Appendix G
Water Supply Assessment

Water Supply Assessment

City of Seal Beach, Orange County, CA

Final Report

April 30, 2025

Prepared for:

City of Seal Beach
Community Development Department
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Seal Beach, CA 90740

Prepared by:

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WATER SUPPLY ASSESSMENT

April 30, 2025

Revision	Description	Author		Quality Check		Independent Review	
0	Draft	GMK	10/25/24	CEP/ JTZ	10/25/24	AR	10/22/24
1	Final	JTZ	4/25/25	CEP	4/25/25	AR	4/25/25
2	Revised Final	JTZ	4/30/25	CEP	5/2/25	AR	4/30/25

WATER SUPPLY ASSESSMENT

April 30, 2025

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Approved by _____
(signature)

Carrie Poytress, PE

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Executive Summary

City of Seal Beach retained Stantec Consulting Services Inc. (Stantec) to prepare this Water Supply Assessment (WSA) for the Housing Element Updates Project (Project) in Seal Beach, California. The Project includes the use of potable water from the City of Seal Beach (City) and Golden State Water Company (GSWC). 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 water supplies available to the retail water suppliers, the City of Seal Beach and GSWC, are adequate to serve the projected water demands established in both the City of Seal Beach's 2020 Urban Water Management Plan (UWMP) update (prepared by Arcadis U.S., Inc), and the GSWC's 2020 UWMP West Orange Service Area by Tully & Young, and the water demands generated by the Project. The UWMPs incorporated the City's and GSWC's existing and planned future water uses for 2025 to 2045. This WSA assumes that Project will be fully built-out by 2029 and was not included in either UWMP.

Per the Project, each development site has a proposed General Plan involving the addition of residential units. These sites have existing infrastructure that is expected to remain in place. Therefore, while it is assumed the UWMP accounted for the existing demand of these locations in its water demand projections, it did not account for the increased water demand resulting from the residential units of the Project. The estimated water demands of these new units must be determined and considered additional to the amounts projected in the UWMP. Using the potential density of residential units, estimated developable area, and water demand duty factors, the build-out water demand for each site was calculated. The total annual Project water demand during years with normal weather is 405 AFY and 435 AFY during a multiply dry year period.

Like the City's 2020 UWMP and GSWC's 2020 UWMP, this WSA assumes a 6% increase and 10% increase in water supply is required during dry years compared to normal years to serve the City's and GSWC's customers, respectively. Therefore, with the 6% increase applied to the City's portion of the Project demand of 266 AF, the additional supply required by the City of Seal Beach during a five-year dry period is estimated to be 282 AF. With a 10% increase applied to GSWC's portion of the Project's demand of 139 AF, the additional supply required by GSWC is 153 AF.

Table ES-1: Project Supply and Demand Comparison

Water Supplier	**Project Water Demand During a Normal Year (AFY)**	**Project Water Demand During a Five-Year Dry Period (AFY)**
City of Seal Beach	266	282
GSWC West Orange Service Area	139	153
Total	**405**	**435**

The projected supply established in the UWMPs from 2025 to 2045 assumed that supply would meet demand during normal, single, and multiple dry year conditions due to both the City's and GSWC's ability to pump groundwater per their annual established Basin Production Percentage (BPP) and by purchasing 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.

With a five-year dry period, including the demands from the proposed Project, the City's estimated total water demand in 2045 is 3,786 AFY and GSWC's is 17,488 AFY as shown in Table ES-2. According to the annual established BPP and purchases of MET water through MWDOC, reliable supply is available to the City and to GSWC to meet the Project demands.

Table ES-2: Additional Project Demand and Supply Comparison - City of Seal Beach

	2025	2030	2035	2040	2045
Fifth Year					
UWMP Projected Supply (AF)	3,366	3,570	3,543	3,516	3,504
UWMP Projected Demand (AF)	3,366	3,570	3,543	3,516	3,504
Project Water Demand (AF)	0	282	282	282	282
UWMP Projected Demand with Project Demand (AF)	3,366	3,852	3,825	3,798	3,786
Demand Increase	0%	8%	8%	8%	8%

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

	2025	2030	2035	2040	2045
Fifth Year					
UWMP Projected Supply (AF)	15,893	16,330	16,780	17,242	17,335
UWMP Projected Demand (AF)	15,893	16,330	16,780	17,242	3,504
Project Water Demand (AF)	0	153	153	153	153
UWMP Projected Demand with Project Demand (AF)	15,893	16,483	16,933	17,395	17,488
Demand Increase	0%	1%	1%	1%	1%

Abbreviations

AF	Acre-feet
AFY	Acre-feet per year
AMSL	Above Mean Sea Level
Approx	Approximate
BEA	Basin Equity Assessment
BPP	Basin Production Percentage
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
City	City of Seal Beach
CWC	California Water Code
DU	Dwelling unit
DWR	California Department of Water Resources
EIR	Environmental Impact Report
Ex	Existing
GIS	geographic information system
gpcd	Gallons per capita per day
GPD	Gallons per day
HCD	State Department of Housing and Community Development
Master Plan	City of Seal Beach 2012 Water Master Plan Update
MET	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
OC Basin	Orange County Groundwater Basin
OCWD	Orange County Water District
ORCC	Old Ranch Country Club
OCSD	Orange County Sanitary District
RA	Replenishment Assessment
RHNA	Regional Housing Needs Assessment
SB	Senate Bill (California)
SCAG	Southern California Association of Governments
SWP	State Water Project
UWMP	City of Seal Beach's Urban Water Management Plan
WSA	Water Supply Assessment
WSAP	Water Supply Allocation Plan

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION AND LOCATION

The City of Seal Beach, California (City, Seal Beach) encompasses approximately 13 square miles and is located at the northwestern edge of Orange County (County), California. It borders the City of Long Beach and Los Angeles County to the north, the Orange County Cities of Huntington Beach and Westminster to the east, Huntington Beach to the south, and the Pacific Ocean to the west, as shown in Figure 1.

The City's Housing Element Update, adopted by the City Council on February 7, 2022, is one of the seven state-mandated elements of a local General Plan and is required to be updated every eight years. In response to comments from the State Department of Housing and Community Development (HCD), the City updated the Housing Element Update on August 24, 2023, and again in March 2024. The most up to date version of the Housing Element Update is from August 2024.

The City is preparing the Housing Element Update to comply with the legal mandate requiring each local government to identify adequate sites for housing to meet the existing and projected housing needs for varying income-levels in the community. It is intended to provide the City with a comprehensive strategy for promoting the production of safe, decent and affordable housing and affirmatively furthering fair housing during the housing cycle. The City's latest Regional Housing Needs Assessment (RHNA) allocation calls for 1,243 new housing units.

According to the Housing Element Update, housing developments that have been proposed but are not expected to receive a certificate of occupancy until after July 1, 2021, yet are anticipated to be completed before the end of the planning period (October 15, 2029), can be credited toward the RHNA. The Old Ranch Country Club (ORCC) Project, which proposes the development of 167 new dwelling units, is currently pending approval. Additionally, seven ADUs are projected to be constructed within the City during the planning period. With the combined total of these projected ADUs and the Old Ranch Country Club Project (174 dwelling units), there are only 1,069 dwelling units of the RHNA allocation that the Housing Element Update must provide.

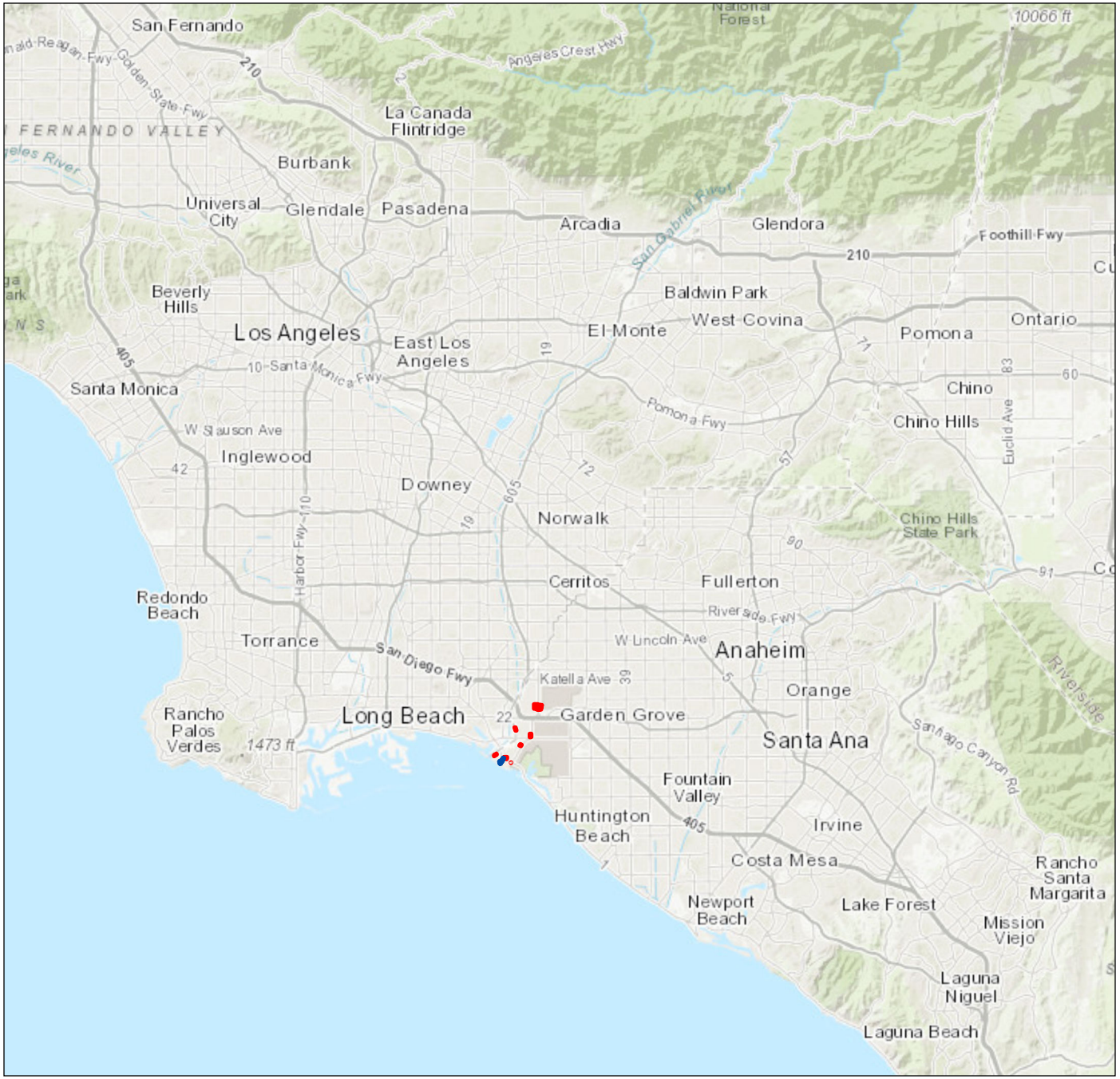
The original Housing Element Update initially identified 13 Housing Opportunity Sites (Sites) throughout the City where existing parcels can be redeveloped for additional housing. However, the number of Sites in the latest Housing Element Update (August 2024) was reduced to eight. Under a conservative development scenario (70%-80% of the maximum allowed dwelling unit density), these eight Sites could provide a total additional 1,165 dwelling units. These Sites include two (2) underutilized sites with 129 dwelling units and six (6) rezone sites for mixed use with 1,036 dwelling units.

With 1,165 dwelling units from the Housing Opportunity Sites and 174 units from projected ADUs and the Old Ranch Country Club Project, the City can count a total of 1,339 units toward its RHNA allocation – exceeding the required 1,243 units and providing an 8% buffer.

Although a maximum buildout scenario cannot be counted in the sites inventory against the City's RHNA, this WSA will analyze this more intense level of development in the following sections to provide the most conservative water demand estimate. Under maximum buildout, the Sites could yield 1,491 dwelling units.

In addition to the eight Sites, the most recent Housing Element Update introduces a “Main Street Program.” This Main Street Program is a revised version of the 'Main Street Specific Plan,” which was originally identified as one of the 13 Sites in the initial Housing Element Update but was removed from the list in the latest version. Rather than the original estimate of 163 dwelling units for the Main Street area, the latest Housing Element Update estimates a more realistic total of 115 units (or 70% of the original projection). The eight Sites and Main Street Program are shown in Figure 2.

With the 1,491 dwelling units from the eight Sites (assuming maximum buildout) and 115 dwelling units from the Main Street Program (assuming 70% of maximum buildout), development from the latest Housing Element Update (the Project) is expected to result in a total of 1,606 dwelling units.



Stantec

Sites

Optional Site for Future Development

N

0 3.5 7 Miles

(At original document size of 8.5x11)
1:500,000

Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources: City of Seal Beach 2024.
3. Background: World Topographic Map: Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS
World Ocean Base: Esri, GEBCO, Garmin, NaturalVue
World Ocean Reference: Esri, GEBCO, Garmin, NGS

Project Location
City of Seal Beach, California

Prepared by KDLP on 2024-10-17
IR by TJ on 2024-10-17

Client/Project 204266500

City of Seal Beach
Housing Element and Zoning Code Updates Project

Figure No.
1

Title
Project Vicinity

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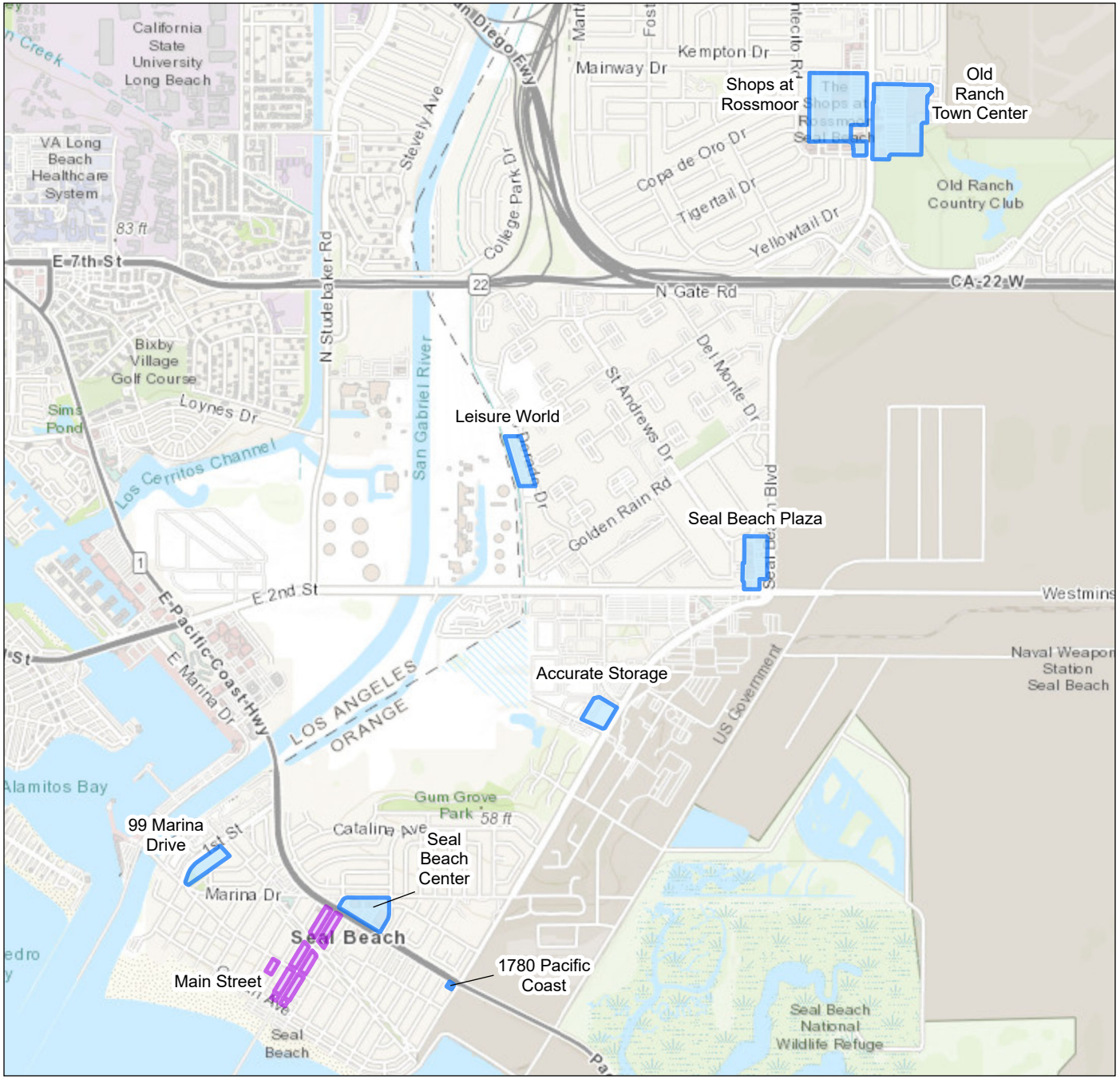

Stantec

N

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(At original document size of 8.5x11)
1:32,000

Notes
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Data Sources: City of Seal Beach 2024.
3. Background: World Ocean Base: Esri, GEBCO, Garmin World Ocean Reference: Esri, GEBCO, NGS World Topographic Map: City of Long Beach, County of Los Angeles, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Project Location
City of Seal Beach, California

Prepared by KDLP on 2024-10-17
IR by TJ on 2024-10-17

Client/Project 204266500

City of Seal Beach
Housing Element and Zoning Code Updates Project

Figure No.
2

Title
Project Area

V:\1858\Active\204266500_SealBeachHousingElement\03_data\gis_cad\gis\Prn\SealBeach_Oct2024\SealBeach_Oct2024.aprx Revised: 2024-10-17 By: kdelapena

1.2 WATER SUPPLY ASSESSMENT PURPOSE

The purpose of this Water Supply Assessment (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 water supplies are or will be available to meet the water demand associated with a proposed Project.

Since the 2020 UWMPs did not include any portions of the Project as part of the City's RHNA, per Water Code Section 10912, the proposed dwelling units from the Project triggers the requirement for a WSA. 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, 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 UWMPs by 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.*

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 is a retail water supplier for the Project, except for Site 4 - The Shops at Rossmoor, which will be served by another retail water supplier, Golden State Water Company (GSWC) West Orange. The City prepared a 2020 Urban Water Management Plan (Appendix A), that was adopted by City Council in June 2021. GSWC also prepared a 2020 UWMP for their West Orange Service Area, (Appendix A), which was adopted in July 2021. This WSA relies on the information contained in both 2020 UWMPs and references it in the following supply and demand analysis. Both the City and GSWC meet their demands with a combination of imported water and local groundwater. It is projected that for each year noted in the UWMPs including 2045, the supply will match the projected demand. There is adequate Metropolitan Water District of Southern California (MET) water supply through MWDOC available to both the City and GSWC, should the need arise. It is assumed the Project falls under CWC Section 10910 (c) (3), as no portion of the Project was accounted for either 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 HOUSING OPPORTUNITY SITE LAND USES

1.4.1 Existing Land Uses

The City's current base zoning and overlay districts, including the General Plan land use designation implemented by zoning designation from Section 3.5 of the UWMP, are provided in Table 1-1 below.

Table 1-1: Current Zoning and General Plan Land Use Designations[1]

Zoning	Abbreviation	General Plan Designation Implemented by Zoning
Base Residential Zoning Districts		
Residential Low Density – 9 [a]	RLD-9	Residential Low Density
Residential Low Density – 15 [a]	RLD-15	Residential Low Density
Residential Medium Density – 18 [b]	RMD-18	Residential Medium Density
Residential High Density – 20 c	RHD-20	Residential High Density
Residential High Density – 33 c	RHD-33	Residential High Density
Residential High Density – 46 c	RHD-46	Residential High Density
Base Mixed-Use, Commercial, and Industrial Districts		
Limited Commercial/Residential Medium Density d	L-C/RMD	Mixed Use
Main Street Specific Plan	MSSP	Main Street Specific Plan
Professional Office	PO	Professional Office
Service Commercial	CS/SC	Service Commercial
General Commercial	GC	General Commercial
Light Manufacturing	LM	Light Manufacturing
Oil Extraction	OE	Oil Extraction
Base Public and Semi-Public Park Districts		
Public and Semi-Public Facilities	PS	Community Facility and School
Recreation/Golf	RG	Open Space – Golf
Base Military, Open Space, and Park Districts		
Military	M	Military

[1] City of Seal Beach, General Plan Zoning Map, 2013; City of Seal Beach Municipal Code and Zoning Ordinance, Chapter 11.1.05.030, 2021

Zoning	Abbreviation	General Plan Designation Implemented by Zoning
Beach	BEA	Beach
Open Space Natural	OS-N	Open Space
Open Space Parks and Recreation	OS-PR	Park
Overlay District and Specific Plan Zone Regulations		
Residential Conservation Overlay	RC-O	All
Planned Unit Development Overlay	PUD/PD	All
Commercial/Park	C/P	All
Coastal Zone	CZ	All
Specific Plan Regulation	SPR	All

Notes:

a Single-unit and small, zero-lot line neighborhoods at a base density up to 9 or 15 dwelling units per net acre.

b Duplexes, townhouse projects, apartments, and small-lot, single-unit residential uses, at a density of 15 to 18 dwelling units per net acre. Additional density may be achieved through density bonuses.

c Multi-unit residential developments at a base density of 20 to 46 dwelling units per net acre. Additional density may be achieved through density bonuses.

d Limited commercial and office uses in conjunction with residential uses.

1.4.2 Proposed Land Uses

As previously mentioned, the Housing Element Update identifies eight Sites throughout the City that have the potential for providing additional housing. The City is nearly built-out with almost no vacant developable land remaining. Therefore, the City must rely primarily on non-vacant sites to increase the City's housing potential. As demonstrated in Table 1-2 and Table 1-3 below, the Sites consists of two categories:

(a) underutilized sites that do not require zoning code changes and
(b) sites where zoning modifications are proposed.

Table 1-2: Underutilized Sites Inventory (Rezoning Not Required)[2]

Site No.	Site Name	Address (APN)	Approx. Acres	Developable Acres	Current General Plan Zoning
1	1780 Pacific Coast Hwy	199-061-01	0.25	0.25	Limited Commercial/ RMD-20
2	Leisure World	095-691-04	5.5	5.5	Residential High Density – Planned Community

[2] City of Seal Beach 2021-2029 Housing Element Update, 2024.

Table 1-3: Rezoned Sites Inventory[3]

Site No.	Site Name	Address (APN)	Approx. Acres	Developable Acres	Current General Plan Zoning	Proposed General Plan Zoning
3	Accurate Storage	095-791-18	4	1.8	RHD-20	MU 46*
4	The Shops at Rossmoor	086-492-51	27	12	GC	MU
5	Old Ranch Town Center	130-861-14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27	26	8.3	GC	MU
6	Seal Beach Plaza	095-641-44, -49, -55, -56, -57	7	1.5	CS-SC	CS/SC and MU-O
7	Seal Beach Center	043-260-02, -05	9	2.7	SC	SC/MU-O
8	99 Marina Drive	199-011-10	4.3	3	OE	RHD/RHD-20

Notes: * The current MU is only associated with LC/RMD. A new mixed-use zoning category would need to be created to facilitate a density equivalent to RHD-46.

Though all Housing Opportunity Sites are within the City of Seal Beach, Site No. 4 – The Shops at Rossmoor is anticipated to be served water by GSWC and not the City of Seal Beach. The remaining seven Housing Opportunity Sites and the Main Street Program are anticipated to be served by the City of Seal Beach.

The Housing Element Update currently includes descriptions for the Housing Opportunity Sites, with an explanation of the methodology for selecting the sites that are currently developed with various uses An in-depth description of each Housing Opportunity Site is provided below (Seal Beach 2022).

Site 1 – 1780 Pacific Coast Highway (No Rezoning)

Location: 1780 Pacific Coast Highway (PCH; Pacific Coast Highway), at the eastern corner of the intersection of Pacific Coast Highway and Seal Beach Boulevard. The site has housing to the rear of it, and retail to the north. Across the street to the south is the Naval Weapons Station, and to the west are single family residential uses.

Size: 0.25 acre

Current Use: retail, specifically a small liquor store and a bait shop.

Current Zoning: Limited Commercial/Residential Medium Density (LC/RMD)

[3] City of Seal Beach 2021-2029 Housing Element Update, 2024.

Reason For Selection: This parcel is developed with an older commercial building currently occupied by a liquor/convenience store. Due to the age and marginal condition of the structure, taken in combination with the value of the land, this site is an excellent and likely candidate for redevelopment with a new residential or mixed-use project. It is immediately adjacent to housing, with excellent access to goods and services.

Assumed Development Capacity: This zoning designation allows residential use at up to 21.8 units/acre. The site can reasonably accommodate ground floor commercial use and parking with four second-story housing units. Because of its maximum allowable density, this parcel has been listed in the moderate-income site inventory.

Site 2 – Leisure World (No Rezoning)

Location: Leisure World is a large, high-density residential senior community generally bound by Westminster Boulevard, Seal Beach Boulevard, Interstate (I)-405, and the Los Alamitos Flood Control Channel. The community currently has 6,608 units. The opportunity site within the development is located along the eastern border, about 0.33 miles from the southwestern corner of the community.

Size: 5.5 acres

Current Use: Recreational vehicle storage

Current Zoning: Residential High Density–Planned Development (RHD-PD)

Reason For Selection: This is an underutilized site in a community that, while not income-restricted, offers very affordable living options, with units selling far below the cost of condominiums elsewhere in the region. For example, a one-bedroom unit may be found for under $300,000 while elsewhere pricing starts in the $500,000 range. More than 75 percent of the population in Leisure World consists of low- to moderate-income households. Additionally, the community is already developed to higher densities, with a few buildings at three stories with parking underneath. Additional units could integrate well into the community and could spread ongoing maintenance and operational costs among a greater number of owners, helping to keep those costs in an affordable range. Furthermore, such development has precedent. The series of three-story buildings referenced, known as Mutual 17, were built in the 1980s, well after the rest of Leisure World was developed, and include 126 2-bedroom, 2-bath condominiums on a little less than five acres. As only one percent of the site is proposed for redevelopment, and adequately sized common areas are present, the existing uses will not impede the anticipated amount of residential development. A development proposal at this site can be approved administratively. No additional zoning revisions are needed.

Assumed Development Capacity: An additional 125 moderate-income units can be accommodated on approximately 5.5 acres presently devoted to recreational vehicle storage at a density of 32.2 units to an acre. New three-story buildings can accommodate parking on the ground level with units above.

Site 3 – Accurate Storage (Rezoning Required)

Location: 1011 Seal Beach Boulevard. This site is bordered by office, commercial and light industrial uses to the north and west, by the City Police Station across Adolfo Lopez Drive to the south, and by the Seal Beach Naval Weapons Station across Seal Beach Boulevard to the east.

Size: 4.4 acres

Current use: Self storage facility

Current zoning: High Density Residential (RHD-20)

Reason for selection: This site was previously selected as a candidate housing site due to underutilized parking, location close to services, and interest from the property owner. There are no known environmental constraints on this property, and the site has good access to employment and transit routes. Due to the high land value and relatively low utilization, there is significant financial incentive for residential development on this property.

Assumed Development Capacity: As the current zoning did not result in redevelopment of this site with residential uses, the development assumptions have been revised. The improvement value to land value is less than 1.0 (0.54), indicating a likelihood for redevelopment, with conversion of the outdoor storage being the most likely to intensify in value. The indoor storage could remain in place and not be an impediment to development due to the site plan and overall quality of development and maintenance of the site. Therefore, it is assumed that only 1.8 acres of the site will redevelop to housing, instead of the entire 4.4 acres. This site is proposed for rezoning to a maximum density of 46 units per acre that will enhance the financial viability of adding residences to the site. Development of 1.8 acres could yield 66 above-moderate units, or more if a density bonus is employed. However, given the need to design around existing buildings, the projected number of units has been reduced to 59. Because the presumed developable area is less than 2 acres, this site uses a conservative estimate of only 10 percent at lower-income and 10 percent at moderate income, despite a proposed density of 46 units per acre.

Site 4 – The Shops at Rossmoor (Rezoning Required)

Location: This multi-address retail center is on the west side of Seal Beach Boulevard between St. Cloud Drive and Rossmoor Center Way.

Size: 27 acres

Current use: Retail center, with uses including Marshalls, Kohl’s, Ulta, Sprouts Farmers Market, and Burlington

Current zoning: General Commercial (CG)

Reason for selection: This site was selected due to an abundance of underutilized parking accompanied by owner interest in development of housing units. The site’s ratio of improvement value to land value is less than 1.0 (0.85), meaning the site is economically underutilized, despite being a generally successful

retail center. However, with a number of “big box” type tenants subject to changes in the retail landscape, this center is vulnerable to store closures that could result in significant vacant space. A new mixed-use zone would allow for greater flexibility to utilize the land, and by adding housing units, increase the viability of the retail that remains. Additionally, high density residential already exists along the western edge of the retail center, increasing compatibility of the use.

Assumed development capacity: The site is 27 acres, and surface parking occupies approximately 19 acres. It is assumed that approximately 12 acres of surface parking could be developed with housing, at a proposed 46 units per acre, resulting in 441 units, exclusive of a density bonus. Because of the ample development potential and therefore ability to achieve economies of scale, Table projects 276 units at lower-income, 14 units at moderate-income, and 151 at above-moderate-income.

The Shops at Rossmoor is anticipated to be served water by Golden State Water Company (GSWC).

Site 5 – Old Ranch Town Center (Rezoning Required)

Location: This multi-address retail center is on the east side of Seal Beach Boulevard, between the Old Ranch Country Club golf course and Plymouth Drive.

Size: 26 acres

Current use: Retail center including stores such as Target and Ralph’s supermarket.

Current zoning: General Commercial (GC)

Reason for selection: Like the Shops at Rossmoor, the Old Ranch Town Center has a significant amount of underutilized parking, and primarily big box uses. Currently, the former Bed Bath and Beyond store is vacant. The addition of housing to this site is feasible as it is immediately adjacent to goods and services, has excellent access along a major thoroughfare, and can integrate well with the scale of the existing development, bolstering retail uses with on-site residents. The improvement to land value ranges by parcel, with the largest parcel at 0.95 and the second largest parcel at 0.07, demonstrating ripeness for additional development.

Assumed development capacity: It is assumed approximately 8.3 acres of the surface parking lot of the center could be developed or redeveloped with housing uses, creating a mixed-use environment at 46 units per acre, for a total of 306 units. Because of the ample development potential and therefore ability to achieve economies of scale, as well as density over 30 dwelling units per acre, this site estimates 258 units at lower-income and 48 at moderate-income. Due to its proximity to the Joint Forces Training Base, all residential units would be conditioned to meet interior noise level standards of 45 decibels, however, this is not an obstacle to development as this is also the standard in the California Building Code. Housing currently exists to the north and northeast of the site, also adjacent to the Joint Forces Training Base.

Site 6 – Seal Beach Plaza (Rezoning Required)

Location: This multi-address retail center is at the northwest corner of Seal Beach Boulevard and Westminster Boulevard. Two churches and Leisure World are to the north and west, and generally the Naval Weapons Station surrounds the other sides.

Size: 7 acres

Current use: Retail and office/service uses

Current zoning: Service Commercial (SC)

Reason for selection: This site has a low improvement value to land value ratio at 0.72 and has experienced some large tenant turnover in the past, which could indicate a need to reposition the site for long-term success in the future. Like other retail plazas, it is underutilized with large parking areas. The site offers excellent access to goods and services, and augmenting the site with housing would benefit the on-site retailers. The adjacent Leisure World utilizes higher densities, and the Naval Weapons Station is immediately east, and is not a conflicting use.

Assumed development capacity: This site can be redeveloped entirely or partially as a mixed-use project. Assuming that residential uses are developed on 1.5 acres of surface parking at the site at a base density of 46 du/acre, 55 moderate-income units could be accommodated following adoption of a new mixed-use zoning district.

Site 7 – Seal Beach Center (Rezoning Required)

Location: This retail plaza is located on Pacific Coast Highway, between Balboa Drive and Bolsa Avenue. It is directly across Pacific Coast Highway from Main Street, the commercial core of the Old Town area.

Size: 9 acres

Current use: The center consists of two anchor stores, a Pavilions supermarket, and a CVS Pharmacy, along with several smaller retail and restaurant tenant spaces.

Current zoning: Service Commercial (SC)

Reason for selection: This site has an improvement value to land value ratio of 0.72, indicating it is underutilized and could perform to a higher capacity. Its location provides excellent walkability and access to goods and services, including an elementary school. A small mixed-use project could be undertaken using available parking and redeveloping portions of the site with housing above retail. Moreover, the property representatives have expressed an interest in mixed use as a future possibility to increase site utility.

Assumed development capacity: With a mixed-use zoning allowing up to 46 units per acre, and 2.7 acres of surface parking, the capacity would be 99 above-moderate units without using a density bonus.

Site 8 – 99 Marina Drive (Rezoning Required)

Location: 99 Marina Drive, northeast of Marina Drive and First Street intersection.

Size: 4.3 acres

Current use: Vacant. At some point, a handball court was constructed on the western edge of the property and the City maintains a small section of the property around the court primarily for safety reasons as the court is located adjacent to a public park.

Current zoning: Oil Extraction (OE)

Reason for selection: Previously a site that supported oil extraction in the area, the current owners (Exxon and Chevron) are actively marketing the property. Based on inquiries received by City staff from potential buyers, as well as the surrounding residential uses, housing development makes the most sense and is generally expected by the community.

Assumed development capacity: A density of 33 units per acre is proposed at this site to meet the 30-du/ac default density thresholds established under Government Code Section 65583.2(c)(3)(B)). However, this location may have additional development standards imposed by the Coastal Commission, similar to the adjacent development, where a portion of the site was left as open space. Thus, the total housing production expected at the site is 69 units, all of which are assumed to be above moderate, to be extremely conservative.

1.5 PUBLIC WATER SYSTEM DESCRIPTION

1.5.1 Public Water System Infrastructure – City of Seal Beach

The City of Seal Beach 2012 Water Master Plan Update (Master Plan) provided an evaluation of the City's water supply system to develop guidelines for the construction of new and replacement facilities. The objective of this Master Plan was to develop the Capital Improvement Program (CIP) consisting of projects that would enhance, maintain, or replace aging facilities through 2014-2021. In addition, the CIP is considered a planning tool that will allow construction of the recommended projects to improve the water system and meet system performance criteria for existing and future customers. Although the water system was evaluated in 2012, the development of the housing unit proposed project was not part of the analysis. The City does not have a current Master Plan for years after 2020.

Per the 2012 Master Plan and the 2020 UWMP, the City's domestic water system consists of 74.8 miles of transmission and distribution system pipes ranging from 4-inch to 20-inch diameter, two booster pump stations, two forebay reservoirs, four production wells, four disinfection sites, 680 fire hydrants, and 5,350 service connections, one imported water supply connection to purchase water from MET and several emergency connections. There are no direct surface-water or recycled water uses in the City's service area.

The City's water system is in a single closed zone system and system pressure is maintained through the imported water supply connection and the booster pump stations, Bolsa Chica Well and Lampson Avenue Well. The service area is divided into several communities such as Old Town, Bridgeport, Marina Hill, Hellman Ranch, the Boeing and police facilities, City yard, surfside, Leisure World Retirement Community, College Park East and West, Bixby Old Ranch and Old Ranch Golf Course, the Seal Beach National Wildlife Refuge, Sunset Aquatic Park, and the U.S. Naval Weapons Station. City's service area has been stable with an annual average of 3,482-acre feet (AF) for potable use. City's water demands are met through a combination of imported water and local groundwater.

1.5.2 Public Water System Infrastructure – GSWC West Orange Service Area

The GSWC West Orange Services Area covers approximately 15.4 square miles in western Orange County and delivers potable water to approximately 114,000 customers including the Cities of Cyprus, Stanton, Los Alamitos, and small portions to the Cities of Seal Beach, Garden Grove, and La Palma and some adjacent unincorporated county customers. GSWC West Oranges Service Area has 27,643 water service connections.

Per GSWCs 2020 UWMP, the West Orange Service Area's system is comprised of fourteen active groundwater wells with a combined capacity of 11,850 gallons per minute, owned and operated by GSWC. These well sites are disinfected locally with 12.5 percent sodium-hypochlorite injection solution. The groundwater is blended with water purchased from MWDOC. The West Orange Service Area's system has four emergency interconnections to allow sharing of supplies during short term emergencies or planned shutdowns. These interconnections include connections to the City of Garden Grove, the City of Seal Beach, the City of Buena Park, and GWSC's Artesia System.

1.5.3 Public Water System Supply

As mentioned previously, the City of Seal Beach and Golden State Water Company West Orange Service Area use a combination of imported water and groundwater to supply their customers. Each water supply is summarized below:

1.5.3.1 Imported Water

Imported water purchased from MET is supplied to the City by MWDOC via West Orange County Water Board. The connection, OC-35, is located at Springdale Street and Westminster Avenue and is shared with the City of Huntington Beach, who is responsible for managing, maintaining, and operating the facility. The maximum capacity for the City's connection is 9.9 cubic feet per second (cfs). In FY 2019-20, the City relied on approximately 1,132-acre feet per year (AFY) of imported water, 35% of the City's total water supply, to meet its demands.

The City imports an average of 0.5 AF per month from September through June for the purpose of flushing the transmission main of stagnant water. Flushing is performed sporadically when disinfection levels fall below a certain threshold. The City of Huntington Beach monitors the City of Seal Beach's portion of the OC-35 connection and controls conveyance. Historically, the City switches over to import water during the months of July and August. During these two months, the City typically maintains a

flowrate between 3-5 cfs. A flow rate higher than 6 cfs is seldom needed. The only occasions where the flow would be close to the maximum capacity of 9.9 cfs is if there is a large water main break or a fire flow demand.

GSWC also purchases MET water from MWDOC and manages the allocations of the supplies among the Placentia-Yorba Linda and the West Orange Service Areas to meet both service areas needs and reduce costs for their customers. The West Orange Service Area purchased an average of 713 AF over 2016 to 2020, with 2019 and 2020 purchases being less than 75 AF.

GSWC also purchases a small amount of potable water from the City of Seal Beach through its existing connection to the City. In 2020, GSWC purchased 34 AF from the City of Seal Beach.

See Section 3.3.1 for further analysis of imported water sources.

1.5.3.2 Groundwater Production

The City of Seal Beach and GSWC West Orange Service Area pump groundwater from the Orange County Groundwater Basin (OC BASIN). This basin is managed by Orange County Water District (OCWD) and covers an area of approximately 350 square miles and the boundary extends to the Orange County-Los Angeles Line northwest.

The City's water system includes four groundwater wells that include the Bolsa Chica Well, the Beverly Manor Well, the Lampson Avenue Well and the Leisure World Well. As of 2021, Leisure World Well is inactive. Per the City's UWMP, the groundwater volume pumped in 2016-2020 by the City is relatively stable with the highest volume, 2,400 AF, pumped in 2019. In FY2019-20, the City pumped approximately 2,141 AF of groundwater.

GSWC also produces groundwater within the OC BASIN via fourteen active groundwater wells and pumped an average of 17,000 AFY during 2016 to 2020 with the highest volume, 19,031 AFY, being pumped in 2018 (GSWC 2021).

See Section 3.3.2 for an analysis of groundwater water sources.

1.5.3.3 Emergency Connections

The City is authorized to use water through emergency interconnections with the City of Long Beach, the City of Huntington Beach, the City of Westminster, and Golden State Water Company (GSWC) and it does not currently have plans to introduce new exchanges and transfers. Two reservoirs, Navy and Beverly Manor, store 1.10 MG and 2.38 MG for fire suppression and operational needs respectively per the UWMP. The Navy Booster Station is located within the U.S. Naval Weapons Station, east of Seal Beach Boulevard and north of Bolsa Avenue. Beverly Manor Booster Station is located south of the San Diego Freeway and west of Seal Beach Boulevard.

GSWC West Orange Service Area maintains four emergency interties with four agencies and a combined capacity of over 4,500 gpm. These connections are intended to serve as emergency use for system outages, maintenance, or other supply disruption. These supplies are not included in the supply

projections. In addition to the Seal Beach intertie, emergency interties exist with the City of Garden Grove, City of Buena Park, and GSWC Artesia Service Area. As no use was observed in the last 5 years tables are not presented in this WSA.

1.5.3.4 Capital Improvement Projects (CIPs)

Per the City's 2020 UWMP, the City anticipates water demand to remain constant over the next 25 years. The Capital Improvement Program approved by the Fiscal Year 2020-21 Budget includes several projects to improve the City's water supply reliability. These projects include renovations of two of the City's three water supply well facilities, construction of a wellhead treatment plant at the Lampson Well facility, rehabilitation projects at Bolsa Chica and Beverly Manor wells, and a study to replace aging water meters with Advance Metering Infrastructure (AMI), and SCADA Improvements.

Per GSWC's 2020 UWMP, GSWC has established water rates that support their CIP and operation and maintenance costs. No CIPs were reported in the UWMP.

2.0 WATER DEMAND ASSESSMENT

As mentioned in Section 1.2, Senate Bill 610 stipulates when a project is subject to CEQA, then 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 UWMPs to address the above requirements of the CWC.

2.1 CURRENT AND PROJECTED WATER DEMAND

In FY2019-20, the City had a service area population of 24,000 people and an actual consumption rate of 95 gallons per capita per day (GPCD) with a total water consumption of 3,272 AF per the 2020 UWMP. As shown in Table 2-1, this water consumption includes commercial, institutional/governmental, landscape, and losses.

According to the 2020 UWMP, from 2025 to 2045, the City's residential water demand is projected to decrease, while usage by commercial, industrial, and institutional/governmental is projected to increases. Demands for large landscape applications are projected to stay consistent, while the volume of losses is projected to slightly increase (although this holds constant as a percentage of total water use). See Table 2-1 for a summary of the City's current and future population and water demand out to 2045.

Table 2-1: City of Seal Beach Current and Projected Water Demand[4]

		2020	2025	2030	2035	2040	2045
Population Served		**24,000**	**24,110**	**24,527**	**24,652**	**24,554**	**24,357**
Total Water Demand (AF)		**3,272**	**3,175**	**3,368**	**3,342**	**3,317**	**3,306**
	Single/Multi- Family Residential	2,306	2,467	2,442	2,417	2,393	2,382
	Commercial	492	490	663	663	663	663
	Institutional/Governmental	111	111	150	150	150	150
	Landscape	16	24	24	24	24	24
	Losses	347	84	89	89	88	88

Per the City's UWMP, the City's current population is expected to increase by 1.5% over the next 25 years and the total number of dwelling units is expected to increase from 14,064 in 2020 to 14,171 in 2045. The dwelling unit projection in the UWMP did not include the City's RHNA allocation nor the Project.

Per GSWC's 2020 UWMP, GSWC West Orange Service Area's projected population is based on the 2020 estimated population and projected growth from Southern California Association of Governments (SCAG). The projected growth rate for the City of Cyprus was used to project the growth rate for GSWC's West Orange Service Area through 2045. Water demand is expected to grow due to the growth in population. See Table 2-2 for a summary of GSWC's West Orange Service Area projections.

Table 2-2: GSWC Current and Projected Water Demand[5]

		2020	2025	2030	2035	2040	2045
Population Served		**114,235**	**114,750**	**115,267**	**115,787**	**116,308**	**116,833**
Total Water Demand (AF)		**14,173**	14,137	14,527	14,926	15,337	15,759
	Single Residential	6,601	6,493	6,671	6,855	7,044	7,237
	Multi- Family Residential	2,614	2,667	2,740	2,816	2,893	2,973
	Commercial	2,936	3,283	3,374	3,467	3,562	3,660
	Institutional/Governmental	46	59	61	62	64	66
	Landscape	828	810	833	856	879	903
	Losses	1,148	825	848	871	895	920

2.2 PROJECT WATER DEMAND

As previously outlined in Section 1.1, the Project proposes the addition of up to 1,606 residential units across eight Sites and the Main Street Program. These locations have existing infrastructure that is

[4]2020 UWMP, City of Seal Beach, June 2021

[5]2020 UWMP, GSWC West Orange Service Area, July 2021, Table 2-1, 4-5

expected to remain in place. This WSA assumes that while the 2020 UWMPs accounted for the existing demand of these locations in its water demand projections (see Table 2-1), it did not account for the increased water demand resulting from the proposed Project. Therefore, the estimated water demands of these new units must be determined and considered in addition to the amounts projected in the UWMPs.

As previously described in Section 1.1, this WSA will provide a conservative water demand estimate by assuming maximum buildout for the eight Housing Opportunity Sites and 70% of the maximum buildout the Main Street Program. Table 2-3 below summarizes the number of dwelling units of each Project location.

Table 2-3: Summary of Project Potential Dwelling Units

Site No.	Developable Area (Acres)	Maximum Allowed Density	Total DU
Housing Opportunity Sites			**1,491**
1	0.25	21.8	5
2	5.5	32.2	177
3	1.8	46	83
4	12	46	552
5	8.3	46	382
6	1.5	46	69
7	2.7	46	124
8	3	33	99
Other Sites			**115**
Main Street*	10.5	-	115
Total Housing Element Update Sites			**1,606**

*The proposed commercial area and total dwelling units for the Mission Street Program was developed by assuming 70% of the buildout described in the original Housing Element Update

Water demand for the eight Sites and the Main Street Program was estimated by multiplying the total number of dwelling units by a water demand duty factor that the City has established for the residential land use category. This WSA assumes the duty factor includes landscape irrigation water demand within the factor. The estimated project water demand for the eight Housing Opportunity Sites and the Main Street Program is summarized in Table 2-3 below. The annual Project water demand is 361,350 GPD or 405 AFY, however Site 4 - The Shops at Rossmoor are served by GSWC. See Table 2-3 for a summary of estimated water demand for the Project.

Table 2-4: Estimated Project Water Demand

	Total Residential Units (DU)	Residential Duty Factor (GPD/DU)	Water Demand (GPD)	(AFY)
Served by City	1,054	225	237,150	266
Served by GSWC	552	225	124,200	139
Total	**1,606**	**225**	**361,350**	**405**

2.2.1 Construction Water Demand

Project construction will require water for dust control and other general construction activities. During construction, water is assumed to be provided from existing fire hydrants adjacent to the project sites following the City's and GSWC's procedures. It is assumed grading will take place to move around soil for the redevelopment of the sites. However, there is no estimate for the earthwork at each site and therefore construction water could not be estimated at this time and is not accounted for in this WSA.

3.0 WATER SUPPLY ASSESSMENT

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. The purpose of this section is to evaluate if the water supplies during normal, dry, and multiple-dry water years over a twenty-year period (2025-2045) are adequate to meet the projected demands established in both of the 2020 UWMPs.

Because groundwater is a source of supply for the City of Seal Beach and GSWC (and in turn for the proposed Project), SB610 requires specific groundwater information to 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.

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.

(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 City's 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 addition, the City was able to achieve at least a 5% decrease in water usage compared to the average of the previous five years. The City's actual 2020 GPCD was 95 which is below the 2020 target of 142 GPCD which complies with SB X7-7.

The City and GSWC are members 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.

GSWC West Orange Service Area compliance target was established as 141 GPCD per the selected SB X7-7 Compliance Option 3. In 2020, GSWC was able to meet the compliance requirements by achieving 111 GPCD which equates to a 21% reduction from the compliance target.

3.3 WATER PROJECTED SUPPLY

As mentioned previously in Section 1.5, the City and GSWC obtains their water supply from a combination of imported water and groundwater from the OC Basin. According to the UWMPs, it is projected that by 2045, the City's and GSWC's water supply portfolios will compose of 85% groundwater and 15% imported water (Table 3-1).

Table 3-1: City's Projected Water Supply Portfolio[6]

	Source	Potable Water Supply (AF)				
		2025	2030	2035	2040	2045
Groundwater	OC Basin	2,699	2,862	2,841	2,820	2,810
Imported Water	MWDOC	476	505	501	498	496
Total Water Supply		**3,175**	**3,367**	**3,342**	**3,318**	**3,306**

Per GSWC 2020 UWMP, it is assumed that supply will meet demand and GSWC will only acquire water supply to meet the specific demands of any given year. The following table shows the supply that is available to GSWC West Orange Service Area regardless of demand.

Table 3-2: GSWC Projected Available Water Supply Portfolio[7]

	Source	Potable Water Supply (AF)				
		2025	2030	2035	2040	2045
Groundwater	OC Basin	19,800	20,210	20,630	21,602	21,505
Imported Water	MWDOC	2,100	2,100	2,100	2,100	2,100
Imported Water	City of Seal Beach	40	40	40	40	40

[6] 2020 UWMP, City of Seal Beach, June 2021, Table 6-2

[7] 2020 UWMP, GSWC West Orange Service Area, July 2021, Table 3-3, 3-6, 3-9, 3-15

Total Water Supply	21,940	22,350	22,770	23,202	23,645

3.3.1 Imported Water

The City of Seal Beach and GSWC West Orange Service Area purchase water from MWDOC. MWDOC is a MET member agency and MET's supply projections consider the imported demands from Orange County, including demands from the City of Seal Beach. Per MWDOC's 2020 UWMP, approximately 427,000 AF of imported water was used by MWDOC's customers with 143,000 AF being used for retail water sales including the City of Seal Beach. MWDOC's expects the average retail water sales to be approximately 126,000 AFY out to 2045. The water from MET includes water from the Colorado River and the State Water Project (SWP) as Table A water, managed by MET. 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.

Per the 2020 UWMP for MET, the Colorado River supply faces current and future imbalances between water supply and demand conditions due to long term drought and climate change. MET has helped fund and implement various programs to improve the Colorado River supply reliability including developing future transfer programs and recycling water in the Colorado River Basin.

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 (DWR, 2020b). Per the UWMP, water exports since 2005 have seen a decreasing trend due to regulatory restrictions among others. It should be noted that there are multiple factors that can affect the ability to estimate existing and future water delivery reliability.

Water storage plays a significant role in MET's resource management strategy. MET's capability to meet projected demands, without implementing its Water Supply Allocation Plan (WSAP), is dependent on its storage resources. In recent years, groundwater basins and local reservoirs have dropped to low operating levels and remain below optimal storage levels due to long term drought conditions. (MET, 2021). 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 (MET, 2021). MET's water reliability assessments are used to determine that demands within MWDOC can be met during normal and drought conditions.

3.3.1.1 City of Seal Beach

The City's imported water supplies are delivered via a connection (OC-35) to MWDOC, which delivers water from MET. The maximum capacity for the OC-35 connection to the City is 9.9 cubic feet per second (cfs). Outside of flushing the system, a flow rate higher than 6 cfs is seldom needed. The only occasions where the flow would be close to the maximum capacity of 9.9 cfs is if there is a large water main break or a fire flow demand. As there is no allocation contract known at this time, the City can theoretically purchase up to 7,170 AFY to meet its demands, though this may be unlikely as water purchased through

MWDOC is estimated during the prior year based on estimated demands and considering the supply by groundwater sources for that year. In FY 2019-20, the City relied on approximately 1,132-acre feet per year (AFY) of imported water, 35% of the City's total water supply, to meet its demands and projected demand in the UWMP showed a nominal increase through 2045.

3.3.1.2 GSWC West Orange Service Area

According to GSWC's 2020 UWMP, GSWC also purchases MET water from MWDOC and manages the allocations of the supplies among the Placentia-Yorba Linda and the West Orange Service Areas to meet both service areas needs and reduce costs for their customers. The West Orange Service Area purchased an average of 713 AF over 2016 to 2020, with 2019 and 2020 purchases being less than 75 AF. GSWC also purchases a small amount of potable water from the City of Seal Beach through its existing connection to the City. In 2020, GSWC purchased 34 AF from the City of Seal Beach.

3.3.2 Groundwater Analysis

The Orange County Groundwater Basin (OC Basin) is managed by Orange County Water District (OCWD) and covers an area of approximately 350 square miles and the boundary extends to the Orange County-Los Angeles Line northwest. 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.

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 DWR, to 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 the SGMA, the agencies within Basin 8-1, led by OCWD submitted an Alternative to a Ground Water Sustainability Agency (GSP) in 2017, titled the "Basin 8-1 Alternative". This alternative will be updated every five years.

According to the Basin 8-1 Alternative, OCWD monitors the basin by collecting groundwater elevation and quality data from over 2000 wells and facilities. This includes managing an electronic database that stores water elevation, water quality, and production data. As part of their Groundwater Reliability Plan, the groundwater levels are managed within a safe operating range to mitigate land subsidence, provide sustainability to the basin, and reduce the risk of overdraft. It is estimated that the basin has a total capacity of 66 million AF with an operating range of 500,000 AF below full condition. The operating range is established as the level of groundwater storage within the aquifer that can be maintained without causing adverse impact to the basin. The groundwater basin is not operated on an annual safe-yield basis but over a period of several years. The net change in the groundwater storage in any given year may be positive or negative depending on multiple factors and the basin level is maintained in an approximate balance. The OC groundwater basin is recharged through various means including natural water ways, such as the Santa Ana River and various creeks, recycled water from Los Angeles County

Department of Public Works (LADWP), imported water from MET, and the Groundwater Replenishment System (GWRS). As part of the GWRS, through partnership with Orange County Sanitation District (OCSD), OCWD manages a water recycling plant that provides up to 100 million gallons per day of advanced tertiary treated wastewater to supply recharge water and a seawater intrusion barrier within the OC BASIN.

There are nineteen major groundwater producers that pump from the OC Basin. This includes the City of Seal Beach and GSWC West Orange. The groundwater producers meet on a monthly basis with OCWD to consult with and provide advice on basin management issues and meet bi-annually to establish a Replenishment Assessment (RA). The RA is based on demands estimated from the previous year and the amount of groundwater that has been pump during the year. Demands from groundwater producers in the past, specifically 1996-1997, have been as high as 515,000 AFY, but have generally decreased to approximately 364,000 AF in 2015-2016. This general decrease is expected to continue due to conservation efforts and implementation of water efficient fixtures. Per the 2020 UWMP, pumping in 2019-2020 was 286,550 AF due to wells being turned off from PFAS impacts. OCWD expects total groundwater production within the OC Basin to average 320,000 AFY moving forward.

The OC Basin is not adjudicated; therefore, management includes financial incentives to encourage sustainable pumping for groundwater producers. OCWD does not directly limit pumping from the OC Basin but assesses the basin annually and sets a Basin Production Percentage (BPP) based on estimated demands from all groundwater producers, the amount of imported water available from MET, the estimated basin operating range, basin storage conditions, the amount of recharge water available to OCWD, and other factors. OCWD establishes the BPP uniformly for all producers, which is defined as the percentage of the groundwater producer's total water supply that comes from groundwater. Groundwater producers meet bi-annually with OCWD to establish a RA based on demands estimated from the previous year and the amount of groundwater that has been pump during the year. While there is no legal limit as to how much a groundwater producer pumps from this basin, agencies that pump above the established BPP are charged a RA fee plus a Basin Equity Assessment (BEA) fee. OCWD forecasts that the basin will be able to sustain a BPP of 85% beyond 2025 to meet demands from groundwater producers. Since the BPP is established annually by OCWD's assessment of the OC Basin, the BPP is subject to change. For this WSA, the BPP is assumed to be held at 85% through 2045.

Another tool that OCWD uses to sustainably manage the OC Basin is the Basin Production Limitation through Section 31.5(g)(7) of the OCWD Act. This act allows OCWD to set limitations on groundwater production and induce surcharges if the limits are exceeded. This management tool can be used when necessary to shift pumping from one area of the basin to another. A specific example of this is the Coastal Pumping Transfer Program, which shifts pumping from the coastal areas to inland areas to minimize seawater intrusion as necessary.

Per the City's 2020 UWMP, the groundwater volume pumped in 2016-2020 by the City is relatively stable with the highest volume, 2,400 AF, pumped in 2019. In FY2019-20, the City pumped approximately 2,141 AF of groundwater.

Per GSWC West Orange's 2020 UWMP, GSWC pump 17,686 AF to allocate between its Placentia-Yorba Linda, West Orange, and Cowan Heights Service Areas.

3.3.3 Emergency Connections

As discussed in Section 1.5.1.3, the City has emergency interconnections with the Cities of Westminster, Long Beach, and Huntington Beach as well as Golden State Water Company that can be used to supplement water supply in special cases.

GSWC West Orange has emergency interconnections between the City of Garden Grove, City of Buena Park, GSWC Artesia Service Area, and the City of Seal Beach as mentioned.

This water will not be included in this WSA's analysis of water supply as it is beyond normal operations of each of the water systems.

3.4 WATER SUPPLY DURING NORMAL, SINGLE DRY-YEAR, AND MULTIPLE DRY-YEARS

Per the City's and GSWC West Orange's 2020 UWMPs, their Drought Risk Assessment (DRA) states that the water supplies available to each retail water supplier will meet projected water demand for normal, single-dry year, and consecutive dry years. The City and GSWC have the ability to purchase water as needed to meet the increasing demands during these periods as discussed further below.

3.4.1 Normal Water Year

The prediction model developed for the Demand Forecast TM described in the City's 2020 UWMP projects the 25-year water demand for the Orange County water agencies. Through this statistical model, current and future climate conditions (such as temperature, precipitation, drought, and conservation measures) are analyzed 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 FY2018-2019. The model showed that there is an adequate supply to meet demands through 2045 for the City.

Table 3-2 summarizes the model projections below.

Table 3-3: City Water Supply Availability & Demand Projections Normal Water Year[8]

Normal Year Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045**
Population					
Water Service Area Population	24,110	24,527	24,652	24,554	24,357
Calculated Consumption Rate (GPCD)	118	123	121	121	121

[8] 2020 UWMP, City of Seal Beach, June 2021, Table 7-2

Supply					
Total Available Supply (AF)	3,175	3,368	3,342	3,317	3,306
Demand					
Total Estimated Demand (AF)	3,175	3,368	3,342	3,317	3,306
Supply/Demand Comparison					
Supply vs. Demand Difference	0	0	0	0	0

Per GSWC's 2020 UWMP, the West Orange Service Area will be able to meet the demand projections out to 2045 based on the supply available to GSWC. Though GSWC anticipates an available supply beyond what is required, GSWC will only acquire a water supply to meet the specific demands of any given year. The following table shows the supply that is required to GSWC West Orange Service Area to meet demand.

Table 3-4: GSWC Water Supply Availability & Demand Projections Normal Water Year[9]

Normal Year Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045**
Population					
Water Service Area Population	114,750	115,267	115,787	116,308	116,833
Calculated Consumption Rate (GPCD)	110	113	115	118	120
Total Available Supply (AF)	14,137	14,527	14,926	15,337	15,759
Total Estimated Demand (AF)	14,137	14,527	14,926	15,337	15,759
Supply/Demand Comparison					
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 forecasting model reflects the impacts of hot/dry weather conditions using a 6% increase in water demand from the normal year condition in City's service area. The model concludes that there is an adequate supply to meet growing demand conditions, for the FY2013-14 single dry year, out to 2045.

Table 3-5 summarizes the model projections for a single-dry year below.

[9] 2020 UWMP, GSWC West Orange Service Area, July 2021, Table 5-2

Table 3-5: City Water Supply Availability & Demand Projections Single Dry Year[10]

Single Dry Year Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045**
Population					
Water Service Area Population	24,110	24,527	24,652	24,554	24,357
Calculated Consumption Rate (GPCD)	118	123	121	121	121
Supply					
Total Available Supply (AF)	3,366	3,570	3,543	3,516	3,504
Demand					
Total Estimated Demand (AF)	3,366	3,570	3,543	3,516	3,504
Supply/Demand Comparison					
Supply vs. Demand Difference	0	0	0	0	0

The expected water uses during a single-dry year for GWSC's West Orange Service Area were estimated based on analyzing plausible hydrological variability, regulatory variability, climate conditions, and other factors that impact the water supply to GSWC West Orange and its customers' water uses. The drought effect assumes a 10% increase in demand in the West Orange Service Area. Though GSWC anticipates an available supply beyond what is required, GSWC will only acquire a water supply to meet the specific demands of any given year.

Table 3-6 summarizes the projections for a single-dry year below.

Table 3-6: GSWC Water Supply Availability & Demand Projections Single Dry Year[11]

Single Dry Year Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045**
Population					
Water Service Area Population	114,750	115,267	115,787	116,308	116,833
Calculated Consumption Rate (GPCD)	121	124	127	129	132
Total Available Supply (AF)	15,551	15,979	16,419	16,871	17,335
Total Estimated Demand (AF)	15,551	15,979	16,419	16,871	17,335
Supply/Demand Comparison					
Supply vs. Demand Difference	0	0	0	0	0

[10] 2020 UWMP, City of Seal Beach, June 2021, Table 7-3

[11] 2020 UWMP, GSWC West Orange Service Area, July 2021, Table 5-2

3.4.3 Multiple Consecutive Dry Water Years

Multiple dry water years, as defined in the UWMPs, is five or more consecutive dry years with below average precipitation and/or one that requires a reduction of water service to customers.

For the City, the multiple dry years assumed that there is five consecutive dry years resulting in a 6% increase over normal demands above average supply 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 3-7 summarizes the model projections for multiple-dry years below.

Table 3-7: City Water Supply Availability & Demand Projections Multiple Dry Years (2025-2045)[12]

Multiple Dry Years Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045**
Population					
Water Service Area Population	24,110	24,527	24,652	24,554	24,357
Calculated Consumption Rate (GPCD)	118	123	121	121	121
First Year					
Total Available Supply (AF)	3,448	3,407	3,564	3,538	3,514
Total Estimated Demand (AF)	3,448	3,407	3,564	3,538	3,514
Available Leftover Supply Capacity	0	0	0	0	0
Second Year					
Total Available Supply (AF)	3,428	3,447	3,559	3,532	3,511
Total Estimated Demand (AF)	3,428	3,447	3,559	3,532	3,511
Available Leftover Supply Capacity	0	0	0	0	0
Third Year					
Total Available Supply (AF)	3,407	3,488	3,554	3,527	3,509
Total Estimated Demand (AF)	3,407	3,488	3,554	3,527	3,509
Available Leftover Supply Capacity	0	0	0	0	0
Fourth Year					
Total Available Supply (AF)	3,386	3,529	3,548	3,521	3,507
Total Estimated Demand (AF)	3,386	3,529	3,548	3,521	3,507
Available Leftover Supply Capacity	0	0	0	0	0
Fifth Year					
Total Available Supply (AF)	3,366	3,570	3,543	3,516	3,504
Total Estimated Demand (AF)	3,366	3,570	3,543	3,516	3,504

[12] 2020 UWMP, City of Seal Beach, June 2021, Table 7.4

Multiple Dry Years Supply and Demand Comparison					
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, will periodically revisit its representation of the supply sources and of the gross water use estimations as well as revise the Drought Risk Assessment as needed.

For the GSWC West Orange Service area, the multiple dry years assumed that there is five consecutive dry years resulting in a10% increase over normal demands. The analysis within GSWC's 2020 UWMP concludes that there is adequate supply to meet growing demand conditions for a multiple-dry year scenario out to 2045.

Table 3-8 summarizes the model projections for multiple-dry years below.

Table 3-8: GSWC Water Supply Availability & Demand Projections Multiple Dry Years (2025-2045)[13]

Multiple Dry Years Supply and Demand Comparison					
	2025	**2030**	**2035**	**2040**	**2045**
Population					
Water Service Area Population	114750	115267	115787	116308	116833
Calculated Consumption Rate (GPCD)	124	126	129	132	132
First Year					
Total Available Supply (AF)	15,551	15,979	16,419	16,871	17,335
Total Estimated Demand (AF)	15,551	15,979	16,419	16,871	17,335
Available Leftover Supply Capacity	0	0	0	0	0
Second Year					
Total Available Supply (AF)	15,636	16,066	16,509	16,963	17,335
Total Estimated Demand (AF)	15,636	16,066	16,509	16,963	17,335
Available Leftover Supply Capacity	0	0	0	0	0
Third Year					
Total Available Supply (AF)	15,721	16,154	16,598	17,055	17,335
Total Estimated Demand (AF)	15,721	16,154	16,598	17,055	17,335
Available Leftover Supply Capacity	0	0	0	0	0
Fourth Year					
Total Available Supply (AF)	15,807	16,242	16,689	17,148	17,335

[13] 2020 UWMP, GSWC West Orange Service Area, July 2021, Table 5-3

Multiple Dry Years Supply and Demand Comparison					
Total Estimated Demand (AF)	15,807	16,242	16,689	17,148	17,335
Available Leftover Supply Capacity	0	0	0	0	0
Fifth Year					
Total Available Supply (AF)	15,893	16,330	16,780	17,242	17,335
Total Estimated Demand (AF)	15,893	16,330	16,780	17,242	17,335
Available Leftover Supply Capacity	0	0	0	0	0

GSWC's analysis demonstrates that it has reliable supplies to meet its customer demands in normal, single dry years, and five consecutive dry year conditions through 2045. Groundwater and imported water from MWDOC are resilient during dry conditions and can reliably meet the West Orange Service Area demand.

3.5 WATER SUPPLY AND ADDITIONAL DEMAND COMPARISON

According to the 2020 UWMPs for both the City and GSWC West Orange Service Area, the projected supply during any normal, single dry, or multiple consecutive dry water years out to 2045 will be adequate to meet the demands. However, these projections do not account for the demands associated with the Project.

As previously discussed in Section 2.2, at full build-out, the total Project is estimated to require 405 AFY above the projected demands established in the 2020 UWMPs. Given that this WSA assumes the Project will be fully built-out with new appliances in 2029, future improvements in fixture efficiency have not been factored into the demand estimates. As a result, this WSA assumes the Project's demand of 405 AFY will remain constant from 2029 through 2045. This is unlike the UWMPs, which assumes residential water use may decrease over time due to continued improvements in water-use efficiency.

This WSA evaluates the percentage increase in the City's and GSWC West Orange's total water demand over a 25-year period due to the Project, comparing the impact during a normal year and during the largest demands from the five-year period of multiple dry years as a worst-case scenario.

Based on the estimated additional water required for the City's portion of the Project, an approximate 8% increase in supply is required to meet these demands. Based on the estimated additional water required for GSWC's portion of the Project (Site 4 – The Shops at Rossmoor), an approximate 1% increase in supply to GSWC is required to meet these demands. See Table 3-9 and Table 3-10 for a summary of supply versus demand normal years for both the City and GSWC.

$$\frac{City\ Projected\ Demand\ with\ Additional\ Project\ Demand\ -\ Projected\ Demand\ 2020\ UWMP}{Projected\ Demand\ 2020\ UWMP} * 100\%$$

$$\frac{3{,}634\ AF\ -\ 3{,}368\ AF}{3{,}368\ AF} * 100\% = 8\%$$

Table 3-9: City's Normal Year + Additional Project Demand and Supply Comparison

Water Sources	2025	2030	2035	2040	2045
Projected Supply 2020 UWMP (AF)	3,175	3,368	3,342	3,317	3,306
Projected Demand 2020 UWMP (AF)	3,175	3,368	3,342	3,317	3,306
Project Demand (AF) minus Site 4	0	266	266	266	266
Projected Demand 2020 UWMP + Project Demand (AF)	3,175	3,634	3,608	3,583	3,572
Demand Increase	0%	8%	8%	8%	8%
Additional Supply Required	**0**	266	266	266	266

$$\frac{GSWC\ Projected\ Demand\ with\ Additional\ Project\ Demand - \ Projected\ Demand\ 2020\ UWMP}{Projected\ Demand\ 2020\ UWMP} * 100\%$$

$$\frac{15{,}898\ AF - \ 15{,}759\ AF}{15{,}759\ AF} * 100\% = 1\%$$

Table 3-10: GSWC's Normal Year + Additional Project Demand and Supply Comparison

Water Sources	2025	2030	2035	2040	2045
Projected Supply 2020 UWMP (AF)	14,137	14,527	14,926	15,337	15,759
Projected Demand 2020 UWMP (AF)	14,137	14,527	14,926	15,337	15,759
Site-4 Project Demand (AF)	0	139	139	139	139
Projected Demand 2020 UWMP + Project Demand (AF)	14,137	14,666	15,065	15,476	15,898
Demand Increase	0%	1%	1%	1%	1%
Additional Supply Required	0	139	139	139	139

In accordance with the City's 2020 UWMP, this WSA assumes a 6% increase in water supply is required during dry years compared to normal years for the City's portion of the Project. Therefore, with the 6% increase applied to the City's portion of the Project demand of 266 AF, the total Project supply of 282 AF would be required during multiple dry years.

Table 3-11: City's Most Severe Demands of Multiple-dry Year + Additional Project Demand and Supply Comparison

	2025	2030	2035	2040	2045
Fifth Year					
Projected Supply 2020 UWMP (AF)	3,366	3,570	3,543	3,516	3,504
Projected Demand 2020 UWMP (AF)	3,366	3,570	3,543	3,516	3,504
Project Demand (AF)	0	282	282	282	282

	2025	2030	2035	2040	2045
Projected Demand 2020 UWMP + Project Demand (AF)	3,366	3,852	3,825	3,798	3,786
Demand Increase	0%	8%	8%	8%	8%
Additional Supply Required	0	282	282	282	282

Like GSWC's 2020 UWMP, this WSA assumes a 10% increase in water supply is required during dry years compared to normal years for GSWC's portion of the Project. Therefore, with the 10% increase applied to GSWC's portion of the Project demand of 139 AF, the total Project supply of 153 AF would be required during multiple dry years.

Table 3-12: GSWC's Most Severe Demands of Multiple-dry Year + Additional Project Demand and Supply Comparison

	2025	2030	2035	2040	2045
Fifth Year					
Projected Supply 2020 UWMP (AF)	15,893	16,330	16,780	17,242	17,335
Projected Demand 2020 UWMP (AF)	15,893	16,330	16,780	17,242	17,335
Project Demand (AF)	0	153	153	153	153
Projected Demand 2020 UWMP + Project Demand (AF)	15,893	16,483	16,933	17,395	17,488
Demand Increase	0%	0%	1%	1%	1%
Additional Supply Required	**0**	153	153	153	153

As mentioned previously, the BPP is established based on estimated demands within the basin and is subject to change on an annual basis. The BPP for groundwater production in this WSA is set at 85% based on the assumptions stated in the 2020 UWMPs. Based on this assumption, the City and GSWC will need to purchase 15% of its water supply over the next 25 years to meet demand.

Based on the BPP of 85% For the City, a 6% increase in the City's portion of the Project demands or 282 AF would require ground water pumping of 240 AF and purchasing of 42 AF from imported sources. This represents approximately a 0.07% increase of groundwater production over the estimated average within the OC Basin and a 0.04% increase over the estimated average water purchased for retail sales. See Table 3-7 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%.

Table 3-13 City's Supply Source Comparison - 85% BPP

	2025	2030	2035	2040	2045
Projected Demand 2020 UWMP + Project Demand (AF)	3,175	3,634	3,608	3,583	3,572
Groundwater Supply with 85% BPP (AF)	2,699	3,089	3,067	3,046	3,036
Purchased or Imported Water Supply (AF)	476	545	541	537	536

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.					

For the West Orange Service Area of GSWC, a 10% increase in Site 4 – The Shops at Rossmoor, or 153 AF during multiple dry years, would require ground water pumping of 130 AF and purchasing of 23 AF from imported sources. This represents approximately a 0.03% increase of groundwater production over the estimated average within the OC Basin and a 0.02% increase over the estimated average water purchased for retail sales. It should be noted that GSWC anticipates an apple supply available compared to the demand projections. In 2045, 153 AF represents a 0.7% of the 23,605 AF that is expected to be available to GSWC West Orange's portfolio.

See Table 3-7 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%.

Table 3-14 GSWC's Supply Source Comparison - 85% BPP

	2025	2030	2035	2040	2045
Projected Demand 2020 UWMP + Project Demand (AF)	14,137	14,666	15,065	15,476	15,898
Groundwater Supply with 85% BPP (AF)	12,016	12,466	12,805	13,155	13,513
Purchased or Imported Water Supply (AF)	2,121	2,200	2,260	2,321	2,385
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.					

The total demand from the Project during normal years, 405 AFY, represent approximately a 0.1% increase in groundwater production over the estimated average within the OC Basin and a 0.05% increase over the estimated average water purchased for retail sales. Based on this and resiliency of the supply sources, OC Basin and MWDOC, the demands associated with the project can reliably be met.

To meet the full additional Project demand without increasing the amount of imported water beyond the annual volume described in the UWMP's projection (see Table 3-1), each retail water supplier may have to increase their groundwater production or obtain additional sources of water. However, pumping beyond the established BPP may result in incurred costs associated with RA and BEA.

4.0 CONCLUSION

The purpose of this WSA is to analyze whether the City's total projected water supplies established in the 2020 UWMP during normal, single 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 demand for the Project (eight Housing Opportunity Sites and the Main Street Program) is 405 AFY during a normal year and 429 AFY

during a five-year dry period and has been added to the projected demands through 2045. Imported MET water purchases through MWDOC and groundwater production within the OC Basin are established annually via agency coordination based on the estimated demands and various other factors in Orange County. These estimated demands will include the Project starting in 2029. Based on METs reliability and the sustainable management of the OC Basin by OCWD, this WSA expects that the additional demand from the Project along with the projected demands from the UWMPs can be met with a BPP of 85% and 15% imported water.

5.0 REFERENCES

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Appendix A city of Seal Beach and GSWC west orange service area 2020 Urban Water Management Plans Link
April 12, 2024

APPENDICES

Appendix A CITY OF SEAL BEACH AND GSWC WEST ORANGE SERVICE AREA 2020 URBAN WATER MANAGEMENT PLANS LINK

The City of Seal Beach's 2020 Urban Water Management Plan can be found here: https://www.sealbeachca.gov/Portals/0/Documents/Public%20Works/Seal%20Beach%202020%20UWMP%20FINAL%20DRAFT%2006102021.pdf?ver=2021-06-10-151133-793

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Appendix B SEAL BEACH 2012 WATER MASTER PLAN UPDATE LINK

The City of Seal Beach's 2012 Water Master Plan Update can be found here: https://www.sealbeachca.gov/Portals/0/Documents/Water%20Master%20Plan%20Update%20July%202012.pdf