APPENDIX I

Water Supply Assessment and Memorandum



February 26, 2020

MEMORANDUM

То:	Amber Sharpe, David J. Powers & Associates, Inc.
From:	Kate White, Todd Groundwater
Re:	Morgan Hill Technology and Mixed-Use Residential Project Water Supply Assessment – Revised Proposed Project

Todd Groundwater prepared a Final Draft Water Supply Assessment (WSA) for the Morgan Hill Technology and Mixed-Use Residential Project dated August 20, 2019. The City of Morgan Hill would like to consider a revised proposed Project where the total industrial building space reduces slightly and 20 of the attached residential units become detached residential units when compared to the industrial warehouse alternative analyzed in the Final Draft WSA (August 2019). This memorandum provides updated WSA-related information for this revised proposed Project.

REVISED PROJECT DESCRIPTION

The revised proposed Project involves a reduction of 15,400 square feet (sf) of industrial building space from 1,105,000 sf of warehouse/office space to 1,089,600 sf of general light industrial/office space. It also includes a shift of 20 attached residential units to detached residential units. **Table 1** summarizes the revised proposed Project land use. Site plan figures for the revised industrial areas are in the **Appendix**. The total acres within each of the three development components (commercial, industrial, and residential) did not change.

The commercial development component did not change but the industrial area was reconfigured from four to seven lots. The maximum number of residential units, 319, also did not change but 20 of the attached units become detached units for a total of 239 attached and 80 detached residential units.

REVISED PROJECT WATER DEMAND

Buildout water demands for the revised proposed Project are shown in **Table 2**. Note that **Table 2** in this memorandum corresponds to *Table 3* in the Final Draft WSA (August 2019). The revised proposed Project results in nearly the same total buildout water demand (182.60 AFY) as the buildout water demand for the warehouse development analyzed in the original WSA (183.28 AFY). The slight reduction in demand reflects the slight reduction in total industrial building square footage associated with the revised proposed Project.

Table 3 presents current and future water demands in five-year increments.**Table 3** in thismemorandum corresponds to *Table 4* in the Final Draft WSA (August 2019).

CONCLUSIONS

WSA conclusions are generally the same for the revised proposed Project development when compared to the original proposed development analyzed in the Final Draft WSA (August 2019) except for the slight changes in industrial square footage and ratio of attached to detached residential units. Conclusions for the revised proposed Project development are summarized below.

- The Morgan Hill Technology and Mixed-Use Residential Project will be built on an 89-acre agricultural site. Currently, the site is occupied by two residences, a containerized mature tree nursery, and an unirrigated hay field.
- The Project will consist of 61 acres of commercial and industrial uses and 28 acres of residential. The combined maximum area of buildings on the commercial and industrial parcels is 1,139,000 square feet. The residential area will consist of a maximum of 80 detached residential units and 239 attached low-density units.
- The City of Morgan Hill will supply the Project with potable water. Groundwater is the only source of supply to the City.
- Current site water usage averages about 54.56 AFY (2010-2018).
- Once completed, the Project will use an estimated 182.6 AFY of water resulting in a net increase of groundwater use of about 128 AFY.
- Water supply needed to serve the Project's water demand can be considered as included in the 2015 UWMP projections.
- The City's sole source of supply, groundwater from the Llagas and Santa Clara subbasins, is a shared resource managed by Valley Water through the SGMA process. The 2018 Water Year Report (SCVWD, 2019) for SGMA reporting concluded that Valley Water's comprehensive recharge continues to support a balanced longterm water budgets for these two subbasins.

In conclusion:

The City's water supply is from groundwater, which is a shared resource. The ongoing, active management of the Llagas and Santa Clara subbasins by Valley Water through the SGMA process and its strong partnerships with large groundwater pumpers, including the City of Morgan Hill, is expected to result in continued sustainable groundwater management in the future resulting in a reliable long-term water supply for the Project.

Morgan Hill Technology and Mixed-Use Residential Project WSA – Revised Project

Table 1

Land Use, Revised Proposed Project - Morgan Hill Technology and Mixed-Use Residential Project

Parcel	Area (acres)	Land Use	Description
Commercial			
Commercial	2.92	Proposed 50,000 sf building	Retail, administrative and professional services. Will also contain parking and landscaping
Industrial			
Industrial Lot 1	12.19	Proposed 212,100 sf building (Bldg. A)	
Industrial Lot 2	10.89	Proposed 219,600 sf building (Bldg. B)	
Industrial Lot 3	4.80	Proposed 79,900 sf building (Bldg. C)	Six industrial buildings (Buildings A-F) would be used for general light industrial uses and would have
Industrial Lot 4	9.16	Proposed 193,000 sf building (Bldg. D)	maximum heights of 50 feet and a combined total of 124 loading dock doors.
Industrial Lot 5	8.53	Proposed 173,000 sf building (Bldg. E)	
Industrial Lot 6	9.16	Proposed 167,000 sf building (Bldg. F)	
Industrial Lot 7	2.31	Proposed 45,000 sf building	Not part of conceptual plan but included in WSA and EIR as industrial office
Other	1.13	Parking, landscaping, stormwater treatment	Will be common open space for the benefit of employees and visitors
Residential			
Residential	28.00	319 residential units (80 detached and 239 attached)	Programmatic level evaluation. Includes parking, small neighborhood parks, BBQ/picnic area, recreational amenities in common park areas, and landscape areas. 2.89 acres will be open space.
Total	89.09	1,139,600 sf and 319 units	-

Areas are approximate

Revised proposed project values from Amber Sharpe, David J. Powers & Associates, Inc. February 16, 2020 email

Table 2

Buildout Water Demands, Revised Proposed Project - Morgan Hill Technology and Mixed-Use Residential Project

Parcel	Area (acres)	Land Use	Water Use Demand Factor ^{1,2}	Water Demand based on WSMP net area ¹ (AF)	Water Demand based on units or building area ² (AF)
Commercial					
Commercial	2.92	Proposed 50,000 sf building	1,350 gpd/net acre (1.512 AF/acre) or 0.000145 AF/sf	4.42	7.25
Industrial					
Industrial Lot 1	12.19	Proposed 212,100 sf building (Bldg. A)	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	15.29	30.75
Industrial Lot 2	10.89	Proposed 219,600 sf building (Bldg. B)	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	13.66	31.84
Industrial Lot 3	4.80	Proposed 79,900 sf building (Bldg. C)	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	6.02	11.59
Industrial Lot 4	9.16	Proposed 193,000 sf building (Bldg. D)	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	11.49	27.99
Industrial Lot 5	8.53	Proposed 173,000 sf building (Bldg. E)	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	10.70	25.09
Industrial Lot 6	9.16	Proposed 167,000 sf building (Bldg. F)	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	11.49	24.22
Industrial Lot 7	2.31	Proposed 45,000 sf building	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	2.90	6.53
Other	1.13	Parking, landscaping, stormwater treatment	1,680 gpd/net acre (1.882 AF/acre)	2.13	included in rates above
Residential					
Detached	7.00	80 residential units	1,700 gpd/net acre or 0.2 AF/unit	13.33	16.00
Attached	21.00	239 residential units	1,900 gpd/net acre or 0.2 AF/unit	44.70	47.80
Total	89.09	1,139,600 sf + 319 units		136.13	229.06
		182	2.60		

Areas are approximate. Revised Project area/land use values from David J. Powers & Associates (Amber Sharpe, 2/16/20 email)

1. From Water System Master Plan Table 3.4 column entitled: Recommended Factor (Consistent with 2015 UWMP) (Akel, 2017). Used Residential Detached Medium and Residential Attached Low, Commercial, Commercial/Industrial, and Landscape Irrigation factors.

2. 0.000145 AF/sf commercial water use rate from Mountain View, CA Preliminary Water Demand Estimates for Planned Projects with the City of Mountain View. This value was used for the general light industrial uses above.

0.20 AF/unit from Paso Robles 2015 UWMP for single family homes

Table 3Water Demands in Five-Year Increments,
Revised Proposed ProjectMorgan Hill Technology and Mixed-Use
Residential Project

Proposed Water Demand (AFY)							
2020 ¹ 2025 ² 2030 2035 2040							
54.34	118.00	182.60	182.60	182.60			

1. 2020 water use is assumed to be the same as current use.

2. Project development is assumed to occur between 2021 and 2030 with water demands increasing linearly.

Appendix

Revised Proposed Project – Morgan Hill Technology Center

Conceptual Colored Master Site Plan Figures

	GATEWAY PARCEL	BLDG.A	BLDG.B	BLDG.C	BLDG.D	BLDG.E	BLDG.F	TOTAL
SITE AREA								
In s.f.	134,246	531,208	474,599	209,280	399,072	371,997	399,108	2,519,510
In acres	2.92	12.19	10.89	4.80	9.16	8.53	9.16	57.84
ZONING	СН	IL	IL	IL	IL	IL	IL	IL,
BUILDING AREA		212,100	219,600	79,900	193,000	173,000	167,000	1,044,600 s.f.
COVERAGE		39.9%	46.3%	38.2%	48.4%	46.5%	41.8%	41.4%
AUTO PARKING PROVIDED								
Standard (9' x 18')		375	252	185	200	215	208	1435 stalls
NUMBER OF SERVICE DOOR		22	25	9	24	22	22	124
CH (HIGHWAY COMMERCIAL) ZONING REQUIREMENTS:			<u> </u>	IL (LIGHT INDUSTRIAL) ZONING REQUIREMENTS				
current CH area (including CO) 17.4 acres	+ 12.84 acres = 30.24 acre	S	c	current IL area (inclu	uding Lee parcel)	28.53 acres + 2	.31 acres = 30.84	acres
proposed CH area : 2.92 acres			1	proposed IL area :	54.7 acres			
Maximum Building Coverage - 40%			r	Maxmum Building Cov	/erage - 60%			
Maximum Height Allowed - 4 Stories or 55' white	chever is less		r	Maximum Height Allow	ved - 50'			
Setback Minimum Allowed			5	Setback Minimum Allo	owed			
Front - 40'					Front - 30'			
Rear - 20'					Street Side - 15'			
Interior Side - 0'					Side - 10'			
Street Side - 15'					Rear - 20'			
Landscape requirements - 10%					Abuts R Zone - 30			
			L	andscape requireme	nts - 20%			



MORGAN HILL TECHNOLOGY CENTER MORGAN HILL SITE PLAN Morgan Hill, CA

Job No. 18181

DRAFT

Trammell CrowCompany





Job No. 18181

MORGAN HILL TECHNOLOGY CENTER MORGAN HILL SITE PLAN

Morgan Hill, CA

CONCEPTUAL COLORED MASTER SITE PLAN



Trammell CrowCompany

11.07.2019



FINAL DRAFT WATER SUPPLY ASSESSMENT

MORGAN HILL TECHNOLOGY AND MIXED-USE RESIDENTIAL PROJECT

CITY OF MORGAN HILL

August 20, 2019



2490 Mariner Square Loop, Suite 215 Alameda, CA 94501 510.747.6920 <u>www.toddgroundwater.com</u>

Table of Contents

1.	INT	RODUCTION	1
1	.1.	Proposed Project Description	1
1	.2.	Background	3
1	.3.	WSA Purpose and Organization	4
2.	PRC	DJECT WATER DEMAND	5
2	.1.	Existing Water Use	5
2	.2.	Estimated Future Water Demand	6
3.	CITY	Y OF MORGAN HILL WATER DEMAND	9
3	.1.	Climate	9
3	.2.	Population 1	0
3	.3.	Current and Projected Water Use1	0
3	.4.	Project Demands Compared to City UWMP Projected Demands1	.1
4.	CITY	Y OF MORGAN HILL WATER SUPPLY 1	.3
4	.1.	Santa Clara Subbasin 1	.3
4	.2.	Llagas Subbasin 1	.4
4	.3.	Groundwater Management 1	.5
4	.4.	Groundwater Use and Supply 1	.7
5.	CON	MPARISON OF SUPPLY AND DEMAND 1	.9
6.	CON	NCLUSIONS 2	3
7.	REF	ERENCES 2	4

i

List of Tables

Table 1.	Land Use, Morgan Hill Technology and Mixed-Use Residential Project 2
Table 2.	Current Water Use, Morgan Hill Technology and Mixed-Use Residential Project 5
Table 3.	Buildout Water Demands, Morgan Hill Technology and Mixed-Use Residential Project
Table 4.	Water Demands in Five-Year Increments, Morgan Hill Technology and Mixed-Use Residential Project
Table 5.	Climate Data9
Table 6.	Population Projections
Table 7.	City of Morgan Hill Current and Projected Water Use (AFY) 11
Table 8.	City of Morgan Hill 2011 to 2018 Groundwater Use (AFY) 18
Table 9.	City of Morgan Hill Projected Supply (AFY) 18
Table 10.	Normal Year Supply and Demand Comparison (AFY) 19
Table 11.	Single Dry Year Supply and Demand Comparison (AFY) 19
Table 12.	Multiple Dry Year Supply and Demand Comparison (AFY) 20

List of Figures (follow text)

Figure 1. Project Location

- Figure 2. Current and Proposed Land Uses
- Figure 3. Conceptual Plan of Industrial Buildings

Appendix A.

Select Tables from City of Morgan Hill Urban Water Management Plan (Akel, 2016)

1. INTRODUCTION

This Water Supply Assessment (WSA) was prepared for the Morgan Hill Technology and Mixed-Use Residential Project (Project) in the City of Morgan Hill (City) (**Figure 1**). The site is in the southeast corner of the US Highway 101 and Cochran Road intersection in Morgan Hill. DePaul Drive and Mission View Road border the east side and Half Road borders the south side (**Figure 2**). The Project consists of development of an 89-acre agricultural site with approximately 61 acres of commercial and industrial uses and 28 acres of residential. The City will provide potable water to the Project for domestic, fire and irrigation uses.

The commercial and industrial areas of the Project are designated as Commercial and Commercial/Industrial in the City's General Plan and consist of six parcels. The applicant would like to reconfigure the property into five parcels (one commercial, three commercial/industrial controlled by the applicant, and one existing commercial/industrial not controlled by the applicant); reduce the Commercial General Plan designation area and increase the Commercial/Industrial General Plan designation area through a General Plan amendment (Morgan Hill, 2019b).

The primary purpose of this WSA is to provide an independent evaluation of the Project's water needs and impacts on City water supplies. It documents Project water demand (including the net increase in water demand) and available water supply and determines if there is sufficient water supply to meet future water demands within the City's water supply service area under normal and dry hydrologic conditions for the next 20 years.

1.1. PROPOSED PROJECT DESCRIPTION

The Project contains a commercial/industrial area and a residential area (Figure 2) and has been divided into the following lots.

- Commercial: 2.92 acres on northwest side of property fronting Cochrane Road
- Industrial/Commercial: 61 acres on west side of property
 - Lot 1: approximately 10.42 acres
 - Lot 2: approximately 14.64 acres
 - Lot 3: approximately 29.71 acres
 - Lot 4: approximately 2.18 acres
 - The remaining area (approximately 1.13 acres) will be parking and landscaping/stormwater treatment.
- Residential: 28 acres on east side of property.

Table 1 provides a summary of proposed land uses for the Project site. An existingresidential area lies to the east of the site, agricultural land lies to the south and US Highway101 and industrial/commercial areas lie to the west and north.

Table 1.	Land Use, Morgan Hill Technology and Mixed-Use
	Residential Project

Parcel Area (acres) Land Use		Description	
Commercial			
Commercial	2.92	Proposed 50,000 sf building	Retail, administrative and professional services. Will also contain parking, landscaping, and stormwater treatment
Industrial/ Comm	ercial		
Industrial Lot 1	10.42	Proposed 195,000 sf building	Will be designed to be divisible into up to 2 tenant spaces for manufacturing, assembly, distribution, and/or fulfillment uses
Industrial Lot 2	ustrial Lot 2 14.64 Proposed 325,000 sf up to building distribution		Will be designed to be divisible into up to 4 tenant spaces for manufacturing, assembly, distribution, and/or fulfillment uses
Industrial Lot 3	29.71	Proposed 540,000 sf building	Will be designed to be divisible into up to 4 tenant spaces for manufacturing, assembly, distribution, and/or fulfillment uses
Industrial Lot 4	2.18	Proposed 45,000 sf building	Not part of conceptual plan but included in WSA and EIR as industrial office
Other 1.1		Parking, landscaping, stormwater treatment	Will be common open space for the benefit of employees and visitors
Residential			
Residential	28.00	319 residential units (60 detached and 259 attached)	Programmatic level evaluation. Includes parking, small neighborhood parks, BBQ/picnic area, recreational amenities in common park areas, and landscape areas. 2.89 acres will be open space.
Total	89.00	1,155,000 sf and 319 units	-

Areas are approximate

From Morgan Hill (2019b), Schyler (2019), and Rowe (2019)

The commercial area will be along Cochrane Road and could contain retail and administrative and professional services for the freeway intersection. The proposed square footage for development is 50,000 square feet (sf). The site will also contain parking, landscaping and stormwater treatment.

The industrial/commercial area has four lots for industrial and commercial uses including advanced manufacturing, assembly, warehouse distribution and fulfillment, supporting office, and similar industrial and commercial uses. Building 1, on Lot 1 can be divided into up to two tenant spaces while Buildings 2 and 3, on Lots 2 and 3, can be divided into up to four tenant spaces. The industrial/commercial area will also have parking, landscaping, and stormwater treatment (**Table 1**). **Figure 3** is a conceptual diagram of the industrial Buildings 1, 2, and 3.

Lot 4 is not part of the applicant's proposed development but is included in the WSA for completeness because it will be included in the Environmental Impact Report (EIR). Its development area is shown on **Figure 3** as the cut-out area between Buildings 2 and 3. For the WSA and EIR analysis, Lot 4 will be assumed to have a 45,000-sf industrial office building.

The residential area will contain up to 319 dwelling units. The General Plan designation for that area is Residential Attached Low Density with 6-16 dwelling units/acre (DU/acre). The average DU/acre for the residential area would be about 11.4 DU/acre (319 DUs/28 acres). Site improvements will include parking, small neighborhood parks, a BBQ/picnic area, recreational amenities in common park areas, and landscape areas. Approximately 2.89 acres will be open space.

1.2. BACKGROUND

The California Water Code section 10910 (also termed Senate Bill 610 or SB610) requires that a WSA be prepared for a project that is subject to the California Environmental Quality Act (CEQA) and subject to SB610 as defined in Water Code Section 10912. The Morgan Hill Technology and Mixed-Use Residential Project is subject to CEQA and SB610 because it is a development that contains more than 650,000 sf of industrial floor space and occupies more than 40 areas of land. Under SB610, documentation of water supply sources, quantification of water demands, evaluation of drought impacts, and provision of a comparison of water supply and demand are required to assess water supply sufficiency. This WSA follows the guidelines set out in the Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 (DWR, 2003).

A foundational document for preparation of a WSA is an Urban Water Management Plan (UWMP). The City prepared a 2015 UWMP (Akel, 2016), incorporated herein by reference, which was adopted on August 24, 2016, and is available online at: <u>https://www.morgan-hill.ca.gov/DocumentCenter/View/22998/</u> <u>MorganHill_2015UWMP_FinalWithErrata_051018.</u>

WSAs and UWMPs both require water supply reliability information to be provided for the water service area in 5-year increments over a 20-year planning horizon. The 2015 UWMP details City water supplies and demands to 2040. Water demand projections in the 2015 UWMP were based on projected population growth from its 2016 General Plan Update (PlaceWorks, 2016) and the City's 2020 urban water use target of 159 gallons per capita per day (gpcd).

1.3. WSA PURPOSE AND ORGANIZATION

The purpose of this WSA is to document the City's existing and future water supplies for its service area and to compare them to the area's future water demand, including that of the proposed Project. This comparison, conducted for both normal and drought conditions in five-year increments over the next 20 years, is the basis for assessing water supply sufficiency in accordance with the requirements of California Water Code Section 10910 (Senate Bill 610).

The WSA incorporates current and future water supply and demand information from the City's 2015 UWMP, current water use, and estimated water use of the Project. The analysis extends to 2040, addresses water demands in five-year increments, and provides information consistent with SB610 WSA requirements.

While fulfilling SB610 information requirements, this WSA is organized to be easily read and understood, as follows:

- Section 1 introduces the Project and provides background.
- Section 2 focuses on the current and proposed water demands of the Project that is the subject of this WSA.
- Section 3 documents the City's existing and future demands.
- Section 4 provides a summary of the City's current and future supplies. The City relies solely on groundwater for its supply but the groundwater supply is augmented by recharge from the Santa Clara Valley Water District.
- Section 5 provides a comparison of water supply and demand (in normal and drought years) that fulfills the intent of SB610.
- Section 6 summarizes the report's conclusions.

2. PROJECT WATER DEMAND

This section presents the water demands for the existing Project area and water demand estimates for the proposed development.

2.1. EXISTING WATER USE

Currently, two residences, a containerized mature tree nursery, and an unirrigated hay field occupy the site (Decker, 2019). The City supplies water to one of the residences (Morgan Hill, 2019a). Private wells supply water to the remainder of the site. There is one main agricultural well and one smaller well near the site boundary that may be outside the Project area. **Figure 2** is an aerial view from 2018 showing the current land use. According to the property seller, private well water use on the site has remained steady over the last ten years (Decker, 2019). An estimate of the current groundwater use on the site is provided in **Table 2**.

Table 2.Current Water Use, Morgan Hill Technology and Mixed-
Use Residential Project

Water Has Cote non- on	Current Wat	Totol Water	
Project Site	City-Supplied Water Use ¹	Private Well Use ²	Use (AFY)
Two Rural Residences	0.22	0.64	0.86
Agriculture (containerized tree nursery)	-	53.7	53.7
Total Current Water Use	0.22	54.34	54.56

AFY=acre-feet per year

1. City water use is average of 2010-2018 water deliveries to one residential property on the Project site. Data are from City billing records (Morgan Hill, 2019a). An additional 8% was added to include City-wide unaccounted-for water based on 2015 unaccounted-for water in the 2015 UWMP (Akel, 2017).

2. Private well water use provided by property seller (Decker, 2019) and based on Santa Clara Valley Water District water billing records for the past two years for Well 09503E16J005 (non-agricultural) and Well 09503E16Q001 (agricultural). Water use has reportedly been steady for the last 10 years.

The rural residential water use of 0.22 or 0.64 AFY are within the range of typical households¹. The irrigation requirement for the mature containerized trees is also reasonable based on an estimate that about 30 acres of the site area is irrigated (about 1/3 of the total Project area) at a rate of 1.79 AF/acre.

The larger irrigation well may be used as a water source during construction. All wells on the Project site will be properly abandoned by the end of Project construction.

2.2. ESTIMATED FUTURE WATER DEMAND

Table 3 shows the projected water demands for the Project at buildout. Two different water demand estimates are presented for each of the land use categories (Commercial, Industrial Lots 1 through 4 and other, plus residential) listed in **Table 1**. The first set of demands was estimated using recommended water demand unit factors presented in the City's Water System Master Plan (WSMP) (Akel, 2017); these demands are shown in the second column from the right on **Table 3**. These are based on the recommended factors that are consistent with the 2015 UWMP, account for continued water conservation efforts implemented by the City and are based on net development area. They are assumed to represent development that uses advanced water conservation fixtures and practices and has drought tolerant vegetation². The second set of demand estimates use typical factors based on the number of units or building areas (last column on the right on Table 3); the estimates are higher than those using the WSMP recommended factors. An average of the two (184 AFY) was selected as the proposed buildout water demand of the Project because the exact development, such as type of industrial or commercial use, will not be known until actual development occurs. It is assumed that unaccounted for water, such as water losses and fire protection, is included in these water demand factors.

To limit Project-associated water demands, the applicant will be encouraged to:

- incorporate onsite reuse for both stormwater and graywater
- use water conservation measures above State standards (i.e., CALGreen)
- meet or exceed the City's water efficient landscape regulations
- use weather- or soil-based irrigation controllers
- use dedicated landscape meters, and
- use submeters for multifamily housing and individual spaces within commercial buildings.

Table 4 presents Project water demands in five-year increments between 2020 and 2040. In 2020, Project site demands are anticipated to be comparable to existing demands because the Project will likely not have started yet. Buildout is assumed to occur by 2030; 2025 demands are assumed to be about half the buildout demand.

^{1.} A rate of 0.39 AF/single family household can be derived from Table 3.4 of the City's Water System Master Plan (Akel, 2017). Rates can vary depending upon the size of the household and the amount of landscape irrigation that occurs.

Once completed, the Project will involve a net increase in groundwater demands of about 129 AFY, which is the buildout Project demand of 183.65 AF minus existing water demand of 54.56 AF.

Parcel	Area (acres)	Land Use	Water Use Demand Factor ^{1,2}	Water Demand based on WSMP net area ¹ (AF)	Water Demand based on units or building area ² (AF)
Commercial					
Commercial	2.92	Proposed 50,000 sf building	1,350 gpd/net acre (1.512 AF/acre) or 0.000145 AF/sf	4.42	7.25
Industrial/Comme	ercial				
Industrial Lot 1	10.42	Proposed 195,000 sf building	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	13.07	28.28
Industrial Lot 2	14.64	Proposed 325,000 sf building	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	18.37	47.13
Industrial Lot 3	29.71	Proposed 540,000 sf building	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	37.27	78.30
Industrial Lot 4	2.18	Proposed 45,000 sf building	1,120 gpd/net acre (1.254 AF/acre) or 0.000145 AF/sf	2.74	6.53
Other	1.13	Parking, landscaping, stormwater treatment	1,680 gpd/net acre (1.882 AF/acre)	2.13	included in rates above
Residential					
Detached	7.00	60 residential units	1,700 gpd/net acre or 0.2 AF/unit	13.33	12.00
Attached	21.00	259 residential units	1,900 gpd/net acre or 0.2 AF/unit	44.70	51.80
Total	89.00	1,155,000 sf + 319 unit	s	136.02	231.28
			Average	18:	3.65

Table 3.Buildout Water Demands, Morgan Hill Technology and
Mixed-Use Residential Project

1. From Water System Master Plan Table 3.4 column entitled: Recommended Factor (Consistent with 2015 UWMP) (Akel, 2017). Used Residential Detached Medium, Residential Attached Low, Commercial, Commercial/Industrial, and Landscape Irrigation factors.

2. 0.000145 AF/sf commercial water use rate from Mountain View, CA Preliminary Water Demand Estimates for Planned Projects with the City of Mountain View. 0.20 AF/unit from Paso Robles 2015 UWMP for single family homes

Table 4.Water Demands in Five-Year Increments, Morgan HillTechnology and Mixed-Use Residential Project

Proposed Water Demand (AFY)						
2020 ¹ 2025 ² 2030 2035 2040						
54.34	119.00	183.65	183.65	183.65		

1. 2020 water use is assumed to be the same as current use (see Table 2).

2. Project development is assumed to occur between 2021 and 2030 with water demands increasing linearly.

3. CITY OF MORGAN HILL WATER DEMAND

This section summarizes water demands for the City of Morgan Hill. It includes discussion of factors that affect total water demand including climate, population, and mix of customer types such as residential, commercial, industrial, and irrigation. A comparison of Project water demand projections to 2015 UWMP demand projections occurs at the end of this section.

3.1. CLIMATE

Climate has a notable influence on water availability and demand on a seasonal and annual basis. During drought, influences include greater water demand for outdoor uses, specifically landscape irrigation, and less supply availability because of reduced precipitation and greater evaporation.

Table 5 summarizes representative climate data for the City, including average monthly and annual rainfall and evapotranspiration (ET). The City has a temperate climate, characterized by dry summers and wet winters with average annual maximum and minimum temperatures of 74- and 46-degrees Fahrenheit, respectively. Reflecting this pattern, water demand in the City is greater in the summer than in the winter. Average annual rainfall is about 20 inches. The average annual ET deficit of 51 inches generally represents the amount of irrigation water needed to supplement the rainfall and maintain turf areas.

	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Precipitation ¹ (inches)	4.26	3.69	3.04	1.42	0.33	0.10	0.04	0.05	0.30	0.89	2.31	3.40	19.82
ETo ² (inches)	1.74	2.32	3.77	5.10	6.26	7.07	6.91	5.84	5.10	3.71	2.05	1.51	51.38
Average Max Temperature ³ (°F)	59.8	63.6	67.2	72.2	77.7	83.6	88.0	87.7	85.5	78.6	67.5	60.1	74.3
Average Min Temperature ³ (°F)	37.2	40.5	42.6	44.4	48.5	51.9	54.2	54.3	52.7	48.1	41.8	37.1	46.1

Table 5. Climate Data

1. Precipitation at Gilroy, California Station 043417 (Jan 1, 1958 - Dec 31, 2018) (WRCC, 2019).

2. ETo=Average Evapotranspiration at CIMIS Station 211 Gilroy (Sep 1, 2009 - April 30, 2019) (CIMIS, 2019).

3. Temperature at Gilroy, California Station 043417 (Mar 1, 1906 - Jun 10, 2016) (WRCC, 2019).

Climate change may affect future water supply availability for the City of Morgan Hill by increasing temperatures, changing local precipitation patterns with less rain in the winter months and more rain in the spring months, longer summers, and increasing water demands.

The City relies solely on groundwater for its water supply. The groundwater is managed by the Santa Clara Valley Water District (Valley Water) (see **Section 4.2** for a discussion of groundwater supply and management). Valley Water is actively managing County supplies through programs such as recharge, conjunctive use, and conservation. In 2013, it established a team to develop a Climate Change Action Plan (CCAP) that is anticipated to be available by the end of 2019 (SCVWD, 2019). The CCAP will identify potential future climate change impacts, risks, and water service vulnerabilities. Areas with potential impacts, including the Santa Clara and Llagas subbasins that provide water to the City, will be assessed to identify existing, enhanced, or new strategies to reduce potential risks.

3.2. POPULATION

City population, a key factor in water demand, was evaluated in the 2015 UWMP. **Table 6** reproduces the UWMP population data for the City's water service area for 2015 with projections to 2040. The table also includes the projected incremental increases of population during each five-year period. Between 2015 and 2040, the City's population is anticipated to increase by about 19,218 persons, a 45 percent increase. In response to past rapid growth, the City initiated a Residential Development Control System to regulate growth by limiting the number of new homes approved per year. As a result, the 2040 population estimate of 61,600 is a function of the maximum number of housing allotments and is a ceiling and not a target (Akel, 2016).

Year	2015	2020	2025	2030	2035	2040
Population	42,382	48,000	51,400	54,800	58,200	61,600
Increase	-	5,618	3,400	3,400	3,400	3,400
% Increase	-	13.3%	7.1%	6.6%	6.2%	5.8%

Table 6.Population Projections

From City's UWMP Table 3-1 (Akel, 2016)

3.3. CURRENT AND PROJECTED WATER USE

The City's current and projected water demands are shown in **Table 7**. In 2015, total water use, including unaccounted-for water was 5,846 AFY. Note that in 2015, City and State mandatory water use restrictions were in place in response to drought conditions but have since been lifted. Consequently, 2015 demands are lower than what would be expected under normal conditions. Total water use is anticipated to increase to 10,972 AFY by 2040. These projections are generally based on the population projections (**Table 6**) and the City's 2020 urban water use target of 159 gpcd (61,600 (2040 population) x 159 gpcd = 10,972 AFY).

Approximately 59 percent of the City's total water use is projected to be consumed by single-family residential customers. Multi-family residential customers will use about 10.8 percent and commercial/industrial/institutional customers will use about 9.8 percent.

Landscape irrigation is estimated to consume about 19.8 percent of the potable demand between 2020 and 2040.

Customer Type	Current	Projected					
customer type	2015	2020	2025	2030	2035	2040	
Single-Family Residential	3,206	5,096	5,457	5,818	6,179	6,540	
Multi-Family Residential	581	924	990	1,055	1,120	1,186	
Commercial, Industrial and Institutional	527	838	898	957	1,016	1,076	
Landscape	1,064	1,691	1,811	1,931	2,051	2,170	
Losses	467	assumed incorporated into above demands					
Total Additional Water Uses and Losses	5,846	6 8,549 9,155 9,760 10,366			10,366	10,972	

Table 7. City of Morgan Hill Current and Projected Water Use (AFY)

From City's UWMP Table 4-2 and 4-4 (Akel, 2016)

3.4. PROJECT DEMANDS COMPARED TO CITY UWMP PROJECTED DEMANDS

As mentioned previously, water use projections in the 2015 UWMP were based on population projections set forth in the City's 2016 General Plan Update³ and the City's 2020 urban water use target of 159 gpcd. The General Plan land use zoning for the Project area is General Commercial, Commercial Industrial and Residential Attached Low. The applicant is requesting to reduce the Commercial General Plan designation area and increase the Commercial/Industrial General Plan designation area through a General Plan amendment (Morgan Hill, 2019b). Water demand for the Commercial verses Commercial/Industrial land use is similar and consequently, the overall Project water use might be considered a part of the projected UWMP growth, provided its population growth and demands are within the UWMP projected demands. This section compares 2015 UWMP population and water demand projections to those of the Project to determine if Project demands are included in the UWMP planning projections.

The population increase associated with the Project can be estimated assuming that each of the 319 units will have an average of 3 occupants⁴ resulting in 957 new residents associated with the Project. This increase is well within the UWMP population increase of 3,400 anticipated to occur between 2020 and 2025 (see **Table 6**).

A similar comparison can be made between estimated Project demands at buildout and UWMP demand increases. Project water demand is projected to be about 184 AFY at buildout with about 61 AFY associated with residential growth and 123 AFY associated with non-residential growth (**Table 3**). **Table 7** shows that the UWMP-projected increase in single family demands would be 1,444 AFY between 2020 and 2040 and that multi-family demands would increase 262 AFY between 2020 and 2040. The Project would use about 3.6 percent

3. The 2035 General Plan Update (adopted July 27, 2016) has a 2035 population of 58,200. It appears that the 2015 UWMP linearly projected population growth to 2040.

- 4. People per dwelling unit derived from information in Table 4-3A of 2015 UWMP (Akel, 2016). Morgan Hill Technology and
- Mixed-Use Residential Project WSA City of Morgan Hill

(61/(1,444 + 262) of the 2015 UWMP-allotted single family plus multi-family growth in terms of demand. The UWMP-projected increase in commercial/industrial/ institutional demands would be 238 AFY between 2020 and 2040. The Project would use about 52 percent (123/238) of the 2015 UWMP-allotted commercial/industrial/ institutional growth in terms of demand.

The Project demands are within the UWMP water demand projection increases for residential and commercial/industrial/institutional water use sectors (2020 to 2040) (**Table 7**). Therefore, it is assumed that the Morgan Hill Technology and Mixed-Use Residential Project water demands have been included in the 2015 UWMP projections. Note that this WSA does not address the ability of the City's water system to actually deliver water to the Project.

The City performs water supply and demand analysis on a five-year cycle as required by the State of California Department of Water Resources and is detailed in the City's UWMPs. The next UWMP is to be completed in 2020. UWMPs support the City's long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs.

Water supply for the City of Morgan Hill is solely from groundwater. There are currently 15 active municipal groundwater wells located throughout the central and northern portions of the City that have a firm total capacity⁵ of about 19,000 AFY (Akel, 2017 and City of Morgan Hill, 2019a). The City has two other inactive wells that are permanently out of service.

The City pumps groundwater from two groundwater basins: the Santa Clara Valley Basin and the Gilroy-Hollister Valley Basin, with Cochrane Road the approximate boundary between these two basins. The northern portion of the City overlies the Santa Clara Subbasin (DWR #2-009.02) in the Santa Clara Valley Basin while the southern portion of the City overlies the Llagas Subbasin (DWR basin 3-003.01) in the Gilroy-Hollister Valley Basin (Figure 1). The Santa Clara Subbasin has been divided into two areas for management purposes: the Coyote Valley Subarea and the Santa Clara Plain Subarea. The City overlies the Coyote Valley Subarea and has 3 active municipal wells in the Coyote Valley Subarea and 12 active wells in the Llagas Subbasin. The Santa Clara and Llagas subbasins are not adjudicated.

4.1. SANTA CLARA SUBBASIN

The Santa Clara Subbasin is a northwest trending valley that extends from the northern border of Santa Clara County to a groundwater divide near the City of Morgan Hill. It has a surface area of about 297 square miles and is bounded by the Santa Cruz Mountains to the west and the Diablo Range to the east (SCVWD, 2016). Groundwater north of the groundwater divide near Cochrane Road flows north and northwest to San Francisco Bay while groundwater to the south flows southeast in the Llagas Subbasin toward the Pajaro River, at the boundary of San Benito County, and ultimately to Monterey Bay. The groundwater divide location moves north or south as much as one mile depending upon local groundwater conditions (SVCWD, 2016). The Coyote Valley Subarea is in the southern portion of the Santa Clara Subbasin and is about 7 miles long and 2 miles wide.

The Santa Clara Subbasin consists of Quaternary alluvium deposits of unconsolidated gravel, sand, silt and clay that eroded from adjacent mountain ranges. It contains interfingering alluvial fans, stream deposits and terrace deposits. The slightly or semi-consolidated alluvial deposits of the Santa Clara Formation underlie the unconsolidated young alluvial sediments in some areas of the Santa Clara Subbasin.

The Santa Clara Plain extends from Santa Clara County's northern boundary to approximately Metcalf Road in Coyote Valley. Its thickness ranges from 150 feet near Coyote Narrows/Metcalf Road to over 1,500 feet in the interior of the Subarea and thins towards the western and eastern edges. A shallow aquifer zone occurs within 150 feet of ground surface and a 20 to 100-foot-thick aquitard separates the shallow aquifer from a lower, principal aquifer zones forming a confined area in the central portion of the Subarea. Most of the wells tap the lower zone which exists at depths between 200 and 1,000 feet (SCVWD, 2016).

5. Firm total capacity assumes the largest well is out of service. Morgan Hill Technology and Mixed-Use Residential Project WSA 13 City of Morgan Hill

The Coyote Valley Subarea consists of thick alluvial sand and gravel deposits with interbedded thin, discontinuous clays and has no laterally extensive aquitard. The aquifer sediments overlying the Santa Clara Formation vary in thickness from a few feet along the west side of the valley to more than 400 feet along the east side (SCVWD, 2016).

Recharge occurs along the edges and southern portion of the Santa Clara Subbasin. This recharge contributes to the recharge of principal aquifers in the confined area through subsurface flow (SCVWD, 2016). Groundwater generally flows toward the north or northwest, following surface topography and on a local scale, flows toward areas of high pumping.

The Santa Clara Subbasin groundwater is generally of good quality and does not need treatment beyond disinfection (SCVWD, 2016). Santa Clara Plain groundwater quality is typically very good with only infrequent detections above health-based levels. Coyote Valley groundwater is typically good quality with the exception of elevated nitrate concentrations in some areas. Nitrate concentrations in the Coyote Valley are from fertilizers and septic systems in this more rural and agricultural-based Subarea (SCVWD, 2016).

4.2. LLAGAS SUBBASIN

The Llagas Subbasin is a northwest-trending, elongated valley in the southern part of Santa Clara County. It is the northern part of the Gilroy-Hollister Groundwater Basin and is bounded by the Santa Cruz Mountains to the west and the Diablo Range to the east. The Llagas Subbasin is about 15 miles long and 3 to 6 miles wide with a surface area of 88 square miles (SCVWD, 2016).

Like the Santa Clara Subbasin, it consists of Quaternary alluvium deposits of unconsolidated gravel, sand, silt and clay that eroded from adjacent mountain ranges and has interfingering alluvial fans, stream deposits and terrace deposits. The Llagas Subbasin thickness ranges from about 500 feet in the north to over 1,000 feet beneath the Pajaro River (SCVWD, 2016). Confined conditions exist in the central and southern portions of the Subbasin.

Recharge occurs along the northern, western, and eastern edges of the Subbasin. Groundwater generally flows south, toward the Pajaro River, following surface topography and on a local scale, flows toward areas of high pumping.

Llagas Subbasin groundwater is generally of good quality with the exception of localized elevated nitrate and perchlorate detections (SCVWD, 2016). The most significant single environmental release in the Llagas Subbasin was the perchlorate contamination associated with the Olin site⁶. The site has been undergoing remediation since 2004 and the plume has diminished significantly to an area mostly south of Tennant Avenue.

^{6.} Todd Engineers and Kennedy/Jenks Consultants, Groundwater Vulnerability Study, prepared for SCVWD, September 2009.

4.3. **GROUNDWATER MANAGEMENT**

The Santa Clara Valley Water District (SCVWD or Valley Water) is the Groundwater Sustainability Agency for the Santa Clara and Llagas subbasins in accordance with the Sustainable Groundwater Management Act (SGMA).

SGMA became effective on January 1, 2015 and provides a framework for sustainable management of groundwater resources by local agencies. The Santa Clara and the Llagas subbasins are on the following timeline because they were designated as high priority basins:

- Local agencies must form local groundwater sustainability agencies (GSAs) by 2017
- GSAs must prepare and adopt groundwater sustainability plans (GSPs) by 2022; and
- Once GSPs are adopted, GSAs must implement them and achieve sustainability within 20 years.

Based on its long history of sustainable management, Valley Water submitted an Alternative Groundwater Sustainability Plan to California's Department of Water Resources (DWR) to fulfill its SGMA requirements. This alternative, entitled 2016 Groundwater Management Plan (GWMP) was submitted in 2016 (SCVWD, 2016). In accordance with SGMA, 2017 and 2018 Water Year⁷ Reports also have been prepared that provide information on groundwater conditions and management activities to maintain the long-term viability of groundwater resources in the Santa Clara and Llagas subbasins. Valley Water also produces calendar-year based information on groundwater levels, storage, land subsidence and groundwater quality conditions.

The 2018 Water Year Report (SCVWD, 2019) concluded the following:

- The subbasins have fully recovered to pre-drought conditions in Water Year (WY) • 2017 and groundwater elevation and storage remained sustainable in WY 2018.
- Despite below-average rainfall, adequate surface water supplies were available to • support a full managed recharge program with 118,700 AF of local and imported surface water.
- Treated water delivered by Valley Water (105,500 AF) and recycled water use • (17,800 AF) also provided in-lieu recharge, and countywide water conservation programs reduced water demands by about 76,000 AF.
- This comprehensive recharge continues to support a balanced long-term water budget.
- In WY 2018, inflows exceeded outflows in the Santa Clara Subbasin, resulting in a • net increase in storage of about 26,100 AF. In the Llagas Subbasin, groundwater storage decreased by 1,100 AF during the same period.

7. A water year extends from October 1 of the previous year to September 30. For example, water year 2018 is from October 1, 2017 to September 30, 2018. Morgan Hill Technology and Mixed-Use Residential Project WSA 15 TODD GROUNDWATER City of Morgan Hill

- Valley Water continues to implement the comprehensive activities described in the GWMP (SCVWD, 2016). These include:
 - Maintain existing conjunctive water management programs and evaluate opportunities for enhancement or increased efficiency.
 - Continue to aggressively protect groundwater quality through Valley Water programs and collaboration with land use agencies, regulatory agencies, and basin stakeholders.
 - Continue to incorporate groundwater sustainability planning in Valley Water planning efforts.
 - Maintain adequate monitoring programs and modeling tools.
 - Continue and enhance groundwater management partnerships with water retailers and land use agencies.
 - Evaluate the potential new authorities provided by SGMA.

The tables below are from the 2018 Water Year Report (SCVWD, 2019) and summarize WY 2018 groundwater pumping and total water use. Most water use in the Santa Clara Subbasin is for municipal and industrial use while most water use in the Llagas Subbasin is for agricultural purposes. Imported water is a large component of supply in the Santa Clara Subbasin.

Water Use Sector	Measurement Method	Santa Clara Subbasin (AFY)	Llagas Subbasin (AFY)	Total Pumping (AFY)
M&I	Metered	73,800	16,500	90,300
	Estimated	1,600	800	2,400
Domestic	Metered	100	100	200
	Estimated	400	1,700	2,100
Agricultural	Metered	2,900	17,300	20,200
	Estimated	800	6,200	7,000
Total		79,600	42,600	122,200

From Table 1 in 2018 WY Report (SCVWD, 2019)

Water Use (AFY)	Santa Clara Subbasin	Llagas Subbasin	Total	Measurement Method	Source	Sector
Groundwater Pumped	79,600	42,600	122,200	Metered (91%) and estimated	Natural recharge, managed recharge of local runoff and imported (SWP/CVP) water	M&I, domestic and agricultural
Valley Water Treated Water	105,500	0	105,500	Metered	Local runoff and imported (SWP/CVP) water	M&I
Valley Water Raw Surface Water Deliveries	800	1,300	2,100	Metered (95%) and estimated	Local runoff and imported (SWP/CVP) water	M&I, domestic and agricultural
SFPUC Supplies to Local Retailers	46,400	0	46,400	Metered	Surface water reservoirs	M&I
Recycled Water	15,600	2,200	17,800	Metered	Treated wastewater	M&I and agricultural
Total	247,900	46,100	294,000			

From Table 2 in 2018 WY Report (SCVWD, 2019)

4.4. GROUNDWATER USE AND SUPPLY

Table 8 lists Morgan Hill's annual groundwater use between 2011 and 2018. About 80percent of the City's supplies are from the Llagas Subbasin. Groundwater use declined in2015, reflecting State-wide water use restrictions in response to the drought but hasrebounded in recent years.

Groundwater Source	2011	2012	2013	2014	2015	2016	2017	2018
Llagas Subbasin of the Gilroy-Hollister Groundwater Basin	6,076	6,203	7,454	6,195	4,741	4,480	5,155	5,832
Santa Clara Subbasin, Coyote Valley Subarea of the Santa Clara Valley Groundwater Basin	1,381	1,374	1,484	1,300	1,105	1,800	1,942	1,449
Total	7,457	7,577	8,938	7,495	5,846	6,280	7,097	7,281

Table 8. City of Morgan Hill 2011 to 2018 Groundwater Use (AFY)

From 2015 UWMP Table 6-1 (Akel, 2016) and Morgan Hill (2019a)

Table 9 lists projected supplies to 2040 as documented in the UWMP. It includes natural recharge to the Llagas and Santa Clara subbasins (22,500 AFY and 2,400 AFY, respectively) as well as recharged imported water and recycled water (39,000 AFY to 48,500 AFY). These other water supplies were included in the 2015 UWMP (Akel, 2016) for completeness of the Llagas and Coyote Valley groundwater budgets. While the City of Morgan Hill does not directly contract with Valley Water for water supplies, it is dependent upon the additional water that Valley Water provides for recharge or to offset pumping in the Llagas and Santa Clara subbasins.

Table 9.	City of Morgan Hill Projected Supply (AFY)
----------	--

Water Supply Source	Projected							
water Supply Source	2020	2025	2030	2035	2040			
Llagas Subbasin (Natural Recharge)	22,500	22,500	22,500	22,500	22,500			
Santa Clara Valley Subbasin (Natural Recharge)	2,400	2,400	2,400	2,400	2,400			
Other ¹	39,000	42,900	46,600	48,400	48,500			
TOTAL	63,900	67,800	71,500	73,300	73,400			

From 2015 UWMP Table 6-9 (Akel, 2016)

1. Other includes raw water and local surface water deliveries that are managed and negotiated by Valley Water for recharge in the Llagas Subbasin and Coyote Valley Subarea. It also includes City of Gilroy recycled water demand, which offsets pumping from the Llagas Subbasin.

5. COMPARISON OF SUPPLY AND DEMAND

To determine water supply sufficiency, water supply assessments must include a comparison of supply and demand during normal, single dry and multiple dry years during a 20-year projection. Based on the City's 2015 UWMP, **Table 10** summarizes water supply and demand for the City in a normal year, while **Tables 11** and **12** show supply and demand in single-year and multi-year dry conditions. On an annual basis, the City has been able to provide sufficient supplies to meet demand during normal, single-dry, and multiple-dry year periods.

Review of **Tables 10, 11,** and **12** shows that water supply will decrease in times of drought, reflecting less natural recharge but demands were assumed to remain the same. If a severe drought occurs, the City could impose water use restrictions that could temporarily reduce water use to per capita levels similar to those in 2015 (123 gpcd). For comparison, the UWMP assumed projections based on a 159 gpcd use.

The Project site buildout water demands of 184 AFY (**Table 3**) are within the UWMP projections and thus considered to be included in the demand components of the 2015 UWMP summary tables listed below.

	2020	2025 2030		2035	2040
Supply Totals	63,900	67,800	71,500	73,300	73,400
Demand Totals	8,549	9,155	9,760	10,366	10,972
Difference	55,351	58,645	61,740	62,934	62,428

Table 10. Normal Year Supply and Demand Comparison (AFY)

From 2015 UWMP, Table 7-2 (Akel, 2016) and errata sheet (revised data available on DWR website)

Table 11. Single Dry Year Supply and Demand Comparison (AFY)

	2020	2025	2030	2035	2040
Supply Totals	60,705	60,705	60,705	60,705	60,705
Demand Totals	8,549	9,155	9,760	10,366	10,972
Difference	52,156	51,550	50,945	50,339	49,733

From 2015 UWMP, Table 7-3 (Akel, 2016) and errata sheet (revised data available on DWR website)

	2020	2025	2030	2035	2040	
First Year						
Supply Totals	60,705	60,705	60,705	60,705	60,705	
Demand Totals	8,549	9,155	9,760	10,366	10,972	
Difference	52,156	51,550	50,945	50,339	49,733	
Second Year						
Supply Totals	54,315	54,315	54,315	54,315	54,315	
Demand Totals	8,549	9,155	9,760	10,366	10,972	
Difference	45,766	45,160	44,555	43,949	43,343	
Third Year						
Supply Totals	41,535	41,535	41,535	41,535	41,535	
Demand Totals	8,549	9,155	9,760	10,366	10,972	
Difference	32,986	32,380	31,775	31,169	30,563	

 Table 12.
 Multiple Dry Year Supply and Demand Comparison (AFY)

From 2015 UWMP, Table 7-4 (Akel, 2016) and errata sheet (revised data available on DWR website)

Note that the groundwater supply amounts listed in **Tables 10**, **11**, and **12** are a shared resource managed by Valley Water through the SGMA process. The 2015 UWMP also included tables listing projected supplies and demands for the entire Llagas Subbasin and for the entire Coyote Valley Subarea using data that Valley Water provided to the City in mid-2016. These tables are shown in **Appendix A**. DWR requested that only City demands be included in these tables and the modified tables are the ones shown above.

Those subbasin or subarea-wide supply and demand comparisons in the 2015 UWMP indicated potential deficits, especially in multi-year droughts (see **Appendix A**). These deficits could be as high as 32,533 AF in the third year of a severe drought (see **Appendix A** Table 7-4). However, more recently, the 2018 Water Year Report (SCVWD, 2019) concluded that Valley Water's comprehensive recharge continues to support balanced long-term water budgets for these two subbasins.

As discussed in Section 4.3, Valley District continues to implement its groundwater sustainability program to maintain the long-term viability of groundwater resources. The following text presents brief status information on the six major recommendations in Valley Water's GWMP. This information is from the 2018 Water Year Report (SCVWD, 2019).

1. Maintain existing conjunctive water management programs and evaluate opportunities for enhancement or increased efficiency.

Capital Projects Supporting Conjunctive Management

Major water supply capital improvements identified in Valley Water's Fiscal Year 2019-23 Five-Year Capital Improvement Program include the following.

Storage:

- Almaden Dam Improvements
- Anderson Dam Seismic Retrofit
- Calero Dam Seismic Retrofit
- Guadalupe Dam Seismic Retrofit

Transmission:

- 10-Year Pipeline Rehabilitation
- Fisheries and Aquatic Habitat Collaborative Effort (FAHCE) Implementation
- Main and Madrone Pipeline Rehabilitation
- Vasona Pumping Plant Upgrade

Treatment:

- Penitencia Water Treatment Plant Residuals Management
- Rinconada Water Treatment Plant Reliability Improvement

Recycled Water:

- Expedited Purified Water Program
- South County Recycled Water Pipeline

California WaterFix

Valley Water Board voted to participate in the California WaterFix project, the State's plan to improve the infrastructure that carries water through the Sacramento-San Joaquin Delta.

Pacheco Reservoir Expansion Project

In conjunction with the San Benito County Water District and Pacheco Pass Water District, Valley Water is exploring the possibility of expanding the existing Pacheco Reservoir on the North Fork Pacheco Creek in southeast Santa Clara County. The project will increase the reservoir's capacity from 5,500 to up to 140,000 AF.

2. Continue to aggressively protect groundwater quality through Valley Water programs and collaboration with land use agencies, regulatory agencies, and basin stakeholders.

Tasks include continued groundwater quality monitoring and action when potentially adverse trends are identified and continued/enhanced collaboration with local partners and stakeholders.

3. Continue to incorporate groundwater sustainability planning in Valley Water planning efforts.

Future planning documents include:

- V alley Water's Water Supply Master Plan Update
- Climate Change Action Plan (CCAP) completed by the end of 2019

Morgan Hill Technology and Mixed-Use Residential Project WSA City of Morgan Hill

21

- Valley Water's One Water Plan which includes implementation of multibenefit projects and the process to identify individual projects on the watershed scale.
- 4. Maintain adequate monitoring programs and modeling tools.

Tasks include improving monitoring networks by identifying and addressing gaps, redundancies, and access issues; identifying and implementing improvements to the numerical groundwater flow models; and improving Valley Water's understanding of surface water/groundwater interaction.

5. Continue and enhance groundwater management partnerships with water retailers and land use agencies.

Valley Water continues to interact regularly with water retailers through quarterly Water Retailer meetings, including the Groundwater Subcommittee. In addition to these regular meetings, Valley Water and water retailers collaborate on various issues that arise regarding groundwater, treated water, wells, and water measurement.

6. Evaluate the potential new authorities provided by SGMA.

SGMA provides agencies with the authority to regulate pumping and assess different types of groundwater charges. Valley Water and interested stakeholders have discussed these authorities at various meetings and have concluded that the existing, proven groundwater management approach, which includes strong partnerships with large groundwater pumpers, is expected to result in continued, sustainable groundwater management and is the preferred approach to addressing future challenges (SCVWD, 2019). Valley Water's Board did approve a document entitled Process to Regulate Groundwater Extraction Under the Sustainable Groundwater Management Act, If Needed (Resolution No. 18-04) that describes the approach to implementing SGMA authorities to regulate groundwater extraction, if needed in the future.

6. CONCLUSIONS

The findings of this WSA are summarized below.

- The Morgan Hill Technology and Mixed-Use Residential Project will be built on an 89-acre agricultural site. Currently, two residences, a containerized mature tree nursery, and an unirrigated hay field occupy the site.
- The Project will consist of 61 acres of commercial and industrial uses and 28 acres of residential. The combined maximum area of buildings on the commercial and industrial parcels is 1,155,000 square feet. The residential area will consist of a maximum of 60 detached residential units and 259 attached low-density units.
- The City of Morgan Hill will supply the Project with potable water. Groundwater is the only source of supply to the City.
- Current site water usage averages about 54.56 AFY (2010-2018).
- Once completed, the Project will use an estimated 184 AFY of water resulting in a net increase of groundwater use of about 129 AFY.
- Water supply needed to serve the Project's water demand can be considered as included in the 2015 UWMP projections.
- The City's sole source of supply, groundwater from the Llagas and Santa Clara subbasins, is a shared resource managed by Valley Water through the SGMA process. The 2018 Water Year Report (SCVWD, 2019) for SGMA reporting concluded that Valley Water's comprehensive recharge continues to support a balanced longterm water budgets for these two subbasins.

In conclusion:

The City's water supply is from groundwater, which is a shared resource. The ongoing, active management of the Llagas and Santa Clara subbasins by Valley Water through the SGMA process and its strong partnerships with large groundwater pumpers, including the City of Morgan Hill, is expected to result in continued sustainable groundwater management in the future resulting in a reliable long-term water supply for the Project.

7. **REFERENCES**

Akel Engineering Group, Inc., 2016, City of Morgan Hill Urban Water Management Plan, August (includes errata sheet and revised numbers for select tables available on DWR website: <u>https://wuedata.water.ca.gov/uwmp_export.asp</u>).

Akel Engineering Group, Inc., 2017, City of Morgan Hill Water System Master Plan, October.

California Department of Water Resources (DWR), 2003. Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001,

www.water.ca.gov/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf

California Irrigation Management Information System (CIMIS), 2019, CIMIS Weather Station: 211 – Gilroy, <u>https://cimis.water.ca.gov/WSNReportCriteria.aspx</u>, accessed May 20.

Decker, Katy, Project Manager Haley & Aldrich (represents Project seller), 2019, email to Thomas Jodry that was forwarded to David J Powers and City of Morgan Hill, May 22.

Morgan Hill, 2019a, Jim Rowe, City Senior Project Planner email to Kurt Schlyer, David J Powers, with responses to questions, May 29.

Morgan Hill, 2019b, Notice of Preparation and Notice of Public Scoping Meeting for a Draft Environmental Impact Report for the Proposed Morgan Hill Technology and Mixed-Use Residential Project EIR, March 14.

PlaceWorks, 2016, Morgan Hill 2035 General Plan, Adopted July 27, 2016 and Revised December 6, 2017.

Rowe, Jim, Senior Project Manager/PT City of Morgan Hill, 2019, email to Kate White, Todd Groundwater, June 20.

Santa Clara Valley Water District (SCVWD or Valley Water), 2019, Water Year 2018 Report for the Santa Clara and Llagas Subbasins, March.

Santa Clara Valley Water District (SCVWD or Valley Water), 2016, 2016 Groundwater Management Plan, Santa Clara and Llagas Subbasins, November.

Schyler, Kurt, Project Manager David J. Powers, 2019, emails to Kate White, Todd Groundwater, June 19 and July 25.

Western Regional Climate Center (WRCC), 2019, Gilroy, California Station 043417 Monthly Precipitation and Temperature Data, <u>https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3417</u>, accessed May 20.

Figures

TODD GROUNDWATER







Appendix A

Select Tables from City of Morgan Hill Urban Water Management Plan (Akel, 2016)

		<u>.</u>			
	2020	2025	2030	2035	2040
	(AF)	(AF)	(AF)	(AF)	(AF)
Supply	63,900	67,800	71,500	73,300	73,400
Demand	61,765	65,542	69,468	72,811	74,068
Difference	2,135	2,258	2,032	489	-668

Table 7-2 Normal Year Supply and Demand Comparison

Table 7-2A Projected Supply vs Demand Comparison (Llagas)

Demand Condition	2020	2025	2030	2035	2040			
	(afy)	(afy)	(afy)	(afy)	(afy)			
Projected Water Supply of the Llagas Subbasin ¹								
Natural Groundwater Recharge	22,500	22,500	22,500	22,500	22,500			
Local Surface Water	16,000	18,300	20,300	21,500	21,600			
SCVWD CVP Deliveries	10,600	10,700	10,700	10,400	10,200			
Recycled Water Supply	2,600	3,200	3,700	3,700	3,700			
Total without Recycled Water	49,100	51,500	53,500	54,400	54,300			
Total with Recycled Water	51,700	54,700	57,200	58,100	58,000			
Projected Average Daily V	Projected Average Daily Water Demand							
City of Gilroy ²	9,186	10,306	11,650	12,882	14,114			
City of Morgan Hill ³	7,019	7,516	8,013	8,510	9,008			
Other Users ⁴	32,044	33,105	33,937	34,350	33,593			
Total	48,249	50,927	53,600	55,742	56,715			
Supply vs Demand Comparison - Excluding Recycled Water								
Difference (Supply - Demand)	851	573	-100	-1,342	-2,415			
Percent of Total Supply	98%	99%	100%	102%	104%			

Supply vs Demand Comparison - Including Recycled Water							
Difference (Supply - Demand)	3,451	3,773	3,600	2,358	1,285		
Percent of Total Supply	93%	93%	94%	96%	98%		

Notes:

- 1. Projected supply per South County Supply document received from SCVWD staff May 27, 2016.
- 2. Demand consistent with City of Gilroy draft 2015 UWMP.
- 3. City of Morgan Hill demand excludes Boys Ranch wells, which are located in the Coyote Valley subarea.
- 4. Demand for other users calculated from document received from SCVWD staff May 27, 2016.

Table 7-2B Projected Supply vs Demand Comparison (Coyote Valley)

Demand	2020	2025	2030	2035	2040			
Condition	(afy)	(afy)	(afy)	(afy)	(afy)			
Projected Water Supply of the Coyote Valley Subarea ¹								
Natural Groundwater recharge	2,400	2,400	2,400	2,400	2,400			
Local Surface Water	6,200	6,400	6,300	6,200	6,200			
SCVWD CVP Deliveries	3,500	4,400	5,600	6,600	6,800			
Total	12,100	13,200	14,300	15,200	15,400			
Projected Average Daily Water Demand								
City of Morgan Hill ²	1,530	1,639	1,747	1,856	1,964			
Other Users ³	11,986	13,063	14,295	15,474	15,736			
Total	13,516	14,702	16,042	17,330	17,700			
Supply vs Demand	I							
Comparison								
Difference (Supply - Demand)	-1,416	-1,502	-1,742	-2,130	-2,300			
Percent of Total Supply	112%	111%	112%	114%	115%			

Notes:

1. Projected supply per South County Supply document received from SCVWD staff May 27, 2016.

- 2. City of Morgan Hill demand includes pumping from the Boys Ranch wells, which are located in the Coyote Valley subarea.
- 3. Demand for other users calculated from document received from SCVWD staff May 27, 2016.

	2020	2025	2030	2035	2040
	(AF)	(AF)	(AF)	(AF)	(AF)
Supply	60,705	60,705	60,705	60,705	60,705
Demand	61,765	65,542	69,468	72,811	74,068
Difference	-1,060	-4,837	-8,763	-12,106	-13,363

Table 7-3 Single Dry Year Supply and Demand Comparison

Table 7-4 Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040
		(AF)	(AF)	(AF)	(AF)	(AF)
First year (2013)	Supply	60,705	60,705	60,705	60,705	60,705
	Demand	61,765	65,542	69,468	72,811	74,068
	Difference	-1,060	-4,837	-8,763	-12,106	-13,363
Second year (2014)	Supply	54,315	54,315	54,315	54,315	54,315
	Demand	61,765	65,542	69,468	72,811	74,068
	Difference	-7,450	-11,227	-15,153	-18,496	-19,753
Third year (2015)	Supply	41,535	41,535	41,535	41,535	41,535
	Demand	61,765	65,542	69,468	72,811	74,068
	Difference	-20,230	-24,007	-27,933	-31,276	-32,533