WATER SUPPLY ASSESSMENT

Avenue G Industrial Project

September 2022

PREPARED FOR:

Warmington Properties
3090 Pullman Street
Costa Mesa, CA 92626

PREPARED BY:

Kimley-Horn and Associates
660 South Figueroa Street, Suite 2050
Los Angeles, CA 90017

KHA Project # 099898001

TABLE OF CONTENTS

Avenue G Industrial Project
Water Supply Assessment

Figures

Tables Page

SECTION 1 – INTRODUCTION

In 2001, California adopted Senate Bill (SB) 610[1] and SB 221, thereby amending the California Water Code (Water Code). Under these new laws, certain types of development projects are now required to provide detailed water supply assessments to planning agencies. Any proposed project that is subject to the California Environmental Quality Act (CEQA) and would be a proposed industrial development occupying more than 40 acres of land is subject to SB 610 and is required to prepare a Water Supply Assessment (WSA).

The primary purpose of a WSA is to determine whether the identified water supply or water supplier will be able to meet projected demands for the Avenue G Industrial Project (Project), in addition to existing and planned future uses, over a 20-year planning period in normal, single-dry, and multiple-dry water years. Secondarily, a WSA provides decision-makers a regional framework on which to base a decision about the sufficiency of water supplies for the Project.

The Project is subject to CEQA and is an industrial development that occupies more than 40 acres of land. Therefore, this WSA was prepared in accordance with SB 610 and the Water Code. The SB 610 requirements and their applicability to the Project are addressed in detail in Section 3, Water Supply Planning.

This WSA assesses the availability of identified water supplies under normal, single-dry, and multiple-dry year conditions, accounting for the projected water demand of the Project in addition to other existing and planned future uses of the identified water supply. This WSA examines the regional water providers and their supplies (Section 4.2), the reliability of these sources (Section 4.4), the projected short-term and long-term water demand of the Project (Section 5), and the comparison of supply and demand as required in a WSA (Section 6).

The Project Site is located in the City of Lancaster (City); however, the Project Site lies outside of the service area of Los Angeles County Waterworks District (LACWD) No. 40, Antelope Valley, herein referred to as District 40. Because the Project Site is within the Sphere of Influence of LACWD No. 40, the Project Site would need to be annexed into and will require annexation to expand the LACWD No. 40 service boundaries to include the Project Site. This WSA is produced to meet the requirements of SB 610 and to support a letter of verification to meet the requirements of SB 221.

[1] An act to amend Public Resources Code Section 21151.9; to amend Water Code Sections 10631, 10656, 10910, 10911, 10912, and 10915; to repeal Water Code Section 10913; and to add and repeal Water Code Section 10657 relating to water.

1.1 Project Overview

Project Location

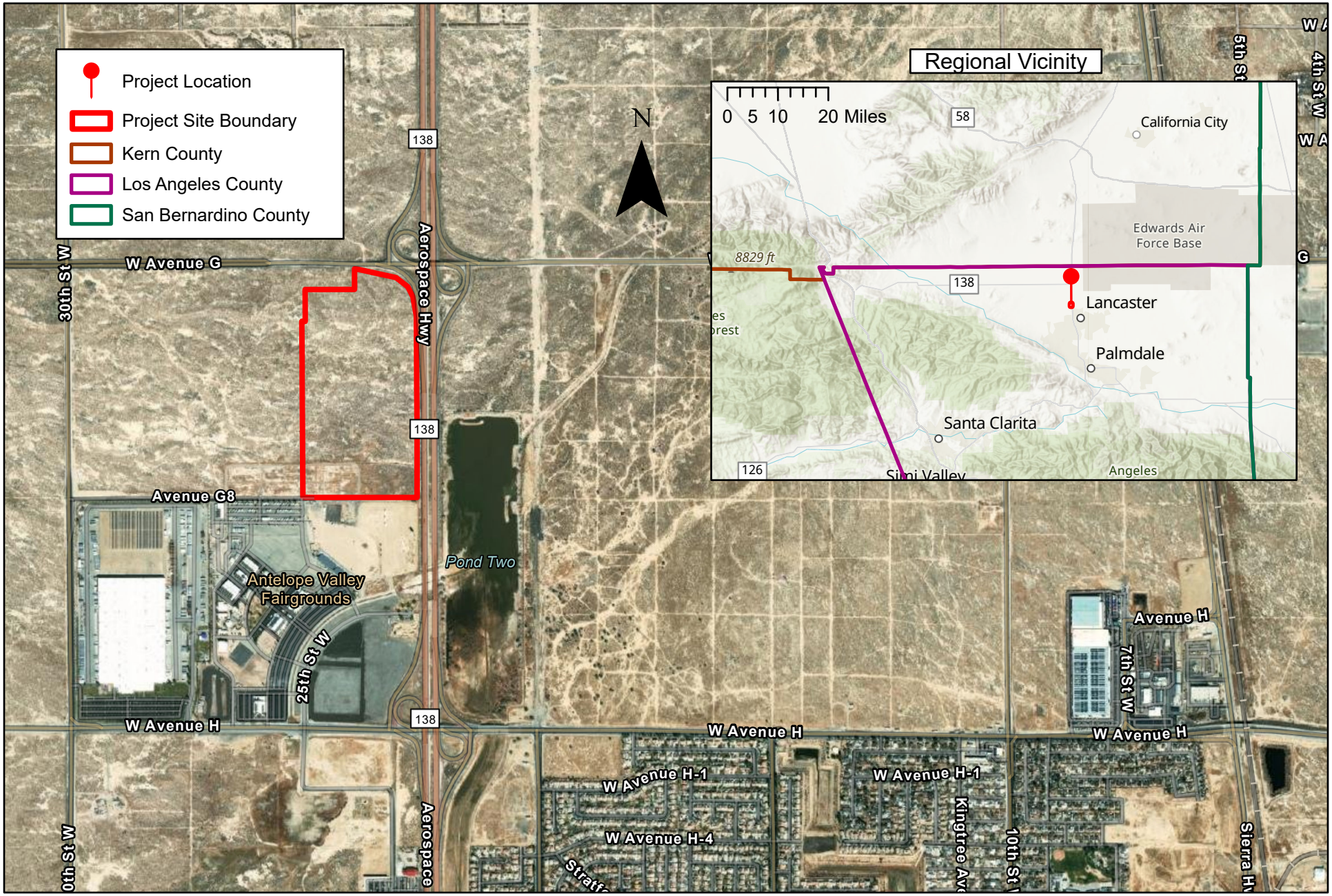
The Project Site consists of one parcel (Los Angeles County Assessor Parcel Number 3114-011-031) of 68.5 acres (2,983,748 square feet) located at the southwest corner of the intersection of W. Avenue G and Aerospace Highway (State Route [SR] 138). The Project Site is bound by West Avenue G to the north, SR 138 to the east, Avenue G8 and the Antelope Valley Fair and Event Center to the south, and vacant land to the west. The general vicinity and relationship of the Project Site to surrounding streets is illustrated in **Figure 1**. The Project Site has a General Plan Land Use Designation of Specific Plan, and the Project Site is zoned Specific Plan.[2,3]

Project Description

The Project would develop a 1,260,630 square foot industrial warehouse with 20,000 square feet of office space included. The warehouse would include 219 trailer loading docks, 732 standard automotive parking spaces, and 365 trailer parking spaces. **Figure 2** shows the proposed layout of the Project Site.

[2] City of Lancaster, General Plan Land Use Map, Adopted July 14, 2009, https://www.cityoflancasterca.org/home/showpublisheddocument/9333/635944339787900000. Accessed March 28, 2022.

[3] City of Lancaster, Zoning Map, Adopted July 13, 2010, https://www.cityoflancasterca.org/home/showpublisheddocument/12653/635944347340200000. Accessed March 28, 2022.



source: Esri Community Maps Contributors, County of Los Angeles, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA,

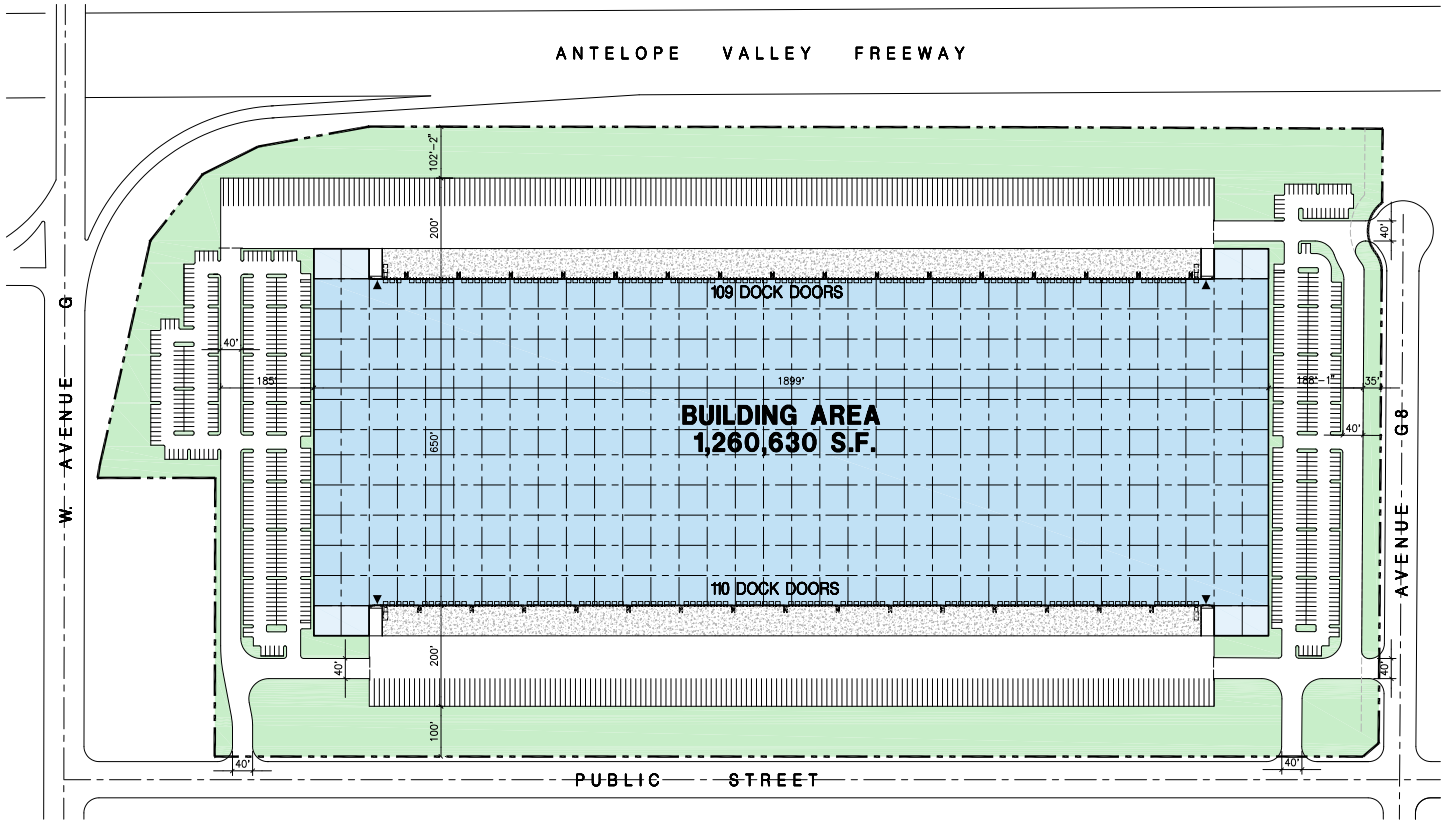
0 0.17 0.35 0.7 Miles

Figure 1: Regional and Site Location Map

Avenue G Industrial Project Water Supply Assessment

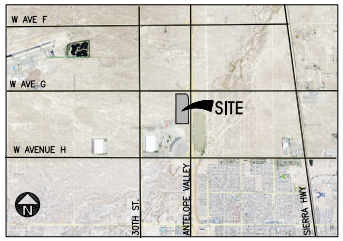
Kimley»Horn

CAUTION: IF THIS SHEET IS NOT 30"X42", IT IS A REDUCED PRINT



Note: This is a conceptual plan. It is based on preliminary information which is not fully verified and may be incomplete. It is meant as a comparative aid in examining alternate development strategies and any quantities indicated are subject to revision as more reliable information becomes available.

Aerial Map



Tabulation

SITE AREA	
In s.f.	2,993,748 s.f.
In acres	68.50 ac
BUILDING AREA	
Office	20,000 s.f.
Warehouse	1,240,630 s.f.
TOTAL	1,260,630 s.f.
COVERAGE	42.2%
AUTO PARKING REQUIRED	
Office: 1/250 s.f.	80 stalls
Whse: 1st 25K @ 5 stalls	5 stalls
above 25K @ 1/5,000 s.	243 stalls
TOTAL	328 stalls
AUTO PARKING PROVIDED	
Standard (9' x 20')	732 stalls
TRAILER PARKING PROVIDED	
Trailer (10' x 55')	365 stalls
ZONING ORDINANCE FOR CITY	
Zoning Designation - Fox Field Industrial Corridor SP (Office / Commerical)	
MAXIMUM BUILDING HEIGHT ALLOWED	
Height - None	
MAXIMUM FLOOR AREA RATIO	
FAR - 0.5:1	
MAXIMUM LOT COVERAGE	
Coverage - 50%	
LANDSCAPE REQUIREMENT	
Percentage - 15%	
LANDSCAPE PROVIDED	
In s.f.	633,572 s.f.
Percentage -	21.2%
SETBACKS	
Building / Parking	
Avenue G - 35' / 35'	
Secondary Arterials - 30' / 30'	
Local St. - 22' / 22'	
side / Rear - 10'	
Additional building setbacks:	
- Add 1' front setback per 1' in height beyond 35'	
- Add 1' front setback per 10' in length beyond 150' to max. 50' stback	

Legend

- POTENTIAL OFFICE
- WAREHOUSE
- ▼ DRIVE THRU DOOR

north

1" = 100'
0 100 200 300

Conceptual Site Plan

W. Avenue G and Aerospace Hwy (138)

Lancaster, CA

HPA architecture
18831 Bardeen Ave. - Ste. #100
Irvine, CA 92612
(949) 863-1770
www.hparchs.com

Warmington PROPERTIES

September 23, 2021 / Job #21551

Scheme 1

1.2 Document Structure

This report is organized following a basic hierarchy to describe each issue: regional context (e.g., District 40's service area and the underlying groundwater basin); local context (LACWD's demands and supply for District 40); Project-level analysis for the Project; and the assessment as a comparison of water supply and demand for the Project, existing and future demand in all water year types. The report organization is as follows:

1. Introduction; Project overview, location, and description; and document structure
2. City background information and land use planning
3. General information on water supply planning under SB 610
4. Water supply setting – including local climate, surface and groundwater supplies, capacities, and reliability
5. Regional, City, and Project water demands – historical, projected, and projected dry-year demands
6. Supply-demand comparisons on a regional, City, and Project-level basis
7. Conclusions

SECTION 2 – CITY OF LANCASTER INFORMATION

The City of Lancaster's population was 157,800 in 2016 and expected to grow to 213,300 by 2045. Projected population includes population projections as provided in the Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Demographics and Growth Forecast plus the expected population growth associated with the City's 2021-2029 Housing Element Update goal, which assumes a population of 3.15 per housing unit based on the persons per household estimated by the California Department of Finance. There are an estimated 48,816 housing units, approximately three-quarters single-family and one-quarter multi-family, with a 5 percent vacancy rate. The occupied housing units average 3.15 persons per housing unit. The City has approximately 56,103 workers living within City boundaries.[4] Employment is in a variety of commercial and industrial operations, notably professional services, retail, health care, and manufacturing. LACWD's District 40 2020 Urban Water Management Plan (UWMP), herein referred to as the LACWD District 40 2020 UWMP, uses SCAG for its population projections.[5] The City is currently in the process of updating its Housing Element. The City estimates population increases will occur through infill housing projects and other developments. As shown in **Table 1**, the City's and District's populations are expected to increase through to 2045.

TABLE 1
CITY AND LACWD DISTRICT 40 CURRENT AND PROJECTED POPULATIONS

Year	2020	2025	2030	2035	2040	2045
City of Lancaster[a]	157,800	165,700	177,600	189,500	201,400	213,300
LACWD District 40[b]	205,000	216,000	227,000	238,000	250,000	263,000

a SCAG, 2020-2045 RTP/SCS, Demographics and Growth Forecast, page 35, https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_demographics-and-growth-forecast.pdf?1606001579. This data was estimated using linear interpolation between the 2020 and 2045 populations.

b LACWD, Final 2020 UWMP for District 40, Table 3-1. LACWD District 40 serves a portion of the City as Palmdale which is included in these population estimates and results in larger population estimates for the District compared to the City of Lancaster. A portion of the City of Lancaster is not serviced by LACWD District 40 and therefore population estimates for the City are smaller than that of LACWD District 40.

[4] City of Lancaster, 2021-2029 Housing Element Update, page H-39, https://www.cityoflancasterca.org/home/showpublisheddocument/43874/637806998524600000. Accessed March 28, 2022.

[5] Los Angeles County Waterworks Districts (LACWD), Final 2020 Urban Water Management Plan (UWMP) for Los Angeles County Waterworks District No. 40 Antelope Valley (Final 2020 UWMP for District 40), October 2021, https://ladpw.org/wwd/web/Documents/D40_AV2020_UWMP%20FINAL.pdf. Accessed March 20, 2022.

SECTION 3 – WATER SUPPLY PLANNING UNDER SB 610 AND SB 221

California has different processes to plan for development or maintenance of water supplies on a regional level. UWMPs, Groundwater Management Plans (GMPs), Integrated Regional Water Management Plans (IRWMPs), Municipal Service Reviews (MSRs) and water resources components of General Plans all integrate some degree of regional planning of water supply and demand.

To complement these large-scale planning processes, the Governor signed into law SB 610 and SB 221 in 2002, which emphasize the incorporation of water supply and demand analysis at the earliest possible stage in the planning process for projects undergoing more specific or detailed planning level analysis. These legislations primarily apply to the planning of water supplies and sources for individual subdivision projects and are completed at the time the project is being proposed and permitted. SB 610 amended portions of the Water Code, including Section 10631, which contains the Urban Water Management Planning Act, and added Sections 10910, 10911, 10912, 10913, and 10915, which describe the required elements of a WSA. SB 221, which requires completion of a Water Supply Verification (WSV), amended Section 65867.5, and added Sections 66455.3 and 66473.7 to the Government Code.[6]

The City is required to prepare WSAs and WSVs, under the requirements of SB 610 and SB 221, codified in Government Code Sections 65867.5, 66455.3, and 66473.7 if a proposed project meets certain criteria. There are three primary areas to be addressed in a WSA: (1) all relevant water supply entitlements, water rights, and water contracts; (2) a description of the available water supplies and the infrastructure, either existing or proposed, to deliver the water; and (3) an analysis of the demand placed on those supplies, by the Project, and relevant existing and planned future uses in the area. In addition to these items, WSVs incorporate more detailed confirmation that the appropriate infrastructure planning and funding are in place to fully commit water supplies to a project. The Project does not include a "subdivision" as defined by Government Code Section 66473.7(a)(1); therefore, a WSV is not required for the Project.

SB 610 is applicable to projects subject to CEQA or considered a "project" under Water Code Section 10912(a) or (b), builds on the information that is typically contained in a UWMP. The amendments to Water Code Section 10631 were designed to make WSAs and UWMPs consistent. A key difference between the WSAs and UWMPs is that UWMPs are required to be revised every five years, in years ending with either zero or five for those water systems that meet the specific connection criteria, while WSAs are required as part of the environmental review process for each individually qualifying

[6] California Department of Water Resources (DWR), Guidebook for Implementation of SB 610 and SB 221 of 2001, 2003.

project. As a result, the 20-year planning horizons for each qualifying project may cover slightly different planning periods than other WSAs or the current UWMP. The LACWD District 40 2020 UWMP extended the planning horizon to 25 years to 2045 for applicability over the next five years for WSAs and WSVs that require a 20-year forecast from the year in which they are prepared. Additionally, not all water providers who must prepare a WSA for a qualifying project under SB 610 are required to prepare an UWMP as defined in the Urban Water Management Planning Act.

Especially pertinent to this WSA for the Project, and all projects to be served by LACWD, are the provisions under SB 610 that involve documentation of supply if groundwater is to be used as a source. A detailed discussion of the groundwater basin and groundwater production can be found in Sections 4.2 and 4.3.

The SB 610 WSA process involves answering the following questions:

- Is the project subject to CEQA?
- Is it a project under SB 610?
- Is there a public water system?
- Is there a current UWMP that accounts for the project demand?
- Is groundwater a component of the supplies for the project?
- Are there sufficient supplies available to serve the project over the next 20 years?

3.1 Is the Project Subject to CEQA?

The first step in the SB 610 process is determining whether the project is subject to CEQA. SB 610 amended Public Resources Code (PRC) Section 21151.9 to read: "Whenever a city or county determines that a project, as defined in Section 10912 of the Water Code, is subject to this division [i.e., CEQA], it shall comply with part 2.10 (commencing with Section 10910) of Division 6 of the Water Code."

The Project is currently under environmental review pursuant to the requirements of CEQA; therefore, the information contained in this assessment will be used to support the environmental analysis for the Project-level analysis.

3.2 Is It a Project Under SB 610?

The second step in the SB 610 process is to determine if a project meets the definition of a "project" under Water Code Section 10912(a). Under this section, a "project" is defined as meeting any of the following criteria:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

Alternately, if a public water system has less than 5,000 service connections, the definition of a "project" also includes 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 service connections for the public water system. Because the Project is a proposed industrial and manufacturing warehouse which has more than 650,000 square feet of floor area it meets the requirements as a "project" under the Water Code.

3.3 Is There a Public Water System?

The third step in the SB 610 process is determining if there is a "public water system" to serve the Project. Water Code Section 10912(c) states: "[A] public water system means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections."

The LACWD is identified as the public water supplier for the Project Site. LACWD serves approximately 58,607 water service connections through its potable water system that and several connections to the Antelope Valley-East Kern Water Agency (AVEK) system. Therefore, there is a public water system to serve the Project.

3.4 Is There a Current UWMP That Accounts for the Project Demand?

Step four in the SB 610 process involves determining if there is a current UWMP that considers the projected water demand for the Project area. The Water Code requires that all public water systems providing water for municipal purposes to more than 3,000 customers, or supplying more than 3,000 acre-feet (af) annually, must prepare an UWMP, and this plan must be updated at least every five years on or before December 31, in years ending in five and zero. Water Code Section 10910(c)(2) states, "If the projected water demand associated with the project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g) [i.e., the WSA]."

The Project would be an industrial project, which is allowed by the City's General Plan and Zoning Code. Therefore, the Project would be consistent with the land uses that are used to determine SCAG's growth forecasts. Because SCAG growth forecasts were used to calculate service areas water demands in LACWD's District 40 2020 UWMP and AVEK's 2020 UWMP and its supporting documents, LACWD's District 40 2020 UWMP accounts for the water demand of the Project. Water supply availability and demand data relevant to this WSA is provided in LACWD's 2020 UWMP and AVEK's 2020 UWMP.

The LACWD's District 40 2020 UWMP was adopted in October 2021. The District continues to implement the recommended water conservation programs outlined in that UWMP. This WSA relied on data and information contained in the LACWD District 40 2020 UWMP as it includes the most recent and up-to-date water resources planning information, regional water supplies, service area information and potential water demands that would be generated by land uses associated with the Project. With that understanding, this WSA, per the requirements of SB 610, calculates the water demands of the Project by assigning water demands factors associated with these proposed uses.

3.5 Is Groundwater a Component of the Supplies for the Project?

The requirements of Water Code Section 10910(f), Parts 1 through 5, apply if groundwater is a source of supply for a Project. While the Project itself would not install groundwater wells and pump groundwater to supply the Project, both AVEK and District 40 would provide water for the Project Site and rely on extracted pumped groundwater to supplement water supply. AVEK's groundwater supply comes from the Antelope Valley Basin (AVB) and District 40 purchases a portion of AVEK's supply.[7] Within AVB, 12 subbasins exist divided by natural bedrock or fault borders. The Project Site is located within the Lancaster Subbasin – AVB's largest and most economically significant subbasin.

[7] LACWD, Final 2020 UWMP for District 40, page 6-1.

3.5.1 Groundwater Basin Management

Local Groundwater Supplies

The Project Site overlies the AVB, as shown in **Figure 3**. The AVB consists of 1,010,286 acres and compromises 1,578.5 square miles of the surrounding Antelope Valley. The AVB is a closed aquifer composed of an upper and a lower aquifer with a storage capacity of 69 million af.[8] AVB is divided into 12 subbasins and the Project Site falls within the AVB Lancaster Subbasin. To comply with the Antelope Valley Watermaster Adjudication Judgement (Judgement), the AVB has been broken up into smaller groundwater management subareas including the Central Antelope Valley Subarea where the Project Site is located.[9]

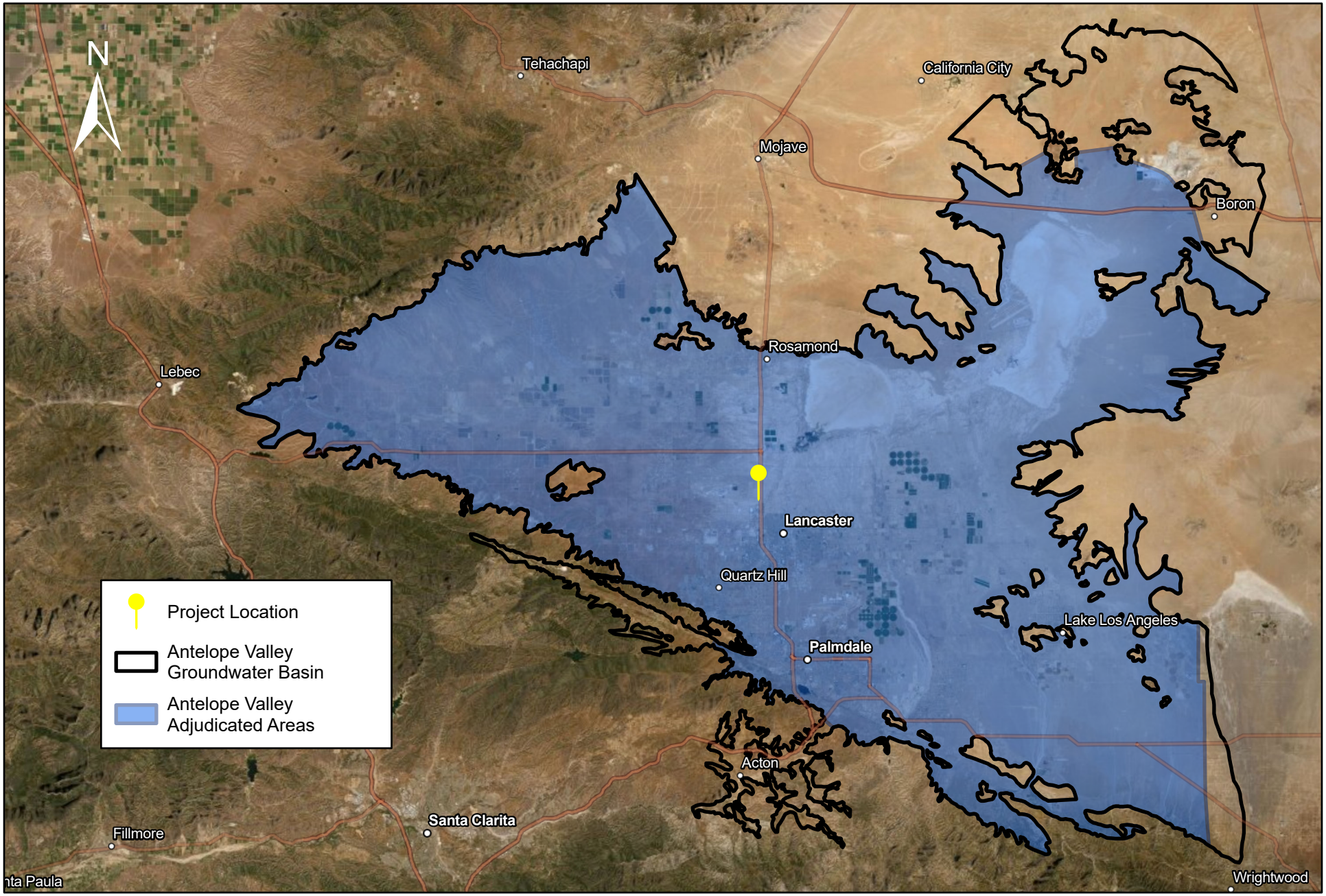
District 40 does not have overlying rights to pump groundwater; however, the Judgment does provide non-overlying production rights. As of 2020, the Judgement provides non-overlying production rights of 6,789 af, approximately 3,500 af of unused federal reserve rights, and return flows equivalent to 39 percent of District 40's 5-year average of purchased State Water Project water supply (39 percent of 26,657 af or approximately 10,400 af). The District also has the right to lease 2,600 af of groundwater rights from AVEK, for a total of 23,289 af. District 40 acquires new supplemental groundwater supplies from both AVEK's storage supply and AVB production supply. There are approximately 50 groundwater wells owned and operated by District 40, which are supplemented by AVEK's Overlying Rights to a portion of AVB's supply coming from precipitation and recharge. This groundwater supply is the second largest portion of water supply provided by District 40 to its customers. Only a small percent of groundwater is used by LACWD for supply. The remainder of the groundwater is stored in AVEK's existing groundwater banks and recovery wells to support groundwater recharge to meet Antelope Valley Area of Adjudication Judgment yield goals by 2023. It should be noted that the water stored in the AVEK groundwater banks are not included as part of District 40's capacity.

Projected groundwater service demand from both AVEK and other production rights owners and return flows for Antelope Valley for 2025 are 73,420 acre-feet per year (AFY). Non-AVEK suppliers of the Antelope Valley who also hold production rights to groundwater are predicted to have a service demand of 12,080 AFY by 2025 and return flows of 16,900 AFY. As of 2020, AVEK has 90,000 af of State Water Project (SWP) supplied water stored to meet demands during three consecutive dry years.[10]

[8] DWR, California's Ground Water Bulletin 118, Antelope Valley Ground Water Basin, 2004. Accessed March 24, 2022.

[9] Antelope Valley Watermaster, Final Antelope Valley Watermaster 2020 Annual Report, July 2021. Accessed March 23, 2022.

[10] Antelope Valley-East Kern (AVEK) Water Agency, 2020 UWMP Final, page 4-3. Accessed March 20, 2022.



source: Earthstar Geographics, County of Los Angeles, California State Parks, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS

Figure 3: Antelope Valley Groundwater Basin (AVB) & Adjudication Areas

Avenue G Industrial Project Water Supply Assessment

Kimley»Horn

Basin Characteristics

As described in California Department of Water Resources (DWR) Bulletin 118, the AVB is bounded by the San Gabriel Mountains to the southwest, the Techapi Mountains to the northwest, and buttes and hills following the Los Angeles and San Bernardino County line to the east.[11] Figure 3 displays the boundaries and main formations of the AVB.

Recharge and Connectivity

The AVB is recharged through perennial runoff from surrounding mountains and hills occurring primarily at alluvial fan systems by percolation. The Big Rock and Little Rock Creeks located in the southern area of the AVB supply approximately 80 percent of total AVB runoff, whereas additional minor recharge results from irrigation and treated septic system effluent water return.

Groundwater Level Trends

Historically, the AVB is characterized by large fluctuations of water levels and overall basin supply is falling in the southern and eastern areas while rising in the western and northeastern areas of the AVB. Prior to 1970, groundwater was Antelope Valleys primary source of water supply and has resulted in subsidence zones due to permanently reducing AVB's aquifer storage by 50,000 af. Since 1970, the SWP has made efforts to import water from Northern California to increase groundwater levels, but extraction continues to cause subsidence and earth fissures in the Lancaster and Edwards Air Force Base area. Between 1975 and 1998, groundwater levels dropped to overdraft levels in several parts of the AVB including Lancaster and Palmdale.[12]

Safe Yield/Budget

The "safe yield" of a groundwater basin is the maximum quantity of water that can be continuously withdrawn from a groundwater basin without adverse effect. The groundwater "budget" is an accounting of all inflows into a basin compared to all outflows from the basin. The budget is often used to determine a basin's safe production yields. The groundwater adjudication process defined the safe yield and native safe yield in the AVB.[13]

The physical solution established in the Judgement allocates for a total native and safe yield of groundwater production among basin producers. Native safe yield is the amount allocated amongst a majority of the AVB producers. Native safe yield for the AVB is 82,300 AFY and includes estimates for natural recharge and return flows of groundwater

[11] DWR, California's Ground Water Bulletin 118, Antelope Valley Ground Water Basin.

[12] LACWD District 40 and Los Angeles County Department of Public Works, Salt and Nutrient Management Plan for the Antelope Valley, May 2014, https://pw.lacounty.gov/wwd/avirwmp/docs/saltplan/Salt%20and%20Nutrient%20Management%20Plan%20for%20Antelope%20Valley_May%202014.pdf. Accessed March 20, 2022.

[13] Antelope Valley Watermaster, Antelope Valley Watermaster Rules and Regulations, 2020.

use. The total safe yield for the AVB is 110,000 AFY and includes the sum of the native safe yield and imported water return flows.[14]

Water Quality and Drainage Considerations

Contaminants of concern in the AVB include total dissolved solids (TDS), high fluoride, boron, nitrate, and arsenic concentrations. Contamination of the AVB comes from domestic, agricultural, and industrial uses. These contaminants only exist in certain areas of the AVB and primarily occur in the deep aquifers, which provide no supply to the Project Site. Overall, groundwater quality is considered good and suitable for domestic, industrial, and agricultural uses. Almost all the water supply wells in the AVB draw groundwater from the principal aquifer; therefore, contamination and supply monitoring occur primarily within the principal aquifer. According to California State Water Board's Site Cleanup Program's GeoTracker data management system, there are a total of 614 Leaking Underground Storage Tanks (LUST) Cleanup Sites in the City of Lancaster.[15] Of the 614 LUST sites, 548 are within Edwards Airforce Base, 36 within Air Force Plant 42, and 30 are non-military related cleanup sites in Antelope Valley. There are no cases listed within 0.25 miles of the Project Site, and all cases within a 0.5 mile radius of the Project Site are closed. The sites with potential contaminants of concern primarily list gasoline and diesel from gas and refueling stations are located primarily at the Edwards Airforce Base.[16] All water supplied for drinking water, including groundwater, by LACWD District 40 undergoes required drinking water treatment processes at their treatment plants. Future LACWD District 40 supply programs focusing on groundwater well treatment include the M5E Arsenic Treatment Program beginning in Spring 2022.

3.5.2 Are There Sufficient Supplies to Serve the Project over the Next Twenty Years?

The final step in the SB 610 process is to illustrate the available water supplies, including the availability of these supplies in all water-year conditions (normal, single dry year and multiple dry years) over a 20-year planning horizon, and an assessment of how these supplies relate to project-specific and cumulative demands over that same 20-year period. In this case, the period is projected to 2040. The water supply and demand comparisons are presented and discussed in Section 6. Government Code Section 66473.7(a)(2) defines sufficient water supply as:

> "Sufficient water supply" means the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with the proposed subdivision, in addition to

[14] Superior Court of the State of California – County of Los Angeles – Central District, Judicial Council Coordination Proceeding No. 4088, Stipulation Exhibit: Antelope Valley Groundwater Cases, Proposed Judgement and Physical Solution, 2015. Accessed March 22, 2022.

[15] State Water Resources Control Board (SWRCB), Geotracker Groundwater Ambient Monitoring and Assessment (GAMA), http://geotracker.waterboards.ca.gov/. Accessed March 20, 2022.

[16] LACWD District 40 and Los Angeles County Department of Public Works, Salt and Nutrient Management Plan for the Antelope Valley.

existing and planned future uses, including, but not limited to, agricultural and industrial uses. In determining "sufficient water supply," all of the following factors shall be considered:

(A) The availability of water supplies over a historical record of at least 20 years.

(B) The applicability of an urban water shortage contingency analysis prepared pursuant to Section 10632 of the Water Code that includes actions to be undertaken by the public water system in response to water supply shortages.

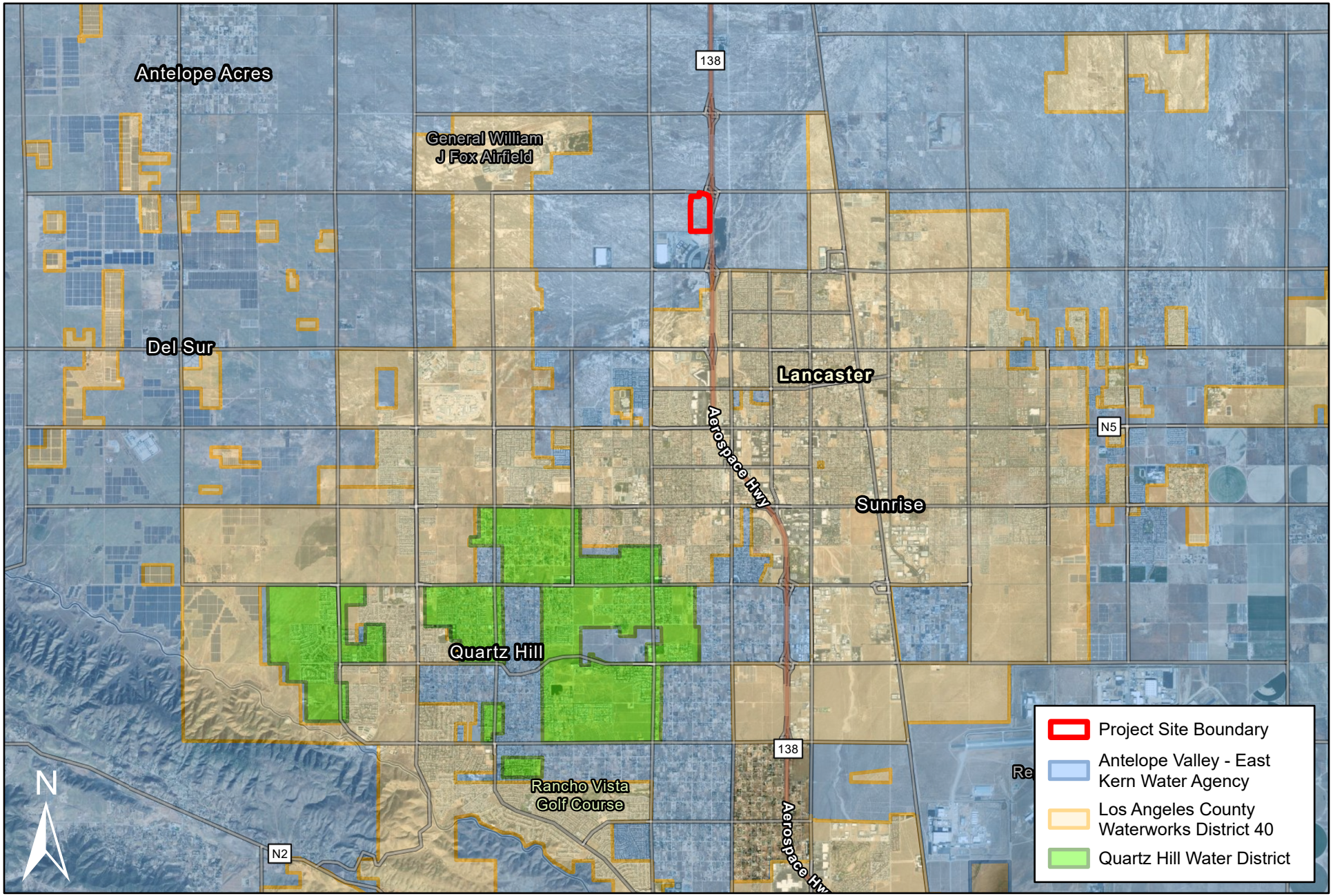
(C) The reduction in water supply allocated to a specific water use sector pursuant to a resolution or ordinance adopted, or a contract entered into, by the public water system, as long as that resolution, ordinance, or contract does not conflict with Section 354 of the Water Code.

(D) The amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, state, and local water initiatives such as CALFED and Colorado River tentative agreements, to the extent that these water supplies meet the criteria of subdivision (d).

SECTION 4 – WATER SUPPLY SETTING

This section presents a discussion of LACWD and its service area. LACWD would serve the Project's domestic water needs. The City's water supplies are provided from two sources: local groundwater from the AVB and water purchased from the AVEK. AVEK is a regional wholesaler in Southern California. AVEK provides the City with water imported SWP to supplement Antelope Valley groundwater supplies. LACWD does not have ownership rights to the naturally occurring groundwater underlying the City's service area. However, LACWD receives a right to pump groundwater through groundwater credits, which are described in detail under Section 3.5 under *Local Groundwater Supplies*. In addition, District 40 is not responsible for operating or managing the treatment, disposal and/or recycling of wastewater. That duty falls on joint coordination between the Los Angeles County Sanitation District (LACSD) and the Palmdale Recycled Water Authority (PRWA). LACSD owns and operates the Lancaster Water Reclamation Plant (WRP) and Palmdale WRP as well as the trunk lines that convey wastewater to the treatment plants. The PRWA operates the existing recycled water treatment system and for the city of Palmdale and surrounding communities. The PRWA does not provide recycled water to the Project site and will be excluded from further discussion in the WSA. Recycled water is retailed by the City of Lancaster and Palmdale Recycled Water Authority. **Figure 4** shows the District 40 service area boundary with respect to the city limits of Lancaster and Palmdale.[17]

[17] LACWD, Final 2020 UWMP for District 40.



source: County of Los Angeles, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, Earthstar Geographics, Esri, CGIAR, USGS, County of Los Angeles, California State Parks, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS

0 1 2 4 Miles

Figure 4: Water Districts of Antelope Valley

Avenue G Industrial Project Water Supply Assessment

Kimley»Horn

4.1 Climate

The City's climate is considered cold semi-arid steppe which is warm and dry during summer and cool and wet during winter. Semi-arid regions receive precipitation below its potential evapotranspiration. A summary of monthly climate data is contained in **Table 2**. The warmest month of the year is July with an average high temperature near 94.6˚ Fahrenheit (F), while the coldest month of the year is December with an average low near 28.3°F. Temperature variations between night and day tend to be moderate during winter and more imbalanced during summer.

TABLE 2
AVERAGE ANNUAL PRECIPITATION AND EVAPOTRANSPIRATION

Month	ETo (in)[a]	Average Total Precipitation (in)[b]
January	2.3	1.01
February	3.07	0.70
March	4.85	0.60
April	6.59	0.39
May	8.21	0.10
June	9.23	0.06
July	9.63	0.06
August	8.87	0.06
September	6.5	0.15
October	4.59	0.22
November	2.94	0.87
December	2.02	0.88
Annual	***68.8***	***5.10***

a California Irrigation Management Information System (CIMIS), Station 197 Palmdale, California (041194), https://cimis.water.ca.gov/stations.aspx?ctl00_MainContent_StationList_RadGrid1ChangePage=10_20. Accessed March 20, 2022.
b Western Regional Climate Centers, Cooperative Station Data, Lancaster, California (044747).

The historical annual average precipitation in the City is 5.10 inches. Winter months tend to be wetter than summer months. The wettest month of the year is January with an average rainfall of 1.01 inches. The total average evapotranspiration (ET) deficit, which must be made up with irrigation, is about 69 inches per year (in/yr).

As described in District 40's 2020 UWMP climate change adds uncertainties to the projection of water supply planning. The effects of higher temperatures and precipitation changes induced by climate change may impact water supplies in several ways including:

- Effects on snowpack
- Changes in runoff pattern and amount
- Increased intensity and frequency of extreme weather events
- Prolonged drought periods

- Water quality issues associated with increase in wildfires
- Rising sea levels resulting in potential pumping cutbacks on the State Water Project
- Effects on the groundwater basin
- Changes in demand levels and patterns
- Increased evapotranspiration from higher temperatures

The variability in rainfall patterns would increase uncertainty in the water supply for the region. While the water supply availability is based on the anticipated increase in population in the target per capita water use for the District, it should be noted that the availability would also fluctuate due to the increasing effects of climate change. While it is unknown what the magnitude and timing of these impacts will be, the City is participating in regional planning efforts that incorporate climate change into long range supply planning.

4.2 Supply Sources

The City's water is provided through two sources: local groundwater from the AVB and water purchased from AVEK. District 40 does not have ownership rights to the naturally occurring groundwater underlying the City. However, District 40 receives a right to pump groundwater through groundwater credits, which are described in detail in Section 3.5.1, *Local Groundwater Supplies*. In addition, District 40 uses recycled water to meet some of its non-potable water needs specifically, outdoor irrigation. AVEK is a regional wholesaler in Southern California. AVEK provides the City with water imported from the SWP. **Table 3** summarizes District 40's water supply sources and estimated volumes available now and over the next 25 years.

TABLE 3
DISTRICT 40 WATER SUPPLY SOURCES AND QUANTITIES (AFY)

	2025	2030	2035	2040	2045
Imported Water	57,300	55,800	54,200	52,700	52,700
Groundwater	23,298	23,298	23,298	23,298	23,298
Subtotal Potable Water	*80,598*	*79,098*	*77,498*	*75,998*	*77,598*
Purchased/ Imported Water[a]	1,733	1,733	1,733	1,733	1,733
Recycled Water	764	902	1,102	1,302	1,302
Subtotal Non-potable Water	*2,497*	*2,635*	*2,835*	*3,035*	*3,035*
Total Supplies	***83,095***	***80,831***	***80,333***	***79,033***	***79,033***

a New supply from AVEK for projected demands

SOURCE: LACWD, Final 2020 UWMP for District 40, page 6-14.

The following section discusses the District 40's water supply sources available to meet the needs of the Project.

Imported Water Supplies

The water supply for the City is imported from outside District 40's service area through the City's membership in AVEK. AVEK delivers both treated and untreated water to Southern California via the SWP and AVB. AVEK has four treatment plants, which supply most of Antelope Valley with treated water through their distribution system. AVEK has a Table A, or maximum, amount of 144,844 AFY of water from the SWP available from DWR. On average, studies have shown that District 40 receives about 60 percent of their Table A amount each year.[18] AVEK has determined in its 2020 UWMP that they receive 58 percent of their Table A amount in an average year. District 40 obtained about 68 percent of its treated potable water from AVEK in 2020.[19]

AVEK can purchase additional SWP supplies from DWR when available (AVEK 2016). To prepare for scenarios when AVEK's supplies from the SWP and the District 40's groundwater does not meet demands during dry years, the District has purchased excess imported water from AVEK and "banked" it in the local groundwater basin to use for future dry years. Water banking involves storing imported water in the aquifer when excess supplies are available in wet years or low-demand periods and then subsequently recovering it in periods of drought or high demand. These opportunities are located inside and outside of the Antelope Valley. Generally, water banking within the Antelope Valley is preferred over those outside because risks of disruption and conveyance interruptions are minimized.

To maximize the use of its SWP supplies, AVEK has developed and is planning several groundwater banks including the Westside Water Bank, Antelope Valley Water Bank (AVWB), and the Water Supply Stabilization Project 2. AVEK is also a participant in the Semitropic water bank. AVEK's 2020 UWMP should be consulted for more detailed descriptions of these efforts.[20]

Additional water supplies will have to be acquired and imported into the Antelope Valley to meet the demands associated with the level of growth projected for the service area. To acquire these additional water supplies, the District has executed a Memorandum of Understanding (MOU) with AVEK to implement a new Water Supply Entitlement Acquisition program for new developments that will be used to acquire additional imported water supplies.

Since the Project Site is currently undeveloped, there are no existing water connections from District 40 or AVEK. District 40 is expected to be the water purveyor for the site owner and water distribution planning will occur after approval of the Project.

[18] AVEK Water Agency, 2020 UWMP Final, page 4-3.
[19] LACWD, Final 2020 UWMP for District 40, page 6-13.
[20] AVEK Water Agency, 2020 UWMP Final, page 4-3.

4.2.2 Local Groundwater

Groundwater Adjudication

In 2011, the SWRCB declared the AVB in a condition of overdraft and required a physical solution to address the overdraft and bring the AVB back to normal levels. Following the declaration, the ownership, or rights to naturally occurring water in the AVB was decided in the Judgment entered on December 23, 2015. The Judgement and Physical solution defined the AVB boundaries, considered the AVB's hydraulic connectivity, established safe yield, and established groundwater production rights for State, federal, small pumpers, and non-pumping property owners. This Judgement includes over 4,000 owners, which make up for 904,447 acres of AVB, or approximately 90 percent of the AVB, including the Project Site. The goal of this Adjudication was to provide a framework for sustainable management of the AVB to reverse previous damage and subsidence. The production right defined by the Judgement includes a portion of the established native safe yield for each owner includes the District 40's wholesale supplier AVEK. AVEK and District 40 also distribute to smaller customers but are the primary water suppliers in the Project Site vicinity.

Prior to adjudication, groundwater was the main source of water supply for Antelope Valley and since the 1900's, AVB's water levels have declined up to 200 feet in some areas. To prevent further basin overdraft, the Judgement was completed to provide respective rights among groundwater producers that are required not exceed the judgements Basins Safe Yield of 82,300 AFY for a seven-year period (2016-2022).

The Antelope Valley watermaster administers and oversees adjudicated rights within Antelope Valley and will implement the final judgement in 2023 following the initial adjudication's 7-year reduction period. The final adjudication to be placed in 2023 relies on production categories including production rights, owner's reduction production levels, imported water return flows, carryover water, stored water levels, additional groundwater producing rights. Within production rights, there are five categories defined for an owner's production of groundwater including overlying, non-overlying, Federal Reserve, smaller pump class, and California production rights. These rights apply to usage and ownership of water supplied to the Project Site by District 40 and AVEK. Groundwater is the second largest source of potable water for District 40's water supply.

Local and Historical Supply

The City has historically utilized its groundwater supply from the AVB. Prior to 1970, the City and surrounding Antelope Valley relied on groundwater for its water supply. Beginning in 1970 the SWP supplemented this water supply with imported water from Northern California. During this time, groundwater basin supply levels increased and returned to pre-overdraft safe yield levels. As Antelope Valley grew in population and water demand, AVEK began to supply a greater volume of purchased SWP imported water and groundwater pumping for supply became less popular. The City and AVEK have several groundwater wells for pumping and recharge for the AVB, including the

AVEK Westside Water Bank, Avenue H Recovery Well site, and the Quartz Hill Water Treatment Center.[21]

As listed in the Final Antelope Valley Water Master 2020 Annual Report Table B-2, AVEK has overlying production rights established through the Judgement of 3,550 AFY and used 3,775 af of the established ramp down production amount in 2020.[22] In 2020, total of 15,741.15 af of AVEK owned groundwater supply was transferred to District 40 which comes from one time production right transfers, carry over water supply, and stored water.

AVEK's total groundwater total production for 2020 is the highest production amount of all overlying production rights owners in the Judgement, with a total of 12,228.4 af produced for 2020. AVEK and District 40 are entitled to use imported water for groundwater recharge. Imported water is spread and percolated into the AVB aquifer to add to the local groundwater supplies. This entitlement also allows parties to the pump recharged groundwater in any year and to accumulate these groundwater credits year over year if credits go unused in the year created.

All parties have the right to store water in the AVB with the acceptance of a Storage Agreement with the Watermaster. Storage supply can include carry over water, imported water, and basin recharge water. The primary storage bank of interest is AVEK's Westside Water Bank from which AVEK conduct's a non-permanent transfer to District 40 for their municipal water supply. Permanent transfers are not associated with a split of production rights or transfers of sale to non-overlying producers including public water suppliers such as District 40.[23]

As defined in the 2015 Judgement, District 40 has the right to pump an estimated 20,005 AFY of groundwater. 6,789 AFY of this is allocated as a right to pump from the native safe yield, 55 percent of the unused federal reserve right, and imported water return flows (AV UWMP). 39 percent of the previous 5-year average of imported water used by District 40 is available in any given year. District 40's annual return flows to AVB are not included into imported banked water which is stored in AVEK's water bank locations. Banked water is used in dry years where SWP is unavailable.

District 40's additional production use for 2020 includes 3,523.01 af of unused Federal Reserve Rights, 10,396.22 af of imported water return flows from AVEK, an additional 4,487.14 af from the AVEK transfers, 8,581.60 af of non-permanent transfers, and 18,581.18 AF carry over water use for a total of 52,339 AF used in 2020.[24] In 2020, District 40 produced 14,265.59 af of groundwater for storage and carry over purposes.

[21] AVEK Water Agency, Water Banking, https://www.avek.org/westside-water-bank. Accessed March 18, 2022.

[22] Antelope Valley Watermaster, Final Antelope Valley Watermaster 2020 Annual Report, Appendix B-2, July 2021. Accessed March 23, 2022.

[23] Antelope Valley Watermaster, Final Antelope Valley Watermaster 2020 Annual Report, Appendix B-2.

[24] It should be noted that annual rights do not include carryover and transfers. Also, based on communications with District 40, the transfers for 2020 were uncharacteristically high due to AVEK's lease combination of previous years. The 2020 transfers are not representative of a typical year.

This Prescribed Physical Solution usage includes 2020 rampdown production requirements to meet native safe yield requirements.

As defined in the Judgement, all production rights owners have the right to store water in the AVB through a storage agreement, which can include carry over or imported water. The two closest storage banks to the Project Site are AVEK's Westside Water Bank, which incurred a surplus of 115,397.46 af, and the West Avenue H Wellfield Project/WSSP-1, which incurred a deficit of 5,534.73 af in 2020. Of the total stored at Westside Water Bank, 88,397.46 af of AVEK owned water was stored for use in the surrounding adjudicated area which includes the Project Site. Of the stored amount, 4,487.13 af was transferred to District 40 for purchasing. This one-time permanent transfer to District 40 is a part of a 2016 – 2020 lease agreement with AVEK that totaled 13,068.73 AF and included an additional 7,759.06 af of Carry Over supply, and 822.54 af of Production Rights. An additional 2,672.42 af was supplied to District 40 in 2021 as well from AVEK's supply wells.

Future use of groundwater supply shall continue with additional purchased transfers from AVEK to District 40's municipal supply and District 40's Non-Overlying Rights Prescribed Physical Solution Usage amount. All parties owning production rights to groundwater will continue to follow guidelines established in the 2015 Judgement to meet native safe yield requirements by 2023. As of June 2021, AVEK has a rampdown production of 3,700 af, imported water return flows of 841.09 af, 3,550 af carry over water transfers from AVEK past water transfers and production rights, and -2,672 af transferred to District 40 for supply use. For 2021, District 40 has agreed upon a rampdown usage level of 6,789.26 af and was allocated 3,463.75 af of Federal Reserve Right usage, 11,260.25 af of imported water return flows from AVEK, and a transfer surplus of 2,672.42 af from AVEK as aforementioned. To determine 2022 usage levels, the Antelope Valley Watermaster shall reassess supply levels until June 2022 and publish the annual 2021 report in July of 2022. More detail of water budget accounting can be found in the Antelope Valley Watermasters annual report for in-depth usage of all water users in the vicinity of the project site and surrounding vicinity.[25]

Table 4 summarizes the AVB extraction rights established to AVEK and District 40 by the Judgment.

[25] Antelope Valley Watermaster, Final Antelope Valley Watermaster 2020 Annual Report, Appendix B.

TABLE 4
ANTELOPE VALLEY BASIN EXTRACTION RIGHTS (AF)

Party	Year	Production Right	Native Safe Yield	Imported Return Water	Federal Reserve	Total Groundwater Production	Total Production Volume Used
District 40[a]	2015 Prescription	Non-Overlying	6,789	39% of previous 5-yr	3,300	23,005	N/A
	2020 Actual		6,789	10,396.33	3,523.01	14,265.59	20,708
AVEK[b]	2015 Prescription	Overlying	3,550	39% of previous 5-yr	0	3550	N/A
	2020 Actual		3,550	822.54	0	12,288.40	0[c]

a LACWD, Final 2020 UWMP for District 40, page 6-4.
b Antelope Valley Watermaster, Antelope Valley Watermaster 2020 Annual Report.
c AVEK did not use any of its production rights in 2020 and only used storage bank supply for usage and transfer.

Sustainable Groundwater Management Act

In 2015, Sustainable Groundwater Management Act (SGMA) 2015 was enacted to provide for the sustainable management of groundwater basins in California. SGMA planning requirements are mandatory for the high- and medium-priority groundwater basins identified by DWR. In these basins, qualifying local agencies are required to create a Groundwater Sustainability Agency (GSA) and adopt a SGMA-compliant Groundwater Sustainability Plan (GSP). Under SGMA, groundwater basin boundaries are as identified in DWR Bulletin 118.

The AVB (DWR Basin No. 6-44) has been classified as a very low-priority basin and is not required to form a GSA and adopt a GSP or submit an alternative to a GSP. DWR determined that as a "Basin with Adjudication & Non-Adjudicated GW Use <9,500 af," under Component 8C&D of DWR's review, the Basin is a "very low-priority basin."[26]. However, due to the AVB's recent Prescription and Judgement, no further action is required to comply with SGMA "high-priority" basin requirements. The Antelope Valley Watermaster continues to submit information to the State's SGMA website to help verify that AVB's production rights owners including AVEK and District 40 maintain compliance with SGMA.

Recycled Water Collection and Treatment

Wastewater flows to the Lancaster Water Reclamation Plant (LWRP) which currently treats 16,416 AFY with a design capacity of 18 million gallons per day (mgd).[27] LWRP produces a disinfected tertiary effluent which meets discharge limitations contained in its National Pollutant Discharge Elimination System (NPDES) permit issued by the Los Angeles Regional Water Quality Control Board (LARWQCB). LWRP's effluent also meets the most stringent criteria for recycled water defined in the California Code of Regulations (CCR) Title 22, Division 4, Chapter 3, requirement as Disinfected Tertiary

[26] DWR, California's Ground Water Bulletin 118, Antelope Valley Ground Water Basin.

[27] Los Angeles County Sanitation Districts, Wastewater-Sewage Facilities, https://www.lacsd.org/services/wastewater-sewage/facilities/lancaster-water-reclamation-plant. Accessed March 20, 2022.

Recycled Water in that it is approved for all uses, including full body contact, with the exception of human consumption. As shown in **Table 5**, of this treatment capacity, LWRP can produce 16,416 af of recycled water for specific applications in the City.

TABLE 5
DISTRICT 40 RECYCLED WATER COLLECTION AND TREATMENT CAPACITY

Name of Wastewater Collection Agency	Volume of Wastewater Collected from UWMP Service Area in 2020 (af)	Treatment Plant Name
City of Lancaster, Los Angeles Public Works	16,416	Lancaster WRP
City of Palmdale, Los Angeles County Public Works	10,402	Palmdale WRP
Total Wastewater Collected from Service Area in 2020	***26,818***	

SOURCE: LACWD, Final 2020 UWMP for District 40, page 6-8.

Recycled Water Availability and Uses

As shown in **Table 6**, of the 16,416 af of recycled water collected and treated by the LWRP, 371 af is available for recycled water uses within the District's service area and 13,145 af[28] is available for recycled use outside the District's service area.[29] The balance of the recycled water (16,416 af) is currently used for:

- Landscape irrigation
- Commercial use
- Recreational impoundment

TABLE 6
RECYCLED WATER AVAILABILITY AND USES

Recycled Water Availability and Uses	Tertiary (af)
Wastewater Treated	16,416
Discharged Treated Wastewater	0
Recycled within Service Area	371
Recycled Outside Service Area	13,145
Instream Flow Permit Requirement	0

SOURCE: LACWD, Final 2020 UWMP for District 40, page 6-9.

Transfer Agreements and Opportunities

The District anticipates purchasing SWP water to be banked by AVEK and extracted during future dry years. This is dependent on if there are extra SWP allocations for purchase. Such water transfers will be facilitated by AVEK.

[28] Wastewater treated does not equal water recycled due to solids removal from the treatment process, evaporation losses due to storing water in open reservoirs, and metering differences.

[29] While a portion of the produced recycled water from the Lancaster WRP is discharged as surface water, it is considered as "recycled outside of service area" due to contractual obligations for recycled water deliveries.

4.3 Summary of Existing and Planned Sources of Water

The total water supplies imported or produced by the District 40 in 2020 are shown in **Table 7**. As indicated in Table 7, the water supply types available for use by the City are projected to remain unchanged between now and 2045 and increases in demands are largely expected to be met using treated, imported water. It should be noted that these values assume normal operating conditions where AVEK receives approximately 58 percent of the SWP allocation.

TABLE 7
TOTAL WATER SUPPLIES PRODUCED OR PURCHASED BY DISTRICT 40 IN 2020

Water Supplies (acre-feet)	2020	2025	2030	2035	2040	2045
Potable						
AVEK imported	31,552	57,300	55,800	54,200	52,700	52,700
Supplier-Produced Groundwater	14,266	23,298	23,298	23,298	23,298	23,298
Subtotal Potable	*45,818*	*80,598*	*79,098*	*77,498*	*75,998*	*75,998*
Non-Potable						
Recycled Water	361	764	902	1,102	1,302	1,302
Totals	***46,179***	***81,362***	***80,000***	***78,600***	***77,300***	***77,300***

SOURCE: LACWD, Final 2020 UWMP for District 40, page 6-14.

4.3.1 Water Management Plans and Programs

The Antelope Valley-East Kern Water Agency Urban Water Management Plan

The Water Code requires any municipal water supplier serving over 3,000 connections or 3,000 AFY to prepare a UWMP. AVEK is a regional wholesaler with retail customers; it provides treated and untreated water directly to its 27 member agencies. Member agencies include one city, 4 municipal water districts, 9 water companies, 6 agricultural customers, and 3 county water authorities. AVEK's service area covers the Antelope Valley region, including the City.[30]

Each of AVEK's qualifying member agencies is also responsible for submitting its own UWMP. AVEK's 2020 UWMP therefore does not explicitly discuss specific activities undertaken by its member agencies unless they relate to one of AVEK's programs. AVEK's 2020 UWMP describes and evaluates sources of supply, efficient uses, water recycling, and conservation activities across the Southern California region (AVEK 2020).

[30] AVEK, 2020 UWMP Final, page 4-3.

Los Angeles County Waterworks District 2020 Urban Water Management Plan

The LACWD 2020 UWMP forecasts future water demands within the service area under average and dry year conditions, identifies future water supply projects, and evaluates future supply reliability. The UWMP discusses the provider's supply portfolio, including current and planned water conservation and recycling activities.

AVEK's Integrated Regional Water Management Plan – 2019 Update

AVEK's IRWMP was first developed in 2013 to establish targets for a diversified portfolio of supply investments. The 2019 Update is a plan to provide water supplies under a wide range of potential future conditions and risks. It identifies supply actions including recycled water, seawater desalination, stormwater capture, conservation, and groundwater cleanup to ensure local water supply reliability. The 2019 Update was adopted by AVEK's board of directors in January 2020.

4.4 Water Supply Reliability

Sustainable water supply is the aggregated quantities of the aforementioned sources; briefly, these include: imported water purchased from SWP; groundwater from the AVB; and recycled water.

AVEK Supply Reliability

The City relies on District 40 for its water supply because the City does not have the right to pump native groundwater in the AVB and District 40 owns all naturally occurring groundwater in its service area. The City maximizes local resources and minimizes the need to import water from other regions through aggressive use of recycled water, spreading and storing imported water when feasible, and promoting potable water conservation.

The City's location in District 40's service area allows it to be supplied by either the Quartz Hill or Acton Water Treatment Plants. Both plants can only treat water that is imported from the SWP. AVEK's multiple supplies allow operational flexibility in case of a treatment plant shutdown or temporary problem within the distribution system.

AVEK discusses regional water supply reliability in its 2020 UWMP. The AVEK 2020 UWMP uses lessons learned from their previous planning efforts to inform how uncertainty and reliability are evaluated. These plans include the previous Antelope Valley 2019 IRWMP, the Antelope Valley 2020 Water Shortage Contingency Plan (WSCP), and the 2019 Antelope Valley Watermaster Annual Report. The Antelope Valley 2019 IRWMP is different than previous IRWMPs in that scenario planning components are being implemented to capture a broader range of possible futures both on the demand and supply side. The reliability assessments included in AVEK's UWMP, including WSCP Planning and Drought Risk Assessments, mirror a similar approach.

The assumptions in their UWMP fall within the plausible future scenarios analyzed in the 2019 IRWMP to ensure the two efforts complement each other. To develop average year supply and demand estimates, AVEK used the historic hydrology for 1922 through 2017. This 96-year period was selected based on the historical hydrology period reported in the 2019 SWP Delivery Capability Report, which represents AVEK's largest and most variable supply. During that period, the driest one-year period occurred in 1977. A five-consecutive year (1988–1992) dry period was additionally used for AVEK's water service reliability and drought risk assessments, representing the driest five-year consecutive period during that time frame.

AVEK strives for a "diverse water portfolio" that allows it to meet demands even in years when its primary supplies would not be enough. Part of AVEK's 2020 UWMP strategy for supply reliability is to have water storage capacity to draw on when supplies are short. Using surplus water from normal and wet years, AVEK's large storage portfolio contains both dry-year storage, emergency storage and ground water recharge that can be used to meet demand in case of a shortage via groundwater replenishment. AVEK has completed extensive modeling to create management options that will handle future variations in supply and demand.

As discussed in the District 40 2020 UWMP, if AVEK has a sufficient water supply, through existing agreements and delivery systems, District 40 has sufficient supplies as well. In the Antelope Valley 2019 IRWMP, AVEK describes unprecedented challenges on the SWP imported water supplies including demand and supply mismatch, extensive drought, and challenges between ecological protections and adequate water supply. The 2019 IRWMP looks beyond these experienced challenges and recognizes that the future is not predicable. Expanding the range of planning scenarios that AVEK considers in their supply and demand modeling will only increase the reliability of this resource for District 40. AVEK does not anticipate any reductions in water supply availability from SWP supplies due to water quality concerns over the study period.

Groundwater Supply Reliability

Groundwater helps District 40's overall supply reliability by providing a reserve during emergencies or droughts. The capacity and reliability of LACDW's and AVEK's groundwater supply requires consideration of many issues including:

- Water rights
- Aquifer storage capacity
- Physical well and pump capacity
- Treatment capacity
- Water quality issues

AVEK owns overlying production rights and District 40 owns non-overlying production rights to the AVB as detailed in the judgement described in section 4.2. The judgement gives District 40 and AVEK the right to store water in the aquifer under the

administration of the Antelope Valley Watermaster through a predetermined storage agreement.

District 40 can purchase AVEK water for groundwater replenishment and recovery through on permanent transfers via spreading in order increase its stored water credits and overall groundwater supply. To maintain and optimize groundwater pumping and production, District 40 needs to acquire about 14,000 af purchased or carry over water per year through replenishment or "physical solution" defined purchases. Unavailable replenishment water during a long drought could limit the District 40's and AVEK's ability to add to their groundwater "banks". During dry periods, the AVB cannot meet expected demands without the use of imported water. Variability of supply fluctuates year to year based on precipitation, regulatory policies, legislative restrictions, and supply operation conditions. These factors become more uncertain in dry years and require planning to address the various management challenges associated with dry years. To prepare, AVEK is developing water storage projects and banks SWP water during normal and wet years.

AVEK plans to keep a reserve of 97,260 af in groundwater credits by 2025. This would allow normal extractions to continue for about three years without replenishment, assuming the continual native yield production supply of 3,550 AFY and 10 percent of the Table A SWP supply of 144,844 AFY. Currently, AVEK currently has 90,000 af of SWP water in groundwater storage banks throughout the AVB.[31] Because AVB storage capacity is typically not impacted by short term dry conditions, it is assumed that District 40's available supply will not drastically change during short dry periods and supply will represent dry condition updates to the native safe yield requirements as defined in the Adjudication process. With this, District 40 would need to adjust transfer purchase amounts to maintain the AVB's basin supply and meet their adjusted native safe yield and production right amounts to supply to their customers. For more information about AVB's groundwater reliability please refer to section 6 of District 40's 2020 UWMP.[32]

Recycled Water Supply Reliability

All the City's recycled water is supplied by LWRP. The LWRP is managed to be highly reliable but contingencies for recycled water outages must be considered. The existing recycled water distribution system includes potable water makeup facilities at the LWRP, Palmdale WRP, and the Antelope Valley Backbone. A recycled water system interconnect between the Antelope Valley Backbone and LWRP is currently in Phase 2 to create redundancy necessary to ensure reliable recycled water supply, which results in a backup recycled water supply from the Palmdale WRP. Distribution is facilitated by District 40, LACSD, and the PRWA.

[31] AVEK, 2020 UWMP Final.

[32] LACWD, Final 2020 UWMP for District 40, page 6-1.

SECTION 5 – WATER DEMAND

Analysis of water demand, both historical and projected, is based on the same regional, local, and Project areas as the analysis provided for water supplies. The regional demand analysis addresses the greater regional demand which includes AVEK demands; the local demand analysis addresses the City's water system specifically, and the Project-specific analysis demand calculations are based on the most recent land-use map and information from the Project Applicant.

5.1 LACWD District 40 2020 Demand

District 40 provides potable and non-potable water for a mix of urban uses that includes residential, commercial, and governmental uses. There are no agricultural water services in the District 40's service area; however, a portion of water delivered is provided exclusively for landscape irrigation purposes.[33] Agricultural water demand in the Antelope Valley region is supplied directly by AVEK or by other municipal suppliers.

The total water demands are based on water use sectors by starting with 2020 records of water sales by customer class, then using projected growth numbers for housing units and employment. Demands incorporate passive conservation (code-based and price-effect savings) and active conservation (for installed active devices through 2020). Losses are assumed to be equal to the five-year average of losses from 2015 to 2019, which is approximately 5 percent of potable direct use demand. It is assumed that existing codes and ordinances will remain in place, which include those codes related to water conservation in the City's Title 15 Building Regulations, and the City's Prohibition of Wasting Water and Water Efficient Landscape Ordinances passed in early 2008.

In calendar year 2020, water deliveries percentages to District 40 customers are as follows:

- 64 percent single-family residential
- 8 percent multi-family residential
- 16 percent commercial
- 6 percent City departments
- 1 percent fire protection

Water losses in 2020 are estimated as 4.7 percent of water delivered. Unaccounted-for water is lost through unmetered use (flow testing, reservoir cleaning, main flushing, firefighting, etc.), faulty meters, evaporation, sheared hydrants, and system leaks. The industry average for unaccounted-for water is 7 percent; therefore, the City's

[33] LACWD, Final 2020 UWMP for District 40, page 4-1.

unaccounted-for water is substantially less than unaccounted-for water losses for a municipal utility. Actual demands in District 40's service area is shown in **Table 8**.

TABLE 8
DISTRICT 40'S 2020 WATER DEMANDS

Water Use Category	Total Volume (af)
Single-family residential	29,191
Multi-family residential	3,866
Other Potable	266
Commercial	7,167
Institutional/Governmental	2,544
Other	539
Losses	2163
Total Direct Use Demand	***45,818***
Groundwater Recharge Demand (Raw Water)	0
Total	***45,818***

SOURCE: LACWD, Final 2020 UWMP for District 40, page 4-1.

In 2009, the California Water Conservation Act (also known as Senate Bill X7-7 or SBX7-7) was passed into law and requires urban water suppliers to reduce per capita water use 20 percent by 2020 (20x2020). To assist water purveyors, DWR provides a guidance manual with methodologies for calculating water use targets to reduce water demands and meet the 20x2020 goals. The water use target calculation was recalculated in the 2020 UWMP using 2010 census population data. Based on this recalculation, in District 40 service area, the 2020 target changed from 273 gallons per capita per day (gpcd) to 225 gpcd. Notably, based on the District's 2020 population of 205,000 and associated demand of 46,180 af in all water use categories including recycled water demand, actual daily per capita water use was 199 gpcd, which is significantly lower than its 225 gpcd target.[34] As stated in Table 8 above, the District 40's 2020 water demand was 45,818 af, which equates to 197 gpcd, which is still below the District 40's 2020 target of 225 gpcd.

The District's service area water demands have increased in the last 10 years when compared to level of demand in the mid-2010s. In fact, the average daily water demand increased from 165 to 197 gpcd between 2015 and 2020.[35] Reported targets for demand per capita over the past decade are shown in **Table 9**.

[34] LACWD, Final 2020 UWMP for District 40, page 5-1.

[35] LACWD, Final 2015 UWMP for District 40, February 2017, page 4-3, https://dpw.lacounty.gov/wwd/web/Documents/2015%20Integrated%20Urban%20Water%20Management%20Plan%20for%20the%20Antelope%20Valley.pdf. Accessed March 28, 2022.

TABLE 9
DISTRICT 40'S HISTORIC WATER DEMANDS

		Target		Highest Acceptable Bound	
Year	Report	% Base	GPCD	% Base	GPCD
2010	1	96.40%	269.5	100%	279.5
2012	2	92.80%	259.4	96.40%	269.5
2014	3	89.20%	249.3	92.80%	259.4
2016	4	85.60%	239.3	89.20%	249.3
2018	5	82.00%	229.2	82.00%	229.2

SOURCE: LACWD, Final 2015 UWMP for District 40, CUWCC BMP Coverage Report 2014.

In response to the 1977 drought of record and the multiple year drought of 1988–1992, the District's service area water uses have decreased through active and passive water conservation. Water use efficiencies have also played a role, especially in response to the significant water shortage in 2015. District 40 has increased its water meter maintenance, testing, and replacement to significantly reduce unaccounted-for water losses.

5.2 District 40 Projected Demands

The City consists of a mix of land uses, including residential, commercial, industrial, agricultural, institutional, and open space. The City is mildly built-out, meaning there are some vacant sites available for new developments and growth is expected to be due primarily to increases in commercial interests and land use intensity.

Historically, land uses within the Antelope Valley have focused primarily on agriculture; however, the Antelope Valley is in transition from mainly agricultural uses to residential and industrial uses.[36] According to the City's General Plan, prepared in 2009, the greatest amount of growth in the next several decades is expected to be in the residential area. The City expects to see an intensification of an increased amount of mixed-use development (i.e., residential/commercial/retail).[37,38] New residential development will be a mix of rural residential to high-density, mixed-use development, which will increase the population density due to redevelopment of rural residential land for urban use and specifically for multi-family use. Redevelopment of areas adjacent to downtown is expected to continue, with the goal of revitalizing local commerce.[39]

The City is currently in the process of updating the 2021-2029 Housing Element of the General Plan. District 40 staff coordinated with the City's Development Services Department to obtain information related to expected changes to housing growth. The Housing Element set the foundation to achieve the City's goal for 9,023 new units

[36] LACWD, Final 2020 UWMP for District 40, page 1-2.

[37] City of Lancaster, General Plan 2030, page 1-19.

[38] City of Lancaster, 2021-2029 Housing Element, Final Draft February 2022, pages H-27 and H-80, https://www.cityoflancasterca.org/home/showpublisheddocument/43874/637806998524600000. Accessed March 29, 2022.

[39] City of Lancaster, General Plan 2030, pages 1-6, 1-19, and 1-27.

through 2029. For regional planning purposes, additional information regarding housing and employment growth was obtained from the SCAG demographic projections developed for the 2020–2045 RTP/SCS. These projections incorporate data from past trends, key demographic and economic assumptions, and local, regional, State and national policy. The SCAG forecasting process also incorporates participation of local jurisdictions and stakeholders.

Employment growth is expected in a variety of commercial and industrial operations, notably educational services, public administration, retail, health care, construction and manufacturing.[40,41]

According to the District 40 2020 UWMP, the Housing Element goal of 9,023 new housing units is in addition to the SCAG housing unit growth projections. Growth projections were used to develop future water demand in District 40's service area. District 40's 2020 population is consistent with California's Department of Finance estimates of population for the City; incorporating that District 40's service areas does not include the entire population of the City of Lancaster. See **Table 1** for specific population estimates. Projected population includes population projections as provided in the SCAG 2020-2045 RTP/SCS Demographics and Growth Forecast plus the expected population growth associated with the Housing Element goal which assumes a population of 3.15 per housing unit based on the persons per household estimated by the California Department of Finance.

AVEK, as the regional wholesale water supplier, prepares water resources reports, studies, and plans necessary to manage its regional water supplies based on current and future supply and demand scenarios. As part of its 2020 UWMP, AVEK provided District 40 and other member agencies with population and supply and demand calculations. Potable water demand for 2025, 2030, 2035, 2040, and 2045 are estimated by using the total retail demand projections provided by AVEK as part of the regional planning process. contains the projected demands by water use classes. In general, as shown in **Table 10**, total demands are expected to increase, primarily due to the expected increase in housing units as discussed in Section 2.1.

[40] City of Lancaster, General Plan 2030, pages 1-6, 1-19, and 1-27.

[41] United States Census Bureau, Quick Facts, July 2019. Accessed March 20, 2022.

TABLE 10
DISTRICT 40 PROJECTED WATER DEMAND (AF)

Water Use Category	2025	2030	2035	2040	2045
Single Family	40,919	43,706	46,599	49,601	52,116
Multi-Family	2,212	2,364	2,518	2,683	2,819
Commercial[a]	3,112	2,617	2,178	1,780	1,870
Industrial	3,315	3,546	3,777	4,022	4,226
Institutional/Governmental[a]	1,035	870	726	595	625
Unaccounted-for Losses[b]	3,808	3,998	4,202	4,419	4,643
Subtotal Potable Demand	*54,400*	*57,100*	*60,000*	*63,100*	*66,300*
Groundwater Recharge	0	0	0	0	0
Total	***54,400***	***57,100***	***60,000***	***63,100***	***66,300***

a The 2020-2040 projected water demand is based on gpcd multiplied by the projected population.

b Losses are assumed to be seven percent pf projected water demand.

SOURCE: LACWD, Final 2020 UWMP for District 40, page 4-2.

5.3 Proposed Project Demands

Proposed Project Demand

The Project's calculated water demand is shown in **Table 11.** The calculated demand of 116.98 AFY represents the worst-case scenario, based on conservative water generation rates, of the potential demand for the Project. As the Project Site is currently vacant, the Project would require 116.98 AFY above the current water demands at the Project Site.

TABLE 11
PROJECTED PROJECT WATER DEMAND

Category	Area	Water Generation Rates[a]	GPD	AFY
Non-Residential Uses				
Office	20,000 sf	93 gpd/1,000 sf	1,860	2.08
Industrial (Warehouse)	1,240,630 sf	80 gpd/1,000 sf	99,250	111.17
Landscaping[b]	643,908 sf		3,330	3.73
Totals			***104,440***	***116.98***

gpd = gallons per day; AFY = acre-feet per year; sf = square feet

a Indoor water generation rates are determined based on water generation rates for other industrial/warehouse projects of similar size and on correspondence with the Los Angeles County Waterworks Districts.

b Estimated total water use for landscaping provided by the Project Applicant. The maximum allowed water allowance is approximately 31.50 AFY.

Projected Dry-Year Multiple-Dry-Year Demand

In all water year types, it is anticipated that the Project demand of approximately 116.98 AFY will not change unless retailers and consumers within the City's service area are specifically asked to reduce water use through active conservation measures described in Section 8 of District 40's 2020 UWMP.

SECTION 6 – SUPPLY-DEMAND COMPARISON

This section reviews the regional, local, and Project-level supply and demand considerations.

6.1 AVEK's Water Supply Sufficiency

AVEK strives for a "diverse water portfolio" that allows it to meet demands even in years when its primary supplies would be inadequate. In fact, AVEK has developed a water supply portfolio capable of meeting all demands in any given year. As documented in AVEK's 2020 UWMP, AVEK plans for drought conditions and potential water shortages, and therefore has taken measures to have water in storage within its existing water supply systems and facilities to use during years when SWP supplies are curtailed. Using surplus water from normal and wet years, AVEK's large storage portfolio contains both dry-year storage, emergency storage and groundwater recharge that can be used to meet demand in case of shortages. As documented in its Antelope Valley 2019 IRWMP scenario planning components are being used to predict a broader range of possible water supply and demand futures. As previously discussed, AVEK's UWMP, its Water Shortage Contingency Planning and Drought Risk Assessments use a similar approach to assess reliability of water supplies and sufficiency to meet demand. Expanding the range of planning scenarios that AVEK considers in their supply and demand modeling would likely increase the reliability water supplies to AVEK and its member agencies. Operational studies used in this assessment demonstrate that AVEK has sufficient water supply to meet this future demand for every hydrologic year on record. Therefore, AVEK does not anticipate any reductions in water supply availability from SWP supplies due to water quality concerns over the study period.

Table 12 illustrates the available water supplies as hydrologic conditions change when compared to demand changes of the next 25 years. In years of above-average rainfall, AVEK could possibly store more water throughout its storage system and groundwater banking, effectively building up more supplies for dry or multiple dry years.

TABLE 12
DISTRICT 40 NORMAL WATER YEAR, SINGLE-DRY YEAR, AND MULTIPLE DRY WATER YEAR ASSESSMENT IN ACRE-FEET PER YEAR (AFY)

		2025	2030	2035	2040	2045
Normal Year	AVEK SWP	57,300	55,800	54,200	52,700	52,700
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled Water	764	902	1,102	1,302	1,302
	Supply Totals	**83,086**	**81,724**	**80,324**	**79,024**	**79,024**
	Demand Totals	*55,164*	*58,002*	*61,102*	*64,402*	*67,602*
	Difference	**27,922**	**23,722**	**19,222**	**14,622**	**80,314**
Single Dry Year	AVEK SWP	5,000	5,000	5,000	5,000	5,000
	AVEK Groundwater from Banked Supplies	24,378	27,078	29,978	33,078	36,278
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled Water	764	902	1,102	1,302	1,302
	Supply Totals	**55,164**	**58,002**	**61,102**	**64,402**	**67,602**
	Demand Totals	*55,164*	*58,002*	*61,102*	*64,402*	*67,602*
	Difference	**0**	**0**	**0**	**0**	**0**
Multiple-Dry Year 1	AVEK SWP	5,000	5,000	5,000	5,000	5,000
	AVEK Groundwater from Banked Supplies	24,378	27,078	29,978	33,078	36,278

	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled Water	764	902	1,102	1,302	1,302
	Supply Totals	**55,164**	**58,002**	**61,102**	**64,402**	**67,602**
	Demand Totals	*55,164*	*58,002*	*61,102*	*64,402*	*67,602*
	Difference	**0**	**0**	**0**	**0**	**0**
Multiple-Dry Year 2	AVEK SWP	5,000	5,000	5,000	5,000	5,000
	AVEK Groundwater from Banked Supplies	24,378	27,078	29,978	33,078	36,278
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled Water	764	902	1,102	1,302	1,302
	Supply Totals	**55,164**	**58,002**	**61,102**	**64,402**	**67,602**
	Demand Totals	*55,164*	*58,002*	*61,102*	*64,402*	*67,602*
	Difference	**0**	**0**	**0**	**0**	**0**

Multiple-Dry Year 3	AVEK SWP	5,000	5,000	5,000	5,000	5,000
	AVEK Groundwater from Banked Supplies	24,378	27,078	29,978	33,078	36,278
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled Water	764	902	1,102	1,302	1,302
	Supply Totals	**55,164**	**58,002**	**61,102**	**64,402**	**67,602**
	Demand Totals	*55,164*	*58,002*	*61,102*	*64,402*	*67,602*
	Difference	**0**	**0**	**0**	**0**	**0**
Multiple-Dry Year 4	AVEK SWP	5,000	5,000	5,000	5,000	5,000
	AVEK Groundwater from Banked Supplies	24,378	27,078	29,978	33,078	36,278
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled Water	764	902	1,102	1,302	1,302
	Supply Totals	**55,164**	**58,002**	**61,102**	**64,402**	**67,602**

	Demand Totals	*55,164*	*58,002*	*61,102*	*64,402*	*67,602*
	Difference	**0**	**0**	**0**	**0**	**0**
Multiple-Dry Year 5	AVEK SWP	5,000	5,000	5,000	5,000	5,000
	AVEK Groundwater from Banked Supplies	24,378	27,078	29,978	33,078	36,278
	District's Groundwater Production Rights	6,789	6,789	6,789	6,789	6,789
	District's Unused Federal Reserve Right	3,500	3,500	3,500	3,500	3,500
	District's Imported Water Return Flows	10,400	10,400	10,400	10,400	10,400
	District/AVEK Lease	2,600	2,600	2,600	2,600	2,600
	New Supply from AVEK	1,733	1,733	1,733	1,733	1,733
	Recycled Water	764	902	1,102	1,302	1,302
	Supply Totals	**55,164**	**58,002**	**61,102**	**64,402**	**67,602**
	Demand Totals	*55,164*	*58,002*	*61,102*	*64,402*	*67,602*
	Difference	**0**	**0**	**0**	**0**	**0**

SOURCE: LACWD, Final 2020 UWMP for District 40, Table 7-4.

6.2 Local Water Supply Sufficiency – District 40

Table 12 compares the District 40's projected supply and demand over a 25-year planning horizon out to 2045 under normal water year conditions. As shown in Table 12, the City can satisfy all customer demands in each year.

The future water demands for the District 40 and the entire AVEK region have been estimated by DWR, which uses forecast data from SCAG for variables including population, housing units, and employment. Although the District is using lower demand projections which take into account the reductions to meet 20x2020 targets, these DWR projections provide the basis for dry-year reliability planning.

Generally, dry weather, especially hot, dry weather, causes an increase in water demand, mostly for landscape irrigation. However, water use efficiencies and conservation practices during past droughts have successfully lowered water demand. Based on AVEK's analysis, reliability of water supply for the District assumed no decrease in

potable water demand in a single dry year, nor during multiple dry years. Non-potable demands are assumed to be unchanged during dry periods.

For water supply planning purposes, the District 40 2020 UWMP presented a comparison of projected water supply and demand for over a 25-year planning horizon. The District 40 2020 UWMP can be used for WSAs and WSVs that require a 20-year planning horizon from AVEK because the 2020 UWMP projects 100 percent water supply reliability through the year 2045. As a result, the District and City, as a AVEK member agency, does not expect critical shortages during the 25-year planning period. If necessary, District 40 will implement specific water shortage response actions as described in the Water Shortage Contingency Plan (Section 8 of its 2020 UWMP). District 40 will continue to rely on AVEK for water either for direct use or for groundwater replenishment. District 40 cooperates with AVEK's regional water supply planning. AVEK relies on its member agencies to continue with their ongoing demand management efforts as AVEK's water demand projections include significant increases in conservation throughout its service area and over the planning period. Groundwater and recycled water supplies are assumed to drought resistant and are available during dry and critical dry years.

Table 12 provides a comparison of supply to demand during single-dry- and multiple-dry-year periods. As shown in this table, water demand in District 40 is projected to increase over the 25-year planning period. Water supplies provided by AVEK and supplemented by groundwater supplies in addition to recycled water for irrigation are sufficient to meet demand. As shown, District 40 can meet existing demand in addition to new demands created by the proposed project and no shortfall will occur.

Multiple Dry Years

As shown in Table 12, District 40 uses AVEK's projections to provide the basis for dry-year reliability planning. District 40's 2020 UWMP evaluates supply and demand comparisons for multiple dry years.

Furthermore, AVEK's contingency plan for responding to water shortages is the WSCP. In the WSCP contains the Water Supply Allocation Plan (WSAP) and is based on a guiding principle for allocating shortages across AVEK's service area. The WSAP formula uses different adjustments and credits to balance impacts of water shortage at the retail level, where local supplies can vary dramatically, and provide equity on the wholesale level among member agencies. It also takes into account the following: growth in demand, local investments, change in local supply conditions, the reduction in potable water demand from recycled water, and the implementation of water conservation programs.

District 40's water supply during a dry period could exceed the supplies used during a normal year given the ability to purchase additional imported supplies from its wholesaler, AVEK. Further, AVEK projects sufficient supplies and storage to meet

demands in future single- and multiple-dry-year scenarios. District 40's supply is determined to be reliable in normal-, single-dry-, and multiple-dry-year scenarios, with additional supplies purchased from AVEK to meet demands in dry years as needed.

This WSA finds that District 40 has sufficient water supplies provided by AVEK and within its existing groundwater pumping under all hydrologic conditions. Because of AVEK's long-term success of delivery of water to all customers and commitment to continue to serve treated water to all retailers, when SWP curtailments occur, AVEK has supply flexibility through its vast network of water supply facilities and long-term water management programs to continue to meet all demands. In addition, the District could pump additional local groundwater during drought, emergency or other surface supply reductions to meet demands in the future. Furthermore, as presented in Section 5 of this WSA, consumers and retailers could effectively reduce demands by 10 or 12 percent to relieve demand pressure on local and regional supplies. It is reasonable to assume, based on the consumer demand reductions shown in Section 5 above, that District 40's customers would continue to curb per capita use and when necessary based on water supply allocations, customers could reduce per capita demands by up to 20 percent.

Project Water Supply Sufficiency

In normal years, the Project would create an estimated 116.98 AFY of new water demand. This demand is approximately 0.22 percent of the District's anticipated total system demand of 54,400 AFY in 2025, and 0.26 percent of overall treated water demands of 45,818 AFY in 2045 As stated previously, the 2020 UWMP is consistent with SCAG population and employment projections and the City's Housing Element includes potential water demands that would be generated by land use changes and new commercial and residential developments similar to the Project. **Table 13** summarizes that even with multiple dry year events, District 40 is still expected to meet projected service area demand. To convey water to the Project Site, this WSA assumes the Project would use treated water delivered through existing or upgraded infrastructure connected to and expanded upon the City's existing water conveyance systems.

TABLE 13
SUMMARY OF PROJECTED WATER SUPPLY AND DEMAND IN ACRE-FEET PER YEAR (AFY)

	2025	2030	2035	2040	2045
Projected Demand	55,164	58,002	61,102	64,402	67,602
Total Projected Supply					
Normal Year	83,086	81,724	80,324	79,024	79,024
Single-Dry Year	55,164	58,002	61,102	64,402	67,602
Multiple Dry Year	55,164	58,002	61,102	64,402	67,602

SOURCE: Data compiled from Table 12.

SECTION 7 – CONCLUSION

As required in Water Code Section 10910(c)(3), "the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

1. The Los Angeles County Waterworks District, District 40 has been identified as the public water distributor for Avenue G and Aerospace Highway.

2. Water demand projections include anticipated development. The projected acreage is based on the amount of land that is vacant or currently planned for redevelopment from 2020 to 2045.

3. The calculated water demand for the Project is 116.98 AFY.

4. Through a combination of existing supply, groundwater banking, new supply, and recycled water, the 2020 UWMP projects that total supply will meet demand, through 2045 under normal, single-dry, and multiple dry water year conditions (Table 12 and 13).

This WSA has shown that District 40's, and their wholesale potable water supplier AVEK's, total projected water supplies available during normal, single-dry, and multiple-dry years will meet the projected water demand for the Project over the next 20 years.

SECTION 8 – REFERENCES

California Department of Water Resources, Guidebook for Implementation of SB 610 and SB 221 of 2001, 2003.

California Department of Water Resources, California's Ground Water Bulletin 118, Antelope Valley Ground Water Basin, 2004.

Antelope Valley Watermaster, Final Antelope Valley Watermaster 2020 Annual Report, July 2021.

Antelope Valley-East Kern Water Agency, 2020 UWMP Final, page 4-3.

Antelope Valley-East Kern Water Agency, Water Banking, https://www.avek.org/westside-water-bank.

Antelope Valley Watermaster, Antelope Valley Watermaster Rules and Regulations, 2020.

Antelope Valley Watermaster, Final Antelope Valley Watermaster 2020 Annual Report, Appendix B-2, July 2021.

California Irrigation Management Information System, Station 197 Palmdale, California (041194), https://cimis.water.ca.gov/stations.aspx?ctl00_MainContent_StationList_RadGrid1ChangePage=10_20.

City of Lancaster, 2021-2029 Housing Element, Final Draft February 2022, https://www.cityoflancasterca.org/home/showpublisheddocument/43874/637806998524600000.

City of Lancaster, General Plan 2030, https://www.cityoflancasterca.org/our-city/departments-services/development-services/planning/general-plan-2030.

City of Lancaster, General Plan Land Use Map, Adopted July 14, 2009, https://www.cityoflancasterca.org/home/showpublisheddocument/9333/635944339787900000.

City of Lancaster, Zoning Map, Adopted July 13, 2010, https://www.cityoflancasterca.org/home/showpublisheddocument/12653/635944347340200000.

Los Angeles County Sanitation Districts, Wastewater-Sewage Facilities, https://www.lacsd.org/services/wastewater-sewage/facilities/lancaster-water-reclamation-plant.

Los Angeles County Waterworks Districts, Final 2015 UWMP for District 40, February 2017, https://dpw.lacounty.gov/wwd/web/Documents/2015%20Integrated%20Urban%20Water%20Management%20Plan%20for%20the%20Antelope%20Valley.pdf.

Los Angeles County Waterworks Districts, Final 2020 Urban Water Management Plan (UWMP) for Los Angeles County Waterworks District No. 40 Antelope Valley (Final 2020 UWMP for District 40), October 2021, https://ladpw.org/wwd/web/Documents/D40_AV2020_UWMP%20FINAL.pdf.

Los Angeles County Waterworks Districts District 40 and Los Angeles County Department of Public Works, Salt and Nutrient Management Plan for the Antelope Valley, May 2014, https://pw.lacounty.gov/wwd/avirwmp/docs/saltplan/Salt%20and%20Nutrient%20Management%20Plan%20for%20Antelope%20Valley_May%202014.pdf.

Southern California Association of Governments, 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy, Demographics and Growth Forecast, Adopted September 3, 2020, https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_demographics-and-growth-forecast.pdf?1606001579.

State Water Resources Control Board, Geotracker Groundwater Ambient Monitoring and Assessment (GAMA), http://geotracker.waterboards.ca.gov/.

Superior Court of the State of California – County of Los Angeles – Central District, Judicial Council Coordination Proceeding No. 4088, Stipulation Exhibit: Antelope Valley Groundwater Cases, Proposed Judgement and Physical Solution, 2015.

United States Census Bureau, Quick Facts, July 2019.

Western Regional Climate Centers, Cooperative Station Data, Lancaster, California (044747).