Water Supply Assessment

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APPENDIX

SB 610

WATER SUPPLY ASSESSMENT

FEBRUARY 2023

PUBLIC REVIEW DRAFT

FOR THE

VISTA LUCIA SPECIFIC PLAN PROJECT

Vista Lucia Specific Plan Project
SB 610 Water Supply Assessment

Prepared for
City of Gonzales, CA

Public Review Draft

February 2023

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This Water Supply Assessment was prepared under the direction of a California licensed civil engineer.

SECTION 1 – PROJECT INTRODUCTION

As the lead agency under the California Environmental Quality Act ("CEQA"), the City of Gonzales ("City") is assessing the potential environmental effects associated with the proposed Vista Lucia Specific Plan Community (referred to as the "Proposed Project"). To inform the CEQA analysis, this Water Supply Assessment ("WSA") has been prepared for the Proposed Project. The City of Gonzalez ("City") has been identified as the public water system that will supply water for the Proposed Project, and therefore has been tasked with the preparation and approval of this WSA.

1.1 ANALYTICAL METHOD

This WSA estimates the Proposed Project's water demand through build-out, presents and discusses the availability of water sources identified to meet that demand, and assesses whether expected water supplies will be sufficient to meet the projected water demand of the City with the Proposed Project along with current customers and other planned uses during normal, single dry, and multiple dry year conditions.

The above-referenced analytical method is derived from the Water Supply Assessment Law ("WSA Law") codified at Water Code section 10910 *et seq.* The WSA Law, sometimes referred to as "SB 610," outlines the information and analysis that must be included in a CEQA document prepared for certain projects of a specified size and composed of certain land-uses (e.g., subdivisions larger than 500 residential units).[1] For such covered projects, the WSA Law requires an assessment of whether projected water supplies identified to serve a proposed project will be sufficient to meet existing and planned water demands over a 20-year horizon. The WSA Law expressly anticipates events like the most recent drought by requiring assessment of water supply sufficiency in single dry years and multiple dry years – not just under normal, or average, hydrologic conditions.

The Proposed Project requires a WSA because it consists of a Specific Plan residential community development with more than 500 dwelling units. The WSA will be incorporated into the CEQA documents — an Environmental Impact Report (EIR) — being prepared for the Proposed Project (the Project EIR).[2]

1.2 DOCUMENT PREPARATION AND APPROVAL

The WSA law requires that the lead agency – in this case, the City of Gonzales – identify a "public water system"[3] and further requires the lead agency to request that each identified public

[1] Water Code § 10912(a).
[2] Water Code § 10911(b).
[3] A "public water system" is a system that provides water for human consumption that has at least 15 service connections.

water system prepare a WSA for the project. The City operates a public water system that serves customers within its current City limits; it is anticipated that the City would expand its water distribution system to also serve the Proposed Project.

The City will be required to determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands for the Proposed Project, in addition to existing and planned future uses.

This WSA provides the necessary information for the City to make its determinations and to comply with the statutory assessment of water supply sufficiency as required by WSA Law. The governing body of the City is required to approve this WSA.

1.3 DOCUMENT ORGANIZATION

The WSA is organized according to the following sections:

- **Section 1: Proposed Project Introduction**. This section provides an overview of the WSA's purpose and organization, along with a detailed description of the Proposed Project, including the land use elements that will create water demand.
- **Section 2: Proposed Project Estimated Water Demands**. This section describes the methodology used to estimate water demands of the Proposed Project and details the estimated water demands from initiation through build-out.
- **Section 3: Estimated Water Demands for Existing City Customers and Other Planned Uses**. This section describes the methodology used to estimate water demands from the City of Gonzales' customers within its existing service area. Section 3 also includes analysis of other planned projects that are reasonably foreseeable within the selected planning horizon.
- **Section 4: Water Supply Characterization**. This section characterizes the water sources identified to serve the Proposed Project as well as existing City customers and other planned uses. Water sources are characterized for their projected availability during normal, single dry, and multiple dry year conditions.
- **Section 5**: **Sufficiency Conclusion**. This section assesses whether the projected availability of the identified water sources will be sufficient to meet the Proposed Project's water demands during normal, single dry, and multiple dry year conditions, pursuant to Water Code Section 10910. The analysis integrates the demand detailed in Section 2 and Section 3 with the characterization of the Proposed Project's water sources detailed in Section 4.

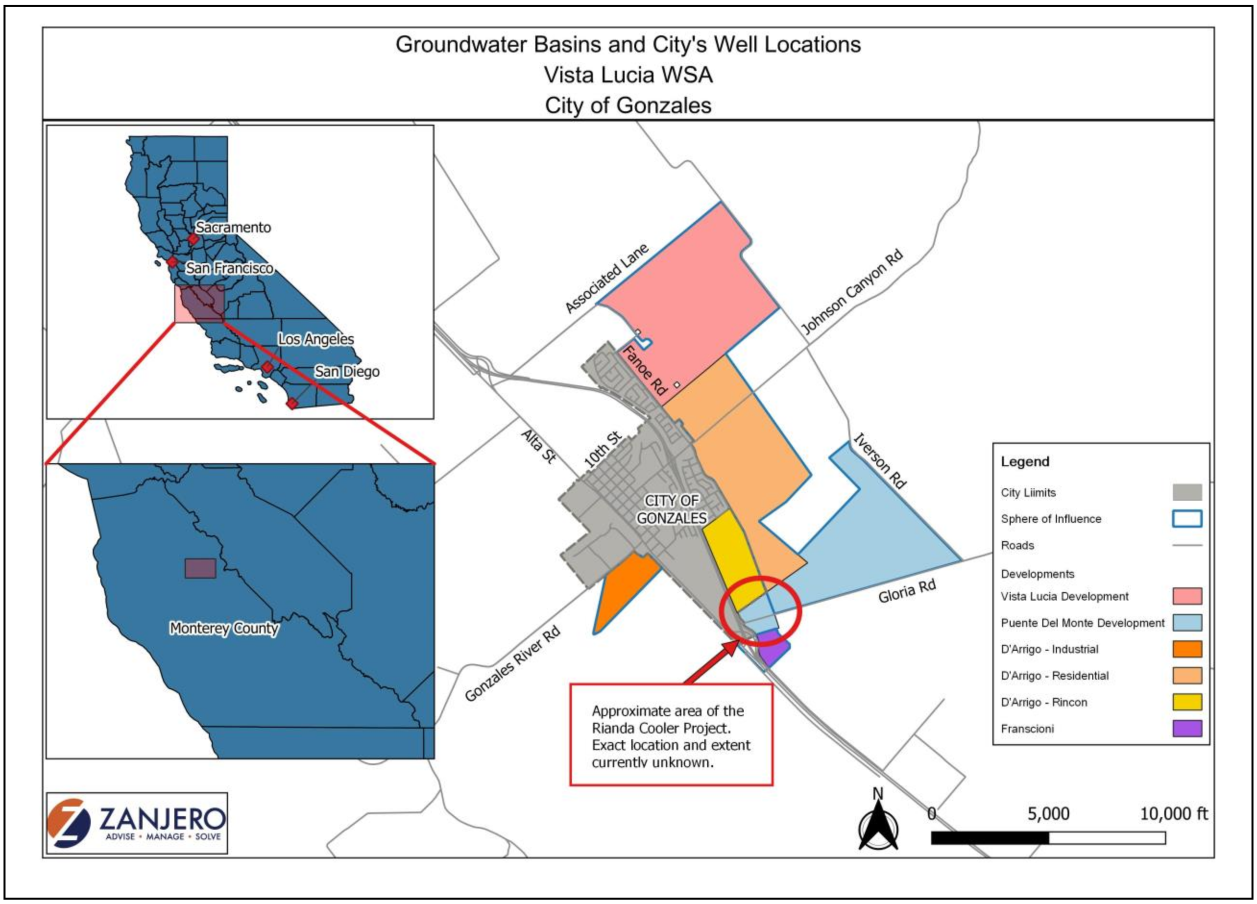
1.4 PROPOSED PROJECT DESCRIPTION

The Proposed Project consists of the Vista Lucia Specific Plan community. The Vista Lucia community site is situated on approximately 768 acres in the northeast area of Gonzales within the City's Sphere of Influence (SOI), east of Fanoe Road with the existing alignment of Associated Lane forming its northern boundary.

The Proposed Project includes several residential and non-residential land-use classifications including market rate housing, mixed use commercial and residential elements, public facilities such as schools, parks (including trails and plazas), and open space (including storm water retention and managed aquifer recharge percolation facilities). The Proposed Project represents the development of a portion of the City's SOI, which is identified by the City's General Plan for "*orderly development consistent with the approved Neighborhood Design Guidelines and Standards and Community Character policies*" of new neighborhoods guided by Specific Plans.[4]

Figure 1-1 displays a location map of the Proposed Project, as well as other planned developments which are expected to occur. These other planned developments include the Puente Del Monte Community, the Rianda Cooler, the Franscioni Development, and three projects by D'Arrigo, all of which are discussed in more detail in Section 3.

Figure 1-1: Proposed Project Location Map



[4] City of Gonzales General Plan, June 2018, p. II-18.

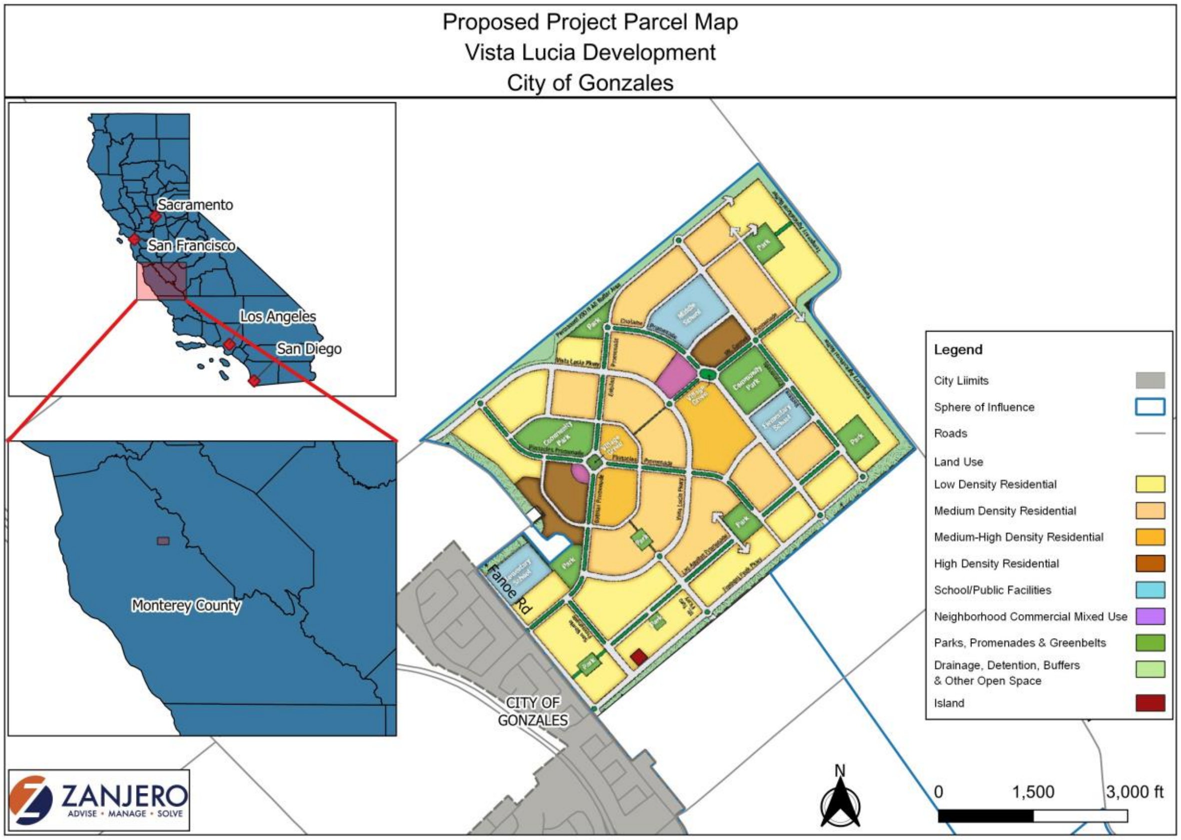
1.4.1 Project Summary

As described in more detail in the Vista Lucia Specific Plan,[5] the Proposed Project plans for 3,498 dwelling units, with 995 designated low density, 1,239 designated medium density, 540 designated as medium-high density, 620 designated as high density, and 104 designated as mixed use. The Proposed Project anticipates 57 acres of neighborhood and community parks, 20 acres designated as promenades, 2 acres designated as neighborhood greens,[6] 73 acres dedicated to stormwater detention, and 42 acres for schools.

Figure 1-2 provides the Proposed Project's land-use plan[7,8] while **Table 1-1** presents the detailed residential unit counts and non-residential acreage. This information becomes the foundational land use data used to derive the demand forecast presented in Section 2.

[5] Vista Lucia Specific Plan, February 2022 (Administrative Draft).
[6] Neighborhood Greens are small parks, which may include features such as a "bandstand, a clock tower, a monument, landscape art, passive gardens, park benches, a fountain, an interactive splash pad for children, a hardscape plaza, or other appropriate amenities." Vista Lucia Specific Plan, February 2022 (Administrative Draft).
[7] City of Gonzales General Plan, June 2018, p. II-18.
[8] Vista Lucia Specific Plan, February 2022 (Administrative Draft).

Figure 1-2: Proposed Project Land Use Map (Vista Lucia)



Land Use Source: Vista Lucia Specific Plan, February 2022 (Administrative Draft), Figure 2-1

Table 1-1: Summary of Proposed Project Land Uses and Acreages

Land Use by Type		Vista Lucia	
		Acres	DUs
Residential			
	Low	199	995
	Medium	177	1,239
	Medium-High	45	540
	High	31	620
	Mixed Use		104
	Subtotal	452	3,498
Non-Residential			
	Mixed Use Commercial	8	
	Neighborhood Parks	28	
	Community Parks	29	
	Promenade	20	
	Neighborhoods Greens	2	
	Elementary School	24	
	Middle School	18	
Other			
	Open Space and Storm Detention	73	
	Roads	114	

1.4.2 Proposed Project Phasing

For purposes of this WSA, the Proposed Project anticipates all land uses to be completed by 2050 to allow the analysis to fully evaluate the complete project. Actual project phasing may take longer. **Table 1-2** is obtained from the Vista Lucia Specific Plan, and presents the phasing assumed for Vista Lucia development.[9] Consistent with the City's projections, the Proposed Project is anticipated to be completed within 30 years.[10] The specifics and timing of the later phases will be determined by several external factors including market conditions. However, for purposes of this WSA, the Proposed Project is anticipated to reach build-out by 2050.

[9] Specific timing will be determined by market conditions but for the purposes of this WSA, all units are assumed to be completed within the planning horizon of 30 years.
[10] City of Gonzales, (2018). *Community Development*. https://gonzalesca.gov/services/community-development.

Table 1-2: Vista Lucia Phasing Plan

Category	2025	2030	2035	2040	2045	2050
Residential (Units)						
Low Density	129	358	607	886	995	995
Medium Density	161	446	756	1,103	1,239	1239
Medium-High Density	70	194	329	481	540	540
High Density	81	223	378	552	620	620
Mixed Use Residential	14	37	63	93	104	104
Non-Residential (Acres)						
Neighborhood Center Mixed Use	0	2	4	6	8	8
Elementary & Middle School	0	12	42	42	42	42
Neighborhood Parks	0	6	11	17	22	28
Community Parks	0	6	12	17	23	29
Promenade	0	4	8	12	16	20
Neighborhood Greens	0	0	1	1	2	2
Streetscape Landscaping	0	23	46	68	91	114
Other Miscellaneous Uses (Acres)						
Open Space (Stormwater Det.)	73	73	73	73	73	73

SECTION 2 – PROPOSED PROJECT ESTIMATED WATER DEMANDS

This section describes the methodology, provides the supporting evidence, and presents the estimated annual water demands for the Proposed Project. For the purpose of estimating annual water demand, the Proposed Project is planned to develop according to the phasing presented in **Table 1-2**.

This section is organized to first describe the basis for determining unique demand factors for the various land uses within the Proposed Project, then provides a detailed forecast of the water needs for the Proposed Project, followed by an overall demand summary that forms the foundation for the water supply sufficiency analysis included in Section 5.

2.1 DETERMINING UNIT WATER DEMAND FACTORS

As detailed in Section 1, the Proposed Project consists of the Vista Lucia Specific Plan community. The Proposed Project's two communities include up to 3,498 residential units and accompanying infrastructure and improvements such as streetscapes, mixed-use and commercial areas, public facilities including schools, and parks and open space. To understand the water needs of the Proposed Project, unique water demand factors are used that correspond with the anticipated residential lots and other Proposed Project attributes. This subsection presents the methodology for determining the unit water demand factors that become the basis of the Proposed Project water demand estimate.

This section presents the demand factors associated with the Proposed Project as two distinct groups of demand factors: (1) residential, and (2) non-residential. Values developed for each distinct group of demand factors are based on several sources of information, details of which are provided in the following subsections.

2.1.1 Current and Future Mandates Affecting Water Use

There are several factors that affect the development of unit water demand use, ranging from state-imposed and City landscape ordinances and other water-use mandates, to changes in the types of housing products being offered. These factors are incorporated into unit water demand factor determination and discussed in this section. Characteristics of the factors relevant to this WSA are described below.

Water Conservation Objectives

In 2009, Governor Arnold Schwarzenegger signed Senate Bill No. 7 (SBX7-7), which established a statewide goal of achieving a 20 percent reduction in urban per capita water use by

2020 for urban retail water suppliers.[11] Since the Proposed Project communities are yet to be built, this legislation only indirectly applies.

However, the efforts undertaken throughout the State by urban retail suppliers to comply with this statute, though not directly, would affect the Proposed Project's use of appliances, fixtures, landscapes and other water using features, through changes or additions to City ordinances and/or through a continuing "conservation ethic" developed in communities in and around the Proposed Project as a result of the most recent statewide drought conditions.

In response to the 2013 through 2015 multi-year drought conditions, Governor Brown issued Executive Order B-37-16 in May 2016 entitled "Making Water Conservation a California Way of Life." In May 2018, Governor Brown signed into law SB 606 and AB 1668, which imposed additional statutory requirements above and beyond the 20 percent by 2020 target reflected in the 2009 legislation. This is expected to result in continued efforts to increase water use efficiency and ultimately to reduce water demands of existing water users and continue to influence the expected demands of future water user. While yet to be codified in statute, the actions currently underway to establish new targets likely will further influence future water use for development projects such as the Proposed Project.

Indoor Infrastructure Requirements

Beginning in January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (hereafter the "CAL Green Code") requiring the installation of water-efficient indoor and outdoor infrastructure for all new projects after January 1, 2011. The CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations, and was revised in 2013 and in 2016 to address changes to the State's Model Water Efficient Landscape Ordinance ("MWELO") adopted during the drought.[12] Revisions to the CAL Green Code in 2019 modified sections to direct users to MWELO regulations contained in other regulatory sections.[13]

The CAL Green Code applies to the planning, design, operation, construction, use and occupancy of every newly constructed or remodeled building or structure. All new residential and non-residential customers must meet the water use requirements of the CAL Green Code as well as the outdoor requirements described by MWELO.

The CAL Green Code's indoor requirements generally manifest through: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building

[11] California Water Code § 10608.20.
[12] The 2016 Triennial Code Adoption Cycle consisted primarily of the MWELO updates adopted in response to the drought. Indoor infrastructure changes were limited to some minor non-residential fixture changes and changes to the voluntary Tier 1 and Tier 2 requirements. Additionally, the Code was updated to match the new Title 20 Appliance Efficiency Regulations.
[13] The 2019 updated sections to direct CAL Green code users to Title 23 of the California Code of Regulations to allow Title 23 to be the sole location of MWELO requirements.

"water use baseline."[14] The Proposed Project will satisfy these indoor requirements through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, on-demand water heaters, or other fixtures, as well as Energy Star and California Energy Commission-approved appliances. Outdoor requirements are discussed in the following subsection.

California Model Water Efficient Landscape Ordinance and County Ordinance

The Water Conservation in Landscaping Act was enacted in 2006, requiring the Department of Water Resources ("DWR") to update the Model Water Efficient Landscape Ordinance.[15] In 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which required a retail water supplier or a county to adopt the provisions of the MWELO by January 1, 2010, or to enact its own provisions equal to or more restrictive than the MWELO provisions.[16,]

In response to the Governor's executive order dated April 1, 2015, (EO B-29-15), DWR updated the MWELO and the California Water Commission approved the adoption and incorporation of the updated State standards for MWELO on July 15, 2015, effective after December 1, 2015. [17,18]

The changes included a reduction to 55 percent for the maximum amount of water that may be applied to a landscape for residential projects, which effectively reduces the landscape area that can be planted with high water use plants, such a turf. For residential projects, the coverage of high water use plants is reduced to 25% of the landscaped area (down from 33%). The newly updated MWELO also now applies to new construction with a landscape area greater than 500 square feet (the prior MWELO applies to landscapes greater than 2,500 square feet).[19]

The City of Gonzales adopted a water efficiency landscaping ordinance in July 2015 to comply with the then-current MWELO standards. However, this landscaping ordinance is now obsolete.

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[14] See CAL Green Code. For Residential construction, Section 4.303.1 provides the residential water conservation standard and Table 4.303.2 identifies the infrastructure requirements to meet this standard. Table 4.303.1 and Worksheets WS-1 and WS-2 are to be used in calculating the baseline and the reduced water use if Option 2 is selected. For non-residential construction, Section 5.303.2.3 provides the water conservation standard as well as the baseline and reduced flow rate infrastructure standards. Note that Worksheets WS-1 and WS-2 incorporate both residential and non-residential fixtures, yet the water use is still to be analyzed by "building or structure" as specified in Chapter 1, Section 101.3.

[15]Gov. Code §§ 65591-65599.

[16] California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 27, Sec. 492.4. The MWELO provides the local agency discretion to calculate the landscape water budget assuming a portion of landscape demand is met by precipitation, which would further reduce the outdoor water budget. For purposes of a conservative analysis, precipitation is not assumed to satisfy a portion of the outdoor landscape requirement because the determination of an appropriate effective precipitation factor is highly uncertain given the various landscape slopes, terrain composition, concurrent watering schedules, etc.

[17] The County landscape ordinance will be updated to be at least as stringent as the updated MWELO, or else the MWELO will be applied as the default landscape ordinance.

[18] These updated changes have been incorporated into California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 27, Sec. 490-495.

[19] CCR Tit. 23, Div. 2, Ch. 27, Sec. 490.1.

With the revised MWELO in 2015, the City has yet to update its ordinance and is not listed as in compliance with the state as of the drafting of this WSA.[20]

However, the Proposed Project includes water conservation features that even extend beyond the updated MWELO. Therefore, this WSA calculates demands that are fully in compliance with, and in fact go beyond, the revised MWELO and likely any future updated City requirements.

The MWELO provides a methodology to calculate total water use based upon a given plant factor and irrigation efficiency. Finally, the MWELO requires the landscape design plan to delineate hydrozones (based upon plant factors) and then to assign a unique water use value for each hydrozone (low, medium, high).[21]

Metering, Volumetric Pricing, and Water Budgets

California Water Code Section 525 requires water purveyors to install meters on all new service connections after January 1, 1992. California Water Code section 527 requires water purveyors to charge for water based upon the actual volume of water delivered if a meter has been installed. Though the City would be billing customers on a volumetric basis, this action alone is not expected to substantially reduce water use. However, it is anticipated that the retail billing system would encourage and help maintain reasonable use (e.g., through implementation of a tiered rate structure and/or water budgets), so that the Proposed Project's water demands at build-out are not expected to increase as the Proposed Project ages.

Project Specific Landscape Requirements

The Proposed Project includes a number of requirements for landscape efficiency beyond what is found in MWELO. Extensive landscaping guidelines have been prepared for the Vista Lucia community. Among the Vista Lucia restrictions is a limit on residential turf to 25 percent of the landscape area for each residential lot classification.[22] Other restrictions include a vast majority of identified plant-types defined by the MWELO's guidance documents as having "Low" or "Very Low" water use.[23] Using defined methods, guidelines for landscaping for many portions of the Proposed Project have been defined and water budgets have been prepared. This information is presented later in this section.

The strict landscaping guidelines result in estimates of outdoor water use lower than the maximum allowed under the current MWELO. This changes the character of typical residential development, replacing turf with ornamental shrubs, groundcovers, and trees as well as a reliance on numerous native or adaptive species for landscaping.

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[20] Agencies in compliance are listed here: https://data.cnra.ca.gov/dataset/2019-mwelo-reports/resource/e8a5945a-fe2b-4ac1-ba46-ee12da278626

[21] CCR Tit. 23, Div. 2, Ch. 27, Secs. 492.3(a)(2)(A) and 492.7(a)(2).

[22] Vista Lucia Specific Plan, Appendix B

[23] The MWELO water use methods refer to plant water use factors as defined by the University of California's Water Use Classifications of Landscape Species (WUCOLS). Reference is available here: http://ucanr.edu/sites/WUCOLS/

2.2 VISTA LUCIA WATER USE DEMAND FACTORS

The Vista Lucia Specific Plan (VLSP) community will be developed on 768 acres in the northeast area of Gonzales within the City's Sphere of Influence in Monterey County. The remainder of this subsection described the methodology used to calculate the indoor and outdoor residential and non-residential water demand associated with the VLSP portion of the Proposed Project.

2.2.1 Residential Water Use Demand Factors

The Proposed Project anticipates five general residential land use designations. The size of the lot generally has the greatest impact on the annual per-lot demand for water as the irrigation needs for landscaping generally increase with larger landscaped areas. However, as discussed previously, the VLSP includes defined plant material selection and design that significantly reduces the outdoor component of the forecast residential water demands compared to more conventional landscape designs, thus limiting, but not eliminating, this traditional lot-size effect. In contrast, indoor water demands remain relatively consistent regardless of lot size, but do vary slightly based on the number of people per dwelling unit. Distinct demand factors are provided for the following residential uses:

- Indoor Residential Use – this category identifies the generally anticipated water use for the varied housing types.
- Outdoor Residential Use – this category addresses the landscape water demands for the various planned lot sizes.

For purposes of this WSA, residential unit water demand factors are described as "the acre-feet of water use annually per dwelling unit" – or acre-feet/dwelling unit ("af/du"). Both indoor and outdoor residential water demands will be met with potable water supplied by the City.

2.2.1.1 Indoor Residential Water Use Factors

The VLSP residential elements would be built in accordance with all applicable building codes including the Cal Green Code discussed previously, as it may be further modified prior to Proposed Project implementation.

The VLSP indoor demands are estimated using an assumed value of 55 gallons-per person per day, multiplied by the assumed occupancy rates for conventional and high-density residential classifications. For purposes of this WSA, conventional housing assumes an average occupancy rate of 4.4 people per house, while the high-density and mixed-use classifications assumes 3.4 persons per house.[24]

[24] City of Gonzles 2015 Housing Element indicates an average occupancy of 4.4 people per household for conventional housing (low – medium-high densities). 3.4 persons per household is assumed for high density and mixed-use housing.

The assumed per-person rate of 55 gallons per day is derived from California Water Code Section 10609.4(a), which states a value of 55 gallons per capita (i.e., per person) per day ("gpcd") be the standard for indoor residential water use for purposes of an urban water suppliers determination of their water use objective.[25] When multiplied, the per-person use results in a per-dwelling unit demand of 0.27 acre-feet per year for conventional housing and 0.21 for high-density and mixed-use housing.

The 55 gpcd indoor use value has been confirmed through analyses of residential water meter data and is reflective of new suburban single-family dwelling units and older homes retrofitted with new water efficient fixtures and appliances.[26]

2.2.1.2 Outdoor Residential Water Use Factors

Outdoor water use is primarily a factor of lot size and the type and extent of landscaped area. The VLSP community includes up to 3,498 residential lots with five average lot sizes. Outdoor demands for the mixed-use residential classification are attributed to the mixed-use commercial portion of the development, described in section 2.2.2.5.

Outdoor demands for the Proposed Project are calculated based on a number of factors including the regulations and calculation methodologies contained in MWELO. The MWELO provides for determining the Maximum Applied Water Allowance ("MAWA") where the maximum is determined as 55 percent of the reference evapotranspiration for the area, resulting in the following equation:[27]

> *MAWA = (ETo) (0.62) (0.55 x LA), where ETo is the reference evapotranspiration in inches per year; LA is the landscape area in square feet; and 0.62 is a conversion factor from inches to gallons. The resulting value is in "gallons per year"*

A primary factor in this calculation is evapotranspiration ("ET"). The methodology directs the use of ET from a reference crop, such as maintained grass – a value referred to as ETo. For the Proposed Project, the average ETo is 52.50 inches per year (or over 4.4 feet per year).[28] Besides the ETo value, the primary factor driving outdoor water use on a per-lot basis is the square footage of landscape area.

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[25] California Water Code Section 10609.4 also decreases the indoor residential standard to 52.5 gpcd after January 1, 2025, then to 50 gpcd after January 1, 2030, unless otherwise revised by the State Water Resources Control Board. As of May 2022, California Senate Bill 1157 is proposing the 2030 value to be further lowered to 42 gpcd.

[26] With the increasingly stringent requirements of building codes as well as water and energy efficiency codes, it is likely that the actual indoor demand may be below the forecast values. Executive Order B-37-16, among other orders, directed state agencies to develop new urban water use targets including a standard for indoor residential per-capita water use. These new targets are to "build upon the existing state law" that requires a 20% reduction in urban water use by 2020 – which already includes the suggested 55 gallons-per-person per day planning guidance.

[27] This formula reflects the latest revision to the MAWA that became mandatory as of December 1, 2015.

[28] ETo is consistent with California Irrigation Management Information System data available for the region. ETo was recorded at the Soledad II station.

The VLSP relies on landscaping restrictions that go beyond the efficiency standards set by the MAWA equation above. Specifically, the VLSP restricts turf to 25 percent of the landscaped area, and restricts plant choices to a majority of low and very-low water use species. More information about these restrictions is discussed in Section 2.1.1 above.

The calculations for water use are based on specific restrictions and the water efficient character as presented in the VLSP.[29] This WSA utilizes individual calculations for each parcel type based on typical landscape areas, plant types, and average plant water use factors defined in the VLSP. The Estimated Total Water Use (ETWU) of the residential parcels was calculated using the following formula:

> *ETWU = (ETo - P_{eff}) (0.62) (PF/IE) (LA) / (325,851)*
> *where: ETo is the reference evapotranspiration in inches per year; P_{eff} is effective precipitation in inches per year; 0.62 is a conversion factor from inches to gallons; PF is Plant Factor as a fraction of ETo; IE is irrigation efficiency as a fraction of water applied; LA is the landscape area in square feet; and 325,851 is a conversion factor from gallons to acre-feet. The resulting value is in "acre-feet per dwelling unit per year"*

The following assumptions form the basis of the residential landscape unit demand factors:

- Reference Evapotranspiration (ETo) is 52.50 inches per year – based on CIMIS data (see above)
- Effective Precipitation (P_{eff}) is 0 inches per year – an extremely conservative assumption that implies all plants' water needs will be met with irrigation water
- Plant Factors (PF) – based upon the plant palette described in Appendix B of the VLSP, the following factors are assumed:
    - Turf = 0.6 (assumes use of certain Fescues, Bermuda Grass, and some other turf varieties with relatively low irrigation requirements. Some grass varieties, such as St Augustine, Zoysia, and Buffalo grass, may have factors less than 0.6.)
    - Shrubs and Trees = 0.3
- Irrigation Efficiency (IE) is 1.0, which assumes that all applied irrigation water is available to the root zone of plants[30]
- Landscape Area (LA) for the various residential lot types was supplied by the Proposed Project's landscape architect, as described below.

[29] Vista Lucia Specific Plan, Appendix B
[30] A sensitivity analysis was performed during this WSA's calculation of outdoor water use, to determine the effect of using various assumptions for irrigation efficiency (IE) and Effective Precipitation (P_{eff}). The sensitivity analysis assumed IE of 75%, 81%, and 90% for turf, shrubs, and trees respectively; P_{eff} was set to 50% of Gonzales' annual rainfall of 15 inches per year. Modifying these terms in the ETWU equation led to an increase of approximately 6% in the Proposed Project's residential outdoor water demands, or approximately 10 acre-feet/year. The effect of modifying IE and P_{eff} assumptions was determined to be insignificant. For simplicity, IE was set to 1.0 and P_{eff} set to 0 inches as described above.

- Because much of the landscape area will be trees and shrubs, the landscape area is reduced by 3 percent to reflect the "open/non-irrigated" space between plants. This area does not receive irrigation when using drip irrigation systems, which will be used for irrigating the trees and shrubs. This small deduction is reflected in the demand calculations for each residential lot category.

Using the plant factors and the MAWA equation, demand factors for each residential lot category are presented here:

- **Low Density** – The proposed 995 single family dwellings will be built on 199 acres with an average density of 5 dwelling units per acre, for a gross lot size of 8,712 sf per unit. After subtracting 20% from the gross lot size to account for local streets, the typical net lot size in the Low Density category is estimated to be 6,970 sf. Each lot is assumed to contain a home with a footprint of 2,200 sf and 600 sf of hardscape.[31] For purposes of this WSA, the remainder of each lot is assumed to be landscaped, for an average landscape area of 4,170 sf in the Low Density category. 25 percent of the landscape area will be turf (the maximum allowed in the VLSP guidelines), and the remainder mostly drought-tolerant and native or adaptive shrubs and trees. The resulting outdoor demand factor is forecast to be 0.15 acre-feet per dwelling unit. [32]

- **Medium Density** – The proposed 1,239 single family dwellings will be built on 177 acres with an average density of 7 dwelling units per acre, for a gross lot size of 6,223 sf per unit. After subtracting 24% from the gross lot size to account for local streets, the typical net lot size in the Medium Density category is estimated to be 4,729 sf. Each lot is assumed to contain a home with a footprint of 1,800 sf and 500 sf of hardscape.[33] For purposes of this WSA, the remainder of each lot is assumed to be landscaped, for an average landscape area of 2,429 sf in the Medium Density category. 25 percent of the landscape area will be turf (the maximum allowed in the VLSP guidelines), and the remainder mostly drought-tolerant and native or adaptive shrubs and trees. The resulting outdoor demand factor is forecast to be 0.09 acre-feet per dwelling unit. [34]

[31] 600 sf hardscape includes driveway and yard features such as patios and paved paths.
[32] Calculated using ETWU equation.
[33] 500 sf hardscape includes driveway and yard features such as patios and paved paths.
[34] Calculated using ETWU equation.

- **Medium-High Density –** The proposed 540 multifamily and single-family attached and detached dwelling units in this category will be built on 45 acres with most landscaping configured in common areas rather than individual lots. Most units will consist of townhome and/or auto-court type residences, without conventional driveways, instead being served by drive aisles, guest parking spaces, and tuck-under parking at homes. For purposes of this WSA, it is assumed that buildings would occupy 50 percent of the gross area and 25 percent would be taken up in drive aisles, guest/resident parking, entry roads, etc. The remaining 25 percent of the gross area will consist of outdoor amenities; 75 percent of the outdoor amenities would be sort of planting/landscaping (and the other 25 percent in hardscape, walkways, plazas, patios, decks, etc.).[35] The total of approximately 367,538 sf will be landscaped in this residential category, including 25 percent turf and the remainder mostly drought-tolerant and native or adaptive shrubs and trees. The resulting outdoor demand is calculated to be 13.44 acre-feet per year for the 45 acres of Medium-High Density Residential use.[36] Divided by the 540 dwelling units in this category, the outdoor demand factor is forecast to be 0.02 acre-feet per dwelling unit.

- **High Density** – The proposed 620 units will include a variety of attached multi-family dwellings including 2 or 3 story walkup apartment buildings, with assigned parking/guest spaces and drive aisles. This dwelling unit type is typically associated with community controlled outdoor spaces so the average outdoor demands are quite low per unit. It is assumed that 15 percent of each gross parcel in this category will be landscaped common area, with the remainder consisting of building footprint, street, and other hardscape. With 31 acres planned in the high-density residential category, it can be expected that a total of 202,500 sf of landscaped area will be associated with this housing type, with 25 percent of this area turf, and the remainder mostly drought-tolerant and native or adaptive shrubs and trees. The resulting outdoor demand is forecast to be 7.40 acre-feet for the entire high-density potion of Vista Lucia. When divided by the 620 dwelling units, the outdoor demand factor is 0.01 acre-feet per dwelling unit.[37]

- **Mixed Use Residential.** – The proposed 104 units typically exist above commercial space. Outdoor demands are minimal if present but are assigned to the commercial portion of the Proposed Project. For purposes of this WSA, this classification assumes zero outdoor water demand.

2.2.1.3 Summary of Residential Water Use Demand Factors

Table 2-1 provides a summary of the residential unit water demand factor used to estimate the total Proposed Project water use.

[35] Based on personal correspondence with VLSP landscape architect. Assumes roads will take up about 25% of the gross lot.
[36] Calculated using the ETWU equation.
[37] Calculated using the ETWU equation.

Table 2-1: Summary of Residential Demand Factors for VLSP

Water Demand Category by Dwelling Unit (du) Type	Average Density (du/ac)	Indoor Factor	Outdoor Factor	Total Demand Factor (af/du)
Low Density	5.0	0.27	0.15	0.42
Medium Density	7.0	0.27	0.09	0.36
Medium-High Density	12.0	0.27	0.02	0.30
High Density	20.0	0.21	0.01	0.22
Mixed Use	13.0	0.21	0.00	0.21

Using the factors presented above, **Table 2-2** provides a summary of the residential water demands for the Proposed Project.

Table 2-2: Summary of Residential Water Demand for VLSP

Water Demand Category by Dwelling Unit (du) Type	Acres	Dwelling Units	Indoor Factor (acre-feet per DU)	Indoor Use (acre-feet per year)	Outdoor Factor (acre-feet per DU)	Outdoor Use (acre-feet per acre)	Total Demand (acre-feet per year)
Low Density	199	995	0.27	269	0.15	152	420
Medium Density	177	1,239	0.27	335	0.09	110	445
Medium-High Density	45	540	0.27	146	0.02	13	159
High Density	31	620	0.21	130	0.01	7	138
Mixed Use	-	104	0.21	22	0.00	0	22
Residential Subtotal		3,498		901		283	1,184

2.2.2 Non-Residential Water Use Demand Factors

The Proposed Project has several non-residential features ranging from a mixed-use neighborhood center, three schools, landscaped promenades, community gardens, and storm detention facilities. Many of these proposed land-uses are unique, requiring specific demand forecasts for each component.

For purposes of this WSA, the demand for non-residential classifications is described as either "the acre-feet of water use annually per acre of land," acre-feet/acre (af/ac), or as a single demand projection for a demand category such as the indoor uses for the elementary and middle schools, acre-feet/unit (af/unit). These values reflect indoor or outdoor water needs expected for typical non-residential use for each of the following classifications:

- Neighborhood Center Indoor
- Elementary and Middle School Indoor
- Elementary and Middle School Outdoor

- Park Restroom Facilities
- Non-residential Outdoor
    - Neighborhood Parks
    - Community Parks
    - Promenades
    - Streetscape Landscaping
    - Neighborhood Greens
    - Stormwater Detention
- Other miscellaneous uses, including temporary irrigation to establish open space landscaping, and temporary construction water.

The method and basis for determining the unit water demand factor for each of these classifications is detailed in the following subsections.

2.2.2.1 Neighborhood Center Indoor

The proposed Neighborhood Center Mixed-Use area is anticipated to include up to 120,000 square feet (sf.) of commercial space on approximately 8 acres. Up to 104 residential units will also be located within this mixed-use zone. Mixed-Use residential units may be either horizontally mixed (uses in separate buildings) or vertically mixed (uses in the same building, stacked). Associated residential demands were discussed in the prior subsection.

Water uses will primarily include retail, service, professional, and offices meant to serve the daily convenience needs of Vista Lucia's residents. The non-residential unit water demands for the remaining land uses are highly dependent on the actual businesses and activities on each parcel. However, prior investigations for a variety of commercial, office and retail configurations – ranging from large regional warehouses, such as Home Depot, to small strip malls with multiple tenants, generally indicate the unit water demand per acre of land use averages to be nearly equivalent. This is in part due to regional facilities often having large parking areas with limited landscape, and smaller areas having a mix of uses from restaurants, with high use, to retail stores, with low use. Based upon meter studies conducted on existing neighborhood commercial facilities elsewhere in California, coupled with the on-going commitment toward more efficient water use, the indoor unit demand factor for this classification is estimated at 1 acre-foot/acre for the purposes of this WSA.[38]

2.2.2.2 Elementary and Middle School Indoor

The VLSP includes two 12-acre elementary schools, totaling 24 acres, and one 18-acre middle school. Based upon meter studies for existing elementary schools, total school use – indoor and outdoor – ranges from 20 to 30 gallons per day per student. Depending on the schools'

[38] Zanjero, Inc. has performed several meter studies in California's Central Valley. Specific small and large mixed-use commercial developments were analyzed and found to range from 0.78 af/ac/yr to 1.22 af/ac/yr for the total indoor and outdoor area (hard space such as parking and sidewalks). The majority of this use is from indoor needs, which do not significantly vary regionally between the Central Valley and the Salinas Valley.

landscape design and operation, 60 to 70 percent of this demand is used to meet outdoor needs.[39] Therefore, for purposes of this WSA, indoor demands are based upon an assumed use of 10 gallons per day per student. The total number of students per dwelling unit is estimated to be 0.4331 students/DU for elementary school (grades K-6) and 0.1137 students/DU for middle school (grades 7-8).[40] With a total of up to 3,498 dwelling units in Vista Lucia, the estimated elementary school student body (for both elementary schools) is 1,550 and the estimated middle school student body is 398. These unit demand factors would reflect all administrative, teacher, student, cafeteria, and janitorial uses for the school, averaged on a per-student basis. The resulting forecast for indoor demand for both of the two proposed elementary schools is 17.3 acre-feet/year, rounded up to 18 acre-feet/year for purposes of this WSA. The forecasted indoor demand for the proposed middle school is 4.5 acre-feet/year, rounded up to 5 acre-feet per year for purposes of this WSA. Total indoor use for three all VLSP schools combined totals 23 acre-feet per year.

2.2.2.3 Elementary and Middle School Outdoor

The VLSP's three proposed schools will total approximately 42 acres, including the two elementary schools and one middle school. Quantifying outdoor water demands for schools depends on many factors including campus landscaping, size and type of play fields, student population, and other factors. For each school, it is assumed that school sites will follow traditional school designs, with play fields occupying approximately 12.5 percent of the total site area and the remaining campus landscaping being trees and shrubs with lower water demands. This equates to 65,000 sf of turf (1.5 acres) for each of the two elementary schools and 97,500 sf of turf (2.25 acres) for the middle school. Turf areas are expected to require 2.6 acre-feet per acre. The remaining low water use landscaping is estimated to cover approximately 16.6 percent of each total site area, which equates to 2 acres for each elementary school and 3 acres for the middle school. This non-turf landscaping outdoor demand is estimated to be 1.31 acre-feet per year per low water use landscaped acre, which is less that the 45% of ETo required by the MWELO formula for non-residential uses. Total outdoor water use at all three Vista Lucia Community proposed schools is 22.8 acre-feet per year, rounded to 23 acre-feet.

2.2.2.4 Neighborhood and Community Park Restroom Facilities

The Vista Lucia community will include a total of 57 acres of parks, including community and neighborhood parks. There will likely be one restroom in each of the two large Community Parks, and possibly a restroom in two or three of the neighborhood parks, for a total of up to five park restrooms across the entire community. For purposes of this WSA, each park restroom facility is assumed to demand 1 acre-foot annually – equivalent to the indoor use of 4 single family homes. This is a conservatively high estimate. With five restrooms, a total of 5 acre-feet a year is estimated to be demanded for park restroom use.

[39] This is an estimate of indoor use per acre derived from a 2015 study of school demand in Folsom, California. A 2016 review of school demands in El Dorado Hills, California confirmed these numbers for newer schools.
[40] Based upon values from the Gonzales Unified School District Facilities Management Plan.

2.2.2.5 Other Non-Residential Outdoor (Landscaped Areas)

The Proposed Project includes several distinct outdoor landscaping areas including traditional parks and promenades as well as community areas and ornamental landscaping in the Neighborhood Center. For purposes of estimating water demand, assumptions have been made regarding the percentage of each acre that is irrigated, the percentage of irrigated area that is turf versus shrubs and groundcover, and the number of trees. Appendix B of the VLSP provides significant details on the Proposed Project's landscaping direction and plant selection.

The Proposed Project includes 28 acres of Neighborhood Parks, 29 acres of Community Parks, 20 acres of Promenades, and 2 acres of community greens. Other features include streetscape landscaping along the 114 acres of roads. The primary assumptions used to estimate the outdoor demand for these features include:

- The assumed reference evapotranspiration (ETo) – as discussed previously, an ETo of 52.5 inches per year is assumed.
- Plant Factors (PF) – based upon the plant palette described in Appendix B.10 of the VLSP, the following factors are assumed:
    - Turf = 0.6 (assumes use of certain Fescues, Bermuda Grass, and some other turf varieties with relatively low irrigation requirements. Some grass varieties, such as St Augustine and Buffalo grass, may have factors < 0.6)
    - Shrubs and Trees = 0.3
- The estimated square footage of each type of planting within each land-use category (LA)

These assumptions are combined in the following formula:

> *Demand = (ETo) (0.62) (PF x LA)/IE, where ETo is the reference evapotranspiration in inches per year, PF is the plant factor, LA is the landscape area, and IE is the irrigation efficiency for each planting type by land classification. 0.62 is a conversion factor to gallons. The resulting value is in "gallons per year," which is converted to acre-feet per year*

Table 2-3 presents the assumed percentages of irrigated land per each planting designation.

Table 2-3: Summary of Non-Residential Landscape Demand Factors for VLSP

Public Use Element	Total Open Area (acres)	% of Total Open Area Irrigated	Total Irrigated Area (acres)	% of Total Irrigated Area in Turf	Average Demand Factor (AF/yr)	Average Demand Factor (AF/acre)
Neighborhood Center Mixed Use	8	10%	0.8	0%	1.0	0.13
Schools (Elementary and Middle)	42	29%	12.2	43%	22.8	0.54
Neighborhood Parks	28	75%	21.0	25%	34.3	1.22
Community Parks	29	75%	21.8	45%	41.2	1.42
Promenade	20	60%	12.0	0%	15.7	0.78
Neighborhood Greens	2	40%	0.8	25%	1.3	0.65
Streetscape Landscaping	114	10%	11.4	0%	14.9	0.13

2.2.2.6 Summary of Non-Residential Water Use Demand Factors

Table 2-4 provides a summary of the non-residential unit water demand factor used to estimate the total Proposed Project water use.

Table 2-4: Summary of Non-Residential Demand for VLSP

Water Demand Category	Acres	Indoor Use (AF/yr)	Outdoor Use (AF/acre)	Total Demand (AF/yr)
Neighborhood Center Mixed Use	8	8	0.13	9
Schools	42	23	0.54	46
Neighborhood Parks	28	5	1.22	39
Community Parks	29	-	1.42	41
Promenades	20	-	0.78	16
Street Landscaping	114	-	0.13	15
Neighborhood Greens	2	-	0.65	1
Stormwater Detention*	73	-	1.31	96

*Stormwater detention water demand occurs during establishment only.

2.2.3 Other Miscellaneous Uses

The Proposed Project has two primary additional miscellaneous land uses with water demands, albeit only temporary demands. These uses have minimal impacts to the overall forecast water use due to their limited duration.

Construction Water

As stated in Section 1, the Proposed Project would include site grading and infrastructure installation during early phases of construction that will require dust suppression and other incidental water uses. These would not continue beyond the construction phases of the Proposed Project. For purposes of identifying incremental water demands, construction water is conservatively assumed for purposes of this WSA to be 8 acre-feet per year (this is about 2,400,000 gallons – or about 600 fill-ups of a 4,000-gallon water truck per year).

Stormwater Detention, Drainage, Agricultural Buffers, and Other Open Space

As stated in Section 1, the Proposed Project would include 73 acres of open space surrounding the community and buffering it from the surrounding agricultural uses. It is anticipated that this open space will also contain percolation ponds and swales to capture and percolate storm water runoff. These areas are intended to be seeded with native or drought-tolerant water use plants and will require irrigation during establishment only. The 73 acres of this type of open space is expected to annually require 1.31 acre-feet per acre (95.3 acre-feet total) during the first 2-3 years of establishment.

2.2.4 Non-Revenue Water Demands

The demand factors presented earlier in this section represent the demand for water at the residential customer meter for each category. To fully represent the Proposed Project's demand on water resources, non-revenue water also needs to be included. Non-revenue water represents all of the water necessary to deliver to the customer accounts and reflects distribution system leaks, water demands from potentially un-metered uses such as fire protection, hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings.[41] In most instances, the predominant source of non-revenue water is from system leaks – the loss from fittings and connections from water sources through treatment plants, tanks, pumping plants, major delivery system back-bone pipelines, and community distribution systems. Because the delivery system distributing water within the Vista Lucia will be new, the percentage of non-revenue water is estimated to meet the 10 percent goal set forth by the American Water Works Association. Therefore, the Proposed Project's water delivery system is expected to require about an additional 150 acre-feet per year at build-out to serve the Proposed Project's needs. These values are included as the "loss factor" in **Table 2-5** and are considered to return to the groundwater system through percolation.

2.2.5 Summary of Vista Lucia Specific Plan Water Demand Forecast

Combining Vista Lucia's land use details and phasing with the demand factors presented in **Table 2-1**, **Table 2-2**, **Table 2-3**, and **Table 2-4** the water demands for Vista Lucia from implementation to build-out can be estimated. Upon completion of the Vista Lucia Specific Plan community, the demands are conservatively estimated at 1,351 acre-feet of water annually, excluding considerations of non-revenue water (see below), and up to approximately 1,501 acre-feet of water annually when considering of non-revenue water (see **Table 2-5**).

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[41] The American Water Works Association and the California Urban Water Conservation Council recognize the inherent non-revenue water that is either lost or not accounted for in urban treated water distribution systems, and suggest purveyors strive for conveyance losses equal to 10% of all water delivered to customers. Obtaining this value depends on numerous factors including the age and extent of distribution system infrastructure, meter rehabilitation programs, and how a purveyor tracks fire flows and hydrant flushing.

Table 2-5: Vista Lucia Forecast Water Demands*

Category	2025	2030	2035	2040	2045	2050	Demand Factor (af/du or af/ac)	2025	2030	2035	2040	2045	2050
Residential (Dwelling Units)													
Low Density	129	358	607	886	995	995	0.27	35	97	164	239	269	269
Medium Density	161	446	756	1,103	1,239	1239	0.27	43	120	204	298	335	335
Medium-High Density	70	194	329	481	540	540	0.27	19	52	89	130	146	146
High Density	81	223	378	552	620	620	0.21	17	47	79	116	130	130
Mixed Use Residential	14	37	63	93	104	104	0.21	3	8	13	19	22	22
							Indoor Subtotal	117	324	550	802	901	901
Low Density	129	358	607	886	995	995	0.15	20	55	92	135	152	152
Medium Density	161	446	756	1103	1239	1239	0.09	14	40	67	98	110	110
Medium-High Density	70	194	329	481	540	540	0.02	2	5	8	12	13	13
High Density	81	223	378	552	620	620	0.01	1	3	5	7	7	7
Mixed Use Residential	14	37	63	93	104	104	0.00	0	0	0	0	0	0
							Outdoor Subtotal	37	102	172	251	283	283
Non-Residential (Acres)													
Neighborhood Center (Mixed Use)	0	2	4	6	8	8	1	0	2	4	6	8	8
Elementary & Middle School	0	12	42	42	42	42	N/A	0	9	23	23	23	23
Park Restrooms	0	1	2	3	4	5	N/A	0	1	2	3	4	5
							Indoor Subtotal	0	12	29	32	35	36
Neighborhood Center Mixed Use	0	2	4	6	8	8	0.13	0	0	1	1	1	1
Elementary & Middle School	0	12	42	42	42	42	0.54	0	6	23	23	23	23
Neighborhood Parks	0	6	11	17	22	28	1.22	0	7	14	21	27	34
Community Parks	0	6	12	17	23	29	1.42	0	8	16	25	33	41
Promenade	0	4	8	12	16	20	0.78	0	3	6	9	13	16
Neighborhood Greens	0	0	1	1	2	2	0.65	0	0	1	1	1	1
Streetscape Landscaping	0	23	46	68	91	114	0.13	0	3	6	9	12	15
							Outdoor Subtotal	0	28	66	88	110	131
Other Miscellaneous Uses													
Open Space (Stormwater Det.)	73	73	73	73	73	73	1.31 (estab.)	96	0	0	0	0	0
Construction Water							8	8	8	8	8	8	0
							Outdoor Subtotal	104	8	8	8	8	0
							Indoor Total	117	336	579	834	936	937
							Outdoor Total	140	138	246	347	400	414
							Total	257	474	825	1,181	1,336	1,351
							Non-revenue water at 10%	29	53	92	131	148	150
							Total Vista Lucia Demand	**286**	**527**	**917**	**1,312**	**1,485**	**1,501**

*Totals may not sum exactly due to rounding to the nearest whole acre-foot.

2.3 Proposed Project Water Demand Projection

As described in the previous subsections, the Proposed Project consists of the Vista Lucia Specific Plan Community. Including all anticipated residential and non-residential indoor and outdoor water demands plus miscellaneous and non-revenue water, the VLSP community is anticipated to generate 1,501 acre-feet of water demand at full build-out. This demand is summarized in **Table 2-6**.

Table 2-6: Summary of Proposed Project Water Use

Proposed Project		Acre-Feet per Year at Full Buildout					
		Indoor	Outdoor	Misc	Subtotal	Loss Factor	Grand Total
Vista Lucia	Residential	901	283	-	1,351	150	1,501
	Non-Residential	36	131				

2.3.1 Water Demands during Single- and Multiple-Dry Year Conditions

To adequately assess the sufficiency of available water supplies – discussed in Section 5 – the Proposed Project's normal-year water demand is modified to reflect anticipated increases in demand during drier conditions. Conservative modifications to the Proposed Project's water demand to reflect conditions expected during dry conditions are as follows (see **Table 2-7**):

Single dry year: Landscape irrigation demands would increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this increase only applies to the outdoor portion of a customer's demand, an adjustment factor of 5 percent is applied to the total normal-year water demand values to conservatively reflect the expected increase in demand for water.[42]

Multiple dry years: During multiple dry years, demands are also expected to increase during the first in a series of dry years – as discussed above for the single dry year condition. However, during the second, third or more consecutive dry years, demands also are expected to reflect water shortage contingency plans implemented by the retail water purveyor.[43] During the second year, the water purveyor is assumed to request a reduction target of 10 percent. To be conservative, this WSA assumes a resulting demand reduction of 5 percent to accommodate conservatively low participation by customers. Thus, the already higher expected demand increase of 5 percent during dry conditions is decreased by 5 percent to reflect conservation – resulting in the original normal condition demand forecast. During the third year, fourth, and fifth years of a multi-year drought, the purveyor is expected to set a conservation target of 20 percent. For this analysis, the demands in the third year are reduced by 15 percent. Thus, during multiple dry conditions, demands initially increase due to reduced effective precipitation, but then decrease due to short-term conservation measures, with a net effect of a 10 percent reduction from the forecasted normal condition.

[42] Based on meter studies and work with DWR on "weather normalization" of per capita water use values, Zanjero has demonstrated that urban water use increases during low rainfall months. Based on conversations with urban water purveyors, DWR and landscape water professionals, it appears common for landscape irrigation timers to be turned on "early" when February and March are unusually dry.
[43] This WSA anticipates the retail purveyor serving the Proposed Project will apply a water shortage contingency plan to address drought conditions.

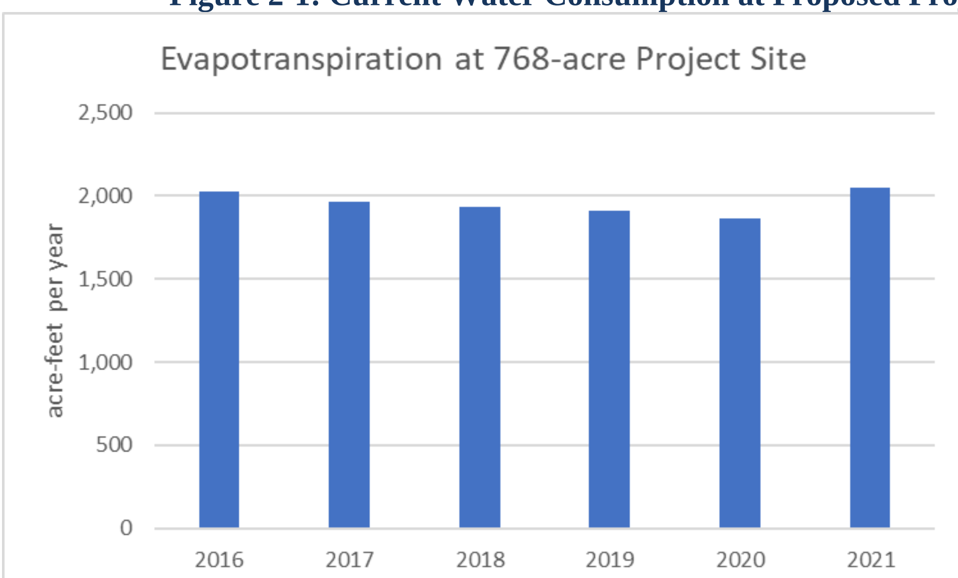
Table 2-7: Proposed Project Water Demands under Dry-Year Conditions

			Multiple Dry Year		
	Normal	Single Dry	Year 1	Year 2	Year 3-5
% Increase (reduction)	0%	5%	5%	0%	-10%
Resulting Change in Demand (af/yr)	0	75	75	0	-150
Total Demand (af/yr)	1,501	1,576	1,576	1,501	1,351

2.3.2 Implications of Land Use Change on Groundwater Demand

The Proposed Project will be constructed on a 768-acre site currently used for the farming of truck crops irrigated with groundwater. To lend context to the demands presented in this WSA, the current water consumption of the Proposed Project site was estimated using OpenET.[44] From 2016 – 2021, approximately 1,900 – 2,000 acre-feet a year of water has been consumed (evaporated) on the Proposed Project site, as shown in **Figure 2-1**. It is likely that a greater among of irrigation water was applied to the Project Site, with excess applied water percolating deeply and returning to the groundwater basin. This analysis focuses on the portion of applied water that is consumed through evaporation.

Figure 2-1: Current Water Consumption at Proposed Project Site



Source: Custom spatial summary by OpenET for years 2016-2021.

Some of the water consumption documented in **Figure 2-1** is met by precipitation, with the remaining water consumption representing the quantity of groundwater applied as irrigation. Gonzales averages 16 inches of precipitation annually; some of which runs off or infiltrates the ground and sinks below the root zone where it is no longer accessible to plants. This WSA estimates that 75 percent of the annual precipitation is effective (a conservatively high

[44] https://explore.etdata.org/

assumption), which across the 768-acre site equates to 768 acre-feet of water from effective precipitation. By subtracting this value from the total evaporation calculated in **Figure 2-1**, this WSA estimates that approximately 1,100-1,280 acre-feet of groundwater is consumed by the Proposed Project site's current agricultural use annually.

The Proposed Project is expected to generate 1,501 acre-feet per year of demand under normal conditions, with only 414 acre-feet per year of that demand used outdoors (and therefore most likely to evaporate rather than be captured by the City's wastewater collection system, see Sections 3, 4, and 5). This analysis demonstrates that the Proposed Project is expected to generate significantly less consumptive demand for groundwater than the site's current agricultural land use.

SECTION 3 – ESTIMATED WATER DEMANDS FOR EXISTING CITY CUSTOMERS AND OTHER PLANNED USES

This section describes the methodology, provides the supporting evidence, and presents the estimated annual water demands for the existing City of Gonzales and other reasonably foreseeable planned developments. Characteristics such as how water uses vary among different land use classifications, throughout the year, and under differing hydrologic conditions, all help with that understanding. Because the Proposed Project will be served by the City of Gonzales, assessing these other foreseeable water demands is crucial to the overall determination of water availability.

This section is organized to first describe the basis for estimating the future use of the City of Gonzales' existing customers, including population growth within the existing service area. Later in this chapter, the water use of other foreseeable developments known to the City of Gonzales planning department are considered. These other planned developments include the Puente Del Monte Community, the Rianda Cooler, the Franscioni Development, and three projects by D'Arrigo. This section concludes with a summary combining the forecasted demands of the existing City and other planned developments, which provide the basis for the water sufficiency analysis presented in Section 5.

3.1 EXISTING CITY OF GONZALES

The City of Gonzales is located in central Monterrey County in the Salinas Valley along Highway 101. The population was estimated to be 8,536 in 2020 according to the CA Department of Finance.[45] Gonzales is situated in a primarily agricultural region, and has long provided residential, commercial, and industrial services related to its agricultural setting.

The City relies entirely upon groundwater to meet its municipal water supply needs. Accurately assessing current water use is key to estimating future water use.

3.1.1 Current Customer Water Use

Water use data from the most recent 5 years, from 2016 to 2021, provided the primary basis for analyzing current water use trends. In 2021, the most recent year for which data is available, the City of Gonzales served 1,958 service connections, all of which are metered. Of these

[45] https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2022/

connections, 1,599 were single-family residential, 176 were multi-family residential, 132 were commercial or institutional, 39 were industrial, and 12 were landscaping. [46]

Customer Water Use 2016-2021

Recent customer water use data can advance an understanding of water use trends, effects of temporary use restrictions imposed during the most recent prolonged drought and recovery from such temporary restrictions, effects of long-term demand management measures, and other pertinent water use factors relevant to forecasts of future water use.

Over the last few years, a number of new industrial facilities have opened or expanded, including agricultural produce processing facilities owned by Taylor Farms and DelMonte Fresh Produce. The new industrial facilities have led to a significant increase in the annual water use attributable to industrial connections. In 2019, approximately 47 existing customer accounts that were previously classified as "Other" were reclassified as Commercial/Institutional or Landscape. During this same period, City public works staff identified and corrected water meter reading errors that had previously caused inaccuracies in the City's water use data. As a result of these recent changes in how the City's water use data is collected and recorded, this WSA assumes that the most recent years of 2020 and 2021 are the most accurate and representative of the City's current water use.

Table 3-1 presents the City's past water use by customer classification for 2020-2021.

Table 3-1: City Water Use 2020-2021 (Acre-Feet per Year)

Use Type	2020	2021	Average Percent of Total
Single Family	571	543	31%
Multifamily	99	96	6%
Commercial/Institutional	95	97	5%
Industrial	953	1070	57%
Landscape	6	20	1%
Total	1724	1827	100%

The historic data also provide insight into the relative ratio of differing customer classifications to each other. Industrial use and single-family homes together represent 88 percent of the City's total water use in recent years.

[46] The City of Gonzales has recently recategorized some of its existing service connections. Approximately 40 connections that were classified as "Other" were reclassified as "Commercial/Institutional" in 2020, and the "Other" category was discontinued. An additional small number of accounts from other categories have been recategorized as landscaping meters. All recent changes in meter classification have been taken into account in the following analysis.

Existing Distribution System Losses

The City of Gonzales served 1,958 total service connections in 2021, which is under the threshold of 3,000 service connections set by DWR that would trigger the requirement to submit an Annual Water Loss Audit to DWR.[47] To date, the City has not submitted a Water Loss Audit. Instead, this WSA estimates water loss based upon a comparison of the quantity of groundwater pumped and the quantity of water delivered. It is assumed that the difference in these values represents water loss, as shown in Table 3-2. Because of water meter reading errors identified and corrected in 2019, City staff advised that the water use and well extraction data from 2020 and 2021 represented the most accurate recent data to evaluate water loss.

Table 3-2: City System Distribution Loss

	2020	2021	2-year Average
Total Extractions (AF)	1,826	1,993	1,910
Total Deliveries (AF)	1724	1,827	1,775
Apparent Loss (AF)	102	166	134
Loss Percent	6%	8%	7%

As **Table 3-2** illustrates, the City's distribution loss was below 10 percent in 2020 and 2021, the two recent years for which there was reliable data.

Calculating Indoor and Outdoor Water Use Through Wastewater Flows

The proportion of the City's existing water demand that is used indoors versus outdoors is not directly measured, but has important implications for the groundwater sustainability and supply sufficiency analyses presented in Sections 4 and 5 of this WSA.

As the best available proxy, this WSA compared the inflows to the City's Wastewater Treatment Plant (WWTP) to its total metered deliveries. As noted above, due to water meter reporting errors identified and corrected in 2019, data from 2020 and 2021 are assumed to the most accurate recent data available. It is assumed that the measured influent flow at the City's WWTP represents the quantity of water used indoors, while the difference between WWTP inflow and total metered deliveries is assumed to be used outdoors (or otherwise lost through evapotranspiration). **Table 3-3** presents these calculations. On average, approximately 42 percent of the City's total metered deliveries are assumed to have been used outdoors and did not ultimately flow to the City's WWTP.

[47] Department of Water Resources. (2022). *Water Audit Report Data*. WUEdata. Retrieved from https://wuedata.water.ca.gov/awwa_plans

Table 3-3: Existing City Indoor and Outdoor Use

	2020	2021	2-year Average
Total Deliveries (AF)	1,724	1,827	1,775
Total Inflow to WWTP/ Assumed Indoor Use (AF)	1006	1039	1,023
Difference/ Assumed Outdoor Use (AF)	718	788	753
Percent Used Outdoors	41.6%	43.1%	42.4%

Demand Management Measures

The City of Gonzales is affected by many of the same current and future mandates affecting water use for the Proposed Project. In particular, the City is subject to water conservation objectives, indoor infrastructure requirements, the California Model Water Efficient Landscaping Ordinance, metering, volumetric pricing, and water budgets, which are described in detail in Section 2.1.1.

3.1.2 Wastewater Collection and Consumptive Water Use

When groundwater is extracted from a basin and used for municipal purposes, some portion of the water used will ultimately transpire through plants or otherwise evaporate and be lost to the groundwater basin. However, much of the groundwater used may ultimately return to the basin. A portion of the water applied to landscaping may percolate deeply and return to the aquifer. If the water is used indoors, then collected and treated at a wastewater treatment plant, the water may be recycled to offset existing groundwater demands or directly recharged to the basin.

A project's consumptive use of water equals the project's total water use minus the quantity of water from the proposed project returning to recharge the basin (or to meet demands that would otherwise be met by groundwater). The distinction between the quantity of water used and the quantity of water consumed is crucial when considering the sustainability criteria required by SGMA.

Currently, water used indoors in the City of Gonzales is collected by the City's sanitary sewer system and conveyed to the Gonzales Wastewater Treatment Plant (GWWTP), located approximately two miles west of the City at 400 Short Road, Gonzales, CA. The GWWTP is a grade II lagoon ponding treatment plant,[48] which treats wastewater to secondary standards and disposes of effluent through three 7-acre infiltration basins, [49] with some evaporation also occurring during the treatment process. The GWWTP has a permitted discharge capacity of 1.3 MGD, but the full build out of the existing city and SOI is expected to generate 3.60 MGD of

[48] City of Gonzales. (2018). *Wastewater*. The City of Gonzales, California . Retrieved from https://gonzalesca.gov/services/public-works/wastewater

[49] Central Coast Region; State of California, Staff Report for Regular Meeting of March 24, 2006 (2006). Retrieved from: https://www.waterboards.ca.gov/centralcoast/board_info/agendas/2006/march/item6/item6_staff_report.pdf

wastewater.[50] The proposed project and other developments in the City of Gonzales east of Highway 101 will require the City to add new wastewater collection and treatment capacity.

To accommodate the expected increase in wastewater flows, the City of Gonzales will construct a new 1 million gallon per day Industrial Wastewater Treatment Facility adjacent to the current GWWTP. The City plans to construct a separate wastewater collection system from the Gonzales Agricultural Industrial Park to the new Industrial Wastewater Treatment Facility, thereby separating industrial wastewater from the City's domestic wastewater and freeing up capacity at the existing GWWTP. This approach is anticipated to achieve more efficient operations at both treatment plants, because domestic and industrial wastewater contain different contaminants and therefore can be more efficiently treated separately. When needed, the City will also complete a phased expansion of its existing GWWTP to increase the plant's capacity as development proceeds and new connections are added. Both treatments plants will continue to dispose of treated wastewater through infiltration basins. All influent to the GWWTP not lost to evaporation during the treatment and percolation process will return to the groundwater basin. This concept is important from a long-term sustainability perspective and is discussed again in Section 5 – Sufficiency Analysis.

This WSA assumes that recharge to the groundwater system by percolation of treated wastewater can be calculated by subtracting the volume evapotranspirated (ET) during the treatment process from the volume of influent to the GWWTP. Influent volumes are recorded in the City's Wastewater Treatment Plant Annual Reports. Due to metering errors discovered and corrected in 2019, only data from the years 2020 and 2021 was used, as City staff has indicated those years' data to be the most accurate. To determine the volume of water lost to evaporation, the GWWTP's treatment and percolation ponds were analyzed using data from OpenET.[51] A custom polygon was drawn around the GWWTP's treatment and infiltration ponds with an area of 31.858 acres. A report was downloaded from the OpenET website reporting the cumulative ET in acre-feet per month, which was summarized on an annual basis. **Table 3-4** shows the results of this analysis below. During the two most recent years for which there is accurate data, approximately 12 percent of the wastewater volume arriving at the GWWTP was lost to evaporation, while the remainder was returned to the groundwater basin through infiltration.

Table 3-4: Treated Wastewater Evaporation and Recharge

	2020	2021	2-year Average
Influent to WWTP (AF per year)	1,005	1,038	1,022
Annual ET (AF per year)	121	121	121
Estimated Loss to ET (%)	12%	12%	12%
Estimated Recharge to Groundwater (AF)	884	917	900

[50] Kimley Horn, *Existing City Plus Sphere of Influence Wastewater Master Plan*, p 11 (2019).
[51] https://openetdata.org/

3.1.3 Estimate of Current Net Consumptive Water Use

To inform the analysis of supply sufficiency in Sections 4 and 5 of this WSA, it is useful to estimate the City of Gonzales' current net consumptive use of groundwater. Net consumptive use is equal to the quantity of water extracted from the groundwater basin which ultimately evaporates and does not return to the basin through recharge. In the case of the City of Gonzales, the two contributors to net consumptive use are outdoor water use and loss from the ponds of the GWWTP, both of which are assumed to evaporate and permanently leave the groundwater basin. This approach can be expressed by the following formula:

"Net Consumptive Use" = "Outdoor Water Use" + "WWTP Loss to ET"

Using the 2-year average values for 2020-2021 presented earlier in Section 3.1, this formula becomes:

"Net Consumptive Use" = 753 acre-feet + 121 acre-feet

"Net Consumptive Use" = 874 acre-feet

This WSA therefore estimates that currently, the City of Gonzales has a net consumption of 874 acre-feet per year of groundwater. Of the 1,910 acre-feet of groundwater pumped on average during 2020 and 2021, the remaining 1,034 acre-feet were returned to the groundwater basin through system losses (134 acre-feet) and percolation at the GWWTP (900 acre-feet).[52]

3.1.4 Forecasting Customer Water Use

According to the City's 2019 Water Master Plan, the existing developed footprint of the City of Gonzles has limited opportunity for infill. It is expected that the vast majority of new development will occur as specific planned projects on land currently used for agriculture within the current City limit and in the City's SOI.[53] The major new developments expected are the Proposed Project (Vista Lucia community, see Section 2) and the Puente Del Monte, Rianda Cooler, D'Arrigo, and Franscioni developments (see Section 3.2, below). New growth of connections within the existing developed footprint is expected to be generally minimal. While there are no other specific projects known at this time that would require water service by the City, there are two specific areas where growth of water connections is possible within the existing developed footprint of the City. The first is in the Gonzales Industrial Park located southwest of S Alta St, which has not yet reached full buildout. New industrial facilities are possible in this area. The second source of new connections is the possible addition of a small number of auxiliary dwelling units (ADUs) in existing residential areas.

This WSA assumes that current water use trends in the City of Gonzales are generally a good indication of what future water use will be in the City's existing developed area. Ongoing demand management measures will likely decrease per capita water use, mostly notably the

[52] Values do not sum exactly, due to rounding.
[53] Kimley Horn, *Existing City Plus Sphere of Influence Water Master Plan*, p 4 (2019).

impending implementation of Urban Water Use Objectives (UWUO).[54] Some infill construction of ADUs may slightly increase the number of residential connections or occupants per connection. Overall, these effects are expected to cancel each other out, with residential water use in the existing built footprint of the City of Gonzales remaining constant over the planning period. Multifamily, Commercial/Institutional, and Landscape water use are also expected to remain stable of the planning horizon of this WSA. Using the City's historic water use from 2015-2021, average demand factors for each customer connection type were developed. These demand factors are presented as "current" in **Table 3-5**, below.

The City does anticipate that new industrial facilities in the Gonzales Industrial Park are possible. As a conservative assumption, this WSA assumes that the number of industrial water connections increases by 10 percent in 2030 and again in 2040.

Any other future increases in the City's water demand will be from the Proposed Project and Other Planned Developments, which are explicitly considered elsewhere in this WSA. As a conservative assumption, water system loss is also forecasted at 10 percent rather than the 8 percent the City currently experiences. Total water use in 2050 is projected to be 2,257 acre-feet per year within the existing City of Gonzales, as shown in **Table 3-5**.

Table 3-5: Existing City Forecasted Water Use

Customer Class	Connections per Customer Class							Demand Factors (acre-feet/ connection)		Demands (acre-feet)						
	Current (2021)	2025	2030	2035	2040	2045	2050	Current (2021)	Future	Current (2021)	2025	2030	2035	2040	2045	2050
Single Family Residential	1599							0.34		543	543	543	543	543	543	543
Multifamily Residential	176							0.55		96	96	96	96	96	96	96
Commercial/Institutional	132							0.74		97	97	97	97	97	97	97
Industrial	39	39	43	43	47	47	47	27.42		1,070	1,070	1,177	1,177	1,294	1,294	1,294
Landscape	12							1.69		20	20	20	20	20	20	20
Water Loss								8%	10%	152	183	193	193	205	205	205
								Total Customer Demand		1,993	2,010	2,127	2,127	2,257	2,257	2,257

3.2 Other Planned Developments

The City of Gonzales anticipates expanding its footprint into its sphere of influence by approving the development of the following projects: Puente Del Monte, Rianda Cooler,[55] D'Arrigo (SOI, Rincon, Industrial), Franscioni, and the Proposed Project (Vista Lucia). While the Proposed Project is considered in detail in Section 2, the other planned developments that will be served by the City are discussed below. The land use details of these developments are presented in **Table**

[54] Legislation passed in 2018 (Senate Bill 606 and Assembly Bill 1668) establishes a new framework for long-term improvements in urban water use efficiency and drought planning, which will require decreases in per capita water use.

[55] Rianda Cooler is a possible variation within the area covered by the Puente Del Monte development. If the Rianda Cooler is built, Puente Del Monte would be 70 acres smaller than the acres shown in Table 3-6. Including the cumulative acreages of both alternatives is a conservative assumption to ensure that the water demands of either development scenario is not under-stated.

3-6. A map presenting to locations of the other planned developments is presented as **Figure 1-1** in Section 1.

Table 3-6: Other Planned Development Land Use (acres)

Development		Current	2025	2030	2035	2040	2045	2050	Buildout
Puente Del Monte	Mixed Use	-	58	68	78	92	185	104	585
Rianda Cooler	Industrial	-	-	70	70	70	70	70	70
D'Arrigo	SOI	-	-	-	-	-	-	597	597
	Rincon	-	69	138	138	138	138	138	138
	Industrial	-	-	47	95	95	95	95	95
Franscioni	Industrial	-	-	28	55	55	55	55	55

Before the ultimate approval and construction of the Puente Del Monte, Rianda Cooler, D'Arrigo, and Franscioni developments discussed above, each development will be required to produce its own WSA that examines the expected water use of these developments based on details provided by each developments' Specific Plan. At this time, the Puente Del Monte development has released a Specific Plan that would allow this level of analysis, which this WSA completed and included as **Attachment A**.

The Rianda Cooler, D'Arrigo, and Franscioni developments have not released Specific Plans. This WSA has instead uses the best currently available information to estimate the future water use from these developments. This information includes proposed land use information shared by the developers, construction phasing estimates provided by the City of Gonzales, and water use demand factors calculated by this WSA for similar land use categories in the Proposed Project, as detailed in Section 2.

3.2.1 Puente Del Monte

In earlier drafts of this WSA, the Puente Del Monte (PDM) Specific Plan community was considered part of the Proposed Project, and detailed analysis of its expected water demands was performed by Zanjero. Ultimately, the Proposed Project description was revised to include only the Vista Lucia Community, with the Puente Del Monte Community analyzed as one of the Other Planned Uses to be served by the City of Gonzales. The analysis of Puente Del Monte's future water demands is included in this WSA as **Attachment A** and summarized briefly in this section.

The Puente Del Monte Specific Plan community will be developed on 585 acres located partly within the City of Gonzales and partly within the City's Sphere of Influence in Monterey County (See **Figure 1-1**). The developable areas will contain low to high density housing, open space, commercial, light industrial and school uses. An agriculture buffer bounds a majority of the Specific Plan area providing transition from farmlands to the built environment. The anticipated water use of the Puente Del Monte Specific Plan community is presented in **Table 3-7**.

Table 3-7: Puente Del Monte Water Use at Full Buildout

		Acre-Feet per Year at Full Buildout					
		Indoor	Outdoor	Misc	Subtotal	Loss Factor	Grand Total
Puente Del Monte	Residential	676	267	18	1,135	126	1,262
	Non-Residential	72	102				

3.2.2 Rianda Cooler Project

An approximately 70-acre property within the planning area of the Puente Del Monte Specific Plan is owned by the Rianda family. This land may be developed according to the Puente Del Monte Specific Plan, therefor generating a portion of the water demands already accounted for above, in Section 3.2.1.

However, the Rianda developers have indicated that the 70-acre Rianda property may instead be developed separately from the PDM Specific Plan, as an industrial facility for agricultural cold processing (referred to in this WSA as the Rianda Cooler Project). The Rianda Cooler facility would consist of processing, cooler, dry storage/warehousing, administrative, and maintenance space for the processing of local and non-local fresh produce, as well as employee parking and minimal landscaping. The Rianda Cooler project is still speculative at this time, and its developers have not yet produced the planning documents that would allow a detailed analysis of the facility's exact configuration and water demands. But because the Rianda Cooler may be developed within the planning horizon of this WSA, it is considered here and its water use is estimated using the currently best available information.

The exact level of indoor water use for the Rianda Cooler Project will depend on the final design of the facility. City of Gonzales Staff have indicated that this facility, if built, would generate a total demand of approximately 200,000 gal/day, or about 225 acre-feet of total use. 95 percent of this indoor water use would be collected as wastewater and be delivered to the Gonzales WWTP.[56] For the purposes of this WSA, the indoor unit demand factor for this type of industrial facility is estimated at approximately 3.2 acre-foot/acre or 225 acre-feet/year total.

For the purposes of calculating outdoor water use, it is assumed that the Cooler facility will include 10 percent of its total area landscaped with drought tolerant plantings, for a total of 7 irrigated acres. Using an assumed maximum allowable plant factor of 0.30, the Rianda Cooler's outdoor water use would be 9.1 acre-feet per year total or 0.13 acre-feet per acre for the 70-acre project.

If the Rianda Cooler Project is ultimately pursued, its development will result in the Puente Del Monte development being approximately 70 acres smaller and having a lower total water demand than was presented above in section 3.2.1. However, because it is uncertain at this time how land use within a smaller reconfigured PDM community might vary from the land uses

[56] Personal Communication, June 17, 2022 Zoom meeting with City Staff.

presented in the current PDM Specific Plan, this WSA makes the conservative assumption that the City may need to serve both the full PDM community and the Rianda Cooler Project.

While the timeline for the development of the Rianda Cooler Project is uncertain at this time, this WSA assumes that the Cooler Project would be complete and operational by 2030. Once fully built out, it is expected to demand 234 acre-feet per year total for indoor and outdoor water use. After including in a loss factor of 10 precent, this demand is equal to 258 acre-feet per year.

3.2.3 D'Arrigo Developments' Land Use

Property owned by D'Arrigo Brothers Inc. within the City of Gonzles and its SOI is expected to be developed within the planning horizon of this WSA. The developments consist of three distinct projects: SOI, Rincon, and Industrial.

D'Arrigo SOI

In the middle of the City's SOI, between Johnson Creek and Gloria Road, is the D'Arrigo – SOI development comprised of approximately 597 acres of residential, mixed-use, and park land use types. The existing land use currently consists of agricultural lands. Part of this development (approximately 238.1 acres) was documented in the City's 2019 WMP, though the current conceptual land use plan has differing land uses than the 2019 WMP. In total, 681 dwelling units are planned, plus 50 acres of parks and 90 acres of mixed-use commercial development.

It is unlikely that this project will be developed in the near future. For the purposes of this WSA, it is assumed that build out occurs at the end of the planning horizon, in 2050, to allow for this project to be included in the analysis of total water demand for the City and Other Planned Uses at buildout. Using similar demand factors as developed for the Proposed Project, the total water demand for indoor use is estimated to be 268 acre-feet per year and estimated for outdoor uses at 119 acre-feet, for a total of 386 acre-feet per year at full build out. The D'Arrigo – SOI development's water use and phasing is included in **Table 3-8**, below.

D'Arrigo Rincon

Within the City limit, along the east side of Highway 101, between Herold Parkway and the Puente del Monte development, is the D'Arrigo – Rincon development, which is comprised of approximately 138 acres of residential land use. The existing land use currently consists of agricultural lands. This development was not documented in the City's 2019 WMP.

It is anticipated that the D'Arrigo – Rincon project will be built in the next several years because it is located within the City's existing City Limit and is therefore likely to benefit from an expedited approval process. In total, 700 dwelling units are included in this project. For the purposes of this WSA, it is assumed that half of the units will be built by 2025 and the remainder complete by 2030. Using similar demand factors as developed for the Proposed Project, the total water demand for indoor uses is expected to be 183 acre-feet per year and 37 acre-feet per year for outdoor uses, for a total of 220 acre-feet per year at buildout. The D'Arrigo – Rincon development water use and phasing is included in **Table 3-8**, below.

D'Arrigo Industrial

In the southwestern corner of the City's SOI is the D'Arrigo – Industrial development (previously called Vosti in some planning documents), which is comprised of approximately 95.3 acres of industrial land use. The exact industrial uses of the project are not yet known, but will likely be similar to existing agricultural processing facilities already operating in the City of Gonzales. The existing land use currently consists of agricultural lands. This development was documented in the City's 2019 WMP.

For the purposes of this WSA, the indoor unit demand factor for this type of industrial facility is estimated at approximately 3.2 acre-foot/acre or 304 acre-feet/year total. This approach is consistent with the assumptions used to estimate the demand of the Rianda Cooler Project above in Section 3.2.2.

For the purposes of calculating outdoor water use, it is assumed that the D'Arrigo – Industrial development will include 10 percent of its total area landscaped with drought tolerant plantings, for a total of 9.5 irrigated acres. Using an assumed maximum allowable plant factor of 0.30, the D'Arrigo – Industrial development's outdoor water use would be 12.4 acre-feet per year total, or 0.13 acre-feet per acre across the 95 total acres.

The total water demand for indoor and outdoor uses is expected to be 317 acre-feet per year. The D'Arrigo – Industrial development water use and phasing is included in **Table 3-8**, below.

D'Arrigo Water Use Summary

The three D'Arrigo Developments (SOI, Rincon, and Industrial) may all be completed within the planning horizon of this WSA. While the exact phasing and configuration of these projects is not yet finalized, this WSA has used the best available current information to estimate the future water demands of these projects. The water use of the three D'Arrigo Developments is estimated to be 923 acre-feet per year at full buildout. After factoring in a loss factor of 10 percent, the total demand for the D'Arrigo Developments is expected to be 1,015 acre-feet per year, as presented in **Table 3-8.**

Table 3-8: D'Arrigo Phasing and Water Use

D'Arrigo		Total Du or Acres	Demand Factor*	Water Demand in Acre-Feet						
				2025	2030	2035	2040	2045	2050	Buildout
SOI	Low-Density	238 du	0.36	-	-	-	-	-	86	86
	Medium-Density Residential	239 du	0.32	-	-	-	-	-	75	75
	Medium-High Density Residential	102 du	0.29	-	-	-	-	-	30	30
	High Density Residential	102 du	0.22	-	-	-	-	-	23	23
	Mixed-Use Non-Residential	90 acres	1.13	-	-	-	-	-	102	102
	Parks	50 acres	1.42	-	-	-	-	-	71	71
Rincon	Low-Density	245 du	0.36	44	88	88	88	88	88	88
	Medium-Density Residential	245 du	0.32	39	77	77	77	77	77	77
	Medium-High Density Residential	105 du	0.29	15	31	31	31	31	31	31
	High Density Residential	105 du	0.22	12	23	23	23	23	23	23
Industrial	Industrial	95 acres	3.33	-	159	317	317	317	317	317
			Subtotal	110	378	537	537	537	923	923
			Loss factor	11	38	54	54	54	92	92
			Total Demand	121	416	591	591	591	1,015	1,015

*Table 3-8 Demand Factors include both indoor and outdoor water use.

3.2.4 Franscioni Development Land Use

Property owned by the Franscioni family is also expected to be developed within the planning horizon of this WSA. The Franscioni development is located at the southeastern corner of the City's SOI, along the east side of Highway 101 south of the Puente del Monte development. The development is comprised of approximately 55 acres of industrial land use. The existing land use currently consists of agricultural lands. This development was documented in the City's 2019 WMP, but the proposed acreage is different.

The exact industrial uses of the project are not yet known, but will likely be similar to existing agricultural processing facilities already operating in the City of Gonzales. For the purposes of this WSA, the indoor unit demand factor for this type of industrial facility is estimated at approximately 3.2 acre-foot/acre or 176 acre-feet/year total. This approach is consistent with the assumptions used to estimate the demand of the Rianda Cooler Project above in Section 3.2.2.

For the purposes of calculating outdoor water use, it is assumed that the Franscioni development will include 10 percent of its total area landscaped with drought tolerant plantings, for a total of 5.5 irrigated acres. Using an assumed maximum allowable plant factor of 0.30, the D'Arrigo – Industrial development's outdoor water use would be 7.2 acre-feet per year total, or 0.13 acre-feet per acre across the 55 total acres.

The total water demand for indoor and outdoor uses is expected to be 183 acre-feet per year. After adding in a loss factor of 10 percent, the total water demand is expected to be 202 acre-feet per year.

3.3 Existing City and Other Planned Developments Water Use Conclusions

In addition to serving the Proposed Project, as described in Section 2, the City of Gonzales will continue to serve its existing customers and will extend water service to other planned developments (Puente Del Monte, Rianda Cooler, D'Arrigo, and Franscioni). Including all anticipated residential and non-residential indoor and outdoor water demands plus non-revenue water, the existing City and other planned developments are expected to generate 4,992 acre-feet of water demand annually at full buildout. These demands are summarized in **Table 3-9**.

Table 3-9: Summary of Existing City and Other Planned Developments Water Demand

Sector		Acre-Feet per Year at Full Buildout					
		Indoor	Outdoor	Misc	Subtotal	Loss Factor	Grand Total
Existing City		1,182	869	N/A	2,051	205	2,257
Puente Del Monte	Residential	676	267	18	1,135	126	1,262
	Non-Residential	72	102				
Rianda Cooler	Industrial	225	9	N/A	234	23	258
D'Arrigo	SOI	268	119	N/A	922	92	1,015
	Rincon	183	37				
	Industrial	304	12				
Franscioni	Industrial	176	7	N/A	183	18	202
Existing City and Other Planned Water Demands Total							4,992

3.3.1 Water Demands During Single- and Multiple-Dry Year Conditions

The City does not currently have an adopted Urban Water Management Plan or Water Shortage Contingency Plan that addresses water demands in dry year condition.[57] To adequately assess the sufficiency of available water supplies – discussed in Section 5 – the other planned water demands in normal-year must be modified to reflect anticipated increases in demand during drier conditions. Conservative modifications to the total demand presented in **Table 3-9** to reflect conditions expected during dry conditions are as follows (see **Table 3-10**):

Single dry year: Landscape irrigation demands would increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this increase only applies to the outdoor portion of a customer's demand, an adjustment

[57] Senate Bill 552 (passed in 2021) requires small water suppliers - defined as those with fewer than 3,000 connections and serve fewer than 3,000 acre feet - to have an abridged water shortage contingency plan, annually report their water supply conditions and use by month, and upgrade their infrastructure to drought resilient standards, if needed. The City has not yet adopted an abridged water shortage contingency plan to meet this new legislative requirement.

factor of 5 percent is applied to the total normal-year water demand values to conservatively reflect the expected increase in demand for water.[58]

Multiple dry years: During multiple dry years, demands are also expected to increase during the first in a series of dry years – as discussed above for the single dry year condition. However, during the second, third or more consecutive dry years, demands also are expected to reflect water shortage contingency plans implemented by the City.[59] During the second year, the City is assumed to request a reduction target of 10 percent. To be conservative, this WSA assumes a resulting demand reduction of 5 percent to accommodate conservatively low participation by customers. Thus, the already higher expected demand increase of 5 percent during dry conditions is decreased by 5 percent to reflect conservation – resulting in the original normal condition demand forecast. During the third year through fifth years, the City is expected to set a conservation target of 20 percent. For this analysis, the demands in the third year are reduced by 15 percent. Thus, during multiple dry conditions, demands initially increase due to reduced effective precipitation, but then decrease due to short-term conservation measures, with a net effect of a 10 percent reduction from the forecasted normal condition.

Table 3-10: Other Planned Water Demands under Dry-Year Conditions

			Multiple Dry Year		
	Normal	Single Dry	Year 1	Year 2	Year 3 - 5
% Increase (reduction)	0%	5%	5%	0%	-10%
Resulting Change in Demand (af/yr)	-	250	250	-	(499)
Total Demand (af/yr)	4,992	5,242	5,242	4,992	4,493

[58] Based on meter studies and work with DWR on "weather normalization" of per capita water use values, Zanjero has demonstrated that urban water use increases during low rainfall months. Based on conversations with urban water purveyors, DWR and landscape water professionals, it appears common for landscape irrigation timers to be turned on "early" when February and March are unusually dry.
[59] This WSA anticipates the City of Gonzales will apply a water shortage contingency plan to address drought conditions.

SECTION 4 – WATER SUPPLY CHARACTERIZATION

This section characterizes the intended water supply that will be used to serve the estimated water demands of the Proposed Project as detailed in Section 2, as well as the existing City of Gonzales and other planned demands discussed in Section 3.[60]

The Proposed Project will be served by the City of Gonzales, which relies solely on groundwater to meet its water demands (including the future demand of the Proposed Project's, see **Table 2-7**). Because of the Proposed Project's commitment to efficiency and groundwater sufficiency, captured stormwater will be directed to the groundwater system through managed aquifer recharge facilities. Wastewater produced by the Proposed Project will be directed to a new and or expanded City of Gonzales wastewater treatment plant that directs treated water into the local aquifer as recharge, further offsetting existing City water demands. This current and continued future operation results in a limited quantity of the total water pumped by the City that is actually consumed and no longer available to the local groundwater system.[61]

Many existing water users, including the existing customers of the City of Gonzales and existing irrigated agriculture on the site of the Proposed Project, share groundwater available in the aquifer beneath the Proposed Project. This section provides a detailed characterization of the aquifer, as well as historic and projected uses of this shared resource. Section 5 details the sufficiency of groundwater resources to meet the long-term needs of the Proposed Project.

4.1 CHARACTERIZATION OF GROUNDWATER SUPPLIES

If a project's water supply includes the use of groundwater, the WSA must include: a description of any groundwater basin or basins from which the proposed project will be supplied, a detailed description and analysis of historical and projected groundwater pumping, and 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 (the sufficiency analysis is presented in Section 5).[62] A detailed description of the groundwater resources underlying the Proposed Project is included as **Attachment B** and is briefly summarized below.

[60] Water Code Section 10910(d)(1) requires that "The assessment... include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system...under existing water supply entitlements, water rights, or water service contracts. (2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system...shall be demonstrated by providing information related to all of the following: (A) Written contracts or other proof of entitlement to an identified water supply. (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system. (C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply. (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply."

[61] The City does not currently have plans for developing a new supply of either desalinated or recycled water. This WSA will not speculate on the future availability of recycled water.

[62] Water Code § 10910(f).

The Proposed Project includes the Specific Plan community of Vista Lucia, which is located in the City of Gonzales SOI. The City and Proposed Project are within the Salinas Valley and overlie the Salinas Valley Groundwater Basin. This area of the Salinas Valley is largely agricultural, with a significant groundwater basin that has been used historically for irrigation and, to a much lesser degree, for meeting municipal demands for cities including Gonzales and for individual domestic uses scattered throughout the valley. The extent of each subbasin and its connection with adjacent subbasins has been assessed by the California Department of Water Resources (DWR).

The Proposed Project is located near the intersection of three subbasins: the 180/400-Foot Aquifer Subbasin (Basin No. 3-004.01), the Eastside Subbasin (Basin No. 3-004.02), and the Forebay Subbasin (Basin No. 3-004.04), as defined by DWR Bulletin 118.[63] The subbasins cover areas of 140 square miles, 90 square miles, and 147 square miles respectively. In the area around the City of Gonzales, the subbasins are generally bounded by the Gabilan Range to the east and the Sierra de Salinas to the west. The 180/400-Foot Aquifer Subbasin and Eastside Subbasin are both characterized as high-priority basins under the Sustainable Groundwater Management Act (SGMA), while the Forebay Subbasin is characterized as medium-priority.[64] All three subbasins have produced Groundwater Sustainability Plans, which were used by this WSA to evaluate the long-term reliability of groundwater supplies for the Proposed Project and the City of Gonzales. The Salinas Valley-Wide Integrated Groundwater Sustainability Plan was also used to evaluate conditions across subbasin boundaries.

While current supply wells for the City of Gonzales are located only in the 180/400-Foot Aquifer and Eastside Subbasins, a portion of the City and its other planned developments also overlies the Forebay subbasin. It is possible that water from any of the three subbasins would ultimately be used to serve the Proposed Project. Therefore, each of the three subbasins is described in turn below. See **Figure 4-1** for DWR's representation of the Groundwater Basins.

4.1.1 180/400-Foot Aquifer Subbasin Geology

The 180/400-Foot Aquifer Subbasin lies in northwestern Monterey County and includes the northern end of the Salinas River Valley. The Subbasin covers an area of 89,700 acres, or 140 square miles (DWR, 2004). It is bounded by the Eastside Aquifer and Langley Area Subbasins to the east, the Forebay Aquifer Subbasin to the south, the Monterey Subbasin to the west, and the Monterey Bay to the north. The 180/400-Foot Aquifer subbasin is located at the northern, down-gradient end of the larger Salinas Valley Basin. Land surface elevations in the Subbasin range from approximately 500 feet above sea level along its border with the Sierra de Salinas to sea level at Monterey Bay.[65] The geology of the 180/400-Foot Aquifer Subbasin is characterized by alluvium, terrace deposits, the Paso Robles Formation, and the Aromas Red Sands Formation. The 180/400-Foot Aquifer Subbasin contains a mix of sands, gravels, and clays. The clay layers

[63] California Department of Water Resources, *California's Groundwater Update 2020 Highlights* (2020).
[64] CA Department of Water Resources. (2022). *Basin Prioritization*. water.ca.gov. Retrieved from https://water.ca.gov/programs/groundwater-management/basin-prioritization
[65] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021), Ch 4.

form a number of horizontally continuous aquitards which restrict the vertical movement of water within the subbasin and create confined conditions in the deeper geologic layers. The shallowest aquitard, the Salinas Valley Aquitard, is generally encountered at depths of less than 30 feet below the ground surface and limits the ability of the Salinas River to provide recharge to the underlying aquifers. The major water-bearing formations are below one or more aquitards. The southern extent of the aquitards corresponds approximately with the City of Gonzales. Seawater intrusion is a major issue in the northern part of the subbasin, adjacent to Monterey Bay. [66]

4.1.2 Eastside Subbasin Geology

The Eastside Subbasin lies in northeastern Monterey County. The Subbasin covers an area of approximately 57,500 acres, or 90 square miles along the east side of the Salinas Valley. It is bounded by the Gabilan Range to the east, the Forebay Subbasin to the south, the 180/400-Foot Aquifer Subbasin to the west, and the Langley Area Subbasin to the north. Land surface elevations in the Subbasin range from approximately 900 feet above sea level along its border with the Gabilan Range to approximately 20 feet above sea level where it meets the 180/400-Foot Aquifer Subbasin along State Highway 101 near the City of Salinas. The geology of the Eastside Subbasin is dominated by alluvial fan deposits. Surface-water drainages originating in the Gabilan Range deposited a series of interconnected alluvial fans that extend from the Gabilan Range in the northeast to the fluvial deposits that define the 180/400-Foot Aquifer Subbasin in the southwest. There are no known structural features that restrict groundwater flow within the Eastside Subbasin, such as geologic folds, faults, or horizontally continuous aquitards. However, groundwater flow from the Eastside Subbasin to various other subbasins may be restricted due to lack of continuous sediments. Usually, groundwater flow follows the topography of the valley northwest toward Monterey Bay.[67]

4.1.3 Forebay Subbasin Geology

The Forebay Subbasin lies in the middle of Monterey County, and the middle of the Salinas Valley Groundwater Basin. The Forebay Subbasin is bounded by the Gabilan Range to the east, the 180/400-Foot Aquifer and Eastside Subbasins to the north, the Sierra de Salinas to the west, and the Upper Valley Subbasin to the south. Land surface elevations in the Subbasin range from approximately 1,800 feet along the Sierra de Salinas alluvial fans to less than 200 feet at the boundary with the 180/400-foot Aquifer Subbasin near the City of Gonzales. The geology of the Forebay Subbasin is characterized by 2 intersecting geologic facies: the fluvial and marine dominated deposits of the main Salinas Valley; and the Arroyo Seco alluvial fan originating in the Sierra de Salinas on the west side of the Subbasin. In general, the alluvial sediments encountered in the Arroyo Seco Cone are more coarse-grained than those found in the main

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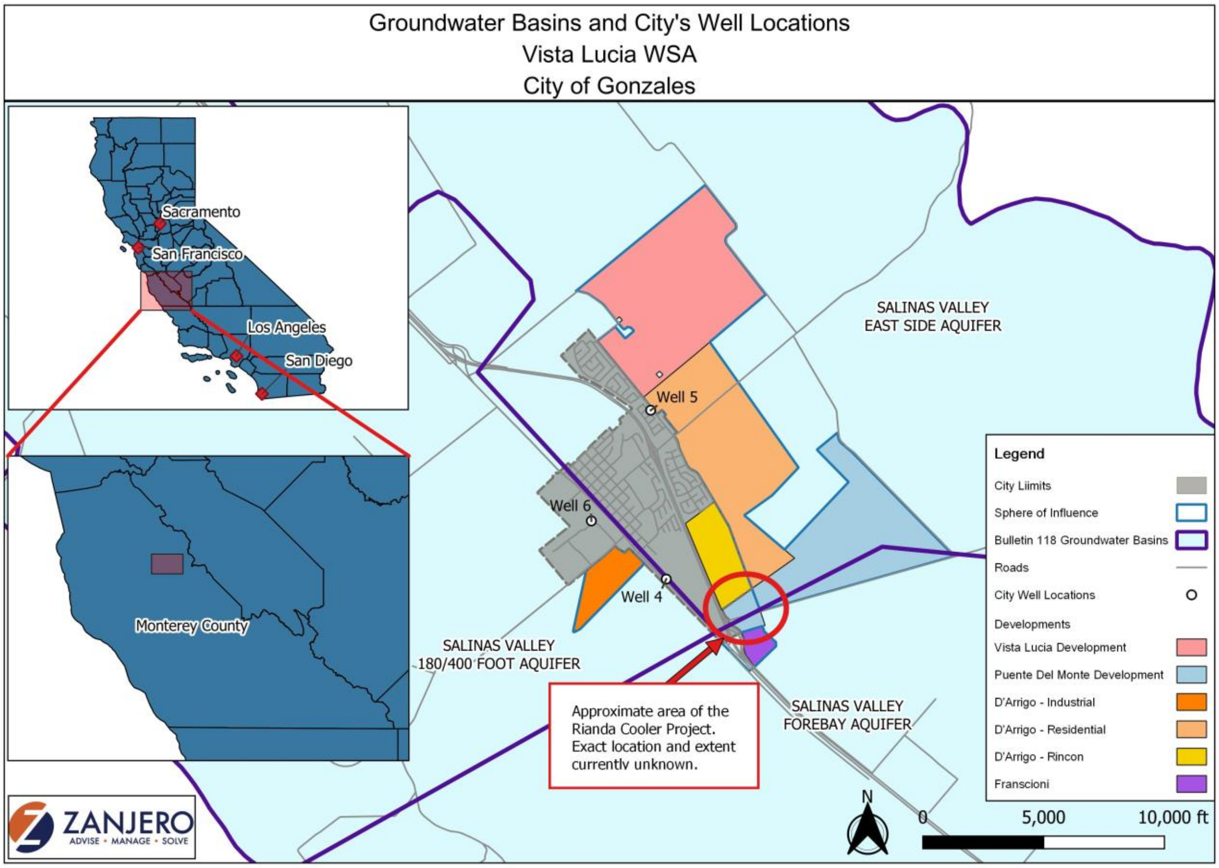
[66] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021), Section 4.2.

[67] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2021).

valley's fluvial and marine deposits. The Forebay Subbasin lacks the major horizontally continuous aquitards that characterize the 180/400-Foot Aquifer Subbasin.[68]

[68] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021).

Figure 4-1: Location of Groundwater Subbasins



4.1.4 Movement of Groundwater between Subbasins

Because the Proposed Project lies at the intersection of three Salinas Valley Groundwater Basin subbasins, it is crucial to evaluate the quantity of groundwater flowing across subbasin boundaries. Groundwater in the Salinas Valley generally flows from the southeast towards the northwest and Monterrey Bay, from Forebay Subbasin into both the Eastside Subbasin and the 180/400-Foot Aquifer Subbasin. There is no reported hydraulic barrier between the Forebay Subbasin and the two subbasins down gradient; however, the sediments are more stratified in the 180/400-Foot Aquifer Subbasin than in the Forebay Subbasin.[69] The Forebay Subbasin GSP estimates that from 1980 to 2016, an average of approximately 800 acre-feet per year of groundwater flowed out of the Forebay subbasin into the Eastside subbasin and 3,100 acre-feet per year of groundwater flowed out of the Forebay subbasin into the 180/400-Foot Aquifer Subbasin.[70]

Groundwater also flows between the Eastside Subbasin and 180/400-Foot Aquifer Subbasin. The Eastside Subbasin GSP estimates the historical rate (WY 1980-2016) for flow from 180/400-Foot Aquifer Subbasin into Eastside Subbasin as 3,600 acre-feet per year. Based on groundwater

[69] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), page 4-10.
[70] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), page 6-20.

contours presented in **Figure 4-2** and discussed in the next section, it can be inferred that the greatest rates of flow between 180/400-Foot Aquifer Subbasin and Eastside Subbasin likely occur several miles north of the City of Gonzales closer to Monterey Bay.

4.1.5 Current Groundwater Conditions and Trends

The City of Gonzales and the Proposed Project lie at the intersection of three Salinas Valley Groundwater Basin subbasins, and the Proposed Project could potentially use water from any of these three subbasins. Therefore, this WSA assumes that the Valley-Wide Integrated Groundwater Sustainability Plan (VWIGSP) for the Salinas Valley Groundwater Basin offers the best available wholistic evaluation of the groundwater resources that supply the City of Gonzales and the Proposed Project.

According to the VWIGSP, groundwater production is primarily from the alluvium that fills the Salinas Valley, most of which does not contain clay layers that divide the alluvium vertically into distinguishable aquifers. The exception is in the northern portion of the basin, where laterally continuous clay layers in the 180/400-Foot Aquifer Subbasin create relatively shallow confined conditions, in contrast to the unconfined conditions over most of the basin. Additional deeper clay layers create definable aquifers in the 180/400-Foot Aquifer Subbasin, whereas most of the basin includes only a single undifferentiated aquifer. The City of Gonzales and the Proposed Project lie at the southern end of the 180/400-Foot Aquifer Subbasin, at the transition between confined and unconfined conditions.[71]

The Monterey County Water Resources Agency (MCWRA) generated groundwater elevation contours for fall 2017 (the most recent available) from monitored wells suggest that the groundwater gradient (flow direction) throughout the Salinas Valley is generally from the southeast to northwest, towards Monterey Bay. As shown in **Figure 4-2**, groundwater elevation contours from fall 2017 indicate elevations range from 90 feet above mean sea level (msl) in the southeastern portion of the City of Gonzales and the Proposed Project, to 60 feet above msl in the northwestern portion of the Project. If the City of Gonzales is assumed to be at an average elevation of approximately 135 feet above msl, the fall 2017 groundwater elevation contours represent the presence of water approximately 45 to 75 feet below ground surface (bgs), respectively. MCWRA found in its 2017 study that groundwater elevations of the 180-Foot aquifer and 400-Foot aquifer were very similar near the City of Gonzales, which may suggest that aquitards found further north do not have a significant confining effect under the location of the Proposed Project.[72]

Current groundwater extraction rates within the Basin will likely continue for the foreseeable future. However, as discussed later in this section, regional efforts to stabilize the basin are now

[71] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Valley-Wide Integrated Groundwater Sustainability Plan (2021), Chapter 4 page 17.
[72] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Valley-Wide Integrated Groundwater Sustainability Plan (2021), Chapter 5 page 20-11, Figures 5-2 and 5-3.

legally required. Each subbasin within the Salinas Valley Groundwater Basin has published a Groundwater Sustainability Plan on or before January 31, 2022.

It is important to note that California experienced a statewide drought from 2012 through 2016, which may have exacerbated rates of groundwater decline in some portions of the subbasin over the past few years, most notably in areas where groundwater extraction increased to supplement reduced or nonexistent surface water supply. It is also important to recognize that the land proposed for development has been actively irrigated for agriculture using groundwater. The parcel's current and historic use to serve irrigated agriculture is reflected in the representative Basin groundwater conditions.

An additional important attribute of the Basin is the base of freshwater. This term describes the interface of freshwater and brackish water in an aquifer system, or increased consolidation and cementation of sediments which decreases well yield. Although the sedimentary sequence in the Salinas Valley structural trough is 10,000 to 15,000 feet thick, the productive freshwater aquifers are only at shallower depths.[73] The base of the Salinas Valley groundwater basin was characterized by the USGS (Durbin et al., 1978). The VWIGSP displays data from this study, which suggests that the base of the groundwater basin slopes steeply towards the west under Gonzales. It is estimated that the base of freshwater occurs at an elevation of approximately 800 to 1,400 feet below msl beneath the middle of the Proposed Project, or at a depth of approximately 900 to 1,500 feet bgs. It should be noted that saltwater intrusion from Monterey Bay, which has been an issue in the northern portion of the Basin, has not been projected to affect the area around Gonzales.

Given the approximate groundwater elevation of 60 to 90 feet above msl beneath the Proposed Project in fall 2015 (**Figure 4-3**), the data suggest that there is 800 to 1,400 feet of saturated freshwater-bearing aquifer material in the immediate vicinity of the Proposed Project area. It should be noted that these groundwater levels reflect conditions during the peak of a record-setting drought. Groundwater levels fluctuate by as much as 20 feet between wet and dry seasons but have been relatively stable year-to-year.[74] Of the Subbasins within the Salinas Valley Groundwater Basin, the greatest historic declines have occurred in the Eastside Subbasin. From 1944 to 2021, the Eastside Subbasin declined by almost 60 feet, or a long-term average rate of approximately 9.3 inches per year (**Figure 4-4**).[75] If the Basin experienced a worst-case scenario rate of decline of 2 feet a year on a long-term average basis (a conservative assumption, very likely an overestimate of the actual rate of decline and a violation of the recent State-wide groundwater sustainability provisions), the projected decline over the next 30 years would be 60 feet. The base of freshwater is reported to be at an elevation of at least 800 feet below msl, as discussed above, indicating there is currently approximately 860 feet of saturated aquifer available. The rate of decline in this portion of the Subbasin can be expected to slow or even

[73] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Valley-Wide Integrated Groundwater Sustainability Plan (2021), Chapter 4 Page 13

[74] Monterey County Water Resource Agency, Salinas Valley Water Conditions for the Third Quarter of Water Year 2021-2022 (2022).

[75] Monterey County Water Resource Agency, Annual Groundwater Level Monitoring. Retrieved from Annual Groundwater Level Monitoring | Monterey County, CA

stabilize during the next sequence of consecutive "wet" years. There is more than sufficient depth of saturated aquifer underlying the Proposed Project to provide a reliable water supply. While this demonstrates that a reliable water supply is physically available to serve the proposed project, the analysis above does not address the legal standard of groundwater sustainability as established by Sustainable Groundwater Management Act (SGMA). That analysis is presented in the following section.

Figure 4-2: Groundwater Levels in the Vicinity of the Proposed Project from Representative Well Locations

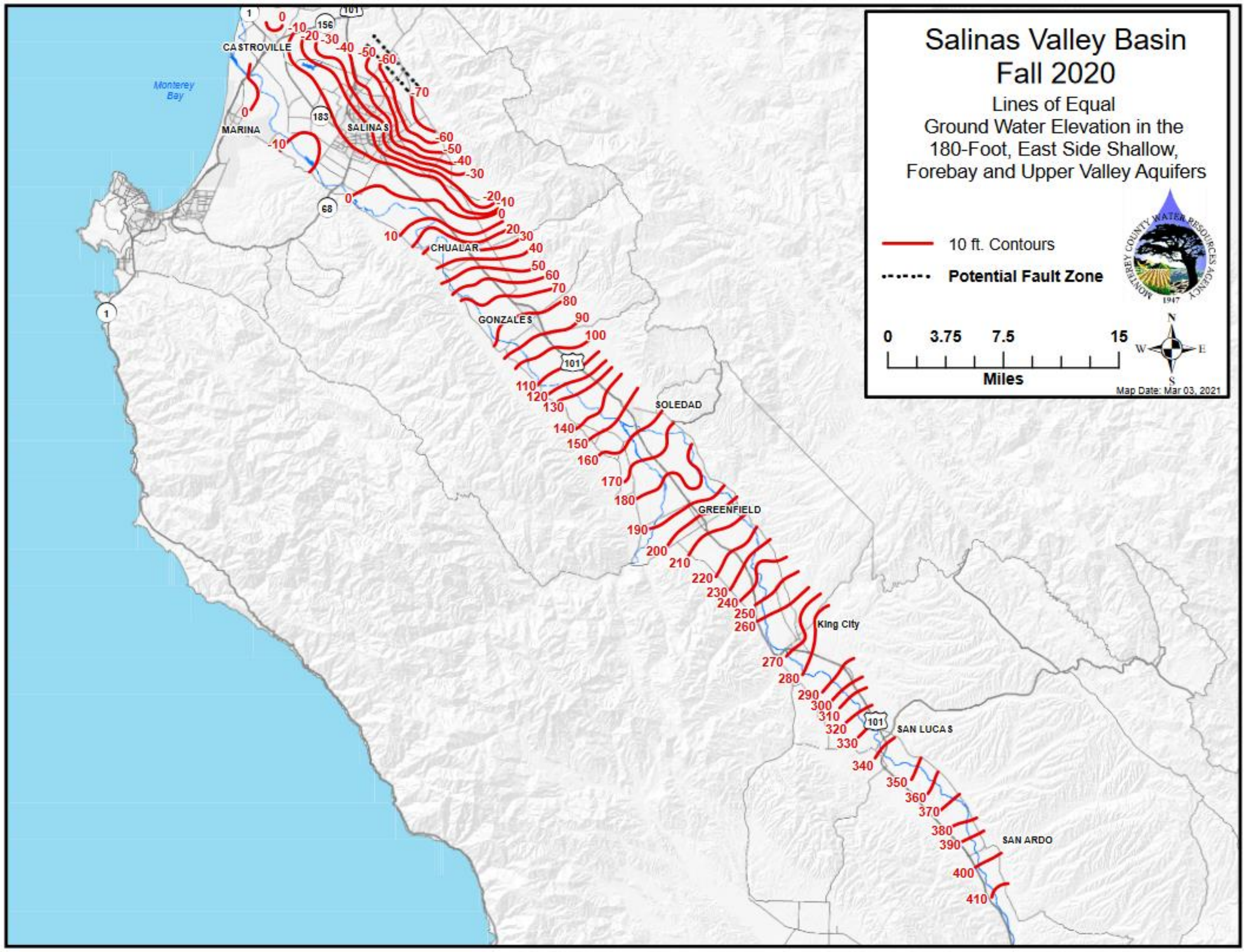


Figure 4-3: Base of Freshwater in the Vicinity of the Proposed Project

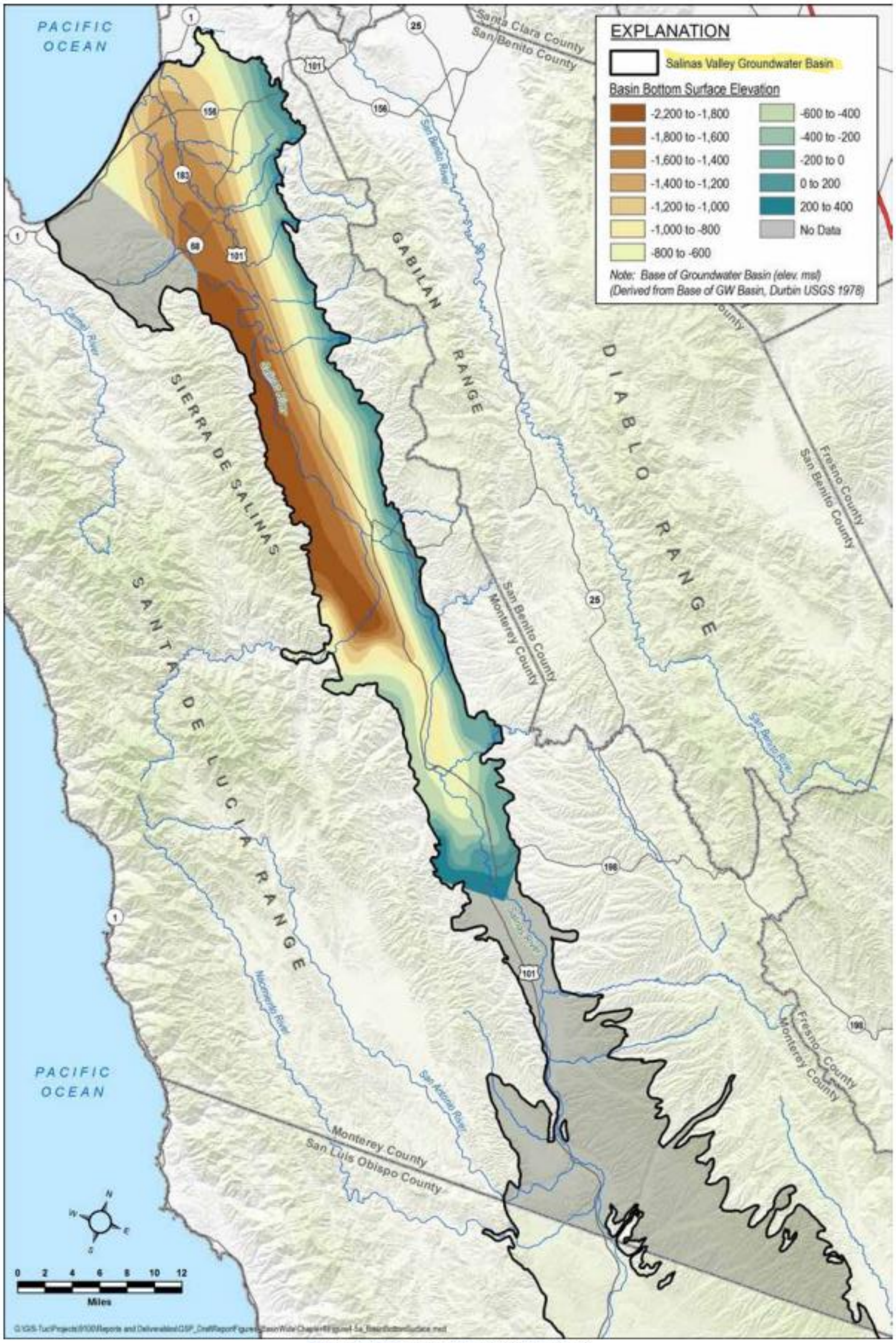
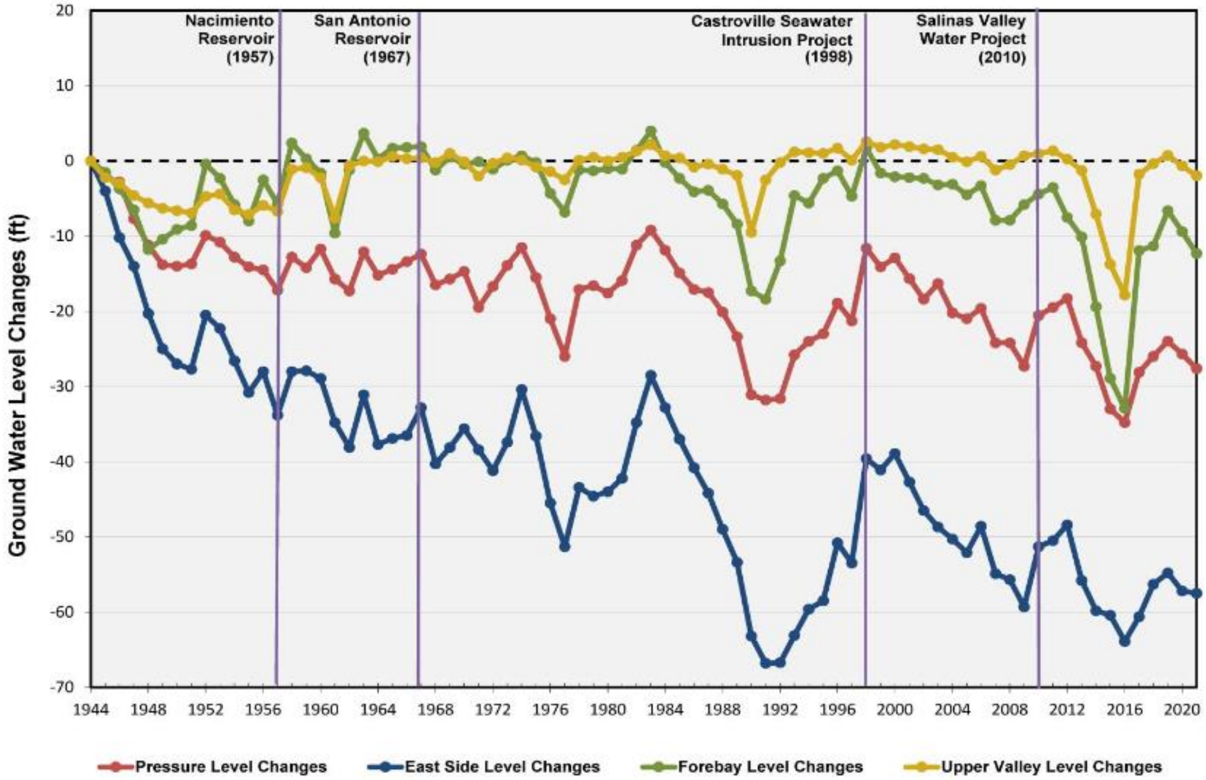


Figure 4-5: Elevation of the Base of the Basin

Figure 4-4: Salinas Valley Groundwater Levels Changes (1944 – 2021)



Source: Monterey County Water Resource Agency

4.2 Groundwater Management in the Salinas Valley Groundwater Basin

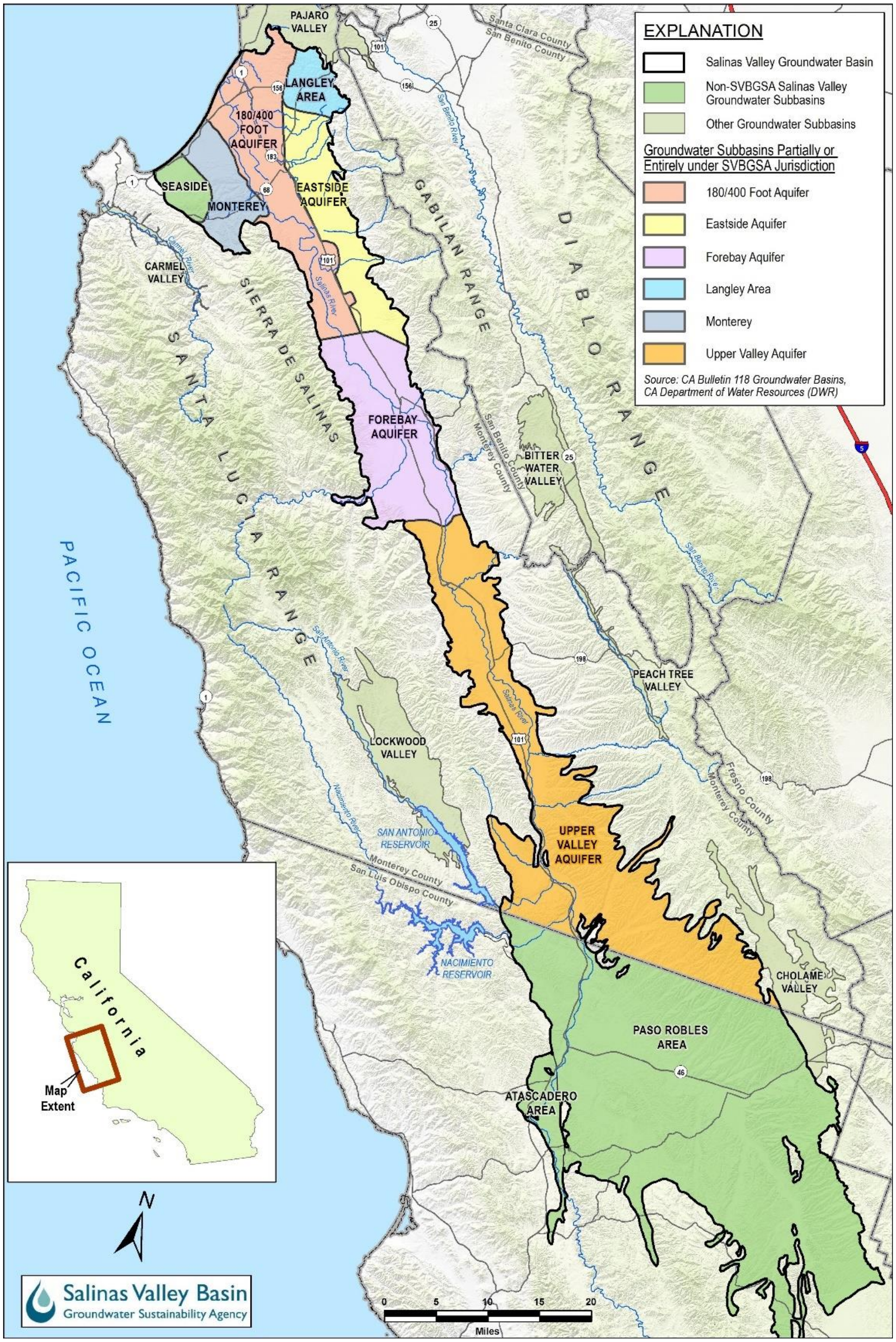
In California, regulation of groundwater has largely been left to local authorities. There are a variety of methods available for managing groundwater resources in California and the degree of groundwater management in any basin is often dependent on water availability and demand.[76] Typically, local groundwater management strategies include monitoring groundwater levels and production amounts, and conjunctive use of groundwater and surface water supplies.

In 2014 the State of California passed the Sustainable Groundwater Management Act (SGMA), which consist of three bills (AB 1739, SB 1168, and SB 1319). SGMA outlines necessary steps for local groundwater agencies to reach sustainable groundwater use. The framework allows local agencies to establish a Groundwater Sustainability Agency (GSA) in order to develop and implement groundwater sustainability plans (GSPs) for their respective jurisdiction. Where multiple GSAs cover a defined basin, the GSAs may submit one GSP or individual GSPs. If individual GSPs are developed, each GSA must provide the State with agreements demonstrating coordination on GSPs and cooperation for on-going implementation and enforcement. The GSP for the Basin must be submitted to the State by January 31, 2020 for high priority basins and

[76] Department of Water Resources, Bulletin 118 (2003), Ch. 2.

January 31, 2022 for medium priority basins. As shown in **Figure 4-5**, the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) is the GSA for six subbasins within the Salinas Valley: the 180/400-Foot Aquifer, Eastside, Forebay, Langley Area, Monterey, and Upper Valley Aquifer subbasins. The City of Gonzales overlies the 180/400-Foot Aquifer, Eastside, and Forebay subbasins, all of which are entirely under the jurisdiction of the SVBGSA. SVBGSA was responsible for producing each subbasin's GSP as well as the overarching Valley-Wide Integrated Groundwater Sustainability Plan.

Figure 4-5: Salinas Valley Basin Groundwater Sustainability Agency



4.2.1 Sustainable yield under SGMA

Each subbasin within the larger Salinas Valley Groundwater Basin has produced a GSP that estimates sustainable yield on a subbasin-wide basis. Sustainable yield is the amount of water that can be safely extracted and consumed each year from a subbasin while balancing the water budget, resulting in no net decrease in storage of useable groundwater or any other undesirable result as defined by SGMA.[77]

GSAs may also choose to implement, through a GSP, the formal process of quantifying pumping allocations that define the maximum amount of water that may be extracted annually by individual parties. Pumping allocations are not water rights and cannot determine water rights. Instead, they are a way to determine each extractor's pro-rata share of groundwater extraction and regulate groundwater extraction.

At this time, none of the subbasins within the Salinas Valley Groundwater Basin have issued pumping allocations. None of the subbasins' GSPs have expressed sustainable yield on a per-acre or per-party basis. In the absence of defined pumping allocations, this WSA assumes that sustainable yield on a subbasin-wide basis is the best available indicator to develop a proxy value for groundwater supplies available to the Proposed Project. Each subbasin's sustainable yield can then be interpolated to estimate sustainable yield on a per-acre basis and therefore supply available to the City of Gonzales and the Proposed Project.

The following section presents the estimated sustainable yield for each subbasin underlying the Proposed Project. The methodology described below is summarized in **Table 4-1**.

180/400-Foot Aquifer Subbasin Sustainable Yield

This WSA calculated an estimate of sustainable yield for the 180/400-Foot Aquifer Subbasin based on values projected for 2030 in Section 6.4 of the subbasin's 2022 GSP. These values are more conservative than those projected by the GSP for 2070.

The 180/400-Foot Aquifer Subbasin GSP estimates that projected pumping will total 124,600 acre-feet/year for the entire subbasin, with 11,000 acre-feet/year attributed to urban uses and the remaining 113,600 acre-feet/year attributed to agriculture. 91.2% of the subbasin's total pumping is projected to be from agriculture. [78] Changes in storage from declining groundwater levels and due to seawater intrusion are projected to total 13,400 acre-feet/year. Subtracting the decline in storage from the projected pumping, the sustainable yield for the entire subbasin in 2030 will be 111,200 acre-feet/year.[79] This quantity represents the sustainable yearly consumption of groundwater for all uses, including agriculture and municipal uses.

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[77] California Department of Water Resources. (2022). Sustainable Groundwater Management Act (SGMA) . Retrieved from https://water.ca.gov/programs/groundwater-management/sgma-groundwater-management

[78] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021), Section 6.4.3

[79] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), Section 6.4.4

Table 4-1: WSA Estimate of Sustainable Yield Calculations for Agriculture (acre-feet/acre)

		180/400-Foot Aquifer Subbasin	Eastside Subbasin	Forebay Subbasin
2030 Adjusted Projected Pumping (AF/yr)	Urban	11,000	9,400	5,800
	Agricultural	113,600	81,000	165,700
	Total	124,600	90,400	171,500
Change in Storage		(13,400)	(10,000)	-
Projected Sustainable Yield (Gross Pumping)		111,200	80,400	171,500
Continued Overdraft Projected?		Yes	Yes	No
Percent of Pumping From Ag		91.2%	89.6%	96.6%
Proportional Amount of Sustainable Yield (Gross Pumping) Attributable to Ag		101,383	72,040	165,700
Estimated Deep Percolation from Ag (15%)		15,207	10,806	24,855
Proportional Amount of Sustainable Yield (Net Consumption) Attributable to Ag		86,176	61,234	140,845
Acres in Subbasin Used for Ag		62,806	34,471	85,834
Estimated Sustainable Yield for Ag (acre-feet/acre)		1.37	1.78	1.64

Because the 2030 adjusted projected pumping values reflect a condition where storage continues to decline, the 113,600 acre-feet/year attributed to agriculture pumping was not used in this WSA. Instead, this WSA used projected sustainable yield, reduced to the percentage attributable to agriculture. Using 91.2% of the sustainable yield projection of 111,200 acre-feet/year, it is estimated that 101,383 acre-feet/year could be pumped sustainably for agricultural use. This sustainable yield value represents gross pumping, not net consumption. It is assumed that of the 101,383 acre-feet/year that could be sustainably pumped for agriculture, 85 percent would be consumed by crops (evaporated), and 15 percent would percolate deeply and return to the groundwater subbasin. After subtracting out the estimated 15,207 acre-feet per year of deep percolation from agriculture, the proportional amount of sustainable yield attributable to agriculture that would be net consumed from the subbasin is 86,176 acre-feet/year across the existing 62,806 acres in the subbasin used for irrigated agriculture (**Table 4-1**).[80]

By dividing the portion of the projected sustainable yield used for agriculture by the number of irrigated acres in the subbasin, this WSA estimates the sustainable yield on a per irrigated acre basis is at least 1.37 acre-feet/acre (Table 4-1). Therefore, the Proposed Project could convert a sustainable supply of 1.37 acre-feet/acre of consumptive water use from irrigated agriculture to urban use without negatively impacting the sustainable yield represented by the GSP for the 180/400-Foot Aquifer Subbasin.

The GSP assumes that land use is static over the planning period, aside from crop seasonality, therefore the existing irrigated agricultural acres represent the irrigated acres expected in 2030 and 2070. Crucially, the water budget assumes no urban growth, with future municipal pumping

[80] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), Section 3.2

equal to current municipal pumping.[81] The GSP states that if "urban growth replaces agricultural irrigation, the impact may be minimal because the urban growth will replace existing agricultural water use."[82] Consistent with this assumption, the Proposed Project and other planned developments involve urban development on land currently used for irrigated agriculture, within the assumed existing irrigated acreage value.

Eastside Subbasin Sustainable Yield

This WSA calculated an estimate of sustainable yield for the Eastside Subbasin based on values projected for 2030 in Section 6.4 of the subbasin's 2022 GSP. These values are more conservative than those projected by the GSP for 2070.

The Eastside Subbasin GSP estimates that projected pumping will total 90,400 acre-feet/year for the entire subbasin, with 9,400 acre-feet/year attributed to urban uses and the remaining 81,000 acre-feet/year attributed to agriculture.[83] 89.6% of the subbasin's total pumping is projected to be from agriculture.[84] Changes in storage from declining groundwater levels are projected to total 10,400 acre-feet/year. Subtracting the decline in storage from the projected pumping, the sustainable yield for the entire subbasin in 2030 will be 84,400 acre-feet/year.[85] This quantity represents the sustainable yearly consumption of groundwater for all uses, including agriculture and municipal uses.

Because the 2030 adjusted projected pumping values reflect a condition where storage continues to decline, the 81,000 acre-feet/year attributed to agriculture pumping was not used in this WSA. Instead, this WSA used projected sustainable yield, reduced to the percentage attributable to agriculture. Using 89.6% of the sustainable yield projection of 80,400 acre-feet/year, it is estimated that 72,040 acre-feet/year could be pumped sustainably for agricultural use. This sustainable yield value represents gross pumping, not net consumption. It is assumed that of the 72,040 acre-feet/year that could be sustainably pumped for agriculture, 85 percent would be consumed by crops (evaporated), and 15 percent would percolate deeply and return to the groundwater subbasin. After subtracting out the estimated 10,806 acre-feet per year of deep percolation from agriculture, the proportional amount of sustainable yield attributable to agriculture that would be net consumed from the subbasin is 61,234 acre-feet/year across the existing 34,471 acres in the subbasin used for irrigated agriculture (Table 4-1).[86]

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[81] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), section 6.4.3
[82] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), section 6.4.1
[83] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 6.4.4.
[84] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 6.4.3.
[85] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), Section 6.4.4
[86] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 3.2.

By dividing the portion of the projected sustainable yield used for agriculture by the number of irrigated acres in the subbasin, this WSA estimates the sustainable yield on a per irrigated acre basis is at least 1.78 acre-feet/acre (Table 4-1). Therefore, the Proposed Project could convert 1.78 acre-feet/acre of consumptive water use from irrigated agriculture to urban use without negatively impacting the sustainable yield represented by the GSP for the Eastside Subbasin.

The GSP assumes that land use is static over the planning period, aside from crop seasonality, therefore the existing irrigated agricultural acres represent the irrigated acres expected in 2030 and 2070. Crucially, the water budget assumes no urban growth, with future municipal pumping equal to current municipal pumping.[87] The GSP states that if "urban growth replaces agricultural irrigation, the impact may be minimal because the urban growth will replace existing agricultural water use."[88] Consistent with this assumption, the Proposed Project involves urban development on land currently used for irrigated agriculture and within the assumed existing irrigated acreage value.

Forebay Subbasin Sustainable Yield

This WSA calculated an estimate of sustainable yield for the Forebay Subbasin based on values projected for 2030 in Section 6.4 of the subbasin's 2022 GSP. These values are more conservative than those projected by the GSP for 2070.

The Forebay Subbasin estimates that the projected sustainable yield for the entire subbasin in 2030 will be 171,500 acre-feet/year and would result in no change in groundwater storage.[89] This quantity represents the sustainable yearly consumption of groundwater for all uses, including agriculture and municipal uses. The GSP estimates that 165,700 acre-feet/year of the sustainable yield (96.6%) will be pumped for agricultural use.[90] This sustainable yield value represents gross pumping, not net consumption. It is assumed that of the 165,700 acre-feet/year that could be sustainably pumped for agriculture, 85 percent would be consumed by crops (evaporated), and 15 percent would percolate deeply and return to the groundwater subbasin. After subtracting out the estimated 24,855 acre-feet/year of deep percolation from agriculture, the proportional amount of sustainable yield attributable to agriculture that would be net consumed from the subbasin is 140,845 acre-feet/year across the existing 85,834 acres in the subbasin used for irrigated agriculture (both row crops and pasture) (**Table 4-1)**.[91]

[87] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 6.4.3.
[88] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 6.4.1.
[89] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2022), Section 6.4.4. Table 6-17: 2030 (Adjusted)
[90] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), Section 6.4.3.
[91] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), Section 3.2.

By dividing the portion of the projected sustainable yield used for agriculture by the number of agricultural acres (both row crops and pasture) in the subbasin, this WSA estimates the sustainable yield on a per irrigated acre basis is at least 1.64 acre-feet/acre. Therefore, the Proposed Project could convert 1.64 acre-feet/acre of consumptive water use from irrigated agriculture to urban use without negatively impacting the sustainable yield represented by the GSP for the Forebay Subbasin.

The GSP assumes that land use is static over the planning period, aside from crop seasonality, therefore the existing irrigated agricultural acres represent the irrigated acres expected in 2030 and 2070. Crucially, the water budget assumes no urban growth, with future municipal pumping equal to current municipal pumping.[92] The GSP states that if "urban growth replaces agricultural irrigation, the impact may be minimal because the urban growth will replace existing agricultural water use."[93] Consistent with this assumption, the Proposed Project involves urban development on land currently used for irrigated agriculture and within the assumed existing irrigated acreage value.

City of Gonzales Sustainable Yield

The City of Gonzales straddles the intersection of the three subbasins described above, which somewhat complicates the consideration the City's future water use in each subbasins' GSP. However, the three GSPs are all consistent in their approach to municipal water use in future water budgets, which were the basis for calculating the sustainable yield values presented in this WSA. All three subbasins' GSPs state that, "Because the [groundwater] model assumes no urban growth, future municipal pumping was assumed to be equal to current municipal pumping. Future agricultural pumping is then calculated as the total projected pumping minus the current municipal pumping."[94] As calculated in Section 3.1 of this WSA, current pumping by the City of Gonzales is 1,910 acre-feet per year and the net consumption of groundwater after accounting for recharge is 874 acre-feet per year.

For the purposes of this WSA, it is assumed that 874 acre-feet of net water consumption by the City of Gonzales (2020-2021 average) represents the best available estimate of the long-term net consumption by the City accounted for in GSP future water budgets. Therefore, 874 acre-feet per year is considered an available consumptive supply to the existing City customers for the purposes of the sufficiency analysis presented in Section 5.

Sustainable Yield Conclusions

The Proposed Project will be supplied by the City of Gonzales, which is in turn supplied by groundwater from the Salinas Valley Groundwater Basin. While all of the City's existing wells are located in either the Eastside or the 180/400-Foot Aquifer Subbasin, the City could

[92] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), Section 6.4.3.
[93] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), Section 6.4.1.
[94] All three subbasin GSPs present this information in Section 6.4.3.

conceivably pump water from any of the three groundwater subbasins underlying Gonzales to serve its existing customers, the Proposed Project, and other planned uses. As described above, this WSA used the sustainable yields calculated by the three subbasins' GSPs as the basis to calculate the water supply available to the existing City, the Proposed Project, and the City's other planned developments.

Each of these underlying subbasins has calculated its own projected sustainable yield as a subbasin-wide annual value expressed in acre-feet per year of consumptive use. None of the subbasins have issued pumping allocations to individual entities or expressed sustainable yield on a per-acre or per-party basis. In order to determine the supply available to the Proposed Project and the City of Gonzales' other planned developments, this WSA estimated the sustainable yields attributed for irrigated agriculture for each subbasin, divided by the number of irrigated acres in each subbasin, to arrive at per-acre consumptive sustainable yield values for net consumption. The average sustainable yield of the three subbasins would be 1.60 acre-feet/acre/year. As a conservative assumption, this WSA assumes that the most restrictive subbasin's sustainable yield estimate will limit the groundwater supply available to the proposed project. Therefore, the sustainable yield of 1.37 acre-feet/acre/year for consumptive water use calculated for 180/400-Foot Aquifer Subbasin is assumed to represent the water supply available to the Proposed Project and the City of Gonzales' other planned developments on a per acre basis. The water use of the existing City of Gonzales has already been accounted for as an "Urban Use" in the various Subbasins' water budgets.

The sustainable yield of 1.37 acre-feet/acre/year for consumptive water use can then be multiplied by the number of acres in the Proposed Project and the City's other planned developments to arrive at the total quantity of water available as consumptive supply. These calculations are presented in **Table 4-2**. With a total acreage of 2,239, the total sustainable consumptive groundwater supply available to the Proposed Project and the City of Gonzales' other planned developments is 3,072 acre-feet per year. In addition, the City of Gonzales was estimated to have had a current net consumption of 874 acre-feet of groundwater, which the GSPs assume will be constant throughout the planning period. The City's current consumption is a static value not scaled by acres. The grand total supply of sustainable yield for net consumption is estimated to be 3,946 acre-feet/year, as presented in **Table 4-2**.

Table 4-2: Net Consumptive Sustainable Yield Conclusions

Development	Acres	Net Consumptive Sustainable Yield	
		Acre-Feet Per Acre	Total Acre-Feet per Year
Proposed Project (Vista Lucia)	768	1.37	1,054
Puente Del Monte & Rianda Cooler	585	1.37	803
D'Arrigo	831	1.37	1,140
Franscioni	55	1.37	75
All New Developments Subtotal	2,239	1.37	3,072
Existing City	N/A		874
Grand Total	N/A		3,946

4.3 WATER RIGHTS, FINANCING, AND REGULATORY APPROVALS[95]

Upon construction of the Proposed Project, ownership and operation of all water utility systems will be transferred to the City of Gonzales. It is anticipated the Proposed Project will be annexed into the City prior to Project construction. The City of Gonzales will then be responsible for the continued operation and maintenance of all utility systems. However, the City assuming responsibility for water delivery will not have any impact on the Proposed Project's estimated water demand or the availability of the groundwater resources available to serve the Proposed Project, as described later in Section 5.

Absent an adjudication of a groundwater basin, California common law governs the right to use and extract percolating groundwater from a basin. The Salinas Valley Basin and all of its subbasins are unadjudicated groundwater basins and therefore subject to these common law rules. The owner of real property overlying a groundwater aquifer possesses a right as part and parcel of the land to extract groundwater from beneath the property for use on overlying land within the watershed. The Proposed Project applicants are, or will become as a result of approval of the Proposed Project, landowners overlying the Basin. Accordingly, both the current owner of the property and the proposed applicant of the Proposed Project are overlying owners and are entitled to produce groundwater to serve their reasonable and beneficial uses within the watershed or drainage area of the basin. The City, as a municipal water supplier, also has the opportunity to establish appropriative rights on this same groundwater resource as the Proposed Project and other planned future uses are established – consistent with the appropriative rights to groundwater it has already established through service to existing customers. These rights, however, are subject to the County's oversight and management, and as may be required to conform to SGMA.

[95] See Water Code Section 10910(d)(2)

4.3.1 Financing the Water Supply

The Proposed Project anticipates being served by the City of Gonzales. The Proposed Project is explicitly anticipated by the City of Gonzales' current Water Master Plan.[96] The estimated cost of developing the water system which will serve all planned developments in the City's Sphere of Influence, including other planned developments not included in the Proposed Project, is expected to be approximately $20.3-21.1 million.[97] New wells and other related infrastructure will be constructed by either the developers of new projects or the City of Gonzales. The anticipated expenses of infrastructure are relatively modest compared to the development as a whole, and financing is not expected to create a barrier to implementing the water supply plans identified in this WSA.

4.3.2 Regulatory Approvals and Permits

Prior to drilling new municipal wells, the Proposed Project will need to acquire permits from the County as detailed in the County's municipal code. The Proposed Project will likely be subject to at least the following regulatory approvals and filings for new wells:

- City Permit for Water System Design Standards[98]
- California Statues Related to the creation of a Drinking Water System[99]
- Well Completion Report must be filed with the Department of Water Resources[100]
- Meter permit required through City Public Works Department
- Certification for operating a municipal well from the California SWRCB's Division of Drinking Water.

[96] City of Gonzales (2019), *Existing City Plus Sphere of Influence Water Master Plan*
[97] City of Gonzales (2019), *Existing City Plus Sphere of Influence Water Master Plan*
[98] City of Gonzales Code § 10.04, et seq.
[99] Water Code § 14300, et seq.
[100] Water Code § 13750, et seq.

SECTION 5 – SUFFICIENCY ANALYSIS & CONCLUSIONS

In conformance with WSA Law, this section includes an analysis of sufficiency of identified groundwater supplies to serve the Proposed Project, considering variations in supply and demand characteristics under normal, single-dry and multi-dry year hydrologic conditions.[101] The WSA provides a reasoned analysis of the likely availability of the identified supplies to serve the Proposed Project, while considering the demands of existing and other planned future land uses.[102]

5.1 WSA LAW SUFFICIENCY ANALYSIS

The WSA Law sufficiency analysis integrates the water demands details in Section 2 and Section 3 with the groundwater supplies characterized in Section 4.

The Proposed Project will be served by the City of Gonzales, which is in turn supplied entirely by groundwater from the Salinas Valley Groundwater Basin.[103] The City will be responsible for serving the Proposed Project, its existing customers, and the City's other planned developments including the Puente Del Monte, Rianda Cooler, D'Arrigo, and Franscioni projects. The demand for each of these components totals to 6,493 acre-feet per year (**Table 5-1**).

Table 5-1: Total Combined Demand at Build-Out to be Met by City of Gonzales

<table>
<tr><th colspan="2" rowspan="2">Sector</th><th colspan="6">Acre-Feet per Year at Full Buildout</th></tr>
<tr><th>Indoor</th><th>Outdoor</th><th>Misc</th><th>Subtotal</th><th>Loss Factor</th><th>Grand Total</th></tr>
<tr><td rowspan="2">Vista Lucia</td><td>Residential</td><td>901</td><td>283</td><td rowspan="2">-</td><td rowspan="2">1,351</td><td rowspan="2">150</td><td rowspan="2">1,501</td></tr>
<tr><td>Non-Residential</td><td>36</td><td>131</td></tr>
<tr><td colspan="2">Existing City</td><td>1,182</td><td>869</td><td>N/A</td><td>2,051</td><td>205</td><td>2,257</td></tr>
<tr><td rowspan="2">Puente Del Monte</td><td>Residential</td><td>676</td><td>267</td><td rowspan="2">18</td><td rowspan="2">1,135</td><td rowspan="2">126</td><td rowspan="2">1,262</td></tr>
<tr><td>Non-Residential</td><td>72</td><td>102</td></tr>
<tr><td>Rianda Cooler</td><td>Industrial</td><td>225</td><td>9</td><td>N/A</td><td>234</td><td>23</td><td>258</td></tr>
<tr><td rowspan="3">D'Arrigo</td><td>SOI</td><td>268</td><td>119</td><td rowspan="3">N/A</td><td rowspan="3">922</td><td rowspan="3">92</td><td rowspan="3">1,015</td></tr>
<tr><td>Rincon</td><td>183</td><td>37</td></tr>
<tr><td>Industrial</td><td>304</td><td>12</td></tr>
<tr><td>Franscioni</td><td>Industrial</td><td>176</td><td>7</td><td>N/A</td><td>183</td><td>18</td><td>202</td></tr>
<tr><td colspan="5">Combined Total</td><td>5,877</td><td>615</td><td>6,493</td></tr>
</table>

[101] CWC § 10910 (c)(4) provides that "the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project 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 existing and planned future uses, including agricultural and manufacturing uses."

[102] *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 430-32.

[103] The City overlies portions of the 180/400-Foot Aquifer Subbasin (Basin No. 3-004.01), the Eastside Subbasin (Basin No. 3-004.02), and the Forebay Subbasin (Basin No. 3-004.04). Water from any of these subbasins could be used to serve the demands considered in this WSA.

The Combined Total demand presented in **Table 5-1** represents all expected water demands to be served by the City of Gonzales (Proposed Project, existing City, and other planned uses) at full buildout. The projected pacing of these demands is presented in **Table 5-2**.

Table 5-2: Demand Pacing by Source (acre-feet/year)

Demand Source	2025	2030	2035	2040	2045	2050
Vista Lucia	286	527	917	1,312	1,485	1,501
Existing City	2,010	2,127	2,127	2,257	2,257	2,257
Puente	182	369	637	848	1,266	1,262
Rianda	-	258	258	258	258	258
D'Arrigo	121	416	591	591	591	1,015
Franscioni	-	101	202	202	202	202
Normal Year Total	2,599	3,798	4,731	5,467	6,058	6,493

To fully evaluate water supply sufficiency, it is necessary to evaluate the phased timing of these demands in various hydrologic year types. **Table 5-3** presents the Combined Total Demand to be served by the City beginning in 2025 and continuing through 2050 in 5-year increments. The analysis assumes that the Proposed Project and other planned developments are fully constructed by 2050. **Table 5-2** and **Table 5-3** incorporate the following analysis previously presented in this WSA:

- The Proposed Project's potable water demand projection from **Table 2-5**
- The existing City's demand projection from **Table 3-5**
- The buildout schedule for other planned developments presented in **Table 3-6**
- Puente Del Monte's demand projections, as detailed in **Attachment A** and summarized in Section 3.2.1 and **Table 3-7**.
- The Rianda Cooler's demand projections described in Section 3.2.2
- The three D'Arrigo Developments (SOI, Rincon, Industrial) demand projections from **Table 3-8**
- Franscioni demand projections described in Section 3.2.2

Prior to consideration of sustainable yields as defined by GSAs under SGMA, **Table 5-3** represents that sufficient groundwater physically exists in the saturated aquifers of the Salinas Valley Groundwater Basin to meet the needs of the Proposed Project. While this may demonstrate passing of a basic test regarding the physical availability of groundwater, it does not address the requirements of SGMA, which is a more applicable legal test of water supply sufficiency for purposes of this WSA. That analysis follows in the next subsection.

Table 5-3: Assessment of Physical Sufficiency for Water Demands

Year	Total Combined Water Demand	Hydrologic Year Type		Groundwater Extracted	Sufficient Groundwater Physically Available?
2025	2,599	Normal		2,599	Yes
	2,729	Single Dry		2,729	Yes
	2,729	Muliple Dry	Year 1	2,729	Yes
	2,599		Year 2	2,599	Yes
	2,339		Year 3-5	2,339	Yes
2030	3,798	Normal		3,798	Yes
	3,988	Single Dry		3,988	Yes
	3,988	Muliple Dry	Year 1	3,988	Yes
	3,798		Year 2	3,798	Yes
	3,418		Year 3-5	3,418	Yes
2035	4,731	Normal		4,731	Yes
	4,968	Single Dry		4,968	Yes
	4,968	Muliple Dry	Year 1	4,968	Yes
	4,731		Year 2	4,731	Yes
	4,258		Year 3-5	4,258	Yes
2040	5,467	Normal		5,467	Yes
	5,741	Single Dry		5,741	Yes
	5,741	Muliple Dry	Year 1	5,741	Yes
	5,467		Year 2	5,467	Yes
	4,920		Year 3-5	4,920	Yes
2045	6,058	Normal		6,058	Yes
	6,361	Single Dry		6,361	Yes
	6,361	Muliple Dry	Year 1	6,361	Yes
	6,058		Year 2	6,058	Yes
	5,452		Year 3-5	5,452	Yes
2050	6,493	Normal		6,493	Yes
	6,818	Single Dry		6,818	Yes
	6,818	Muliple Dry	Year 1	6,818	Yes
	6,493		Year 2	6,493	Yes
	5,844		Year 3-5	5,844	Yes

As summarized in **Table 5-3**, the total combined demand of the existing Proposed Project, existing City, and other planned developments at buildout in 2050 is estimated to be 6,493 acre-feet annually under normal conditions – varying slightly during single and multiple dry years, ranging from 5,844 acre-feet to 6,818 acre-feet. **Table 5-3** demonstrates that sufficient groundwater physically exists in the Salinas Valley Groundwater Basin to meet the needs of the Proposed Project, City, and other planned developments.

5.2 SUSTAINABLE GROUNDWATER MANAGEMENT ACT COMPLIANCE

As discussed in Section 4, the State of California has passed the Sustainable Groundwater Management Act (SGMA), which outlines necessary steps for local groundwater agencies to reach long-term sustainable groundwater use. The City of Gonzales and the Proposed Project overlie three subbasins within the Salinas Valley Groundwater Basins. This WSA has used each subbasin's GSP as well as the Valley-Wide Integrated Groundwater Sustainability Plan (VWIGSP) to assess the availability of groundwater to serve the demands presented in **Table 5-2**.

Crucial to SGMA compliance is the demonstration that the total combined demands do not exceed Sustainable Yield. This is primarily accomplished by evaluating total groundwater pumped versus the net groundwater consumed – with the difference returning to the groundwater basin through purposeful or incidental recharge. As discussed later, in conjunction with the low-water demanding land-use and landscaping attributes described in Section 2, wastewater from the Proposed Project will be collected by the City of Gonzales, treated, and recharged back to the basin, consistent with current wastewater treatment operations.

5.2.1 Sustainable Yield in each Subbasin

As presented in Section 4.2.1, none of the subbasins' GSPs have expressed sustainable yield on a per-acre or per-entity basis. In the absence of defined pumping allocations, this WSA assumes that sustainable yield on a subbasin-wide basis is the best available indicator to develop a proxy value for groundwater supplies sustainably available to the Proposed Project. As detailed in Section 4, each subbasin's sustainable yield has be translated to an estimated sustainable yield on a per-acre basis for net consumption, which then provides a definable sustainable yield available to the City and the Proposed Project. The GSPs assume that land use is static over the 30- and 50-year planning periods, aside from crop seasonality, therefore the existing irrigated agricultural acres represent the irrigated acres expected in both the 2030 and 2070 future conditions. Crucially, the water budget assumes no urban growth, with future municipal pumping equal to current municipal pumping.[104] The GSPs states that if "*urban growth replaces agricultural irrigation, the impact may be minimal because the urban growth will replace existing agricultural water use*."[105]

In order to determine the supply available to the Proposed Project and the City of Gonzales' other planned developments, this WSA divided the sustainable yields attributed for irrigated agriculture for each subbasin by the number of irrigated acres in each subbasin to arrive at per-acre consumptive sustainable yield values. As a conservative assumption, this WSA assumes that the most restrictive subbasin's sustainable yield estimate will limit the groundwater supply available to the proposed project. Therefore, the sustainable yield of 1.37 acre-feet/acre/year for

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[104] 180/400-Foot Aquifer Subbasin GSP, Eastside Subbasin GSP, and Forebay Subbasin GSP all present this assumption in Section 6.4.3.

[105] 180/400-Foot Aquifer Subbasin GSP, Eastside Subbasin GSP, and Forebay Subbasin GSP all present this assumption in Section 6.4.1.

net consumptive water use calculated for 180/400-Foot Aquifer Subbasin is assumed to represent the water supply available to the Proposed Project and the City's other planned developments. As noted previously, this 1.37 acre-feet/acre/year limit applies to consumptive water use, not total water use, because some water used indoors returns to replenish the basin as treated wastewater. With a total acreage of 2,239, the total sustainable consumptive groundwater supply available to the Proposed Project and the City's other planned developments is estimated to be 3,072 acre-feet per year (**Table 4-2**).

As presented in Section 4.2.1, the groundwater use of the existing City is considered a municipal use that will remain static across the planning period of the GSPs. The current net consumptive use of the City was calculated as 874 acre-feet per year. Consistent with the planning approach presented in the GSPs, this WSA assumes that the City's current net consumptive use is the best available indicator of the sustainable yield available to the existing City customers in the future.

By summing together the sustainable yield available to the Proposed Project and the City's other planned developments with the sustainable yield available the City's current customers, a total sustainable yield of 3,946 acre-feet per year of net consumptive use is available (**Table 4-2**).

5.2.2 Proposed Recharge of Treated Wastewater

When water is used indoors in urban settings, much of that water is collected as wastewater and conveyed to a wastewater treatment plant (WWTP). In the City of Gonzales, treated wastewater is disposed of through percolation ponds that infiltrate treated water back to the groundwater aquifer (see Section 4.2.2). As the City grows, it is anticipated that industrial wastewater flows will be separated from domestic flows and conveyed to a new Wastewater Treatment Plant. At both the City's existing WWTP and the City's planned new WWTP, the primary method of treated effluent disposal is percolation ponds. In these percolation ponds, the majority of water returns to the groundwater basin and a fraction evaporates. As presented in **Table 3-4**, approximately 12 percent of the inflow to the GWWTP currently evaporates during the treatment and infiltration process, while the remainder is assumed to return to the groundwater basin. This WSA assumes that this is a good indicator of expected future conditions, when the GWWTP also receives wastewater from the Proposed Project and other planned developments.

Thus, the total combined demand for groundwater at build-out to be served by the City of Gonzales (see **Table 5-1**, **Table 5-2,** and **Table 5-3**) is partially offset from a groundwater sustainability perspective by the treated wastewater returned to the basin – water that is used but never consumed and remains available to the basin. Under the full buildout condition, it is estimated that five percent of flow in industrial facilities for indoor use in "consumed" by industrial processes, with the remaining 95 percent flowing to the GWWTP.[106] This WSA estimates that one percent of flow into all non-industrial facilities (both residential and non-residential) for indoor use is "consumed" through incidental evaporation and human

[106] Personal Communication, June 17, 2022 Zoom meeting with City Staff.

consumption,[107] with the remaining 99 percent flowing to the GWWTP. Of the 4,008 acre-feet estimated to be demanded for indoor uses at build-out, 3,940 acre-feet would be conveyed as wastewater to the GWWTP. After 12 percent of this influent is lost to evaporation during treatment and infiltration process, 3,467 acre-feet of treated effluent will return to recharge the basin via the existing and future permitted percolation ponds (**Table 5-4**).

Table 5-4: Wastewater Produced and Returned to the Basin

Sector		Acre-Feet per Year at Full Buildout				
		Indoor Demand	Indoor Loss Factor	Wastewater Produced	Loss at WWTP	Returned to GW Basin
Vista Lucia	Residential	901	9	892	107	785
	Non-Residential	36	0	36	4	31
Existing City		1,182	12	1,170	140	1,030
Puente Del Monte	Residential	676	7	669	80	589
	Non-Residential	72	1	72	9	63
Rianda Cooler	Industrial	225	11	214	26	188
D'Arrigo	SOI	268	3	265	32	233
	Rincon	183	2	181	22	159
	Industrial	304	15	289	35	254
Franscioni	Industrial	176	9	167	20	147
Combined Total		**4,023**	**68**	**3,955**	**475**	**3,480**

5.2.3 Groundwater Balance Determination at Buildout

To ensure compliance with SGMA and consistency with the Sustainable Yield calculations presented in Section 5.2.1, the total combined demand at buildout, minus recharge, must be less than the sustainable yield of the Basin. In this calculation, total combined demand at buildout minus recharge is equivalent to Net Consumptive Use, or the net loss through evaporation and evapotranspiration from the Basin. Mathematically, this is expressed by the following formulas:

"Total Combined Demand" – "Recharge" < "Sustainable Yield"

or

"Net Consumptive Use" < "Sustainable Yield"

Where:

"Total Combined Demand" is 6,493 acre-feet per year, as shown in **Table 5-1**.

"Recharge" is water returned to the groundwater basin via system losses (see **Table 5-1**), and infiltration of treated effluent at the GWWTP (see **Table 5-4**). These values are 615 acre-feet and 3,480 acre-feet respectively, for a total recharge of 4,095 acre-feet per year.

[107] Data regarding this percentage is not readily available. However, this estimate would represent water that is consumed by residents and visitors – either in locally made foods or drink – and taken offsite. Using a larger percentage would just add to the estimated net consumptive use, but would not affect the gross withdrawal.

"Sustainable Yield" is 1.37 acre-feet/acre/year of consumptive use for all new land uses on land currently supporting irrigated agriculture. Across the total area of 2,239 acres occupied by the Proposed Project and other Planned Developments, the total sustainable consumptive groundwater supply available to the Proposed Project and the City's other planned developments is 3,072 acre-feet per year. The net consumptive use of the Existing City of Gonzales is calculated as 874 acre-feet per year. Together, the sustainable yield available to all uses to be served by the City of Gonzales at buildout is 3,946 acre-feet per year (**Table 4-2**).

Using this WSA's specific information, the equation becomes:

(6,493 acre-feet) – (4,095 acre-feet) < (3,946 acre-feet)

Which equates to

(2,398 acre-feet) < (3,946 acre-feet)

"Net Consumptive Use" is therefore 2,398 acre-feet per year, which is less than the available sustainable supply of 3,946 acre-feet per year. This demonstrates that the Proposed Project complies with SGMA and does not generate net consumptive demands which exceed the sustainable yield of the basin. **Figure 5-1** graphically presents a detailed flow diagram of the Proposed Project, Existing City, and other planned uses' extraction and use of groundwater and associated return flows and other recharge elements that achieve groundwater balance. Each of the Specific Values presented in **Figure 5-1** is detailed here:

a) 6,493 acre-feet per year – This total pumping quantity represents the City's gross production of groundwater from the Salinas Valley Groundwater Basin, as shown in **Table 5-1**.

b) 615 acre-feet per year – This represents the City Distribution System losses back to the basin through leaks, estimated at 10 percent of total metered deliveries, as detailed in Section 3.1.1 and Section 5.2.2.

c) 1,351 acre-feet per year – This represents the subtotal demand for the Proposed Project (Vista Lucia), excluding system losses, as shown in **Table 5-1**.

d) 937 acre-feet per year – This represents the total indoor water use (residential and nonresidential) of the Proposed Project (Vista Lucia), as shown in **Table 5-1**.

e) 9 acre-feet per year – This represents the one percent loss rate from indoor water use of the Proposed Project (Vista Lucia), as shown in **Table 5-4**.

f) 414 acre-feet per year – This represents the outdoor water use of the Proposed Project (Vista Lucia), as well as miscellaneous water use, as shown in **Table 5-1**.

g) 928 acre-feet per year – This represents the wastewater produced by the Proposed Project (Vista Lucia), as shown in **Table 5-4**.

h) 423 acre-feet per year – This represents the net consumptive use of the Proposed Project (Vista Lucia).

i) 2,051 acre-feet per year – This represents the subtotal demand for the Existing City of Gonzales, excluding system losses, as shown in **Table 5-1**.

j) 1,182 acre-feet per year – This represents the total indoor water use of the Existing City of Gonzales, as shown in **Table 5-1**.

k) 12 acre-feet per year – This represents the one percent loss rate from indoor water use of the Existing City, as shown in **Table 5-4**.

l) 869 acre-feet per year – This represents the outdoor water use of the Existing City of Gonzales, as shown in **Table 5-1**.

m) 1,170 acre-feet per year – This represents the wastewater produced by the Existing City of Gonzales, as shown in **Table 5-4**.

n) 881 acre-feet per year – This represents the net consumptive use of the Existing City of Gonzales.

o) 234 acre-feet per year – This represents the subtotal demand for the Rianda Cooler project, excluding system losses, as shown in **Table 5-1**.

p) 225 acre-feet per year – This represents the total indoor water use of the Rianda Cooler project, as shown in **Table 5-1**.

q) 11 acre-feet per year – This represents the five percent loss rate from indoor water use of the Rianda Cooler Project, as shown in **Table 5-4**.

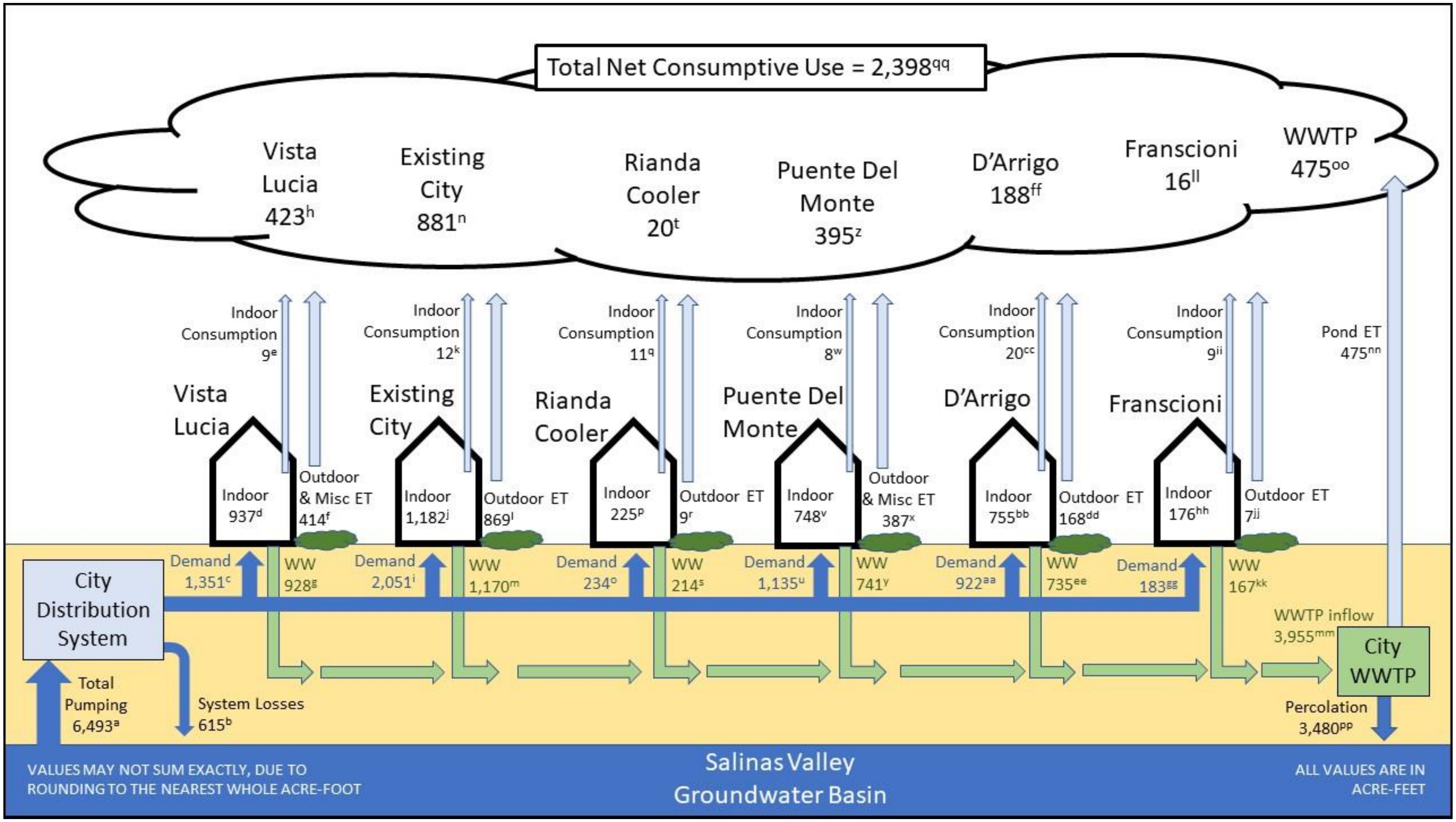
r) 9 acre-feet per year – This represents the outdoor water use of the Rianda Cooler project, as shown in **Table 5-1**.

s) 214 acre-feet per year – This represents the wastewater produced by Rianda Cooler project, as shown in **Table 5-4**.

t) 20 acre-feet per year – This represents the net consumptive use of the Rianda Cooler Project.

u) 1,135 acre-feet per year – This represents the subtotal demand for the Puente Del Monte project, excluding system losses, as shown in **Table 5-4**.

Figure 5-1: Water Use and Net Water Consumption at Full Buildout



v) 748 acre-feet per year – This represents the total indoor water use of the Puente Del Monte project, as shown in **Table 5-1.**

w) 8 acre-feet per year – This represents the one percent loss rate from indoor water use of the Puente Del Monte Project, as shown in **Table 5-4**.

x) 387 acre-feet per year – This represents the outdoor water use of the Puente Del Monte project, as well as miscellaneous water use, as shown in **Table 5-1**.

y) 741 acre-feet per year – This represents the wastewater produced by the Puente Del Monte project, as shown in **Table 5-4**.

z) 395 acre-feet per year – This represents the net consumptive use for the Puente Del Monte project.

aa) 922 acre-feet per year – This represents the subtotal demand for the three D'Arrigo developments (SOI, Rincon, and Industrial), excluding system losses, as shown in **Table 5-1**.

bb) 755 acre-feet per year – This represents the total indoor water use of the D'Arrigo developments, as shown in **Table 5-1**.

cc) 20 acre-feet per year – This represents the five percent loss rate from the industrial indoor portion of D'Arrigo and the one percent loss rate from the other indoor water uses of the D'Arrigo developments, as shown in **Table 5-4**.

dd) 168 acre-feet per year – This represents the outdoor water use of the D'Arrigo developments, as shown in **Table 5-1**.

ee) 735 acre-feet per year – This represents the wastewater produced by the D'Arrigo developments, as shown in **Table 5-4**.

ff) 188 acre-feet per year – This represents the net consumptive use for the D'Arrigo developments.

gg) 183 acre-feet per year – This represents the subtotal demand for the Franscioni project, excluding system losses, as shown in **Table 5-1**.

hh) 176 acre-feet per year – This represents the total indoor water use of the Franscioni project, as shown in **Table 5-1**.

ii) 9 acre-foot per year – This represents the five percent loss rate from indoor industrial water use of the Franscioni project, as shown in **Table 5-4**.

jj) 7 acre-feet per year – This represents the outdoor water use of the Franscioni project, as shown in **Table 5-1**.

kk) 167 acre-feet per year – This represents the wastewater produced by the Franscioni project, as shown in **Table 5-4**.

ll) 16 acre-feet per year – This represents the net consumptive use of the Franscioni project.

mm) 3,955 acre-feet per year – This represents the total inflow to the Gonzales WWTP from all development at buildout, as shown in **Table 5-4**. This includes the Proposed Project (Vista Lucia), the Existing City, and the other planned developments.

nn) 475 acre-feet per year – This represents the evaporation from the GWWTP ponds during treatment and percolation of wastewater, as shown in **Table 5-4**.

oo) 475 acre-feet per year – This represents the net consumption of water by the GWWTP.

pp) 3,480 acre-feet per year – This represents the volume of treated wastewater returned to the Salinas Valley Groundwater Basin by percolation at the WWTP under the buildout condition, as shown in **Table 5-4**.

qq) 2,398 acre-feet per year – This represents the total net consumptive use of all development at buildout, including the Proposed Project (Vista Lucia), the Existing City, and the other planned developments.

As illustrated in **Figure 5-1**, the total net consumptive use of the Proposed Project, Existing City, and other planned developments is 2,398 acre-feet per year. The sustainable yield available to serve these uses is 3,946 acre-feet per year. Therefore, this WSA finds that there is sufficient groundwater available to sustainably supply the Proposed Project, Existing City, and other planned uses.

5.2.4 Existing Onsite Water Demand

As detailed in Section 2.3.2, currently approximately 768 acres of truck crops are growing on the Proposed Project site, irrigated with groundwater from multiple on-site deep wells. A conservative estimate places the existing consumptive demand of the applied irrigation water at approximately 1,100-1,280 acre-feet annually. More water could be extracted, depending on the efficiency of the irrigation system, and some of the crops' demands are met by effective rainfall. Upon construction of the Proposed Project, this water demand will cease.

5.3 Sufficiency Analysis Conclusions

As detailed in this WSA, sufficient groundwater resources exist to meet the forecast demand of the Proposed Project as described in Section 1. While approximately 6,493 acre-feet of groundwater pumping will be required to meet the combined total demand of the existing City, the Proposed Project, and other planned developments, the net consumptive use is only approximately 2,398 acre-feet. This value represents the amount of groundwater extracted that will primarily leave the basin through evapotranspiration and evaporation.

Also, during single and multiple dry years, the total combined demands are expected to increase extraction to as much as 6,818 acre-feet as a result of increased demand for irrigation water, but also decrease to as low as 5,844 acre-feet when temporary shortage provisions are instituted. Net consumptive use is expected to increase and decrease by equal proportions during single and multiple dry years, but will remain well below the available sustainable yield, as shown in **Table 5-5**.

Table 5-5: Net Consumptive Water Use and Sufficiency in Dry Years

Hydrologic Year Type		Total Combined Water Demand	Net Consumptive Use	Available Sustainable Yield	Sufficient Groundwater Available?
Normal		6,493	2,398	3,946	Yes
Single Dry		6,818	2,518	3,946	Yes
Multiple Dry	Year 1	6,818	2,518	3,946	Yes
	Year 2	6,493	2,398	3,946	Yes
	Year 3-5	5,844	2,158	3,946	Yes

Even absent the Proposed Project's efforts to achieve groundwater sustainability, the reduced consumption compared to the existing consumption from agricultural irrigation on the land proposed for development demonstrates that there is sufficient groundwater in the Basin to meet the estimated net consumptive demand of the Proposed Project and other planned uses. With the addition of the Proposed Project's efforts to achieve efficient use of water through drought-tolerant landscaping and efficient plumbing, the conclusion of sufficiency is further bolstered. The conclusion that sufficient water is available to meet the Project water demands rests on the following:

- The Proposed Project is constructed following the water-efficiency design and low-water use objectives articulated in the Vista Lucia Specific Plan.
- Actual groundwater conditions match the representations by DWR (see Section 4), including the freshwater base existing about 800 to 1,400 feet below the City and Proposed Project site, with freshwater occurring at about 60 to 90 feet below the project site. This offers at least 800 feet of usable aquifer depth.
- The City's wastewater treatment plants will direct all effluent to percolation basins, where the majority of water will recharge to the aquifer to offset the City and Proposed Projects groundwater use.

- The authorized GSAs will meet the long-term sustainability objectives articulated under SGMA such that current groundwater levels in the Basin are maintained or improved.[108]
- The three underlying GSP's Sustainable Yield values, interpolated on a net consumption per acre basis, are consistent with this WSA's assumed value of 1.37 acre-feet per acre per year. [109,110,111]
- The Proposed Project will use 423 acre-feet of consumptive water annually, which is far less than the 1,100-1,280 acre-feet consumed by the crops currently being irrigated on the Proposed Project site.
- When considering the combined total net consumptive use of the Proposed Project, the Existing City of Gonzales, and the other planned uses (Rianda Cooler, Puente Del Monte, D'Arrigo, and Franscioni), all uses to be served by the City of Gonzales at buildout will sum to 2,398 acre-feet per year of net consumptive use. This is less than the sustainable yield available for these uses estimated to be 3,946 acre-feet per year, as calculated by this WSA based on the underlying subbasins' GSPs. Therefore, the construction of the Proposed Project is consistent with the groundwater sustainability goals of SGMA and long-term groundwater sustainability.

[108] California Water Code Section 10727.2(b)(4) establishes that groundwater conditions as of January 1, 2015 become the baseline from which "undesirable results" will be assessed and objectives for improved sustainability will be measured. This essentially sets conditions as of January 2015 as being the point from which improvements will be made (although groundwater levels may fluctuate periodically below this baseline as may be determined in a GSP, but should not measurably continue downward from this point).
[109] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021).
[110] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2021).
[111] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021).

Attachment A – Puente Del Monte Water Use Demand Factors

In earlier drafts of this WSA, the Puente Del Monte (PDM) Specific Plan[1] community was considered part of the Proposed Project, and detailed analysis of its expected water demands was performed by Zanjero. Ultimately, the Proposed Project description was revised to include only the Vista Lucia Community, with the Puente Del Monte Community analyzed as one of the Other Planned Uses to be served by the City of Gonzales. The detailed analysis of Puente Del Monte's future water demands is included in this WSA as Attachment A.

The Puente Del Monte community will be developed on 585 acres located partly within the City of Gonzales and partly within the City's Sphere of Influence in Monterey County. The developable areas will contain low to high density housing, open space, commercial, light industrial and school uses. An agriculture buffer bounds a majority of the Specific Plan area providing transition from farmlands to the built environment. The remainder of this attachment described the methodology used to calculate the indoor and outdoor residential and non-residential water demand associated with the PDMSP community.

A.1 Land Use and Construction Phasing

The PDM community includes several residential and non-residential land-use classifications including market rate housing, mixed use commercial and residential elements, public facilities such as schools, parks (including trails and plazas), and open space (including storm water retention and agricultural buffers). The construction of the PDM community will be conducted in phases, as depicted in **Table A-1**. The land use of the PDM community at full buildout is represented as the condition in 2050.

[1] WHA, Land Concern, Ruggeri-Jensen-Azar (2021) *Puente Del Monte Specific Plan August 2021*.

Table A-1 – Puente Del Monte Construction Phasing.

Category	2025	2030	2035	2040	2045	2050
Residential (dwelling units)						
Low Density	0	80	163	163	596	596
Medium Density	281	444	519	619	619	619
Medium-High Density	108	285	524	794	794	794
High Density	0	0	292	292	569	569
Mixed Use Residential	0	21	45	45	45	45
Non-Residential (acres)						
Elementary Schools	0	0	10	20	20	20
Light Industrial	0	0	0	0	21	21
Highway Commercial	0	0	0	0	0	38
Parks	3	4	9	23	23	23
Central Drainage Trail	0	0	0	19	19	19
Streetscape Landscaping	0	0	0	0	63	66
Other Miscellaneous Uses (acres)						
Agricultural Buffer	8	13	13	13	63	75

A.2 Residential Water Use Demand Factors

The PDMSP community anticipates five general residential land use designations. The size of the lot generally has the greatest impact on the annual per-lot demand for water as the irrigation needs for landscaping generally increase with larger landscaped areas. However, as discussed previously, the PDMSP includes defined plant material selection and design that significantly reduces the outdoor component of the forecast residential water demands compared to more conventional landscape designs, thus limiting, but not eliminating, this traditional lot-size effect. In contrast, indoor water demands remain relatively consistent regardless of lot size, but do vary slightly based on the number of people per dwelling unit. Distinct demand factors are provided for the following residential uses:

- Indoor Residential Use – this category identifies the generally anticipated water use for the varied residential housing types.
- Outdoor Residential Use – this category addresses the landscape water demands for the various planned lot sizes.

For purposes of this WSA, residential unit water demand factors are described as "the acre-feet of water use annually per dwelling unit" – or acre-feet/dwelling unit ("af/du"). Both indoor and outdoor residential water demands will be met with potable water supplied by the City.

A.2.1 Indoor Residential Water Use Factors

The PDM residential elements would be built in accordance with all applicable building codes including the Cal Green Code discussed previously, as it may be further modified prior to Proposed Project implementation.

The indoor demands are estimated using an assumed value of 55 gallons-per person per day, multiplied by the assumed occupancy rates for conventional and high-density residential classifications.

For purposes of this WSA, conventional housing assumes an average occupancy rate of 4.4 people per house, while the high-density and mixed-use classifications assume 3.4 persons per house.[2] The assumed per-person rate of 55 gallons per day is derived from California Water Code Section 10608.20(b)(2)(A), which states a value of 55 gallons per capita (i.e., per person) per day ("gpcd") be used for estimating indoor residential use targets. When multiplied, the per-person use results in a per-dwelling unit demand of 0.27 acre-feet per year for conventional and mixed-used housing and 0.21 for high-density housing.

The 55 gpcd indoor use value has been confirmed through analyses of residential water meter data and is reflective of new suburban single-family dwelling units and older homes retrofitted with new water efficient fixtures and appliances.[3]

A.2.2 Outdoor Residential Water Use Factors

Outdoor water use is primarily a factor of lot size and the type and extent of landscaped area. The PDM community includes up to 2,623 residential lots with five average lot sizes for the single-family classifications: 9,163 sf for LDR; 5,483 sf for MDR; 3,769 sf for MHDR; and 1,389 for HDR.[4] Outdoor demands for the multi-family classification are calculated using net acreage values, which accounts for a street allowance as detailed below.

Outdoor demands for PDM are calculated based on a number of factors including the regulations and calculation methodologies contained in MWELO. The MWELO provides for determining the Maximum Applied Water Allowance ("MAWA") where the maximum is determined as 55 percent of the reference evapotranspiration for the area, resulting in the following equation:[5]

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[2] City of Gonzles 2015 Housing Element indicates an average occupancy of 4.4 people per household for conventional housing (low – medium-high densities). 3.4 persons per household is assumed for high density and mixed-use housing.

[3] With the increasingly stringent requirements of building codes as well as water and energy efficiency codes, it is likely that the actual indoor demand of the Proposed Project may be below the stated 0.23 af/yr. Recently, the Governor issued Executive Order B-37-16 that, among other orders, directed state agencies to develop new urban water use targets including a standard for indoor residential per-capita water use. These new targets are to "build upon the existing state law" that requires a 20% reduction in urban water use by 2020 – which already includes the suggested 55 gallons-per-person per day planning guidance.

[4] Certain lots may be slightly larger or smaller, depending on the grading and final layout of the Proposed Project. However, those variations will be nominal and will not materially affect the Proposed Project's total demand.

[5] This formula reflects the latest revision to the MAWA that became mandatory as of December 1, 2015.

MAWA = (ETo) (0.62) (0.55 x LA), where ETo is the reference evapotranspiration in inches per year, and LA is the landscape area in square feet. 0.62 is a conversion factor to gallons. The resulting value is in "gallons per year"

A primary factor in this calculation is evapotranspiration ("ET"). The methodology directs the use of ET from a reference crop, such as maintained grass – a value referred to as ETo. For PDM, the average ETo is 52.50 inches per year (or over 4.4 feet per year).[6]

Besides the ETo value, the primary factor driving outdoor water use on a per-lot basis is the square footage of landscape area. In addition to MWELO, the PDMSP relies on landscaping restrictions that exceed the MWELO maximums. Specifically, the PDMSP restricts turf to 25 percent of the landscaped area, and restricts plant choices to a majority of low and very-low water use species. More information about these restrictions is discussed in **Section 2.1.1** of the main WSA document.

The calculations for water use are based on specific restrictions and the water efficient character as presented in the PDMSP. This WSA utilizes individual calculations for each parcel type based on typical landscape areas, plant types, and average plant water use factors defined in the PDMSP. The following assumptions form the basis of the residential landscape unit demand factors:

- Plant Factors (PF) – based upon the plant palette of the PDMSP, the following factors are assumed:
  - Turf = 0.6 (assumes use of certain Fescues, Bermuda Grass, and some other turf varieties with relatively low irrigation requirements. Some grass varieties, such as St Augustine, Zoysia, and Buffalo grass, may have factors less than 0.6.)
  - Shrubs and Trees = 0.3
- Because much of the landscape area will be trees and shrubs, the landscape area is reduced by 3 percent to reflect the "open/non-irrigated" space between plants. This area does not receive irrigation when using drip irrigation systems, which will be used for irrigating the trees and shrubs. This small deduction is reflected in the demand calculations for each residential lot category.

Using the plant factors and the MAWA equation, demand factors for each residential lot category are presented here:

[6] ETo is consistent with California Irrigation Management Information System data available for the region.

- **Low Density** – The proposed 596 single-family dwellings will be built on lots with an average gross size of 10,181 sf, minus a 10 percent street allowance. For purposes of this WSA, an average of 6,163 sf of the lot is assumed to be landscaped[7]. Based on the MAWA equation, the resulting outdoor demand factor is forecast to be 0.23 acre-feet per dwelling unit.

- **Medium Density** – The proposed 619 attached and detached single-family dwelling units in this classification will be constructed on lots with an average gross size of 5,960 sf minus an 8 percent street allowance. Other configurations within this classification, as described in the PDMSP, may include conventional small lot homes, alley, duplex, triplex, or townhomes. For purposes of this WSA, an average of 3,183 sf of the lot is assumed to be landscaped,[8]. The resulting outdoor demand factor is forecast to be 0.12 acre-feet per dwelling unit.

- **Medium-High Density –** The proposed 794 multifamily and single-family attached dwelling units in this classification will be constructed on lots with an average gross size of 4,010 sf minus a 6 percent street allowance. Other configurations within this classification, as described in the PDMSP, may include duplexes, triplexes, townhomes, or flats. For purposes of this WSA, an average of 1,819 sf of the lot is assumed to be landscaped,[9]. The resulting outdoor demand factor is forecast to be 0.07 acre-feet per dwelling unit.

- **High Density** – The proposed 569 units will include a variety of attached and multi-family dwellings on lots with an average gross size of 1,462 sf minus a 5 percent street allowance. Buildings can be configured as townhomes or flats. This dwelling unit type is typically associated with community controlled outdoor spaces so the average outdoor demands are quite low per unit. For purposes of this WSA, an average of 139 sf of the lot is assumed to be landscaped[10]. The resulting outdoor demand factor is forecast to be 0.01 acre-feet per dwelling unit.

[7] Assumes net lot is 9,163 sf with 2,500 sf building footprint with 500 sf hardscape including driveway and patio.
[8] Assumes net lot of 5,483 sf with 1,800 sf building footprint with 500 sf hardscape including driveway and patio.
[9] Assumes net lot of 3,769 sf with 1,700 sf building footprint with 250 sf hardscape including driveway and patio.
[10] Assumes net lot of 1,389 sf with 1,000 sf building footprint with 250 sf hardscape including driveway and patio.

- **Mixed Use Residential.** – The proposed Mixed-Use Area is primarily residential in character, with some homes also containing neighborhood commercial uses, as discussed below in section A.2.1. The entire Mixed-Use Area will be designed with the same specifications as the Medium Density residential area described above, including outdoor landscaping. It is forecast that the Mixed-Use area will have an outdoor demand factor of 0.12 acre-feet per dwelling unit for its 45 dwelling units, using the same calculation methodology as was used to calculate the Medium-Density outdoor residential demands.

A.2.3 Summary of Residential Water Use Demand Factors

Table A-2 provides a summary of the unit water demand factor used to estimate the PDM water use.

Table A-2 – Summary of Residential Demand Factors for PDMSP

Water Demand Category by Dwelling Unit (du) Type	Average Density (du/ac)	Indoor Factor	Outdoor Factor	Total Demand Factor (af/du)
Low Density	5.0	0.27	0.23	0.50
Medium Density	7.0	0.27	0.12	0.39
Medium-High Density	12.0	0.27	0.07	0.34
High Density	20.0	0.21	0.01	0.21
Mixed Use	7.0	0.27	0.12	0.39

A.3 Non-Residential Water Use Demand Factors

The PDM community has several non-residential features ranging from a mixed-use neighborhood center, two schools, landscaped promenades, community gardens, and storm detention facilities. Many of these proposed land-uses are unique, requiring specific demand forecasts for each component.

For purposes of this WSA, the demand for non-residential classifications is described as either "the acre-feet of water use annually per acre of land," acre-feet/acre (af/ac), or as a single demand projection for a demand category such as the indoor uses for the elementary schools, acre-feet/unit (af/unit). These values reflect indoor or outdoor water needs expected for typical non-residential use for each of the following classifications:

- Mixed-Use Overlay Indoor
- Elementary School Indoor
- Light Industrial Indoor
- Highway Commercial Indoor
- Non-residential Outdoor

- Parks and Open Space
    - Agricultural Buffer
    - Elementary School
    - Streetscape Landscaping
- Other miscellaneous uses, including temporary irrigation to establish open space landscaping, and temporary construction water.

The method and basis for determining the unit water demand factor for each of these classifications is detailed in the following subsections.

A.3.1 Mixed-Use Overlay Commercial Indoor

The proposed Mixed-use area is anticipated to include up to 10,000 square feet (sf.) of commercial space spread across approximately 6 acres. The Mixed-Use area is expected to be primarily residential, but will allow for live/work arrangements within homes, such as salons, tax accountants, florists, and real estate agents, etc. These commercial activities will primarily include service, professional, and office uses, with some retail also possible. Commercial activities will occupy approximately 0.23 acres of the 6-acre zone. Based upon meter studies conducted on existing neighborhood commercial facilities elsewhere in California, coupled with the on-going commitment toward more efficient water use, the indoor unit demand factor for this classification is estimated at 1 acre-foot/acre for the purposes of this WSA.[11] The majority of the Mixed-Use area's land and water use will be residential, as discussed above in section A.2.

A.3.2 Elementary School Indoor

The PDMSP community includes two 10-acre elementary schools, totaling 20 acres. Based upon meter studies for existing elementary schools, total school use – indoor and outdoor – ranges from 20 to 30 gallons per day per student. Depending on the schools' landscape design and operation, 60 to 70 percent of this demand is used to meet outdoor needs.[12] Therefore, for purposes of this WSA, indoor demands are based upon an assumed use of 10 gallons per day per student. The total number of students per dwelling unit is estimated to be 0.4331 students/DU for elementary school (grades K-6).[13] With a total of up to 2,623 dwelling units in the Puente Del Monte community, the estimated total elementary school student body is 1,136. This unit demand factor would reflect all administrative, teacher, student, cafeteria, and janitorial uses for the school, averaged on a per-student basis. The result is a forecast indoor demand of 12.7 acre-feet/year for the two proposed elementary schools, rounded up to 13 acre-feet/year for purposes of this WSA.

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[11] Zanjero, Inc. has performed several meter studies in California's Central Valley. Specific small and large mixed-use commercial developments were analyzed and found to range from 0.78 af/ac/yr to 1.22 af/ac/yr for the total indoor and outdoor area (hard space such as parking and sidewalks). The majority of this use is from indoor needs, which do not significantly vary regionally between the Central Valley and the Salinas Valley.

[12] This is an estimate of indoor use per acre derived from a 2015 study of school demand in Folsom, California. A 2016 review of school demands in El Dorado Hills, California confirmed these numbers for newer schools.

[13] Based upon values from the Gonzales Unified School District Facilities Management Plan.

A.3.3 Light Industrial Indoor

The PDM community's proposed Light Industrial area consists of 21 acres. Examples of permitted uses in this area include retail, appliance repair, laundromat, professional services/ office space, medical, laboratory, wholesale, and light industry uses such as contracting, limited manufacturing, paint supplies, janitorial services. The exact level of indoor water use in this portion of the community will depend on the specific businesses that occupy each parcel. For the purposes of this WSA, the indoor unit demand factor for this classification is estimated at 1 acre-foot/acre.

A.3.4 Highway Commercial Indoor

The PDMSP proposed 39 acres of Highway Commercial area which entails "commercial areas that cater to highway travelers and/or regional markets, including gas stations, big-box retail, fast-food restaurants, lumber yards, motels, auto malls, building contractor storage yards, and other uses that serve local and regional needs for goods and services."[14] This area is subject to a maximum Floor Area Ratio (FAR) of 0.5. Based upon meter studies conducted on existing highway commercial facilities elsewhere in California, coupled with the on-going commitment toward more efficient water use, the indoor unit demand factor for this classification is estimated at 1 acre-foot/acre for the purposes of this WSA.

A.3.5 Elementary School Outdoor

Quantifying outdoor water demands for schools depends on many factors including campus landscaping, size and type of play fields, student population, and other factors. Puente Del Monte's proposed two 10-acre elementary schools are assumed to follow designs typical in the Salinas Valley. Turf play fields are expected to occupy 12.96 percent of the total schools' area, or approximately 130,500 sf (2.99 acres) for both elementary schools combined. The remaining landscape area at each school will be trees and shrubs with lower water demands maintained by drip irrigation. The low water use landscaping is expected to occupy approximately 26 percent of the total schools' area, or approximately 263,070 sf (6.03 acres). Using the MWELO formula, the total landscaping outdoor demand from the two elementary schools is estimated to be a total of 20.9 af/year. On average, the school sites are estimated to use 1.05 af/acre of total site area.

A.3.6 Parks and Open Space Outdoor

The PDM community includes several distinct outdoor landscaping areas including traditional parks and open space, a central drainage trail (greenway), and an agricultural buffer.[15] The landscape architect for Puente Del Monte has provided estimates regarding the percentage of each acre that is hardscape, unirrigated drainage basins, or irrigated landscaping, and the percentage of irrigated area that is turf versus shrubs and trees.[16] Appendix A of the PDMSP provides details on PDM's landscaping direction and plant selection.

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[14] WHA et al. (2021) *Puente Del Monte Specific Plan*, page 2-6

[15] More information on the agricultural buffer is presented in section A.4.

[16] Personal communication, 4/14/22 email from Garett Bustos, Landscape Architect at Land Concern.

The primary assumptions used to estimate the outdoor demand for these features include:

- The assumed reference evapotranspiration (ETo) – as discussed previously, an ETo of 52.5 inches per year is assumed.
- Plant Factors (PF) – The evapotranspiration adjustment factor (ETAF) of 0.6 was used for turf play areas, and 0.3 for all other irrigated landscaping, which will be planted with low water use plants.
- The estimated square footage of each type of planting within each land-use category (LA)

These assumptions are combined in the following formula:

Demand = (ETo) (0.62) (PF x LA), where ETo is the reference evapotranspiration in inches per year, PF is the plant factor, LA is the landscape area, and IE is the irrigation efficiency for each planting type by land classification. 0.62 is a conversion factor to gallons. The resulting value is in "gallons per year," which is converted to acre-feet per year

Table A-3 presents the assumed percentages of irrigated land per each planting designation.

Table A-3 – Parks and Open Space Outdoor Water Use

Open Space Type	Total Open Area (acres)	% of Total Open Area Irrigated	Total Irrigated Area (acres)	Max Allowable Plant Factor	Turf Area (acres)	Low Water Use Landscapin g Area (acres)	Average Demand Factor (AF/yr)	Average Demand Factor (AF/acre)
Neighborhood & Community Parks	23	76%	17.8	0.6 for turf, else 0.3	7.1	10.63	32.5	1.40
Central Drainage Trail	19	95%	18.1	0.3	-	18.11	23.6	1.24
Agricultural Buffer	75	3%	2.5*	0.3	-	2.49	3.3	0.04

*The agricultural buffer includes 2.5 acres of landscaping that will receive irrigation on an ongoing basis, called "enhanced pedestrian nodes". An additional 63 acres will be landscaped with drought tolerant plants that require irrigation during establishment only, which is expected to require 82 acre-feet/year for the first five years and zero applied water thereafter.

A.3.7 Other Non-Residential Outdoor (Landscaped Areas)

Other features include the landscaping for the elementary school, highway commercial and light industrial areas, and streetscape landscaping along the 66 acres of roads. The primary assumptions used to estimate the outdoor demand for these features are the same as those used to calculate outdoor demand for Parks and Open Space as described above in **Section A.3.6**.

Table A-4 presents the assumed percentages of irrigated land per each planting designation.

Table A-4 – Other Non-Residential Landscape Demand Factors[17]

Public Use Element	Total Open Area (acres)	% of Total Open Area Irrigated	Total Irrigated Area (acres)	Max Allowable Plant Factor	Average Demand Factor (AF/yr)	Average Demand Factor (AF/acre)
Schools	20	45%	9.0	1.0 for SLA, else 0.30	20.9	1.05
Neighborhood Mixed Use Commercial	6	10%	0.6	0.30	0.8	0.13
Light Industrial	21	10%	2.1	0.45	4.1	0.20
Highway Commercial	39	10%	3.9	0.45	7.6	0.20
Streetscape Landscaping	66	10%	6.7	0.45	13.1	0.20

A.3.8 Summary of Non-Residential Water Use Demand Factors

Table A-5 provides a summary of the non-residential unit water demand factor used to estimate the PDM community's water use.

Table A-5 – Summary of Non-Residential Demand Factors for PDMSP

Water Demand Category	Acres	Indoor Use (acre-feet per year)	Outdoor Use (acre-feet per acre)	Total Demand (acre-feet per year)
Neighborhood Center Mixed Use	0.23	0.23	0.00	0.23
Elementary Schools	20	13	1.05	34
Light Industrial	21	21	0.20	4
Highway Commercial	39	39	0.20	8
Neighborhood Parks & Open Space	23	-	1.40	33
Street Landscaping	67	-	0.20	13
Central Drainage Trail	19	-	1.24	24
Agricultural Buffer*	75.0	-	0.04	3

*Agricultural Buffer includes 75 acres total, of which 63 acres will require applied water for establishment only. Only 2.49 acres will require irrigation on an ongoing basis. Most of the remainder is hardscape or drainage basins.

A.4 OTHER MISCELLANEOUS USES

The PDM community has additional miscellaneous land uses with water demands, albeit only temporary demands. These uses have minimal impacts to the overall forecast water use due to their limited duration.

[17] Irrigated area and turf area percentages are further discussed and detailed in the Puente Del Monte Specific Plan.

Construction Water

The PDM site would include site grading and infrastructure installation during early phases of construction that will require dust suppression and other incidental water uses. These would not continue beyond the construction phases of the PDM community. For purposes of identifying incremental water demands, construction water is conservatively assumed for purposes of this WSA to be 3 acre-feet per year (this is about 900,000 gallons – or about 225 fill-ups of a 4,000-gallon water truck per year).

Agricultural Buffer Establishment

The PDM Specific Plan includes "agricultural buffers" consisting of roadways, passive open space including trails, community gardens, stormwater quality basins, drainage features, and solar panel installations. The buffers are intended to provide a softer transition from the surrounding land uses into Puente Del Monte. Of the 63 acres in this land use category, 75 percent (47.25 acres) will be landscaped. These areas will be seeded with native or drought-tolerant water use plants, with the majority of landscaping requiring irrigation during establishment only. A small subset of the Agricultural Buffer, called "enhance pedestrian nodes", would have low water use plants using drip irrigation on an ongoing basis. The enhanced pedestrian nodes would be spread throughout the agricultural buffer, totaling 2.49 acres. The agricultural buffer is expected to require 1.31 acre-feet per acre during the first five years of establishment, then only 0.04 acre-feet/acre to irrigate the enhance pedestrian nodes every year thereafter. Note that the development of the agricultural buffer is phased, as shown below in Table A-6.

A.4 Summary of Puente Del Monte Water Demands

Combining the Puente Del Monte Specific Plan's land use details and phasing with the demand factors presented in Table A-1 through Table A-5, the water demands for the PDM community from implementation to build-out can be estimated. Upon completion of buildout, the demands are conservatively estimated at 1,135 acre-feet of water annually, excluding considerations of non-revenue water (see below), and up to approximately 1,262 acre-feet of water annually when considering of non-revenue water (see Table A-6).

Table A-6 – Puente del Monte Forecast Water Demands

Category	2025	2030	2035	2040	2045	2050	Demand Factor (af/du or af/ac)	2025	2030	2035	2040	2045	2050
Residential													
Low Density	0	80	163	163	596	596	0.27	0	22	44	44	162	162
Medium Density	281	444	519	619	619	619	0.27	76	120	141	168	168	168
Medium-High Density	108	285	524	794	794	794	0.27	29	77	142	215	215	215
High Density	0	0	292	292	569	569	0.21	0	0	61	61	119	119
Mixed Use Residential	0	21	45	45	45	45	0.27	0	6	12	12	12	12
							Indoor Subtotal	105	225	400	501	676	676
Low Density	0	80	163	163	596	596	0.23	0	18	37	37	134	134
Medium Density	281	444	519	619	619	619	0.12	33	52	60	72	72	72
Medium-High Density	108	285	524	794	794	794	0.07	7	19	35	53	53	53
High Density	0	0	292	292	569	569	0.01	0	0	1	1	3	3
Mixed Use Residential	0	21	45	45	45	45	0.12	0	3	5	5	5	5
							Outdoor Subtotal	40	91	139	168	267	267
Non-Residential													
Mixed Use Overlay	0	0.1	0.2	0.2	0.2	0.2	1.00	0.0	0.1	0.2	0.2	0.2	0.2
Elementary Schools	0	0	10	20	20	20	N/A	0	0	7	13	13	13
Light Industrial	0	0	0	0	21	21	1.00	0	0	0	0	21	21
Highway Commercial	0	0	0	0	0	38	1.00	0	0	0	0	0	38
							Indoor Subtotal	0	0	7	13	34	72
Neighborhood Center (Mixed Use)	0.0	0.1	0.2	0.2	0.2	0.2	1.24	0.0	0.1	0.3	0.3	0.3	0.3
Elementary Schools	0	0	10	20	20	20	1.05	0	0	10	21	21	21
Light Industrial	0	0	0	0	21	21	0.04	0	0	0	0	1	1
Highway Commercial	0	0	0	0	0	38	0.20	0	0	0	0	0	7
Parks	3	4	9	23	23	23	1.40	4	6	12	32	32	32
Central Drainage Trail	0	0	0	19	19	19	1.24	0	0	0	24	24	24
Agricultural Buffer (ongoing)	8	13	13	13	63	75	0.04	0	1	1	1	3	3
Streetscape Landscaping	0	0	0	0	63	66	0.20	0	0	0	0	12	13
							Outdoor Subtotal	5	7	24	78	93	102
Other Miscellaneous Uses													
Agricultural Buffer (establishment)	8	13	13	13	63	75	1.31	11.0	6.2	0.0	0.0	65.8	15.2
Construction Water	1	1	1	1	1	1	3	3	3	3	3	3	3
							Outdoor Subtotal	14	9	3	3	69	18
							Indoor Total	105	225	408	514	710	748
							Outdoor Total	59	107	165	249	429	387
							Total	164	332	573	763	1,140	1,135
							Non-revenue water at 10%	18	37	64	85	127	126
							Total Puente Del Monte Demand	**182**	**369**	**637**	**848**	**1,266**	**1,262**

ATTACHMENT B – GROUNDWATER BASIN AND SUBBASIN DESCRIPTIONS

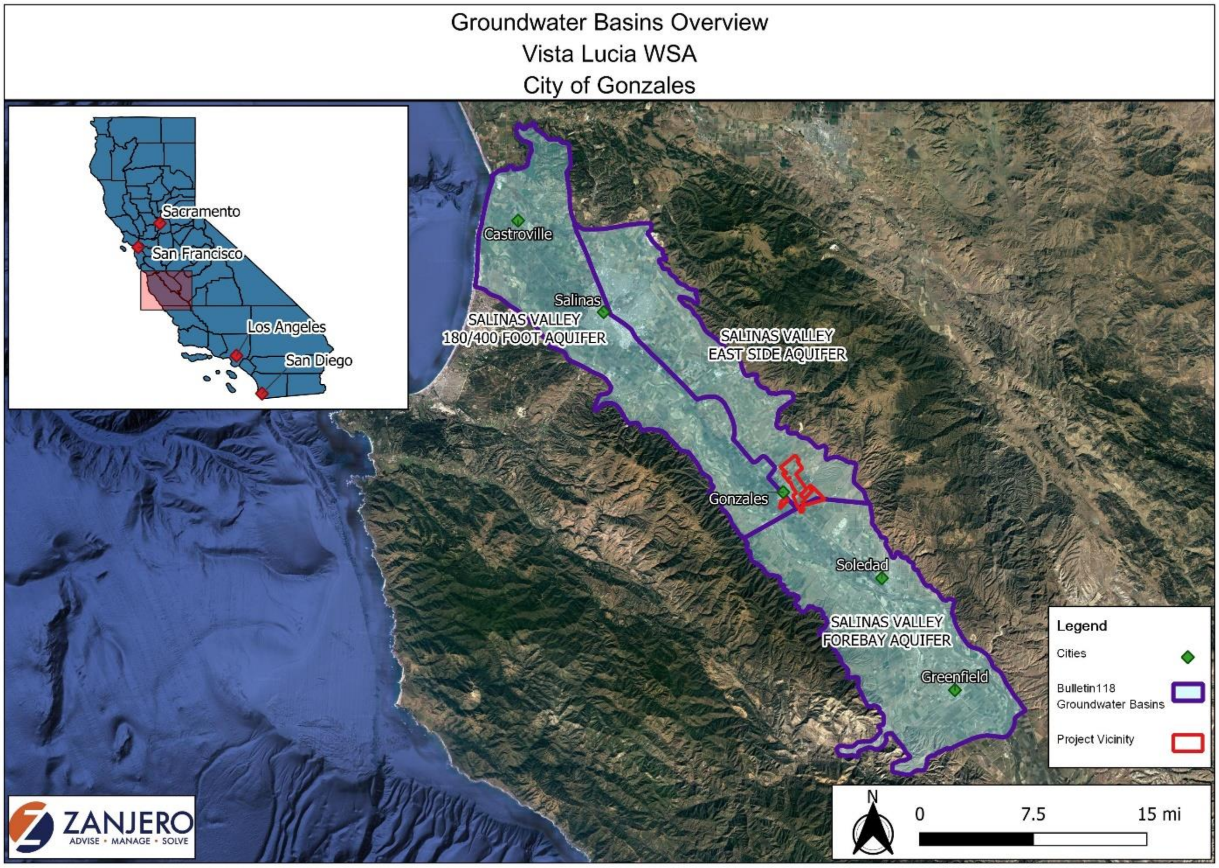
This attachment provides detailed descriptions of the Salinas Valley Groundwater Basin and its subbasins that underlie the Proposed Project, which are summarized in Section 4 of the WSA. If a project's water supply includes the use of groundwater, the WSA must include: a description of any groundwater basin or basins from which the proposed project will be supplied, a detailed description and analysis of historical and projected groundwater pumping, and 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.

The Proposed Project is located in the Salinas Valley Groundwater Basin, near the intersection of three subbasins: the 180/400-Foot Aquifer Subbasin (Basin No. 3-004.01), the Eastside Subbasin (Basin No. 3-004.02), and the Forebay Subbasin (Basin No. 3-004.04), as defined by DWR Bulletin 118.[1] The subbasins cover areas of of 140 square miles, 90 square miles, and 147 square miles respectively. In the area around the City of Gonzales, the subbasins are general bounded by the Gabilan Range to the east and the Sierra de Salinas to the west. The 180/400-Foot Aquifer Subbasin and Eastside Subbasin are both characterized as high-priority basins under the Sustainable Groundwater Management Act (SGMA), while the Forebay Subbasin is characterized as medium-priority. [2] All three subbasins have produced Groundwater Sustainability Plans, which were used by this WSA to evaluate the long-term reliability of groundwater supplies for the Proposed Project and the City of Gonzales. The Salinas Valley-Wide Integrated Groundwater Sustainability Plan was also used to evaluate conditions across subbasin boundaries.

While current supply wells for the City of Gonzales are located only in the 180/400-Foot Aquifer and Eastside Subbasins, a portion of the City and the Proposed Project also overlies the Forebay subbasin. It is possible that water from any of the three subbasins would ultimately be used to serve the Proposed Project. Therefore, each of the three subbasins is described in turn below. See **Figure B-1** for DWR's representation of the Groundwater Basins in the Salinas Valley near Gonzales.

[1] California Department of Water Resources, *California's Groundwater Update 2020 Highlights* (2020).
[2] CA Department of Water Resources. (2022). *Basin Prioritization*. water.ca.gov. Retrieved from https://water.ca.gov/programs/groundwater-management/basin-prioritization

Figure B-1 – Location of Salinas Valley Subbasins



B.1 180/400-Foot Aquifer Subbasin Geology[3]

The 180/400-Foot Aquifer Subbasin lies in northwestern Monterey County and includes the northern end of the Salinas River Valley. The Subbasin covers an area of 89,700 acres, or 140 square miles (DWR, 2004). It is bounded by the Eastside Aquifer and Langley Area Subbasins to the east, the Forebay Aquifer Subbasin to the south, the Monterey Subbasin to the west, and the Monterey Bay to the north. The 180/400-Foot Aquifer subbasin is located at the northern, down-gradient end of the larger Salinas Valley Basin. Land surface elevations in the Subbasin range from approximately 500 feet above sea level along its border with the Sierra de Salinas to sea level at Monterey Bay.[4] The geology of the 180/400-Foot Aquifer Subbasin is characterized by alluvium, terrace deposits, the Paso Robles Formation, and the Aromas Red Sands Formation. The geology is a result of both fluvial sedimentary deposits from the Salinas River and its

[3] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021)
[4] 180/400-Foot Aquifer Subbasin GSP (2021), Chapter 4.

tributaries and marine deposits from the Pacific Ocean. The majority of the sediments in this subbasin are a mix of sands, gravels, and clays.[5]

The stratigraphic succession of geologic formations in the 180/400-Foot Aquifer Subbasin include, from oldest to youngest: Cretaceous basement rock; Tertiary Deposits including the Purisima Formation, Santa Margarita Sandstone, and Monterey Formation; Quaternary-Tertiary Deposits including the Paso Robles Formation; and Quaternary Deposits including terrace deposits, alluvial fans, Aromas Red Sands and similar, and alluvium form streams and small drainages.

The shallowest water-bearing sediments are thin, laterally discontinuous, and do not constitute a significant source of water for the Subbasin. These shallow sediments are therefore not considered a principal aquifer. These sediments are generally within 30 feet of the ground surface and are part of the Holocene Alluvium unit. Beneath the shallow sediments, the following series of aquitards and principal aquifers have long been recognized in a multitude of studies and reports. They are the distinguishing hydrostratigraphic features of this Subbasin:

- Salinas Valley Aquitard
- 180-Foot Aquifer
- 180/400-Foot Aquifer
- 400-Foot Aquifer
- 400-Foot/Deep Aquitard
- Deep Aquifers

Salinas Valley Aquitard

The Salinas Valley Aquitard is the shallowest, relatively continuous hydrogeologic feature in the Subbasin. The aquitard is composed of blue or yellow sandy clay layers with minor interbedded sand layers (DWR, 2003). The Salinas Valley Aquitard correlates to the Pleistocene Older Alluvium stratigraphic unit and was deposited in a shallow sea during a period of relatively high sea level. Most of the Salinas Valley Aquitard is generally encountered at depths of less than 30 feet. The Salinas Valley Aquitard overlies and confines the 180-Foot Aquifer.

180-Foot Aquifer

The 180-Foot Aquifer is the shallowest laterally extensive principal aquifer in the 180/400-Foot Aquifer Subbasin. This aquifer consists of interconnected sand and gravel beds that are from 50 to 150 feet thick. The sand and gravel layers are interlayered with clay lenses. This aquifer is correlated to the Older Alluvium or upper Aromas Sand formations.

180/400-Foot Aquitard

The base of the 180-Foot Aquifer is an aquitard consisting of interlayered clay and sand layers, including a marine blue clay layer similar to the Salinas Valley Aquitard, known as the 180/400-

[5] 180/400-Foot Aquifer Subbasin GSP (2021), Section 4.2

Foot Aquitard. It is widespread in the Subbasin but varies in thickness and quality, and areas of hydrologic connection between the 400-Foot and 180-Foot Aquifers are known to exist. In areas where the 180/400-Foot Aquitard is thin or discontinuous, seawater in the 180-Foot Aquifer can migrate downward into the 400-Foot Aquifer in response to pumping. The 180/400-Foot Aquitard overlies and confines the 400-Foot Aquifer.

400-Foot Aquifer

The 400-Foot Aquifer is a hydrostratigraphic layer of sand and gravel with varying degrees of interbedded clay layers. It is usually encountered between 270 and 470 feet below ground surface. This hydrogeologic unit correlates to the Aromas Red Sands and the upper part of the Paso Robles Formation. Near the City of Salinas, the 400-Foot Aquifer is a single permeable bed approximately 200 feet thick; but in other areas the aquifer is split into multiple permeable zones by clay layers. The base of the 400-Foot Aquifer is the 400-Foot/Deep Aquitard.

400-Foot/Deep Aquitard

The 400-Foot/Deep Aquitard is primarily comprised of several blue marine clay layers. This aquitard can be several hundred feet thick (Kennedy-Jenks, 2004; Brown and Caldwell, 2015), consisting of mostly clay with sand and gravel lenses. The heterogeneous nature of the aquitard indicates there may be potential pathways for downward migration of water from the 400-Foot Aquifer to the Deep Aquifers. The 400-Foot/Deep Aquitard overlies and confines the Deep Aquifers.

Deep Aquifers

The Deep Aquifers, also referred to as the 900-Foot and 1500-Foot Aquifers, are up to 900 feet thick and have alternating sandy-gravel layers and clay layers which do not differentiate into distinct aquifer and aquitard units (DWR, 2003). The Deep Aquifers correlate to the lower Paso Robles, Purisima, and Santa Margarita formations where they exist. The Deep Aquifers overlie the low permeability Monterey Formation. While the Deep Aquifers are relatively poorly studied, some well owners have indicated that there are different portions of the Deep Aquifers with different water qualities. No public data exists to substantiate these statements.

B.2 EASTSIDE SUBBASIN GEOLOGY[6]

The Eastside Subbasin lies in northeastern Monterey County. The Subbasin covers an area of approximately 57,500 acres, or 90 square miles. The Eastside Subbasin lies along the east side of the Salinas Valley Groundwater Basin. It is bounded by the Gabilan Range to the east, the Forebay Subbasin to the south, the 180/400-Foot Aquifer Subbasin to the west, and the Langley Area Subbasin to the north. Land surface elevations in the Subbasin range from approximately 900 feet above sea level along its border with the Gabilan Range to approximately 20 feet above sea level where it meets the 180/400-Foot Aquifer Subbasin along State Highway 101 near the

[6] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2021).

City of Salinas. The geology of the Eastside Subbasin is dominated by alluvial fan deposits. Surface-water drainages originating in the Gabilan Range deposited a series of interconnected alluvial fans that extend from the Gabilan Range in the northeast to the fluvial deposits that define the 180/400-Foot Aquifer Subbasin in the southwest. There are no known structural features that restrict groundwater flow within the Eastside Subbasin, such as geologic folds or faults. However, groundwater flow from the Eastside Subbasin to various other subbasins may be restricted due to lack of continuous sediments. Usually, groundwater flow follows the topography of the valley northwest toward Monterey Bay.

Major geologic units present in the Eastside Subbasin are described below, starting at the surface and moving down through the geologic layers from youngest to oldest:

- Quaternary Deposits
- Older Igneous and Metamorphic Rocks

Quaternary Deposits

The Quaternary Deposits are made of alluvium in streambeds and small drainages, hillslope deposits, alluvial fans, Aromas Red Sands and similar, and terrace deposits. Poorly to moderately sorted gravel, sand, and silt with discontinuous lenses of clay in some areas generally characterize these deposits. The Eastside Subbasin lacks the confining aquitards found in the adjacent 180/400-Foot Aquifer Subbasin.

Older Igneous and Metamorphic Rocks

The eastern border of the Subbasin is defined by the contact between the Quaternary sedimentary units described above and the Cretaceous igneous and pre-Cretaceous metamorphic rocks of the Gabilan Range. Hard rocks like these also form the basement below the aquifer.

B.3 FOREBAY SUBBASIN GEOLOGY[7]

The Forebay Subbasin lies in the middle of Monterey County, and the middle of the Salinas Valley Groundwater Basin. The Forebay Subbasin is bounded by the Gabilan Range to the east, the 180/400-Foot Aquifer and Eastside Subbasins to the north, the Sierra de Salinas to the west, and the Upper Valley Subbasin to the south. Land surface elevations in the Subbasin range from approximately 1,800 feet along the Sierra de Salinas alluvial fans to less than 200 feet at the boundary with the 180/400-foot Aquifer Subbasin. The geology of the Forebay Subbasin is characterized by 2 intersecting geologic facies: the fluvial and marine dominated deposits of the main Salinas Valley; and the Arroyo Seco alluvial fan originating in the Sierra de Salinas on the west side of the Subbasin. In general, the alluvial sediments encountered in the Arroyo Seco Cone are more coarse-grained than those found in the main valley's fluvial and marine deposits.

[7] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021).

Major geologic units present in the Forebay Subbasin are described below, starting at the surface and moving down through the geologic layers from youngest to oldest:

- Quaternary Deposits
- Quaternary-Tertiary Deposits
- Tertiary Deposits
- Cretaceous Rocks

Quaternary Deposits

The Quaternary Deposits consist of flood plains and stream channel deposits, alluvial fans, and landslide and terrace deposits. The flood plains and stream channel deposits consist of unconsolidated, relatively fine grained, mixed deposits of sand and silt. There are thin, discontinuous layers of clay present. The thicknesses of the youngest deposits are generally less than 20 ft. The alluvial fan sediments consist of weakly to moderately consolidated, moderately to poorly sorted sand, silt, and gravel deposits. Gravel content increases toward the head of the alluvial fans, particularly the Arroyo Seco Cone which is the most prominent alluvial fan in this subbasin. Finer sediments such as clay and silt increase towards the furthest extents of the Cone, interfingering with the silts and clays often found in floodplain and stream-channel deposits. The landslide and terrace features occur as erosional remnants of former stream channels of the Arroyo Seco and consist of weakly consolidated to semi-consolidated, moderately to poorly sorted, fine- to coarse-grained silty sand with gravels and cobbles. Their thickness is highly variable. These quaternary deposits are sometimes grouped together in other reports as Alluvium or Valley Fill Deposits.

Quaternary-Tertiary Deposits

The Quaternary-Tertiary Deposits consist of the Paso Robles Formation. This Pliocene to lower Pleistocene (1.6 million to 5 million years ago) unit is composed of lenticular beds of sand, gravel, silt, and clay from terrestrial. The depositional environment is largely fluvial but also includes alluvial fan, lake, and floodplain deposition. The alternating beds of fine and coarse materials typically have bed thicknesses of 20 to 60 feet.

Tertiary Deposits

The Tertiary Deposits consist of the Pancho Rico Formation and the Monterey Formation. The Poncho Rico Formation is a Pliocene (1.6 million to 5 million years ago) unit consisting of sandy marine strata and interbedded finer grained rocks. This unit conformably underlies the Paso Robles formation and conformably overlies the Monterey Shale, or non-comformably overlies the basement rocks northeast of King City. The Monterey Formation is a Miocene (5 million to 24 million years ago) unit consisting of shale and mudstone, with lower deposits being slightly sandier and deposited in a shallow marine environment.

Cretaceous Rocks

The Gabilan Range, which borders the Subbasin to the northeast, is composed of Mesozoic intrusive rocks and is important as a geologic boundary in the Subbasin and greater Salinas

Valley Groundwater Basin. The Sierra de Salinas, which borders the Subbasin to the southwest, is composed of metamorphic and sedimentary rocks and is important as a geologic boundary in the Subbasin and greater Salinas Valley Groundwater Basin as well.