APPENDIX I:
WATER SUPPLY ASSESSMENT

June 2022

Water Supply Assessment
Los Banos General Plan 2042

for City of Los Banos

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Table of Contents

Tables **Page**

Figure

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1. Introduction

1.1 INTRODUCTION

In 2001, Senate Bill 610 (SB 610) amended California law to improve the connection between land use decisions made by cities and counties and water supply availability. Pursuant to SB 610, a Water Supply Assessment (WSA) is now required for projects that are subject to the California Environmental Quality Act (CEQA) and meet certain size thresholds. The City believes that SB 610 does not specifically apply to a comprehensive general plan update, but rather it applies to categories of projects that meet the criteria for preparation of a WSA and that are subsequently developed as part of the general plan. For example, Water Code Section 10912 defines a project as any of the following:

- A proposed residential development of more than 500 dwelling units
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space
- A proposed hotel or motel, or both, having more than 500 rooms
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor space
- A mixed-use project that includes one or more of the projects specified above
- 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.

Therefore, any project developed under the General Plan 2042 that meets these criteria would have to prepare an individual WSA. However, the City has voluntarily chosen to prepare this WSA to support the Los Banos General Plan 2042. The City recognizes that water supply and demand is an important issue both for the population within the city limits and for the adjacent areas within Merced County.

As part of a WSA, the water purveyor for a proposed project must evaluate whether water supplies are sufficient to meet the demand of the proposed project over the next 20 years, in addition to the water purveyor's existing and planned future uses. As the water purveyor for the area evaluated in the General Plan 2042, the City has elected to prepare a WSA as a tool to assist in long-term planning decisions. This WSA describes the City's current water demand, projected water demand (including that associated with the General Plan 2042), and

water supply sources. The WSA also provides a comparison of the City's expected water supply and demand through the year 2042, including the demand of the project. Information from the City's 2020 Urban Water Management Plan (UWMP) is incorporated into this WSA and is supplemented by findings from the studies listed below:

- City of Los Banos, 2021. *Urban Water Management Plan (UWMP) 2020 Update for the City of Los Banos.* Prepared by Provost & Pritchard Consulting Group.
- Nolte Associates, Inc., 2009. *Merced County General Plan Update, Qualitative Comparison of Water Supply and Demands in Merced County, Technical Memorandum.*
- San Luis & Delta-Mendota Water Authority, 2019. *2019 Westside-San Joaquin Integrated Regional Water Management Plan.* Prepared by Woodard & Curran.
- San Joaquin River Exchange Contractors, 2019. *Groundwater Sustainability Plan for the San Joaquin River Exchange Contractors GSP Group in the Delta-Mendota Subbasin.*

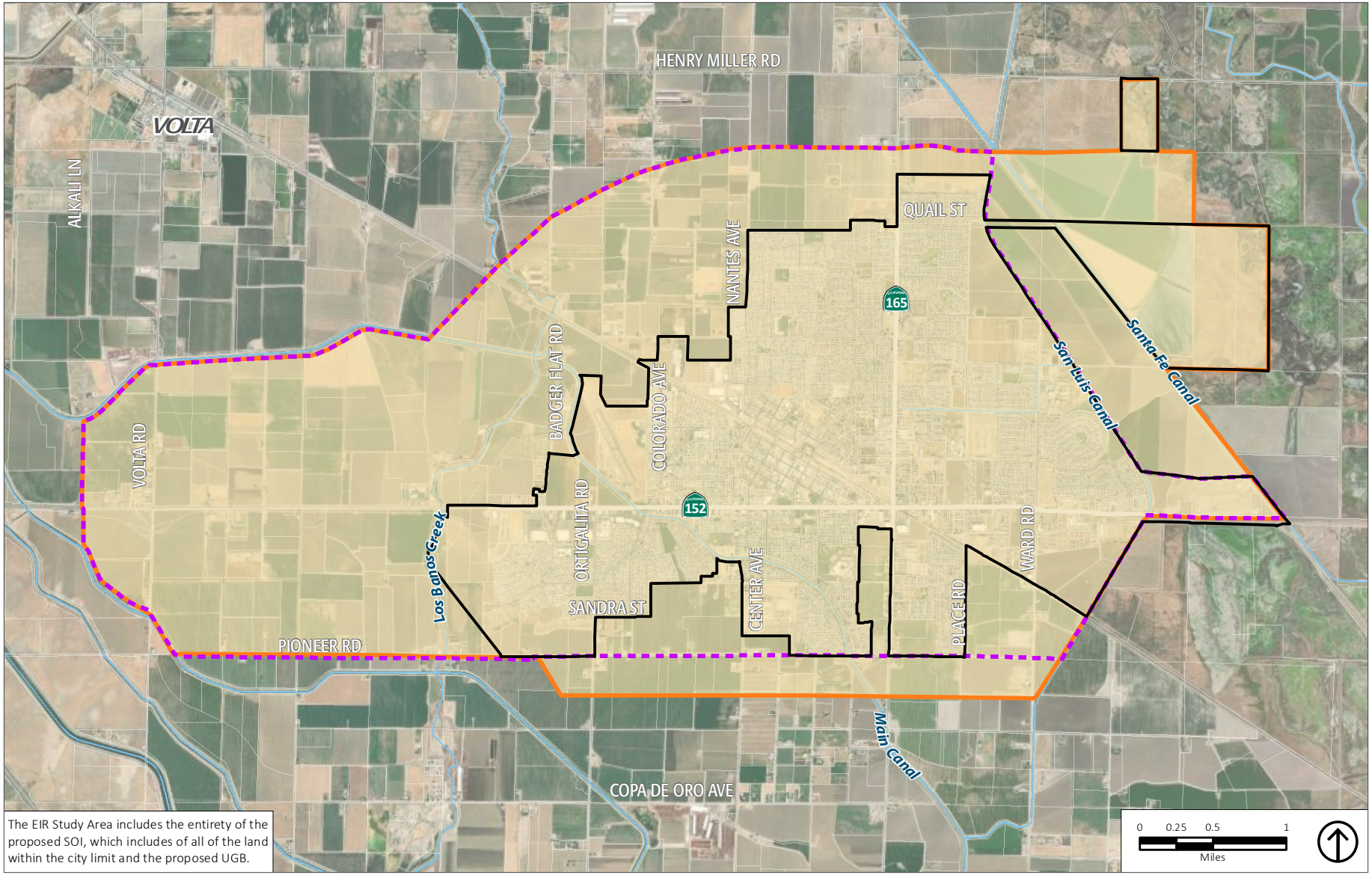
1.2 PROJECT DESCRIPTION

The City's General Plan is being updated in accordance with California State law, which requires each city and county to adopt a general plan for *the physical development of the county or city, and any land outside its boundaries which bear relation to its planning over a long-term horizon*.[1] The General Plan functions as the City's primary land use regulatory tool for future change in Los Banos. The primary purpose of the proposed project is to plan for the growth and conservation of Los Banos over a 20-year time horizon. The project objectives include providing for balanced and sustainable growth, creating new jobs to develop the local economy, integrating neighborhoods with a mix of residential types and schools, stores, and parks, and creating a network of parks and open space.

The city is in the western part of Merced County and the northern portion of the San Joaquin Valley. It is the second-largest city in Merced County. State and federal wildlife areas and refuges and agricultural land uses are prevalent in the surrounding area. Los Banos is a city whose economy and land uses have grown from an agricultural center to a mixture of agriculture, retail, commercial, and residential neighborhoods.

The EIR Study Area, which is the basis for the WSA, includes all land within the city limit and the proposed Urban Growth Boundary and Sphere of Influence, as shown in Figure 1, *EIR Study Area.* This is the same area that was evaluated in the City's 2020 UWMP. The proposed land use map is shown as Figure 2, *General Plan 2042 Land Use Map*.

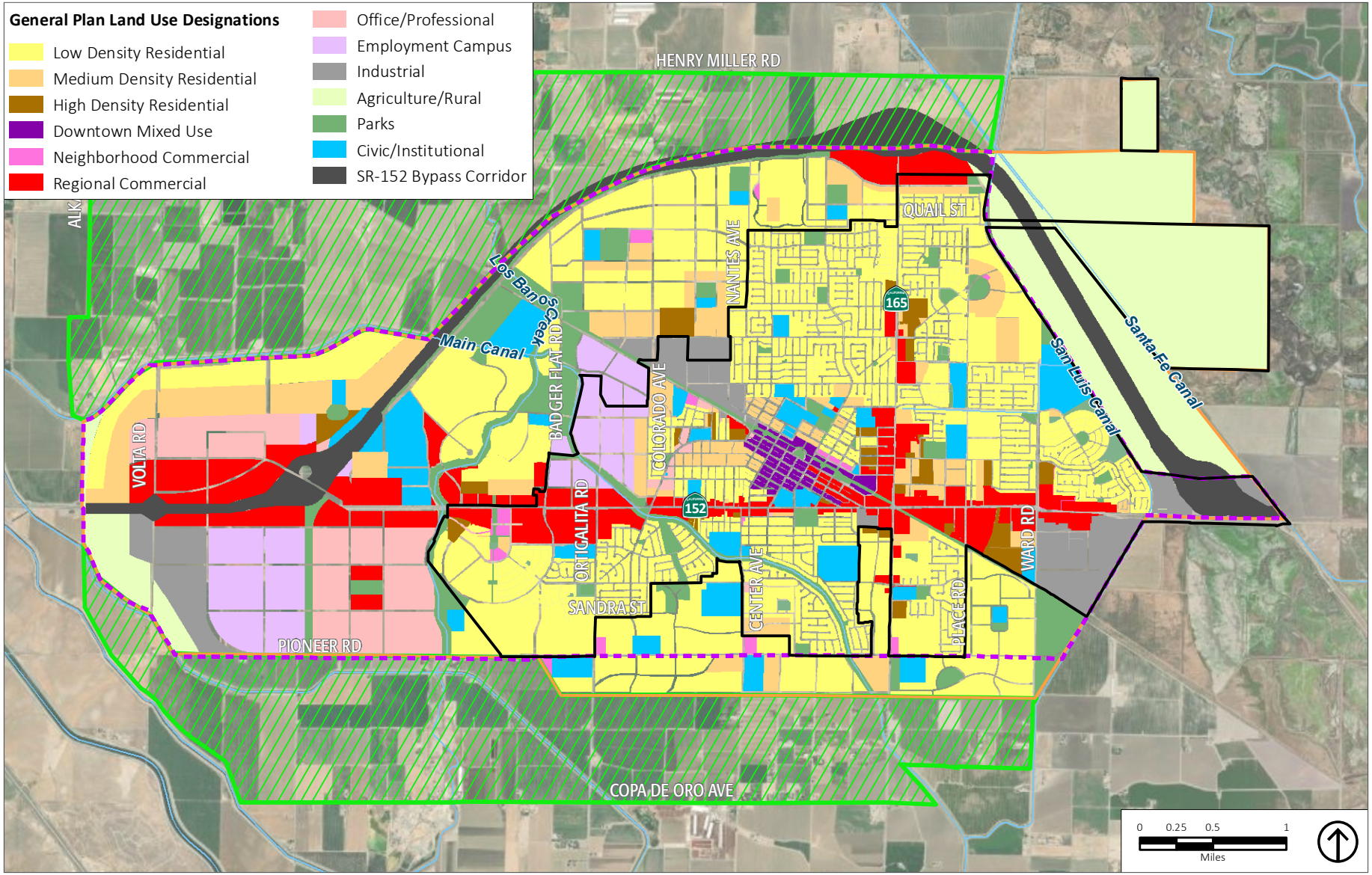
[1] Government Code Section 65300.



Source: California Department of Conservation, 2016; ESRI, 2018; Merced County, 2018; PlaceWorks, 2022.

City Limit | Proposed Urban Growth Boundary (UGB) | Proposed Sphere of Influence (SOI) | EIR Study Area

Figure 1
EIR Study Area



Source: Merced County, 2019; PlaceWorks, 2022.

City Limit | Proposed Urban Growth Boundary (UGB) | Proposed Sphere of Influence (SOI) | Proposed Area of Interest (AOI)

Figure 2
General Plan 2042 Land Use Map

The EIR analyzes the potential for growth to 2042, which represents a 20-year buildout horizon. The projections represent the City's estimation of "reasonably foreseeable" development that could occur over the next 20 years. The proposed buildout projections are provided in Table 1, *Proposed Buildout Projections in the EIR Study Area*.

Table 1 Proposed 2042 Buildout Projections in the EIR Study Area

Category	Existing Conditions (2021)	Projected Growth 2022-2042	Buildout Estimates - 2042
Housing Units	12,800	8,900	21,700
Population	42,900	19,600	72,500
Jobs	7,000	29,600	12,000

Sources: City of Los Banos, 2022; Merced County Association of Governments, 2018; State of California, Department of Finance, 2021; Center for Business and Policy Research at the University of Pacific, 2016; PlaceWorks, 2022.

1.3 CITY'S CURRENT WATER SUPPLY AND DISTRIBUTION INFRASTRUCTURE

The City of Los Banos extracts its water supply from 13 active groundwater wells with a total pumping capacity of 14,875 gallons per minute (gpm). The water distribution system consists of pipelines ranging from four to 30 inches in diameter, an elevated storage tank with a capacity of 100,000 gallons, and a 5-million-gallon surface mounted storage tank equipped with four booster pumps with a total pumping capacity of 10,500 gpm. The City has plans to construct additional wells in the future (2024) as demands continue to increase.[2]

The City prepared a Water Master Plan (WMP) covering water infrastructure (as distinct from water supply) in 2008, which was subsequently updated in March 2010. The WMP evaluated the distribution system and recommended improvements to correct existing deficiencies and to serve future customers. The area of evaluation and proposed land uses in the WMP are essentially the same as those shown in Figures 1 and 2. The WMP assumed an even larger population increase than projected for the General Plan 2042 (90,400 people by 2030).[3] Therefore, the proposed buildout for the General Plan 2042 has been evaluated in terms of the water distribution infrastructure.

[2] City of Los Banos, 2021. *Urban Water Management Plan 2020 Update for the City of Los Banos*. Prepared by Provost & Pritchard Consulting Group

[3] Carollo Engineers, 2010. *Final Report, Master Plan for Water Distribution System, City of Los Banos*. Dated September 2008, and updated March 2010.

2. Water Supply Assessment

2.1 WATER PURVEYOR

The City of Los Banos provides water service to residents, businesses, and other users within its service area. Water is provided by the City's Public Works Department to approximately 11,864 residential accounts, 594 commercial accounts, 594 irrigation accounts, and 96 multi-family accounts. The City provided a total of 8,309 acre-feet of water to its customers in 2020.[4] There are some small areas outside of the city limits that receive water from the City's water system, including a small farmworker housing project to the north along State Highway 165. However, these deliveries are minor and account for less than one percent of the water demand.

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, single dry, and multiple dry years. As discussed in the City's Urban Water Management Plan (UWMP), the City is capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2025 and 2045.

2.2 COMPONENTS OF A WATER SUPPLY ASSESSMENT

The basic requirement is that a WSA must "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 water system's existing and planned future uses, including agricultural and manufacturing uses." If the water demand for a proposed project is accounted for in an adopted UWMP, the WSA preparer may incorporate that information into the WSA.

Although the City's 2020 UWMP does account for future growth within the City limits and its sphere of influence, the General Plan 2042 buildout projections exceed the UWMP future growth rates by about 12,500 people. Therefore, the water demand projections for the project have been updated as follows:

- Land use changes envisioned in the General Plan 2042 serve as the basis for water demand projections for the project.
- Estimates of population growth developed by the City, the Merced County Association of Governments, and the State of California, Department of Finance are the basis for water demand projections within the City's service area.

A comparison of updated water demand projections as compared to previous water demand projections provided in the 2020 UWMP are provided in Section 2.3, *Water Demand Analysis*.

[4] City of Los Banos, 2021. *Urban Water Management Plan 2020 Update for the City of Los Banos.* Prepared by Provost & Pritchard Consulting Group.

The WSA also requires additional analysis if any portion of the water purveyor's water supplies include groundwater. A description of any groundwater basin or basins from which the proposed project will be supplied in addition to a detailed description and analysis of the amount and location of groundwater pumped by the public water system for the past five years should be provided. The WSA should also include an analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. Since the City relies entirely on groundwater for its water supply and the Delta-Mendota groundwater subbasin is in critical overdraft, this issue is discussed in detail in Section 2.5, *Groundwater Analysis.*

Upon adoption, the WSA is incorporated into the CEQA document being prepared for the project, and the lead agency must determine, based on the entire record, whether projected water supplies will be sufficient to satisfy demands for the project, in addition to existing and future uses.[5]

2.3 WATER DEMAND ANALYSIS

This section evaluates whether the proposed project was included in the projection of future water demands for the City of Los Banos as described in the 2020 UWMP. As per Section 10910 (c) (2) of the California Water Code:

> *"if the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g)."*

2.3.1 City of Los Banos Water Demands

The primary source of water for the proposed project would be groundwater extracted by the City to provide service to its customers. This section analyzes the water demands of existing and planned future City customers.

The City's 2020 UWMP included projections of water demand and supply for its entire service area, including the area proposed for redevelopment as part of the General Plan 2042. Although the water demand projections were developed through the year 2045, the population growth estimates were less than what is envisioned for the General Plan 2042. The future water use projections were based on 165 gallons/day/person, based on an assumption that land use would not vary in density or water use per acre.[6] Also, water savings resulting from compliance with the CalGreen Building Code and the City's Water Efficient Landscape Ordinance (WELO) for new construction were not accounted for in the future projections. The current and projected water demands from the City's 2020 UWMP are provided in Table 2, *2020 UWMP Current and Projected Water Demands for the City of Los Banos.*

[5] California Water Code Section 10910 (b) and (c).
[6] City of Los Banos, 2021. *Urban Water Management Plan 2020 Update for the City of Los Banos.* Prepared by Provost & Pritchard Consulting Group.

Table 2 2020 UWMP Current and Projected Water Demands for the City of Los Banos (AFY)

Use Type	2020	2025	2030	2035	2040	2045
Single Family	4,797	4,816	5,188	5,589	6,021	6,486
Multi-Family	355	356	384	414	446	480
Commercial	1,107	1,111	1,197	1,290	1,389	1,497
Landscape	584	586	632	680	733	790
Losses	1,465	1,471	1,584	1,707	1,839	1,981
Total	**8,309**	**8,340**	**8,985**	**9,679**	**10,427**	**11,233**

AFY = Acre-feet/year
Source: City of Los Banos 2020 UWMP, 2021.

2.3.2 Proposed Project Water Demand

Population-based water demand projections generally do not account for changes in land uses, which can have large variations in water demand. The buildout projections in the General Plan 2042 provide new information about residential and commercial development potential over the next 20 years that was not factored into the City's 2020 UWMP. Given this new information and the projected increase in population with implementation of the General Plan 2042, this WSA provides new water demand projections based upon land use changes identified in the General Plan 2042.

The buildout of General Plan 2042 will result in new buildings and residences that fully comply with the more stringent requirements of the California Green Building Code, California Plumbing Code, and the City's WELO. Only three percent of the current residences were built after 2010, when the CalGreen Building Code was first implemented and the installation of water conserving plumbing fixtures and fittings was mandated. It is conservatively estimated that the new construction of both residences and commercial land uses following adoption of General Plan 2042 will achieve a reduction in water usage rates of 20 percent.

For example, old toilets often exceed two gallons per flush. Later toilets use 1.6 gallons per flush and the latest 2019 code requirement is 1.28 gallons/flush, which is a reduction of 36 percent.[7] In residential units, new dishwashers will be installed, which use about three gallons per load, as compared to older conventional machines, which use approximately 10 gallons/load. This is equivalent to a reduction in water usage of about 70 percent. Showerheads are restricted to a maximum flow rate of 1.8 gallons per minute (gpm) whereas conventional showerheads have an average flow rate of 2.5 gpm. This results in a reduction of water usage of about 28 percent. Washing machines 20 years or older typically use 40 gallons per load versus new machines which only use 13 gallons per load for a reduction of 67.5 percent.[8] In addition, the California Department of Water Resources (DWR) estimates that a typical residential landscape will cut water usage by 20 percent and

[7] CalGreen, 2022. California Green Building Standards Code, Title 24, Part 11 of the California Code of Regulations. Accessed at https://www.hcd.ca.gov/calgreen on March 16, 2022.
[8] US Environmental Protection Agency, 2022. Water Efficient Management Guide, Residential Kitchen and Laundry. Accessed at https://www.epa.gov/sites/default/files/2017-10/documents/ws-commercialbuildings-waterscore-residential-kitchen-laundry-guide.pdf on May 14, 2022.

commercial landscapes will cut water usage by 35 percent with compliance with the State's Model WELO, on which the City's adopted WELO is based.[9]

A water demand factor for the 8,900 new dwelling units was calculated based on the numbers provided in the UWMP for single-family dwellings in 2020. The total water usage in 2020 for single-family residences of 4,797 AFY was divided by the number of service connections (11,864) to get a water use factor of 0.404 AFY per dwelling unit. For this analysis, it was conservatively assumed that all future housing would be single-family residences, which results in a higher water demand than multi-family residences. The commercial land use category was used to determine the water usage with an increase in the number of jobs under the General Plan 2042. The volume of water used in 2020 in the commercial sector was 1,107 AF and there were 7,000 jobs in 2020. Therefore, the water demand factor is 0.158 AFY per employee. This equates to about 141 gallons/day/employee, which is much higher than the Merced County estimate of 40 gallons/day/employee. This is most likely due to the large food processing facilities within the City limits that use large quantities of water. Since all new residential and commercial construction will require compliance with the CalGreen Building Code and MWELO, a 20 percent reduction in water demand as compared to existing conditions was included in the calculations. This analysis also conservatively assumes that water demand for existing uses will remain the same, although it is expected that existing commercial and residential water users will replace old fixtures with newer, more efficient fixtures over time.

Existing landscape accounts used a total of 584 AF in 2020 and the existing acreage of parks in the City is 265 acres. Therefore, the irrigation demand is approximately 2.2 AF/acre. To meet the City's ratio of 5 acres of parkland per 1,000 residents, the General Plan 2042 would need to add 100 additional acres of parkland. At 2.2 AF/acre, this would be an additional landscape irrigation demand of 220 AF.

Current water losses account for 18 percent of the total water demand. This is relatively high as compared to the average water loss of 10 percent for California water purveyors. Senate Bill 555 passed in 2015 requires the State Water Resources Control Board (SWRCB) to set standards for water loss for urban water suppliers. The Department of Water Resources (DWR) is currently in the process of developing volumetric water loss performance standards. For this analysis, it is assumed that implementation of these regulations by 2028 (or 2031 for water suppliers serving disadvantaged communities), the installation of new water pipelines with implementation of the General Plan 2042 , and the replacement of older existing pipelines as part of the City's capital improvement program would reduce the City's water losses from 18 percent to 10 percent by the year 2042. The calculated additional water loss at the buildout year 2042 would be 351 AFY.

The projected increase in water demand with implementation of the General Plan 2042 is provided in Table 3, *Water Demand Increase – General Plan 2042*.

[9] Department of Water Resources (DWR), 2015. Model Water Efficient Landscape Ordinance: 2015 Revision.

Table 3 Water Demand Increase - General Plan 2042

Category	Existing Conditions (AFY) [a]	Increase with GP 2042 (AFY) [b]	Total Water Demand (AFY)
Single Family Residential	5,153	2,876	8,029
Commercial	1,107	633	1,740
Landscape	584	220	804
Water Losses	1,465	351	1,816
Total	**8,309**	**4,080**	**12,389**

AFY = acre feet per year
a. Numbers from 2020 UWMP.
b. Includes reduction of 20 percent for new residential and commercial construction with compliance with CalGreen and MWELO requirements
Source: City of Los Banos UWMP, 2021 and PlaceWorks, 2022.

As shown in Table 3, the incremental water demand associated with buildout of the General Plan 2042 is 4,080 AFY. It is assumed that the development rate will be constant over the 20-year buildout period. Adding the incremental water demand to the existing water demand estimate provides the total water demand for the project at buildout. The existing 2020 water demand of 8.309 AFY from the UWMP plus an additional 4,080 AFY for buildout under the proposed project results in a total water demand of 12,389 AFY in 2042.

2.3.3 Proposed Project with Respect to 2020 Urban Water Management Plan

To evaluate water supply reliability, California statutes require the consideration of water supplies and demands in three types of water conditions: normal, single dry, and multiple dry water years.[10] The 2020 UWMP indicates that the City can meet the water demands of its customers in normal, single dry, and multiple dry years between 2025 and 2045, as shown in Table 4, *2020 UWMP – Normal, Single Dry, and Multiple Dry Year Supply and Demand.*

Table 4 2020 UWMP - Normal, Single Dry, and Multiple Dry Year Supply and Demand (AFY)

		2025	2030	2035	2040	2045
Normal Year						
Supply Totals		8,340	8,985	9,679	10,427	11,233
Demand Totals		8,340	8,985	9,679	10,427	11,233
Difference		0	0	0	0	0
Single Dry Year						
Supply Totals		8,340	8,985	9,679	10,427	11,233
Demand Totals		8,340	8,985	9,679	10,427	11,233
Difference		0	0	0	0	0
Multiple Dry Year						
First Year	Supply Totals	8,340	8,985	9,679	10,427	11,233
	Demand Totals	8,340	8,985	9,679	10,427	11,233
	Difference	0	0	0	0	0
Second Year	Supply Totals	8,340	8,985	9,679	10,427	11,233
	Demand Totals	8,340	8,985	9,679	10,427	11,233
	Difference	0	0	0	0	0

[10] Department of Water Resources, 2005. *California Water Plan, Bulletin 160-05, Volume III* ("Each district has different assumptions and policies that guide their planning").

Table 4 2020 UWMP - Normal, Single Dry, and Multiple Dry Year Supply and Demand (AFY)

		2025	2030	2035	2040	2045
Third Year	Supply Totals	8,340	8,985	9,679	10,427	11,233
	Demand Totals	8,340	8,985	9,679	10,427	11,233
	Difference	0	0	0	0	0
Fourth Year	Supply Totals	8,340	8,985	9,679	10,427	11,233
	Demand Totals	8,340	8,985	9,679	10,427	11,233
	Difference	0	0	0	0	0
Fifth Year	Supply Totals	8,340	8,985	9,679	10,427	11,233
	Demand Totals	8,340	8,985	9,679	10,427	11,233
	Difference	0	0	0	0	0

Source: City of Los Banos 2020 UWMP, 2021.

The 2020 UWMP projected water demands are based on a population growth rate of 1.5 percent, for a projected population of 59,970 people in 2042. The UWMP projects a per capita water use of 165 gallons/day. It also assumes that the water demand for the various water use sectors (i.e., single-family, commercial, landscape, and distribution system losses) would increase at the same 1.5 percent rate as the population. This would result in an estimated water demand of 10,427 AFY in 2040 and 11,233 AFY in 2045. This is interpolated to a water demand of 10,832 AFY for the buildout year of 2042.

The General Plan 2042 assumes that most of the future growth would be an increase in the number of residences. Although General Plan 2042 designates land for high-density, medium-density, and low-density residential development, for the purposes of this WSA analysis, it is conservatively assumed that all future residential growth would be in the single-family residential sector. Multi-family residences typically have a lower water demand. There also would be an increase in the number of jobs, which correlates with the commercial land use sector. For comparison purposes, the single-family and multi-family land use sector from the 2020 UWMP were combined. The difference between the projected water demand in the 2020 UWMP and the General Plan 2042 is shown in Table 5, *Comparison of 2020 UWMP Demand and Projected General Plan 2042 Demand at Buildout*. The UWMP projected demands for the years 2040 and 2045 were extrapolated to obtain water demand for the buildout year 2042.

Table 5 Comparison of 2020 UWMP Demand and Projected General Plan 2042 Demand at Buildout [a]

Category	2042 Demand Interpolated from 2020 UWMP (AFY)	Estimated Demand with GPU Buildout – 2042 (AFY)	Difference (AFY)	Percent Difference
Residential	6,717	8,029	1,312	20%
Commercial	1,443	1,740	297	21%
Landscape	762	804	42	6%
Losses	1,910	1,816	--94	-5%
Total	**10,832**	**12,389**	**1,557**	**-**

Note:
a. Units are in AFY (acre-feet per year)
Source: City of Los Banos UWMP, 2021. PlaceWorks, 2022.

As shown in Table 4, the results indicate that the General Plan 2042 water demand would exceed the demand specified in the 2020 UWMP by 1,557 AFY. Since the 2020 UWMP states that there would be exactly enough water supply to meet the demand in normal, single-dry, and multiple-dry years, the City would need to find a water supply source for the additional 1,557 AFY required with buildout of the General Plan 2042. However, it should be noted that UWMPs tend to overestimate future water demand.[11] In addition, there is a long-term trend of declining per capita water demand due to the use of water-efficient devices in the residential and commercial sectors, so that even as populations increase, the total water demand declines.

2.4 WATER SUPPLY

The City of Los Banos obtains its water supply solely from thirteen groundwater wells with a total pumping capacity of 14,875 gallons per minute.[12] The groundwater is extracted from the Delta-Mendota Subbasin, which is part of the larger San Joaquin Valley Basin. The Delta-Mendota Subbasin is in critical overdraft. Management of the aquifer is addressed in the 2019 *Groundwater Sustainability Plan.*[13] This is discussed in further detail in Section 2.5, *Groundwater Analysis.*

Regarding other water supply sources, the use of recycled water is technically feasible but currently is not economically feasible. To use recycled water for outdoor landscaping and irrigation needs, the City would need to add a tertiary treatment system to the wastewater treatment plant (WWTP) and construct a "purple pipe" water distribution system. However, the City currently provides WWTP effluent for irrigation of approximately 180 acres of pastureland within the City limits and 237 acres of pastureland outside of the City limits, for a total of about 350 acres.[14] According to the City's Wastewater Master Plan, future expansion of the WWTP would expand the ability to provide effluent for irrigation to about 720 acres.

The City currently is exploring the procurement of surface water supplies. If surface water supplies are obtained, they could only be used for groundwater recharge or for non-potable uses since the City does not have a surface water treatment plant. Projects that the City intends to complete before 2025 include a new groundwater well and booster pump station, a 2.5 million-gallon storage tank, and permanent hexavalent chromium treatment facilities (if needed).

2.5 GROUNDWATER ANALYSIS

Groundwater is currently the sole source of water supply for the City of Los Banos. The Water Code requires that if groundwater is identified as an existing or planned source of water supply, then the following information must be included in the WSA:

[11] Pacific Institute, 2020. *An Assessment of Urban Water Demand Forecasts in California.*
[12] City of Los Banos, 2021. *2020 Urban Water Management Plan.*
[13] San Joaquin River Exchange Contractors GSA, 2019. *Groundwater Sustainability Plan for the San Joaquin River Exchange Contractors GSP Group in the Delta-Mendota Subbasin.*
[14] City of Los Banos, 2021. *2020 Urban Water Management Plan.*

- *A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10720), or any other specific authorization for groundwater management for basins underlying the urban water supplier's service area*

- *A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For a basin that has not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition*

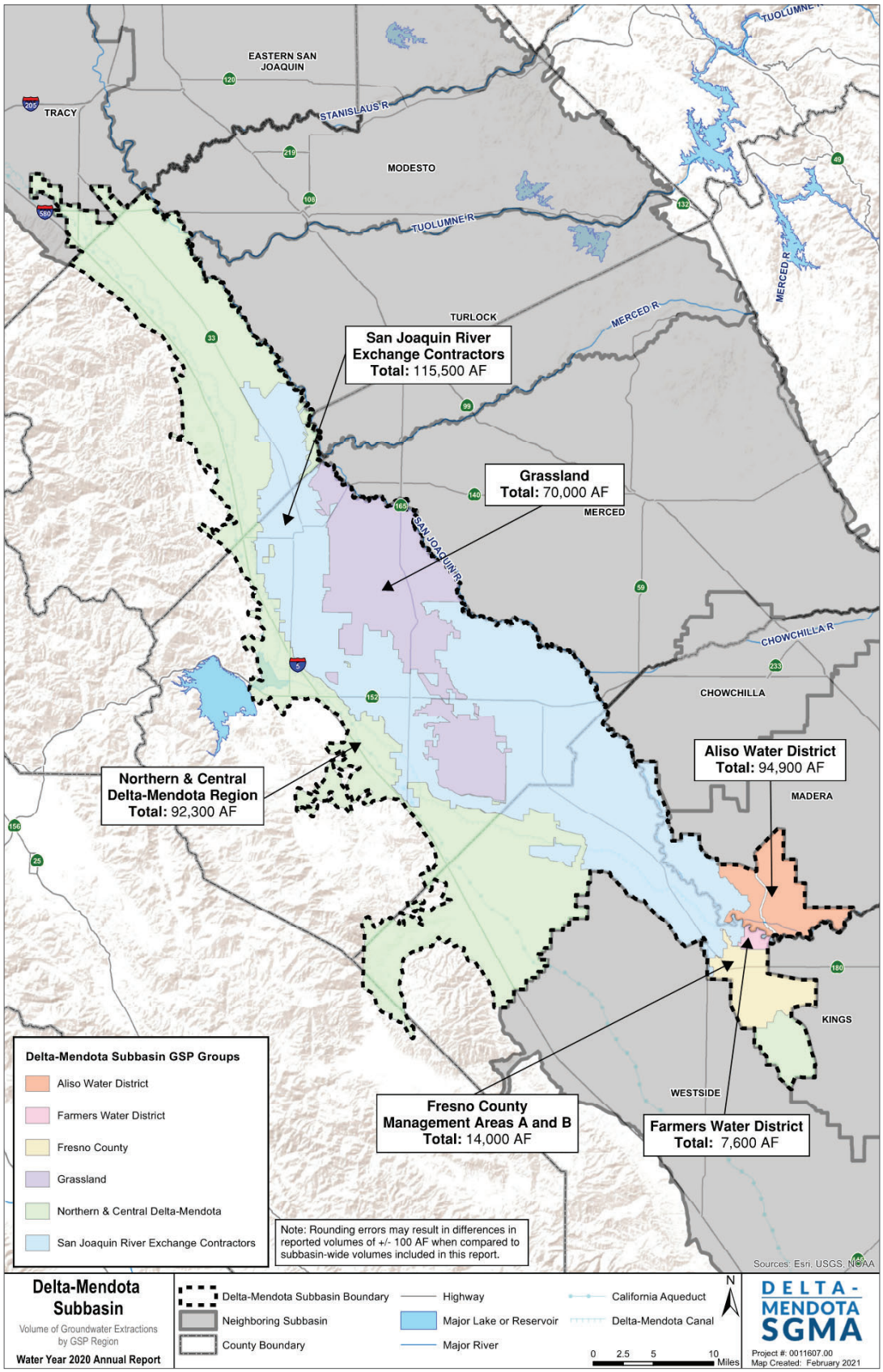
- *A detailed description and analysis of the location, amount, and sufficiency of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

The 2020 UWMP contains a description of the Delta-Mendota Groundwater Subbasin, the groundwater management plan, overdraft conditions, and historic groundwater pumping. The Groundwater Sustainability Plan for the Delta-Mendota Groundwater Subbasin also contains additional information. Data from these sources is summarized herein.

2.5.1 Groundwater Basin Description

The City of Los Banos obtains its groundwater from the Delta-Mendota Groundwater Subbasin, which is part of the larger San Joaquin Valley Groundwater Basin. The Delta-Mendota Subbasin is located along the western edge of the San Joaquin Valley and includes portions of San Joaquin, Stanislaus, Merced, Fresno, and Madera Counties. The subbasin is classified as a high priority basin by the DWR and is not currently adjudicated. Figure 3, *Delta-Mendota Groundwater Subbasin,* shows the location of the subbasin and the amount of groundwater extracted by the six GSP groups in Water Year (WY) 2020.

A Groundwater Sustainability Plan was prepared in 2019 by the San Joaquin River Exchange Contractors (SJREC) GSP Group. The Groundwater Sustainability Agencies (GSAs) that partnered to develop this plan included the cities of Newman, Gustine, Los Banos, Dos Palos, Firebaugh, and Mendota, Turner Island Water District, County of Madera-3, portions of Merced Country - Delta-Mendota, and portions of Fresno County – Management Area B. Detailed information regarding the basin management areas and sustainability goals is provided in the *Delta-Mendota Subbasin (5-022.07) Groundwater Sustainability Plan for San Joaquin River Exchange Contractors GSP Group*, dated December 2019. This WSA focuses on the City's role as a GSA and documents current groundwater pumping rates, potential future pumping rates with buildout of the General Plan, and the steps to meet sustainability goals for the Delta-Mendota Subbasin.



Source: Delta-Mendota Subbasin Water Year 2020 Consolidated Annual Report.

0 20
Scale (Miles)

Figure 3
Delta-Mendota Groundwater Subbasin

There are two distinct aquifers within the Delta-Mendota Subbasin: an upper semi-confined aquifer and a lower confined aquifer. These two aquifers are separated by the Corcoran clay layer, which acts as an aquitard. The upper aquifer typically extends from 150 feet to about 350 feet below ground surface (bgs).[15] In the vicinity of Los Banos, the Corcoran clay layer is approximately 100 feet thick, and the lower aquifer extends at least 300 feet below the clay layer. The prevailing groundwater flow is predominantly in a northeasterly direction.

Neither the Delta-Mendota Subbasin nor the San Joaquin Valley Basin have been adjudicated. The Delta-Mendota Subbasin has been identified as in critical overdraft by DWR.[16] An overdraft of 37,000 acre-feet was observed in WY 2013.

The latest annual report for the Delta-Mendota Subbasin is for WY 2020 and is a consolidated report that covers the six Delta-Mendota GSPs.[17] In general, groundwater elevations during WY 2020 were above their respective thresholds and all six GSP regions are on track to meet their interim goals by 2025 for groundwater levels sustainability and change in storage sustainability. Since the end of the most recent drought starting in WY 2017, groundwater elevations had largely recovered to pre-drought levels and are generally similar to or higher than WY 2012 pre-drought levels.[18]

Agricultural groundwater pumping is the largest water use sector by volume in the Delta-Mendota Subbasin, representing approximately 88 percent of the total groundwater extracted in WY 2020 at 347,100 AF. The San Joaquin River Exchange Contractors extracted a total of 115,500 AF in WY 2020.[19] Approximately 80 percent of the extracted groundwater was for agricultural uses (92,000 AF), 12 percent was for municipal uses (17,000 AF), and about 6 percent was for industrial uses (6,500 AF). The amount of groundwater extracted by the City of Los Banos in 2020 was 8,309 AF, which is approximately 7 percent of the total amount of groundwater extracted within the San Joaquin River Exchange Contractors GSP area.

2.5.2 Historic Use of Groundwater

The City currently owns and operates 13 groundwater wells and plans to install new wells as demand increases. The amount of groundwater pumped by the City of Los Banos from the Delta-Mendota Subbasin for the past five years is listed below in Table 6, *Historic Groundwater Production*. A map of the location of the groundwater wells is shown on Figure 4, *Los Banos Water System*. Well No. 8 is out of service and has been abandoned due to elevated concentrations of uranium. The total pumping capacity of the well network is 14,875 gallons per minute (gpm).[20]

[15] Northern and Central Delta-Mendota, 2019. *Final Draft, Groundwater Sustainability Plan.* Prepared by Woodard & Curran, Provost & Pritchard Engineering Group. Dated November 2019.
[16] Department of Water Resources, 2022. *Critically Overdrafted Basins.* Accessed at https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118/Critically-Overdrafted-Basins on May 4, 2022.
[17] Delta-Mendota SGMA, 2021. *Consolidated WY2020 Annual Report for the Delta-Mendota Subbasin.* Prepared by Woodard & Curran and Provost & Pritchard Consulting Group. Dated March 2021.
[18] Annual reports for WY 2021 and 2022 are not yet available, so the impact of current drought conditions has not yet been documented.
[19] Delta-Mendota SGMA, 2021. *Consolidated WY2020 Annual Report for the Delta-Mendota Subbasin. Appendix C – San Joaquin River Exchange Contractors GSP Region WY2020 Annual Report.*
[20] Carollo Engineers, 2010. *City of Los Banos Final Water Distribution System Master Plan.*

Table 6 Historic Groundwater Production

Year	Groundwater produced (AFY)
2016	6,622
2017	6,979
2018	7,659
2019	7,534
2020	8,309
Average	**7,420**

Source: City of Los Banos 2020 UWMP, 2021.

The pumping of City wells during the last five years was about 5 percent less than average pumping rate for the previous five years (2011-2015). The pumping rate in 2020 is higher than the average which is attributed to a reduction in travel outside of the City limits for work, school, and vacations due to the COVID pandemic. [21]

2.5.3 Projected Use of Groundwater

As shown in Table 3, above, complete buildout of General Plan 2042 would result in an increased water demand of 3,860 AFY for a total water demand of 12,169 AFY. The water demand would be met by pumping groundwater from the Delta-Mendota Subbasin via the City's well network. A new groundwater well is planned for 2024 and is estimated to yield about 1,500 gpm or about 2,400 AFY. The City currently has no specific groundwater use restrictions under SGMA, but restrictions may be developed and implemented over the next few years. Water demand has not increased significantly over the past ten years even with an increase in population due to the installation of low-flow plumbing fixtures for new construction and the implementation of water conservation efforts.

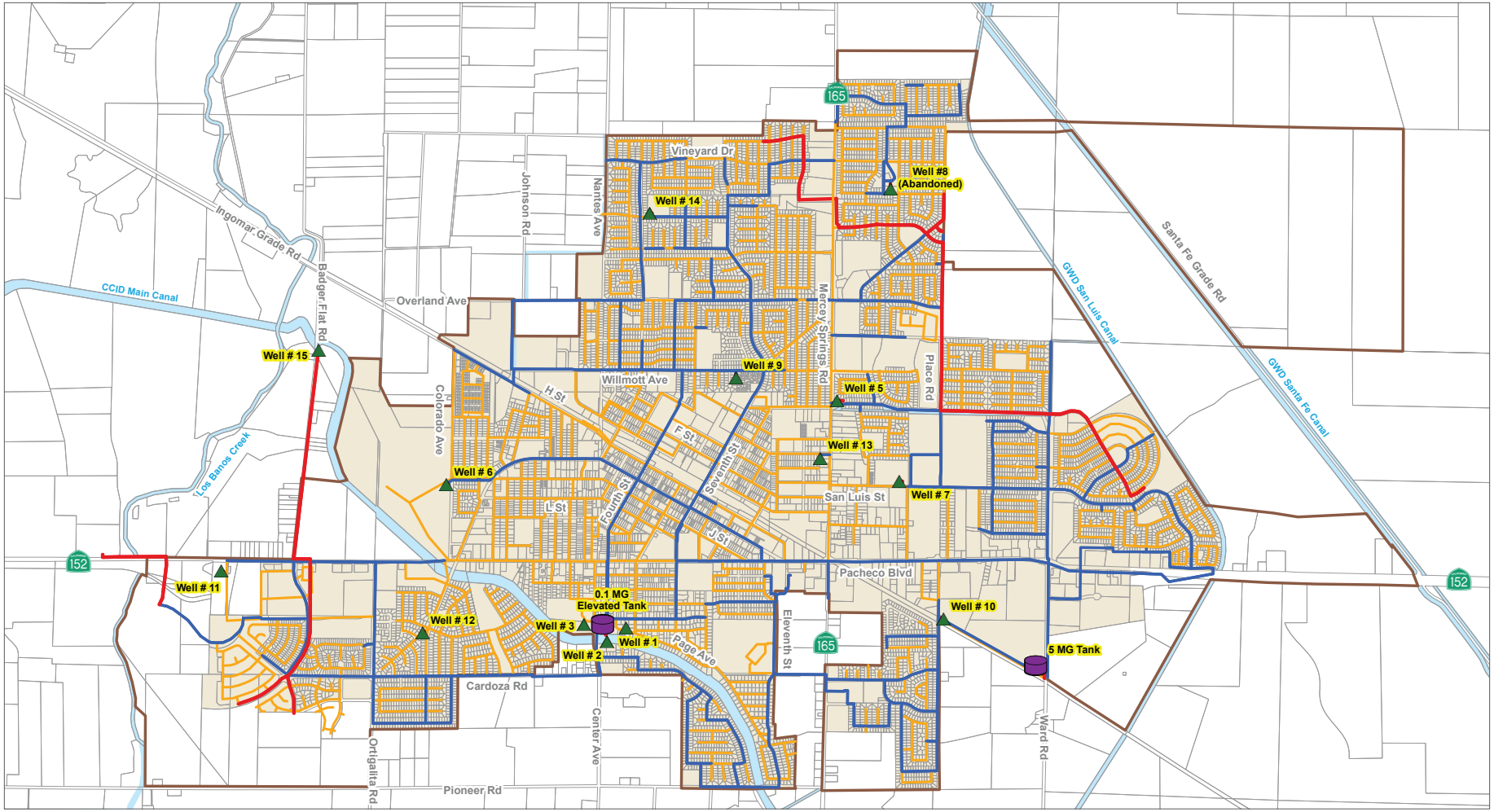
In addition, new development within the EIR Study Area would be annexed into the City and connected to the City's expanded water distribution system. This would result in a cessation of groundwater pumping from the private wells within the EIR Study Area. Table 7, *Groundwater Pumping Rates from Private Wells Within EIR Study Area,* shows the amount of groundwater extracted by private wells over a five-year period.

Table 7 Groundwater Pumping Rates from Private Wells Within EIR Study Area

Year	Private Wells (AFY)
2012	6,058
2013	2,161
2014	5,971
2015	6,852
2016	2,789
Average	**4,766**

Source: Appendix S, Table 5, SJREC Groundwater Sustainability Plan, Delta-Mendota Subbasin

[21] City of Los Banos, 2021. *2020 Urban Water Management Plan*



Source: Master Plan for Water Distribution System, March 2010. Carollo Engineers, 2010.

Legend

Existing Water Distribution System

- Groundwater Well
- Storage Tank

Water Pipeline Diameter

- 8" and Smaller
- 10" - 14"
- 16" and Larger

- Current Water Distribution Service Area
- Waterways/Canals
- Parcels
- City Limits

Figure 4

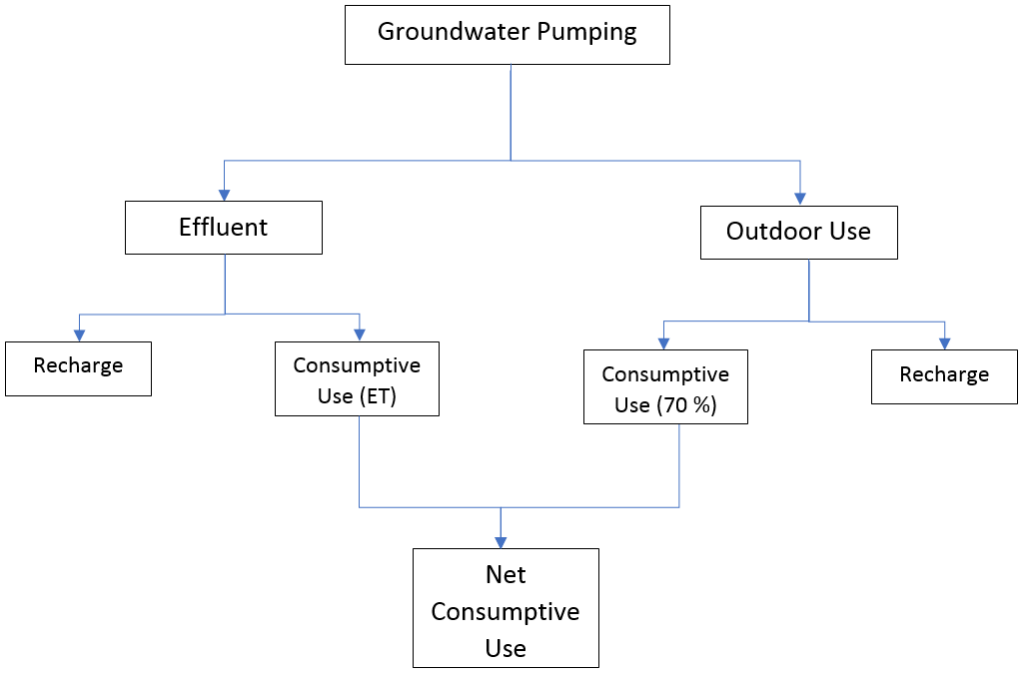
Los Banos Water Distribution System

As seen in Table 10, private wells within the EIR Study Area currently pump an average of 4,766 AFY of groundwater. The buildout of General Plan 2042 on this same land would replace these agricultural uses with urban uses that would generate a net increase in demand of 4,080 AFY. Therefore, if the land on which the private wells are located are converted to non-agricultural use and become connected to the City's water distribution system, this would result in a reduction in groundwater pumping within the EIR Study Area and an additional recharge of 686 AFY to the Delta-Mendota Subbasin. Groundwater pumping from the private wells at an average of 4,766 AFY would be eliminated but there would be an increase in groundwater pumping from City wells of 4,080 AFY by 2042. This decrease in groundwater consumption from private wells would offset the increase in groundwater pumping to serve new development within the City with buildout of the General Plan 2042 and there would be a net recharge to the Delta-Mendota Subbasin.

2.5.4 Sufficiency of Groundwater from Delta-Mendota Subbasin

According to the 2020 UWMP, the City's water supply (including conservation measures) will be sufficient to supply all its residential, commercial, and industrial customers through the year 2045 during normal, single dry, and multiple dry years. However, the UWMP assumed that the water supply would meet the demand of 11,233 AFY, whereas buildout of the General Plan 2042 would result in a demand of 12,389 AFY. Although the City's groundwater production wells have the capability to meet this demand, the Delta-Mendota Subbasin is in critical overdraft and the SGMA states that all GSAs must meet groundwater sustainability by 2040. Therefore, a more detailed analysis is provided to ensure that the City as a GSA will meet this goal.

The methodology used for this analysis is the same as that provided in the SJREC GSP. Each GSA has a groundwater budget that was prepared to ensure that the groundwater sustainability goal is met. The water budget for the City of Los Banos includes the following components:



For groundwater pumped each year, it is assumed that half of the water is effluent and half of the water is outdoor use. The effluent is sent to the wastewater treatment plant (WWTP) and is currently used to irrigate 350 acres of pasture. The consumptive use of the pasture is approximately 3.3 AF/acre. The remainder of the effluent becomes recharge. For outdoor water use, a 70 percent irrigation efficiency is assumed to determine the consumptive use and the remainder is recharge. The current water budget for the City of Los Banos was calculated for WY 2013. The calculations for existing conditions based on the 2020 groundwater pumping rate provided in the UWMP and the buildout conditions (2042) are provided in Table 8, *Groundwater Budget.*

Table 8 Groundwater Budget (AFY)

Date	Pumping Rate	Effluent			Outdoor Use			Net Consumptive Use	Net Recharge
		Effluent	Consumptive Use	Recharge	Outdoor Use	Consumptive Use	Recharge		
2013	8,500	4,300	1,155	3,145	4,300	3,010	1,290	4,165	4,435
2020	8,309	4,155	1,155	3,000	4,155	2,908	1,246	4,063	4,246
2042	12,389	6,195	1,376 [a]	4,818	6,195	4,336	1,858	5,712	6,676

Note:
a. The consumptive use increases in 2042 because the effluent application to pasture is increased to 417 acres, as per the 2020 UWMP.
Source: SJREC, 2019, Groundwater Sustainability Plan; PlaceWorks, 2022

Although the net recharge exceeds the net consumptive use, the 2019 GSP uses a different criterion to determine sustainability. The approximate sustainable yield for the City of Los Banos GSA is 0.40 AF/acre. Since the EIR Study Area encompasses 14,500 acres, this is equivalent to 5,800 AF. The net consumptive use in 2042 is 5,712 AFY. Since the net consumptive use in 2042 is less than the sustainable yield criterion, the water budget for Los Banos meets the sustainability criterion. In addition, there is a reduction in groundwater pumping within the EIR Study area with the conversion of private groundwater wells to the City's water distribution system. This would result in additional potential for groundwater recharge.

Specific criteria on pumping restrictions have not yet been developed for Los Banos, although it is anticipated that they will be determined over the next few years. They may mandate water conservation in certain years to achieve groundwater sustainability.

Another issue to address is the loss of farmland within the EIR Study Area and the potential impact on groundwater recharge. Complete buildout of the General Plan 2042 would result in a reduction of 5,098 acres of farmland and grazing land to non-agricultural uses. Water is currently supplied to the farmland within the EIR Study Area by CCID, which uses a combination of surface and groundwater sources, and by groundwater pumping from private wells within the area. It is assumed that the average water application rate for crops grown in the area is 3.3 AF/acre and the potential recharge rate is 0.5 AF/acre.[22] Although there would be a reduction in water usage with implementation of the General Plan 2042 buildout, there would also be a resultant decrease in potential groundwater recharge from farmland. Table 9, *Conversion of Farmland Impacts on Groundwater,* provides the results of the analysis. Some of the potential recharge from agricultural irrigation may not result in deep percolation to groundwater, because excess applied water is often discharged from surface and/or subsurface agricultural drainage systems, such as tile drainage and irrigation tailwater.

[22] Personal communication with Jarrett Martin, General Manager, CCID, on February 11, 2022.

Table 9 Conversion of Farmland Impacts on Groundwater

Parameter	Existing Conditions	GPU Buildout – 2042	Farmland Remaining
Acres of farmland within EIR Study Area	8,633	-5,098	3,535
Water application rate (AF/acre)	3.3	3.3	3.3
Amount of water applied (AF)	28,489	-16,823	11,666
Recharge potential (AF/acre)	0.5	0.5	0.5
Recharge amount (AF)	4,317	-2,548	1,768

Source: Delta-Mendota SGMA Consolidated WY 2020 Annual Report; personal communication – Jarett Martin, 2022; PlaceWorks, 2022.

Since much of the agricultural land within the EIR Study Area is irrigated with canal water from CCID, this water will be unavailable with buildout under the General Plan 2042 because CCID requires deannexation from the irrigation district upon the annexation of land to the City. However, CCID canal water is typically put to beneficial use elsewhere within CCID's boundaries. Therefore, replenishment of the groundwater aquifer would occur in similar amounts but at different locations within the Delta-Mendota Subbasin.

The SJREC is working toward implementing projects that would increase groundwater recharge by 50,000 AF as described in the following projects:

- The Los Banos Creek Diversion Facility is a joint project with San Luis Water District, Grasslands Water District, and the SJREC. The project consists of diversion structures to help divert flood releases from Los Banos Creek into the Delta-Mendota Canal. The project is designed to increase groundwater recharge and storage capacity within the Los Banos Creek basin. The first phase has been completed and the second phase includes a pipeline to transfer water into Los Banos Creek Detention Dam for additional storage. The project currently provides an additional 7,000 AFY to the member agencies and provides recharge along the creek, flood protection to the City of Los Banos, and water supply for the riparian water users. The project also benefits the City of Los Banos in terms of water quality in the supply wells. The hexavalent chromium concentration dropped significantly in one City supply well near Los Banos Creek in 2017 with implementation of the project.

- The Los Banos Creek Recharge and Recovery Program will use an abandoned gravel pit and an adjacent field along Los Banos Creek between Pioneer Road and Sunset Avenue, southwest of the City of Los Banos as a recharge facility. Flood water and surface water from the SJREC entities would be delivered to the site from the CCID Outside Canal or diverted from the Los Banos Creek Diversion Facility through Los Banos Creek. The approximately 60-acre site would be able to recharge up to 4,500 AFY. During critical years, the SJREC and GSAs could extract up to 7,000 AF of stored groundwater. The recharged groundwater will help offset regional groundwater usage in the vicinity of Los Banos Creek. The operation of this facility would help achieve regional groundwater sustainability by raising groundwater levels, increasing groundwater storage, and improving groundwater quality.

- The Los Banos Creek Storage Project is another joint project with San Luis Water District, Grasslands Water District and the SJREC. The project will increase the beneficial use of the Los Banos Creek Detention Reservoir by making releases during the flood control season and provide that water to the

riparian landowners, making space available for storage. The SJREC entities would pump surface water or groundwater into the available storage space in the spring and early summer and the water would be returned to them in the summer or fall to meet peak irrigation or habitat water demands. The project would provide 8,000 AFY of water supply to the SJREC during critical years. In other years, it would be available to Grasslands Water District and San Luis Water District. A proof-of-concept project is scheduled for WY 2022 and involves the installation of a temporary pipeline and filter station to convey water from an existing San Luis Water District facility into the reservoir.

In addition to these SJREC projects, the City is actively pursuing water conservation to offset an increase in demand based on projected population growth. These efforts include: 1) stormwater capture, 2) demand reduction through reduced watering, 3) surface water transfer, 4) purchasing groundwater credits, and 5) participation in recharge projects.

In summary, there are sufficient groundwater supplies available to the City, based on the analysis provided above. There are ongoing efforts by the City to purchase surface water supplies to further reduce its reliance on groundwater resources. However, because the City does not have a water treatment plant, any future surface water supplies would be used solely for groundwater recharge or non-potable irrigation or industrial demands.

2.6 WATER SHORTAGE CONTINGENCY PLANNING

To prepare for water shortages, the City used a two-pronged approach by implementing consumption reduction measures and customer response actions to reduce water usage during drought conditions.[23] Table 10, *Mandatory Reduction Methods*, provides the reduction methods implemented by the City.

Table 10 Mandatory Reduction Methods

Reduction Method	Explanation
Expand public information campaign	Community event booths, community center banners, City and Facebook website, newspaper articles, door hanger packets, etc.
Improve customer billing	Bills include bar-graph illustrating user's water history and savings
Increase frequency of meter reading	All connections are metered
Increase water waste patrols	Daily patrol with City vehicles with "WATER PATROL" signs appended
Offer water use surveys	City offers assistance in setting sprinkler timers and water audits

Source: Appendix D, Water Shortage Contingency Plan in 2020 Los Banos UWMP

The following stages and response actions will be implemented by the City Council as necessary to respond to various drought conditions, as shown in Table 11, *Stages of Water Shortage Contingency Plan.*

[23] City of Los Banos, 2021. *Urban Water Management Plan 2020 Update for the City of Los Banos.*

Table 11 Stages of Water Shortage Contingency Plan

Stage	Water Supply Condition
Stage 1 Water Shortage	The water use reduction goal during a Stage 1 Water Shortage condition is up to 10%. Upon declaration by of a Stage 1 Water Shortage condition, the following actions are prohibited: - Minimize landscape irrigation runoff and limit overwatering when feasible. - Landscape irrigation is prohibited between the hours of 11 am and 7 pm. - Landscape irrigation is limited to specific days as per City Council direction. - Cars, trucks, and trailers can only be washed using automatic shutoff valves. - Potable water may not be used for washing hard surfaces (e.g., concrete, asphalt, etc.)
Stage 2 Water Shortage	The water use reduction goal during Stage 2 Moderate Water Shortage up to 20%. In addition to the requirements for a Stage 1 Water Shortage, the following water conservation restriction shall be in effect: - Restaurants are required to serve water only upon request. - Lodging establishments are required to provide the option to opt out of linen service.
Stage 3 Water Shortage	The water use reduction goal during a Stage 3 Water Shortage condition is up to 30%. In addition to the requirements for a Stage 1 and Stage 2 Water Shortage, the following water conservation restrictions shall be in effect: - It is prohibited to clean hardscapes with water (other than for health and safety requirements. - A mandatory irrigation conservation program will be implements (certain types of landscape irrigation will be prohibited.
Stage 4 Water Shortage	The water use reduction goal during a Stage 4 Critical Water Shortage condition is up to 40%. In addition to the requirements for a Stage 1, Stage 2, and Stage 3 Water Shortage, the following water conservation restrictions shall be in effect: - New service connections are prohibited (other than those needed for human health and safety). - The filling of artificial water features is prohibited. - A broom must be used for cleaning hard surfaces (e.g., concrete, asphalt, etc.). - Continued community outreach and awareness campaigns must be implemented. - A bucket must be used when washing outdoor furniture or vehicles to prevent water waste.
Stage 5 Water Shortage	The water use reduction goal during a Stage 5 Emergency Water Shortage is up to 50%. In addition to the requirements for a Stage 1, Stage 2, Stage 3, and Stage 4 Water Shortage, the following water conservation restrictions shall be in effect: - The filling of swimming pools is prohibited.
Stage 6 Water Shortage	The water use reduction goal during a Stage 6 Catastrophic Water Shortage is more than 50%. In addition to the requirements for a Stage 1, Stage 2, Stage 3, Stage 4, and Stage 5 Water Shortage, the following water conservation restrictions shall be in effect: - Landscape irrigation is prohibited except trees and large brush - All commercial and private washing of cars, trucks, and trailers is prohibited. - Potable water tanks may be imported into the City for use for filling stations or emergency water..

Source: Appendix D, *Water Shortage Contingency Plan*, 2020 UWMP, 2021.

Each stage has been established to reflect potential gaps between supply and demand during moderate, severe, and emergency drought conditions and supply shortages. If one stage is not successful in achieving a certain water use reduction, then the next stage will be enacted. Should the City acquire the ability to import additional surface water supply or increase the groundwater well network, then the vulnerability identified in each stage may be reevaluated.[24]

[24] Provost & Protchard Consulting Group, 2021. *Urban Water Management Plan 2020 Update.*

2.7 WATER EFFICIENCY STRATEGIES

There are many water efficiency strategies that have been implemented in the City of Los Banos that would also reduce future water demand. The City's WELO adopted in 2017 applies to new construction (≥ 500 square feet) and rehabilitation projects (≥ 2,500 square feet) with landscaped areas. Compliance with the ordinance results in a reduction in outdoor water demand by requiring efficient landscape design, installation, management, and maintenance. In addition, large landscape water users within the City are subject to higher base water rates, depending on the meter size.

All of the water connections within the City are metered and the City encourages water conservation through its water and sewer service rate structure. The City also implements a tiered pricing structure for residential accounts where the water user pays a higher rate when exceeding the 1,500 cubic feet per month allowance. Commercial rates vary depending on the meter size.

Upon request, City personnel will perform an exterior inspection for single-family and multi-family residential customers to determine potential sources of water waste or opportunities for water conservation. In addition, the City offers water audits to all water customers, including landscape accounts, which may include irrigation scheduling assistance and information. The City also helps customers with the programming of irrigation timers. The implementation of the City's Water Conservation Patrol occurs year-round. The Water Conservation Patrol educates customers on exterior water conservation measures and informs the public how to avoid fines and other consequences of water wasting. For commercial, industrial, and institutional (CII) accounts, the City is available to conduct water audits including both interior and exterior water use. All City-maintained median strips and traffic islands are landscaped with drought-tolerant plants.

2.8 SUMMARY

A Water Supply Assessment (WSA) was prepared to assess the water demand and supply conditions with implementation of the General Plan 2042. As shown in Table 3, the increase in water demand for the proposed project is estimated to be 4,080 AFY for a total water demand of 12,389 AFY in 2042.

According to the City's UWMP, the City has adequate supplies to serve 100 percent of its customers during normal, dry year, and multiple dry year demand through 2045. The UWMP's interpolated water demand by 2042 is 10,832 AFY, which is less than the amount projected with buildout of the General Plan 2042, because the 2020 UWMP assumed a population growth rate much lower than that assumed in the 2015 UWMP. Therefore, the General Plan 2042 projected water demand would be greater than the 2020 UWMP projected demand by 1,557 AFY.

However, with buildout under General Plan 2042, land would be annexed into the City and converted from agricultural use to urban use. As seen in Table 11, if the land on which private wells are located are converted to non-agricultural use and become connected to the City's water distribution system, this would result in a reduction in groundwater pumping within the EIR Study Area and an additional recharge of 686 AFY to the Delta-Mendota Subbasin. This decrease in groundwater pumping from private wells (4,766 AFY) would offset the increase in groundwater pumping (4,080 AFY) by the City to serve new development with buildout of the

General Plan 2042. Therefore, the City should have sufficient water supplies to meet the demand under normal, single-dry, and multiple-dry years.

The City obtains all of its water supply from groundwater wells that extract from the Delta-Mendota Subbasin, which is in a state of critical overdraft. The analysis provided in Section 2.5.4 shows that the City would meet the sustainability criterion established by the SJREC GSP water budget for Los Banos with buildout of the General Plan 2042. Because there are six separate GSPs submitted for the Delta-Mendota Subbasin and each GSP uses different data and methodologies, the DWR has asked each GSP within the subbasin to coordinate efforts and use the same data and methodologies so that impacts to the Delta-Mendota Subbasin can be evaluated in a wholistic manner.

Therefore, the groundwater sustainability criterion established for the City of Los Banos in the SJREC GSP may change in the future. Although the City will meet the sustainability criteria in 2042, based on the current methodology and analysis provided in this WSA, specific criteria regarding pumping restrictions may be developed over the next few years for each city that is a GSA within the Delta-Mendota Subbasin. Therefore, it is recommended that the City continue to vigorously pursue options that would reduce their reliance on groundwater supplies, such as partnering with CCID and/or Grasslands for surface water transfers, buying recharge credits, capturing stormwater, and exploring the potential for the increased use of wastewater effluent.