Water Supply Assessment

Adelanto 35 Development Project

Agency
City of Adelanto
Water Department
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Prepared By

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Table of Contents

Tables

Figures:

1. Introduction

The City of Adelanto Water Department, through the Adelanto Public Utility Authority (APUA), provides domestic water services to the City of Adelanto and would provide water to the Project. As a public water system, the City is mandated by California Water Code Section 10910 to prepare a Water Supply Assessment (WSA) that documents sources of water supply, quantifies water demands, evaluates drought impacts, and provides a comparison of water supply and demand. The WSA serves as the basis for the City to determine if adequate water will be available during normal, single dry, and multiple dry water years during a 20-year projection to meet the projected water demand associated with the Project, in addition to providing water for existing and planned future uses.

This WSA was prepared for consideration by the City of Adelanto, as the lead agency under the California Environmental Quality Act (CEQA) for the environmental review of the Project. The WSA will be included in the City's Environmental Review for the Project to provide information regarding the impacts of supplying the Project with water, confirming the sufficiency and certainty of the water supply, and, if necessary, discussing alternative water sources.

References used in preparing this document include the following:

- City of Adelanto, 2020 Urban Water Management Plan (UWMP), August 2021
- City of Adelanto, 2015 Urban Water Management Plan (UWMP), June 2016
- Mojave Water Agency, 2014 Mojave Region IRWM Plan and 2018 Addendum.

2. Project Description

The Adelanto 35 Development Project (Project) is located within southeastern area of the City of Adelanto. The roject site is comprised of 35-acre undeveloped parcel within an area designated as Light Manufacturing (LM) by the City's General Plan Land Use and Zoning Map which were included in the water demand analyzed in the 2020 UWMP.

The Project proposes to construct a 660,925 square foot (sf) warehouse/distribution facility consisting of 640,925 sf warehouse (495,694 sf non-refrigerated warehouse and 165,231 sf cold storage), 20,000 sf office space, on an approximately 35 - acre vacant parcel.

The purpose of this WSAis to satisfy the requirements under SB-610, Water Code Section 10910 et seq. that adequate water supplies are or will be available to meet the water demand associated with a proposed project. SB610 applies to 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. Because the building exceeds 650,000 sf of floor area, the Project requires a WSA pursuant to Water Code Section 10912 (a)(5). The Project is described in more detail in Section 3.

Project Location

The proposed Project is located in the City of Adelanto, San Bernardino County on approximately 35-acres on the southeast corner of Rancho Road and Adelanto Road (Assessor's Parcel Number 3128-291-03

Figure 1. Location Map/Aerial Photo

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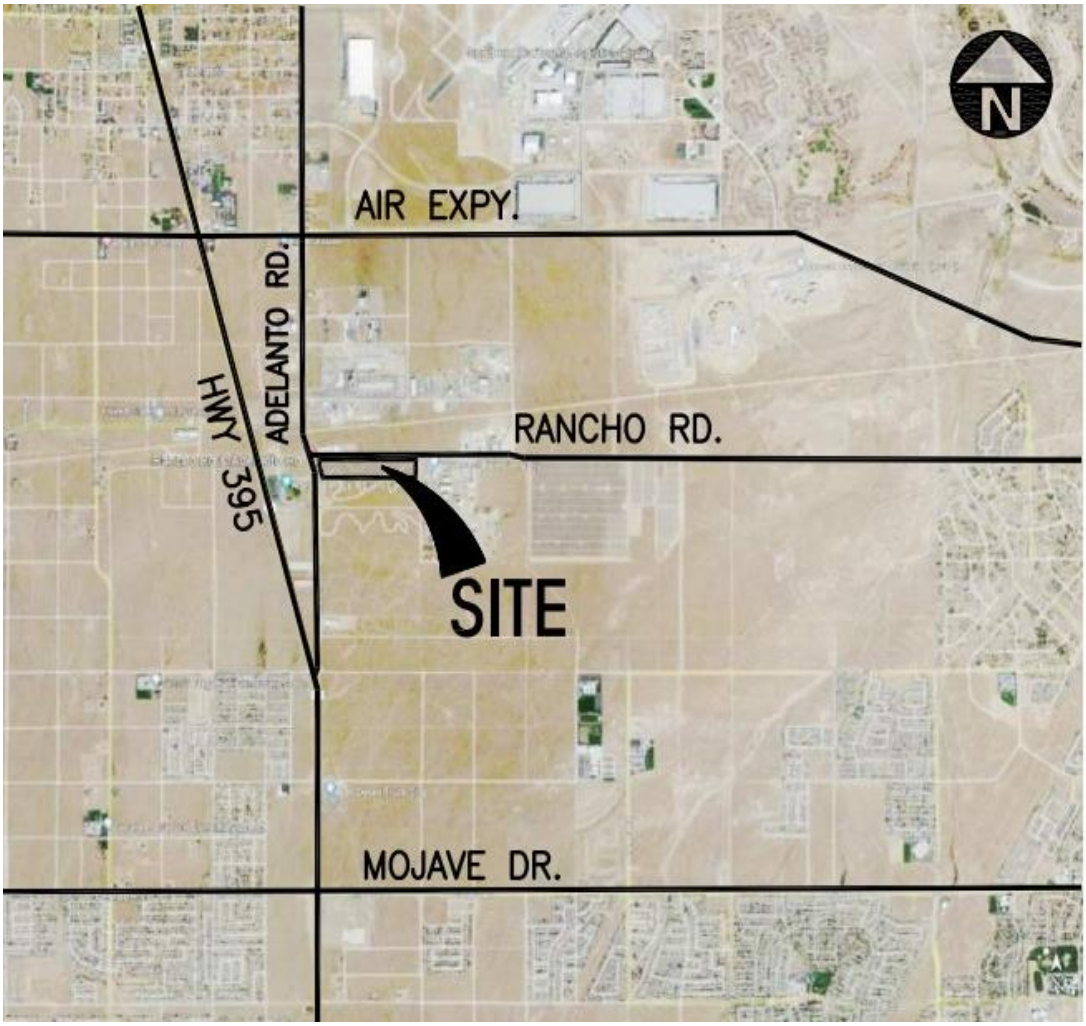

3. Documenting Water Supply

3.1 Urban Water Management Plan

The Adelanto 2020 UWMP documented General Plan land uses, population, and proposed projects as well as projections that reflect increases in population, planned residential and commercial development at the time of the assessment. The 2020 UWMP plan determined that there would be adequate water supply for the residential, general commercial, industrial, and open space parks and resources within the City's Public Works Water Service Area. The proposed Project zoning were part of the current General Plan and was evaluated under the 2020 UWMP.

3.2 Groundwater

The sole source of water in the City is from groundwater in the Mojave River Groundwater Basin, commonly referred to as the Mojave Basin Area (MBA). The MBA is an adjudicated and pursuant to the Judgment, the Court appointed the Mojave Water Agency (MWA) as Watermaster of the MBA.

For management purposes under the Mojave Basin Judgment, MWA subdivided the Mojave River watershed and associated groundwater basins into five subareas: Alto, Baja, Centro, Este, and Oeste. The City of Adelanto lies within MWA's Alto Subarea. Adelanto and the other purveyors in the area supply water to their customers from local groundwater. MWA replenishes the groundwater supply, primarily with imported water purchased from the State Water Project (SWP).

The court ordered adjudication of the Mojave Basin Area allocates a variable free production allowance (FPA) to each purveyor that supplies 10 AFY or more, including Adelanto. The FPA can vary from year to year depending on the Watermaster's safe yield projections for the Basin.

3.3 Historic Groundwater Production

The City's potable water system is supplied by groundwater from seven (7) active potable wells. Additionally, the City has nine (9) wells currently inactive, one (1) non-potable well, two (2) emergency interties with the Victorville Water District and one with the Mojave Water Agency. The City's seven (7) active wells have A combined nominal capacity of 4,728 gpm. The ground water production for the previous 5-years (2016 to 2020) is contained in Table 1 *Historic Groundwater Production*.

Table 1. Historic Groundwater Production - AFY

Groundwater Volume Pumped Past Five Years						
Groundwater Type	**Location or Basin Name**	**Volume Pumped (AF)**				
		2016	**2017**	**2018**	**2019**	**2020**
City - Alluvial Basin	Mojave River Groundwater Basin, Alto Subarea	4,181	3,599	3,963	3,631	3,785
VWD - Alluvial Basin	Mojave River Groundwater Basin, Alto Subarea	3	724	178	852	862
	Totals	**4,184**	**4,323**	**4,141**	**4,483**	**4,647**
Notes: *DWR Submittal Table 6-1						

Source: 2020 Urban Water Management Plan

3.4 Projected Water Supply

The projected water supply available through 2045 is shown in Table 2 as per the 2020 UWMP Table ES-2. The City will continue to use groundwater as the sole source of potable water supply combined with supplemental water through an intertie with MWA. The City's projected supply is the available FPA, which is currently 2,851 AFY, which may be adjusted annual by the Watermaster. Transfers between MWA and the City is also from groundwater; future year projections are determined based on the difference between available FPA and forecasted demand, although more would be available as needed. Recycled water will begin delivery for irrigation uses by 2025, increasing through 2045.

Table 2 – Projected Water Supply (AFY)

Water Supplies – Projected to 2045						
Water Supply	**Additional Detail on Water Supply**	**Projected Water Supply Reasonably Available Volume (AF)**				
		2025	**2030**	**2035**	**2040**	**2045**
Safe Yield of Alto Subarea						
Alto Subarea	Production Safe Yield[1]	64,406	64,406	64,406	64,406	64,406
Reasonably Available Volume						
City of Adelanto	FPA of Safe Yield	2,851	2,851	2,851	2,851	2,851
Mojave Water Agency	Intertie with MWA	2,145	2,409	2,575	2,733	2,915
Recycled Water	Non-Potable	20	23	25	25	27
Totals		**5,016**	**5,283**	**5,451**	**5,609**	**5,793**

*NOTES: *DWR Submittal Table 6-9.*

[1]MWA Watermaster Report Water Year 2019-20, May 2021, Table 5-1

Source: 2020 Urban Water Management Plan

3.5 Normal Year, Single Year, and Multiple Year Supply

As stated previously in this chapter, due to its reliance on local groundwater sources, the City has not experienced any actual supply deficiencies, even during multiple drought years. The City does not anticipate a deficit in available water supplies during a dry year or during multiple dry years. According to the 2020 Urban Water Management Plan, the City is confident that water supplies are adequate to meet demands for all weather conditions through 2045.

3.6 Groundwater Management

The Sustainable Groundwater Management Act, passed by the California Legislature in 2014, is an effort to regulate the use of groundwater in the state so that it is sustainable into the long-term future.

The majority of the Mojave IRWM Plan Region is part of an adjudicated basin pursuant to: (1) Stipulated Judgment in City of Barstow, et. al., vs. City of Adelanto, et al. Riverside County Superior Court Case No. 2018568 and (2) Hi-Desert Water District vs. Yucca Valley Water Company Ltd, San

Bernardino County Court Case No. 172103. SGMA does not apply to these adjudicated areas.

3.7 Imported Water

During normal operation there are no water transfers or exchanges of water within the City's service area. The City water system has two available interties with VWD which has been utilized during the past 5-years and now has an intertie with MWA for future years.

The MWA purchases State Water Project (SWP) water for groundwater recharge. MWA's available SWP supply has historically been greater than the demands within their service area. MWA stores excess water in various groundwater basins for future use when SWP supplies are limited or not available. To enhance the long-term reliability of the water supply, MWA continues to explore opportunities to purchase water supplies from other water agencies and sources in addition to the SWP water supply.

3.8 Recycled / Non-Potable Water

At this time there is no recycled water available in for customer use in Adelanto. However, recycled water capacity is being developed and is anticipated for distribution for irrigation purposes by 2025 and increasing through 2045.

4. Documenting Water Demand

For purposes of this section, a normal water year, a single dry water year, and a multiple dry water year period are defined below:

- Normal Water Year is defined as a year in the historical sequence that most closely represents median runoff levels and patterns.
- Single Dry Water Year is defined as the lowest annual runoff for a watershed.
- Multiple Dry Water Year Period is defined as the lowest average runoff for a consecutive multiple year period (three years or more).

Normal year demand for the City without the project is shown in Table 3, single dry year demand is shown in Table 4, and multiple dry year is in Table 5. The tables for single dry year and multiple dry year show that water demand would continue to increase during a single year event; however, it will decrease over time with multiple year events. According to the 2020 UWMP, although a constant consumption rate provides a more conservative approach, the decreasing consumption rate scenario provides a more realistic picture for planning purposes as it considers gradual improvements in water-use efficiency and in the case of a multiple year event includes mandatory conservation measures that would not be in effect in a single year event.

Table 3. Normal Year Demand (AFY)

2025	2030	2035	2040	2045
5,016	5,283	5,451	5,609	5,793

Source: 2020 Urban Water Management Plan.

Table 4. Single Dry Year Demand (AFY)

2025	2030	2035	2040	2045
5,066	5,336	5,505	5,665	5.824

Source: 2020 Urban Water Management Plan.

Table 5. Multiple Dry Year Demand (AFY)

Water Use (AF/YR)	2025	2030	2035	2040	2045
Year 1	5,066	5,336	5,505	5,665	5,824
Year 2	4,766	5,020	5,180	5,330	5,505
Year 3	4,529	4,770	4,922	5,065	5,231
Year 4	4,303	4,533	4,677	4,813	4,971
Year 5	4,089	4,307	4,445	4,573	4,723

Source: 2020 Urban Water Management Plan.

5. Water Supply vs. Water Demand Analysis

5.1 City Water Demands

The projected water demands in the City's 2020 UWMP were determined based upon population growth projections from Southern California Association of Governments, planned residential and commercial development, and the development of the recycled water system.

Table 6- Projected Water Demand by Sector 2020 UWMP (AFY)

DEMANDS FOR POTABLE AND RECYCLED WATER – 2020 AND PROJECTED							
Use Type	Additional Description	2020 Actual (AF)	Projected Water Use (AF)				
			2025	2030	2035	2040	2045
Single Family	Residential	2,606	3,360	3,656	3,744	3,853	3,979
Multi-Family	Residential	162	100	109	111	114	116
Commercial		809	874	894	950	977	1,009
Industrial		0.35	1.5	1.5	1.5	1.7	1.7
Landscape/Irrigation		82	100	105	109	112	115
Other Potable		0.69	0.5	0.5	0.5	0.6	0.6
Losses		987	560	494	510	526	544
TOTAL POTABLE		**4,647**	**4,996**	**5,260**	**5,426**	**5,584**	**5,766**
Landscape/Irrigation	**TOTAL RECYCLED**	**0**	**20**	**23**	**25**	**25**	**27**

Source: 2020 Urban Water Management Plan.

5.2 Project Water Demands

This analysis provides a comparison of water demand vs. water supply based on the General Plan land uses accounted for in the 2020 UWMP, and the project's water demand to demonstrate how the Project compares to the City's demand and supply projections contained in the 2020 UWMP. Because the Project site land use was included in the 2020 UWMP, this is a conservative analysis.

In order to compare the Project's water demand to the projected supply and demands in the 2020 UWMP, the Project's Proposed Site Plan was used to determine acreage of the Project site and multiplied by a water demand factor (WDF) to determine the total projected water demand. WDF's are applied to development units either by acre or square-feet (sqft). The WDF was calculated using the Adelanto 2020 UWMP and Water Master Plan. The 2020 UWMP determined the actual Gallons Per Capita Per Day (GPCD) to be 116 gallons per day (gpd). The City's Water Master Plan established Equivalent Residential Dwelling Units (EDUs) for calculating non-residential usage. The EDU for industrial project is 2 EDU per acre time GPCD. Using this method, the WDF 232 gpd times 2 EDU for a total of 8,120 gpd or 9.1 AFY. The WDF and calculated demand was compared to other WSAs performed in the region for similar land uses to validate the calculations.

Using the WDF the on-site Project water demand is estimated to be 9.1 AFY as shown in Table 7 *Project Water Demand (AFY).*

Table 7- Project Water Demand (AFY)

Land Use	Non-Residential (acres)	Demand Factor (gpd)	Demand Factor Unit	Project Demand (AFY)
Warehouse	35	232	gpd/acre	9.1

Tables 8, 9, and 10 provide a comparison for the normal year, single-dry year, up to the year 2045 and multiple dry year scenarios up to the year 2040 as documented in the 2020 UWMP with the project demand included.

Table 8. Normal Year Comparison (AFY)

Water Supply/Use (AFY)	2025	2030	2035	2040	2045
Available Supply 2020 UWMP[1]	64,426	64,429	64,155	64,431	64,433
Estimated Demand 2020 UWMP	5,016	5,283	5,451	5,609	5,793
Project Demand	9.1	9.1	9.1	9.1	9.1
Available Supply Capacity	**+59,401**	**+59,137**	**+568,695**	**+58,813**	**+58,631**

[1]Includes Projected Available Recycled Water: 2020 UWMP Table ES-2

Table 9. Single Dry Year Comparison (AFY)

Water Supply/Use (AFY)	2025	2030	2035	2040	2045
Available Supply 2020 UWMP[1]	64,426	64,429	64,155	64,431	64,433
Estimated Demand 2020 UWMP	5,066	5,336	5,505	5,665	5,824
Project Demand	9.1	9.1	9.1	9.1	9.1
Available Supply Capacity	**+59,351**	**+59,084**	**+58,641**	**+58,757**	**+58,573**

[1]Includes Projected Available Recycled Water: 2020 UWMP Table ES-2

Table 10. Multiple Dry Year Comparison (AFY)

Water Supply/Use (AFY)		2025	2030	2035	2040	2045
Year 1	Available Supply 2020 UWMP[1]	64,426	64,429	64,155	64,431	64,433
	Estimated Demand 2020 UWMP	5,066	5,336	5,505	5,665	5,824
	Project Demand	9.1	9.1	9.1	9.1	9.1
	Available Leftover Supply Capacity	**+59,351**	**+59,084**	**+58,338**	**+58,757**	**58,573**
Year 2	Available Supply 2020 UWMP[1]	64,426	64,429	64,155	64,431	64,433
	Estimated Demand 2020 UWMP	4,766	5,020	5,180	5,330	5,505
	Project Demand	9.1	9.1	9.1	9.1	9.1
	Available Leftover Supply Capacity	**+59,643**	**+59,392**	**+58,958**	**+58,084**	**+58,911**
Year 3	Available Supply 2020 UWMP[1]	64,426	64,429	64,155	64,431	64,433
	Estimated Demand 2020 UWMP	4,529	4,770	4,922	5,065	5,231
	Project Demand	9.1	9.1	9.1	9.1	9.1

Water Supply/Use (AFY)		2025	2030	2035	2040	2045
	Available Leftover Supply Capacity	**+59,888**	**+59,650**	**+59,224**	**+59,357**	**+59,193**
Year 4	Available Supply 2020 UWMP[1]	64,426	64,429	64,155	64,431	64,433
	Estimated Demand 2020 UWMP	4,303	4,533	4,677	4,813	4,971
	Project Demand	9.1	9.1	9.1	9.1	9.1
	Available Leftover Supply Capacity	**+60,114**	**+59,887**	**+59,469**	**+59,609**	**+59,453**
Year 5	Available Supply 2020 UWMP[1]	64,426	64,429	64,155	64,431	64,433
	Estimated Demand 2020 UWMP	4,089	4,307	4,445	4,573	4,723
	Project Demand	9.1	9.1	9.1	9.1	9.1
	Available Leftover Supply Capacity	**+60,328**	**+60,113**	**+59,701**	**+59,849**	**+59,701**

[1]Includes Projected Available Recycled Water: 2020 UWMP Table ES-2

As shown in Tables 8, 9, and 10, the Project's overall water demand as compared to the 2020 UWMP on a General Plan level basis of comparison, water demand increases by 9.1 AFY over the next 20 years.

6. Water Efficiency Strategies

The City of Adelanto is committed to implementing water conservation programs and encourages its customers to conserve water whenever possible. As outlined in Chapter 9 – Demand Management Measures of the 2020 UWMP, the following demand measures are applicable to the Project:

- Municipal Code Chapter 8.20 Water Conservation Plan.
- Municipal Code Chapter 17.60 Landscape Water Conservation.
- Metering: Standard conditions of approval for new development include a requirement to install water meters prior to issuance of building permits.
- The City has a two-tiered increasing rate structure that applies to all customers. Commercial and Industrial properties are charged at the Tier 1 rates for all water use.

The City's average consumption rate for 2020 is calculated to be 116 gallons per capita per day (GPCD), which demonstrates that the City has met its interim 2015 UWMP use target of 252 GPCD as well as the 2020 UWMP target of 192 GPCD. The City can maintain its consumption rates and future targets by continuing to focus on water conservation.

7. Summary

Based on the analysis in this WSA, the City has adequate supplies to serve 100 percent of the Project's water demands during normal, dry year, and multiple dry year demands through 2045.

According to the 2020 UWMP: " With continued effective water management strategies, the City is projected to have 100 percent water reliability in a single dry year or five-consecutive year drought conditions for the forecast period to 2045.

The Mojave 2014 IRWM Plan (amended 2018) replaces the 2007 GWMP as a critical source document for MWA's groundwater management since the City relies 100 percent on the Alto Subarea for its drinking water supply. More specifically, MWA has expressly stated, "MWA has reliable water supplies to meet retail demands within its service area."

Based on the analysis in this study, the water demand projections are expected to increase slightly due to the proposed project; however, these demands as indicated in the assessment are not anticipated to exceed the supply capacity of the City and the ground water subbasins. (Tables 8, 9, & 10).

Projected water demand for the proposed Project is within the scope of the analysis contained in the 2020 UWMP, and there is an ample water supply to serve the uses planned in the proposed Project.