

**WATER SUPPLY ASSESSMENT REPORT (WSA)**

**PROJECT:**

**PALMDALE INDUSTRIAL PARK**  
8<sup>TH</sup> Street  
In the City of Palmdale

**Developer:**

**Sierra Vista 18 PD LLC,  
A Nevada Limited Liability Company**

**Water Purveyor:**

**City of Palmdale Water District**

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**June 2022**

## Table of Contents

ACRONYMS AND ABBREVIATIONS .....	5
INTRODUCTION .....	6
Water Supply Assessment Requirement .....	6
Proposed New Development .....	8
Palmdale Industrial Park Project Site .....	9
Project Description .....	9
Palmdale Water District .....	12
Sources of Water .....	14
Groundwater .....	14
Availability of Groundwater Supplies.....	16
Normal Year Water Supply .....	16
Single-Dry Year Water Supplies .....	17
Multiple -Dry Years Water Supply and Demands .....	17
Comparison of Water Supplies and Demands .....	18

WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

Comparison of Supplies and Demands – Normal Year .....	18
Comparison of Supplies and Demands – Single-Dry Year .....	19
Comparison of Supplies and Demands – Multiple–Dry Year .....	19
Groundwater Reliability .....	20
Imported Water Reliability .....	20
Drought Risk Assessment .....	20
Water Demand Management Measures .....	21
Palmdale Industrial Park Water Pressure Zone .....	21
Palmdale Industrial Park Projected Water Demand .....	22
Transmission Pipeline Requirements .....	22
Conclusions .....	23

WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

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FIGURES and Exhibits

Proposed Project Site .....	9
Proposed Building sites .....	10
Palmdale Water Service Area .....	11

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TABLES

Table 6- 1A: Groundwater Volumes Available.....	16
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WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

Table 7-1: Comparison of Supplies and Demands Normal year .....	18
Table 7-2: Comparison of Supplies and Demands Single Dry- Year .....	19
Table 7-3: Comparison of Supplies and Demands Multiple Dry- Year .....	19

## ACRONYMS AND ABBREVIATIONS

AF	acre-feet
AFY	acre-feet per year
AVEK	Antelope Valley-East Kern Water Agency
AWWA	American Water Works Association
cfs	cubic feet per second
EIR	Environmental Impact Report
GPCD	gallons per capita per day
gpd	gallons per day
GPM	Gallons Per Minute
HGL	Hydraulic Grade Line
HWL	High Water Level

WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

IRWMP	Integrated Regional Water Management Plan
LACWD	Los Angeles County Waterworks District
RTP/ SCS	Regional Transportation Plan / Sustainable Communities Strategy
SF	Square feet
Project	AVCC (Antelope Valley Commerce Center)
SB	Senate Bill
SWP	State Water Project
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment

## **Introduction**

The information provided in the preparation of this Water Supply Assessment is mainly obtained from the review of the 2016 Water System Master Plan for Palmdale Water District, Approved and adopted the Urban Water Management Plan (2020), and the information obtained from the State Water Project.

## **Water Code Section 10910:**

The California Water Code section 10910 commonly known as Senate Bill (SB) 610 requires preparation of a Water Supply Assessment (WSA). As part of that assessment, the public water system shall indicate whether its total projected water supplies available during normal, single-dry, and multiple-dry water years included in the 20-year projection contained in the urban water management plan will meet the projected water demand

associated with the proposed project, in addition to the public water system's existing and planned future uses.

**Water Code Section 10913. Project:**

Section 10913 of the Water Code defines a "Project" for which a WSA must be prepared as any of the following:

- a) A proposed residential development of more than 500 dwelling units.
- b) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- c) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- d) A proposed hotel or motel, or both, having more than 500 rooms.
- e) 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.
- f) A mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

## **PROPOSED NEW DEVELOPMENT**

### **Project Name:**

Palmdale Industrial Park

### **Project Location:**

8<sup>th</sup> Street, East of Sierra HWY  
in the City of Palmdale

APN 3022-001-027

### **Developer/Owner:**

Sierra Vista 18 PD LLC  
A Nevada Limited Liability Company

### **Project Architect:**

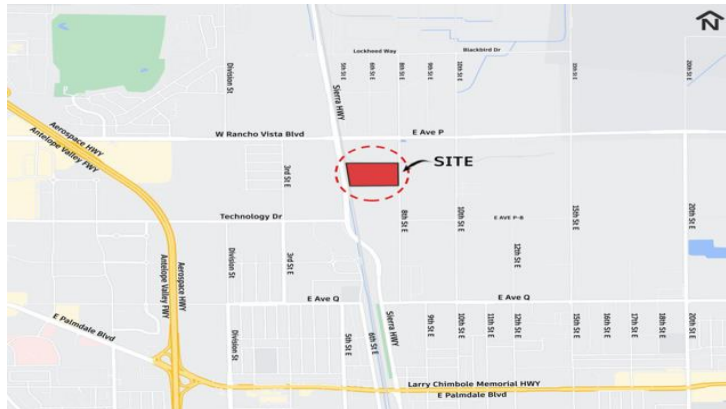
HPA Architecture  
18831 Bardeen Ave., Suit #100  
Irvine, CA. 92612  
Tel: (949) 863-1770

### **Project Civil Engineer:**

Westland Group  
4150 Concourse, Suit 100  
Ontario, CA. 91764



WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

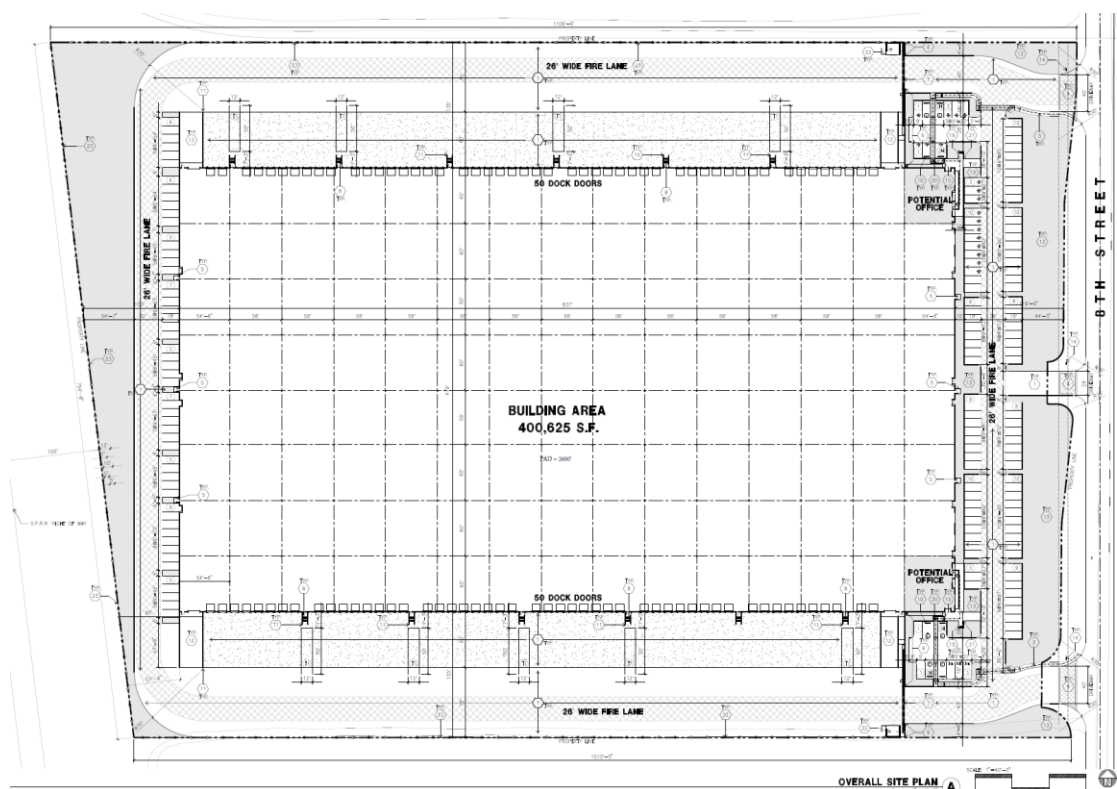


Palmdale Industrial Park Project Site

**Project Description:**

The Palmdale Industrial Park is a proposed 400,625 square Foot warehouse building on 17.63 acres of land. The proposed development is east of Sierra Highway south of East Avenue “P” fronting 8<sup>th</sup> Street in the City of Palmdale. The City’s zoning designation for this site is General Industrial (M2). The Water purveyor for this site is Palmdale Water District.

WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE



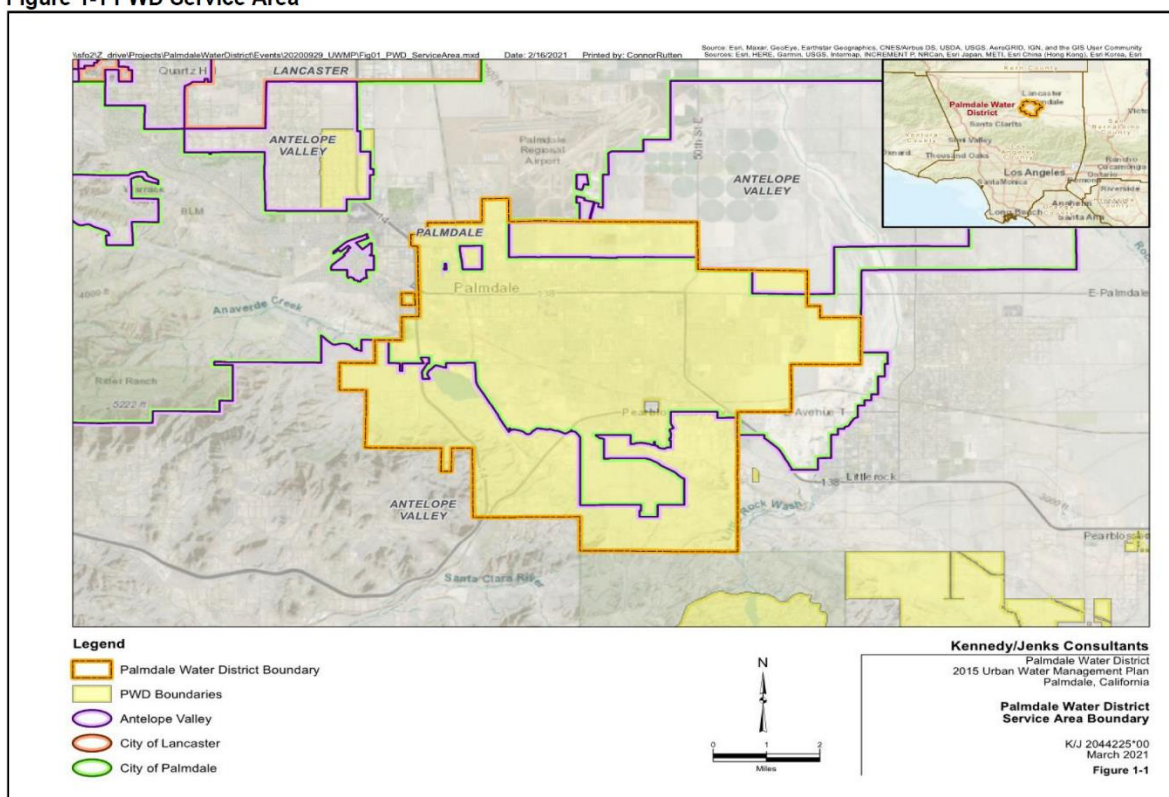
### Water Purveyor (Palmdale Water District)

Palmdale Water District (PWD) is located within the Antelope Valley in Los Angeles County, approximately 60 miles north of the City of Los Angeles. The District serves a population of 126,062 people (DWR population tool based on 2020 censuses), The Water District has about 27,000 active water connections, provides water services to the City of Palmdale and some segments of the unincorporated areas in Los Angeles County. 96 percent of the PWD customers are residential customers, 2.5 percent of the customers are commercial connections, less than 1 percent of the customers are industrial connections and the remaining services are landscape irrigation services. The PWD water distribution system is comprised of over 400 miles of pipelines, seven pressure zones, 21 storage reservoirs, with a total capacity of about 50 million gallons (MG), 17 booster

# WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK 8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

pump stations, and 23 active groundwater wells. The primary function of the Palmdale Water District is to provide retail water service within its service area. PWD has the power to carry out any act to provide sufficient water for present and future beneficial uses, including construction and operation of facilities to store, regulate, divert and distribute water for use within its boundaries.

Figure 1-1 PWD Service Area



WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

### Historical Water Deliveries AF/Year (2015 and 2020)

Demand Category	2015	2020 <sup>(a)</sup>
Single family	10,251	11,757
Multi-family	1,276	1,555
Commercial <sup>(b)</sup>	863	1,190
Industrial	1,548	1,637
Landscape Irrigation	744	1,040
Other <sup>(c)</sup>	41	34
Sales to Other Agencies	432	1,301
Groundwater Recharge/Storage/Banking	0	0
Long Term System Storage	0	0
Saline Water Intrusion Barrier	0	0
Agricultural Irrigation	0	0
Non-Revenue Water <sup>(d)</sup>	1,841	1,997
<b>Total</b>	<b>16,996</b>	<b>20,511</b>

Note: Modified from DWR Table 4-1

(a) Data provided by PWD Staff Public Water System Statistics. 2020 total production was 20,511 AF as shown in Table 1-1.

(b) Includes Institutional and Governmental demands.

(c) Other uses include water for street sweeping, construction and other various limited use meters at PWD and school facilities.

(d) Based on average non-revenue water from past 5 years of water audit reports (see Table 2-1).

### Unit Demand Factor

Usage Type	AFY/Ac
Single Family Residential	0.82
Multi-Family Residential	4.97
Commercial <sup>(b)</sup>	0.60
Industrial	4.06
Irrigation	7.24

Notes:

Based on 2017-2020 consumption and land use Classifications.

(a) Includes Institutional/Governmental Usage

WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

### Projected Potable Water Deliveries

Demand Category	2025	2030	2035	2040	2045
Single family	11,460	11,730	12,310	12,970	13,660
Multi-family	1,450	1,480	1,560	1,640	1,730
Commercial <sup>(a)</sup>	1,170	1,240	1,390	1,550	1,730
Industrial	1,350	1,390	1,480	1,590	1,700
Landscape	1,050	1,130	1,300	1,490	1,690
Other <sup>(c)</sup>	40	40	40	40	40
Sales to Other Agencies	1,300	1,300	1,300	1,300	1,300
Groundwater Recharge/Storage/Banking	0	0	0	0	0
Long Term System Storage	0	0	0	0	0
Saline Water Intrusion Barrier	0	0	0	0	0
Agricultural Irrigation	0	0	0	0	0
Non-Revenue Water <sup>(b)</sup>	1,900	2,000	2,100	2,200	2,400
<b>Total</b>	<b>19,720</b>	<b>20,310</b>	<b>21,480</b>	<b>22,780</b>	<b>24,250</b>

Notes: Modified from DWR Table 4-2

a. Includes Institutional/Governmental demands

b. Based on average non-revenue water from past 5 years of water audit reports (see Table 2-1).

c. Other uses include water for street sweeping, construction and other various limited use meters at PWD and school facilities.

d. Values are rounded.

### Projected Five Year Water Use, AF/Y (2021-2025)

Use Type	2021	2022	2023	2024	2025
Single family	11,250	11,300	11,360	11,410	11,460
Multi-family	1,420	1,430	1,440	1,440	1,450
Commercial	1,120	1,130	1,1140	1,160	1,170
Industrial	1,310	1,320	1,330	1,340	1,350
Landscape	990	1,000	1,020	1,030	1,050
Other	40	40	40	40	40
System Losses (Non-Revenue Water)	1,880	1,885	1,890	1,895	1,900
Sales to Other PWS	1,300	1,300	1,300	1,300	1,300
<b>Total</b>	<b>19,310</b>	<b>19,405</b>	<b>19,520</b>	<b>19,615</b>	<b>19,720</b>

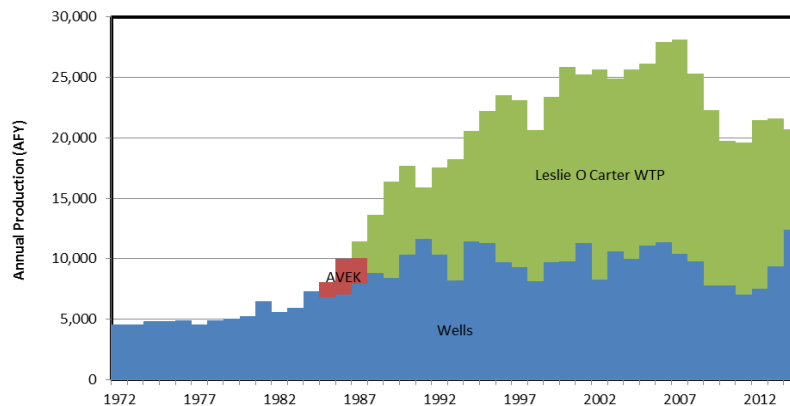
### **PWD Sources of Water**

- Local groundwater wells from Antelope Valley Groundwater Basin (40%)
- Groundwater Return Flow Credits (Recycled water, groundwater banking)
- Local surface water from Littlerock Creek Reservoirs
- Imported water from the State Water Project (SWP, 50%)
- Water Transfer Agreement with Butte County
- Recycled Water

- 1- Groundwater supply is typically the most reliable source of water supply specially during the drought conditions. PWD has historically used groundwater as its most reliable and consistent water source averaging about 10,300 acre-ft/yr. (about 40 percent of District's water supply) in the past. PWD's groundwater is pumped from the Antelope Valley Groundwater basin. However, due to the excessive groundwater pumping and lack of adequate water replenishment, The Antelope Valley Groundwater Basin was adjudicated by the court in December 2015. As a result, PWD's share of the Antelope Valley Groundwater Basin dropped to 2,770 acre-ft/year plus an additional 5,000 acre-ft/year of return flow credits for the imported water used.
- 2- The Littlerock Creek Dam and Reservoir which was constructed in 1922, is located about 7 miles southeast of Palmdale Civic Center and constitutes the District's local surface water supply. The San Gabriel Mountains natural run-off is the major contributor to the reservoir's inflow and varies from year to year. This dam and reservoir, originally had a storage capacity of about 4,300 acre-ft but, due to continued sedimentation its capacity was reduced to 2,800 acre-ft. Depending on the year, the District has received an average of 2,900 acre-ft of its water supplies from Littlerock Dam and Reservoir. Water from Littlerock Reservoir is conveyed to Lake Palmdale where it mixes with the State Water Project and is subsequently treated at the Leslie O, Carter Water Treatment Plant .

WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

- 3- PWD is one of the 29 contracting agencies that have contracts with the State of California for the State Water Project. The water is conveyed to the District's Lake Palmdale via a 30-inch metering station. Depending on the availability, the District receives approximately 1 MG to 19 MG of SWP on the daily basis.
- 4- Palmdale Water District is engaged in a long-term lease agreement with Butte County for a percentage of their SWP share up to 10,000 AFY. This lease has been extended through 2031 and they anticipate to extend it beyond 2031.
- 5- Palmdale is exploring opportunities to utilize recycled water supplies for its service area customers by actively working with Sanitation Districts of Los Angeles County (LACSD.)



WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

**Normal Year Water Supplies 2025 to 2045 (Acre-ft/year)**

	2025	2030	2035	2040	2045
<b>Water Supply Source</b>					
Groundwater	4,220	2,770	2,770	2,770	2,770
Groundwater Return Flow Credits	5,000	5,000	5,000	5,000	5,000
Groundwater or Surface Water Augmentation	5,325	5,325	5,325	5,325	5,325
Local Surface Water	4,000	4,000	4,000	4,000	4,000
Imported SWP Water	12,030	11,720	11,400	11,080	11,080
Butte Transfer Agreement <sup>(a)</sup>	5,650	5,500	5,350	5,200	5,200
Recycled Water	500	1,000	1,500	2,000	2,000
<b>Total Supplies</b>	<b>36,725</b>	<b>35,315</b>	<b>35,345</b>	<b>35,375</b>	<b>35,375</b>

Notes: Values are rounded.

**PWD Projected Potable Water Demands (Acre-ft/year)**

Water Use	2025	2030	2035	2040	2045
Total Water Deliveries (see Section 2)	16,520	17,010	18,080	19,280	20,550
Sales to Other Water Agencies (see Section 2)	1,300	1,300	1,300	1,300	1,300
Distribution System Water Losses (see Section 2)	1,900	2,000	2,100	2,200	2,400
<b>Total</b>	<b>19,720</b>	<b>20,310</b>	<b>21,480</b>	<b>22,780</b>	<b>24,250</b>

Notes: Demands do not include non-potable water supplies.



WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

**Single-Dry Year Water Supplies 2025 to 2045 (Acre-ft/year)**

	2025	2030	2035	2040	2045
<b>Water Supply Source</b>					
Groundwater	4,220	2,770	2,770	2,770	2,770
Groundwater Return Flow Credits	5,000	5,000	5,000	5,000	5,000
Groundwater or Surface Water Augmentation	5,325	5,325	5,325	5,325	5,325
Local Surface Water	4,000	4,000	4,000	4,000	4,000
Imported SWP Water	1,490	1,705	1,915	2,130	2,130
Butte Transfer Agreement <sup>(a)</sup>	700	800	900	1,000	1,000
Recycled Water	500	1,000	1,500	2,000	2,000
<b>Total Supplies</b>	<b>21,235</b>	<b>20,600</b>	<b>21,410</b>	<b>22,225</b>	<b>22,225</b>

Note: Values are rounded.

**Multiple-Dry-Year Water Supplies 2025 to 2045 (Acre-ft/year)**

	2025	2030	2035	2040	2045
<b>Water Supply Source</b>					
Groundwater (from Table 4-3)	4,220	2,770	2,770	2,770	2,770
Groundwater Return Flow Credits (from Table 4-4)	5,000	5,000	5,000	5,000	5,000
Groundwater Augmentation	5,325	5,325	5,325	5,325	5,325
Local Surface Water (from Table 4-6)	4,000	4,000	4,000	4,000	4,000
Imported SWP Water (from Table 4-9)	6,180	5,645	5,110	4,470	4,470
Butte Transfer Agreement <sup>(a)</sup>	2,900	2,650	2,400	2,100	2,100
Recycled Water (from Table 5-4)	500	1,000	1,500	2,000	2,000
<b>Total Supplies</b>	<b>28,125</b>	<b>26,390</b>	<b>26,105</b>	<b>25,665</b>	<b>25,665</b>

Note: Values are rounded.

WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

**Table 7-1 Comparison of Supplies and Demands - Normal Year (AF)**

	2025	2030	2035	2040	2045
<b>Existing Supplies</b>					
Groundwater	4,220	2,770	2,770	2,770	2,770
Groundwater Return Flow Credits	5,000	5,000	5,000	5,000	5,000
Groundwater or Surface Water Augmentation	5,325	5,325	5,325	5,325	5,325
Local Surface Water	4,000	4,000	4,000	4,000	4,000
Imported SWP Water	12,030	11,720	11,400	11,080	11,080
Butte Transfer Agreement <sup>(a)</sup>	5,650	5,500	5,350	5,200	5,200
Recycled Water <sup>(c)</sup>	500	1,000	1,500	2,000	2,000
<b>Total Supplies</b>	<b>36,725</b>	<b>35,315</b>	<b>35,345</b>	<b>35,375</b>	<b>35,375</b>
Potable Water Demands	19,720	20,310	21,480	22,780	24,250
Recycled Water Demands	500	1,000	1,500	2,000	2,000
<b>Total Demand<sup>(b)</sup></b>	<b>20,220</b>	<b>21,310</b>	<b>22,980</b>	<b>24,780</b>	<b>26,250</b>
<b>Difference (Supply-Demand)</b>	<b>16,505</b>	<b>14,005</b>	<b>12,365</b>	<b>10,595</b>	<b>9,125</b>

Notes: Values are rounded.

(a) For details see Section 4.3.1.

(b) Demands are not expected to change during drought conditions; the region typically receives little rain, and with implementation of DMM's water demands for irrigation do not increase in the PWD under single-dry and multiple-dry year conditions.

WATER SUPPLY ASSESSMENT: PALMDALE INDUSTRIAL PARK  
8<sup>TH</sup> STREET, IN THE CITY OF PALMDALE

**Table 7-2 Comparison of Supplies and Demands - Single-Dry Year (AF)**

	2025	2030	2035	2040	2045
<b>Existing Supplies</b>					
Groundwater	4,220	2,770	2,770	2,770	2,770
Groundwater Return Flow Credits	5,000	5,000	5,000	5,000	5,000
Groundwater or Surface Water Augmentation	5,325	5,325	5,325	5,325	5,325
Local Surface Water	4,000	4,000	4,000	4,000	4,000
Imported SWP Water	1,490	1,705	1,915	2,130	2,130
Butte Transfer Agreement <sup>(a)</sup>	700	800	900	1,000	1,000
Recycled Water	500	1,000	1,500	2,000	2,000
<b>Total Supplies</b>	<b>21,235</b>	<b>20,600</b>	<b>21,410</b>	<b>22,225</b>	<b>22,225</b>
Potable Water Demands	19,720	20,310	21,480	22,780	24,250
Recycled Water Demands	500	1,000	1,500	2,000	2,000
<b>Total Demand<sup>(b)</sup></b>	<b>20,220</b>	<b>21,310</b>	<b>22,980</b>	<b>24,780</b>	<b>26,250</b>
<b>Difference (Supply-Demand)</b>	<b>1,015</b>	<b>-710</b>	<b>-1,570</b>	<b>-2,555</b>	<b>-4,025</b>

Note: Values are rounded.

(a) For details see Section 4.3.1.

(b) Demands are not expected to change during drought conditions; the region typically receives little rain, and with implementation of DMMs water demands for irrigation do not increase in the PWD under single-dry and multiple-dry year conditions.

**Table 7-3 Comparison of Supplies and Demands - Multiple-Dry Year (AF)**

	2025	2030	2035	2040	2045
<b>Existing Supplies</b>					
Groundwater	4,220	2,770	2,770	2,770	2,770
Groundwater Return Flow Credits	5,000	5,000	5,000	5,000	5,000
Groundwater or Surface Water Augmentation	5,325	5,325	5,325	5,325	5,325
Local Surface Water (from Table 4-6)	4,000	4,000	4,000	4,000	4,000
Imported SWP Water (from Table 4-9)	6,180	5,645	5,110	4,470	4,470
Butte Transfer Agreement <sup>(a)</sup>	2,900	2,650	2,400	2,100	2,100
Recycled Water (from Table 5-4)	500	1,000	1,500	2,000	2,000
<b>Total Supplies</b>	<b>28,125</b>	<b>26,390</b>	<b>26,105</b>	<b>25,665</b>	<b>25,665</b>
Potable Water Demands	19,720	20,310	21,480	22,780	24,250
Recycled Water Demands	500	1,000	1,500	2,000	2,000
<b>Total Demand<sup>(b)</sup></b>	<b>20,220</b>	<b>21,310</b>	<b>22,980</b>	<b>24,780</b>	<b>26,250</b>
<b>Difference (Supply-Demand)</b>	<b>7,905</b>	<b>5,080</b>	<b>3,125</b>	<b>885</b>	<b>-585</b>

Note: Values are rounded.

(a) For details see Section 4.3.1.

(b) Demands are not expected to change during drought conditions; the region typically receives little rain, and with implementation of DMMs water demands for irrigation do not increase in the PWD under single-dry and multiple-dry year conditions.

### **Groundwater Reliability**

Groundwater is typically the most reliable source of water supplies as it is not susceptible to the surface flow and/or climate. However, water quality, and legal issues could limit the extraction of the groundwater. The water quality of PWD groundwater is highly important and thus they have taken measures to ensure protection of the groundwater quality.

### **Imported Water Reliability**

The factors impacting the reliability of State Water Project (SWP) supplies include legal issues as to limiting SWP pumping by court order; environmental issues impacting endangered species; water quality impacting the treatment process; and climate change resulting less SWP water supplies.

### **Imported Water Drought Risk Assessment**

PWD is direct contractor of the State Water Project with a maximum allocation of 21,300 acre-ft /year. However, this allocation may vary from 41% to 10% in a consecutive dry year scenario. Such reduction in the SWP may also apply to the Butte County Transfer Agreement.

### **Groundwater Drought Risk Assessment**

Palmdale groundwater pumping right from the Antelope Valley Groundwater Basin was reduced to 2,770 acre-ft/year starting 2023. PWD will be entitled to receive approximately 1,370 AF of unused portion of federal water share through 2024. In addition, Palmdale has the ability to receive 5,000 AFY of the return flows.

### **Surface Water**

Palmdale anticipates to supply up to 4,000 AF flow from the Littlerock Reservoir through 2025.

## Recycled Water

Palmdale anticipates to increase the use of recycled water supply to 500 acre-ft/yr by 2025.

## Water Demand Management Measures (DMM)

PWD is currently implementing and plan to continue the DMM in order to meet its urban water management use reduction targets. The current measures of managing the water supplies include:

- 1- Water waste prevention ordinances
- 2- Metering
- 3- Conservation pricing
- 4- Public education and outreach
- 5- Programs to assess and manage distribution system water losses
- 6- Water conservation program coordination and staff support

## Pressure Zones

The table below depicts the 7 pressure zones within the PWD.

<i>Pressure Zones</i>		
Pressure Zone Name	Ground Elevation Range (feet-amsl <sup>(1)</sup> )	Static Pressure Range <sup>(2)</sup> (psi)
2800	2552-2782	8-107
2835	2788-2808	12-20
2850	2637-2828	10-92
2950	2656-2938	5-127
3000	2712-2974	11-125
3200	2814-3166	15-167
3250	2850-3108	61-173
3400	3060-3302	42-147
3600	3195-3490	48-175

1) Feet above mean sea level

2) Calculated based on difference between hydraulic grade elevation and ground elevation range

The Palmdale Industrial Park with the proposed 2613 feet finished floor elevation is located in the 2800 pressure zone expecting to have approximately 81 psi static water pressure. The District's projected water demand is based on the land use as well as water duty factors.

### **Palmdale Industrial Park Projected Water Demand**

Palmdale Industrial Park project is located at the Sierra Highway west of 8<sup>th</sup> Street and south of Avenue “P”. This development involves improvement of approximately 18 acres of land with 400,625 square foot warehouse building.

The City of Palmdale UWMP (2020) estimates the average potable water demand for the Palmdale Industrial Park development to be (3,624 GPD / Ac.). This Unit Demand Factor of 4.06, is based on 2017-2020 consumption and land use Classifications. Therefore, the required domestic water for this project is estimated as follows.

$$\begin{aligned} 3,624 \text{ gpd/ac} \times 18 \text{ ac} &= 65,232 \text{ GPD (Average Day Demand)} \\ 65,232 \times 1.8 \text{ (Peaking factor)} &= 117,418 \text{ GPD (Max Day Demand)} \\ 117,418 \div 24 &= 4,892 \text{ GPH} \\ 4,892 \div 60 &= 81 \text{ gpm (Max Day demand)} \end{aligned}$$

The fire flow requirement for the industrial building is 4,000 gpm.

The total water demand including the fire flow demand for this development is 4,081 gpm which is based on (Max Day + fire flow) at 20 psi residual pressure.

### **Transmission Pipeline requirements**

The Palmdale Industrial Park has not gone through a formal development review by the City of Palmdale to establish the need for construction the required water infrastructure serving this site. However, the upsizing of the existing 12” pipeline in Avenue “P” to a 16” diameter pipeline may be necessary to provide the 4000 gpm fire flow. In addition, the PWD may require additional upgrades to the existing water distribution or charge fair share fees for the use of in-place water infrastructure. Such conditions will be discussed during the Development Review Process.

**Conclusion:**

Based on the above analysis and the information provided in the adopted 2020 Urban Water Management Plan for the Palmdale Water District (PWD), the District has documented and is prepared to serve its existing customers including the proposed Palmdale Industrial Park 8<sup>th</sup> Street, potable water demands through 2045. Furthermore, PWD in collaboration with other agencies and stakeholders has secured contingency plans to deliver uninterrupted water supply to Palmdale Industrial Park 8<sup>th</sup> Street. Therefore, in accordance with the foregoing and the standards set forth by SB 610, this WSA concludes that the total projected water supplies available to Palmdale Water District during normal, single-dry, and multiple-dry water years over the next 20 years will be sufficient to meet the projected water demands for the proposed Project.