Appendix H

Water Supply and Demand Evaluation

TODD GROUNDWATER

April 13, 2021

REVISED MEMORANDUM

To: Maria Kisyova and Amber Sharpe, David J. Powers & Associates, Inc.

From: Kate White, PE, Todd Groundwater

Re: The Crosswinds at Morgan Hill
Water Supply and Demand Evaluation, City of Morgan Hill

The City of Morgan Hill has requested David J. Powers to prepare a project-level analysis for a proposed residential development called the Crosswinds at Morgan Hill Project (Project). The Project is located at the intersection of Half Road and Mission View Drive in Morgan Hill and will consist of 269 residential units. David J. Powers has asked Todd Groundwater to provide a water supply and demand evaluation memorandum for the Project.

The California Water Code Section 10910 (also termed Senate Bill 610 or SB610) requires that a Water Supply Assessment (WSA) be prepared for a project that is subject to CEQA and is considered a project subject to SB610 as defined in Water Code Section 10912. The Crosswinds at Morgan Hill is subject to CEQA but is not subject to SB610 according to Water Code Section 10912. Therefore, a WSA is not needed for the Project but WSA-related information is provided in this memorandum to comprehensively document supply and demand conditions.

THE CROSSWINDS AT MORGAN HILL PROJECT DESCRIPTION

The Project is on an approximately 33-acre site in Morgan Hill (**Figure 1**). Its proposed 269 residential units will have the following breakdown:

- 56 single family
- 64 duet units
- 149 condominium units.

The site is bounded by Half Road to the southeast, Mission View Drive to the northeast, and DePaul Drive to the southwest (**Figure 2**). There will be a total of 40 below-market-rate units. The single-family detached residences would be constructed on the eastern and southern perimeters of the Project site, along Mission View Drive and Half Road. The attached duets would be constructed in the center of the Project site and three-story condominiums would be constructed along the western and northwestern perimeters of the site, along DePaul Drive and adjacent to a vacant parcel. A recreation center with a pool will

be located near the center of the site. Site improvements will include parking, small neighborhood parks, and landscape areas. Approximately 5.3 acres will be open space.

The development is proposed to be built in three phases with the northern portion built first followed by the southern half of the site. The third phase will be infill of two undeveloped portions on the northwest side of the site.

CURRENT SITE WATER USE

A residence, containerized tree nursery, and a reportedly unirrigated agricultural field occupy the site. One or two private wells supply water to the residence and tree nursery. According to the property seller, private well water use on the site has remained steady over the last ten years (as of 2019) (Decker, 2019).

The area immediately west of the Project site consists of additional containerized tree nursery land and an agricultural field. South of the Project site, across Half Road, is a vacant field with grasses and buildings used for industrial purposes. East of the Project site, across Mission View Drive, is a field with orchards and associated structures, and single-family residences. North of the Project site is an adjacent vacant parcel of land, health center and associated parking.

An estimate of the current groundwater use on the site is provided in **Table 1**.

Table 1. Current Water Use

Water Use Category on Project Site	Current Water Use (AFY)
	Private Well Use[1]
One Rural Residence (currently vacant)	0.64
Agriculture (containerized tree nursery)	17.90
Total Current Water Use	**18.54**

AFY=acre-feet/year

1. Private well water use provided by property seller (Decker, 2019) and based on Santa Clara Valley Water District water billing records for July 2016-July 2018 for Well 09503E16J005 (non-agricultural) and Well 09503E16Q001 (agricultural). Water use has reportedly been steady for the past 10 years (as of 2019). The agricultural well also supplies water to a tree nursery area to the west. It was estimated that about one-third of the agricultural well water use occurs on the Project site (53.7 AFY/3=17.9).

PROJECT WATER DEMAND

Table 2 shows the projected water demands for the Project at buildout. Two different water demand estimates are presented for each development type listed in **Table 2**. 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 2**. 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 vegetation. 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 2**); the estimates for residential use are higher than those using the WSMP recommended factors. An average of the two (42.31 AFY) was selected as the proposed buildout water demand of the Project. It is assumed that unaccounted water, such as water losses and fire protection, is included in these water demand factors.

Once completed, the Project will involve a net increase in groundwater demands of about 23.77 AFY, which is the buildout Project demand of 42.31 AF minus estimated current water demand of 18.54 AF.

Table 2. Buildout Water Demands

Development Type	Area (acres)	Land Use	Water Use Demand Factor[1,2]	Water Demand based on WSMP net area[3] (AFY)	Water Demand based on units or building area[4] (AFY)
Single Family Detached	3.88	56 Residential units	1,700 gpd/net acre or 0.2 AFY/unit	7.39	11.20
Duet Units	4.55	64 Duet units	1,900 gpd/net acre or 0.2 AFY/unit	9.68	12.80
Condominiums	6.49	149 Condos	2,300 gpd/net acre or 0.18 AF/unit	16.72	26.82
Recreation Center	1.16	Rec Center with kitchenette, restrooms and pool	3 AFY[3]	3.00	3.00
Irrigation	Included in other categories	Total of 8.16 acres of irrigated area[4]	Estimated Total Water Use[4]	16.21	16.21
Public and Private Right of Ways	11.80	Streets and rights of ways	Included in Irrigation category		
Open Space	5.30	Medians, parks, other landscaping	Included in Irrigation category		
Total	**33.18**	**269 units**		**33.79**	**50.82**
			Average	**42.31**	

1. Gallons per day (gpd) per net acre values are 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, and Residential Attached Medium factors.
2. 0.20 AFY/unit for single family homes and 0.18 AFY/unit values from Paso Robles 2015 UWMP.

3. Estimated water use for clubhouse with kitchenette, restrooms and pool extrapolated from other similar recreational/spa centers.
4. Irrigated area and demand is Estimated Total Water Use (ETWU) from City's Water Efficiency Checklist (Dividend Homes, 2020) and from sheet L-12 of The Crosswinds at Morgan Hill Full Submittal Drawings and Tentative Tract Map (June 8, 2020).

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.

Climate and Population

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. 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.

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). Valley Water is actively managing County supplies through programs such as recharge, conjunctive use, and conservation. Valley Water is developing a Climate Change Action Plan (CCAP) that will identify potential future climate change vulnerabilities and risks to all core service areas (including water supply and groundwater management) and will provide goals and strategies to reduce risks (SCVWD, 2020).

City population, a key factor in water demand, was evaluated in the 2015 UWMP. 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).

City's Current and Projected Water Demands

The City's current and projected water demands are shown in **Table 3,** as documented in the 2015 UWMP. 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 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.

Table 3. City of Morgan Hill Current and Projected Water Use (AFY)

Customer Type	Current	Projected				
	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**	**8,549**	**9,155**	**9,760**	**10,366**	**10,972**

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

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 Update[1] and on the City's 2020 urban water use target of 159 gpcd. 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 269 units will have an average of 3 occupants[2] resulting in 807 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.

1. 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.
2. People per dwelling unit derived from information in Table 4-3A of 2015 UWMP (Akel, 2016).

A similar comparison can be made between estimated Project demands at buildout and UWMP demand increases. Project water demand is projected to be about 42.31 AFY at buildout (**Table 2**). **Table 3** 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 2.5 percent (42.31/(1,444 + 262) of the 2015 UWMP-allotted single family plus multi-family growth in terms of demand.

The Project demands are within the UWMP water demand projection increases for residential water use sectors (2020 to 2040) (**Table 3**). Therefore, it is assumed that The Crosswinds at Morgan Hill 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 as described in the City's UWMPs. The next UWMP is to be completed by July 1, 2021. UWMPs support the City's long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs.

CITY OF MORGAN HILL WATER SUPPLY

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 capacity[3] of about 19,000 AFY (Akel, 2017 and City of Morgan Hill, 2019). 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 coinciding approximately with the 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.

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

3. Firm total capacity assumes the largest well is out of service.

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).

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).

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 site[4]. The site has been undergoing remediation since 2004 and the plume has diminished significantly to an area mostly south of Tennant Avenue.

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 but are not overdrafted:

- 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 Year[5] 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.

4. Todd Engineers and Kennedy/Jenks Consultants, Groundwater Vulnerability Study, prepared for SCVWD, September 2009.

5. 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.

The 2019 Water Year Report (SCVWD, 2020) concluded the following:

- Having previously fully recovered to pre-drought conditions, groundwater elevation and storage remained in healthy condition through Water Year (WY) 2019.
- WY 2019 was a wet year and adequate surface water supplies were available to support a full managed recharge program with 81,400 AF of local and imported surface water used for groundwater replenishment.
- Treated water delivered by Valley Water (103,000 AF) and recycled water use (17,100 AF) also provided in-lieu recharge, and countywide water conservation programs reduced water demands by more than 70,000 AF.
- This comprehensive recharge continues to support a balanced long-term water budget.
- In WY 2019, inflows exceeded outflows in the Santa Clara and Llagas subbasins, resulting in a net increase in storage of 11,400 and 6,600 AF, respectively.
- 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.

Tables 4 and **5** on the next page are from the 2019 Water Year Report (SCVWD, 2020) and summarize WY 2019 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.

Table 4. Groundwater Pumping by Water Use in Water Year 2019

Water Use Sector	Measurement Method	Santa Clara Subbasin (AFY)	Llagas Subbasin (AFY)	Total Pumping (AFY)
M&I	Metered	61,600	16,400	78,000
	Estimated	1,500	600	2,100
Domestic	Metered	100	200	300
	Estimated	400	1,700	2,100
Agricultural	Metered	2,700	16,900	19,600
	Estimated	900	6,600	7,500
Total		**67,200**	**42,400**	**109,600**

From Table 1 in 2019 WY Report (SCVWD, 2020)

Table 5. Santa Clara County Total Water Use in Water Year 2019

Water Use (AFY)	Santa Clara Subbasin	Llagas Subbasin	Total	Measurement Method	Source	Sector
Groundwater Pumped	67,200	42,400	109,600	Metered (89%) and estimated	Natural recharge, managed recharge of local runoff and imported (SWP/CVP) water	M&I, domestic and agricultural
Valley Water Treated Water	103,000	0	103,000	Metered	Local runoff and imported (SWP/CVP) water	M&I
Valley Water Raw Surface Water Deliveries	700	1,300	2,000	Metered (95%) and estimated	Local runoff and imported (SWP/CVP) water	M&I, domestic and agricultural
SFPUC Supplies to Local Retailers	43,300	0	43,300	Metered	Surface water reservoirs	M&I
Recycled Water	15,200	1,900	17,100	Metered	Treated wastewater	M&I and agricultural
Total	**229,400**	**45,600**	**275,000**			

From Table 2 in 2019 WY Report (SCVWD, 2020)

Groundwater Use and Supply

Table 6 lists Morgan Hill's annual groundwater use between 2011 and 2018. About 80 percent of the City's supplies are from the Llagas Subbasin. Groundwater use declined in 2015, reflecting State-wide water use restrictions in response to the drought but rebounded in recent years.

Table 6. City of Morgan Hill 2011 to 2018 Groundwater Use (AFY)

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**

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

Table 7 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 7. City of Morgan Hill Projected Supply (AFY)

Water Supply Source	Projected				
	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.

COMPARISON OF SUPPLY AND DEMAND

To determine water supply sufficiency, a comparison of supply and demand during normal, single dry and multiple dry years during a 20-year projection was conducted. Based on the City's 2015 UWMP, **Table 8** summarizes water supply and demand for the City in a normal year, while **Tables 9** and **10** 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 8**, **9**, and **10** 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 42.31 AFY (**Table 2**) are within the UWMP projections and thus considered to be included in the demand components of the 2015 UWMP summary tables listed below.

Table 8. Normal Year Supply and Demand Comparison (AFY)

	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

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

Table 9. 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)

Table 10. Multiple Dry Year Supply and Demand Comparison (AFY)

	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

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 8**, **9**, and **10** 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 2019 Water Year Report (SCVWD, 2020) concluded that Valley Water's comprehensive recharge continues to support balanced long-term water budgets for these two subbasins.

As discussed above, Valley District continues to implement its groundwater sustainability program to maintain the long-term viability of groundwater resources.

CONCLUSIONS

The findings of this water supply and demand evaluation are summarized below.

- The Crosswinds at Morgan Hill Project will be built on a 33-acre site. Currently, one residence and a containerized tree nursery occupy the site.
- The Project will consist of 269 residential units (56 single family, 64 duet, and 149 condominium units) and a recreational center.
- 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 18.54 AFY.
- Once completed, the Project will use an estimated 42.31 AFY of water resulting in a net increase of groundwater use of about 23.77 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 2019 Water Year Report (SCVWD, 2020) for SGMA reporting concluded that Valley Water's comprehensive recharge continues to support a balanced long-term 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 partnership 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.

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: https://wuedata.water.ca.gov/uwmp_export.asp).

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

The Crosswinds at Morgan Hill Full Submittal Drawings and Tentative Tract Map, 2020, prepared by Ruggeri-Jensen-Azar, Dividend Homes, Dahlin, June 8.

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.

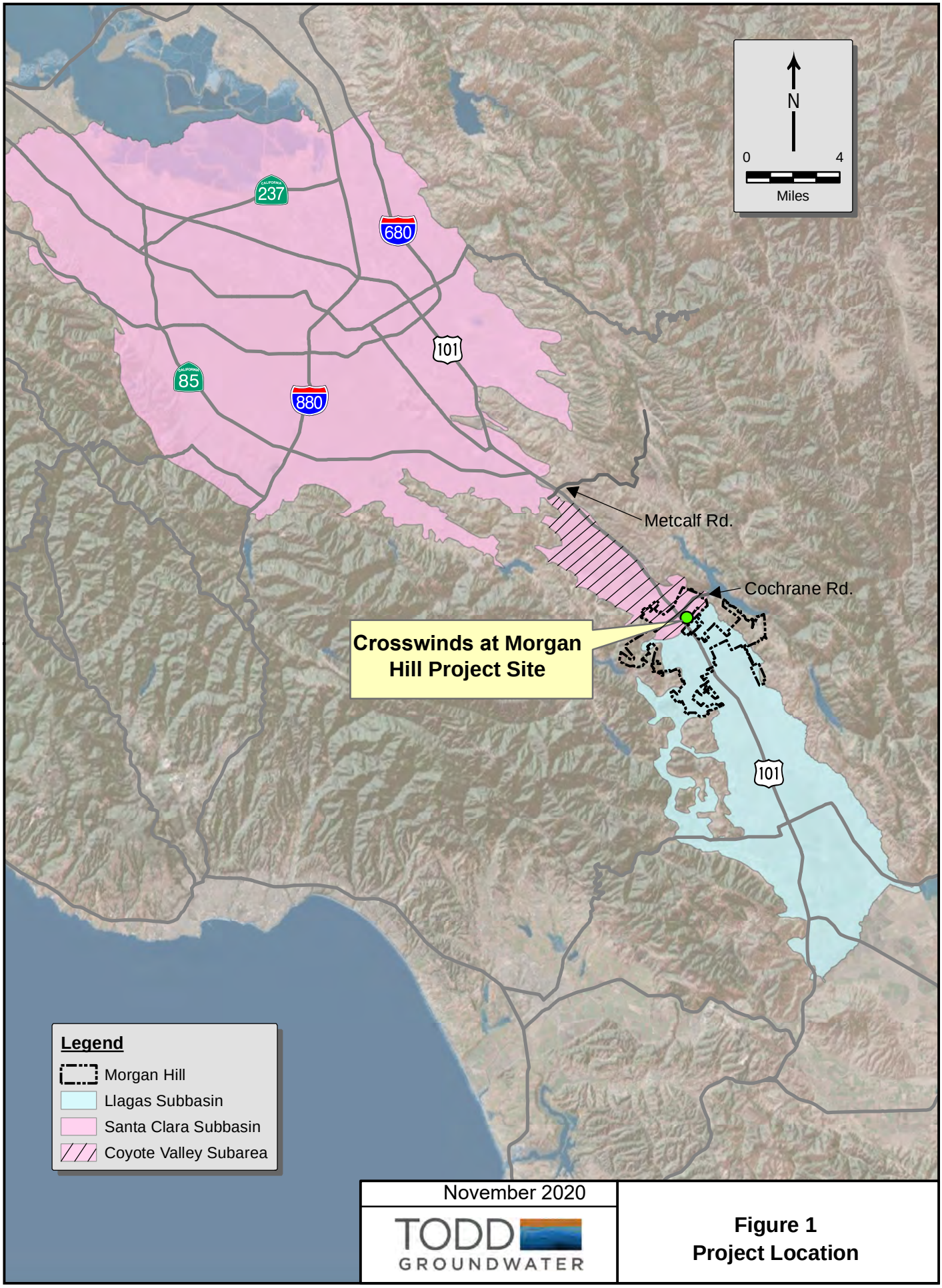
Dividend Homes, 2020, City of Morgan Hill Landscape Water-Efficiency Checklist, May 14.

Kisyova, Maria, Assistant Project Manager David J. Powers, 2020, emails to Kate White, Todd Groundwater, November 6, 11 and December 23.

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

Santa Clara Valley Water District (SCVWD or Valley Water), 2020, Water Year 2019 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.



November 2020

TODD GROUNDWATER

Figure 1
Project Location

0 60 120 180

NORTH

From Plate T1.2 of The Crosswinds Full Submittal Drawings (June 8, 2020)

November 2020

TODD GROUNDWATER

Figure 2
The Crosswinds at Morgan Hill Project Schematic

Appendix A

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

Table 7-2 Normal Year Supply and Demand Comparison

	2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)	2040 (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 7-2A Projected Supply vs Demand Comparison (Llagas)

Demand Condition	2020 (afy)	2025 (afy)	2030 (afy)	2035 (afy)	2040 (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 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 Condition	2020 (afy)	2025 (afy)	2030 (afy)	2035 (afy)	2040 (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 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.

Table 7-3 Single Dry Year Supply and Demand Comparison

	2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)	2040 (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 7-4 Multiple Dry Years Supply and Demand Comparison

		2020 (AF)	2025 (AF)	2030 (AF)	2035 (AF)	2040 (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