2%	2%	2%



Acronyms / Abbreviations

AF	Acre-feet
AFY	Acre-feet per year
BEA	Basin Equity Assessment
BPP	Basin Production Percentage
CII	Commercial, Industrial, and Institutional
CEQA	California Environmental Quality Act
CFS	Cubic feet per second
City	City of Fountain Valley
CPTP	Coastal Pumping Transfer Program
CWC	California Water Code
DRA	Drought Risk Assessment
DU	Dwelling unit
DWR	California Department of Water Resources
EIR	Environmental Impact Report
GAP	Green Acres Project
GPCD	Gallons per capita per day
GPD	Gallons per day
GPM	Gallons per minute
GPU	General Plan Update
GRP	Groundwater Reliability Plan
GSP	Ground Water Sustainability Agency
GWRSFE	Groundwater Replenishment System Final Expansion
I-405	Interstate 405
MET	Metropolitan Water District of Southern California
MGD	Million gallons per day
MWDOC	Municipal Water District of Orange County
NRW	Non-Revenue Water
OC Basin	Orange County Groundwater Basin
OCWD	Orange County Water District
PFAS	Per- and Polyfluoroalkyl Substances
RA	Replenishment Assessment
SB	Senate Bill
SF	Square feet
SGMA	Sustainable Groundwater Management Act
SOI	Sphere-of-Influence
SWP	State Water Project
UWMP	Urban Water Management Plan
VFD	Variable Frequency Drive
WSA	Water Supply Assessment
WSAP	Water Supply Allocation Plan



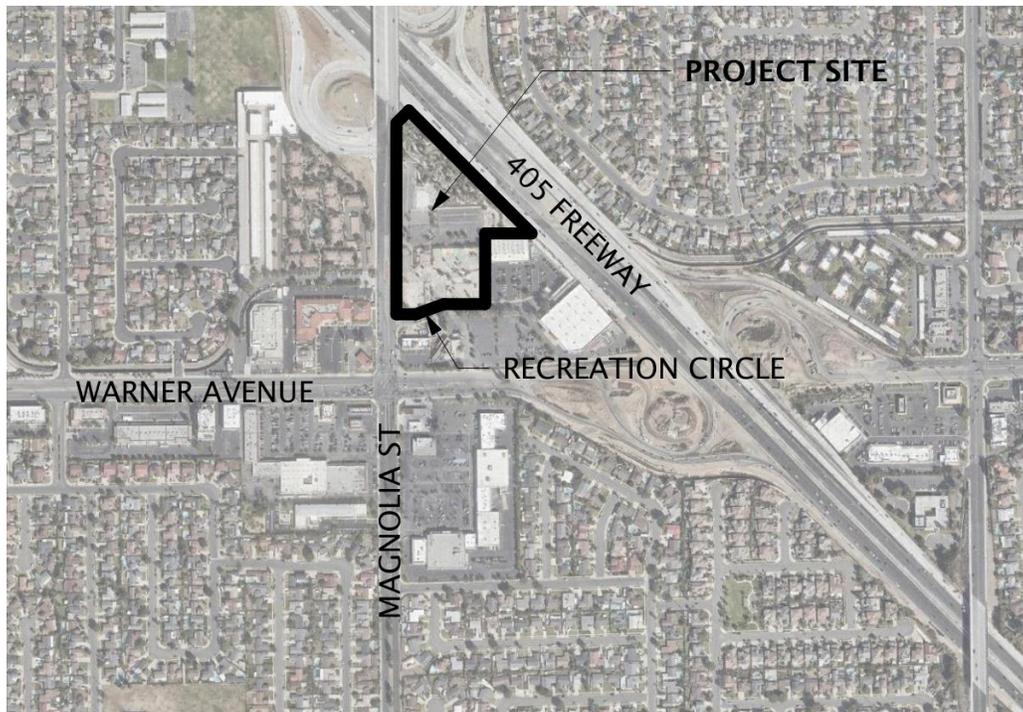
1 Introduction

1.1 Project Description

The City of Fountain Valley (City) encompasses approximately 5,824 acres, including its sphere-of-influence (SOI). The City is in the south-central part of Orange County, California, and is bordered by the Santa Ana River to the east, the City of Huntington Beach to the west and south, and the City of Westminster to the north. Interstate 405 (I-405) bisects the City, running diagonally northwest to southeast. The City has adopted the 2045 Fountain Valley General Plan Update (GPU) on November 21, 2023. The GPU is intended to shape development in the City over the next 30-plus years. This GPU proposes to increase the number of dwelling units by 6,232 and the non-residential square footage by 1.3 million square feet.

The 16800 Magnolia Housing Project (Project) has been proposed as a site-specific project that is in line with the goals of the adopted GPU. The Project consists of two mixed use seven-story buildings on a triangularly shaped, 6.87-acre site, located at 16800 Magnolia Street and 9025 Recreation Circle in Fountain Valley. The Project Site is bordered by Magnolia Street to the West, Recreation Circle to the South, the I-405 Freeway to the Northeast, and Fountain Valley Skating Center to the Southeast (Figure 1). This Water Supply Assessment (WSA) report will evaluate the projected water demands of this Project and determine whether the City will have adequate potable water supplies to serve it.

Figure 1: Project Vicinity Map¹



¹ Planning Package, Holland Partner Group, February 2024, Project Data



1.2 Water Supply Assessment Purpose

The purpose of this WSA report is to satisfy Senate Bill 610 (SB610), Water Code Section 10910 et seq., Senate Bill 221 (SB221), Government Code Section 66473, and Senate Bill 1262 (SB1262) that require documentation showing adequate potable water supplies are or will be available to meet the water demand associated with the Project.

SB610 and SB1262 stipulate when a project is subject to the California Environmental Quality Act (CEQA), the appropriate water supply agency must provide an assessment on whether its total projected water supplies will meet the projected water demand. The Project is subject to these requirements as it qualifies as “a large commercial, industrial, or mixed-use development” as described in SB610.

SB610 amended the portions of the California Water Code (CWC), including the Urban Water Management Plan (UWMP) Act (Section 10631) and described elements of a WSA (Sections 10910, 10911, 10912, 10913, and 10915). SB1262 further amends Water Code 10910 to identify the water system not just in the service area but those adjacent to the Project Site that could potentially supply water to the Project.

In this case, elements of a WSA are consistent with UWMP Section 10631 and different in that they are only required as part of the environmental review process for an individually qualifying project. In addition, SB221 requires that approval by a city or county of certain residential subdivisions, as defined by California Government Code Section 66473.7(a)(1), must include an affirmative written verification of sufficient water supplies.

1.2.1 Law: Water Code Section 10910(a)

(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

1.2.2 Law: Water Code Section 10912

For the purpose of this section, the following terms have the following meanings:

(a) "Project" means any of the following:

- 1. A proposed residential development of more than 500 dwelling units.*
- 2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.*
- 3. A proposed commercial building employing more than 1,000 persons or having more than 250,000 square feet of floor area.*
- 4. A hotel or motel, or both, having more than 500 rooms.*



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5. *A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.*
6. *A mixed-use project that includes one or more specified in this subdivision.*
7. *A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.*

1.3 Project Relation to Urban Water Management Plan

The City of Fountain Valley, the water supplier for the Project, prepared a 2020 Urban Water Management Plan (2020 UWMP), see Appendix A, that was adopted by City Council in June 2021. This WSA relies on the information contained in the 2020 UWMP and references it in the supply and demand analysis and groundwater discussion in the sections that follow. It is assumed the Project falls under CWC Section 10910 (c) (3), as no portion of the Project was accounted for in the 2020 UWMP.

1.3.1 Law: Water Code Section 10910(c)

(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code [CEQA], shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.



1.4 Land Use

1.4.1 Existing Land Uses

The Project Site consists of three parcels with four assessor's parcel numbers (143-294-01, 143-294-02, 143-301-31, and 143-301-32) and includes an easement over the property owned by the Orange County Flood Control District. Originally developed as a Boomers amusement park in 1987, the site operated until its closure in 2017. From 2017 until 2023, the site remained vacant before being repurposed and used intermittently as an overflow parking lot (see Figure 2). The site is primarily flat, featuring asphalt and concrete pavements, scattered trees and bushes, and debris piles from the former amusement park. The existing land use of the property is "Mixed-Use 2."

Figure 2: Current Project Site from Magnolia Street Looking Southeast²



1.4.2 Proposed Land Uses

The property will retain its "Mixed-Use 2" land use designation and is proposed to include 657 apartments and 4,460 square feet (SF) of retail space. The 329 apartments in the northern building will average 923 SF in size and the 318 apartments in the southern building will average 928 SF in size. The proposed building areas are summarized in Table 1-1 below.

² Planning and Development Application, Holland Partner Group, February 2024, Supplemental Environmental Information



Table 1-1: Propose Project Land Uses³

	Total Area		No. Apartment Units (DU)	Commercial Area (SF)
	(SF)	(AC)		
Northern Building	144,170	3.31	339	2,774
Southern Building	110,872	2.55	318	1,686
Channel between Buildings	44,075	1.01	-	-
Total	299,117	6.87	657	4,460

1.5 Public Water System

1.5.1 Public Water System Infrastructure

According to City’s 2020 UWMP, the City’s water service area covers 9.87 square miles of the coastal plain, adjacent to the Santa Ana River and four miles north of the Pacific Ocean coastline in the western-central part of Orange County. The City’s existing potable water system consists of two storage reservoirs and booster pumping stations, six operating groundwater wells, one connection to Metropolitan Water District of Southern California (MET), two emergency interconnections with the Cities of Huntington Beach and Santa Ana, approximately 200 miles of distribution pipelines, 6,000 valves, and over 2,000 fire hydrants.

The City’s Water Utility operates the two 5-MG storage and distribution reservoirs at two sites with a combined capacity of 10 MG. Reservoir capacity throughout each day averages approximately 50% to maintain water quality, protect equipment longevity, and provide enough flow for fire protection. The storage volume is greater than two days’ average use and is more than adequate for peaking demands and firefighting needs. The fire reserve capacity from Reservoir No. 1 is 7,600 gallons per minute (GPM) and from Reservoir No. 2 is 7,500 GPM.

Reservoir No. 1, located at Euclid Street and Ellis Avenue in the southeast part of the City, is powered by four electric variable frequency drive (VFD) pumps. Reservoir No. 2, located in Cordata Park off Tanager Avenue in the southwest part of the City, is powered by three electric VFD pumps. The storage system is supported with seven booster pumps, which have a total capacity of 15,100 GPM.

1.5.2 City Water Supply Sources

The City meets its demands using the imported potable water supply obtained from its regional wholesaler, Municipal Water District of Orange County (MWDOC), local groundwater from the Orange County Groundwater Basin (OC Basin), and recycled water from the Orange County Water District (OCWD). As shown in Table 1-2, the City relied on 88% groundwater, 12% recycled water, and 0% imported water in FY2019-20.

³ Planning Package, Holland Partner Group, February 2024, Project Data



Table 1-2: City of Fountain Valley’s Current Water Supply Portfolio⁴

	Source	Quality	% of Total Supply	% of Total Potable Supply	2020 Water Supply (AF)
Groundwater	OC Basin	Potable Water	88%	100%	8,686
Imported Water	MWDOC	Potable Water	0%	0%	0
Recycled Water	OCWD	Non-Potable Water	12%	-	1,184
Total Water Supply (AF)					9,870
Total Potable Water Supply (AF)					8,686

OCWD owns and operates the Green Acres Project (GAP), a water recycling system that provides up to 8,400 acre-ft per year (AFY) of recycled water for certain direct non-potable reuses. As shown in Table 1-2, approximately 1,184 AFY of recycled water was used in the City’s service area for landscape irrigation (e.g., parks, golf courses, greenbelts, cemeteries, and nurseries) in FY2019-20. Because the purpose of this WSA is to determine whether adequate potable water supplies will be available to meet the potable water demand associated with the Project (see Section 1.2), the availability of non-potable recycled water to the City (or the Project) will not be further discussed in this WSA.

2 Water Demand Assessment

Senate Bill 610 stipulates when a project is subject to CEQA, the appropriate water supply agency must provide an assessment on whether its total projected water supplies (determined by the water supply agency’s UWMP) will meet the projected water demand. In addition, SB221 requires that approval by a city or county of certain residential subdivisions, as defined by California Government Code Section 66473.7(a)(1), must include an affirmative written verification of sufficient water supplies.

This Water Demand Assessment section estimates the Project water demands in addition to the projected water demands from the 2020 UWMP to address the above requirements of the CWC.

2.1 Current and Projected City Potable Water Demand

In FY2019-20, the City had a service area population of 56,747 people and an actual consumption rate of 91 gallons per capita per day (GPCD) with a total water consumption of 9,870 acre-ft (AF) per the UWMP. As shown in Table 2-1, the City’s actual potable water use in FY2019-20 was 8,686 AF (groundwater and imported). The City’s potable water use profile was comprised of 60.6% residential use, 25.6% commercial, industrial, and institutional (CII) use, and 6.6% large landscape/irrigation, with non-revenue water (NRW) and other uses comprising about 7.3%.

Between 2021 and 2025, the projected water use of the City is expected to increase linearly as the City is almost completely built out and the rate of population growth is small (less than 0.15% per year). Water conservation efforts are also expected to keep per capita water use down.

⁴ 2020 UWMP, City of Fountain Valley, June 2021, Table 6-1



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In the longer term (2025-2045), water demand for single and multi-family residential uses is projected to decrease due to continued improvements in water-use efficiency. On the other hand, water demand by CII use is projected to increase due to an anticipated growth in CII accounts. Demands for large landscape applications are projected to stay consistent, while NRW demand is expected to increase slightly. As shown in Table 2-1, the projected total potable water use for 2045 is 8,718 AF.

Table 2-1: City of Fountain Valley’s Current and Projected Potable Water Demand⁵

	2020	2025	2030	2035	2040	2045
Population Served	56,747	57,530	58,442	58,969	59,110	58,873
Total Potable Water Demand (AF)	8,686	8,589	8,511	8,624	8,718	8,718
Single Family	4,630	4,672	4,596	4,552	4,475	4,471
Multi-Family	631	653	644	629	647	622
Commercial	1,168	1,159	1,164	1,252	1,346	1,346
Industrial	228	227	228	245	263	263
Institutional/Governmental	824	817	821	883	949	949
Landscape	569	652	652	652	652	652
Losses/NRW	590	409	405	411	415	415
Other	46	-	-	-	-	-

2.2 Project Water Demand

When the 2020 UWMP was prepared, the existing site was classified as "Commercial and Services." Therefore, this WSA assumes the existing site’s demand was included in the UWMP’s commercial water demand projections (see Table 2-1). Since UWMP did not account for the site’s increased water demand resulting from the proposed Project, the additional demand beyond the existing site’s demand must be quantified.

2.2.1 Existing Site Water Demand

Table 2-2 shows the existing site’s water usage from the three existing water meters from 2010 to 2019. Since the UWMP estimated the City’s CII use with historic data from FY2017-18 and FY2018-2019, this WSA also averages the site’s total consumption from 2017-2019. Therefore, the existing site’s average water demand was calculated to be 11.75 AFY. This annual volume of 11.75 AFY was included in the 2020 UWMP commercial water use.

Since the UWMP assumes that the commercial unit water use (gallons/account/day) will remain the same from 2030-2050, this WSA also assumes the site’s existing water demand would remain the same. Therefore, this WSA will use 11.75 AFY as the existing site’s water demand out to 2045.

⁵ 2020 UWMP, City of Fountain Valley, June 2021, Table 4-3



Table 2-2: Project Site’s Historic Water Usage

Year	Meter 1 Consumption (AFY)	Meter 2 Consumption (AFY)	Meter 3 Consumption (AFY)	Total Site Consumption (AFY)
2019	6.57	4.20	1.34	12.11
2018	6.65	4.47	1.48	12.60
2017	6.33	3.38	0.82	10.53
2016	7.32	3.54	0.87	11.73
2015	5.49	4.77	1.12	11.39
2014	5.36	5.13	1.52	12.01
2013	6.25	4.97	0.92	12.13
2012	6.52	6.58	1.45	14.55
2011	5.22	6.42	1.70	13.34
2010	5.24	6.62	1.16	13.02

2.2.2 Additional Project Water Demand

The City does not have established unit water demand duty factors for land use categories. Therefore, the duty factors of the adjacent City of Seal Beach were used for this WSA (see Table 2-3). Since the City of Seal Beach does not have a duty factor for the Project’s proposed “Mixed-Use 2” land use category, this WSA estimates the proposed Project Site water demand using both high occupancy residential and commercial duty factors. These values were selected because the City of Seal Beach is adjacent to the City of Fountain Valley and has similar patterns of urban, residential, and commercial development. It is assumed that the high-density residential and commercial duty factors include landscape irrigation.

Table 2-3: City of Seal Beach’s Water Demand Duty Factors

Land Use Category	Duty Factor
High Density Residential	225 gpd/du
Commercial/Office	300 gpd/1,000 sf

The proposed Project water demand was developed by adding the estimated residential and commercial water demands. The residential water demands were estimated by multiplying the total dwelling units (DU) by the residential duty factor established in Table 2-3. The commercial water demands were estimated by multiplying the estimated commercial area by the commercial duty factor established in Table 2-3. The estimated project water demand for the Project is summarized in Table 2-4.

Table 2-4: Proposed Project Water Demand

	Residential Dwelling Units (DU)	Residential Duty Factor (GPD/DU)	Commercial Area (1,000 SF)	Commercial Duty Factor (GPD/1,000 SF)	Water Demand (GPD)
Residential	657	225	-	-	147,825
Commercial	-	-	4.460	300	1,338
Total					149,163



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To estimate the total additional water demand for the Project, the estimated proposed project water demand from Table 2-4 (149,163 GPD) was converted to AFY. The existing Project Site's water demand from Section 2.2.1 was then subtracted from the estimated proposed project water to get an additional annual Project water demand of 155 AFY.

$$149,163 \frac{\text{gallons}}{\text{day}} * \frac{365 \text{ days}}{1 \text{ year}} * \frac{1 \text{ cu ft}}{7.48 \text{ gallons}} * \frac{1 \text{ acre}}{43,560 \text{ sf ft}} = 167 \text{ AFY}$$

Proposed Project Site Demand – Existing Site Demand = Additional Demand
 $167 \text{ AFY} - 11.75 \text{ AFY} = 155 \text{ AFY}$

2.2.2.1 Construction Water Demand

Project construction will require water for dust control and other general construction activities such as washing and cooling. During construction, water is assumed to be provided from existing fire hydrants adjacent to the Project Site following the City's procedures. It is assumed grading will take place to move around soil for the redevelopment of the site.

Currently, there is no earthwork estimate available for the project. Construction water demand can vary significantly based on earthwork volumes, soil conditions, ambient weather, and the type of construction being executed. The required volume of construction water could not be estimated at this time. Therefore, the water use projections in the WSA reflect only the water used after full build-out of the Project and does not account for water needed during construction.

3 Water Supply Assessment

The purpose of this section is to assess whether the water supplies available to the Project during normal, dry, and multiple-dry water years over a twenty-year period (2025-2045) are sufficient to meet the City's projected demands, as outline in the 2020 UWMP, along with the additional demands of the Project.

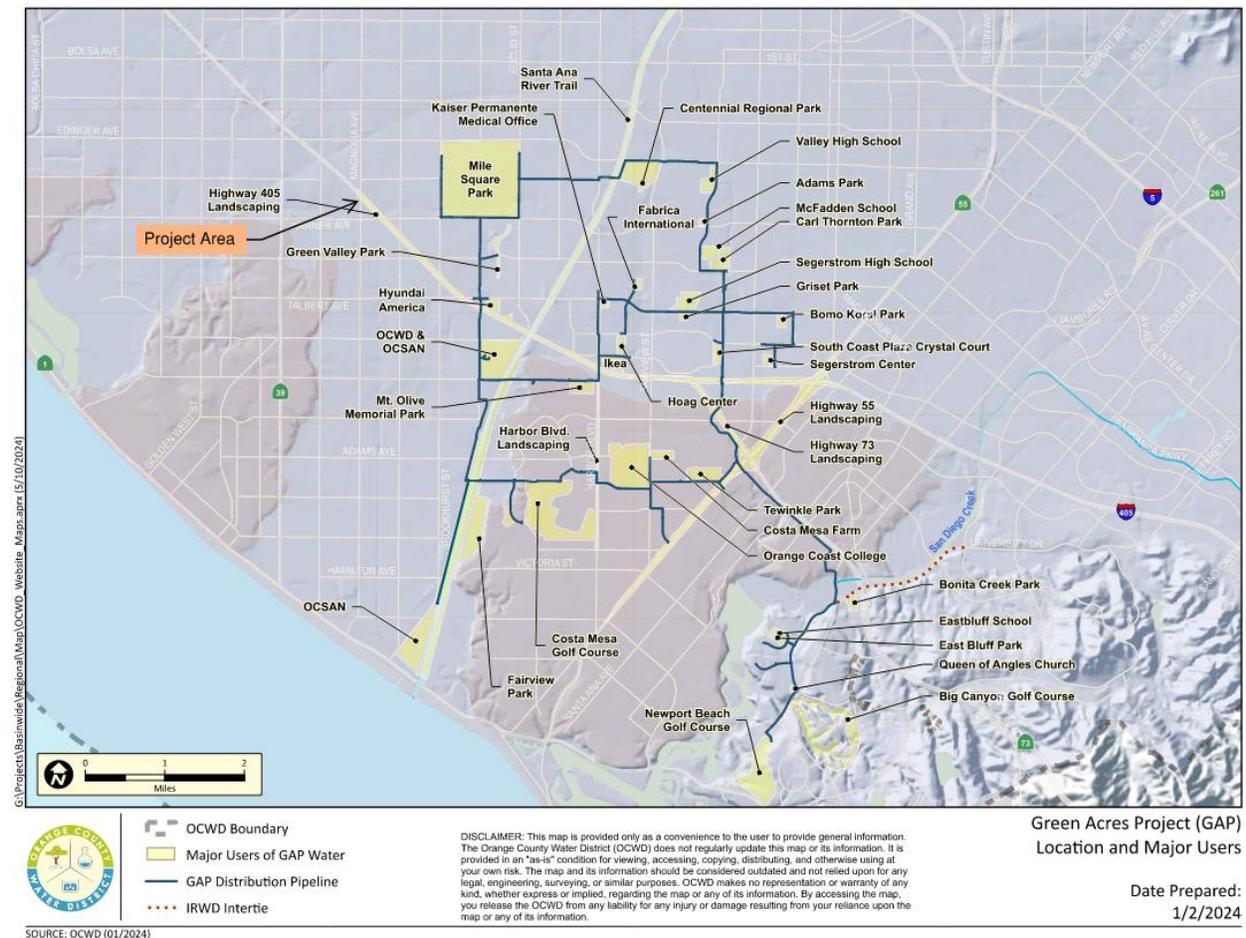
3.1 Water Supply Assessment Requirements

In accordance with CWC Section 10910 (d), Section 3 of this WSA identifies the sources of potable water that are available to the Project. Because groundwater is a source of supply for the City of Fountain Valley (and in turn for the proposed Project), SB610 requires specific groundwater information be included in the WSA. In accordance with CWC Section 10910 (f), this section will also provide a detailed description of the local groundwater basin.

As previously mentioned in Section 1.5.2 City Water Supply Sources, the recycled water that the City receives via the Green Acres Project (GAP) from OCWD will not be included in this analysis of the water supplies available to the Project as this water is only sent to select landscape irrigation sites. Further investigation would be needed to establish if recycled water could be used for the Project. As shown in Figure 3 below, the nearest GAP distribution pipeline is located approximately 6,140 linear feet (1.16 mile) away from the Project site at the intersection of Brookhurst Street and Warner Avenue near Mile Square Park.



Figure 3: OCWD Green Acres Project Recycled Water Distribution Pipeline Map⁶



3.1.1 Law: Water Code Section 10910(d)

(1): *The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.*

(2) *An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:*

(A) *Written contracts or other proof of entitlement to an identified water supply.*

⁶ <https://ocwd-prod.s3.amazonaws.com/wp-content/uploads/GAPSystem.pdf>



(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

3.1.2 Law: Water Code Section 10910(f)

If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as over drafted or has projected that the basin will become over drafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.



3.2 Demand Reduction

The Water Conservation Act of 2009 (also known as Senate Bill X7-7 or SB X7-7) was a California state law that required the state to reduce urban water consumption by 20% by the year 2020. According to the 2020 UWMP, the City complied with the SB X7.7 Compliance Option 3 requirements by achieving 95% of the applicable state hydrologic region target as set forth in the State's 20x2020 Water Conservation Plan. In 2020, the City's actual GPCD was 91, which is below the 2020 target of 142 GPCD and in compliance with SB X7-7 (Table 3-1).

Table 3-1: SB X7-7 Baseline, 2020 Target, and Compliance Summary^{7,8}

2020 Population	56,747
2020 Volume into Distribution System (AF)	8,687
Indirect Recycled Water Deduction (AF)	2,895
2020 Non-Industrial Water Use (AF)	5,792
Non-Industrial Actual 2020 GPCD	91
2020 GPCD Target	142

The City is a member of the Orange County 20x2020 Regional Alliance, which was formed by MWDOC and consists of 29 retail agencies. The City benefits from MWDOC's assistance in calculating baseline water use and water use targets. By continuing to focus on water conservation, the City anticipates being able to maintain its per capita consumption rates below the SB X7-7 target.

3.3 Projected City Potable Water Supply Analysis

As mentioned previously in Section 1.5, the City obtained 100% of its potable water supply from the OC Basin in FY2019-20. As shown in Table 3-2, over the next 25 years, the City's potable water supply portfolio will shift to 85% groundwater and 15% imported water (Table 3-2). Note that these representations of supply match the projected City's demand described in Section 2.1. This is because the City can purchase more MET water through MWDOC, should the need arise.

Table 3-2: City of Fountain Valley's Projected Water Supply Portfolio⁹

	Source	Potable Water Supply (AF)				
		2025	2030	2035	2040	2045
Groundwater (85% BPP)	OC Basin	7,301	7,234	7,330	7,410	7,410
Imported Water	MWDOC	1,288	1,277	1,294	1,308	1,308
Total Potable Water Supply		8,589	8,511	8,624	8,718	8,718
Notes: 1) BPP is defined as the ratio of the City's groundwater supplies to total potable water supplies. OCWD forecasts the OC Basin will be able to sustain a BPP of 85% beyond 2025.						
2) Recycled water produced from OCWD's Groundwater Replenishment System (GWRS) for replenishment of the OC Basin is included in the groundwater supply values.						

⁷ 2020 UWMP, City of Fountain Valley, June 2021, Table 5-2

⁸ 2020 UWMP Appendix A, City of Fountain Valley, June 2021, SB X7-7 Table 4

⁹ 2020 UWMP, City of Fountain Valley, June 2021, Table 6-2



3.3.1 Groundwater Supply

Historically, local groundwater from the OC Basin has been the cheapest and most reliable source of supply for the City. The OC Basin spans approximately 350 square miles, extending northwest to the Orange County-Los Angeles County Line. There are three major aquifer systems hydraulically connected: the Shallow Aquifer, the Principal Aquifer, and the Deep Aquifer. Groundwater can flow between each system through intervening aquitards. Over 90% of groundwater production is pumped from wells connected within the Principal Aquifer system occurring at depths between 200 and 1,300 ft below ground surface. The OC Basin is recharged through various means including natural water ways, such as the Santa Ana River and various creeks, as well as recycled water from Los Angeles County Department of Public Works and OCWD.

Per the 2020 UWMP, OCWD monitors the basin by collecting groundwater elevation and quality data from over 2,000 wells and facilities. This includes managing an electronic database that stores water elevation, water quality, and production data. As part of the OC Basin's Groundwater Reliability Plan (GRP), the groundwater levels are managed within a safe operating range to mitigate land subsidence, provide basin sustainability, and reduce the risk of overdraft. The OC Basin is not adjudicated; therefore, management includes financial incentives to encourage sustainable pumping for groundwater producers.

In 2014, the State of California adopted the Sustainable Groundwater Management Act (SGMA) to support and manage its groundwater sustainably and mitigate significant low groundwater levels, land subsidence, and water quality issues. SGMA requires all high- and medium-priority basins, as designated by California Department of Water Resources (DWR), be sustainably managed. DWR designated the non-adjudicated Coastal Plain of OC Basin ("Basin 8-1" or "Basin") as a medium-priority basin, primarily due to heavy reliance on the Basin's groundwater as a source of water supply. To comply with SGMA, the agencies within Basin 8-1, led by OCWD submitted an Alternative to a Ground Water Sustainability Plan (GSP) in 2017, titled the "Basin 8-1 Alternative". This alternative will be updated every five years.

OCWD manages groundwater levels in the OC Basin by setting a Basin Production Percentage (BPP) uniformly for all producers, which is defined as the percentage of the City's total water supply that comes from groundwater. The BPP is updated annually by OCWD's assessment of the OC Basin. While there is no legal limit as to how much an agency pumps from this basin, agencies that pump above the established BPP are charged a Replenishment Assessment (RA) plus a Basin Equity Assessment (BEA) fee.

In some cases, however, OCWD provides an exemption to the BPP for members of their Coastal Pumping Transfer Program (CPTP). The City has been involved in OCWD's CPTP since FY2016-17. The CPTP encourages inland groundwater producers – including the City – to increase pumping and coastal producers to decrease pumping to reduce the groundwater basin drawdown at the coast and protect against seawater intrusion. As an inland participant of the CPTP, the City can pump above the BPP.

The OC Basin's groundwater production in FY2019-20 was expected to be approximately 325,000 AF but declined to 286,550 AF primarily due to PFAS impacted wells being turned off around February 2020. OCWD expects groundwater production to be around 245,000 AF in FY2020-21 due to the currently idled wells and additional wells being impacted by PFAS and turned off. As PFAS treatment systems are constructed, OCWD expects total annual groundwater production to slowly increase back to normal levels



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(310,000 to 330,000 AF). Fountain Valley’s wells have not been directly impacted by PFAS. As a result, the City has been asked to pump above the BPP to help offset the lower volumes pumped by the idled wells at other agencies.

The City of Fountain Valley pumps groundwater through six operating wells that vary in depth from 864 feet to 1,120 feet. The total system capacity is estimated to be approximately 34 cubic feet per second (CFS). Besides a dip in 2018, the City has experienced an overall increase in groundwater volume pumped from 2016 to 2020 (see Table 3-3). While the actual non-irrigation BPP achieved within OCWD’s service area was 75.9% for FY19-20, 100% of the City’s potable water supply (8,686 AF) came from groundwater that year (see Table 1-2) due to over pumping for the CPTP and PFAS-impacted agencies in North Orange County.

Table 3-3: Orange County Groundwater Basin Volume Pumped by the City¹⁰

Basin Name	Groundwater Volume Pumped by the City (AF)				
	2016	2017	2018	2019	2020
Orange County Groundwater Basin	5,962	7,860	4,922	8,195	8,686

As shown in Table 3-2, OCWD forecasts the basin will be able to sustain a BPP of 85% beyond 2025 because of the 2023 Groundwater Replenishment System Final Expansion (GWRSFE) and the relatively low water demands of approximately 400,000 AFY. This value is based on average annual rainfall weather patterns. If the City were to experience a relatively dry period, the BPP could be reduced to maintain water storage levels, by as much as 5%.

According to the City’s 2023 General Plan Update Draft Environmental Impact Report (GPU DEIR), the GWRSFE included expanding the existing GWRS treatment facilities, constructing new conveyance facilities at OC San Plant 2, and rehabilitating an existing pipeline between OC San Plant 2 and the GWRS. The GWRS plant now produces 130 million gallons per day (MGD) and increases water supply production into the groundwater basin by 31,000 AFY.

3.3.2 Imported Water

As previously mentioned, in 2020, the City relied entirely on groundwater from the OC Basin to meet its potable water demand (a BPP of 100%). Despite this, the City also has the option to supplement its water supply with imported water purchased from MET through MWDOC via a connection (OC-32A). The imported water from MET includes water from the Colorado River and the State Water Project (SWP) as “Table A” water, managed by MET. “Table A” water is the maximum entitlement of SWP water for each water contracting agency. Both water supplies are treated at the Robert B. Diemer Filtration Plant located in Yorba Linda, CA and delivered to MWDOC and multiple other agencies throughout Southern California.

The maximum capacity for the OC-32A connection to the City is 10 CFS. Since there is no allocation contract known at this time, the City can theoretically utilize the maximum capacity of the OC-32A connection and purchase up to 7,240 AFY to meet its demands. While imported water attributed to 0% of

¹⁰ 2020 UWMP, City of Fountain Valley, June 2021, Table 6-4



the City's water supply portfolio in FY2019-20, it is projected to increase to approximately 13% by 2045 according to the UWMP.

MET's capability to meet projected demands, without implementing its Water Supply Allocation Plan (WSAP), is dependent on its storage resources. According to Fountain Valley's 2020 UWMP, annual water exports have generally decreased since 2005 due to regulatory restrictions affecting SWP pumping operation and generally drier hydrology. The Colorado River supply faces current and future imbalances between water supply and demand conditions due to long term drought and climate change. Similarly, the SWP faces many challenges concerning its long-term sustainability due to climate change. As of 2020, water deliveries are approximately 60% of the maximum "Table A" contract entitlements.

To increase the reliability of water supplies, MET continues to invest in flexible storage, transfer programs including groundwater storage, recycling water, water conservation, and pursuing long-term solutions for the ecosystem, regulatory and water supply issues related to the SWP. With MET's ongoing efforts to increase its water supplies and its WSAP, it is assumed that the City can rely on MET as a source for imported water for the foreseeable future.

3.3.3 Emergency Connections

As discussed in Section 1.5.1, the City has two emergency interconnections with the cities of Huntington Beach and Santa Ana that can be used to supplement water supply in special cases. Since this supply falls outside the normal operations of the City's water system, it will not be included in this WSA's assessment of the City's ability to meet the additional demands of the Project.

3.4 Projected City Water Supply and Demand During Normal, Dry, and Multiple Dry Years

Per the 2020 UWMP, the City's Drought Risk Assessment (DRA) states that its water supplies will meet projected water demand for normal, single-dry year, and consecutive dry years. As discussed further below, the City can purchase water as needed to meet the increasing demands during these periods.

3.4.1 Normal Water Year

According to the 2020 UWMP, its 25-year prediction model analyzes current and future climate conditions (such as temperature, precipitation drought and conservation measures) to show impacts on water demand. The model predicts the water supply availability and demand of a normal water year by using average demand conditions from FY2017-18 and FY2018-19. As Table 3-4 summarizes below, the prediction model shows that there is adequate supply to meet demands through 2045 for the City.



Table 3-4: City Potable Water Supply Availability & Demand Projections Normal Water Year (AF)¹¹

Normal Year City Potable Water Supply and Demand Comparison					
	2025	2030	2035	2040	2045
Water Service Area Population	57,530	58,442	58,969	59,110	58,873
Total Available Potable Supply (AF)	8,589	8,511	8,624	8,718	8,718
Total Potable Demand (AF)	8,589	8,511	8,624	8,718	8,718
Supply vs. Demand Difference	0	0	0	0	0

3.4.2 Single Dry Water Year

Per the 2020 UWMP, the City defines the single dry year condition as a single year of minimum to no rainfall within a period where average precipitation is expected based on demands from FY2013-14. The prediction model reflects the impacts of hot/dry weather condition by assuming a 6% increase in the total water demand (potable and non-potable) from the normal year condition in the City’s service area. The model concludes that there is adequate supply to meet growing demand conditions for a single dry year out to 2045. Table 3-5 summarizes the model projections for a single-dry year below.

Table 3-5: City Potable Water Supply Availability & Demand Projections Single Dry Year (AF)¹²

Single Dry Year City Potable Water Supply and Demand Comparison					
	2025	2030	2035	2040	2045
Water Service Area Population	57,530	58,442	58,969	59,110	58,873
Total Available Potable Supply (AF)	9,188	9,106	9,225	9,325	9,325
Total Potable Demand (AF)	9,188	9,106	9,225	9,325	9,325
Potable Supply vs. Demand Difference	0	0	0	0	0

3.4.3 Multiple Consecutive Dry Water Years

Multiple dry water years, as defined in the UWMP, are five or more consecutive dry years with below average precipitation. The multiple dry years assumed that there are five consecutive dry years resulting in a 6% increase over normal demands for the consecutive 5-year period of 2012 to 2016. The model concludes that there is adequate supply to meet growing demand conditions for a multiple-dry year scenario out to 2045. Table 3-6 summarizes the model projections for multiple-dry years below.

Table 3-6: City Potable Water Supply Availability & Demand Projections Multiple Dry Years (AF)¹³

Multiple Dry Years City Potable Water Supply and Demand Comparison					
	2025	2030	2035	2040	2045
Population					
Water Service Area Population	57,530	58,442	58,969	59,110	58,873

¹¹ 2020 UWMP, City of Fountain Valley, June 2021, Table 7-2

¹² 2020 UWMP, City of Fountain Valley, June 2021, Table 7-3

¹³ 2020 UWMP, City of Fountain Valley, June 2021, Table 7-4



Multiple Dry Years City Potable Water Supply and Demand Comparison					
	2025	2030	2035	2040	2045
First Year					
Total Available Supply (AF)	9,087	9,172	9,129	9,245	9,325
Total Estimated Demand (AF)	9,087	9,172	9,129	9,245	9,325
Available Leftover Supply Capacity	0	0	0	0	0
Second Year					
Total Available Supply (AF)	9,113	9,155	9,153	9,265	9,325
Total Estimated Demand (AF)	9,113	9,155	9,153	9,265	9,325
Available Leftover Supply Capacity	0	0	0	0	0
Third Year					
Total Available Supply (AF)	9,138	9,139	9,177	9,285	9,325
Total Estimated Demand (AF)	9,138	9,139	9,177	9,285	9,325
Available Leftover Supply Capacity	0	0	0	0	0
Fourth Year					
Total Available Supply (AF)	9,163	9,122	9,201	9,305	9,325
Total Estimated Demand (AF)	9,163	9,122	9,201	9,305	9,325
Available Leftover Supply Capacity	0	0	0	0	0
Fifth Year					
Total Available Supply (AF)	9,188	9,106	9,225	9,325	9,325
Total Estimated Demand (AF)	9,188	9,106	9,225	9,325	9,325
Available Leftover Supply Capacity	0	0	0	0	0

Per Section 8 of the 2020 UWMP, the City water shortage contingency planning efforts involve a comprehensive supply shortage response that includes demand reduction measures and supply augmentation actions. The City and its wholesale supplier, MWDOC, periodically revisit its representation of the supply sources and of the gross water use estimations as well as revise the DRA as needed.

3.5 Projected City Water Supply and Additional Project Demand Comparison

According to the 2020 UWMP, the projected supply during any normal, dry, or multiple consecutive dry water years out to 2045 will be adequate to meet the demands. It is assumed that these demands included the existing use at the Project Site but did not include the additional demands associated with the Project.

At full build-out of the Project, it is estimated that 155 AFY of additional water demand is required above the historic water use of the Project Site. This WSA assumes that 155 AFY will remain constant through 2045 and will be in addition to the projected demands established in the 2020 UWMP. This WSA assumes full build-out for the Project is accomplished by 2029. This WSA compares the percentage increase in water demand over a 25-year period due to the Project for a normal year and the largest



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demands from the five-year period of multiple dry years as a worst-case scenario. Like the 2020 UWMP, this WSA assumes a 6% increase in additional water demand from the Project during dry years compared to normal years.

$$\frac{\text{Total Estimated Demand with Additional Project Demand} - \text{Total Estimated Demand}}{\text{Total Estimated Demand}} * 100\%$$

Based on the estimated water required for the Project, an approximate 2% increase in supply is required to meet these demands. See Table 3-7 and Table 3-8 for a comparison to normal years and multiple-dry years, respectively.

Table 3-7: Normal Year + Additional Project Demand and Supply Comparison

	2025	2030	2035	2040	2045
UWMP Projected Potable Supply (AF)	8,589	8,511	8,624	8,718	8,718
UWMP Projected Potable Demand (AF)	8,589	8,511	8,624	8,718	8,718
Projected Demand + Additional Project Demand (AF)	8,589	8,666	8,779	8,873	8,873
Demand Increase	0%	2%	2%	2%	2%
Additional Potable Supply Required	0	155	155	155	155

Table 3-8: Multiple-Dry Year + Additional Project Demand and Supply Comparison

	2025	2030	2035	2040	2045
Fifth Year					
UWMP Projected Potable Supply (AF)	9,188	9,106	9,225	9,325	9,325
UWMP Projected Potable Demand (AF)	9,188	9,106	9,225	9,325	9,325
Projected Demand + Additional Project Demand (AF)	9,188	9,271	9,391	9,491	9,491
Demand Increase	0%	2%	2%	2%	2%
Additional Potable Supply Required	0	166	166	166	166

As previously mentioned, OCWD forecasts the OC basin will be able to sustain a BPP of 85% beyond 2025. Therefore, the City’s projected water supply portfolio for a normal water year is theoretically limited to 85% groundwater and 15% imported water. See Table 3-9 for a summary of the City’s projected water supply portfolio with the increased demand from the Project, assuming the City’s BPP remains at 85%. Without increasing the BPP, or obtaining additional sources of water, the City will need to purchase 15% of its potable water supply (6,657 AF) over the next 25 years to meet demands.

Table 3-9 City’s Projected Potable Water Supply with Additional Project Demand - 85% BPP

	2025	2030	2035	2040	2045
Projected Demand + Additional Project Demand (AF)	8,589	8,666	8,779	8,873	8,873
Groundwater Supply with 85% BPP (AF)	7,301	7,366	7,462	7,542	7,542
Imported Water Supply Projection (AF)	1,288	1,300	1,317	1,331	1,331



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	2025	2030	2035	2040	2045
Additional Supply Required	0	0	0	0	0

Note: BPP is defined as the ratio of the City's groundwater supplies to total potable water supplies.

As demonstrated in the City's FY2019-20 potable water portfolio (Table 1-2), the City has the option to increase its BPP up to 100%, although this may result in incurred costs associated with RA and BEA. To meet the additional Project demand without increasing the amount of imported water beyond the UWMP's projection (see Table 3-2), the City can increase its BPP. As shown in Table 3-10, this would require a BPP of 87% and 6,475 AF of imported water over the next 25 years.

Table 3-10 City's Projected Potable Water Supply with Additional Project Demand - 87% BPP

	2025	2030	2035	2040	2045
Projected Demand +Additional Project Demand (AF)	8,589	8,666	8,779	8,873	8,873
Groundwater Supply with 87% BPP (AF)	7,301	7,389	7,485	7,565	7,565
Imported Water Supply Projection (AF)	1,288	1,277	1,294	1,308	1,308
Additional Supply Required	0	0	0	0	0

See Table 3-11 for a summary of the City's projected water supply portfolio if it BPP is raised to 100%.

Table 3-11 City's Projected Potable Water Supply with Additional Project Demand - 100% BPP

	2025	2030	2035	2040	2045
Projected Demand +Additional Project Demand (AF)	8,589	8,666	8,779	8,873	8,873
Groundwater Supply with 100% BPP (AF)	8,589	8,666	8,779	8,873	8,873
Purchased or Imported Water Supply (AF)	0	0	0	0	0
Additional Supply Required	0	0	0	0	0

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The purpose of this WSA is to analyze whether the City's total projected water supplies established in the 2020 UWMP during normal, dry, and multiple consecutive dry water years are adequate to meet the projected water demands from the 2020 UWMP in addition to the water demand associated with the Project. The Project is assumed to be fully built out by 2029. The calculated additional demand for the Project is 155 AFY and has been added to the projected demands through 2045.

With a combination of groundwater production and imported water purchased, the City can meet the projected and additional demands associated with the Project through 2045. The City does have options available for meeting the increase in demands associated with the Project. Some of these options include increasing their groundwater production beyond OCWD's forecasted BPP and/or purchasing more imported water to meet demands.



Appendix



Appendix A Fountain Valley 2020 Urban Water Management Plan Link

The City of Fountain Valley's 2020 Urban Water Management Plan can be found here:

<https://www.fountainvalley.gov/DocumentCenter/View/13696/2020-Urban-Water-Management-Plan>