



## The Bowery Project

### WATER SUPPLY ASSESSMENT

City of Santa Ana  
County of Orange, California

#### Prepared For

Vineyards Development Corporation  
240 Newport Center Dr. Suite #200  
Newport Beach, CA 92660  
310.571.8227

#### Prepared By

Fuscoe Engineering, Inc.  
16795 Von Karman, Suite 100  
Irvine, California 92606  
949.474.1960  
[www.fuscoe.com](http://www.fuscoe.com)

**Project Manager:**  
**Josh Ruiz, PE**

**Date Prepared: October 3, 2019**

*full circle thinking*®

CITY OF SANTA ANA

## The Bowery Project

---

### WATER SUPPLY ASSESSMENT

ORANGE COUNTY, CALIFORNIA

**PREPARED FOR:**

VDC  
240 Newport Center Drive, Ste. 200  
Newport Beach, CA. 92660  
(310) 571-8227

**PREPARED BY:**

FUSCOE ENGINEERING, INC.  
16795 Von Karman, Suite 100  
Irvine, CA 92606  
949.474.1960  
[www.fuscoe.com](http://www.fuscoe.com)

**DATE PREPARED: OCTOBER 3, 2019**

## TABLE OF CONTENTS

|       |   |    |
|-------|---|----|
| 1.    | WSA PURPOSE AND BACKGROUND .....                                    | 4  |
| 2.    | INTRODUCTION .....  | 6  |
| 2.1   | Project Description .....   | 6  |
| 2.1.1 | Existing Water Use .....  | 8  |
| 2.1.2 | Proposed Water Use .....  | 10 |
| 3.    | REGIONAL WATER SUPPLIES AND DEMANDS .....                           | 12 |
| 3.1   | City Water Supplies .....   | 12 |
| 3.2   | City Water Demands .....  | 18 |
| 4.    | REGIONAL WATER SUPPLY RELIABILITY .....                             | 20 |
| 4.1   | Metropolitan Water District regional water supply reliability ..... | 20 |
| 4.2   | OCWD and City of Santa Ana Local Water supply reliability .....     | 21 |
| 5.    | CONCLUSION .....  | 27 |
| 6.    | REFERENCES .....  | 28 |
| 7.    | TECHNICAL APPENDICES .....  | 29 |

## LIST OF FIGURES

|          |                                 |    |
|----------|---------------------------------|----|
| Figure 1 | Vicinity Map .....              | 7  |
| Figure 2 | Existing Land Use Aerial .....  | 9  |
| Figure 3 | Proposed Bowery Site Plan ..... | 11 |

## LIST OF TABLES

|   |    |
|---|----|
| Table 1 Project Proposed Land Uses .....  | 6  |
| Table 2 Existing Water Demands .....  | 8  |
| Table 3 Proposed Water Demands .....  | 10 |
| Table 4 City of Santa Ana Connections to Metropolitan Facilities.....   | 12 |
| Table 5 2015 Projected and Actual Water Supply and Demand (Acre-feet).....  | 13 |
| Table 6 City of Santa Ana Groundwater Production Data 2015-16 .....   | 15 |
| Table 7 City of Santa Ana Projected Total Water Demands .....   | 19 |
| Table 8 Metropolitan Multiple Climate Scenario Water Supply Capability and Projected Demands Comparison from 2020-2040 (AF) ..... | 21 |
| Table 9 City of Santa Ana Multiple Climate Scenario Water Supply and Demand Comparison from 2020-2040 (AF).....                   | 23 |
| Table 10 City of Santa Ana Ability to Supply the Bowery Project .....   | 25 |

## LIST OF APPENDICES

Appendix A – Proposed Project Water Demand Calculations

Appendix B – City of Santa Ana Landscape Guidelines



## ACRONYMS & ABBREVIATIONS

|        |  |
|--------|--|
| AF     | Acre-Feet                                      |
| AFY    | Acre-Feet per Year                             |
| BEA    | Basin Equity Assessment                        |
| BPP    | Basin Production Percentage                    |
| CDR    | Center for Demographic Research                |
| CEQA   | California Environmental Quality Act           |
| cfs    | cubic feet per second                          |
| CRA    | Colorado River Aqueduct                        |
| DU     | Dwelling Unit                                  |
| DWR    | Department of Water Resources                  |
| GPCD   | Gallons per Capita per Day                     |
| gpd    | gallons per day                                |
| GWRS   | Groundwater Replenishment System               |
| LTFP   | Long Term Facilities Plan                      |
| M&I    | Municipal and Industrial                       |
| MG     | Million Gallons                                |
| OCWD   | Orange County Water District                   |
| QSA    | Quantification Settlement Agreement            |
| RA     | Replenishment Assessment                       |
| SANDAG | San Diego Association of Governments           |
| SAR    | Santa Ana River                                |
| SB     | Senate Bill                                    |
| SCAG   | Southern California Association of Governments |
| SF     | Square Feet                                    |
| SWP    | State Water Project                            |
| UWMP   | Urban Water Management Plan                    |
| WSA    | Water Supply Assessment                        |

## 1. WSA PURPOSE AND BACKGROUND

This Water Supply Assessment (WSA) was prepared for VDC as the project sponsor/applicant, and the City of Santa Ana ("City" or "Santa Ana") as the lead agency under the California Environmental Quality Act (CEQA), by Fuscoe Engineering, Inc. (Fuscoe), as the consultant, regarding the Bowery Project ("Bowery" or "Project"). This study is a requirement of California law, specifically Senate Bill 610 (referred to as SB 610). SB 610 is an act that amended Section 21151.9 of the Public Resources Code, and Sections 10631, 10656, 10910, 10911, 10912, and 10915 of the Water Code. SB 610 repealed Section 10913, and added and repealed Section 10657 of the Water Code. SB 610 was approved by the Governor and filed with the Secretary of State on October 9, 2001, and became effective January 1, 2002.

Under SB 610, WSAs must be furnished to local governments for inclusion in environmental documentation for certain projects (as defined in Water Code 10912 [a]) subject to CEQA. Due to increased population, land use changes and water demands, this water bill seeks to improve the link between information on water availability and certain land use decisions made by cities and counties. SB 610 takes a significant step toward managing the demand of California's water supply as it provides regulations and incentives to preserve and protect future water needs. The intent of this bill is to coordinate local water supply and land use decisions to help provide California's cities, farms, and industrial developments with adequate water supplies.

With the introduction of SB 610, any project under CEQA shall provide a WSA if the project meets the definition of the Water Code Section 10912. "Project" means any of the following:

- A proposed residential development of more than 500 dwelling units.
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- A proposed hotel or motel, or both, having more than 500 rooms.
- 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.
- A mixed-use project that includes one or more of the projects specified in this subdivision.
- 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.
- If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

After review of Water Code Section 10912, the Bowery Project is deemed a "Project" because it proposes a residential development of more than 500 dwelling units.

In addition, it is also necessary to include the recent passing (September 24, 2016) of Senate Bill 1262 (Chapter 594) which acts to amend Section 66473.7 of the Government Code, and

to amend Section 10910 of the Water Code, relating to land use<sup>1</sup> and the Sustainable Groundwater Management Act (SGMA) that was passed by California's Governor on September 16, 2014. Pursuant to SB 1262, as of January 1, 2017, WSAs are now required to reference certain SGMA-related information if water supply for a proposed project includes groundwater. Specifically, if a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

- 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 a basin that has not been adjudicated that is a basin designated as high- or medium-priority pursuant to Section 10722.4, information regarding the following:
  - Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924.
  - If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.
- For a basin that has not been adjudicated that is a basin designated as low- or very low priority pursuant to Section 10722.4, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted 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.

As described in more detail throughout this WSA, the proposed Project will utilize water from the Orange County Groundwater Basin that is designated as a medium priority basin. Therefore, additional information regarding groundwater supply and management will be included in this WSA to satisfy the requirements of SB 1262.

This WSA contains information from the City's 2015 UWMP, the Orange County Water Reliability Study prepared by Municipal Water District of Orange County (MWDOC), and information produced by the Orange County Water District (OCWD) and Metropolitan Water District of Southern California (Metropolitan).

---

<sup>1</sup> Senate Bill No. 1262, CHAPTER 594, found here:  
[http://leginfo.ca.gov/faces/billTextClient.xhtml?bill\\_id=201520160SB1262](http://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB1262)

## 2. INTRODUCTION

### 2.1 PROJECT DESCRIPTION

The Bowery Project is a 14.7-acre residential and retail project located in the City of Santa Ana. The Project is located at the intersection of Redhill Ave and Warner Ave. See Figure 1 for a vicinity map of the proposed Project. The proposed Project will replace existing office, warehousing and industrial land uses, parking lots and landscaped areas. There is also an existing temporary homeless shelter.

The Project would redevelop the site for mixed uses commercial (retail/restaurant) and multi-family. This include a proposed General Plan Land Use designation change to District Center (DC) and a zone change to Specific Development (SD).

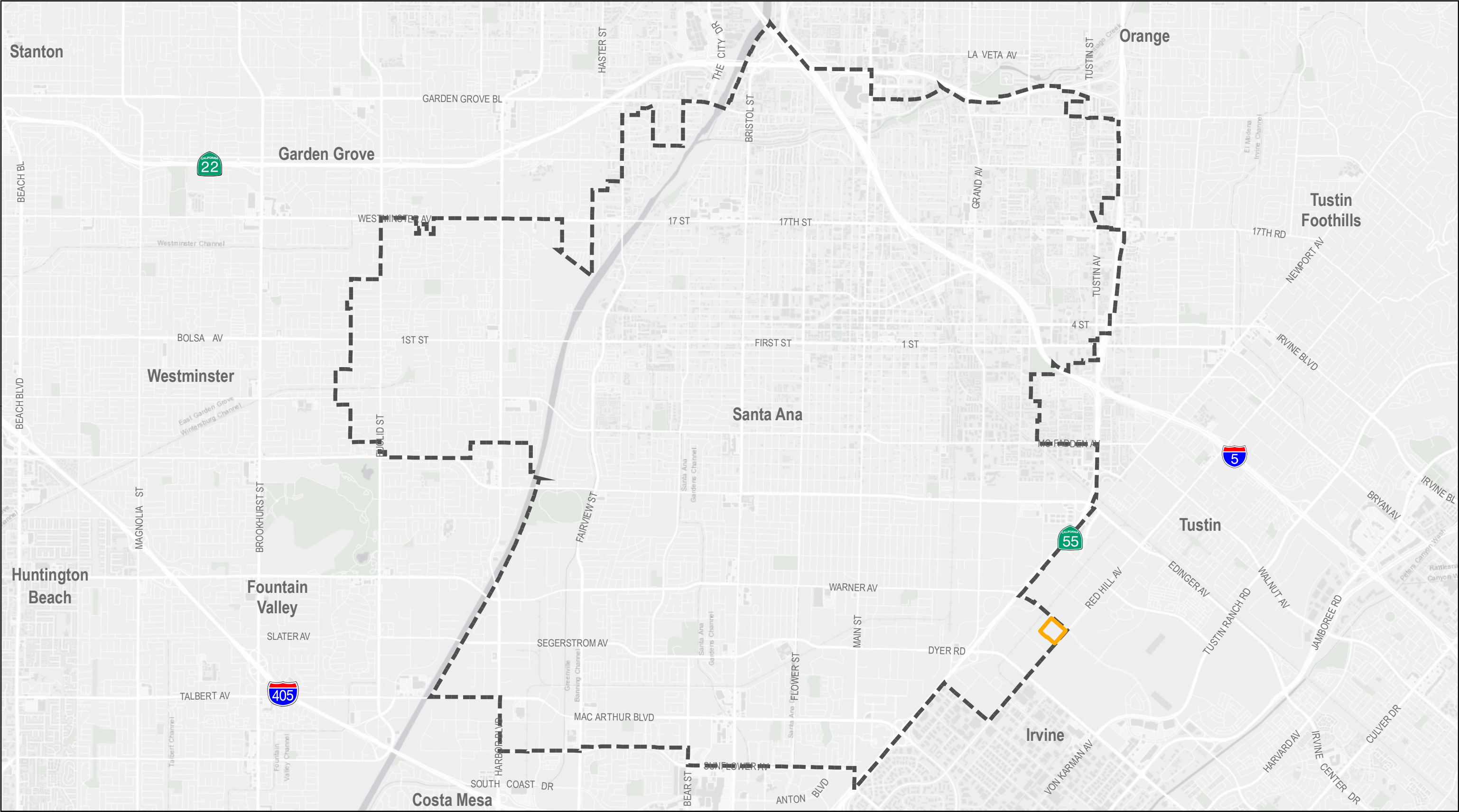
The Project includes the development of four buildings on one lot. Buildings A-D consist of 5-story structures each with parking structures. A total of 1,150 dwelling units (DUs) are proposed which consist of a mix of studios, one-bedrooms and two-bedroom units. In addition to residential uses, approximately 80,000 square feet (sf) of retail is also proposed as part of the Project.

Amenities of the Project include pools, club/fitness areas, roof decks, courtyards, and open space. Approximately 247,506 sf of private and publicly accessible open space is provided through common areas and courtyards. See Table 1 below for additional specifications related to the proposed Project.

*Table 1 Project Proposed Land Uses*

| Land Use                                     | Unit Count | Notes   |
|--|------------|---|
| Residential Dwelling Units                   | 1,150 DU   | Mix of studios, one-bedroom and two-bedroom residential units |
| Restaurant/Retail                            | 80,000 sf  | Restaurant and retail space to be provided at podium level    |
| Landscaping                                  | 247,506 sf | Landscaped scattered throughout common and private areas      |
| Notes:<br>DU dwelling unit    sf square feet |            |   |

As mentioned, the purpose of this WSA is to provide information to confirm that the City of Santa Ana has sufficient water supply to provide for the proposed Project in addition to other service area demands now and into the future. This WSA compares the existing water demand of the Project site to the proposed water demand of the Project and to the City of Santa Ana regional water supplies and demands through 2040.



**The Bowery Water Supply Assessment**

City of Santa Ana



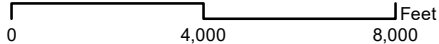
The Bowery Location



City of Santa Ana Boundary

**Figure 1**  
**Vicinity Map**

7/30/2019



### 2.1.1 Existing Water Use

As mentioned, the existing land use of the Project include office, warehousing, industrial, and a temporary homeless shelter. There are currently three buildings that occupy approximately 160,400 SF at the Project site. See Figure 2 for an aerial image of the existing land uses at the proposed Project site.

The water demand factors from the City of Santa Ana Design Guidelines for Water and Sewer Facilities (March 2017)<sup>2</sup> were utilized to establish an estimate of existing water demands at the Project site. An industrial water demand factor of 3,500 gallons per day (gpd) per acre was employed to account for three existing buildings at the Project site. In addition, a landscape water demand factor of 3,000 gpd/acre was employed for the scattered landscaping at the Project site. See Table 2 below for estimated existing water demands and the Project site.

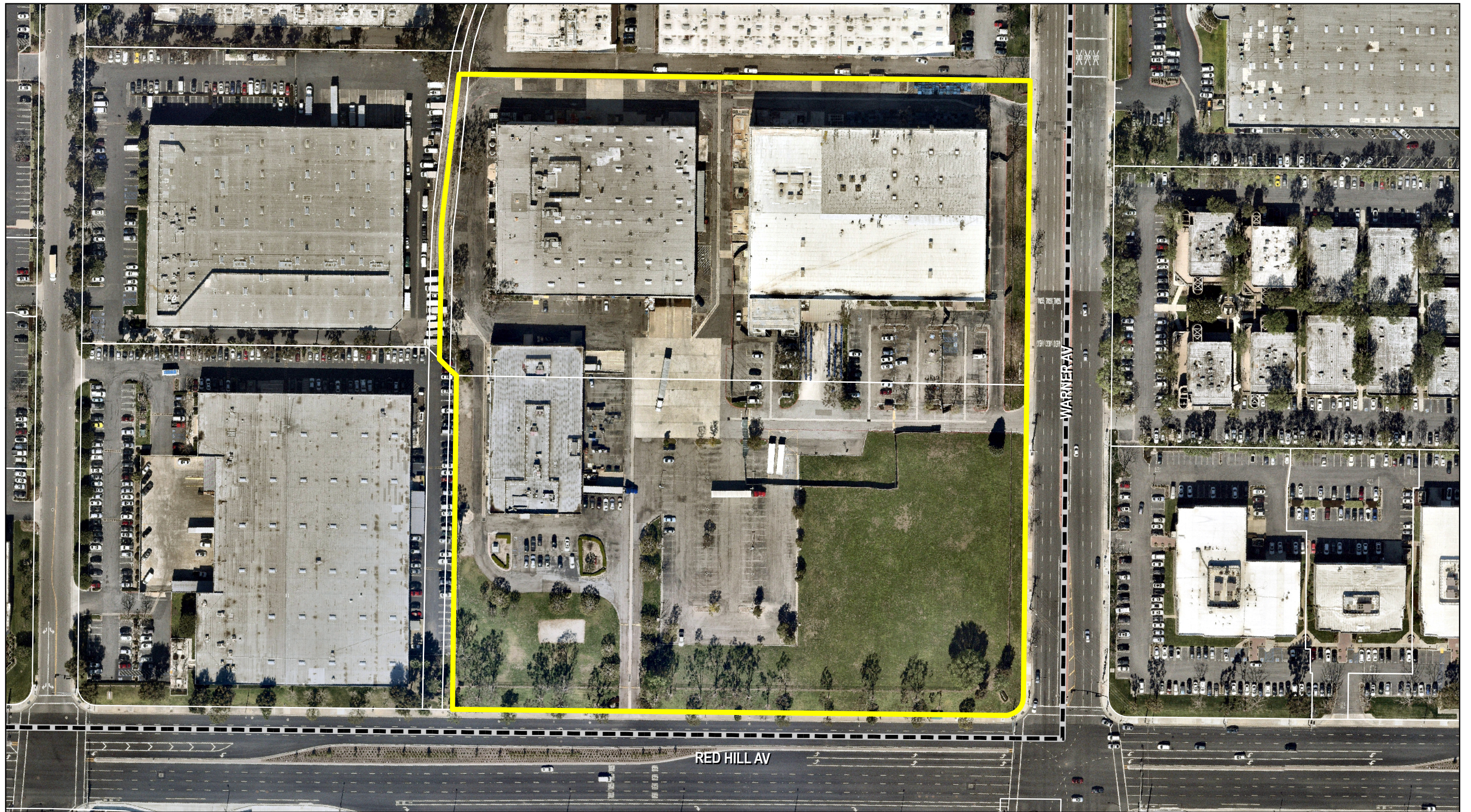
*Table 2 Existing Water Demands*

| Existing Land Use   | Land Use Square Footage | Land Use Acreage | Water Demand Factor (gpd/acre) | Existing Water Demand (gpd) | Existing Water Demand (AFY) |
|---|-------------------------|------------------|--------------------------------|-----------------------------|-----------------------------|
| Industrial Land Uses                                      | 160,400                 | 3.68             | 2,500                          | 9,200                       | 10.3                        |
| Landscaped Area   | 60,000                  | 1.40             | 3,000                          | 4,200                       | 4.7                         |
| <b>Total</b>  | <b>220,400</b>          | <b>5.08</b>      | <b>--</b>                      | <b>13,400</b>               | <b>15.0</b>                 |
| Notes:<br>gpd gallons per day      AFY acre-feet per year |                         |                  |                                |                             |                             |

As shown above, the estimated existing water use at the Project site is approximately 13,400 gallons per day (gpd) or 15.0 acre-feet per year (AFY). An estimated annual difference between existing water demands and proposed water demands resulting from the proposed Project are calculated and shown in Section 2.1.2 below.

<sup>2</sup> City of Santa Ana Design Guidelines for Water and Sewer Facilities (March 2017). Found here: <http://www.santa-ana.org/pwa/documents/DesignGuidelines.pdf>





Aerial Date: 03/14/2019

## The Bowery Water Supply Assessment

City of Santa Ana



The Bowery Location



City of Santa Ana Boundary

## Figure 2 Project Aerial

7/30/2019



0 120 240 Feet



### 2.1.2 Proposed Water Use

As mentioned, a total of 1,150 units are proposed which consist of studios, one-bedrooms and two-bedrooms units. In addition to residential uses, approximately 80,000 sf of retail and approximately 247,506 SF of landscaping is also proposed as part of the Project. See Figure 3 below for the proposed site plan for the Project.

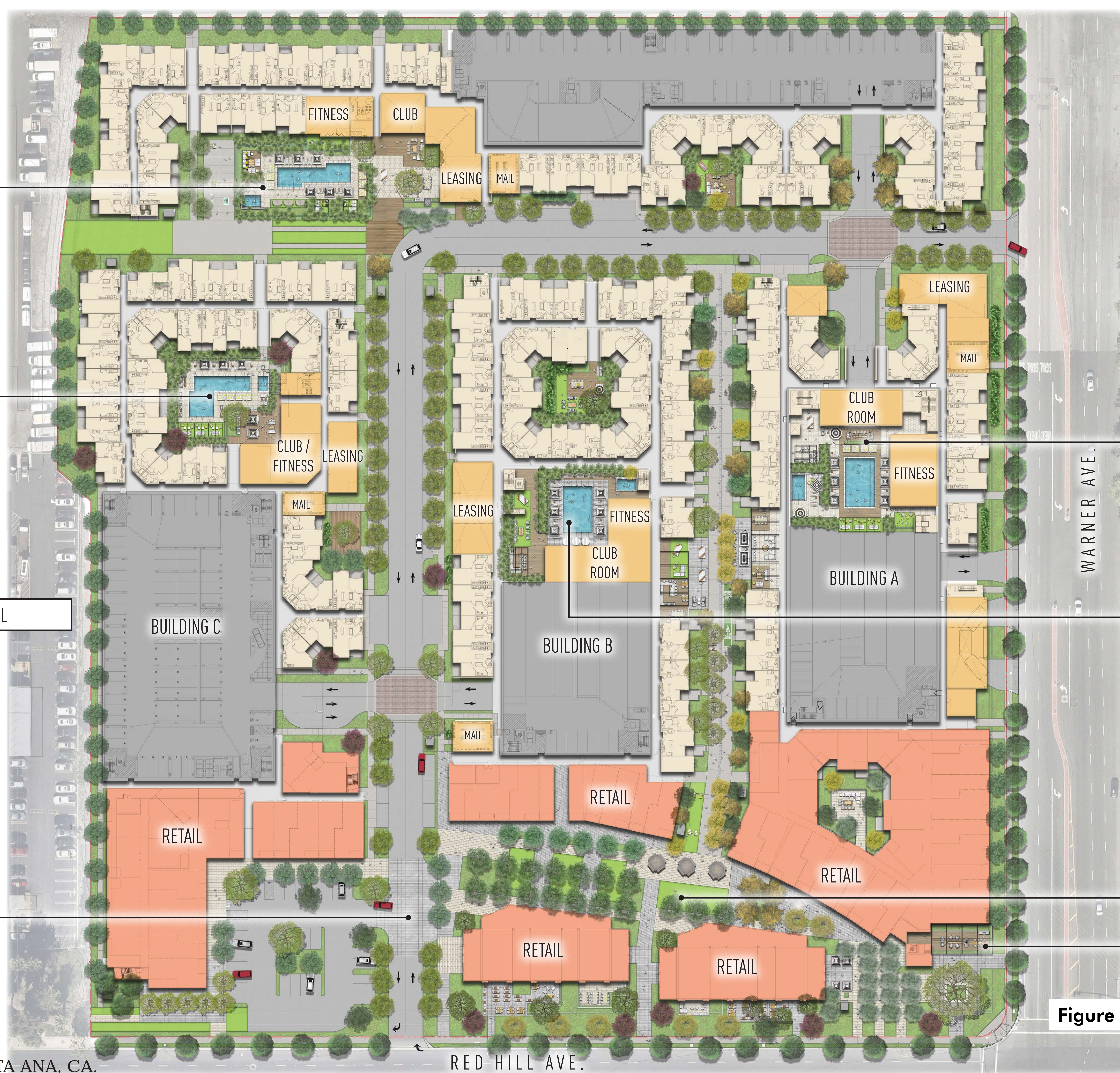
Total Project residential water demands include estimates of both indoor and outdoor water demands. Indoor water demands include toilet-flushing, showers, baths, dishwashers, washing machines, faucets, and leakage. Outdoor water demands include landscape irrigation estimates. The estimates for residential water demands were developed by following the Orange County Water Reliability Study by MWDOC. Retail and landscaping water demands were estimated by implementing water demand factors from the City of Santa Ana Design Guidelines for Water and Sewer Facilities (March 2017).

**Table 3 Proposed Water Demands**

| Land Use Type   | Project DU or acreage | Unit Water Demand Factor    | Daily Water Usage (gpd) | Annual Water Usage (AFY) |
|---|-----------------------|-----------------------------|-------------------------|--------------------------|
| Residential – Multifamily   | 1,150 DU              | 190 gpd/DU <sup>1</sup>     | 218,500                 | 244.8                    |
| Commercial  | 1.84 acres            | 2,500 gpd/acre <sup>2</sup> | 4,591                   | 5.1                      |
| Landscaped Areas  | 5.68 acres            | 3,000 gpd/acre <sup>2</sup> | 17,046                  | 19.1                     |
| <b>TOTAL PROJECT WATER DEMAND</b>   |                       |                             | <b>240,137 gpd</b>      | <b>269 AFY</b>           |
| Notes<br><sup>1</sup> Municipal Water District of Orange County – Orange County Water Reliability Study (December 2016).<br><sup>2</sup> City of Santa Ana Design Guidelines for Water and Sewer Facilities (March 2017). |                       |                             |                         |                          |

As shown, the proposed Project will have an annual water demand of approximately 269 AFY. This is an increase of approximately 254 AFY as compared to the existing water demands at the Project site. The following sections evaluates the ability for the City to meet the proposed increase in water demands.





**Figure 3 Site Plan with Landscape Features**



### 3. REGIONAL WATER SUPPLIES AND DEMANDS

#### 3.1 CITY WATER SUPPLIES

The City's water supply comes from a combination of imported water, local groundwater and recycled water to satisfy water demands. The City purchases these water supplies from Metropolitan Water District of Southern California (Metropolitan) and the Orange County Water District (OCWD). The City is a member agency of Metropolitan and receives imported water from the State Water Project and the Colorado River under agreements with Metropolitan. OCWD manages the Orange County Groundwater Basin ("OC Basin" or "Basin") and provides groundwater resources to the City.

The City maintains 444 miles of transmission and distribution mains, nine reservoirs with a storage capacity of 49.3 million gallons, seven pumping stations, 20 wells, and seven imported water connections. The seven imported water connections to the Metropolitan System are described in Table 4 below.

*Table 4 City of Santa Ana Connections to Metropolitan Facilities*

| MWD Connection | Name of Connection | Normal Operating Capacity (MGD) | Design Capacity (MGD) |
|----------------|--------------------|---------------------------------|-----------------------|
| SA-1           | Bristol            | 5.17                            | 6.46                  |
| SA-2           | First              | 5.17                            | 9.69                  |
| SA-3           | McFadden           | 5.17                            | 6.46                  |
| SA-4           | Warner             | 4.85                            | 6.46                  |
| SA-5           | Alton              | 4.85                            | 12.93                 |
| SA-6           | Santa Clara        | 7.76                            | 12.93                 |
| SA-7           | Red Hill           | 4.85                            | 32.31                 |

From 2005-2015, Metropolitan delivered between 3,000 AF or 2.6 MGD (2015, lowest delivery) to 13,000 AF or 11.6 MGD (2005, highest delivery) to the City.<sup>3</sup> The design capacity of the Metropolitan connections is more than adequate to deliver imported to the City as shown in the table above.

The City's Water Utility provides water service within a 27-square mile service area. The service area includes the City of Santa Ana and a small neighborhood in the City of Orange, near Tustin Avenue and Fairhaven by the northeast corner of Santa Ana. See Table 5 which shows the City's recent water supply to satisfy demands from 2015.

<sup>3</sup> 2015 Metropolitan UWMP.

**Table 5 2015 Projected and Actual Water Supply and Demand (Acre-feet)**

| Land Use Type   | 2010 UWMP Projected 2015 Demand | Actual 2015 Demand |
|---|---------------------------------|--------------------|
| Single Family   | 18,368                          | 14,084             |
| Multi-Family  | 13,563                          | 10,399             |
| Other (CII)   | 15,684                          | 12,025             |
| Landscape   | 185                             | 147                |
| <b>Total</b>  | <b>47,800</b>                   | <b>36,656</b>      |
| Notes:<br>Source: 2010 and 2015 City of Santa Ana UWMPs |                                 |                    |

As shown in Table 5 above, there was a decrease in water supplied to the City in 2015 as to what was predicted to be delivered in the 2010 UWMP<sup>4</sup> (47,800 AF) by approximately 23%. This is likely due to Senate Bill (SB) x7-7 which requires the State of California to reduce urban water use by 20% by the year 2020 as described in more detail below. Similarly, the Executive Order mandated by California Governor Edmund Brown in April 2015 in response to the drought that started in 2011 further required a collective reduction in statewide urban water use of 25% which would also reduce Citywide demands. In addition, UWMPs are typically developed in a conservative manner and tend to overestimate future water demands.

Currently, 71% of the City's water supply is from OC Basin groundwater, 28% is from Metropolitan imported water and 1% is from recycled water. The City's water supply portfolio is expected to change slightly to 70% from OC Basin groundwater, 29% from Metropolitan imported water, and 0.7% recycled water by the year 2040 as discussed in more detail throughout this WSA. Additional details on the strategic management of these resources is explained below.

#### **OCWD Groundwater**

The primary source of water for the City is the Orange County Groundwater Basin ("OC Basin") which is managed by the Orange County Water District (OCWD). The OC Basin underlies the north half of Orange County beneath broad lowlands. The OC Basin covers an area of approximately 350 square miles, bordered by the Coyote and Chino Hills to the north, the Santa Ana Mountains to the northeast, the Pacific Ocean to the southwest, and terminates at the Orange County line to the northwest, where its aquifer systems continue into the Central Basin of Los Angeles County.

The OC Basin storage capacity is estimated to be 66 million AF<sup>5</sup>, of which only a fraction is available for use to prevent against physical damage to the Basin such as seawater intrusion or land subsidence. To ensure the Basin is not overdrawn, OCWD recharges the Basin with local and imported water. The Basin is recharged primarily by four sources including local rainfall, storm and base flows from the Santa Ana River (SAR), purchased Metropolitan imported water; and highly treated recycled wastewater. Basin recharge occurs largely in the following recharge basins that are located in or adjacent to the City of Anaheim:

<sup>4</sup> 2010 City of Santa Ana Urban Water Management Plan. Found here:  
<https://water.ca.gov/LegacyFiles/urbanwatermanagement/2010uwmps/Santa%20Ana,%20City%20of/Santa%20Ana%20Final%202010%20UWMP.pdf>

<sup>5</sup> OCWD Groundwater Management Plan 2015 Update. June 17, 2015.

- Warner Basin: A 50-foot-deep recharge basin located next to the SAR at the intersection of the 55 and 91 freeways;
- Burris Basin: Located between Lincoln Avenue and Ball Road in the City of Anaheim;
- Kraemer Basin: Located adjacent to Burris Pit;
- Santiago Creek: Located in the City of Orange between Villa Park Road and E. Bond Avenue.

As mentioned above, SB 1262 amended Section 10910 of the Water Code and requires the inclusion of SGMA-related information in WSAs. Specifically, following the SGMA basin prioritization and designations<sup>6</sup>, for a non-adjudicated basin that is designated as high- or medium-priority pursuant to Section 10722.4, information regarding the following must be included:

- Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924.
- If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.

The OC Basin (also referred to as Basin 8-1) has been designated as a medium-priority basin which requires this WSA to address or include information regarding the bullets above. As mentioned, SGMA provides authority for agencies like OCWD to develop and implement Groundwater Sustainability Plans or alternative plans ("Alternatives") that demonstrate the basin has operated within its sustainable yield over a period of at least 10 years. OCWD decided to submit an Alternative for evaluation by the California Department of Water Resources (DWR). An Alternative is required to be submitted to DWR for review no later than January 1, 2017, and every 5 years thereafter. In general, Alternatives must be consistent with one of the following (Water Code §10733.6(b)):

- A plan developed pursuant to Part 2.75 (commencing with Section 10750) or other law authorizing groundwater management.
- Management pursuant to an adjudication action.
- An analysis of basin conditions that demonstrates that the basin has operated within its sustainable yield over a period of at least 10 years. The submission of an alternative described by this paragraph shall include a report prepared by a registered professional engineer or geologist who is licensed by the state and submitted under that engineer's or geologist's seal.

OCWD prepared an Alternative that satisfies the third bullet point above to prove the OC Basin has operated within its sustainable yield over a period of at least 10 years. The Basin 8-1 Alternative can be found on OCWD's website. The Alternative states that Basin 8-1 has operated within its sustainable yield for more than 10 years without experiencing significant and unreasonable (1) lowering of groundwater levels, (2) reduction in storage, (3) water quality degradation, (4) seawater intrusion, (5) inelastic land subsidence, or (6) depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. In addition, Basin 8-1 has not been in conditions of critical

---

<sup>6</sup> SGMA Groundwater Information Center Interactive Map Application, found here:  
<https://gis.water.ca.gov/app/gicima/>

overdraft. DWR has one year to evaluate the Basin 8-1 Alternative. The paragraphs below will further explain how OCWD successfully manages the OC Basin to meet these new groundwater monitoring and management requirements.

OCWD manages the Basin through the Basin Production Percentage (BPP) which is determined each water year. The BPP is set based on groundwater conditions, availability of imported water supplies, water year precipitation, SAR runoff, and basin management objectives. The BPP represents an established percentage identifying the amount of groundwater all pumpers in the Basin can pump without paying a “pumping tax” or Basin Equity Assessment (BEA) to OCWD. For example, if the BPP is set to 75%, all pumpers within the Basin, including the City, can supply 75% of their water needs from groundwater supplies at a cost significantly less than the cost of imported water. If groundwater production is equal to or less than the BPP (i.e. less than 75% in the example above), all producers within the Basin pay a replenishment assessment (RA) fee which is used to fund groundwater replenishment and recharge programs aimed at ensuring the long-term viability and stability of the Basin. If groundwater production is greater than the established BPP for that water year (i.e. greater than 75% in the example above), the BEA is determined for the producer of that amount of groundwater provided in excess of the BPP. The BEA is an additional fee paid on each AF of water pumped above the BPP, making the total cost of that additional water equal to the higher cost of imported water from Metropolitan.

According to OCWD’s Engineer’s Report for fiscal year 2017/18, total water demands within the OCWD jurisdiction were 419,477 AF for the 2017-18 water year. Groundwater production totaled 310,025 AF with supplemental water totaling 227,413 AF. As shown in Table 6 below, the City utilized 35,054.1 AF of water in the 2017-18 water year.

**Table 6 City of Santa Ana Groundwater Production Data 2015-16**

| Groundwater Producer                   | Groundwater | Supplemental Water (AF) |                     |         | (AF)        | Actual BPP          |
|--|-------------|-------------------------|---------------------|---------|-------------|---------------------|
|  | Total       | Deliveries              | Conservation Credit | Total   | Grand Total | Non-Irrigation Only |
| City of Santa Ana                      | 25,705.3    | 9,265.4                 | 83.4                | 9,348.8 | 35,054.1    | 73.3%               |
| Source: OCWD 2017-18 Engineer’s Report |             |                         |                     |         |             |                     |

Over the recent past, production capability of the Basin has increased as a result of increased wastewater reclamation at the Groundwater Replenishment System (GWRS) located in Fountain Valley. The GWRS, which is designed to turn wastewater into drinking water, is one of the most technologically advanced wastewater treatment plants in the world. A treatment plant expansion of 30 million gallons per day was recently put on line by OCWD increasing the recharge capacity of the GWRS to 100 million gallons per day. This equates to the recycling of over 110,000 AFY of wastewater back into the Basin for future extraction and potable use. A final expansion of the treatment system is being designed to have a capacity of 130 million gallons per day. Expansion projects to the GWRS increase local water supply reliability and ensure low-cost water supplies throughout northern Orange County, including the City of Santa Ana.

### ***Metropolitan Imported Water***

The City of Santa Ana is one of only three retail member agencies of Metropolitan in Orange County. As a member agency, pursuant to the Metropolitan Act, the City has preferential rights to a certain percentage of water delivered to Metropolitan each year primarily from the State Water Project and/or the Colorado River Aqueduct as well as other Metropolitan storage programs. Being a member agency of Metropolitan puts the City in a better position relative to receiving water directly from Metropolitan, as opposed to other agencies in Orange County which obtain their imported Metropolitan water through MWDOC. The main sources of water Metropolitan provides to the City include water from northern California delivered via the State Water Project (SWP) and water from the Colorado River Basin delivered via the Colorado River Aqueduct. More details on these sources of imported water are explained below.

### **Colorado River**

The Colorado River was Metropolitan's original source of water after Metropolitan's establishment in 1928. Lake Mead and Lake Powell, the two largest reservoirs in the United States, can store four times the annual flow of the Colorado River. River flows are primarily generated from snowpack in the Rocky Mountains. Colorado River water is allocated and delivered to seven states in the US including Colorado, Utah, Wyoming, New Mexico, Arizona, Nevada and California. Mexico also has an allocation of 1.5 million acre-feet (MAF) along the Colorado River each year.

California's urban water allocation is managed by Metropolitan and imported from the Colorado River via the Colorado River Aqueduct (CRA) which is stored at Diamond Valley Lake and Lake Mathews in Riverside County. The CRA includes supplies from the implementation of the Quantification Settlement Agreement (QSA) and related agreements to transfer water from agricultural agencies in Imperial County to urban uses throughout Southern California including Los Angeles, Orange County and San Diego. The 2003 QSA enabled California to implement major Colorado River water conservation and transfer programs, stabilizing water supplies for 75 years and reducing the state's demand on the river to its 4.4 MAF entitlement. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis.

California is apportioned the largest allocation on the River of 4.4 MAF of water from the Colorado River each year plus one-half of any surplus that may be available for use collectively in Arizona, California, and Nevada. In addition, California has historically been allowed to use Colorado River water apportioned to but not used by Arizona or Nevada. Metropolitan has a basic entitlement of 550,000 AFY of Colorado River water, plus surplus water up to an additional 662,000 AFY if certain conditions exist. The remainder of California's allocation goes to Imperial County, primarily to the Imperial Irrigation District, and is used mainly for agriculture production.

Over the past 19 years (2000-2018), there have only been three years when the Colorado River flow has been above average.<sup>7</sup> On May 20, 2019, the Department of the Interior, Bureau of Reclamation and representatives from all seven Colorado River Basin states and signed completed drought contingency plans for the Upper and Lower Colorado River basins. These

---

<sup>7</sup> USBR Lake Mead at Hoover Dam Water Elevation Data. Found here:  
<https://usbr.gov/lc/region/g4000/hourly/mead-elv.html>

completed plans are designed to reduce risks from ongoing drought and protect the single most important water resource in the western United States. In addition to the voluntary reductions and other measures to which the basin states agreed, Mexico has also agreed to participate in additional measures to protect the Colorado River Basin.<sup>8</sup>

#### State Water Project

The State Water Project (SWP) collects water from rivers in Northern California and redistributes it to the water-scarce but populous central and southern portions of California through a network of aqueducts, pumping stations and power plants. Approximately 70% of the water provided by the SWP is used for urban areas and industry in Southern California and the San Francisco Bay Area, and 30% is used for irrigation in the Central Valley. The availability of water supplies from the SWP can be highly variable. A wet water year may be followed by a dry water year which restricts the amount of water that can be delivered throughout California. Metropolitan's SWP imported water is stored at Castaic Lake on the western side of Metropolitan's service area and at Silverwood Lake near San Bernardino, as well as in Diamond Valley Lake.

The Sacramento-San Joaquin River Delta (Delta) is key to the SWP's ability to deliver water to its agricultural and urban contractors. The Delta faces many challenges concerning its long-term sustainability such as climate change posing a threat of increased variability in floods and droughts. Sea level rise complicates efforts in managing salinity levels and preserving water quality in the Delta to ensure a suitable water supply for urban and agricultural use. Furthermore, other challenges include continued subsidence of Delta islands, many of which are below sea level, and the related threat of a catastrophic levee failure as the water pressure increases, or as a result of a major seismic event.

Metropolitan's Board approved a Delta Action Plan in June 2007 that provides a framework for staff to pursue actions with other agencies and stakeholders to build a sustainable Delta and reduce conflicts between water supply conveyance and the environment. The Delta action plan aims to prioritize immediate short-term actions to stabilize the Delta while an ultimate solution is selected, and mid-term steps to maintain the Delta while a long-term solution is implemented. Currently, Metropolitan is working towards addressing three basic elements: Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development.

In April 2015, the Brown Administration announced California WaterFix, as well as a separate ecosystem restoration effort called California EcoRestore. Together, the California WaterFix and California EcoRestore will make significant contributions toward achieving the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The WaterFix is aimed at making physical and operational improvements to the SWP system in the Delta necessary to restore and protect ecosystem health, south-of-Delta SWP water supplies, and water quality. The WaterFix includes the construction of two tunnels up to 150 feet below ground and three new intakes, each with 3,000 cubic-feet per second (cfs) capacity and an average annual yield of 4.9 million acre-feet designed to protect California's water supplies. These proposed upgrades would provide protection against water supply disruption from failure of aging levees due to sea-level rise, earthquakes and flood events.

---

<sup>8</sup> USBR News Releases. Found here: <https://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=66103>

### ***Recycled Water***

The City depends on OCWD for its recycled water supply for non-potable uses such as irrigation. OCWD provided 352 AF of recycled water to the City of Santa Ana in 2015 as part of the Green Acres Project (GAP). OCWD owns and operates the GAP, a water recycling system that provides up to 8,400 AFY of recycled water as an alternate source of water that is mainly delivered to parks, golf courses, greenbelts, cemeteries, and nurseries in the cities of Costa Mesa, Fountain Valley, Newport Beach, in addition to Santa Ana. The City maintains an agreement with OCWD to supply GAP water to customers where available. It is anticipated that recycled water supplied to the City will maintain around 300 AFY through 2040.

## **3.2 CITY WATER DEMANDS**

The City's Water Utility provides water service within a 27-square mile service area to a population of approximately 335,299 as of 2015.<sup>9</sup> The City is almost completely built-out and its population is projected to increase only 0.9% by 2040. Approximately 67% of the City's water demand is residential including single family and multi-family residential units. Commercial land uses, including dedicated landscape, accounts for the remaining 33% of the total demand. The 2015 UWMP<sup>10</sup> highlighted that water demands throughout the City were 36,656 AF from July 2014 to June 2015. The 2010 UWMP anticipated water demands in 2015 to be much larger at 47,800 AF. As mentioned, the difference is likely because of the mandatory water restrictions from the Governor's Executive Order and the fact that UWMPs are typically developed in a conservative manner and tend to overestimate future water demands.

In April 2015 Governor Brown issued an Executive Order as a result of one of the most severe droughts in California's history, requiring a collective reduction in statewide urban water use of 25% by February 2016, with each agency in the state given a specific reduction target by DWR. In response to the Governor's mandate, the City began to track its water wasting prohibition enforcement activities. On June 2, 2015, the City declared a Phase 2 water supply shortage in Resolution No. 2015-025 by formally requiring all water consumers to reduce use by 12% relative to their 2013 consumption. Additionally, on August 4, 2015, a water wasting penalty rate was established by Resolution No. 2015-047. This new penalty rate permits City staff to penalize those users not meeting their water use reduction targets of 12%. The City of Santa Ana as a whole met its State mandated target; and as a result the City did not have to impose any monetary penalties on any of its users.

As of April 7, 2017, Governor Brown ended the drought State of Emergency in most of California, while maintaining water reporting requirements and prohibitions on wasteful practices such as watering during or right after rainfall.<sup>11</sup> The City continues to promote water use efficiency and currently has a goal to continue to reduce water demands by 3% compared

---

<sup>9</sup> Center of Demographics Research (CDR) at California State University, Fullerton

<sup>10</sup> 2015 City of Santa Ana Urban Water Management Plan. Found here: [https://www.santa-ana.org/sites/default/files/Documents/urban\\_water\\_management\\_plan.pdf](https://www.santa-ana.org/sites/default/files/Documents/urban_water_management_plan.pdf)

<sup>11</sup> SWRCB Water Conservation Portal – Emergency Conservation Regulation, accessed on 10/01/2019. Found here: [http://www.waterboards.ca.gov/water\\_issues/programs/conservation\\_portal/emergency\\_regulation.shtml](http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/emergency_regulation.shtml)



to 2013 consumption. In addition, the City only allows outdoor watering to every other day or Monday, Thursday, and Saturday and only between the hours of 6 PM and 6 AM.<sup>12</sup>

Such restrictions have significantly reduced water demands throughout California. In addition to these mandated restrictions, cities must follow the Water Conservation Act of 2009, also known as Senate Bill (SB) x7-7. This law required the State of California to reduce urban water use by 20% by the year 2020. The City must determine baseline water use during their baseline period and water use targets for the years 2015 and 2020 to meet the state's water reduction goal. The City's 2015 target was 123 gallons per capita per day (GPCD) and the 2020 target is 116 GPCD. The 2015 UWMP reported that the City has already met both the 2015 and 2020 water use targets with an actual use in 2015 of 83 GPCD. This is likely due to increased conservation as required by the Governor's Executive Order during severe drought conditions throughout California.

The City's water demand has been decreasing in recent years due to the combination of the Governor's Executive Order and SBx7-7 goals. The City's water demands are then expected to increase by approximately 8% from 2015 to 2040 as shown in the table below.

*Table 7 City of Santa Ana Projected Total Water Demands*

| Water Demand Type                   | 2015          | 2020          | 2025          | 2030          | 2035          | 2040          |
|-------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Potable and Raw Water               | 36,656        | 36,678        | 39,397        | 39,669        | 39,658        | 39,716        |
| Recycled Water                      | 352           | 320           | 320           | 320           | 320           | 320           |
| <b>Total Water Demand</b>           | <b>37,008</b> | <b>36,998</b> | <b>39,717</b> | <b>39,989</b> | <b>39,978</b> | <b>40,036</b> |
| Source: 2015 City of Santa Ana UWMP |               |               |               |               |               |               |

As shown above, it is projected that water demands will increase from 37,008 AF in 2015 to 40,036 AF in year 2040 representing an increase of 3,028 AF. These estimates are approximately 10,000 AF less than what was predicted in the 2010 UWMP further highlighting the conservative nature of UWMP preparation.

The 2015 Metropolitan UWMP stated that Metropolitan would be able to meet the demands of its member agencies, including the City of Santa Ana, through 2040. Therefore, imported water demands for the City are projected to be met through the 20-year requirements of SB 610 and beyond. The City of Santa Ana 2015 UWMP also confirmed the ability of the local supplies and the OC Basin to meet the growing demands of the City. The ability for the City to meet these growing demands in multiple climate scenarios is explained in the sections below.

<sup>12</sup> City of Santa Ana – Water Conservation Website, accessed 10/01/2019. Found here: [https://www.santa-ana.org/sites/default/files/Documents/Drought\\_Flyer\\_Final\\_Eng\\_No\\_Cropmarks.pdf](https://www.santa-ana.org/sites/default/files/Documents/Drought_Flyer_Final_Eng_No_Cropmarks.pdf)

## 4. REGIONAL WATER SUPPLY RELIABILITY

The City of Santa Ana currently depends on Metropolitan and OCWD to provide the majority of its water supply. This section provides a description of the ability of Metropolitan, OCWD and the City to ensure that adequate water supplies will be available to satisfy the City's growing water demands including the proposed Project through 2040 during normal, single dry year and multiply dry year scenarios.

### 4.1 METROPOLITAN WATER DISTRICT REGIONAL WATER SUPPLY RELIABILITY

Metropolitan's 2015 Urban Water Management Plan (UWMP) was finalized in June 2016 and has been prepared in compliance with Water Code Sections 10608.36 of SB X7-7 and Sections 10610 through 10656 of the Urban Water Management Planning Act (Act). The information included in the 2015 UWMP represents the most current and available planning projections of supply capability and demand developed through a collaborative process with the member agencies, including the City of Santa Ana. The Act requires reporting agencies to describe their water reliability under a single dry-year, multiple dry-year, and average year conditions, with projected information in five-year increments for 20 years.

Metropolitan updates its retail municipal and industrial (M&I) projection periodically based on the release of official regional demographic and economic projections. The projections of retail M&I water demands used in the 2015 UWMP are based on data from the Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan/Sustainable Community Strategy (April 2012) and the San Diego Association of Governments (SANDAG) Series 13: 2050 Regional Growth Forecast (October 2013). The projected regional water demand is adjusted to account for water conserved by Best Management Practices from active, code-based, and price-effect conservation.

Supply analysis includes Colorado River supplies, SWP supplies and existing and proposed storage programs through Metropolitan's service area. Colorado River Aqueduct (CRA) supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements. State Water Project (SWP) supplies are estimated using the 2015 SWP Delivery Capability Report distributed by DWR in July 2015. In regard to storage, Metropolitan assumed 2015 storage levels at the start of simulation and used the median storage levels going into each of the five-year increments based on the balances of supplies and demands. See Table 8 below showing Metropolitan's ability to meet growing demands in normal, single-dry and multiple-dry year climate scenarios.

**Table 8 Metropolitan Multiple Climate Scenario Water Supply Capability and Projected Demands Comparison from 2020-2040 (AF)**

| Forecast Year                     | 2020      | 2025      | 2030      | 2035      | 2040      |
|-----------------------------------|-----------|-----------|-----------|-----------|-----------|
| <b>Normal Year</b>                |           |           |           |           |           |
| Capability of Current Supply      | 3,448,000 | 3,550,000 | 3,658,000 | 3,788,000 | 3,824,000 |
| Total Demands                     | 1,860,000 | 1,918,000 | 1,959,000 | 2,008,000 | 2,047,000 |
| Supply Programs Under Development | 63,000    | 100,000   | 386,000   | 428,000   | 468,000   |
| Total Potential Surplus           | 1,651,000 | 1,732,000 | 2,085,000 | 2,208,000 | 2,245,000 |
| <b>Single -Dry Year</b>           |           |           |           |           |           |
| Capability of Current Supply      | 2,584,000 | 2,686,000 | 2,775,000 | 2,905,000 | 2,941,000 |
| Total Demands                     | 2,005,000 | 2,066,000 | 2,108,000 | 2,160,000 | 2,201,000 |
| Supply Programs Under Development | 63,000    | 100,000   | 316,000   | 358,000   | 398,000   |
| Total Potential Surplus           | 642,000   | 720,000   | 983,000   | 1,103,000 | 1,138,000 |
| <b>Multiple-Dry Year</b>          |           |           |           |           |           |
| Capability of Current Supply      | 2,103,000 | 2,154,000 | 2,190,000 | 2,242,000 | 2,260,000 |
| Total Demands                     | 2,001,000 | 2,118,000 | 2,171,000 | 2,216,000 | 2,258,000 |
| Supply Programs Under Development | 43,000    | 80,000    | 204,000   | 245,000   | 286,000   |
| Total Potential Surplus           | 145,000   | 116,000   | 223,000   | 271,000   | 288,000   |
| Source: 2015 Metropolitan UWMP    |           |           |           |           |           |

The findings of the 2015 Metropolitan UWMP highlight that Metropolitan has supply capabilities that would be sufficient to meet expected demands from 2020 through 2040 under the normal, single dry-year and multiple dry-year conditions. Metropolitan also has proposed programs in place to ensure against water shortages in the future. These programs include projects along the California Aqueduct and the Colorado River Aqueduct in addition to demand reduction projects. In all climate scenarios, Metropolitan estimates potential surpluses in water supply through 2040.

The Metropolitan 2015 UWMP was made public in early 2016 and shared with Metropolitan's member agencies. Once these findings were finalized, the Metropolitan member agencies could conclude their own 2015 UWMP findings. The City of Santa Ana published their 2015 UWMP in April 2016 after determining Metropolitan would be able to meet the City's imported water demands through 2040. The City of Santa Ana and OCWD local water supply reliability is summarized below.

## 4.2 OCWD AND CITY OF SANTA ANA LOCAL WATER SUPPLY RELIABILITY

Like Metropolitan, the City of Santa Ana is also required to assess the reliability of their water service to its customers under normal, single-dry and multiple-dry water years. As mentioned the City depends on a combination of imported water from Metropolitan and local groundwater supplies from OCWD to meet its water demands. The City has taken numerous steps to ensure it has adequate supplies to provide for growing demands.

The City has several water demand reduction requirements and resources on their website that informs its customers on how to save water. Some of the main requirements are summarized below:

- **Residential**
  - Mandatory 3% reduction in water use compared to usage during the same billing period in 2013.
  - Outdoor watering is restricted to no more than every other day or Mondays, Thursdays and Saturdays, and only between the hours of 6 p.m. and 6 a.m.\*
  - Leaks must be repaired within 48 hours of notification by the City.
  - No washing down sidewalks or driveways.
  - No excessive water flow or runoff that causes water to flow onto an adjoining sidewalk, driveway, street, alley, gutter or ditch.
  - No washing vehicles with a hose, unless the hose is fitted with a shut-off nozzle.
  - No operating a fountain or decorative water feature, unless the water is part of a recirculating system.
  - No outdoor watering during and 48 hours following measurable rainfall.
- **Businesses**
  - Restaurants, cafes and bars can only serve water to customers on request.
  - Hotels and motels must prominently display a notice providing guests with the option of choosing not to have towels and linens laundered daily.

In addition, landscape policies have also been modified to allow drought tolerate landscape throughout the City (see Appendix B). These programs have been successful in reducing water demands throughout the City's service area.

OCWD is also taking strides to ensure local water supplies will meet growing demands now and into the future. As mentioned, OCWD manages the City's groundwater supply and the entire OC Basin utilizing the BPP approach. In 2013, OCWD's Board of Directors adopted a policy to establish a stable BPP with the intention to work toward achieving and maintaining a 75 percent BPP by FY 2015-16. Although BPP is set at 75 percent, based on discussions with OCWD a conservative BPP of 70 percent is assumed through 2040 for supply projection analysis in the City's 2015 UWMP. Principles of this policy include:

- OCWD's goal is to achieve a stable 75 percent BPP, while maintaining the same process of setting the BPP on an annual basis (BPP will be set in April of each year after a public hearing has been held and based upon the public hearing testimony, presented data, and reports provided at that time).
- OCWD's transition to the 75 percent BPP was due to construction of the GWRS Initial Expansion Project, which was completed in 2015. This expansion provided an additional 31,000 AFY of water for recharging the groundwater basin.
- OCWD must manage the OC Basin in a sustainable manner for future generations. The BPP will be reduced if future conditions warrant the change.

- Each project and program to achieve the 75 percent BPP goal will be reviewed individually and assessed for their economic viability.

The BPP goals mentioned above coincide with other management strategies as shown in OCWD's Long Term Facilities Plan (LTFP), the 2015 Groundwater Management Plan and the 2020 Water Master Plan Report. These documents highlight OCWD's plans to ensure groundwater supply will be available into the future to support growing demands of its service area.

As shown in Table 9 below, the City's available supply, including OCWD groundwater and Metropolitan imported water, will meet projected demand during normal, single dry and multiple dry years. For the City's 2015 UWMP, the normal dry year was selected as the City's 2015 demand. A single-dry year is defined as a single year of no to minimal rainfall within a period that average precipitation is expected to occur. The City has documented that it is 100% reliable for single dry year demands from 2020 through 2040 with a demand increase of 6% using FY 2013-14 as the single dry-year. Multiple-dry years are defined as three or more years with minimal rainfall within a period of average precipitation. The City is capable of meeting all customers' demands with significant reserves held by Metropolitan, local groundwater supplies, and conservation in multiple dry years from 2020 through 2040 with a demand increase of 6% using FY 2011-12 through FY 2013-14 as the driest years.

**Table 9 City of Santa Ana Multiple Climate Scenario Water Supply and Demand Comparison from 2020-2040 (AF)**

| Forecast Year                       | 2020   | 2025   | 2030   | 2035   | 2040   |
|-------------------------------------|--------|--------|--------|--------|--------|
| <b>Normal Year</b>                  |        |        |        |        |        |
| Supply totals                       | 36,998 | 39,717 | 39,989 | 39,978 | 40,036 |
| Demand totals                       | 36,998 | 39,717 | 39,989 | 39,978 | 40,036 |
| <b>Single -Dry Year</b>             |        |        |        |        |        |
| Supply totals                       | 39,218 | 42,100 | 42,388 | 42,377 | 42,438 |
| Demand totals                       | 39,218 | 42,100 | 42,388 | 42,377 | 42,438 |
| <b>Multiple-Dry Year</b>            |        |        |        |        |        |
| <i>First year</i>                   |        |        |        |        |        |
| Supply totals                       | 39,218 | 42,100 | 42,388 | 42,377 | 42,438 |
| Demand totals                       | 39,218 | 42,100 | 42,388 | 42,377 | 42,438 |
| <i>Second year</i>                  |        |        |        |        |        |
| Supply totals                       | 39,218 | 42,100 | 42,388 | 42,377 | 42,438 |
| Demand totals                       | 39,218 | 42,100 | 42,388 | 42,377 | 42,438 |
| <i>Third year</i>                   |        |        |        |        |        |
| Supply totals                       | 39,218 | 42,100 | 42,388 | 42,377 | 42,438 |
| Demand totals                       | 39,218 | 42,100 | 42,388 | 42,377 | 42,438 |
| Source: 2015 City of Santa Ana UWMP |        |        |        |        |        |

As shown in Table 9 above, in all climate scenarios analyzed in the 2015 UWMP, available water supplies are projected to meet demands. Reliability of local water supplies will be ensured through continued implementation of the OCWD Groundwater Management Plan, OCWD's LTFP, and the combined efforts and programs among member agencies of Metropolitan.

The City closely monitors development throughout the City to ensure water supplies will meet growing demand. The City has a log of all developments that have required a WSA and track the increases in water demands from these projects. These projects are listed below:

- Civic Center Facilities Project WSA (November 2016)
- Elan Apartments Project WSA (November 2017)
- MainPlace Mall Project WSA (April 2019)

The Bowery Project has been added to the City's list of proposed developments. The Project is anticipated to be constructed and operational in 2022. As shown in Table 10 below, the City is able to provide water supply to satisfy these additional projects including the Bowery Project.

*Table 10 City of Santa Ana Ability to Supply the Bowery Project*

| Description   | 2020          | 2025          | 2030          | 2035          | 2040          |
|---|---------------|---------------|---------------|---------------|---------------|
| <b><i>Demands for Potable Water by Use Types (Acre-foot per year)</i></b>                           |               |               |               |               |               |
| Use Type "Single Family" Demand   | 14,093        | 15,138        | 15,242        | 15,238        | 15,260        |
| Use Type "Multi-Family" Demand  | 10,406        | 11,177        | 11,254        | 11,251        | 11,267        |
| Use Type "Other" (CII) Comm/Instit/Indust Demand  | 12,033        | 12,925        | 13,014        | 13,010        | 13,030        |
| Use Type "Landscape" Demand   | 147           | 158           | 159           | 159           | 159           |
| <i>Total Potable Water Demands</i>  | <i>36,679</i> | <i>39,398</i> | <i>39,669</i> | <i>39,658</i> | <i>39,716</i> |
| <b><i>Accumulative Additional Demands for Potable Water by Use Type (Acre-foot per year)</i></b>    |               |               |               |               |               |
| Accumulative "Single Family" Additional Demand  | 9             | 1,054         | 1,158         | 1,154         | 1,176         |
| Accumulative "Multi-Family" Additional Demand   | 7             | 778           | 855           | 852           | 868           |
| Accumulative "Other" Additional Demand  | 8             | 900           | 989           | 985           | 1,005         |
| Accumulative "Landscape" Additional Demand  | --            | 11            | 12            | 12            | 12            |
| <i>Accumulative Additional Total Demand</i>   | <i>24</i>     | <i>2,743</i>  | <i>3,014</i>  | <i>3,003</i>  | <i>3,061</i>  |
| <b><i>Demands of Additional Projects Requiring Water Supply Assessment (Acre-foot per year)</i></b> |               |               |               |               |               |
| <b><i>Civic Center Facilities Project and WSA</i></b>   |               |               |               |               |               |
| Civic Center Facilities Strategic Plan Project Additional Demand                                    | 158           | 385           | 576           | 770           | 770           |
| <b><i>Elan Project and WSA</i></b>  |               |               |               |               |               |
| Elan Project Additional Demand  | 190           | 190           | 190           | 190           | 190           |
| <b><i>The MainPlace Mall Project and WSA</i></b>  |               |               |               |               |               |
| The MainPlace Mall Project Additional Demand  | 62            | 371           | 618           | 618           | 618           |
| <b><i>The Bowery Project and WSA</i></b>  |               |               |               |               |               |
| The Bowery Project Additional Demand  | 0             | 269           | 269           | 269           | 269           |
| <b><i>Comparison of Accumulative Additional Total Demand to Demands from Proposed WSAs</i></b>      |               |               |               |               |               |
| Accumulative Additional Demand less Proposed WSA Demands  | -391          | 1,792         | 1,625         | 1,420         | 1,478         |
| Notes:<br>Source: Personal Community, City of Santa Ana Water Utility, May 22, 2019                 |               |               |               |               |               |

As shown above, the UWMP and City water planning identifies sufficient water supplies to serve the Project in addition to other planned projects through 2040. As the project will not be constructed and operational until 2022, it has been confirmed by City staff that 2040 City supply and demand projections are accurate through 2042 and adequate supply will be available to support the Project for the required 20-year horizon.<sup>13</sup> As shown above, based on the City's internal tracking sheet of UWMP supplies/demands and additional demands from the proposed projects with WSAs, a small deficit of 329 AF (less than 1% of total demands) is projected for the year 2020. However, as the Project will not be constructed until after 2020, there will be no additional deficit. In addition, as mentioned throughout this WSA, UWMPs are conservative in nature and tend to overpredict demand as described in Section 3.1 and Table 5. As confirmed by the City's Water Utility department, the deficits shown in Table 10 during the year 2020 would not occur due to the substantial decrease in demand over the past several years.

---

<sup>13</sup> Personal communication with City's Water Utility department on 10/02/2019.



## 5. CONCLUSION

The City of Santa Ana depends on local and regional water supplies from OCWD and Metropolitan to satisfy growing demands. OCWD has managed the OC Basin for over 75 years and has plans to sustainably manage the groundwater system through 2040 under the new California SGMA policies and guidelines. Metropolitan has stated in its 2015 UWMP that its water supply portfolio will be able to satisfy regional growth and water demands through 2040. The same findings were concluded in the City of Santa Ana 2015 UWMP as both Metropolitan and OCWD supplies are projected to meet future water demands.

The 2015 City UWMP projected that water demands would grow from 37,008 AF in 2015 to 40,036 AF in 2040. Over the past several years, actual demands decreased substantially due to local conservation and regional drought management regulations. Therefore, like most UWMPs, the 2015 City UWMP is conservative with projections of water supplies needed to satisfy demands through 2040.

The 2015 UWMP incorporates regional growth projections from CDR in order to determine future water demands. Projects like the Bowery are included in these regional projections of future population growth and are tracked by the City. The proposed Project will demand approximately 269 AF per year (an increase of approximately 254 AF per year as compared to existing water demands which is well within the planned water supplies needed in the future in the City of Santa Ana. Therefore, this WSA is able to conclude adequate supplies are available to provide for the demands of the proposed Project as well as other service area demands within the City of Santa Ana.

## 6. REFERENCES

2010 City of Santa Ana Urban Water Management Plan.

2012 USBR Colorado River Basin Water Supply and Demand Study

2015 Metropolitan of Southern California Urban Water Management Plan

2015 City of Santa Ana Urban Water Management Plan

Center of Demographics Research (CDR) at California State University, Fullerton

City of Santa Ana – Water Conservation Website, accessed 10/01/2019.

City of Santa Ana Design Guidelines for Water and Sewer Facilities (March 2017). Found here: [https://www.santa-ana.org/sites/default/files/Documents/DesignGuidelines\\_0.pdf](https://www.santa-ana.org/sites/default/files/Documents/DesignGuidelines_0.pdf)

OCWD Groundwater Management Plan 2015 Update. June 17, 2015

OCWD Engineer's Report, 2017/18, February 2019

Senate Bill No. 1262, CHAPTER 594, found here:  
[http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201520160SB1262](http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB1262)

SGMA Groundwater Information Center Interactive Map Application, found here:  
<https://gis.water.ca.gov/app/gicima/>

SWRCB Water Conservation Portal – Emergency Conservation Regulation, accessed on 09/06/2017. Found here:  
[http://www.waterboards.ca.gov/water\\_issues/programs/conservation\\_portal/emergency\\_regulation.shtml](http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/emergency_regulation.shtml)

## 7. TECHNICAL APPENDICES

Appendix A – Proposed Project Water Demand Calculations

Appendix B – Landscape Water Efficiency Ordinance No. 6355

## APPENDIX A

---

### PROPOSED PROJECT WATER DEMAND CALCULATIONS

[illegible]

## APPENDIX B

### CITY OF SANTA ANA LANDSCAPE GUIDELINES

---



Planning and Building Agency  
Planning Division  
20 Civic Center Plaza  
P.O. Box 1988 (M-20)  
Santa Ana, CA 92702  
(714) 647-5804  
[www.santa-ana.org](http://www.santa-ana.org)

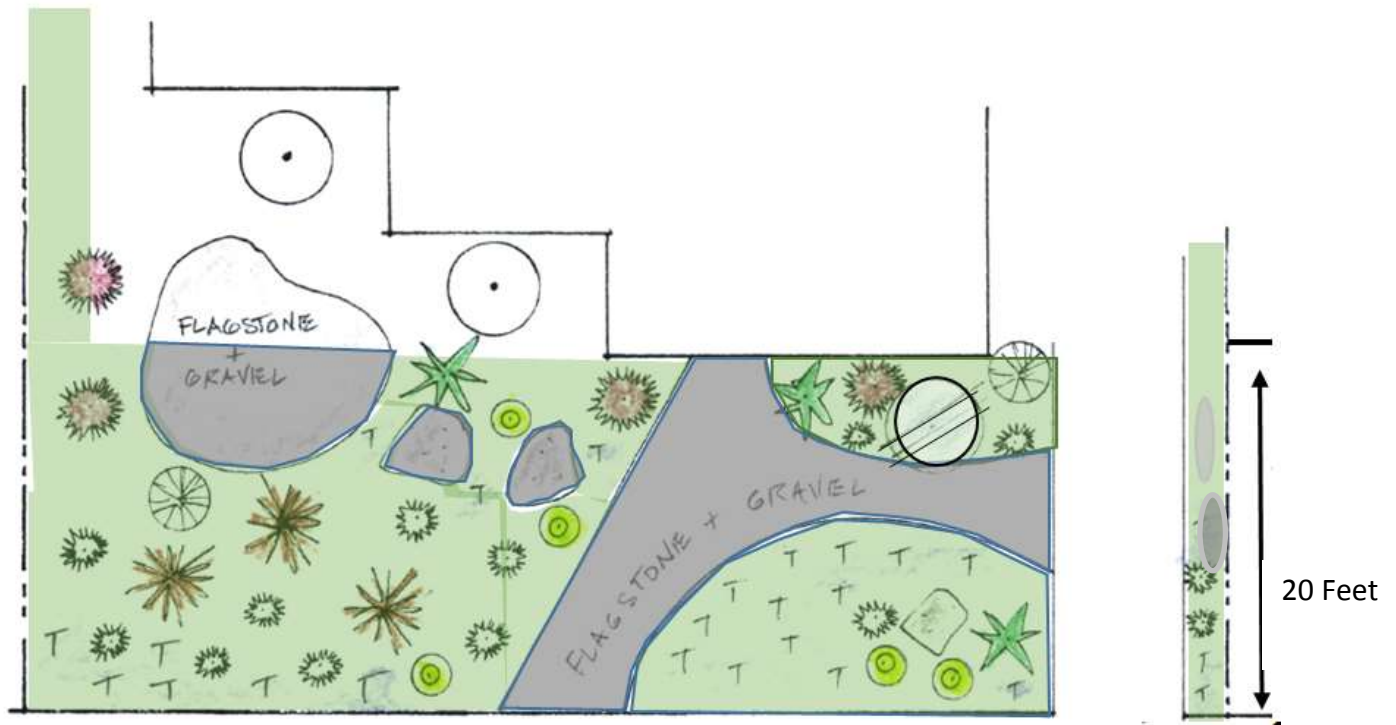
## CALIFORNIA FRIENDLY LANDSCAPE GUIDELINES


In response to the extreme drought conditions throughout California, and the drought State of Emergency declared by the Governor in 2014, landscape policies have been modified to allow drought tolerant landscape throughout the city. The following are the Planning Division policy guidelines for required landscape planting and "ground cover" on private property:


1. 100% of the required landscape for private property **MUST** be covered with materials such as plants, compost and mulch, and permeable "hardscape" – with the exception of approved driveways and walkways. Refer to property zoning district for minimum of trees and shrubs.  
<http://www.ci.santa-ana.ca.us/pba/planning/ZoningDocuments.asp>
2. **Plant material must cover at least 65%** of the required landscape area.
  - a. The Landscape Plan **MUST** be designed such that it can reasonably be assumed that at least 65% of the site will be covered with plant material by the time the plants are mature, or within two years, whichever is sooner. This determination will be made at the sole discretion of Planning and Building Agency staff. Synthetic turf may be installed, provided it does not exceed 50% of the area designated as plant material for the yard. For more details on synthetic turf landscape plan requirement see  
[http://www.santa-ana.org/pba/planning/documents/Synthetic\\_turf\\_standards.pdf](http://www.santa-ana.org/pba/planning/documents/Synthetic_turf_standards.pdf)
  - b. Plant material is to be dispersed throughout the landscape area.
3. **Permeable hardscape may cover no more than 35%** of the required landscape area.
  - a. Permeable hardscape may include pavers and brick set on a bed of sand, where no mortar or grout has been used.
  - b. If not covered by permeable hardscape or plant material, landscape must be completely covered by at least a two-inch layer of mulch. Acceptable mulch includes compost, bark and other organic material. There can be no bare soil or installation of non-permeable (material water cannot easily penetrate) hardscape such as a concrete patio or walkway.
  - c. Permeable hardscape adjacent to approved driveways shall not be used for parking of vehicles. Permeable hardscape is to no greater than two percent slope to allow for draining of water into the soil.
4. All plant materials selected from these two websites ([LA Coastal Gardens](http://www.LAcoastalgardens.com) and [www.bewaterwise.com](http://www.bewaterwise.com)) are acceptable drought tolerant plants.
5. Irrigation systems should also be adjusted to be water efficient through best practices (drip irrigation, bubblers, etc.)

Additional information and a variety of resources for creating and maintaining a California Friendly garden are available at <http://www.santa-ana.org/SAwatersmart/>. For more information about landscaping your **parkway**, please see the "Quick Links" for the Parkway Improvement Guidelines.

## Sample of landscape planting and permeable hardscape



 Landscape Plants  
(65% minimum)

 Permeable Hardscape  
(35% maximum)

**Single Family Residences (R1 zoning district)** requires: 20 feet landscape setback for front yard; to include one 24-inch box canopy tree, six 5-gallon shrubs, ten 1-gallon shrubs (SAMC 41-240) and “ground cover” (per 2014 City California Friendly Landscape Guideline). A five feet landscape setback is also required for side yards, with the exception of approved walkway or driveway.