Water Solutions, Inc.

DRAFT Technical Memorandum

To: Santa Clarita Valley Water Agency

From: John Porcello – GSI Water Solutions

Date: August 18, 2020

Re: Updated Water Demand Projections for West Side Communities (Valencia, California)

1.0 Introduction

This technical memorandum presents an update to water demand projections for nine adjoining communities that collectively comprise the West Side communities owned by Five Point Holdings, LLC (FivePoint)[1], in the Santa Clarita Valley, California. The nine communities include five villages comprising the Newhall Ranch Specific Plan (Specific Plan) (i.e., Landmark Village, Mission Village, Homestead South, Homestead North, and Potrero Village), three other communities (Legacy Village, Entrada South, and Entrada North), and build-out of an ongoing development (Valencia Commerce Center). All nine communities are located within or adjacent to the area served by the Santa Clarita Valley Water Agency (SCV Water).[2]

The updated water demand projections are provided in Table 1. The remainder of this technical memorandum discusses the water demand calculation methodology (Section 2); the current land use plan and a description of each land use type (Section 3); the water demand factors associated with each type of land use (Section 4); the estimated water demands and changes compared with the prior demand update (Section 5); and a list of references cited in this technical memorandum (Section 6). Supporting information is also provided in the following attachments:

[1] Five Point Holdings, LLC (FivePoint) owns and is developing the West Side communities through its subsidiaries, The Newhall Land and Farming Company (Newhall) and Stevenson Ranch Venture.

[2] SCV Water was formed in 2018 by legislation (Senate Bill 634) consolidated Newhall County Water District and Castaic Lake Water Agency, which had acquired the Valencia Water Company in 2012. The 2018 legislation required SCV Water to merge VWC into SCV Water's retail water service operations, which occurred in 2018.

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- Attachment 1: Detailed Land Use Tables for the Specific Plan, Collective West Side Communities, and Each Individual Village
- Attachment 2: Summary of State and Local Laws and Regulations Governing Water Conservation in California
- Attachment 3: Derivation of Water Demand Factors
- Attachment 4: Water Demand Calculations for the Specific Plan
- Attachment 5: Water Demand Calculations for Collective West Side Communities

2.0 Water Demand Calculation Methodology

This water demand projection uses the same calculation methodology for estimating demands in the West Side communities as was presented in GSI's July 30, 2010 and March 4, 2016 technical memoranda (GSI, 2010 and 2016a), while taking into account current water conservation standards and measures as summarized below in Section 4 and in Attachments 2 and 3[3]. The water demand calculation method has been programmed into a series of linked Microsoft Excel spreadsheets that estimate potable and nonpotable water demands. Land use details, which are presented in Section 3 of this technical memorandum, are manually entered in the spreadsheets and are coupled with pre-programmed water demand factors to calculate and categorize the amounts of indoor (potable) demands, outdoor potable demands, and outdoor nonpotable demands. This water demand projection methodology has been applied separately to (1) each of the individual West Side communities, (2) the collective group of five villages comprising the Specific Plan, and (3) the collective group of nine villages comprising the West Side communities.

3.0 Land Use Plan

Table 2 summarizes the updated land use information for each village, including for (1) the total Specific Plan development and each of its five villages and (2) the four individual villages lying outside of the Specific Plan. Table 2 has two parts:

- The upper portion of Table 2 shows the residential land use plan, including details contained in the vesting tentative tract maps (VTTMs)[4] regarding the number of dwelling

[3] In 2012, SCV Water and Newhall agreed to follow the 2010 GSI technical memorandum methodology for water demand calculations for the West Side communities when the Castaic Lake Water Agency acquired all stock of Valencia Water Company from Newhall under an eminent domain settlement agreement ("2012 Settlement Agreement"). SCV Water took on the rights, responsibilities, and obligations under the 2012 Settlement Agreement when it was formed as an agency in accordance with Senate Bill 634. The first water demand analysis for the West Side communities (CH2M HILL, 1996) was conducted for the Newhall Ranch Specific Plan. Subsequent revisions to that analysis were conducted at various times during the late 1990s (CH2M HILL, 1999) and through 2001 during final preparation of the Specific Plan and Water Reclamation Plant Environmental Impact Report (Specific Plan EIR) (Impact Sciences, 2003), which was approved by Los Angeles County on May 27, 2003. Additional revisions were conducted to the present to support further land plan revisions and project-level EIRs for individual villages (see, for example, GSI, 2008, 2010, and 2016a).

[4] The VTTM applications are used for planning purposes of providing a reasonable estimate of land uses for this water demand projection. The VTTMs and land uses may be refined or changed over time by FivePoint.

units and their acreage on an area-wide basis. Table 2 also differentiates between the three primary types of residential units (single-family residences, detached multi-family residential units [detached condominiums], and attached multi-family residential units [attached condominiums, apartments, and mixed use developments]).

- The lower portion of Table 2 shows the acreages that will be dedicated to residential units, nonresidential developments, and other noncommercial land uses that provide public services (recreation, arterials, stormwater management facilities, slope stability, open space, and river corridors).

As shown in Table 2 (which provides a land use summary) and Attachment 1 (which provides the detailed land uses), the Specific Plan community has a total acreage of 11,999 acres, and the four other communities outside of the Specific Plan area have a combined acreage of 3,169 acres. The nine West Side communities together have a combined acreage of 15,168 acres. All references to acreage in this report and the supporting attachments are approximate.

- The approved Specific Plan consists of 1,565 acres of residential development (with 20,885 dwelling units), 360 acres of nonresidential development, and 10,074 acres of public noncommercial land uses that include natural open space known as the upland High Country area (in the southern portion of the Specific Plan).
- The four other West Side communities together consist of 462 acres of residential development (with 6,312 dwelling units), 465 acres of nonresidential development, and 2,242 acres of public noncommercial land uses.
- Together, the nine West Side communities consist of 2,027 acres of residential development (with 27,197 dwelling units), 825 acres of nonresidential development, and 12,316 acres of other (public noncommercial) land uses (including natural open space).

Attachment 1 provides the details of the land uses for each village, for the five villages comprising the Specific Plan, and for the nine West Side communities as a whole. Key aspects of the tables and the land uses shown in Attachment 1 are as follows:

1. Each table presents the land use information in the form of land use classifications that are used directly by the water demand tool. These classifications and the data that are shown for each land use type have been derived from detailed land use information that is contained in the VTTMs and associated planning data for each village.
2. Each table presents the VTTM Planning Area designations and a description of the product type in each case where this information applies. Additionally:
    a. For residential developments, information is provided on the number of single-family dwellings, detached condominiums, and attached residences, plus the acreages associated with each of these types of residential units.

   b. For nonresidential developments, the indoor square footage is shown for those facility types whose water use is dependent on the size of the facility.

3. For residential developments:

   a. The estates and low density developments are comprised exclusively of detached single-family residences.

   b. The low-medium developments are comprised of a mixture of detached single-family residences, detached multi-family residences (condominiums) and attached multi-family residences (condominiums, duplexes, townhomes, and a small number of apartments).

   c. The medium density developments are comprised exclusively of attached multi-family residences (condominiums, duplexes, and townhomes).

   d. The "high and mixed use" category is comprised of attached condominiums and other residences, including residences that are part of larger developments that include retail facilities. This category is separate from apartments, which are in a distinct land use category because of their generally lower population in each dwelling unit.

4. For nonresidential developments:

   a. Separate land use categories are defined for retail and office space in mixed use developments and in purely commercial developments. Industrial business parks are treated as an additional separate land use category.

   b. Several specialty land uses are identified because of the unique nature of their water needs, including senior assisted living facilities, hotels and spas, elementary schools, middle schools, high schools, and other facilities that serve the public (such as libraries, fire stations, police stations, electrical substations, and the NRWRP).

5. Public noncommercial portions of each village are listed in the table under the heading "Recreation, Arterials, and Open Space." These land uses focus primarily on irrigation along public rights of way, including transportation corridors, river corridors, irrigated slopes, and stormwater facilities. Parks and recreation centers are also included, which have a mixture of potable water demands and nonpotable (landscape irrigation) demands.

4.0 Water Demand Factors

The water demand factors for indoor and outdoor uses of water in the West Side communities are described in detail in Attachment 3. In summary, the indoor and outdoor water demand factors have been derived from review of the State of California's Green Building Standards Code (CALGreen) and Model Water Efficient Landscape Ordinance (MWELO), and by considering

the effects of recent (2018) state legislation on water-use efficiency standards and performance measures (Assembly Bill 1668 and Senate Bill 606). Attachment 2 discusses the requirements of the state codes and legislation.

Summaries of the demand factors are as follows:

- The demand factors for potable water uses are listed in Table 3 for residential development and in Table 4 for nonresidential development, and are described in Section 4.1. For indoor water uses, the values of potable demand factors have been developed by applying the results of industry research on water use behavior patterns to the flow rates for indoor fixtures that are specified under the current mandatory water conservation standards contained in CALGreen.

- For outdoor uses of potable water, consideration was given to potable irrigation needs in certain residential developments and to other types of potable outdoor water use in residential and nonresidential land uses.

- Demand factors for outdoor water demands that are anticipated to be met with nonpotable water supplies are listed in Table 5 and are described in Section 4.2. These demand factors are developed under the assumption that common areas will meet current requirements contained in the Model Water Efficient Landscape Ordinance. These landscape demand factors are based on irrigation with potable water, even though the demand from these landscapes can be met with nonpotable water and is planned to be met by recycled water use in most (if not all) common areas in the West Side communities.

4.1 Demand Factors for Water Uses Requiring Potable Water Supplies

Following are discussions of potable water demands for residential land uses (Section 4.1.1) and for nonresidential land uses (Section 4.1.2).

4.1.1 Residential Demand Factors for Potable Water

Table 3 shows the daily per-person rates of indoor and outdoor potable water uses (rates that are expressed in units of gallons per capita per day [gpcpd]); the number of persons per dwelling unit that is assumed for each residential land use category; and the combined total rate of daily potable water use per dwelling unit for each residential land use category. As discussed in Attachment 3, the **indoor** per-capita potable water use rates for residences are between 54 percent and 72 percent of the per-capita potable water use rates that were used in prior analyses which preceded the current modern-day water conservation standards (i.e., the standards contained in the latest CALGreen Code and the 2018 legislation).

Residential uses of potable water consist of the following:

- **Indoor Uses.** These uses involve indoor human contact with water in kitchens, bathrooms, laundry facilities, and other washing and serving areas of the household.

- **Outdoor Uses.** For single-family residences and multi-family residential communities, potable water will be the source of supply for outdoor residential water uses that involve human contact, such as filling swimming pools, watering landscaping outside of common areas, and washing cars, pavement, and outdoor surfaces.

Because estates, low-density, and certain low-medium-density developments are comprised primarily of single-family homes, their interior and exterior uses of water are greater than for higher-density residential developments (which consist of attached dwellings). This is based on the comparatively larger lot sizes and floor space for single-family dwellings. In contrast, attached multi-family dwellings are characterized by (1) less floor space and smaller lot sizes; (2) fewer persons per dwelling unit (in most cases); and (3) a building footprint that occupies a larger percentage of a lot than in the case of lower-density single-family developments. Accordingly, both the indoor and outdoor rates of water use are generally lower for attached multi-family residences than for single-family residences.

In late 2015 and early 2016, GSI and Valencia Water Company (VWC) reviewed the population densities (occupancy rates) for each category of residential land uses. The review examined census data for recently-constructed developments inside VWC's service area (in the Bridgeport, North Park, and Stevenson Ranch neighborhoods). Census data that were examined consisted of decennial census block data for the year 2010 and annual census block group data from the American Community Survey (ACS), collected from 2011 through 2014. As shown in Table 6, the review identified that these recently-constructed developments have average occupancy rates of 3.292 persons per household (PPHH) for single-family homes, 2.367 PPHH for condominiums and townhomes, and 2.103 PPHH for apartments. Because these values come from recent census data in new residential construction located within VWD's service area, these average occupancy rates are now used in the water demand projections for the West Side communities. See GSI (2016b) for details.

4.1.2 Nonresidential Demand Factors for Potable Water

Table 4 shows the daily rates of indoor and outdoor potable water uses for developed facilities that are not residential in nature. For most of the nonresidential land uses, the indoor per-capita water use rates are 90 percent of the per-capita rates that were used in prior analyses which preceded current water conservation standards.

Interior uses of water on nonresidential lands are calculated from daily water demand factors for potable water use that are based on the size of the facility (in square feet or acres); however, these rates of use (i.e., demand factors) differ for schools (based on the number of students) and for senior assisted living facilities (based on the number of beds). Exterior uses of potable water are calculated based on the number of acres occupied by the lot containing the facility, with the potable water demand factors accounting for the water uses that require potable water on each different type and size of nonresidential facility.

Uses of nonpotable water in nonresidential developments consist of the following:

- **Indoor Use.** Indoor use rates for potable water range from 0.009 to 0.18 gallon per day per square foot for facilities with high occupancy during portions of the day, such as retail commercial facilities, business parks, and hotels. Hospitals and senior assisted living facilities are assigned indoor water use rates that reflect the multi-day occupancy of the residents in these facilities (450 and 90 gallons per day per bed, respectively). Schools are assigned an indoor potable use rate of 20 gallons per student.

- **Outdoor Use.** Potable water will be used outdoors for nonresidential uses that have the potential for human contact with the water (primarily swimming pools, wash water, and some landscape irrigation). The outdoor potable water use rate is specified as 275 gallons per acre per day for industrial facilities, fire stations, and visitor-serving facilities. Senior assisted living facilities are assigned outdoor potable water use rates of 108 gallons per day per bed. As described in Section 4.2 of Attachment 3, the high school is assigned an outdoor potable water use rate of 13 acre-feet per year to reflect the presence of a large swimming pool.

The commercial land use categories in the demand model for the West Side communities are:

- Mixed-use commercial (retail)
- Mixed-use commercial (office)
- Commercial (retail)
- Business park (office)
- Business park (industrial)

Three additional nonresidential land use categories have been added to the current water demand projections:

- Hotel/spa, which is assumed to have a similar indoor potable water use rate as business parks and institutional facilities (0.18 gallons per day per square foot [gpd/ft^2]);

- Senior assisted living, which is assumed to have one-fifth the indoor water need of a hospital on a per-bed basis, plus a modest outdoor demand for potable water; and

- Visitor serving facilities, which have a low indoor water demand (0.009 gpd/ft^2, which is similar to mixed-use commercial retail) and a modest outdoor potable water demand (275 gallons per acre per day [gpapd], which is the same as industrial business parks and fire stations).

4.2 Demand Factors for Water Uses That Can Be Met with Nonpotable Water Supplies

Irrigation demands for common-area landscaping can be met with nonpotable water supplies, which may consist of recycled water or other available nonpotable water supplies, or potable water supplies if nonpotable water is not available. Common-area landscaping will be present in areas containing multi-family residential developments, nonresidential developments,

recreational facilities, and irrigated slopes. Table 5 shows the exterior nonpotable water demand factors, as well as the percentage of each type of lot that will be irrigated. Comparisons of these demand factors with those used in prior water demand analyses are also shown.

Irrigation demands are defined from the monthly distribution of reference evapotranspiration rates (ETo) for turf grass. The ETo value describes the amount of evaporation plus plant transpiration that occurs from a standardized grass surface. The current demand estimates are based on an ETo value of 66.7 inches per year (approximately 5.6 feet per year), which is the average during the past 10 years of ETo measurements at a monitoring station located at SCV Water's Rio Vista water treatment plant.[5] As discussed in Attachment 3, the 2015 Model Water Efficient Landscape Ordinance specifies an ETo value of 61.5 inches per year for Santa Clarita and limits the maximum allowable water application rate on landscapes using potable water to 55 percent of this lower ETo value for residential landscapes and 45 percent of this lower ETo value for nonresidential landscapes. Using the higher ETo value of 66.7 inches per year provides a conservative (high) estimate of potential outdoor water demands for nonpotable water, resulting in maximum allowable water application rates of 37.2 inches per year (approximately 3.1 feet per year) on residential landscapes and 30.0 inches per year (approximately 2.5 feet per year) on nonresidential landscapes.

Section 4.3 of Attachment 3 presents the details of monthly ET reference rates, the landscape design details, and the calculations of nonpotable water demand factors for each type of irrigated landscape. Table 5 shows that the new nonpotable demand factors provide a 43 percent reduction in nonpotable demand on residential lands compared with the nonpotable demand factors used in prior water demand estimates for the Specific Plan and the West Side communities. For nonresidential lands, the percentage reductions are between 41 percent and 56 percent for each land use type, except for schools (12.5 percent). For the recreation/arterials/open space land use categories, the percentage reductions range from 12.5 percent to 35 percent.

Although certain industrial water users may be able to use nonpotable supplies in their production processes, the water demand calculation process for the West Side communities assumes that commercial and industrial facilities will use recycled water solely for landscape irrigation, and that all industrial process water needs will be met with potable water supplies.

5.0 Water Demand Summary

The current water demands for each individual village, the Specific Plan, and the collective nine West Side communities are presented in Tables 7 and 8. Current water demand estimates are also compared with the prior estimates developed in 2010 and 2016 (GSI, 2010 and 2016a), as well as with prior analyses for the Specific Plan. Supporting calculations are provided in Attachment 4 for the Specific Plan and Attachment 5 for the collective West Side communities.

[5] Personal communication from Rick Vasilopulos/SCV Water to John Porcello/GSI Water Solutions, October 21, 2019.

5.1 Combined Water Demand in the Specific Plan

Under the current land use plan, and with implementation of current water conservation standards, the average annual total water demand in the Specific Plan is estimated to be 9,633 acre-feet per year (AF/yr). Specific aspects of the current water demand estimates for the Specific Plan are as follows:

1. Potable water demand is projected to be 6,032 AF/yr.
2. Nonpotable water demand is projected to be 3,601 AF/yr.
3. Accordingly, the total water demand of the Specific Plan is projected to be 9,633 AF/yr.
4. Based on the projected population of 50,638 residents, the combined residential, nonresidential, and other daily per-capita demands for potable plus nonpotable (recycled) water across the entire Specific Plan are projected to be 170 gpcpd.
5. Indoor residential per-capita demands for potable water are estimated to be 50 gpcpd when considering all residences together. (See Table 4-3 of Attachment 4.)
6. The total water demand in residential areas within the Specific Plan is projected to be 5,880 AF/yr, which (as shown in Table 4-3 of Attachment 4) consists of:
    a. 5,304 AF/yr of potable water demand (of which 2,838 AF/yr is for indoor use and 2,466 AF/yr is for outdoor use), and
    b. 576 AF/yr of nonpotable water demand (for landscape irrigation on multi-family lots).

5.2 Combined Water Demand in the Nine West Side Communities

Under the current land use plan, and with implementation of current water conservation standards, the average annual total water demand in the collective group of nine West Side communities is estimated to be 14,059 AF/yr. Specific aspects of the current estimates for water demand, wastewater generation, and recycled water use inside the collective group of nine West Side communities are as follows:

1. Potable water demand is projected to be 8,885 AF/yr.
2. Nonpotable water demand is projected to be 5,174 AF/yr.
3. Accordingly, the total water demand of the collective group of nine West Side communities is projected to be 14,059 AF/yr.
4. Based on the projected population of 66,241 residents, the combined residential, nonresidential, and other daily per-capita demands for potable plus nonpotable (recycled) water across the entire West Side communities are projected to be 189 gpcpd.

5. Indoor residential per-capita demands for potable water are estimated to be 50 gpcpd when considering all residences together. (See Table 5-3 of Attachment 5.)

6. The total water demand in residential areas within the collective group of nine West Side communities is projected to be 7,666 AF/yr, which (as shown in Table 5-3 of Attachment 5) consists of:

    a. 6,925 AF/yr of potable water demand (of which 3,732 AF/yr is for indoor use and 3,193 AF/yr is for outdoor use as shown in Figure 2), and

    b. 741 AF/yr of nonpotable water demand (for landscape irrigation on multi-family lots).

5.3 Estimated Changes in Water Use and Recycled Water

Prior water demand estimates used 1990s-era water demand factors, whereas the current water demand estimates use water demand factors that account for the State of California's current water conservation standards. As shown in Tables 7 and 8, under the current land use plan and with implementation of current water conservation standards, the average annual total water demands and their change from prior demand estimates are as follows:

- **In the Specific Plan:** Total water demand is estimated to be 9,633 AF/yr, which is 8,047 AF/yr (and 46 percent) lower than the estimate of 17,680 AF/yr developed in 2003 for the Specific Plan. (See Table 7.)

- **In the collective group of nine West Side Communities:** Total water demand is estimated to be 14,059 AF/yr, which is 8,363 AF/yr (and 37 percent) lower than the first (2010) estimate for the West Side communities of 22,422 AF/yr. (See Table 8.)

Comparisons of the current water demand estimates with the most recent (2016) set of prior estimates are provided in Table 9 for the Specific Plan and in Table 10 for the collective nine West Side communities.

6.0 References Cited

CH2M HILL. 1999. *Technical Memorandum: Update to: Addendum to Water Resources and Wastewater Management for the Newhall Ranch Project.* Prepared for The Newhall Ranch Land and Farming Company. Prepared by Michael T. Savage. January 18, 1999.

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GSI Water Solutions, Inc. (GSI). 2016b. *Evaluation of Dwelling Unit Occupancy Rates for Newhall Ranch and the West Side Communities.* Technical Memorandum to Dirk Marks, Castaic Lake Water Agency, and Lisa Maddaus, Maddaus Water Management. Prepared by John Porcello and Cindy Ryals. February 10, 2016.

GSI Water Solutions, Inc. (GSI). 2010. *Addendum No. 1 Land Use and Water Demand Study for West Side Communities.* Technical Memorandum to Robert DiPrimio, President, Valencia Water Company. Prepared by John Porcello. July 30, 2010.

GSI Water Solutions, Inc. (GSI). 2008. *Land Use and Water Demand Study for West Side Communities.* Technical Memorandum to Robert DiPrimio, President, Valencia Water Company. Prepared by John Porcello. September 24, 2008.

Impact Sciences, Inc. 2003. *Final Additional Analysis to the Specific Plan and Water Reclamation Plant Final Environmental Impact Report.* Project # 94087, SCH # 95011015. Prepared for the Los Angeles County Department of Regional Planning. May 2003.

Table 1

Summary of Water Demands for West Side Communities

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

	Potable Demand	Nonpotable Demand	Total Demand	Total Population	Per Capita Demands
Newhall Ranch Specific Plan					
Landmark Village	454	272	726	3,551	183
Mission Village	1,071	911	1,982	9,770	181
Homestead South	1,125	834	1,959	8,842	198
Homestead North	881	461	1,342	4,464	268
Potrero Village	2,501	1,123	3,624	24,011	135
TOTAL	**6,032**	**3,601**	**9,633**	**50,638**	**170**
Other West Side Communities					
Legacy Village	1,132	800	1,932	9,361	184
Entrada South	435	347	782	3,726	187
Entrada North	662	165	827	2,516	293
Valencia Commerce Center	624	261	885	0	---
TOTAL	**2,853**	**1,573**	**4,426**	**15,603**	**253**
Total for All West Side Communities					
TOTAL	**8,885**	**5,174**	**14,059**	**66,241**	**189**

Notes

(1) Demand values are in units of acre-feet per year (AF/yr), except per-capita demands are in units of gallons per person per day.

(2) Demand estimates incorporate current water conservation standards (CALGreen and MWELO).

(3) The values in this water demand estimate are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 2

Land Use Summary for West Side Communities (from Vesting Tentative Tract Maps)

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

Residential Land Use Plan

West Side Community	Single-Family Lots (Detached Dwellings)		Multi-Family Dwellings (Detached Condominiums)		Multi-Family Dwellings (Attached Condominiums, Apartments, Mixed-Use)		Total	
	Units	Acreage	Units	Acreage	Units	Acreage	Units	Acreage
Landmark	270	37	213	23	961	60	1,444	120
Mission	351	89	238	49	3,466	201	4,055	339
Homestead South	539	112	915	91	2,163	145	3,617	348
Homestead North	242	145	98	13	1,478	82	1,818	240
Potrero	869	180	1,006	140	8,076	198	9,951	518
Natural Open Space	0	0	0	0	0	0	0	0
Subtotal (Newhall Ranch)	**2,271**	**563**	**2,470**	**316**	**16,144**	**686**	**20,885**	**1,565**
Entrada South	0	0	452	53	1,122	62	1,574	115
Entrada North	0	0	0	0	1,150	15	1,150	15
Legacy	1,011	181	76	12	2,501	139	3,588	332
Valencia Commerce Ctr.	0	0	0	0	0	0	0	0
Subtotal (Others)	**1,011**	**181**	**528**	**65**	**4,773**	**216**	**6,312**	**462**
Total	**3,282**	**744**	**2,998**	**381**	**20,917**	**902**	**27,197**	**2,027**

Acreage for Residential, Nonresidential, and Public Noncommercial Land Uses

West Side Community	Residential Development	Nonresidential Development	Public Noncommercial (Recreation, Arterials, Open Space)	Total
Landmark	120	47	140	307
Mission	339	73	895	1,307
Homestead South	348	86	1,312	1,746
Homestead North	240	78	793	1,111
Potrero	518	76	1,905	2,499
Natural Open Space	0	0	5,028	5,028
Subtotal (Newhall Ranch)	**1,565**	**360**	**10,074**	**11,999**
Entrada South	115	67	201	383
Entrada North	15	134	308	457
Legacy	332	45	1,383	1,760
Valencia Commerce Ctr.	0	220	350	570
Subtotal (Others)	**462**	**465**	**2,242**	**3,169**
Total	**2,027**	**825**	**12,316**	**15,168**

Note: "Other" land uses consist of recreational facilities (indoor and outdoor), arterial roadways, and major open areas.

Note: All acreages in this analysis are rounded to the nearest acre for presentation purposes. Actual acreages may vary slightly as shown in Attachment 1. All data and acreages are subject to change at the time of preparation of tentative or final land use maps.

Table 3
Potable Water Demand Factors for Residential Development

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

Residential Land Use Category	Indoor Use (gpcpd)	Outdoor Use (gpcpd)	Persons per Dwelling Unit	Total Potable Use (gpd/DU)
Estate (Single-Family Detached)	54	390	3.292	1,462
Low (Single-Family Detached)	54	170	3.292	737
Low Medium (Single-Family Detached)	54	70	3.292	408
Low Medium (Multi-Family Detached)	50	34	2.367	199
Low Medium (Multi-Family Attached)	50	34	2.367	199
Medium (Multi-Family Detached)	50	34	2.367	199
Medium (Multi-Family Attached)	50	34	2.367	199
High and Mixed Use (Multi-Family)	50	34	2.367	199
Apartments (Multi-Family)	50	32	2.103	172

DU = dwelling units gpcpd = gallons per capita per day gpd = gallons per day

Table 4
Potable Water Demand Factors for Nonresidential Development

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

Nonresidential Land Use Category	Indoor Use		Outdoor Use
	Units	Factor	gpapd
Mixed-Use Commercial (Retail)	gpd/sq. ft.	0.009	0
Mixed-Use Commercial (Office)	gpd/sq. ft.	0.045	0
Commercial (Retail)	gpd/sq. ft.	0.18	0
Business Park (Office)	gpd/sq. ft.	0.045	0
Business Park (Industrial)	gpd/sq. ft.	0.18	275
Institutional	gpd/sq. ft.	0.18	0
Hotel/Spa	gpd/sq. ft.	0.18	0
Hospital	gpd/bed	450	0
Sr. Assisted Living	gpd/bed	90	108
Golf Club House	gpd/sq. ft.	0.009	0
Visitor Serving	gpd/sq. ft.	0.009	275
Water Reclamation Plant	gpapd	200	0
Electrical Substation	gpapd	0	0
Fire Stations	gpd/sq. ft.	0.18	275
Schools	gpd/student	20	13
Recreation Centers	gpapd	90	0
Neighborhood Parks	gpapd	90	0
Lake - Water	gpapd	0	0
Lake - Park Area	gpapd	0	0
Golf Course	gpapd	0	0
Hardscape/Road Section	gpapd	0	0
Landscape Area	gpapd	0	0
Natural Open Space	gpapd	0	0
River Corridor	gpapd	0	0
Non-Irrigated Slopes	gpapd	0	0
Irrigated Slopes, Wet Zones	gpapd	0	0
O.S. Drainage Facilities	gpapd	0	0

gpapd = gallons per acre per day, based on average square footage per acre
gpd = gallons per day sq. ft. = square foot O.S. = open space
For schools, the exterior value of 13 has units of AF/pool/year (not gpapd)

Table 5
Nonpotable Water Demand Factors
Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

Land Use Category	Percent Irrigated With Recycled Water	Nonpotable Irrigation Demand Factors (AF/acre/year)	Comparison with Prior Net-Acreage Demand Factors (AF/acre/year)		
			Prior Rate	Rate Reduction	Percent Reduction
Residential					
Estate (Single-Family Detached)	0%	---	---	---	---
Low (Single-Family Detached)	0%	---	---	---	---
Low Medium (Single-Family Detached)	0%	---	---	---	---
Low Medium (Multi-Family Detached)	15%	3.8	6.7	2.9	43.3%
Low Medium (Multi-Family Attached)	15%	3.8	6.7	2.9	43.3%
Medium (Multi-Family Detached)	15%	3.8	6.7	2.9	43.3%
Medium (Multi-Family Attached)	15%	3.8	6.7	2.9	43.3%
High and Mixed Use (Multi-Family)	15%	3.8	6.7	2.9	43.3%
Apartments (Multi-Family)	15%	3.8	6.7	2.9	43.3%
Nonresidential					
Mixed-Use Commercial (Retail)	25%	2.5	5.36	2.86	53.4%
Mixed-Use Commercial (Office)	25%	2.5	5.36	2.86	53.4%
Commercial (Retail)	25%	2.5	5.36	2.86	53.4%
Business Park (Office)	25%	2.5	5.36	2.86	53.4%
Business Park (Industrial)	25%	2.5	5.36	2.86	53.4%
Institutional	25%	2.5	5.6	3.1	55.4%
Hotel/Spa	25%	3.3	5.36	2.06	38.4%
Hospital	25%	3.3	5.6	2.3	41.1%
Sr. Assisted Living	25%	3.3	5.6	2.3	41.1%
Golf Club House	0%	---	---	---	---
Visitor Serving	25%	2.5	5.6	3.1	55.4%
Water Reclamation Plant	25%	2.5	4.48	1.98	44.2%
Electrical Substation	0%	---	---	---	---
Fire Stations	25%	2.5	5.6	3.1	55.4%
Schools	25%	4.9	5.6	0.7	12.5%
Recreation, Arterials, Open Space					
Recreation Centers	75%	4.3	5.1	0.8	15.7%
Neighborhood Parks	75%	4.3	5.1	0.8	15.7%
Golf Course	100%	5.0	5.8	0.8	13.8%
Lake (Water Feature)	100%	5.6	6.4	0.8	12.5%
Arterial Highway Hardscape / Road Section	0%	---	---	---	---
Arterial Highway Landscaped Areas	100%	2.5	3.47	0.97	28.0%
Natural Open Space	0%	---	---	---	---
River Corridor	0%	---	---	---	---
Non-Irrigated Slopes	0%	---	---	---	---
Irrigated Slopes, Wet Zones	100%	2.5	3.47	0.97	28.0%
O.S. Drainage Facilities	0%	---	---	---	---
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	90%	2.5	3.85	1.35	35.1%

O.S. = open space AF = acre-feet
A dashed entry means this land type is not irrigated.

Table 6

Single Family and Multi-Family Persons Per Household Assessment For Recently-Constructed Residences at the Bridgeport, North Park, and Stevenson Ranch Developments (Using 2010 U.S. Census Block Data)

Prepared by Valencia Water Company and GSI Water Solutions

Location	Housing Type	Attached/Detached	Units	Population	PPHH	Notes
Bridgeport	SF	Detached	206	608	2.95	SF Attached around lake and west on NH Ranch Parkway
North Park	SF	Detached	139	436	3.14	
North Park	SF	Detached	214	720	3.36	
North Park	SF	Detached	125	424	3.39	
North Park	SF	Detached	44	153	3.48	High Density Detached
Stevenson Ranch	SF	Detached	128	275	2.15	
Stevenson Ranch	SF	Detached	189	523	2.77	Stevenson Ranch Parkway and The Old Road
Stevenson Ranch	SF	Detached	78	262	3.36	North of Pacific Colony
Stevenson Ranch	SF	Detached	22	80	3.64	
Stevenson Ranch	SF	Detached	146	540	3.70	
Stevenson Ranch	SF	Detached	30	130	4.33	
Westridge	SF	Detached	877	3085	3.52	
Bridgeport	SF	Attached	118	272	2.31	
North Park	SF	Attached	27	44	1.63	
North Park	SF	Attached	46	95	2.07	Village Walk
North Park	SF	Attached	52	123	2.37	
North Park	SF	Attached	20	52	2.60	
North Park	SF	Attached	30	86	2.87	
North Park	SF	Attached	21	64	3.05	Provence
Stevenson Ranch	SF	Attached	24	58	2.42	Marblehead Palisades Condos
Stevenson Ranch	SF	Attached	57	141	2.47	Marblehead Palisades Condos
Bridgeport	MF	Attached	188	402	2.14	Bridgeport Coast Apartments
North Park	MF	Attached	201	416	2.07	Skycrest Apartments

Housing Type	Attached/Detached	Mean PPHH	PPHH Range
SF	Detached	3.292	2.15 to 4.33
SF	Attached	2.367	1.63 to 3.05
MF	Attached	2.103	2.07 to 2.14

Note: PPHH = persons per household

Table 7

Summary of Water Demands for the Newhall Ranch Specific Plan

Prepared by GSI Water Solutions

August 2020

	Potable Demand	Nonpotable Demand	Total Demand	Total Population	Per Capita Demands
2003 Specific Plan for Newhall Ranch	8,645	9,035	17,680	58,993	268
2010 Land Use Update for Newhall Ranch					
Landmark Village	608	364	972	4,000	217
Mission Village	1,676	1,243	2,919	11,777	221
Homestead Village	2,475	1,961	4,436	15,802	251
Potrero Village	3,091	4,701	7,792	22,400	311
TOTAL	**7,850**	**8,269**	**16,119**	**53,979**	**267**
Change from 2003 Specific Plan	-795	-766	-1,561	-5,014	-1
Percent Change from 2003 Specific Plan	-9%	-8%	-9%	-8%	0%
2016 Land Use Update for Newhall Ranch					
Landmark Village	545	373	918	3,551	231
Mission Village	1,352	1,268	2,620	9,770	239
Homestead South	1,385	1,082	2,467	9,991	220
Homestead North	1,036	674	1,710	5,465	279
Potrero Village	1,569	1,443	3,012	11,512	234
TOTAL	**5,887**	**4,840**	**10,727**	**40,289**	**238**
Change from 2003 Specific Plan	-2,758	-4,195	-6,953	-18,704	-30
Percent Change from 2003 Specific Plan	-32%	-46%	-39%	-32%	-11%
2020 Land Use Update for Newhall Ranch, Plus Current Water Conservation Standards					
Landmark Village	454	272	726	3,551	183
Mission Village	1,071	911	1,982	9,770	181
Homestead South	1,125	834	1,959	8,842	198
Homestead North	881	461	1,342	4,464	268
Potrero Village	2,501	1,123	3,624	24,011	135
TOTAL	**6,032**	**3,601**	**9,633**	**50,638**	**170**
Change from 2003 Specific Plan	-2,613	-5,434	-8,047	-8,355	-98
Percent Change from 2003 Specific Plan	-30%	-60%	-46%	-14%	-37%

Notes

(1) Demand values are in units of acre-feet per year (AF/yr), except per-capita demands are in units of gallons per person per day.

(2) Demand estimates in 2010 and 2016 use the same demand factors (without the CALGreen and MWELO water conservation standards). Demand estimates in 2020 incorporate current water conservation standards (CALGreen and MWELO).

(3) The values in this water demand estimate are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 8
Summary of Water Demands for West Side Communities

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

	Potable Demand	Nonpotable Demand	Total Demand	Total Population	Per Capita Demands
2010 Analysis for West Side Communities					
Newhall Ranch Specific Plan	7,850	8,269	16,119	53,979	267
Legacy Village	1,540	1,182	2,722	10,134	240
Entrada South	714	373	1,087	4,590	211
Entrada North	1,119	295	1,414	4,454	283
Valencia Commerce Center	608	472	1,080	0	---
TOTAL	**11,831**	**10,591**	**22,422**	**73,157**	**274**
2016 Analysis for West Side Communities					
Newhall Ranch Specific Plan	5,887	4,840	10,727	40,289	238
Legacy Village	1,376	1,132	2,508	9,453	237
Entrada South	639	444	1,083	4,092	236
Entrada North	803	296	1,099	2,516	390
Valencia Commerce Center	608	472	1,080	0	---
TOTAL	**9,313**	**7,184**	**16,497**	**56,350**	**261**
Change from 2010 Analysis	-2,518	-3,407	-5,925	-16,807	-13
Percent Change from 2010 Analysis	-21%	-32%	-26%	-23%	-5%
2020 Analysis for West Side Communities					
Newhall Ranch Specific Plan	6,032	3,601	9,633	50,638	170
Legacy Village	1,132	800	1,932	9,361	184
Entrada South	435	347	782	3,726	187
Entrada North	662	165	827	2,516	293
Valencia Commerce Center	624	261	885	0	---
TOTAL	**8,885**	**5,174**	**14,059**	**66,241**	**189**
Change from 2010 Analysis	-2,946	-5,417	-8,363	-6,916	-85
Percent Change from 2010 Analysis	-25%	-51%	-37%	-9%	-31%

Notes

(1) Demand values are in units of acre-feet per year (AF/yr), except per-capita demands are in units of gallons per person per day.

(2) Demand estimates in 2010 and 2016 use the same demand factors (without the CALGreen and MWELO water conservation standards). Demand estimates in 2020 incorporate current water conservation standards (CALGreen and MWELO).

(3) The values in this water demand estimate are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 9

Estimated Water Demands for the Newhall Ranch Specific Plan Under the 2016 versus Current Land Use and Water Use Plans

Updated Water Demand Projections for West Side Communities (Valencia, California)

August 2020

Water Conservation Standards	Version of Land Use Plan	Land Use Category	Indoor Potable Demand (AF/yr)	Outdoor Potable Demand (AF/yr)	Total Potable Demand (AF/yr)	Nonpotable Demand (AF/yr)	Total Demand (AF/yr)
Past (1990s-era)	**2016**	**Entire Specific Plan**	**3,853**	**2,034**	**5,887**	**4,840**	**10,727**
		• *Residential*	*3,308*	*1,994*	*5,302*	*636*	*5,938*
		• *Commercial/Industrial/Institutional*	*525*	*40*	*565*	*520*	*1,085*
		• *Recreational/Arterials/Slopes/Easements*	*20*	*0*	*20*	*3,684*	*3,704*
Current	**Current**	**Entire Specific Plan**	**3,517**	**2,515**	**6,032**	**3,601**	**9,633**
		• *Residential*	*2,838*	*2,466*	*5,304*	*576*	*5,880*
		• *Commercial/Industrial/Institutional*	*661*	*49*	*710*	*311*	*1,021*
		• *Recreational/Arterials/Slopes/Easements*	*18*	*0*	*18*	*2,714*	*2,732*
Estimated Change in Demand		**Entire Specific Plan**	**-336**	**481**	**145**	**-1,239**	**-1,094**
		• *Residential*	*-470*	*472*	*2*	*-60*	*-58*
		• *Commercial/Industrial/Institutional*	*136*	*9*	*145*	*-209*	*-64*
		• *Recreational/Arterials/Slopes/Easements*	*-2*	*0*	*-2*	*-970*	*-972*
Estimated Percent Change		**Entire Specific Plan**	**-9%**	**24%**	**2%**	**-26%**	**-10%**
		• *Residential*	*-14%*	*24%*	*0.04%*	*-9%*	*-1%*
		• *Commercial/Industrial/Institutional*	*26%*	*23%*	*26%*	*-40%*	*-6%*
		• *Recreational/Arterials/Slopes/Easements*	*-10%*	*---*	*-10%*	*-26%*	*-26%*

Note: The current water conservation standards are the state's CALGreen and MWELO standards.

AF/yr = acre-feet per year

The values in this water demand estimate are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 10

Estimated Water Demands for West Side Communities Under the 2016 versus Current Land Use and Water Use Plans

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

Water Conservation Standards	Version of Land Use Plan	Land Use Category	Indoor Potable Demand (AF/yr)	Outdoor Potable Demand (AF/yr)	Total Potable Demand (AF/yr)	Nonpotable Demand (AF/yr)	Total Demand (AF/yr)
Past (1990s-era)	**2016**	**Entire West Side Communities**	**6,421**	**2,892**	**9,313**	**7,184**	**16,497**
		• *Residential*	*4,642*	*2,796*	*7,438*	*848*	*8,286*
		• *Commercial/Industrial/Institutional*	*1,752*	*96*	*1,848*	*1,136*	*2,984*
		• *Recreational/Arterials/Slopes/Easements*	*27*	*0*	*27*	*5,200*	*5,227*
Current	**Current**	**Entire West Side Communities**	**5,595**	**3,290**	**8,885**	**5,174**	**14,059**
		• *Residential*	*3,732*	*3,193*	*6,925*	*741*	*7,666*
		• *Commercial/Industrial/Institutional*	*1,839*	*97*	*1,936*	*618*	*2,554*
		• *Recreational/Arterials/Slopes/Easements*	*24*	*0*	*24*	*3,815*	*3,839*
Estimated Change in Demand		**Entire West Side Communities**	**-826**	**398**	**-428**	**-2,010**	**-2,438**
		• *Residential*	*-910*	*397*	*-513*	*-107*	*-620*
		• *Commercial/Industrial/Institutional*	*87*	*1*	*88*	*-518*	*-430*
		• *Recreational/Arterials/Slopes/Easements*	*-3*	*0*	*-3*	*-1,385*	*-1,388*
Estimated Percent Change		**Entire West Side Communities**	**-13%**	**14%**	**-5%**	**-28%**	**-15%**
		• *Residential*	*-20%*	*14%*	*-7%*	*-13%*	*-7%*
		• *Commercial/Industrial/Institutional*	*5%*	*1%*	*5%*	*-46%*	*-14%*
		• *Recreational/Arterials/Slopes/Easements*	*-11%*	*---*	*-11%*	*-27%*	*-27%*

Note: The current water conservation standards are the state's CALGreen and MWELO standards.

AF/yr = acre-feet per year

The values in this water demand estimate are approximate and are subject to change at the time of preparation of tentative or final land use maps.

ATTACHMENT 1

Detailed Land Use Tables for the Specific Plan,
Collective West Side Communities, and Each Individual Village
August 2020

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details -- Total for All West-Side Communities

Land Use Category	No. Of Units	Square Footage	Acreage	Notes	Number of Dwellings				Acreage			
Residential					SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate	65		61.2		65	0	0	65	61.2	0	0	61.2
Low	524		202.1		524	0	0	524	202.1	0	0	202.1
Low Medium	7,138		788.2		2,693	1,133	3,312	7,138	480.7	140.6	166.9	788.2
Medium	9,381		510.0		0	1,865	7,516	9,381	0	239.7	270.3	510.0
High and Mixed Use	5,664		257.5		0	0	5,664	5,664	0	0	257.5	257.5
Apartments	4,425		207.5		0	0	4,425	4,425	0	0	207.5	207.5
Subtotal	**27,197**		**2,026.5**		**3,282**	**2,998**	**20,917**	**27,197**	**744.0**	**380.3**	**902.2**	**2,026.5**
Non-Residential												
Mixed Use Commercial - Retail		1,397,067	38.3									
Mixed Use Commercial - Office		4,143,113	197.9									
Mixed Use Commercial - Total		**5,540,180**	**236.2**									
Commercial - Retail		2,116,500	133.8									
Commercial - Office		979,200	48.3									
Commercial-Total		**3,095,700**	**182.1**									
Business Park (Office)		0	0.0									
Hotels and Spas		410,000	9.7									
SCE Substation		0	2.7									
Fire Station		43,300	7.2									
Sheriff Station		50,000	6.0									
Water reclamation plant		0	11.1									
Sr. Assisted Living		337,000	11.2	Does not include a facility in Mission Village, in which this category is folded into Mixed-Use Residential and consists of a 351-bed facility on 13.6 acres								
Business Park (Industrial)		3,959,520	200.9									
Visitor center		2,500	36.6									
Golf club house		0	0.0									
Library		36,000	3.3									
Elementary School(s)		0	46.8									
Middle School		0	18.0									
High School		0	53.3									
Subtotal		**13,474,200**	**825.1**									
Recreation, Arterials, and Open Space												
Water Feature			0.3	Constitutes the "Lake-Water" land use category in the water demand model.								
Irrigated Slope			904.4	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
Irrigated Flat			33.9	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
Wet Zone (Unspecified Length)			11.4	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
30' wet zone			14.0	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
50' wet zone			28.0	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
70' wet zone			26.8	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
Roads/bridge			577.5	Incorporated into the "Hardscape/Road Section" land use category in the water demand model.								
Existing Roads			17.8	Incorporated into the "Hardscape/Road Section" land use category in the water demand model.								
Access Road			37.1	Incorporated into the "Hardscape/Road Section" land use category in the water demand model.								
Non irrigated slope			552.5	Incorporated into the "Non-Irrigated Slopes" land use category in the water demand model.								
Non irrigated flat			56.2	Incorporated into the "Non-Irrigated Slopes" land use category in the water demand model.								
Non irrigated-brush clearing zone			19.6	Incorporated into the "Non-Irrigated Slopes" land use category in the water demand model.								
Debris basin			73.6	Incorporated into the "O.S. Drainage Facilities" land use category in the water demand model.								
Water quality			72.3	Incorporated into the "O.S. Drainage Facilities" land use category in the water demand model.								
Natural OS			3,953.4	Constitutes the "Natural Open Space" land use category in the water demand model.								
LDZ OS			30.9	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Trail OS			2.8	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Unspecified OS			21.0	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Trailhead			1.4	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Parkways & medians			226.1	Constitutes the "Arterial Highways Landscale Area" land use category in the water demand model.								
Lake			0.0	Constitutes the "Lake-Park Area" land use category in the water demand model.								
Sidewalk			55.7	Incorporated into the "Hardscape/Road Section" land use category in the water demand model.								
Private Utility			0.0	Nonirrigated								
Bank Protection			0.0	Nonirrigated								
River			225.3	Constitutes the "River Corridor" land use category in the water demand model.								
Drainage			172.8	Incorporated into the "O.S. Drainage Facilities" land use category in the water demand model.								
Golf course			0.0	Constitutes the "Golf Course" land use category in the water demand model.								
Recreation centers			51.1	Constitutes the "Recreation Centers" land use category in the water demand model.								
Parks			121.7	Constitutes the "Parks" land use category in the water demand model.								
SD & SS Easement			0.0	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Channel			0.0	Incorporated into the "O.S. Drainage Facilities" land use category in the water demand model.								
Subtotal			**7,287.6**	**Excludes 5,028.7 acres of High Country.**								

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

	Units	SF (Non-Res)	Acreage (without High Country)
GRAND TOTAL	**27,197**	**13,474,200**	**10,139.2**
			Acreage (with High Country)
			15,167.9

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details -- Total for All Five Newhall Ranch Villages (Landmark, Mission, Potrero, Homestead South, and Homestead North)

Land Use Category	No. Of Units	Square Footage	Acreage	Notes	Number of Dwellings				Acreage			
Residential					SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate	65		61.2		65	0	0	65	61.2	0	0	61.2
Low	524		202.1		524	0	0	524	202.1	0	0	202.1
Low Medium	5,241		506.9		1,682	605	2,954	5,241	300.1	75.8	131.0	506.9
Medium	6,651		361.0		0	1,865	4,786	6,651	0	239.7	121.3	361.0
High and Mixed Use	5,011		251.1		0	0	5,011	5,011	0	0	251.1	251.1
Apartments	3,393		182.8		0	0	3,393	3,393	0	0	182.8	182.8
Subtotal	**20,885**		**1,565.1**		**2,271**	**2,470**	**16,144**	**20,885**	**563.4**	**315.5**	**686.2**	**1,565.1**
Non-Residential												
Mixed Use Commercial - Retail		1,306,572	36.0									
Mixed Use Commercial - Office		2,484,608	80.8									
Mixed Use Commercial - Total		**3,791,180**	**116.8**									
Commercial - Retail		253,300	13.8									
Commercial - Office		118,200	3.2									
Commercial-Total		**371,500**	**17.0**									
Business Park (Office)		0	0.0									
Hotels and Spas		0	0.0									
SCE Substation		0	1.0									
Fire Station		34,800	4.3									
Sheriff Station		0	0.0									
Water reclamation plant		0	11.1									
Sr. Assisted Living		0	0.0	Does not include a facility in Mission Village, in which this category is folded into Mixed-Use Residential and consists of a 351-bed facility on 13.6 acres								
Business Park (Industrial)		1,386,320	61.7									
Visitor center		2,500	36.6									
Golf club house		0	0.0									
Library		36,000	3.3									
Elementary School(s)		0	36.8									
Middle School		0	18.0									
High School		0	53.3									
Subtotal		**5,622,300**	**359.9**									
Recreation, Arterials, and Open Space												
Water Feature			0.0	Constitutes the "Lake-Water" land use category in the water demand model.								
Irrigated Slope			641.3	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
Irrigated Flat			14.5	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
Wet Zone (Unspecified Length)			2.3	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
30' wet zone			14.0	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
50' wet zone			28.0	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
70' wet zone			26.8	Incorporated into the "Irrigated Slopes, Wet Zones" land use category in the water demand model.								
Roads/bridge			453.1	Incorporated into the "Hardscape/Road Section" land use category in the water demand model.								
Existing Roads			0.0	Incorporated into the "Hardscape/Road Section" land use category in the water demand model.								
Access Road			21.1	Incorporated into the "Hardscape/Road Section" land use category in the water demand model.								
Non irrigated slope			463.3	Incorporated into the "Non-Irrigated Slopes" land use category in the water demand model.								
Non irrigated flat			32.6	Incorporated into the "Non-Irrigated Slopes" land use category in the water demand model.								
Non irrigated-brush clearing zone			0.0	Incorporated into the "Non-Irrigated Slopes" land use category in the water demand model.								
Debris basin			53.3	Incorporated into the "O.S. Drainage Facilities" land use category in the water demand model.								
Water quality			54.2	Incorporated into the "O.S. Drainage Facilities" land use category in the water demand model.								
Natural OS			2,777.5	Constitutes the "Natural Open Space" land use category in the water demand model.								
LDZ OS			19.4	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Trail OS			0.0	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Unspecified OS			0.0	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Trailhead			0.4	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Parkways & medians			161.3	Constitutes the "Arterial Highways Landscale Area" land use category in the water demand model.								
Lake			0.0	Constitutes the "Lake-Park Area" land use category in the water demand model.								
Sidewalk			26.5	Incorporated into the "Hardscape/Road Section" land use category in the water demand model.								
Private Utility			0.0	Nonirrigated								
Bank Protection			0.0	Nonirrigated								
River			0.0	Constitutes the "River Corridor" land use category in the water demand model.								
Drainage			119.8	Incorporated into the "O.S. Drainage Facilities" land use category in the water demand model.								
Golf course			0.0	Constitutes the "Golf Course" land use category in the water demand model.								
Recreation centers			42.6	Constitutes the "Recreation Centers" land use category in the water demand model.								
Parks			93.6	Constitutes the "Parks" land use category in the water demand model.								
SD & SS Easement			0.0	Incorporated into the "O.S. LDZ, O.S. Trail LDZ, SD&SS easements " land use category in the water demand model.								
Channel			0.0	Incorporated into the "O.S. Drainage Facilities" land use category in the water demand model.								
Subtotal			**5,045.6**	**Excludes 5,028.7 acres of High Country.**								

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

	Units	SF (Non-Res)	Acreage (without High Country)
GRAND TOTAL	**20,885**	**5,622,300**	**6,970.6**
			Acreage (with High Country)
			11,999.3

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Landmark Village

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Acreage	Product Type	Notes	Number of Dwellings				Acreage			
Residential							SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate		0		0			0	0	0	0	0	0	0	0
Low		0		0			0	0	0	0	0	0	0	0
Low Medium		270		37.2	SFD-4,500 SFD-5,000 SFD-5,500		270	0	0	270	37.2	0	0	37.2
Medium		213		23	Detached Condo		0	213	0	213	0	23	0	23.0
High and Mixed Use		520		30.5	Attached Condo		0	0	520	520	0	0	30.5	30.5
Apartments		441		29.4	Apartment		0	0	441	441	0	0	29.4	29.4
Subtotal	Total	**1,444**		**120.1**			**270**	**213**	**961**	**1,444**	**37.2**	**23.0**	**59.9**	**120.1**
Non-Residential														
Mixed Use Commercial - Retail			332,800	8.1										
Mixed Use Commercial - Office			569,200	13.9										
Mixed Use Commercial - Total	**10,15**		**902,000**	**22.0**										
Commercial - Retail			104,800	2.5										
Commercial - Office			26,200	0.6										
Commercial - Total	**29,30**		**131,000**	**3.1**										
Business Park (Office)														
Hotels and Spas														
SCE Substation														
Fire Station	30		11,500	1.3										
Sheriff Station														
Water reclamation plant				11.1										
Sr. Assisted Living														
Business Park (Industrial)														
Visitor center														
Golf club house														
Library														
Elementary School(s)	19			9.7										
Middle School														
High School														
Subtotal			**1,044,500**	**47.2**										
Recreation, Arterials, and Open Space														
Water Feature														
Irrigated Slope				44										
Irrigated Flat														
Wet Zone (Unspecified Length)														
30' wet zone														
50' wet zone														
70' wet zone														
Roads/bridge				47.2										
Existing Roads														
Access Road														
Non irrigated slope														
Non irrigated flat														
Non irrigated-brush clearing zone														
Debris basin														
Water quality				1.3										
Natural OS				22.8		Was 22.0 acres in 2008								
LDZ OS														
Trail OS														
Unspecified OS														
Trailhead				0.4										
Parkways & medians				8.1										
Lake														
Sidewalk														
Private Utility														
Bank Protection														
River														
Drainage														
Golf course														
Recreation centers	6,13,25		14,000	5.8										
Park	21		1,500	10.5										
SD & SS Easement														
Channel														
Subtotal				**140.1**										

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

	Units	SF (Non-Res)	Acreage
GRAND TOTAL	**1,444**	**1,044,500**	**307.4**

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Mission Village

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Acreage	Product Type	Notes	Number of Dwellings				Acreage			
Residential							SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate							0	0	0	0	0	0	0	0
Low	A8	73		40.4			73	0	0	73	40.4	0	0	40.4
Low Medium	A2, A3, A7	278		48.5	A-2: SFD 6,050 sq. ft. A-3: SFD 4,000 sq. ft. A-7 :SFD 7,150 sq. ft.		278	0	0	278	48.5	0	0	48.5
Medium	A4, A9, A10, C1, C2, C4-C6	238		48.6	Detached Condos		0	238	0	238	0	48.6	0	48.6
High and Mixed Use (including Sr. Assisted Living [F21])	A5, A6, B1, B2, C7, C8, F4-F7, F10-F18, F21, D1	2,887		162.4	Attached Condos and Sr. Assisted Living		0	0	2,887	2,887	0	0	162.4	162.4
Apartments		579		38.6			0	0	579	579	0	0	38.6	38.6
Subtotal		**4,055**		**338.5**			**351**	**238**	**3,466**	**4,055**	**88.9**	**48.6**	**201.0**	**338.5**
Non-Residential														
Mixed Use Commercial - Retail			142,000	5.3	acres estimated by GSI									
Mixed Use Commercial - Office			1,239,000	46.2	acres estimated by GSI									
Mixed Use Commercial - Total	**F1, F4, F5, F22, C9, E1**		**1,381,000**	**51.5**	**retail and office**	**net acres; acreage for F4 & F5 inc in res**								
Commercial - Retail			82,100	5.0	acres estimated by GSI									
Commercial - Office			92,000	2.6	acres estimated by GSI									
Commercial - Total	**F2, F3**		**174,100**	**7.6**	**retail and office**									
Business Park (Office)														
Hotels and spas														
SCE Substation														
Fire Station			13,500	1.5		now in Mission Village								
Sheriff Station														
Water reclamation plant														
Sr. Assisted Living	F21 (351 beds)				Built into "High and Mixed Use" residential land use category									
Business Park (Industrial)														
Visitor center														
Golf Club House														
Library			36,000	3.3										
Elementary School(s)				9.5										
Middle School														
High School														
Subtotal			**1,604,600**	**73.4**										
Recreation, Arterials, and Open Space														
Water Feature														
Irrigated Slope				154.7		slope factor applied								
Irrigated Flat														
Wet Zone (Unspecified Length)														
30' wet zone				5.4		slope factor applied								
50' wet zone				15.8		slope factor applied								
70' wet zone				21.1		slope factor applied								
Roads/bridge				116.7										
Existing Roads														
Access Road														
Non irrigated slope				100.1										
Non irrigated flat														
Non irrigated-brush clearing zone														
Debris basin				7.9										
Water quality				4.5										
Natural OS				395.1										
LDZ OS														
Trail OS														
Unspecified OS														
Trailhead														
Parkways & medians				32.2										
Lake														
Sidewalk														
Private Utility														
Bank Protection														
River														
Drainage														
Golf course														
Recreation centers	F19, C3			14.7		see EIR Table TR4-1								
Parks				26.8		see EIR Table TR4-1								
SD & SS Easement														
Channel														
Subtotal				**895.0**										

	Units	SF (Non-Res)	Onsite Acreage
GRAND TOTAL	**4,055**	**1,604,600**	**1,306.9**

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Potrero Village

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Acreage	Product Type	Notes	Number of Dwellings				Acreage			
Residential							SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate		0	---	0.0	20,000 sf min	No Estate Lots	0	0	0	0	0	0	0	0
Low		104	---	28.2	7,500 min	Lots 520-563, 506-514, 920-928, 937-953, 965-984, 989-993 per conformance map areas PV-03 and PV-19	104	0	0	104	28.2	0	0	28.2
Low Medium (1.1 - 12.0 DU/ac)		2,000	---	225.2		The balance of developed lots in Areas C and E not listed above. Developed lots of Areas B1, D3, D4, D5, and F1.	765	237	998	2,000	152.2	33.9	39.1	225.2
Medium (12.1 - 30 DU/ac)		5,077	---	164.2		Developed Lots of Area A1, A4, A8, A9, B2, B9, D1, D2, D6, D7, F2, G1-G6	0	769	4,308	5,077	0	106.2	58.0	164.2
High (30+ DU/ac) and Mixed Use		1,460	---	48.8		Developed Lots of Areas A2, A3, A5, A6, A7, B3-B8	0	0	1,460	1,460	0	0.0	48.8	48.8
Apartments		1,310	---	52.4			0	0	1,310	1,310	0	0	52.4	52.4
Subtotal		**9,951**		**518.8**			**869**	**1,006**	**8,076**	**9,951**	**180.4**	**140.1**	**198.3**	**518.8**
Non-Residential														
Mixed Use Commercial - Retail			762,992	15.7										
Mixed Use Commercial - Office			560,508	11.5										
Mixed Use Commercial - Total			**1,323,500**	**27.2**		Commercial Lots of Area B10								
Commercial - Retail														
Commercial - Office														
Commercial - Total														
Business Park (Office)														
Hotels and Spas														
SCE Substation				1.0		Lot 1549								
Fire Station			9,800	1.5										
Sheriff Station														
Water reclamation plant														
Sr. Assisted Living														
Business Park (Industrial)														
Visitor center			2,500	36.6	2500 sf assumed by Psomas									
Golf club house														
Library														
Elementary School(s)				9.5		Lot 470								
Middle School														
High School														
Subtotal			**1,335,800**	**75.8**										
Recreation, Arterials, and Open Space														
Water Feature														
Irrigated Slope				222.2	Landscape Areas per GIS Cost Estimate within Developed Open Space Lot less the "Slope Revegetation Areas"									
Irrigated Flat														
Wet Zone (Unspecified Length)														
30' wet zone														
50' wet zone														
70' wet zone														
Roads/bridge				126.9	Public R/W + Pvt Drives - Parkways & medians									
Existing Roads														
Access Road														
Non irrigated slope				177.0	Developed Open Space Lots minus the Irrigated Slope Quantity									
Non irrigated flat														
Non irrigated-brush clearing zone														
Debris basin				22.7										
Water quality				26.1										
Natural OS				1,217.1	includes, nat park area, portion of restored stream area, spineflower preserve, SCE Easement and CAM	Nat OS lots + lots 1592, 1616, 877, 876, 665, 666, 668, 1603								
LDZ OS				13.8										
Trail OS														
Unspecified OS														
Trailhead														
Parkways & medians				51.8		Per GIS Cost Estimate								
Lake														
Sidewalk														
Private Utility														
Bank Protection														
River														
Drainage														
Golf course														
Recreation centers				8.9		5 Recreation Lots								
Parks				38.9	1500 sf assumed by Porcello	Excludes passive park lots 666 & 668								
SD & SS Easement														
Channel														
Subtotal				**1,905.4**										

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

	Units	SF (Non-Res)	Acreage
GRAND TOTAL	**9,951**	**1,335,800**	**2,500.0**

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Homestead South

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Onsite Acreage	Product Type	Notes	Number of Dwellings				Acreage			
Residential							SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate	---	0	---	0.0	SFD 2.5 ave lots (20k min)	Net acres	0	0	0	0	0	0	0	0
Low	LCN-4,5	250	---	66.4	SFD 1 ave ac lots	Net acres	250	0	0	250	66.4	0	0	66.4
Low Medium	LCS-1,2,4,12,13,14; LCN-6; OF-1,2,3,4,5; MW-6,7,9,14	1,531	---	108.0	SFD Detached Condo Attached Condo	Net acres	289	270	972	1,531	45.6	28.8	33.6	108.0
Medium	LCS-5, 6, 7, 8,9,10,11; LCN-1A, LCN-1B; MW-3, 4, 5, 8,10,11,15	1,011	---	118.8	Detached Condo Attached Condo	Net acres	0	645	366	1,011	0	61.9	56.9	118.8
High and Mixed Use		0	---	0.0		Net acres	0	0	0	0	0	0	0	0
Apartments		825	---	55.0		Net acres	0	0	825	825	0	0	55.0	55.0
Subtotal		**3,617**		**348.2**			**539**	**915**	**2,163**	**3,617**	**112.0**	**90.7**	**145.5**	**348.2**
Non-Residential														
Mixed Use Commercial - Retail Mixed Use Commercial - Office **Mixed Use Commercial - Total**			**0.0**	**0.0**										
Commercial - Retail Commercial - Office **Commercial - Total**	MW-1		66,400 **66,400**	6.3 **6.3**										
Business Park (Office)														
Hotels and Spas														
SCE Substation														
Fire Station														
Sheriff Station														
Water reclamation plant														
Sr. Assisted Living														
Business Park (Industrial)														
Visitor center														
Golf Club House														
Library														
Elementary School(s)	LCS-16			8.1										
Middle School	LCN-3			18.0										
High School	LCN-2			53.3										
Subtotal			**66,400.0**	**85.7**										
Recreation, Arterials, and Open Space														
Water Feature														
Irrigated Slope				120.2		no slope factor applied								
Irrigated Flat				14.5										
Wet Zone (Unspecified Length)				2.3										
30' wet zone														
50' wet zone														
70' wet zone														
Roads/bridge				99.2										
Existing Roads														
Access Road				21.1										
Non irrigated slope				101.9		no slope factor applied								
Non irrigated flat				27.4										
Non irrigated-brush clearing zone														
Debris basin				0.8										
Water quality				6.8										
Natural OS				735.2										
LDZ OS				5.6										
Trail OS														
Unspecified OS														
Trailhead														
Parkways & medians				69.2										
Lake														
Sidewalk				26.5										
Private Utility														
Bank Protection														
River														
Drainage				61.7										
Golf course														
Recreation centers	OF-6,7,8; LCS-3;MW-2			7.8										
Parks	LCS-15; MW-12,13			11.6										
SD & SS Easement														
Channel														
Subtotal				**1,311.8**										

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

	Units	SF (Non-Res)	Onsite Acreage	Offsite Acreage
GRAND TOTAL	**3,617**	**66,400**	**1,745.7**	**55.7**

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Homestead North

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Onsite Acreage	Product Type	Notes	Number of Dwellings				Acreage			
Residential							SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate	HW-4, CHE-1	65	---	61.2	HW-4 SFD; CHE-1 SFD	Net acres	65	0	0	65	61.2	0	0	61.2
Low	HC-1, CHE-2	97	---	67.1	HC-1 SFD; CHE-2 SFD	Net acres	97	0	0	97	67.1	0	0	67.1
Low Medium	HW-1, HW-2, HW-3, HW-5, HC-1, HC-2, HC-3, CHR-1	1,162	---	88.0	HW-1 Detached; HW-2 2-story 3 and 3-plex; HW-3 3-story 16-plex; HW-5 2-story 3 and 4plex; HC-1 SFD; HC-2 2-story 10 plex townhomes; HC-3 3-story townhomes 7 and 8-plex; CHR-1 Detached Condo	Net acres	80	98	984	1,162	16.6	13.1	58.3	88.0
Medium	HC-6	112	---	6.4	HC-6 3-story 16 plex	Net acres	0	0	112	112	0	0	6.4	6.4
High and Mixed Use	HC-4	144	---	9.4	HC-4 3-story townhomes 12-plex	Net acres	0	0	144	144	0	0	9.4	9.4
Apartments	CHR-2	238	---	7.4	CHR-2 Apartments	Net acres	0	0	238	238	0	0	7.4	7.4
Subtotal		**1,818**		**239.5**			**242**	**98**	**1,478**	**1,818**	**144.9**	**13.1**	**81.5**	**239.5**
Non-Residential														
Mixed Use Commercial - Retail			68,780	6.9										
Mixed Use Commercial - Office			115,900	9.2										
Mixed Use Commercial - Total			**184,680**	**16.1**	**CHBP-2 (Retail/Office)**									
Commercial - Retail														
Commercial - Office														
Commercial - Total														
Business Park (Office)														
Hotels and Spas														
SCE Substation														
Fire Station														
Sheriff Station														
Water reclamation plant														
Sr. Assisted Living														
Business Park (Industrial)			1,386,320	61.7	CHBP-1 (Industrial)									
Visitor center														
Golf club house														
Library														
Elementary School(s)														
Middle School														
High School														
Subtotal			**1,571,000**	**77.8**										
Recreation, Arterials, and Open Space														
Water Feature														
Irrigated Slope				100.2										
Irrigated Flat														
Wet Zone (Unspecified Length)														
30' wet zone				8.6										
50' wet zone				12.2										
70' wet zone				5.7										
Roads/bridge				63.1										
Existing Roads														
Access Road														
Non irrigated slope				84.3										
Non irrigated flat				5.2										
Non irrigated-brush clearing zone														
Debris basin				21.9										
Water quality				15.5										
Natural OS				407.3										
LDZ OS														
Trail OS														
Unspecified OS														
Trailhead														
Parkways & medians														
Lake														
Sidewalk														
Private Utility														
Bank Protection														
River														
Drainage				58.1										
Golf course														
Recreation centers				5.4										
Parks				5.8										
SD & SS Easement														
Channel														
Subtotal				**793.3**										

	Units	SF (Non-Res)	Acreage
GRAND TOTAL	**1,818**	**1,571,000**	**1,110.6**

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Entrada South

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Acreage	Product Type	Notes	Number of Dwellings				Acreage			
Residential							SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate		0	---	0.0			0	0	0	0	0	0	0	0
Low		0	---	0.0			0	0	0	0	0	0	0	0
Low Medium		452	---	53.2	SFD: 5a, 5b, 5c, 6a, 6b, 7a, 7b, 7c, 8a, 8b, 8c, 8d		0	452	0	452	0	53.2	0	53.2
Medium		839	---	57.9	SFA: 4e, 4f, 4g, 4h, 9a, 9b, 9c, 9d, 10a, 10b, 13a, 13b		0	0	839	839	0	0	57.9	57.9
High and Mixed Use		283	---	4.3	4b		0	0	283	283	0	0	4.3	4.3
Apartments		0	---	0.0			0	0	0	0	0	0	0.0	0.0
Subtotal		**1,574**		**115.4**			**0**	**452**	**1,122**	**1,574**	**0.0**	**53.2**	**62.2**	**115.4**
Non-Residential														
Mixed Use Commercial - Retail			6,495	1.5	4B, 4C	4B already counted in Residential AC								
Mixed Use Commercial - Office			518,505	46.9	1, 2, 3, 4a, 4d,									
Mixed Use Commercial - Total			**525,000**	**48.4**										
Commercial - Retail			0	0.0	PA 14									
Commercial - Office			45,000	2.8										
Commercial-Total			**45,000**	**2.8**										
Business Park (Office)														
Hotels and Spas			160,000	5.6	PA 12									
SCE Substation														
Fire Station														
Sheriff Station														
Water reclamation plant														
Sr. Assisted Living														
Business Park (Industrial)														
Visitor center														
Golf club house														
Library														
Elementary School(s)				10.0	750 students									
Middle School														
High School														
Subtotal			**730,000**	**66.8**										
Recreation, Arterials, and Open Space														
Water Feature														
Irrigated Slope				66.6	Measured flat; multiply by 1.12 slope factor									
Irrigated Flat				4.7										
Wet Zone (Unspecified Length)														
30' wet zone														
50' wet zone														
70' wet zone														
Roads/bridge				12.9										
Existing Roads				13.0										
Access Road														
Non irrigated slope														
Non irrigated flat														
Non irrigated-brush clearing zone														
Debris basin				8.1										
Water quality				7.6										
Natural OS				58.7										
LDZ OS				4.7										
Trail OS														
Unspecified OS														
Trailhead														
Parkways & medians				4.1										
Lake														
Sidewalk				2.9										
Private Utility														
Bank Protection														
River														
Drainage				9.4										
Golf course														
Recreation centers	PA-8		0											
Parks	PA-8		0	8.1										
SD & SS Easement														
Channel														
Subtotal				**200.8**										

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

	Units	SF (Non-Res)	Acreage
GRAND TOTAL	**1,574**	**730,000**	**383.0**

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Entrada North

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Acreage	Product Type	Notes	Number of Dwellings				Acreage			
Residential							SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate		0	---	0.0			0	0	0	0	0	0	0	0
Low		0	---	0.0			0	0	0	0	0	0	0	0
Low Medium		0	---	0.0			0	0	0	0	0	0	0	0
Medium		0	---	0.0			0	0	0	0	0	0	0	0
High and Mixed Use		370	---	2.1	Residential Condos over Retail (76,000 sf of retail is included in the Non-Residential Mixed Use land category below)	Acreage figure includes Commercial uses	0	0	370	370	0	0	2.1	2.1
Apartments		780	---	13.2	3-Story and 4-Story "Wrap" Product		0	0	780	780	0	0	13.2	13.2
Subtotal		**1,150**		**15.3**			**0**	**0**	**1,150**	**1,150**	**0**	**0**	**15.3**	**15.3**
Non-Residential														
Mixed Use Commercial - Retail			84,000	0.8										
Mixed Use Commercial - Office			175,000	1.7										
Mixed Use Commercial - Total	**PA-2**		**259,000**	**2.5**										
Commercial - Retail			1,615,400	92.8										
Commercial - Office			500,000	28.7										
Commercial-Total	**PA-2, 3, 4, 5, 6, 7, 8**		**2,115,400**	**121.5**										
Business Park (Office)														
Hotels and Spas	PA-2		250,000	4.1	Hotel: 270 Rooms	12,000 sf ground floor commercial is included in PA-2 retail figure								
SCE Substation														
Fire Station				0.0										
Sheriff Station			50,000	6.0	Station Buildings									
Water reclamation plant														
Sr. Assisted Living														
Business Park (Industrial)														
Visitor center														
Golf club house														
Library														
Elementary School(s)														
Middle School														
High School														
Subtotal			**2,674,400**	**134.1**										
Recreation, Arterials, and Open Space														
Water Feature				0.3										
Irrigated Slope				5.5	Measured flat, multiply by 1.12 slope factor	6.2 acres using the slope factor								
Irrigated Flat				0.8										
Wet Zone (Unspecified Length)														
30' wet zone														
50' wet zone														
70' wet zone														
Roads/bridge				19.3										
Existing Roads				4.8		Includes existing Old Road, Media Center Lane, Entertainment Drive, and Skyview Lane								
Access Road				3.0										
Non irrigated slope				0.3	Measured flat, multiply by 1.12 slope factor	0.34 acres using the slope factor								
Non irrigated flat				1.2										
Non irrigated-brush clearing zone														
Debris basin														
Water quality				3.7										
Natural OS				0.1										
LDZ OS				6.8										
Trail OS				1.3										
Unspecified OS														
Trailhead				1.0										
Parkways & medians				10.0										
Lake														
Sidewalk				5.0										
Private Utility														
Bank Protection														
River				225.3										
Drainage				18.6										
Golf course														
Recreation centers	PA-1			1.0	Amenity bldg - 7,500 sf not included in comm sf									
Parks														
SD & SS Easement														
Channel														
Subtotal				**308.0**										

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

	Units	SF (Non-Res)	Acreage
GRAND TOTAL	**1,150**	**2,674,400**	**457.4**

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Legacy Village

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Acreage	Product Type	Notes	Number of Dwellings				Acreage			
Residential							SFD	Detached Condos	Attached	Total DU's	SFD	Detached Condos	Attached	Total Acreage
Estate		0		0.0			0	0	0	0	0	0	0	0
Low		0		0.0			0	0	0	0	0	0	0	0
Low Medium (1.1 - 12 DU/AC)	A-1, A-2, A-3, A-5, A-7, A-8, A-9, A-11, A-12, A-13, A-14, A-15, B-8, B-9, C-1, C-2, C-3, C-4	1,445		228.1	A-1 SFD 6,600 75 DU/15.4 AC A-2 SFD 6,050 77 DU/14.5 AC A-3 SFD 4,875 71 DU/10.5 AC A-5 SFA Attached Condo 92 DU/9.9 AC A-7 SFA Attached Condo 100 DU/9.1 AC A-8 SFA Attached Condo 92 DU/10.3 AC A-9 SFD 5,000 74 DU/12.3 AC A-11 SFD 4,875 66 DU/9.4 AC A-12 SFD Detached Condo 76 DU/11.6 AC A-13 SFD 6,050 74 DU/13.8 AC A-14 SFD 5,000 73 DU/12.7 AC A-15 SFD 6,600 70 DU/14.0 AC B-8 SFD 10,000 17 DU/5.3 AC B-9 SFA Attached Condo 74 DU/6.6 AC C-1 SFD 5,500 108 DU/19.4 AC C-2 SFD 5,000 97 DU/17.5 AC C-3 SFD 6,000 103 DU/19.4 AC C-4 SFD 4,500 106 DU/16.4 AC		1,011	76	358	1,445	180.6	11.6	35.9	228.1
Medium (12.1 - 30 DU/AC)	A-4, A-10, B-3, B-4, B-5, B-6, B-7, B-9, B-10, B-11, B-12, C-5	1,891		91.1	A-4 SFA Attached Condo 187 DU/12.0 AC A-10 MF Apartments 328 DU/16.6 AC B-3 SFA Attached Condo 72 DU/4.1 AC B-4 SFA Attached Condo 88 DU/4.3 AC B-5 SFA Attached Condo 144 DU/7.0 AC B-6 SFA Attached Condo 278 DU/17.8 AC B-7 SFA Attached Condo 339 DU/13.3 AC B-10 SFA Attached Condo 74 DU/5.5 AC B-11 SFA Attached Condo 104 DU/6.2 AC B-12 SFA Attached Condo 146 DU/6.5 AC		0	0	1,891	1,891	0	0	91.1	91.1
High and Mixed Use (30+ DU/AC)		0		0.0			0	0	0	0	0	0	0	0
Apartments	C-5	252		11.5	C-5 MF Apartments 252 DU/11.5 AC		0	0	252	252	0	0	11.5	11.5
Subtotal		**3,588**		**330.7**			**1,011**	**76**	**2,501**	**3,588**	**180.6**	**11.6**	**138.5**	**330.7**

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Legacy Village

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Acreage	Product Type	Notes
Non-Residential						
Mixed Use Commercial - Retail						
Mixed Use Commercial - Office						
Mixed Use Commercial - Total						
Commercial - Retail	B-1a		186,000	15.3		
Commercial - Office	B-2		316,000	13.6		
Commercial - Total			**502,000**	**28.9**		
Business Park (Office)						
Hotels and Spas						
SCE Substation	C			1.7		
Fire Station	C-6		8,500	2.9	Fire Station is estimated at 8,500 sf; not inlcuded on VTTM	
Sheriff Station						
Water reclamation plant						
Sr. Assisted Living	B-1b		337,000	11.2		
Business Park (Industrial)						
Visitor center						
Golf club house						
Library						
Elementary School(s)						
Middle School						
High School						
Subtotal			**847,500**	**44.7**		
Recreation, Arterials, and Open Space						
Water Feature						
Irrigated Slope				163.3		Area calculated for plan view, does not account for slope factor (1.12 or 1.05)
Irrigated Flat				13.9		
Wet Zone (100 ft length)				9.1		
30' wet zone						
50' wet zone						
70' wet zone						
Roads/bridge				79.8		
Existing Roads						
Access Road				13.0		
Non irrigated slope				80.6		Area calculated for plan view, does not account for slope factor (1.12 or 1.05)
Non irrigated flat				22.4		
Non irrigated-brush clearing zone				19.6		
Debris basin				9.7		
Water quality				5.6		
Natural OS				852.5		
LDZ OS						Part of Parkways & Medians
Trail OS				1.5		
Unspecified OS						
Trailhead						
Parkways & medians				48.8		
Lake						
Sidewalk				21.3		
Private Utility						
Bank Protection						
River						
Drainage				14.6		Non irrigated
Golf course						
Recreation centers	A-6, C-7, B		20,500	7.5		
Parks	B-13		3,000	20.0		
SD & SS Easement						
Channel						
Subtotal				**1,383.2**		

Number of Dwellings	Acreage

Abbreviations: SFD = single-family detached, SFA = single-family attached, DU = dwelling unit
VTTM = Vesting Tentative Tract Map

	Units	SF (Non-Res) **	Acreage	Notes
GRAND TOTAL	**3,588**	**847,500**	**1,758.6**	**** 839,000 sf is total sf shown on VTTM**

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

Land Use Details for Valencia Commerce Center

Land Use Category	VTTM Planning Area	No. Of Units	Square Footage	Acreage	Product Type	Notes
Residential						
Estate						
Low						
Low Medium						
Medium						
High and Mixed Use						
Apartments						
Subtotal		**0**		**0.0**		
Non-Residential						
Mixed Use Commercial - Retail						
Mixed Use Commercial - Office	PA-2, PA-3, PA-5		965,000	68.5		Mixed-use office (low rise offices)
Mixed Use Commercial - Total			**965,000**	**68.5**		
Commercial - Retail	PA-2, PA-5		61,800	11.9		
Commercial - Office						
Commercial - Total			**61,800**	**11.9**		
Business Park (Office)						
Hotels and spas						
SCE Substation						
Fire Station						
Sheriff Station						
Water reclamation plant						
Sr. Assisted Living						
Business Park (Industrial)	PA-1, PA-3, PA-4, PA-6, PA-7		2,573,200	139.2		
Visitor center						
Golf Club House						
Library						
Elementary School(s)						
Middle School						
High School						
Subtotal			**3,600,000**	**219.6**		
Recreation, Arterials, and Open Space						
Water Feature						
Irrigated Slope				27.7		
Irrigated Flat						
Wet Zone (Unspecified Length)						
30' wet zone						
50' wet zone						
70' wet zone						
Roads/bridge				12.4		
Existing Roads						
Access Road						
Non irrigated slope				8.3		
Non irrigated flat						
Non irrigated-brush clearing zone						
Debris basin				2.5		
Water quality				1.2		
Natural OS				264.6		
LDZ OS						
Trail OS						
Unspecified OS				21.0		
Trailhead						
Parkways & medians				1.9		
Lake						
Sidewalk						
Private Utility						
Bank Protection						
River						
Drainage				10.4		
Golf course						
Recreation centers						
Parks						
SD & SS Easement						
Channel						
Subtotal				**350.0**		

	Units	SF (Non-Res)	Acreage
GRAND TOTAL	**0**	**3,600,000**	**569.6**

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of the tentative or final land use maps.

ATTACHMENT 2

Summary of State and Local Laws and Regulations
Governing Water Conservation in California
August 2020

Attachment 2

Summary of State and Local Laws and Regulations Governing Water Conservation in California

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

1.0 Introduction

Dating back to 2006, a series of noteworthy state laws have been enacted that affect the types and implementation of various water conservation and water use reduction activities and programs that are ongoing throughout the state. Below are discussions of the state's laws and regulations (Section 2), County ordinances (Section 3), and (in Section 4) water use reduction activities and programs being implemented by the Santa Clarita Valley Water Agency (SCV Water), including by its Valencia Water Division (VWD) which is the water provider for the West Side Communities. Section 5 contains a list of references cited in this attachment.

2.0 State Laws and Regulations

Table 2-1 lists the state laws and ordinances that collectively have promoted greater water use efficiency and conservation since the time that the original water demand factors for the West Side Communities were first established. Table 2-1 also identifies the entities and types of development activities to which the state laws and ordinances apply.

2.1 Early Legislation

Four laws were enacted by the California State Legislature from 2006 through 2009 to promote efforts to reduce water use state-wide in response to drought conditions and increasing population. These laws were accompanied by the passage of ordinances by state and local regulatory agencies to implement the legislation.

While three of the laws targeted specific uses, the fourth law (Senate Bill SBX7-7) is a much broader legislation that addresses urban water use on a state-wide scale. SBX7-7 requires the state to achieve a 20 percent reduction in urban per-capita water use by the end of 2020. Locally, this is implemented in the Urban Water Management Plans (UWMPs) prepared by VWD and SDCWA. The UWMPs contain demand-reduction targets and associated implementation programs involving Best Management Practices (BMPs) or Demand Management Measures (DMMs) in order to implement the required 20 percent reduction in urban per-capita water use by the end of 2020. In the Santa Clarita Valley, this is implemented in part by requiring SCV Water and the local retail water purveyors to establish (in their UWMP) demand-reduction targets and associated implementation programs involving Best Management Practices (BMPs) or Demand Management Measures (DMMs).

For new developments, two sets of state rules and regulations govern the design and construction of buildings and landscapes at this time: the state's green building standards (CALGreen), and the state's landscape ordinance (MWELO). Additionally, state legislation promulgated by both the Assembly and the House in 2018 sets future targets for per-person residential indoor water use that municipal water providers must achieve on an average basis within their service area. These three topics are discussed below in Sections 2.2 through 2.4.

2.2 California's Green Building Standards (CALGreen)

CALGreen is the state's green building standards code. It is formally known as Title 24, Part 11, the California Green Building Standards Code. CALGreen identifies mandatory and voluntary provisions that apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure on a statewide basis. Certain provisions that are under the jurisdiction of the California Department of Housing and Community Development (HCD) apply to "low-rise residential" facilities, which are defined by CALGreen as "[a] building that is of Occupancy Group R and is three stories or less, or that is a one- or two-family dwelling or townhouse." (HCD, 2010.) CALGreen also requires that each portion of a mixed occupancy building comply with the specific green building measures applicable to that occupancy. Therefore, if a building's design includes commercial and residential uses, then both the non-residential and residential provisions apply to appropriate portions of the building.

The California Building Standards Commission (CBSC) first published CALGreen in mid-2010 as part of the 2010 code adoption process (CBSC, 2010), and CALGreen became effective on January 1, 2011. A comprehensive update of CALGreen is conducted every 3 years or less. The 2013 California Building Standards Code, which includes the 2013 version of CALGreen, was published on July 1, 2013 (CBSC, 2013) and became effective on January 1, 2014. Additional updates to CALGreen were issued on July 1, 2015, July 1, 2016, and January 1, 2018 (CBSC, 2015, 2016, and 2018). Table 2-2 lists the CALGreen standards that were issued on January 1, 2018 and became effective on July 1, 2018, categorized as mandatory versus voluntary measures, and categorizing them by residential and nonresidential requirements.

The 2018 update of CALGreen contains the most current sets of mandatory water use measures for residences (see Division 4.3 of the code) and nonresidential buildings (see Division 5.3 of the code). A more stringent set of voluntary measures is published in Appendix A4 of the code for residences and in Appendix A5 of the code for nonresidential buildings; if these particular measures are adopted by the local jurisdiction, then some of the measures become mandatory while others remain voluntary.

2.3 State Legislation Revising Future Residential Indoor Water Use Standards

Assembly Bill 1668 (AB 1668) and Senate Bill 606 (SB 606) were signed into law on May 31, 2018 and together set permanent overall targets for water consumption, with particular focus on indoor uses of water.

AB 1668 requires the establishment of specific long-term standards for per-capita daily indoor residential water use, plus performance measures for commercial, industrial, and institutional water use. The bill requires the Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB) to study urban indoor water-use standards and make recommendations for those standards to the state legislature by January 1, 2021. Final standards for urban indoor water-use will be adopted by the state legislature for incorporation into Section 10609.4 of the California Water Code. AB 1668 contains provisional standards for indoor residential water use rates as follows:

- Until January 1, 2025: 55 gallons per capita per day
- Beginning January 1, 2025: The greater of 52.5 gallons per capita per day or a standard recommended by DWR and the Board
- Beginning January 1, 2030: The greater of 50 gallons per capita per day or a standard recommended by DWR and the Board

AB1668 defines performance measures for commercial, industrial, and institutional (CII) water use as consisting of actions taken by urban retail water suppliers that result in increased water use efficiency for water uses other than process water (which is defined in Section 10608.12(p) of the State Water Code). The bill amends Section 10608.12(n) of the State Water Code to state that performance measures may include educating CII water users on best management practices, conducting water use audits, and preparing water management plans. AB 1668 requires SWRCB to adopt long-term performance measures for CII water uses by June 30, 2022.

While AB 1668 is focused primarily on indoor water uses of urban water, it also revises State Water Code Section 10608.20(b)(2)(B) to require that landscapes irrigated through dedicated or residential meters or connections must meet the state's standards for irrigated landscape design (which are discussed in Section 2.4 of this document).

SB 606 requires an urban retail water supplier to calculate an urban water use objective no later than November 1, 2023 and by November 1 of each year thereafter. This bill also revises certain provisions in the Urban Water Management Planning Act, including requiring that urban water suppliers include in their Urban Water Management Plan (UWMP) a drought risk assessment that examines water shortage risks for a 5-year-long drought. In a case where an urban water supplier has not submitted its UWMP to DWR, SB 606 deems the supplier to be ineligible for any water grant or loan, whereas prior law had limited this ineligibility to just certain types of water grants and loans. SB 606 also requires urban water suppliers to prepare, adopt, and periodically review a water shortage contingency plan, conduct an annual supply and demand assessment, and submit an annual water shortage assessment report to DWR.

In August 2018, DWR issued a public-review draft version of a detailed primer discussing these two bills and their implementation (DWR, 2018). As noted on page 7 of the primer, the State Water Board's actions for adopting and implementing water use efficiency standards have been deemed by the legislature to be Class 8 actions for protecting the environment and hence are exempt from the requirements of the California Environmental Quality Act (CEQA). The primer goes on to note that the new authorities and requirements for urban water use objectives (1) are enforceable after 2022, (2) do not modify the current statewide goal of a 20 percent reduction in urban per-capita water use by 2020, and (3) should result in urban water conservation that exceeds the 2020 targets.

2.4 California's Model Water Efficient Landscape Ordinance (MWELO)

In 2006, the California Assembly passed legislation (AB 1881), which is known as the *Water Conservation in Landscaping Act of 2006*. AB 1881 requires cities and counties to develop and implement (1) guidelines for local landscape ordinances and water-efficient landscape design, and (2) regulations and performance standards for energy-efficient landscape materials (including controllers and soil moisture sensors). This legislation also required that water purveyors, after January 1, 2005, install separate water meters to measure the volume of water used exclusively for landscape purposes.

On September 10, 2009, DWR adopted its Model Water Efficient Landscape Ordinance (MWELO) in response to passage of AB 1881. This ordinance specified calculation methods and key input parameters (such as reference evapotranspiration rates [ETo values]) for determining the Maximum Applied Water Allowance (MAWA), which is the maximum amount of water that can be applied to an irrigated landscape. Local agencies were required to adopt the MWELO or an alternative local ordinance by January 2010. At that time, the City of Santa Clarita notified DWR that it would adopt the state's MWELO ordinance rather than develop its own ordinance (DWR, 2010). In contrast, L.A. County did not provide such a notification, most likely because it had already enacted ordinances in 2009 that specify water use efficiency requirements for landscapes.

DWR enacted new rules that updated the MWELO, effective September 2015. This update of the MWELO is contained in Sections 490 through 495, Chapter 2.7, Division 2, Title 23 in the California Code of Regulations. The 2015 MWELO applies to landscaping and irrigation systems at most new construction sites and in landscapes 500 square feet or larger that are being renovated. DWR enacted the 2015 MWELO in response to the Governor's Executive Order B-29-15 of April 1, 2015, which ordered further cuts in water use and included (in paragraph 11) a directive for DWR to update the MWELO to increase water efficiency standards for new and existing landscapes. Noteworthy aspects of the 2015 MWELO update include the following:

- Appendix A of the 2015 MWELO specifies the reference evapotranspiration rate (ETo) that is to be used for evaluating compliance with the MWELO. These rates were updated

in some locations from values published in the prior version of the MWELO. In Santa Clarita, Appendix A of the 2015 MWELO specifies an annual water demand for cool-season turf grass to be 61.5 inches per year, which is equivalent to approximately 5.1 feet per year.

- For landscapes using potable water, the 2015 MWELO update limits the maximum allowable water application rate to 55 percent of ETo for residential landscapes and 45 percent of ETo for non-residential landscapes. In Santa Clarita, this equates to 33.8 inches per year (approximately 2.8 feet per year) on residential landscapes and 27.7 inches per year (approximately 2.3 feet per year) on non-residential landscapes.

- For landscapes that meet the 2015 MWELO's definition of a Special Landscape Area (SLA), water application is allowed at rates up to 100 percent of ETo. SLAs include landscapes solely dedicated to edible plants; recreational areas outside of residential land parcels that are designated for active play, recreation, or public assembly; areas irrigated with recycled water; and water features that use recycled water.

Local agencies had until December 1, 2015 to adopt the 2015 MWELO ordinance or to adopt a Local Ordinance at least as effective in conserving water as the 2015 MWELO ordinance. Local agencies working together to develop a Regional Ordinance had until February 1, 2016 to adopt such an ordinance, but they were still subject to the December 2015 reporting requirements described in the 2015 MWELO ordinance.

3.0 Los Angeles County Ordinances

L.A. County's Green Building Standards (contained in Title 31 of its municipal code) include requirements for water efficiency and conservation. These requirements were first enacted on December 18, 2008 in the form of two ordinances[1] which amended Title 21 (Subdivisions) and Title 22 (Planning and Zoning) of the Los Angeles County Code to:

- Establish drought-tolerant landscaping requirements for projects constructed after January 1, 2009 (ordinance number 2008-0064), and

- Establish green building development standards for projects constructed after January 1, 2009 (ordinance number 2008-0065)

[1] Available at http://planning.lacounty.gov/assets/upl/data/ord_green-building-final-ordinances.pdf
All County-adopted ordinances are available at http://planning.lacounty.gov/ord/adopted

On March 29, 2016, the Los Angeles County Board of Supervisors removed these particular ordinances from Title 21 and Title 22 of the Code and incorporated them into Title 31, along with a new tree-planting ordinance.[2]

The drought-tolerant landscaping ordinance (number 2008-0064) requires that 75 percent of a lot or parcel's landscaped area contain native and/or non-native plants listed by the county as being drought-tolerant. The ordinance also specifies that no more than 25 percent of the total landscaped area on a lot or parcel can consist of turf. The county's list of drought-tolerant plants and turf is organized by ecological zones, as described in the county's drought-tolerant landscaping handbook (L.A. County, 2012). The Santa Clarita Valley is identified in the handbook as residing in *Zone 6 Inland Mountains (Grapevine, Castaic, Santa Clarita).* For this zone and other zones in L.A. County, the handbook identifies the specific trees, vines, perennials, ground covers, hedges, decorative grasses, and turfs that meet the drought-tolerant landscaping requirement. The ordinance applies to residential and non-residential properties, but provides exemptions for public recreational lawns, parks, orchards, and vegetable gardens. The ordinance also states that exemptions may be granted by the L.A. County Department of Public Works for (1) landscaped areas constructed as part of stormwater low impact development facilities, and (2) manufactured cut or fill slopes that have gradients equal to or exceeding a slope of 3:1.

The County's requirements to maintain water efficient landscapes are contained in Title 20 (Utilities), Division 1 (Water), Chapter 20.09, with reference to (and additional requirements in) the County's building code (Title 26). Chapter 20.09 of Title 20 includes requirements for water purveyors to conduct water consumption audits on outdoor landscapes and provide audit results to the county's public works director. Subchapter 20.09.080 specifies that new and rehabilitated landscaping projects will require a permit under Title 26 (the building code).

Title 22 (Planning and Zoning) of the County Code also contains development standards that specify the use of drought-tolerant lawn, shrubbery, flowers, or trees in certain land use zones.

- These requirements are specified for zones C-RU (rural commercial) and MXD-RU (rural mixed use development).
- In commercial zone C-MJ (major commercial), the code requires that any installed lawn be drought-tolerant.
- In its Hillside Design Guidelines (Appendix I to Title 22), Chapter V (for sensitive hillside design measures) specifies in Section 5.4 that landscapes on graded slopes and improved open spaces should utilize native and drought-tolerant trees, shrubs, and ground

[2] See http://planning.lacounty.gov/assets/upl/project/tpo_adopt_cert.pdf for details of this change. The new tree planting ordinance is available at http://planning.lacounty.gov/tree

cover over all exposed graded areas. Section 5.3 states that at least two of six state- or county-required minimum standards must be achieved or exceeded, of which conserving water and improving water quality are two of these standards.

- For utility-scale solar energy facilities, Title 22 requires not only the use of non-invasive drought-tolerant vegetation (which must be approved by a County biologist), but also requires that hardscape materials be incorporated into the landscape design.

4.0 Local Water Conservation and Water Use Reduction Activities

This section of Attachment 2 contains information previously presented in the prior water demand analysis for the West Side Communities (GSI, 2016) and in the 2015 UWMP (Kennedy/Jenks Consultants and others, 2016).

The water purveyors in the Santa Clarita Valley have long recognized the need to encourage their customers to use water wisely. Educational programs and customer incentives to reduce water have been in place for many years. The former Valencia Water Company (VWC; now the Valencia Water Division [VWD] of SCV Water) has employed a full-time water conservation coordinator since 2005, and has added two more conservation specialists since that time. SCV Water (formerly the Castaic Lake Water Agency) has a long history of also utilizing consultant services to implement various programs, including water audits, landscape training, and public outreach. A list of key activities by VWC/VWD through the year 2015 is contained in Table 2-3.

In 2006, VWC became a signatory to the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU), establishing a firm commitment to the implementation of BMPs or DMMs (demand management measures). In 2007, VWC coordinated the development and execution of an MOU with the other retail water purveyors to develop the Santa Clarita Valley Water Use Efficiency Strategic Plan (SCVWUESP [A&N Technical Services, 2008]). The SCVWUESP provided detailed information on available water use efficiency opportunities and defined concepts for program implementation, including a mix of recommended programs, a stakeholder engagement process, and funding mechanisms. While the plan focused on reducing existing demands, the plan also identified building ordinances as an essential tool for further increasing water use efficiency in new construction. The SCVWUESP developed a comprehensive list of new building standards beyond those contained in local ordinances at that time. Those standards identified design improvements in the water-use efficiency of plumbing fixtures that were estimated to capture 60 percent of the expected reduction in water demand envisioned under the SCVWUESP. The SCVWUESP was updated in 2015 (Maddaus and Western Policy Research, 2015) and adopted by the CLWA Board of Directors in June 2015. Several of the changes identified in the 2008 and 2015 versions of the SWCWUESP are now captured by recent ordinances – in particular, the state's MWELO for landscaping (effective January 2010 and updated effective September 2015), the CALGreen

Building Code (effective January 2011 and updated as recently as 2018, as discussed in Attachment 3), and L.A. County's related ordinances (effective January 2009). VWC and the other purveyors in the Santa Clarita Valley were implementing the majority of the SCVWUESP programs by 2009, including managing and financing the SCVWUESP programs.

As discussed in the CLWA/local water purveyors' 2010 and 2015 UWMPs (Kennedy/Jenks Consultants and others, 2011 and 2016), VWC continues to expand its conservation programs and efforts in order to meet both its SBX7-7 and DMM requirements. On February 1, 2011, VWC changed its single volumetric billing rate structure to a tiered structure to support its WaterSMART Allocation program, which sets customer-specific allocations for all individually metered residential customers. The new rate structure has 5 tiers, with the highest-use tier having billing rates (per 100 cubic feet) that are about 2.5 times higher than the rate for the lowest-use tier. As part of this program, SCV Water maintains an active website that provides its customers with information on conservation measures, links to other resources, and full details about its WaterSMART program. SCV Water is also committed to expanding recycled water usage in its service area, to offset potable water use for landscape irrigation.

5.0 References

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Table 2-1

State Laws, Codes, and Other Requirements for Water-Use Efficiency Enacted Since 2006

Updated Water Demand Projections for West Side Communities (Valencia, California)

August 2020

Year	Who	Description	What	Applicable To	Compliance Date or Effective Date
2006	California State Assembly	AB 1881	Water Conservation in Landscaping Act of 2006	Local agencies (cities, counties, and/or water purveyors)	1/1/2010 compliance date
2007	California State Assembly	AB 715	Toilets and urinals	New sales and new installations	1/1/2014 effective date
2009	California State Senate	SB 407	Toilets, urinals, showerheads, and interior faucets	Buildings constructed on or before January 1, 1994	1/1/2017 compliance date for single-family residences 1/1/2019 compliance date for multi-family residences and commercial properties
2009	California State Senate	SBX7-7	Reductions in Gallons per Capita per Day	Statewide water use	12/31/2020 compliance date
2009	California Department of Water Resources (DWR)	Updated Model Water Efficient Landscape Ordinance (MWELO)	Landscape irrigation (system design, scheduling, and application rates); plant selection; landscape maintenance	Landscapes that require a building or landscape permit	9/10/2009 adoption date
2010	California Building Standards Commission	CALGreen Building Standards Code	Indoor and outdoor water use standards	New construction	1/1/2011 effective date
2013	California Building Standards Commission	Update to CALGreen Building Standards Code	Indoor and outdoor water use standards	New construction	1/1/2014 effective date
2015	Governor	Executive Order B-29-15	Drought-related order that included a directive to DWR to update the MWELO	Landscapes that require a building or landscape permit	4/1/2015 issuance date
2015	California Department of Water Resources (DWR)	Updated Model Water Efficient Landscape Ordinance (MWELO)	Landscape irrigation (system design, scheduling, and application rates); plant selection; landscape maintenance	Landscapes that require a building or landscape permit	7/15/2015 adoption date 9/15/2015 effective date
2018	California State Assembly and State Senate	AB 1668 and SB 606	Water management planning	Urban water suppliers (retail and wholesale, indoor and outdoor water uses) and agricultural water suppliers	5/31/2018 effective date 1/1/2021 DWR and SWRCB recommend long-term urban indoor water-use standards to legislature 6/30/2022 SWRCB adopts long-term CII water use performance measures

Abbreviations

SBX7 = Senate Bill during Extended Session 7 of the 2009 Session SB = Senate Bill AB = Assembly Bill DWR = California Department of Water Resources SWRCB = State Water Resources Control Board

CII = commercial/industrial/institutional

Table 2-2

CALGreen Indoor Water Use Standards (Effective July 1, 2018)

Updated Water Demand Projections for West Side Communities (Valencia, California)

August 2020

Fixture	Mandatory Standard	Voluntary Standard
Residential (Division 4.3 for Mandatory Standards and Division A4.3 for Voluntary Standards)		
Toilets (Water Closets)	≤ 1.28 gal/flush	
Urinals	≤ 0.125 gal/flush (wall-mounted) ≤ 0.5 gal/flush (all others)	
Single showerheads	≤ 1.8 gpm @ 80 psi	
Multiple showerheads	≤ 1.8 gpm @ 80 psi (per valve)	
Lavoratory faucets in residences	≤ 1.2 gpm @ 60 psi	
Lavoratory faucets in common areas	≤ 0.5 gpm @ 60 psi	
Kitchen faucets	≤ 1.8 gpm @ 60 psi	≤ 1.5 gpm @ 60 psi
Metering faucets	≤ 0.25 gallons per cycle	
Standard residential dishwashers		≤ 4.25 gallons per cycle and ENERGY STAR certified*
Compact residential dishwashers		≤ 3.5 gallons per cycle and ENERGY STAR certified*
		Install at least one qualified ENERGY STAR dishwasher or clothes washer.
		Install nonwater urinals or composting toilets.
		Install a demand-based hot water recirculation system in 1- and 2-family dwellings.
Nonresidential (Division 5.3 for Mandatory Standards and Division A5.3 for Voluntary Standards)		
Toilets (Water Closets)	≤ 1.28 gal/flush	
Urinals	≤ 0.125 gal/flush (wall-mounted) ≤ 0.5 gal/flush (all others)	
Single showerheads	≤ 2.0 gpm @ 80 psi	
Multiple showerheads	≤ 2.0 gpm @ 80 psi (per valve)	
Lavoratory faucets	≤ 0.5 gpm @ 60 psi	
Kitchen faucets	≤ 1.8 gpm @ 60 psi	
Wash fountains	≤ 1.8 gpm per 20 rim space inches @ 60 psi	
Metering faucets	≤ 0.20 gallons per cycle	
Metering faucets for wash fountains	≤ 0.20 gpm per 20 rim space inches @ 60 psi	
Food waste disposers	≤ 1.0 gpm when not in use ≤ 8.0 gpm when in use	
Food waste pulping system		≤ 2 gpm
Pre-rinse spray valves		≤ 1.6 gpm @ 60 psi
Food steamers		≤ 2 gal/pan/hour, including condensate water (batch-type steamers) ≤ 5 gal/pan/hour, including condensate water (cook-to-order steamers)
Combination ovens		≤ 1.5 gal/pan/hour, including condensate water
Commercial clothes washers		At least 10 percent below CA Energy Commission standards
Commercial dishwashers		Variable (see Table A5.303.3 in Division A5.3 of the 2016 CALGreen code)

Abbreviations

gal= gallons; gpm = gallons per minute; psi = pounds per square inch

* These standards are listed in the "nonresidential voluntary measures" portion of the 2016 code (in Appendix A5).

For residential buildings, Tier 1 is achieved when mandatory measures plus at least 2 voluntary measures are met, and Tier 2 is achieved when mandatory measures plus at least 3 voluntary measures are met.
For nonresidential buildings, Tiers 1 and 2 are achieved with a minimum 12% or 20% reduction (respectively) in potable water use above a demonstrated baseline amount.

Table 2-3
Select Water Conservation Activities by Valencia Water Company

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

Year	Who	Description	What
2006	Valencia Water Co.	CUWCC MOU	Commitment to implement BMPs or DMMs
2008	Valencia Water Co. and other local water purveyors	Local purveyors' collective strategy for increasing water use efficiency	Water Use Efficiency Strategic Plan (prepared for Santa Clarita Valley Family of Water Suppliers)
2011	Valencia Water Co.	Revisions to billing rate structure	Switch from volumetric rate structure to tiered rate structure, to support VWC's WaterSMART Allocation program.
2011	Valencia Water Co. and other local water purveyors	2010 UWMP	Established urban water use targets for SBX7-7 (reductions in per-capita water use by the years 2015 and 2020); presented accordant demand estimates every 5 years for the period 2015 through 2050; and presented Demand Management Measures (DMMs) and recycled water usage plans that are designed to meet the SBX7-7 water use reduction targets. Identified landscape irrigation as providing the greatest opportunity to achieve the reductions.
2015	Valencia Water Co. and other local water purveyors	Update of local purveyors' collective strategy for increasing water use efficiency	Update of Water Use Efficiency Strategic Plan (prepared for Santa Clarita Valley Family of Water Suppliers) (adoped by CLWA Board, June 2015)

Abbreviations

CLWA = Castaic Lake Water Agency CUWCC = California Urban Water Conservation Council
BMPs = Best Management Practices DMMs = Demand Management Measures
MOU = Memorandum of Understanding UWMP = Urban Water Management Plan

ATTACHMENT 3
Derivation of Water Demand Factors
August 2020

Attachment 3

Derivation of Water Demand Factors

Updated Water Demand Projections for West Side Communities (Valencia, California)
August 2020

1.0 Introduction

Water demand factors were first developed and applied to the planning for Newhall Ranch during the mid-1990s (CH2M HILL, 1996). Minor adjustments to the factors being used in the analyses for the West Side communities[1] were made in 2007 by GSI Water Solutions, Inc. (GSI), in coordination with a separate recycled water master plan study (DWE, 2007) that was conducted for the former Valencia Water Company (VWC; now the Valencia Water Division [VWD] of the Santa Clarita Valley Water Agency [SCV Water]), which is the retail water provider that is expected to serve the West Side communities. Details regarding the 2007 adjustments to the water demand factors are documented by GSI (2008 and 2010). Those water demand factors later were used to prepare comprehensive summaries of water demand projections for each village – first in 2010 (GSI, 2010), and then in a later update (GSI, 2016a) that was conducted to incorporate revisions at that time to the land use plans for each community.

Since that time, changes in state and local water use regulations and standards have established indoor and outdoor water use requirements and water conservation standards that will reduce the water demands in the West Side communities compared with previous estimates. Accordingly, GSI has revised the water demand factors based on current state and local water conservation standards. Below, Section 2 describes the approach for estimating new water demand factors and water-use savings under the state's current water conservation standards. Sections 3 and 4 present the calculations of new water demand factors and water-use savings for indoor and outdoor water uses, respectively.

2.0 Approach for Estimating New Water Demand Factors and Water Savings

GSI has conducted analyses of the amount of water that can be expected to be used annually for each type of land use under the current water conservation standards, as defined in the state's green building standards code (CALGreen) and the state's requirements for irrigation on urban landscapes (the Model Water Efficiency Landscape Ordinance, MWELO). GSI conducted

[1] The West Side communities are comprised of the Newhall Ranch Specific Plan villages along with Entrada South, Entrada North, Legacy Village, and Valencia Commerce Center. FivePoint Holdings, LLC (FivePoint) is the developer of the West Side communities.

separate analyses of the amount of water demand and water-use savings that potentially can be achieved by implementing current water conservation standards for:

- Indoor water use in single-family and multi-family residences and in commercial/industrial/ institutional (CII) facilities
- Outdoor water use for (1) potable needs such as swimming pools, washing, and landscape irrigation on certain residential properties, and (2) landscape irrigation with recycled water or other available supplies on residential and nonresidential common spaces and easements

Methods for evaluating indoor and outdoor water demands and water-use savings are discussed below in Section 2.1 for indoor water uses and Section 2.2 for outdoor water uses.

2.1 Methodology for Evaluating Indoor Water Demands and Water-Use Savings

GSI's methodology for developing indoor water demand factors and estimates of potential indoor water-use savings under the state's current indoor water conservation standard (CALGreen) was as follows:

- **Identify and review available literature quantifying indoor water use details for historical time periods prior to 2000 (i.e., 1990s and earlier).** Publications and prior studies by the American Water Works Association Research Foundation (AWWARF, 1999) and the California Homebuilding Foundation (CONSOL, 2015) quantify historical water usage rates of individual indoor plumbing fixtures from the 1970s through the 1990s. Some of these studies also discuss the frequency of the use of each fixture and appliance. GSI used this information to calculate bulk indoor residential per-capita use rates for typical indoor water use conditions prior to the year 2000. See Tables 3-1a and 3-1b for these details. These rates also were compared with the rates used in the past in the West Side water demand models, as shown in Table 3-2.
- **Conduct an initial comparison of historic and modern-day water consumption rates for indoor water uses.** The set of fixture-by-fixture rates and daily bulk indoor water use rates developed in the prior work step for historical (1990's-era) conditions was compared in tabular form with the lower water consumption rates that are mandated under current state and local green building standards – particularly Los Angeles County's Green Building Standards (Title 31 of its municipal code), which by reference complies with the CALGreen standards that were first published in 2010 (CBSC, 2010) and then were updated/supplemented in 2013, 2015, 2016, and 2018 (CBSC, 2013, 2015, 2016, and 2018). GSI then tabulated the fixture-specific differences between the historic and modern-day consumption rates using both the 2015 version of the CALGreen standards (see Table 3-1a) and the 2018 version of the CALGreen standards (see Table 3-1b). Both tables show the resulting reductions in daily indoor water use rates that arise

from the CALGreen standards compared with historical (1990s) rates of water use. The reductions in daily indoor water use were evaluated for each of the nine multiple residential types and for each type of CII facility, as defined in the water demand models for the nine West Side communities. (See Tables 3-3, 3-4, 3-5, and 3-6.) In preparing these tables, GSI used per-capita, per-acre, and square-footage measures for calculating the bulk daily rates, to be consistent with methods used in the water demand model for each type of residence and CII facility.

- **Cross-check the initial estimates of past and current per-capita rates of indoor use against historic population and water reclamation plant (WRP) flow data.** During development of the numerical groundwater flow model for the Santa Clarita Valley (CH2M HILL, 2004), GSI personnel were provided with monthly and annual WRP flow data dating back to 1980 for the Saugus and Valencia WRPs. For the current evaluation of water demands and potential water-use savings, GSI obtained population and other census data for the City of Santa Clarita and Stevenson Ranch and calculated per-capita indoor water use rates using the census data and the WRP flow data. The resulting per-capita flow rates then were compared with the per-capita indoor water use rates developed in the prior steps for (1) historic conditions (the 1990s) and (2) more recent conditions that reflect a mixture of indoor facilities and water uses (old remodeled homes with updated fixtures and appliances; older homes with little or no updates to fixtures and appliances; and new homes that meet current or recent building standards). See Table 3-2.

- **Develop a final set of past and current per-capita rates of indoor use.** The per-capita rates identified from the prior step were then assembled into a table to provide a direct comparison of the volumetric reduction in daily per-capita indoor water use from residences from the mid-1990s to the present, and to define the percentage by which historic per-capita rates of residential water use would be reduced under the requirements of current green building standards. (See Table 3-3.) The percentage decline was applied as a scaling factor to develop indoor water use rates for CII facilities (see Tables 3-4 and 3-5), given that the planned CII facilities inside Newhall Ranch will largely be commercial and institutional in nature, with industrial facilities consisting solely of light industry in Homestead North and Valencia Commerce Center. Additionally, as indicated in Table 3-4, the measurement units for indoor water demand factors at elementary, middle, and high schools were changed from gallons per acre per day to gallons per student per day, with the new demand factor (20 gallons per student per day) derived from water use and demographic data provided by SCV Water for existing schools in the Santa Clarita Valley (as shown in Table 3-6.)

2.2 Methodology for Evaluating Outdoor Water Demands and Water-Use Savings

GSI's methodology for developing outdoor water demand factors and estimates of potential outdoor water-use savings under the state's current outdoor water conservation standard (MWELO) was as follows:

- **Calculate the expected reduction in outdoor potable water demands in residential and nonresidential areas in the West Side Communities.** These demands primarily consist of volumetrically-driven water uses (such as filling swimming pools and washing cars) that will decline only modestly under the current water conservation standards for non-irrigation uses of water. See Table 3-5. For single-family residences, the potable demands also include irrigation because these land parcels will not be served with recycled water.

- **Identify and review available state and local code requirements for water efficiency and water use standards on irrigated landscapes.** This effort focused on the requirements contained in the MWELO, for which an extensive change became effective in September 2015. This ordinance specifies calculation methods and key input parameters (such as reference evapotranspiration rates [ETo values] in Santa Clarita) that are used to determine the Maximum Applied Water Allowance (MAWA) for landscapes that are irrigated with potable water. The MWELO ordinance also provides certain exceptions that are granted for Special Landscape Areas, which include areas that are irrigated with recycled water. While the 2015 MWELO was the primary ordinance that GSI used to estimate outdoor water savings, GSI also reviewed L.A. County publications (including L.A. County, 2012) and the County's website for further supplemental information on water demand limits and requirements for landscapes. See Table 3-7. Additionally, at the request of SCV Water, GSI used a reference evapotranspiration rate (66.7 inches per year) that is based on measurements collected by SCV Water at its Rio Vista Water Treatment Plant during the past approximately 10 years. This ETo value provided by SCV Water is 5.2 inches per year greater than the ETo value of 61.5 inches per year that is specified in the MWELO, and thereby provides a more conservative analysis of potential irrigation demands in the West Side communities.

- **Estimate the typical acreages to be irrigated.** The water demand model estimates irrigation needs based in part on the percentage of land that requires irrigation. This is identified separately for each type of residential, CII, and other land use. For example, residential lots containing single-family residences are estimated to have between 25 and 45 percent of their total acreage consist of landscaping that requires irrigation (depending on the lot size), while irrigated landscaping is estimated to comprise 15 percent of the acreage for multi-family residential lots. In contrast, many CII facilities are estimated to

have 25 percent of their total acreage require irrigation, and other properties (such as parks and irrigated slopes) will have even higher percentages. See Table 3-8.

3.0 Indoor Water Demand Factors and Water-Use Savings

The process of estimating indoor water demand factors is described below on a step-by-step basis, consisting of: a review of the details of historical indoor residential water use estimates from the 1990s for two other Los Angeles area water districts (Section 3.1); a comparison of those study results with historical discharges to WRPs in the Santa Clarita Valley (Section 3.2); an evaluation of current water conservation standards for indoor water use, and a comparison of the current standards against the historical water use estimates (Section 3.3); a comparison of the historical and conservation-related per-capita water use values with those used to date in the water demand model for the nine West Side communities (Section 3.4); a discussion of population density data in Santa Clarita and a comparison of those data with values used for different types of residences in the water demand model (Section 3.5); and a discussion of indoor consumption rates for nonresidential development (Section 3.6).

3.1 Studies of Historical Indoor Residential Water Use in Nearby Communities

A study by the AWWA Research Foundation (AWWARF, 1999) of indoor water uses in single-family residences served as the primary source of data and details for evaluating historical indoor residential water demand factors. The AWWARF study estimated indoor residential water use for nine water utilities across the United States. The estimates were calculated in two ways: (1) from surveys of residents living in single-family housing inside each water utility service area, and (2) from models of different indoor uses in single-family homes, using data from each water utility. GSI made use of the study's data for two southern California water utilities – the Las Virgenes Municipal Water District (in Calabasas) and the Walnut Valley Water District (in West Covina) – because both of these utilities are located in the Los Angeles area and likely have had similar past water fixtures and water use behaviors as in the Santa Clarita Valley during the 1990s-era time period that was studied by the AWWARF.

The AWWARF report identified that its findings were based on a total of 783 water use survey respondents from these two particular water utilities. The data from the AWWARF report for these two water utilities are presented in Tables 3-1a and 3-1b, and include two sets of per-capita water use estimates: (1) values listed in the AWWARF report that were based on their modeling of utility-provided data, and (2) GSI's calculations of per-capita consumption using the reported individual components of residential water use (as derived from customer survey data provided in the AWWARF report). Indoor residential use based on these two methods ranged from 67.6 gallons per capita per day (gpcpd) to 82.1 gpcpd.

3.2 Comparison with Historical Santa Clarita Discharges to WRPs

As a cross-check on the applicability in Santa Clarita of the historical per-capita use rates derived from the Las Virgenes and Walnut Valley data, GSI calculated per-capita inflows to the Valencia and Saugus WRPs for the period 1995 through 1999, using (1) historical population data for SCV Water's service area as published in the 2010 Urban Water Management Plan (KJC et al., 2011) and (2) WRP inflow data from 1995 through 1999 that were compiled during prior groundwater modeling studies (CH2M HILL, 2004). From 1995 through 1999, the population inside SCV Water's service area is estimated to have increased from 171,537 people to 195,556 people, while inflows to the two WRPs (combined) ranged between approximately 14.1 and 16.1 million gallons per day (mgd) on an average daily basis and averaged 15.4 mgd. Year-by-year calculations indicate that per-capita inflows ranged from 92.8 gpcpd in 1995 to 78.3 gpcpd in 1997, with an average of 84.5 gpcpd from 1995 through 1999. However, the WRP inflows include a component of flow from CII facilities. Accordingly, consumption rates from residential areas alone will be lower than indicated by the WRP inflow volumes, as is apparent when comparing the calculations that examine the details of historical residential indoor use (67.6 to 82.1 gpcpd) against the higher values derived from WRP inflow data (78.3 to 92.8 gpcpd).

3.3 Indoor Water Consumption Rates and Water-Use Reductions in Residences Under Current Conservation Standards

The State of California has promulgated in its building code mandatory water conservation standards for new buildings, in order to conserve water (CBSC, 2018). These standards include fixture-specific updates and restrictions on water flow. GSI applied the historical water use behavior patterns from the AWWARF (1999) study to the current flow rates for indoor fixtures that are specified under the current mandatory water conservation standards, then recalculated the indoor water demands on a per-capita basis. The new estimates for indoor residential water use as of the 2015 update of CALGreen are shown in Table 3-1a for each indoor activity, along with a comparison of the historical rates and conservation-related rates. Table 3-1b shows the same information, but using the 2018 update of CALGreen. As shown in Table 3-1a, the conservation-based residential indoor water demand under the 2015 update of CALGreen is estimated to be 49.1 gpcpd, which is an 18.5 to 33.1 gpcpd decrease from the GSI-calculated historical rates of 67.6 to 82.1 gpcpd. For the 2018 update of CALGreen, the flow rate requirements for showers/baths and for faucets were lowered, which results in an overall residential indoor water demand estimate of 45.3 gpcpd, which is a 22.2 to 36.8 gpcpd decrease from the GSI-calculated historical rates of 67.6 to 82.1 gpcpd.

Population and WRP inflow data from 2006 through 2010 (before the recent drought of 2012 through 2017) show average daily inflow rates to the WRPs ranging between 70.4 and 74.8 gpcpd, with an average during this 5-year period of 72.6 gpcpd. While these flows are notably lower than during the late 1990s, they likely overestimate the per-capita use that must be achieved for new construction under the CALGreen building standards because the pre-drought

period of 2006 through 2010 preceded the introduction of the CALGreen standards. The CALGreen standards were first promulgated in 2010, which means that their effect was not yet reflected in the WRP flows prior to that time. For this reason, and to reduce the potential for underestimation of water demands, the estimate of 49.1 gpcpd that GSI has derived from the 2015 version of CALGreen (before considering fixture leakage and failure) is deemed by GSI to be an appropriate estimate of future indoor per-capita use for newly constructed single-family dwellings inside the nine West Side communities.

The AWWARF (1999) residential indoor water use study was performed on single-family residences. However, the nine West Side communities will have a number of different housing types and variable densities. As with the indoor residential demand factors used in prior water demand estimates, the updated demand factors that implement indoor water conservation standards in multi-family dwellings are equal to 93 percent of the conservation-based demand factors for low-density single-family dwellings. Accordingly, multiplying the 18.5 to 33.1 gpcpd savings rate for single-family homes by 93 percent results in 17.2 to 30.7 gpcpd of indoor water use savings for multi-family dwellings when implementing indoor water conservation measures in the West Side communities

3.4 Comparison of Calculated Per-Capita Rates with Prior Water Demand Factors

Table 3-2 compares the calculated per-capita indoor water use rates for historical conditions and current water conservation standards against (1) the WRP inflows described previously and (2) the indoor water demand factors for residences that have been used to date in the water demand models for the nine West Side communities. The comparisons also differentiate between per-capita indoor uses for single-family dwellings versus multi-family dwellings. As shown in Table 3-2, the water demand model to date has used rates of 80 to 100 gpcpd for low-density (single-family) housing and 70 to 75 gpcpd for high-density (multi-family) housing.

Based on the calculations described previously in Sections 3.1 through 3.3, under the 2015 update of the CALGreen building standards (CBSC, 2015), the indoor water demand factors are estimated to be 49 gpcpd for the estate and low residential land use categories and 46 gpcpd for the low medium, medium, and high/mixed-use residential categories and for apartments. However, these rates do not account for leakage and failure of plumbing fixtures as they age. Accordingly, as shown in the bottom two rows of Table 3-2, these per-capita use rates have been multiplied by 1.1, to add a 10 percent leakage rate to the estimated indoor uses, resulting in per-capita indoor water use estimates of 54 gpcpd for single-family dwellings and 50 gpcpd for multi-family dwellings. Table 3-3 compares these rates with the historical indoor water consumption rates that have been used to date in the water demand model for each of the nine residential land use categories evaluated by the water demand model for the West Side communities. Indoor per-capita water use rates under current water conservation standards are

between 54 percent and 72 percent of the indoor per-capita rates that do not account for modern-day standards.

3.5 Population Densities

The estimated population of any given community is used to translate the per-capita water use reductions to volumes of water savings that are achieved inside the community by implementing water conservation standards. In the water demand model, the population densities are 3.292 persons per household (PPHH) for single-family homes (estate, low, and low medium residential areas); 2.367 PPHH for condominiums and townhomes (medium density and high/mixed use developments), and 2.103 PPHH for apartments. These values were derived by GSI and VWC in early 2016, based on detailed examinations of census data for recently-constructed developments inside VWC's service area (USDOC, 2015). Based on these occupancy rates and the number of dwelling units in each land use category (single-family homes, condominiums, townhomes, and apartments), the average population density is 2.63 PPHH in the collective group of five villages comprising Newhall Ranch and 2.62 PPHH in the collective group of nine villages comprising the West Side communities. See GSI (2016b) for details.

3.6 Indoor Consumption Rates for Nonresidential Development

Other indoor uses of potable water are those occurring in commercial, industrial, and institutional (CII) facilities, including recreational facilities. These nonresidential types of land uses also have a set of green building code requirements (including water conservation standards) that will be implemented for water fixtures that are used within any indoor structures that are present on these land parcels.

As shown in Table 3-4, for most of the nonresidential land uses, the indoor per-capita water use rates are 90 percent of the per-capita rates that were used in prior analyses which preceded current water conservation standards. This percentage reduction for CII uses of indoor water accounts for how certain CII and recreational water uses are volumetrically-based rather than rate-based. A value of 90 percent was chosen to strike a balance between (1) recognizing that a certain amount of water use reduction would occur under the CALGreen building and water conservation standards while (2) seeking to minimize the potential of underestimating the specific water use needs of each type of nonresidential facility. However, the demand factor that describes the potable water supply need for the future Newhall Ranch Water Reclamation Plant (NRWRP) was not reduced, because the treatment process needs are not likely to reduce water demands below the amounts estimated in the past.

4.0 Outdoor Water Demand Factors and Water-Use Savings

This section discusses the water demand factors for outdoor uses of potable water that are estimated for residential areas (Section 4.1) and nonresidential developments (Section 4.2); and

the reductions in water demand factors that FivePoint will achieve in meeting the state's potable water irrigation standards in areas where FivePoint plans to use recycled water (Section 4.3).

4.1 Demand Factors for Residential Outdoor Uses of Potable Water

The prior (GSI, 2016a) and current water demand estimates use higher per-capita rates of outdoor **potable** water use for single-family residential lots than for multi-family residential lots. This difference arises because single-family residential lots will be irrigated with potable water, whereas nonpotable water will be used to irrigate the common-area landscaping that is the sole form of landscaping present on multi-family residential lots.

Current plans for lot sizes in all West Side communities[2], along with the detailed landscape designs that have been developed recently for Mission Village (which is currently under construction), were used as the basis for computing potable irrigation demand factors to apply to single-family dwelling units in each village in the West Side communities.

- For estates, which are planned for the Homestead North Village, the irrigation demand factor is calculated to be 355 gpcpd, based on an average lot size of 0.94 acres, with 45 percent of the lot being irrigated at an annual rate of 3.1 feet per year[3]. This calculation also uses a population density of 3.292 persons per dwelling units to convert the irrigation demands into units of gpcpd. An additional 35 gpcpd is added to the 355 gpcpd irrigation demand factor to account for other outdoor water uses, resulting in a calculated total outdoor demand factor of 390 gpcpd for estates.

- For the "low-density" category of single-family dwellings (custom lots in Mission Village planning unit A8), the irrigation demand factor is calculated to be 135 gpcpd, based on an average lot size of 0.45 acres, with 35 percent of the lot being irrigated at an annual rate of 3.1 feet per year (based on ETo rates measured in recent years by SCV Water). This calculation also uses a population density of 3.292 persons per dwelling units to convert the irrigation demands into units of gpcpd. An additional 35 gpcpd is added to the 135 gpcpd irrigation demand factor to account for other outdoor water uses, resulting in a calculated total outdoor demand factor of 170 gpcpd for low-density single-family dwelling units. This value is used not only in Mission Village, but also in the three other villages that will contain low-density single-family residential dwelling units (Potrero, Homestead South, and Homestead North).

[2] Current plans are preliminary and subject to change by FivePoint, and are presented and used in this report for the purposes of estimating water demands.

[3] Because detailed landscape design plans have not yet been developed for the estates in Homestead Village South, the percentage of the lot being irrigated (45 percent) was derived by using Google Earth Pro to inspect two recently completed developments in the Santa Clarita Valley (Five Knolls and Skyline), whose housing products and lot designs are generally similar to the concepts contained in the Vesting Tentative Tract Maps (VTTMs) for Homestead Village South.

- For detached residences in the "low-medium density" residential land use category (Mission Village planning units A2, A7, and A8), the irrigation demand factor is calculated to be 35 gpcpd, based on an average lot size of 0.17 acres, with 25 percent of the lot being irrigated at an annual rate of 3.1 feet per year. This calculation also uses a population density of 3.292 persons per dwelling units to convert the irrigation demands into units of gpcpd. An additional 35 gpcpd is added to the 35 gpcpd irrigation demand factor to account for other outdoor water uses, resulting in a calculated total outdoor demand factor of 70 gpcpd for detached low-medium-density single-family dwellings. This rate applies only to **detached** low-medium-density dwelling units; it does not apply to **attached** low-medium-density dwelling units because those units will receive nonpotable water for landscape irrigation. The 70 gpcpd rate is used not only in Mission Village, but also in the six other villages that will contain detached low-medium-density single-family dwellings (Landmark, Potrero, Homestead South, Homestead North, Entrada South, and Legacy).

The rates described above are for irrigation with potable water. Other outdoor water needs (such as filling swimming pools and washing cars) have volumetrically-driven water demands and are expected to decline modestly under current water conservation standards, to an average rate of 35 gpcpd.

The last column of Table 3-3 shows the ratio of new to old water demand factors for outdoor potable water uses in residential areas. For multi-family dwellings, this ratio ranges from 0.74 to 0.76, with an average of approximately 0.75, which indicates that the state's current standards for landscape irrigation reduce water demands by 25 percent. This finding also applies to single-family residences; however, Table 3-3 shows ratios greater than 1.0 for the estates, low-density, and low-medium detached (single-family) residences because of changes to the assumptions about landscape irrigation – specifically, the higher percentages of irrigated landscaping (25 to 45 percent) than were used in prior analyses (15 percent).

4.2 Demand Factors for Nonresidential Outdoor Uses of Potable Water

In nonresidential developments, potable water will not be used for irrigation but will be used to meet other outdoor water needs. Table 3-5 lists the nonresidential water demand factors for outdoor (non-irrigation) potable use that were contained in the original water demand models (GSI, 2016a) and the factors that are used in new model projections under current water conservation standards. As with indoor uses in nonresidential developments, the adjustments from the original to new demand factors for outdoor uses in nonresidential developments were based on a ratio of 0.90. This value was selected for nonresidential outdoor uses of potable water because the potable water use efficiencies that are achievable indoors for nonresidential developments will also be achievable outdoors (and might provide more water savings than is assumed in this analysis).

For schools, an additional 13 acre-feet per year of outdoor water use was assumed to occur for the high school that is planned in the West Side communities. This estimate assumed that one swimming pool (or equivalent) would be constructed at the high school, with a 0.66-million-gallon capacity that would be replaced in full during the course of any given 2-month period because of splashing and because of the need for routine daily maintenance and periodic flushing.

4.3 Demand Factors for Landscape Irrigation With Nonpotable Water

For landscape irrigation, GSI conducted its analysis of water demand factors and potential outdoor water-use savings under the assumption that FivePoint will design its landscapes in common areas so as to meet the 2015 MWELO requirements for landscapes that are irrigated with potable water, even though the actual water supply will consist of recycled water in most (if not all) common areas. This distinction is important because on landscapes being irrigated with recycled water, the 2015 MWELO allows water application to occur at rates equal to the reference evapotranspiration demand (known as ETo) for healthy turf grass, whereas the maximum allowable water application rate on landscapes using potable water is limited by the 2015 MWELO to be 55 percent of ETo for residential landscapes and 45 percent of ETo for nonresidential landscapes. A landscape using recycled water is a type of landscape that the 2015 MWELO classifies as a Special Landscape Area (SLA), which is defined in Section 491.ttt of Title 23 as "*an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water.*"

The 2015 MWELO specifies the ETo rate for healthy turf grass in Santa Clarita that must be used as the basis for calculating the maximum allowable irrigation application rate (called the "Maximum Applied Water Allowance, or MAWA in the 2015 ordinance) for landscapes being irrigated with potable water supplies in Santa Clarita.[4] The MWELO-specified ETo value for Santa Clarita is 61.5 inches per year. Under the MWELO rules, landscapes inside Santa Clarita that are subject to the MWELO rules must limit annual irrigation volumes of potable water to MAWA values of 61.5 inches per year in SLAs (based on 100% of ETo), 33.8 inches per year in residential landscapes (based on 55% of ETo), and 27.7 inches per year in nonresidential landscapes (based on 45% of ETo). For water supply planning purposes, the water demand calculations use a higher ETo value – a rate of 66.7 inches per year, which is the average during the past 10 years of ETo measurements at a monitoring station located at SCV Water's Rio Vista water treatment plant. Table 3-7 presents the monthly distribution of turf evapotranspiration demands under this annual ETo value and also identifies the resulting limits on monthly irrigation rates for residential and nonresidential landscapes under the 2015 MWELO ordinance.

[4] Section 491.mmm of the MWELO rule defines reference evapotranspiration as an estimate of the amount of evapotranspiration occurring from a large field of 4-inch to 7-inch tall cool-season grass that is well watered. ETo differs from one location to another, as listed in Appendix A of the 2015 MWELO.

In comparing the original water demand models for the West Side communities (i.e., without current landscape irrigation conservation standards) with the standards established by the 2015 MWELO, the achievable reductions in irrigation water consumption on a unit land area are presented in Table 3-8 and summarized below:[5]

- Residential water use:
  - Without current standards: 6.7 feet per year (80.4 inches per year)
  - With current standards (2015 MWELO):
    - 3.1 feet per year (37.2 inches per year) where using potable water
    - 5.6 feet per year (66.7 inches per year) where using recycled water
  - Amount of water use reduction achieved under the 2015 MWELO:
    - 3.6 feet per year (43.2 inches per year) where using potable water
    - 1.1 feet per year (13.7 inches per year) where using recycled water

- Commercial/industrial/institutional:
  - Without current standards: 4.5 to 5.6 feet per year (54 to 67 inches per year)
  - With current standards (2015 MWELO):
    - 2.5 feet per year (30.0 inches per year) where using potable water
    - 5.6 feet per year (66.7 inches per year) where using recycled water
  - Amount of water use reduction achieved under the 2015 MWELO:
    - 2.0 to 3.1 feet per year (24.0 to 37.2 inches per year) where using potable water
    - 0 to 1.1 feet per year (0 to 13.2 inches per year) where using recycled water

- Other areas (recreation, arterials, and open spaces):
  - Without current standards: 3.47 to 6.4 feet per year (41.6 to 76.8 inches per year)
  - With current standards (2015 MWELO):
    - 2.5 feet per year (30.0 inches per year) where using potable water
    - 5.6 feet per year (66.7 inches per year) where using recycled water
  - Amount of water use reduction achieved under the 2015 MWELO:
    - 0.97 to 3.9 feet per year (11.6 to 46.8 inches per year) where using potable water
    - 0 to 0.8 feet per year (0 to 9.6 inches per year) where using recycled water

However, for parcels of land that will consist of a mixture of turf and other plants, the water demand calculations assume that (1) recycled water will be used in sufficient quantities to maintain a healthy turf (annual water demand 5.6 feet), and (2) only the non-turf landscapes being irrigated with recycled water will be designed to meet the lower residential (3.1 feet) or

[5] Values are rounded to the nearest 0.1 feet per year and the nearest 0.1 inches per year.

nonresidential (2.5 feet) annual limits shown in Table 3-7 for irrigation with potable water. Table 3-8 shows the landscape design details for each type of land use inside the West Side communities, including the percentage of irrigated land that will consist of turf and an inventory of which irrigated lands will be supplied with potable supplies rather than recycled water.[6] For each land use type, Table 3-8 then shows (1) the MAWA values for landscapes in the West Side communities that will be irrigated with potable water versus recycled water, and (2) the resulting net average water use across the entire irrigated landscape for each land use category. As indicated in footnote (b) of Table 3-8, the MAWA values for landscapes using nonpotable water in the West Side communities (i.e., landscapes for multi-family lots plus other common-areas) are calculated from the net of reference ETo demands for (1) turf areas under the nonpotable irrigation limit of 5.6 feet per year) and (2) non-turf areas under the applicable potable irrigation limit (which is 3.1 feet per year for residential lands and 2.5 feet per year for nonresidential/recreation/arterials/ open space lands).[7]

[6] Table 3-8 does not list values for the turf percentages for single-family lots, because the turf percentage has no bearing on the calculation of the irrigation limit for residential lots that are irrigated with potable water. Instead, the irrigation limit (3.1 feet per year, as shown in Table 3-7) is derived from the MWELO guidance itself, which specifies that the annual irrigation rate must be equal to, or less than, 55 percent of the ETo value that applies to Santa Clarita.

[7] See Table 3-7 for the derivation of the potable irrigation limits for residential lands and other (nonresidential) lands.

5.0 References

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Table 3-1a

Indoor Residential Water Use Details for Single-Family Dwellings Under the 2015 CALGreen Standards[a]

West Side Communities (Valencia, CA)

Description	Units	1997/98 Literature Value (Modeled From Utility Data)[b]	Source	1997/98 Calculated Use (Calculated by GSI from User Survey)[c]	Source	Modern-Day Plumbing Code Values (CALGreen)[d]	Source	Reductions Arising From Plumbing Code Compared with 1997/98 Calculated Use[e]
Toilet								
Flush volume	gal per flush			3.35	*1*	1.28	*4*	
Flushes	per capita per day			4.71	*1*	[h]		
Toilet total	***gpcpd***[f]	***16.9***	*1*	***15.8***	*3*	***6.0***	*3*	***-9.7 to -10.8***
Showers/Baths								
Frequency	per capita per day			0.74	*1*	[h]		
Duration	minutes per event			8.15	*1*	[h]		
Flow rate	gpm[g]			2.1	*1*	2.0	*4*	
Bathing total	***gpcpd***	***11.6***	*1*	***12.9***	*3*	***12.1***	*3*	***-0.8 to 0.5***
Faucet								
Faucet duration	minutes per capita per day			8.6	*1*	[h]		
Faucet flow rate	gpm			2.5	*2*	1.5	*4*	
Faucet total	***gpcpd***	***11.8***	*1*	***21.5***	*3*	***12.9***	*3*	***-8.6 to 1.2***
Dishwasher								
frequency	per capita per day			0.08	*1*	[h]		
volume	gal per cycle			40.9	*1*	4.25	*4*	
Dishwasher total	***gpcpd***	***0.9***	*1*	***3.3***	*3*	***0.3***	*3*	***-2.9 to -0.5***
Clothes washer machine								
frequency	cycle per capita per day			0.37	*1*	[h]		
volume	gal per cycle			47.6	*1*	18	*4*[i]	
Washer total	***gpcpd***	***15.5***	*1*	***17.6***	*3*	***6.7***	*3*	***-11.0 to -8.8***
Other indoor use								
Other domestic use	gpcpd	1.7	*1*	1.7	*1*	[h]		
Leaks	gpcpd	9.4	*1*	9.4	*1*	[h]		
Other Indoor Total	***gpcpd***	***11.1***	*3*	***11.1***	*3*	***11.1***		***0.0 to 0.0***
Total Indoor Water Use	**gpcpd**	**67.6**	*1*	**82.1**	*1*	**49.1**	*3*	**-33.1 to -18.5**

Notes

a Values for 1997/1998 are based on averages of data from the Las Virgenes Municipal Water District (in Calabasas, CA) and the Walnut Valley Water District (in West Covina, CA).
b Totals from individual uses are as presented in AWWARF (1999), as modeled from utility data. Values are for single family houses.
c Totals from individual uses are calculated from flow and user behavior as indicated in the report (AWWARF, 1999). Values are for single family houses.
d Totals from individual uses are calculated from user behavior as indicated in the report (AWWARF, 1999), and flow data in CALGreen building standards (CBSC, 2015). Values are for single family houses.
e Difference is between values calculated in the same way (from behavior and flow data).
f gpcpd = gallons per capita per day
g gpm = gallons per minute
h Assumes fixtures have changed since 1990's, but indoor water use behavior has not. Calculation uses 1997/98 behavior data.
i Based on energy-star high efficiency appliance. Not required by CALGreen, but assumed to be average use of modern-day appliance.

Sources

1 Average of data collected in 1997 and 1998 from Walnut Valley, CA and Las Virgenes, CA, published in a study sponsored by the AWWA Research Foundation (AWWARF, 1999).
2 Standards from 1992, as published by the California Homebuilding Foundation (CONSOL, 2015).
3 Calculated value.
4 Value listed in the 2015 supplement to the CALGreen Green Building Code (CBSC, 2015).

Table 3-1b

Indoor Residential Water Use Details for Single-Family Dwellings Under the 2018 CALGreen Standards[a]

West Side Communities (Valencia, CA)

Description	Units	1997/98 Literature Value (Modeled From Utility Data)[b]	Source	1997/98 Calculated Use (Calculated by GSI from User Survey)[c]	Source	Modern-Day Plumbing Code Values (CALGreen)[d]	Source	Reductions Arising From Plumbing Code Compared with 1997/98 Calculated Use[e]
Toilet								
Flush volume	gal per flush			3.35	*1*	1.28	*4*	
Flushes	per capita per day			4.71	*1*	[h]		
Toilet total	***gpcpd***[f]	***16.9***	*1*	***15.8***	*3*	***6.0***	*3*	***-9.7 to -10.8***
Showers/Baths								
Frequency	per capita per day			0.74	*1*	[h]		
Duration	minutes per event			8.15	*1*	[h]		
Flow rate	gpm[g]			2.1	*1*	1.8	*4*	
Bathing total	***gpcpd***	***11.6***	*1*	***12.9***	*3*	***10.9***	*3*	***-2.1 to -0.7***
Faucet								
Faucet duration	minutes per capita per day			8.6	*1*	[h]		
Faucet flow rate	gpm			2.5	*2*	1.2	*4*	
Faucet total	***gpcpd***	***11.8***	*1*	***21.5***	*3*	***10.3***	*3*	***-11.2 to -1.4***
Dishwasher								
frequency	per capita per day			0.08	*1*	[h]		
volume	gal per cycle			40.9	*1*	4.25	*4*	
Dishwasher total	***gpcpd***	***0.9***	*1*	***3.3***	*3*	***0.3***	*3*	***-2.9 to -0.5***
Clothes washer machine								
frequency	cycle per capita per day			0.37	*1*	[h]		
volume	gal per cycle			47.6	*1*	18	*4*[i]	
Washer total	***gpcpd***	***15.5***	*1*	***17.6***	*3*	***6.7***	*3*	***-11.0 to -8.8***
Other indoor use								
Other domestic use	gpcpd	1.7	*1*	1.7	*1*	[h]		
Leaks	gpcpd	9.4	*1*	9.4	*1*	[h]		
Other Indoor Total	***gpcpd***	***11.1***	*3*	***11.1***	*3*	***11.1***		***0.0 to 0.0***
Total Indoor Water Use	**gpcpd**	**67.6**	*1*	**82.1**	*1*	**45.3**	*3*	**-36.8 to -22.2**

Notes

a Values for 1997/1998 are based on averages of data from the Las Virgenes Municipal Water District (in Calabasas, CA) and the Walnut Valley Water District (in West Covina, CA).
b Totals from individual uses are as presented in AWWARF (1999), as modeled from utility data. Values are for single family houses.
c Totals from individual uses are calculated from flow and user behavior as indicated in the report (AWWARF, 1999). Values are for single family houses.
d Totals from individual uses are calculated from user behavior as indicated in the report (AWWARF, 1999), and flow data in CALGreen building standards (CBSC, 2018). Values are for single family houses.
e Difference is between values calculated in the same way (from behavior and flow data).
f gpcpd = gallons per capita per day
g gpm = gallons per minute
h Assumes fixtures have changed since 1990's, but indoor water use behavior has not. Calculation uses 1997/98 behavior data.
i Based on energy-star high efficiency appliance. Not required by CALGreen, but assumed to be average use of modern-day appliance.

Sources

1 Average of data collected in 1997 and 1998 from Walnut Valley, CA and Las Virgenes, CA, published in a study sponsored by the AWWA Research Foundation (AWWARF, 1999).
2 Standards from 1992, as published by the California Homebuilding Foundation (CONSOL, 2015).
3 Calculated value.
4 Value listed in the 2018 supplement to the CALGreen Green Building Code (CBSC, 2018).

Table 3-2

Comparison of Historical and Modern-Day Indoor Residential Water Use Factors

West Side Communities (Valencia, CA)

Time Period	Housing Type	Indoor Water Use Factors From Studies and Building Standards (Residential Only)[a] (gpcpd)	Indoor Water Use Factors Specified in the NHR Water Demand Model (Residential Only) (gpcpd)	Measured Flows into WRPs in the Santa Clarita Valley (Residential and CII)[b] (gpcpd)
Historical (1990s)	Single-Family	67-82	80-100	1995-1999 Average: 84.5 Range: 78.3 to 92.8
	Multi-Family	62-76	70-75	
Modern-Day Plumbing Code (Without System Leakage)[c]	Single-Family	49	---	2006-2011 Average: 72.6 Range: 70.4 to 74.8
	Multi-Family	46	---	
Modern-Day Plumbing Code (Accounting for 10% System Leakage)[d]	Single-Family	54	54	
	Multi-Family	50	50	

Notes

[a] Historical estimates from literature are based on AWWARF surveys of single-family homes in Walnut Valley WD and Las Virgenes MWD, 1997/1998.

[b] WRP flows reflect aggregate indoor use by residences and commercial/industrial/institutional (CII) facilities of all ages and various states of remodel. Historical values are for the period 1995 through 1999, and modern-day values are for the period 2006 through 2010.

[c] Modern day use is based on mandatory flow restrictions for plumbing fixtures in the 2015 supplement to the CALGreen Code (CBSC, 2015).

[d] Values are 1.1 times the CALGreen code values, to account for periodic system leakage and malfunction of indoor fixtures.

Abbreviations

WRP = water reclamation plant
NHR = Newhall Ranch
WD = water district
gpcpd = gallons per capita per day
CII = commercial/industrial/institutional
MWD = municipal water district
AWWARF = American Water Works Association Research Foundation

Table 3-3

Original and New Rates of Potable Water Use for Residential Developments

West Side Communities (Valencia, CA)

Type of Residential Development	ORIGINAL POTABLE DEMAND FACTORS				NEW POTABLE DEMAND FACTORS				RATIO OF NEW/ORIGINAL POTABLE DEMAND FACTORS	
	Indoor gpcpd	Outdoor gpcpd	Outdoor gpcpd Relative to Total gpcpd	Ratio of Outdoor gpcpd to Indoor gpcpd	Indoor gpcpd	Outdoor gpcpd	Outdoor gpcpd Relative to Total gpcpd	Ratio of Outdoor gpcpd to Indoor gpcpd	Indoor Use	Outdoor Use
Estate (Single-Family Detached)	100	60	37.5%	60.0%	54	390	87.8%	722.2%	0.54	6.50
Low (Single-Family Detached)	80	50	38.5%	62.5%	54	170	75.9%	314.8%	0.68	3.40
Low Medium (Single-Family Detached)	75	45	37.5%	60.0%	54	70	56.5%	129.6%	0.72	1.54
Low Medium (Multi-Family Detached)	75	45	37.5%	60.0%	50	34	40.5%	68.0%	0.67	0.74
Low Medium (Multi-Family Attached)	75	45	37.5%	60.0%	50	34	40.5%	68.0%	0.67	0.74
Medium (Multi-Family Detached)	75	45	37.5%	60.0%	50	34	40.5%	68.0%	0.67	0.74
Medium (Multi-Family Attached)	75	45	37.5%	60.0%	50	34	40.5%	68.0%	0.67	0.74
High and Mixed Use (Multi-Family)	75	45	37.5%	60.0%	50	34	40.5%	68.0%	0.67	0.74
Apartments (Multi-Family)	70	42	37.5%	60.0%	50	32	39.0%	64.0%	0.71	0.76

For single-family units (estate, low, and low-medium-detached), outdoor demands are for irrigation plus other outdoor water needs.

- The new outdoor demand factor of 390 gpcpd for estates consists of 355 gpcpd for irrigation plus 35 gpcpd for other water uses.
  - The irrigation demand of 355 gpcpd for these residential developments is based on a 0.94-acre lot size with 45% of the lot being irrigated at a rate of 3.1 feet per year, and a population density of 3.292 persons per dwelling unit.
- The new outdoor demand factor of 170 gpcpd for low-density residential developments consists of 135 gpcpd for irrigation plus 35 gpcpd for other water uses.
  - The irrigation demand of 135 gpcpd for these residential developments is based on a 0.45-acre lot size with 35% of the lot being irrigated at a rate of 3.1 feet per year, and a population density of 3.292 persons per dwelling unit.
- The new outdoor demand factor of 70 gpcpd for low-medium-density single-family detached residential developments consists of 35 gpcpd for irrigation plus 35 gpcpd for other water uses.
  - The irrigation demand of 35 gpcpd for these residential developments is based on a 0.17-acre lot size with 25% of the lot being irrigated at a rate of 3.1 feet per year, and a population density of 3.292 persons per dwelling unit.
- Non-irrigation uses are volume-driven (rather than rate-driven) and decrease modestly (from 45, 50, or 60 gpcpd to 34 or 35 gpcpd) under current water conservation standards.

For multi-family units, potable water use to meet outdoor demands is for all needs other than common-area irrigation. (Common-area irrigation demands will be met with nonpotable water supplies.)

- Outdoor potable demands for multi-family dwellings have similar percentage reductions under current water conservation standards.

Note: gpcpd = gallons per capita per day

Table 3-4
Indoor Rates of Potable Water Use for Nonresidential Developments
West Side Communities (Valencia, CA)

Land Use	ORIGINAL INDOOR POTABLE DEMAND FACTORS		Amount of Indoor Potable Water Use Reduction Estimated Under Current Water Conservation Standards		NEW INDOOR POTABLE DEMAND FACTORS	
	Indoor Use		Ratio of		Indoor Use	
	Units	Factor	New to Old	Rationale	Units	Factor
Mixed-Use Commercial (Retail)	gpd/sq. ft.	0.010	0.90	Average Indoor Change for All Residential Categories	gpd/sq. ft.	0.009
Mixed-Use Commercial (Office)	gpd/sq. ft.	0.050	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/sq. ft.	0.045
Commercial (Retail)	gpd/sq. ft.	0.200	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/sq. ft.	0.18
Business Park (Office)	gpd/sq. ft.	0.050	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/sq. ft.	0.045
Business Park (Industrial)	gpd/sq. ft.	0.200	0.90	More Modest Reduction than Residences	gpd/sq. ft.	0.18
Institutional	gpd/sq. ft.	0.200	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/sq. ft.	0.18
Hotel/Spa	gpd/sq. ft.	0.200	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/sq. ft.	0.18
Hospital	gpd/bed	500	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/bed	450
Sr. Assisted Living	gpd/bed	100	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/bed	90
Golf Club House	gpd/sq. ft.	0.010	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/sq. ft.	0.009
Visitor Serving	gpd/sq. ft.	0.010	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/sq. ft.	0.009
Water Reclamation Plant	gpapd	200	1.00	No Change Because of Treatment Process Needs	gpapd	200
Electrical Substation	gpapd	0	---	No Interior Potable Water Use	gpapd	0
Fire Stations	gpd/sq. ft.	0.200	0.90	Similar to Indoor Change for Residences Other than Estates	gpd/sq. ft.	0.18
Schools	gpapd	260	---	Not Applicable (Units Have Changed)	gpd/student	20
Recreation Centers	gpapd	100	0.90	More Modest Reduction than Residences	gpapd	90
Neighborhood Parks	gpapd	100	0.90	Similar to Indoor Change for Residences Other than Estates	gpapd	90
Lake - Water	gpapd	0	---	No Interior Potable Water Use	gpapd	0
Lake - Park Area	gpapd	0	---	No Interior Potable Water Use	gpapd	0
Golf Course	gpapd	0	---	No Interior Potable Water Use	gpapd	0
Hardscape/Road Section	gpapd	0	---	No Interior Potable Water Use	gpapd	0
Landscape Area	gpapd	0	---	No Interior Potable Water Use	gpapd	0
Natural Open Space	gpapd	0	---	No Interior Potable Water Use	gpapd	0
River Corridor	gpapd	0	---	No Interior Potable Water Use	gpapd	0
Non-Irrigated Slopes	gpapd	0	---	No Interior Potable Water Use	gpapd	0
Irrigated Slopes, Wet Zones	gpapd	0	---	No Interior Potable Water Use	gpapd	0
O.S. Drainage Facilities	gpapd	0	---	No Interior Potable Water Use	gpapd	0

Note: gpd = gallons per day gpapd = gallons per acre per day sq. ft. = square foot

Table 3-5

Outdoor Rates of Non-Irrigation Potable Water Use for Nonresidential Developments

West Side Communities (Valencia, CA)

	ORIGINAL OUTDOOR POTABLE DEMAND FACTORS	Amount of Outdoor Potable Water Use Reduction Estimated Under Current Water Conservation Standards		NEW OUTDOOR POTABLE DEMAND FACTORS
Land Use	**Outdoor Use (gal/acre/day)**	**Adjustment Factor**	**Rationale**	**Outdoor Use (gal/acre/day)**
Mixed-Use Commercial (Retail)	0	---	No Exterior Potable Water Use	0
Mixed-Use Commercial (Office)	0	---	No Exterior Potable Water Use	0
Commercial (Retail)	0	---	No Exterior Potable Water Use	0
Business Park (Office)	0	---	No Exterior Potable Water Use	0
Business Park (Industrial)	305	0.90	Based on Rounding Up the Amount of Outdoor Change in Residential Areas	275
Institutional	0	---	No Exterior Potable Water Use	0
Hotel/Spa	0	---	No Exterior Potable Water Use	0
Hospital	0	---	No Exterior Potable Water Use	0
Sr. Assisted Living	120	0.90	Based on Rounding Up the Amount of Outdoor Change in Residential Areas	108
Golf Club House	0	---	No Exterior Potable Water Use	0
Visitor Serving	305	0.90	Based on Rounding Up the Amount of Outdoor Change in Residential Areas	275
Water Reclamation Plant	0	---	No Exterior Potable Water Use	0
Electrical Substation	0	---	No Exterior Potable Water Use	0
Fire Stations	305	0.90	Based on Rounding Up the Amount of Outdoor Change in Residential Areas	275
Schools	0	---	New Analysis Uses this for Olympic-Size Pool at High School	13
Recreation Centers	0	---	No Exterior Potable Water Use	0
Neighborhood Parks	0	---	No Exterior Potable Water Use	0
Lake - Water	0	---	No Exterior Potable Water Use	0
Lake - Park Area	0	---	No Exterior Potable Water Use	0
Golf Course	0	---	No Exterior Potable Water Use	0
Hardscape/Road Section	0	---	No Exterior Potable Water Use	0
Landscape Area	0	---	No Exterior Potable Water Use	0
Natural Open Space	0	---	No Exterior Potable Water Use	0
River Corridor	0	---	No Exterior Potable Water Use	0
Non-Irrigated Slopes	0	---	No Exterior Potable Water Use	0
Irrigated Slopes, Wet Zones	0	---	No Exterior Potable Water Use	0
O.S. Drainage Facilities	0	---	No Exterior Potable Water Use	0

Note: gpd = gallons per day gpapd = gallons per acre per day sq. ft. = square foot

Table 3-6

Summary of K-12 School Demographics and Water Use in the Santa Clarita Valley, California

West Side Communities (Valencia, CA)

	Elementary School					Middle School					High School					Total				
School District	No. Schools	No. Students	Annual CCF Water Use	gpd per school	gpd per student	No. Schools	No. Students	Annual CCF Water Use	gpd per school	gpd per student	No. Schools	No. Students	Annual CCF Water Use	gpd per school	gpd per student	No. Schools	No. Students	Annual CCF Water Use	gpd per school	gpd per student
Castaic Union	3	1,612	17,028	11,633	21.6	1	539	18,327	37,560	69.7	0	0	---	---	---	4	2,151	35,355	18,115	33.7
Newhall	10	6,535	51,752	10,606	16.2	0	0	---	---	---	0	0	---	---	---	10	6,535	51,752	10,606	16.2
Saugus Union	15	9,924	84,277	11,515	17.4	0	0	---	---	---	0	0	---	---	---	15	9,924	84,277	11,515	17.4
Sulphur Springs[1]	8	4,821	39,052	10,004	16.6	0	0	---	---	---	0	0	---	---	---	8	4,821	39,052	10,004	16.6
William S. Hart Union[2]	0	0	---	---	---	6	6,965	90,071	30,766	26.5	7	14,982	140,301	41,077	19.2	13	21,947	230,372	36,318	21.5
Total	**36**	**22,892**	**192,109**	**10,937**	**17.2**	**7**	**7,504**	**108,398**	**31,737**	**29.6**	**7**	**14,982**	**140,301**	**41,077**	**19.2**	**50**	**45,378**	**440,808**	**18,068**	**19.9**

This analysis is based on data obtained from SCV Water on October 21, 2019.

[1] Excludes Valley View Community School, which has no annual consumption data.

[2] Excludes Castaic High School, which is too new to have any annual consumption data at this time.

Table 3-7
Reference Evapotranspiration (ETo) Water Demands and Associated Water Demands in the City of Santa Clarita, California

West Side Communities (Valencia, CA)

Month	Estimated Monthly Turf ET Demand as Percent of Annual Demand[a]	Reference ET (For Turf Grass) (ETo, inches)[b]	Annual Limit (inches)	
			Residential (55% of ETo)	Nonresidential (45% of ETo)
January	5%	3.1	1.7	1.4
February	5%	3.0	1.7	1.4
March	7%	4.4	2.4	2.0
April	9%	6.1	3.4	2.7
May	10%	6.5	3.6	2.9
June	11%	7.4	4.1	3.3
July	12%	8.3	4.6	3.7
August	13%	8.5	4.7	3.8
September	9%	6.3	3.5	2.8
October	8%	5.6	3.1	2.5
November	6%	4.0	2.2	1.8
December	5%	3.5	1.9	1.6
Annual (inches)		**66.7**	**36.7**	**30.0**
Annual (feet)		**5.6**	**3.1**	**2.5**

Abbreviations

MWELO = Model Water Efficient Landscape Ordinance (State of California)

ET = evapotranspiration

ETo = reference evapotranspiration for turf grass = 66.7 inches/year in Santa Clarita;
from 10 most recent years of data from SCV Water's Rio Vista monitoring station
(received from SCV Water on October 21, 2019).

Notes

[a] Percentage values are calculated by GSI Water Solutions using the monthly and annual ETo values listed for Santa Clarita in Appendix A of the 2015 MWELO.

[b] ETo values are based on a recent average annual ET rate of 66.7 inches/year, as measured at SCV Water's Rio Vista Water Treatment Facility.
For comparison, the reference ET value (ETo) specified in MWELO for Santa Clarita is 61.5 inches/year.

Table 3-8

Irrigation Landscape Types and Maximum Allowable Irrigation Rates under the 2015 MWELO

West Side Communities (Valencia, CA)

	Landscape Design			Irrigation Rates (feet per year)				
				Maximum Applied Water Allowance (MAWA) Values in Santa Clarita Under the 2015 MWELO[a]			Irrigation Rates Used in Prior Demand Estimates	Reduction Under 2015 MWELO
Land Use Category	Irrigated Landscaping Area As a Percentage of Gross Acreage	Turf Percentage Within Irrigated Landscaping Area	Will Turf Area or Water Feature Use Potable Supply?	Landscapes Using Potable Water	Landscapes Using Recycled Water	Net Allowed for Mixture of Landscapes[b]		
Residential Development								
Estate (Single-Family Detached)	45%	---	Yes	3.1	---	3.1	6.7	3.6
Low (Single-Family Detached)	35%	---	Yes	3.1	---	3.1	6.7	3.6
Low Medium (Single-Family Detached)	25%	---	Yes	3.1	---	3.1	6.7	3.6
Low Medium (Multi-Family Detached)	15%	25%	No	3.1	5.6	3.8	6.7	2.9
Low Medium (Multi-Family Attached)	15%	25%	No	3.1	5.6	3.8	6.7	2.9
Medium (Multi-Family Detached)	15%	25%	No	3.1	5.6	3.8	6.7	2.9
Medium (Multi-Family Attached)	15%	25%	No	3.1	5.6	3.8	6.7	2.9
High and Mixed Use (Multi-Family)	15%	25%	No	3.1	5.6	3.8	6.7	2.9
Apartments (Multi-Family)	15%	25%	No	3.1	5.6	3.8	6.7	2.9
Nonresidential Development (Commercial/Industrial/Institutional)								
Mixed-Use Commercial (Retail)	25%	0%	No	2.5	5.6	2.5	5.36	2.86
Mixed-Use Commercial (Office)	25%	0%	No	2.5	5.6	2.5	5.36	2.86
Commercial (Retail)	25%	0%	No	2.5	5.6	2.5	5.36	2.86
Business Park (Office)	25%	0%	No	2.5	5.6	2.5	5.36	2.86
Business Park (Industrial)	25%	0%	No	2.5	5.6	2.5	5.36	2.86
Institutional	25%	0%	No	2.5	5.6	2.5	5.6	3.1
Hotel/Spa	25%	25%	No	2.5	5.6	3.3	5.36	2.06
Hospital	25%	25%	No	2.5	5.6	3.3	5.6	2.3
Sr. Assisted Living	25%	25%	No	2.5	5.6	3.3	5.6	2.3
Golf Club House	0%	0%	No	---	---	---	---	---
Visitor Serving	25%	0%	No	2.5	5.6	2.5	5.6	3.1
Water Reclamation Plant	25%	0%	No	2.5	5.6	2.5	4.48	1.98
Electrical Substation	0%	0%	No	---	---	---	---	---
Fire Stations	25%	0%	No	2.5	5.6	2.5	5.6	3.1
Schools (Elementary)	25%	75%	No	2.5	5.6	4.9	5.6	0.7
Schools (Middle/Junior High)	25%	75%	No	2.5	5.6	4.9	5.6	0.7
Schools (High Schools)	25%	75%	No	2.5	5.6	4.9	5.6	0.7
Recreation, Arterials, Open Space								
Recreation Centers	75%	55%	No	2.5	5.6	4.3	5.1	0.8
Neighborhood Parks	75%	55%	No	2.5	5.6	4.3	5.1	0.8
Golf Course	100%	80%	No	2.5	5.6	5.0	5.8	0.8
Lake - Water (Using Reclaimed Supply Only)	100%	0%	No	---	5.6	5.6	6.4	0.8
Lake - Park Area (Using Reclaimed Supply Only)	100%	75%	No	---	5.6	5.6	6.4	0.8
Hardscape/Road Section of Arterial Highways	0%	0%	No	---	---	---	---	---
Landscape Area of Arterial Highways	100%	0%	No	2.5	5.6	2.5	3.47	0.97
Natural Open Space	0%	0%	No	---	---	---	---	---
River Corridor	0%	0%	No	---	---	---	---	---
Non-Irrigated Slopes	0%	0%	No	---	---	---	---	---
Irrigated Slopes, Wet Zones	100%	0%	No	2.5	5.6	2.5	3.47	0.97
O.S. Drainage Facilities	0%	0%	No	---	---	---	---	---
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	90%	0%	No	2.5	5.6	2.5	3.85	1.35

[a] MAWA values are based on a recent average annual ET rate of 66.7 inches/year, as measured at SCV Water's Rio Vista Water Treatment Facility. For comparison, the reference ET value (ETo) specified in MWELO for Santa Clarita is 61.5 inches/year.

MWELO = Model Water Efficient Landscape Ordinance (State of California)

[b] For the "Estate" and "Low" single-family residences, this value equals the MWELO-specified limit for potable water use.
For "Medium Low" single-family residences, multi-family residences, nonresidential developments, and recreation/arterials/open space lands, this value is the net use when applying recycled water at (1) reference ET (ETo) rates on turf and (2) MWELO-specified potable-water limits on other landscapes.

ATTACHMENT 4

Water Demand Calculations for the Specific Plan
August 2020

Table 4-1
Land Use
Newhall Ranch (5 Villages - Landmark, Mission, Homestead South, Homestead North, Potrero)

Land Use	Has Water Demands?	Area (acres)			Dwelling Units			
		Detached	Attached	Total	Detached	Attached	Total	
Residential Development								
Estate (Single-Family Detached)	Yes	61.2	0.0	61.2	65	0	65	
Low (Single-Family Detached)	Yes	202.1	0.0	202.1	524	0	524	
Low Medium (Single-Family Detached)	Yes	300.1	0.0	300.1	1,682	0	1,682	
Low Medium (Multi-Family Detached)	Yes	75.8	0.0	75.8	605	0	605	
Low Medium (Multi-Family Attached)	Yes	0.0	131.0	131.0	0	2,954	2,954	
Medium (Multi-Family Detached)	Yes	239.7	0.0	239.7	1,865	0	1,865	
Medium (Multi-Family Attached)	Yes	0.0	121.3	121.3	0	4,786	4,786	
High and Mixed Use (Multi-Family)	Yes	0.0	251.1	251.1	0	5,011	5,011	
Apartments (Multi-Family)	Yes	0.0	182.8	182.8	0	3,393	3,393	
Subtotals		**878.9**	**686.2**	**1,565.1**	**4,741**	**16,144**	**20,885**	
Nonresidential Development								
Mixed-Use Commercial								
Retail	Yes			39.3	Mixed use retail (including library)			
Office	Yes			80.8	Mixed use office			
Commercial	Yes			13.8	Commercial retail			
Business Park	Yes			64.9	Industrial + office that is in the commercial category			
Visitor Serving	Yes			36.6	Visitor center			
Water Reclamation Plant	Yes			11.1	Newhall WRP			
Electrical Substation	No			1.0	Has no water use			
Fire Station	Yes			4.3	Fire station(s)			
Hotel/Spa	Yes			0.0	Hotel/spa			
Sr. Assisted Living	Yes			0.0	Sr. Assisted Living			
Golf Club House	Yes			0.0	Golf club house			
Schools	Yes							
Elementary (4)	Yes			36.8				
Middle (1)	Yes			18.0				
High (1)	Yes			53.3				
Subtotal				**359.9**				
Recreation, Arterials, Open Space								
Recreation								
Recreation Centers	Yes			42.6	Rec center (community park)			
Neighborhood Parks	Yes			93.6	Park (community park)			
Lake - Water	Yes			0.0	Water feature			
Lake - Park Area	Yes			0.0	Assume this is in "Lake-Water" category			
Golf Course	Yes			0.0	Irrigated - excludes club houses			
Arterial Highways								
Hardscape/Road Section	No			500.7	Not irrigated			
Landscape Area	Yes			161.3	Landscape in parkways and medians			
Open Areas								
Natural Open Space	No			2,777.5	Open space that is not part of "High Country" category			
River Corridor	No			0.0	Included in "Natural Open Space & High Country"			
Non-Irrigated Slopes	No			495.9				
Irrigated Slopes, Wet Zones	Yes			726.9				
O.S. Drainage Facilities	No			227.3	Debris basins, water quality basins, drainage channels			
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	Yes			19.8				
Subtotal				**5,045.6**				
Totals				**6,970.6**	**4,741**	**16,144**	**20,885**	

Updated August 2020 by GSI Water Solutions, Inc.

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 4-2
Population and Density
Newhall Ranch (5 Villages - Landmark, Mission, Homestead South, Homestead North, Potrero)

RESIDENTIAL LAND USE	Acreage	Dwelling Units		Occupancy persons/DU	Population Estimate
		Detached	Attached		
Estate (Single-Family Detached)	61.2	65	0	3.292	214
Low (Single-Family Detached)	202.1	524	0	3.292	1,725
Low Medium (Single-Family Detached)	300.1	1,682	0	3.292	5,537
Low Medium (Multi-Family Detached)	75.8	605	0	2.367	1,432
Low Medium (Multi-Family Attached)	131.0	0	2,954	2.367	6,992
Medium (Multi-Family Detached)	239.7	1,865	0	2.367	4,414
Medium (Multi-Family Attached)	121.3	0	4,786	2.367	11,328
High and Mixed Use (Multi-Family)	251.1	0	5,011	2.367	11,861
Apartments (Multi-Family)	182.8	0	3,393	2.103	7,135
TOTAL	**1,565.1**	**4,741**	**16,144**		**50,638**

Average Occupancy

Population	50,638	**2.42 persons/DU**
Total Dwelling Units	20,885	

Updated August 2020 by GSI Water Solutions, Inc.
DU = dwelling unit

Table 4-3
Water Demand Calculations for Residential Development
Newhall Ranch (5 Villages - Landmark, Mission, Homestead South, Homestead North, Potrero)

Land Use	Acreage			Dwelling Units		Estimated Water Demand											
						Potable Use						Nonpotable Use				Total Use	
	Total	Detached	Attached	Detached	Attached	Interior Use gpcpd (a)	Exterior Use gpcpd (b)	Occupancy p/DU (c)	Interior (ac-ft/yr)	Exterior (ac-ft/yr)	**Subtotal (ac-ft/yr)**	Irrigated Area (d)	Acreage Multi-Family Units (Nonpotable Water)	Annual Use Rate (ac-ft/ac)	**Subtotal (ac-ft/yr)**	(ac-ft/yr)	Gallons Per Day Per Dwelling Unit
Estate (Single-Family Detached)	61.2	61.2	0.0	65	0	54	390	3.292	**13**	**94**	**107**	45%	0.0	0.0	**0**	**107**	**1,469**
Low (Single-Family Detached)	202.1	202.1	0.0	524	0	54	170	3.292	**106**	**330**	**436**	35%	0.0	0.0	**0**	**436**	**743**
Low Medium (Single-Family Detached)	300.1	300.1	0.0	1,682	0	54	70	3.292	**337**	**436**	**773**	25%	0.0	0.0	**0**	**773**	**410**
Low Medium (Multi-Family Detached)	75.8	75.8	0.0	605	0	50	34	2.367	**81**	**56**	**137**	15%	75.8	3.8	**45**	**182**	**269**
Low Medium (Multi-Family Attached)	131.0	0.0	131.0	0	2,954	50	34	2.367	**393**	**267**	**660**	15%	131.0	3.8	**77**	**737**	**223**
Medium (Multi-Family Detached)	239.7	239.7	0.0	1,865	0	50	34	2.367	**249**	**171**	**420**	15%	239.7	3.8	**139**	**559**	**268**
Medium (Multi-Family Attached)	121.3	0.0	121.3	0	4,786	50	34	2.367	**636**	**433**	**1,069**	15%	121.3	3.8	**71**	**1,140**	**213**
High and Mixed Use (Multi-Family)	237.5	0.0	237.5	0	4,660	50	34	2.367	**620**	**421**	**1,041**	15%	237.5	3.8	**137**	**1,178**	**226**
Apartments (Multi-Family)	182.8	0.0	182.8	0	3,393	50	32	2.103	**403**	**258**	**661**	15%	182.8	3.8	**107**	**768**	**202**
Total Water Demands									**2,838**	**2,466**	**5,304**				**576**	**5,880**	
Per-Capita Use (gallons/person/day)									**50**	**43**	**94**				**11**	**104**	

Notes:
(a) gpcpd = gallons per capita per day.
Interior water uses include drinking, bathing, laundry, sanitation, etc.
(b) gpcpd = gallons per capita per day.
Exterior water uses include landscape irrigation, washing cars, filling swimming pools, etc.
(c) p/DU = persons per dwelling unit.
(d) Irrigated areas include common areas, greenbelt irrigation within residential neighborhoods, etc.
The percentage value is the percentage of the gross lot area that is irrigated with nonpotable water.

In the "High and Mixed Use (Multi-Family)" category, these water demand calculations do not include the Mission Village senior assisted living facility (351 dwelling units [beds] on 13.6 acres); the demands for that facility are instead calculated under "Nonresidential Demands".

Updated August 2020 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year ac-ft/ac = acre-foot per acre

Single-family residences shown in green. Multi-family detached residences shown in blue. Multi-family attached residences shown in reddish-brown.

Table 4-4
Water Demand Calculations for Nonresidential Development
Newhall Ranch (5 Villages - Landmark, Mission, Homestead South, Homestead North, Potrero)

Land Use	Acreage (a)	Floor Space (sq. ft.)	Estimated Water Demand											
			Potable Use					Nonpotable Use			Total			
			Interior Rate (a)	Exterior Rate gpapd (b)	Interior Use (ac-ft/yr)	Exterior Use (ac-ft/yr)	Subtotal (ac-ft/yr)	Percent Irrigable Land	Annual Use (ac-ft/ac)	Subtotal (ac-ft/yr)	(ac-ft/yr)	Units	No. of Units	Gallons Per Day Per Unit
Mixed-Use Commercial														
Retail (including library)	39.3	1,342,572	0.01	0	15	0	**15**	25%	2.50	**27**	**42**	TSF	1,343	**28**
Office	80.8	2,484,608	0.05	0	127	0	**127**	25%	2.50	**52**	**179**	TSF	2,485	**64**
Commercial (Retail)	13.8	253,300	0.18	0	53	0	**53**	25%	2.50	**10**	**63**	TSF	253	**222**
Business Park (Office)	3.2	118,200	0.05	0	7	0	**7**	25%	2.50	**3**	**10**	TSF	118	**76**
Business Park (Industrial)	61.7	1,386,320	0.18	275	280	19	**299**	25%	2.50	**39**	**338**	TSF	1,386	**218**
Visitor Serving	36.6	2,500	0.01	275	1	12	**13**	25%	2.50	**23**	**36**	TSF	3	**12,855**
Water Reclamation Plant	11.1	0	0.18	0	0	0	**0**	25%	2.50	**7**	**7**	TSF	0	**0**
Electrical Substation	1.0		0.00	0	0	0	**0**	0%	0.00	**0**	**0**	TSF	0	**0**
Fire Stations	4.3	34,800	0.18	275	8	3	**11**	25%	2.50	**3**	**14**	TSF	35	**359**
Institutional	0.0	0	0.18	0	0	0	**0**	25%	2.50	**0**	**0**	TSF	0	**0**
Hotel/Spa	0.0	0	0.18	0	0	0	**0**	25%	3.30	**0**	**0**	ROOM	100	**0**
Hospital	0.0		450	0	0	0	**0**	25%	3.30	**0**	**0**	TSF	0	**0**
Sr. Assisted Living	13.6		90	108	36	2	**38**	25%	3.30	**12**	**50**	ROOM	0	**0**
Golf Club House	0.0	0	0.01	0	0	0	**0**	0%	2.50	**0**	**0**	TSF	0	**0**
Schools														
Elementary (4)	36.8		20	0	58	0	**58**	25%	4.90	**46**	**104**	STUDENTS	**2,540**	**36.6**
Middle (1)	18.0		20	0	26	0	**26**	25%	4.90	**23**	**49**	STUDENTS	**1,075**	**40.7**
High (1)	53.3		20	13	50	13	**63**	25%	4.90	**66**	**129**	STUDENTS	**2,150**	**53.6**
Total Water Demands					**661**	**49**	**710**			**311**	**1,021**			

Notes:
(a) Interior water uses include drinking and sanitation.
Units are in gallons per day per square foot for the commercial, business park, visitor serving, water reclamation plant, institutional, hotel/spa, and fire station land uses.
Units are in gallons per day per acre for the water treatment plant and electrical substation land uses.
Units are in gallons per day per student for schools.
Units are in gallons per day per bed for the hospital and Sr. Assisted Living land use cate In Table 4-1, the Sr. Assisted Living acreage is shown in the "High and Mixed Use (Multi-Family)" land use category.
(b) Potable water is used for outdoor uses that have potential human contact (e.g., swimming pools, wash water, some landscape irrigation). Units are in gallons per acre per day.
For Hospitals and for Sr. Assisted Living, the units are gallons per day per bed. For schools, this is the AF/year used by one swimming pool per high school (flushed 6 times/year); all other outdoor needs are met with nonpotable water.

Updated August 2020 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year ac-ft/ac = acre-foot per acre gpapd = gallons per acre per day TSF = thousands of square feet

Table 4-5
Water Demand Calculations for Recreation, Arterial, and Open Space Land Uses
Newhall Ranch (5 Villages - Landmark, Mission, Homestead South, Homestead North, Potrero)

Land Use	Acreage	Estimated Water Demand					
		Potable Use		Nonpotable Use			
		Potable Use gpapd	Subtotal (ac-ft/yr)	Percent Irrigable Land	Annual Use (ac-ft/ac)	Subtotal (ac-ft/yr)	Total (ac-ft/yr)
Recreation							
Recreation Centers	42.6	90	**6**	75%	4.30	**140**	**146**
Neighborhood Parks	93.6	90	**12**	75%	4.30	**304**	**316**
Lake - Water	0.0	0	**0**	100%	5.60	**0**	**0**
Lake - Park Area	0.0	0	**0**	100%	5.60	**0**	**0**
Golf Course	0.0	0	**0**	100%	5.00	**0**	**0**
Arterial Highways							
Hardscape/Road Section	500.7	0	**0**	0%	0	**0**	**0**
Landscape Area	161.3	0	**0**	100%	2.50	**405**	**405**
Open Areas							
Natural Open Space	2,777.5	0	**0**	0%	0	**0**	**0**
River Corridor	0.0	0	**0**	0%	0	**0**	**0**
Non-Irrigated Slopes	495.9	0	**0**	0%	0	**0**	**0**
Irrigated Slopes, Wet Zones	726.9	0	**0**	100%	2.50	**1,819**	**1,819**
O.S. Drainage Facilities	227.3	0	**0**	0%	0	**0**	**0**
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	19.8	0	**0**	90%	2.50	**46**	**46**
Total Water Demands			**18**			**2,714**	**2,732**

Updated August 2020 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year ac-ft/ac = acre-foot per acre gpapd = gallons per acre per day

Table 4-6
Summary of Water Demands
Newhall Ranch (5 Villages - Landmark, Mission, Homestead South, Homestead North, Potrero)

Land Use	Water Demand (ac-ft/yr)		
	Potable	Nonpotable	Total
Residential Development			
Estate (Single-Family Detached)	107	0	107
Low (Single-Family Detached)	436	0	436
Low Medium (Single-Family Detached)	773	0	773
Low Medium (Multi-Family Detached)	137	45	182
Low Medium (Multi-Family Attached)	660	77	737
Medium (Multi-Family Detached)	420	139	559
Medium (Multi-Family Attached)	1,069	71	1,140
High and Mixed Use (Multi-Family)	1,041	137	1,178
Apartments (Multi-Family)	661	107	768
Subtotals	**5,304**	**576**	**5,880**
Nonresidential Development			
Mixed-Use Commercial			
Retail (including library)	15	27	42
Office	127	52	179
Commercial (Retail)	53	10	63
Business Park (Office)	7	3	10
Business Park (Industrial)	299	39	338
Visitor Serving	13	23	36
Water Reclamation Plant	0	7	7
Electrical Substation	0	0	0
Fire Stations	11	3	14
Institutional	0	0	0
Hotel/Spa	0	0	0
Hospital	0	0	0
Sr. Assisted Living	38	12	50
Golf Club House	0	0	0
Schools	147	135	282
Subtotals	**710**	**311**	**1,021**
Recreation, Arterials, Open Space			
Recreation			
Recreation Centers	6	140	146
Neighborhood Parks	12	304	316
Lake - Water	0	0	0
Lake - Park Area	0	0	0
Golf Course	0	0	0
Arterial Highways			0
Hardscape/Road Section	0	0	0
Landscape Area	0	405	405
Open Areas			0
Natural Open Space	0	0	0
River Corridor	0	0	0
Non-Irrigated Slopes	0	0	0
Irrigated Slopes, Wet Zones	0	1,819	1,819
O.S. Drainage Facilities	0	0	0
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	0	46	46
Subtotals	**18**	**2,714**	**2,732**
Totals	**6,032**	**3,601**	**9,633**

Updated August 2020 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of tentative or final land use maps.

ATTACHMENT 5

Water Demand Calculations for Collective West Side Communities

August 2020

Table 5-1
Land Use
West Side Communities (Landmark, Mission, Homestead South, Homestead North, Potrero, Entrada South, Entrada North, Legacy, Valencia Commerce Center)

Land Use	Has Water Demands?	Area (acres)			Dwelling Units			
		Detached	Attached	Total	Detached	Attached	Total	
Residential Development								
Estate (Single-Family Detached)	Yes	61.2	0.0	61.2	65	0	65	
Low (Single-Family Detached)	Yes	202.1	0.0	202.1	524	0	524	
Low Medium (Single-Family Detached)	Yes	480.7	0.0	480.7	2,693	0	2,693	
Low Medium (Multi-Family Detached)	Yes	140.6	0.0	140.6	1,133	0	1,133	
Low Medium (Multi-Family Attached)	Yes	0.0	166.9	166.9	0	3,312	3,312	
Medium (Multi-Family Detached)	Yes	239.7	0.0	239.7	1,865	0	1,865	
Medium (Multi-Family Attached)	Yes	0.0	270.3	270.3	0	7,516	7,516	
High and Mixed Use (Multi-Family)	Yes	0.0	257.5	257.5	0	5,664	5,664	
Apartments (Multi-Family)	Yes	0.0	207.5	207.5	0	4,425	4,425	
Subtotals		**1,124.3**	**902.2**	**2,026.5**	**6,280**	**20,917**	**27,197**	
Nonresidential Development								
Mixed-Use Commercial								
Retail	Yes			41.6	Mixed use retail (including library)			
Office	Yes			197.9	Mixed use office			
Commercial	Yes			133.8	Commercial retail			
Business Park	Yes			249.2	Industrial + office that is in the commercial category			
Visitor Serving	Yes			36.6	Visitor center			
Water Reclamation Plant	Yes			11.1	Newhall WRP			
Electrical Substation	No			2.7	Has no water use			
Fire Station	Yes			13.2	Fire station(s)			
Hotel/Spa	Yes			9.7	Hotel/spa			
Sr. Assisted Living	Yes			11.2	Sr. Assisted Living			
Golf Club House	Yes			0.0	Golf club house			
Schools	Yes							
Elementary (5)	Yes			46.8				
Middle (1)	Yes			18.0				
High (1)	Yes			53.3				
Subtotal				**825.1**				
Recreation, Arterials, Open Space								
Recreation								
Recreation Centers	Yes			51.1	Rec center (community park)			
Neighborhood Parks	Yes			121.7	Park (community park)			
Lake - Water	Yes			0.3	Water feature			
Lake - Park Area	Yes			0.0	Assume this is in "Lake-Water" category			
Golf Course	Yes			0.0	Irrigated - excludes club houses			
Arterial Highways								
Hardscape/Road Section	No			688.1	Not irrigated			
Landscape Area	Yes			226.1	Landscape in parkways and medians			
Major Open Areas								
Natural Open Space	No			3,953.4	Open space that is not part of "High Country" category			
River Corridor	No			225.3	Included in "Natural Open Space & High Country"			
Non-Irrigated Slopes	No			628.3				
Irrigated Slopes, Wet Zones	Yes			1,018.5				
O.S. Drainage Facilities	No			318.7	Debris basins, water quality basins, drainage channels			
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	Yes			56.1				
Subtotal				**7,287.6**				
Totals (Without High Country)				**10,139.2**	**6,280**	**20,917**	**27,197**	
Totals (With High Country)				**15,167.9**	**6,280**	**20,917**	**27,197**	

Updated August 2020 by GSI Water Solutions, Inc.

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 5-2
Population and Density
West Side Communities
(Landmark, Mission, Homestead South, Homestead North, Potrero, Entrada South, Entrada North, Legacy, Valencia Commerce Center)

RESIDENTIAL LAND USE	Acreage	Dwelling Units		Occupancy persons/DU	Population Estimate
		Detached	Attached		
Estate (Single-Family Detached)	61.2	65	0	3.292	214
Low (Single-Family Detached)	202.1	524	0	3.292	1,725
Low Medium (Single-Family Detached)	480.7	2,693	0	3.292	8,865
Low Medium (Multi-Family Detached)	140.6	1,133	0	2.367	2,682
Low Medium (Multi-Family Attached)	166.9	0	3,312	2.367	7,840
Medium (Multi-Family Detached)	239.7	1,865	0	2.367	4,414
Medium (Multi-Family Attached)	270.3	0	7,516	2.367	17,790
High and Mixed Use (Multi-Family)	257.5	0	5,664	2.367	13,407
Apartments (Multi-Family)	207.5	0	4,425	2.103	9,306
TOTAL	**2,026.5**	**6,280**	**20,917**		**66,243**

Average Occupancy

Population	66,243	**2.44 persons/DU**
Total Dwelling Units	27,197	

Updated August 2020 by GSI Water Solutions, Inc.
DU = dwelling unit

All data and acreages in this analysis are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 5-3
Water Demand Calculations for Residential Development
West Side Communities (Landmark, Mission, Homestead South, Homestead North, Potrero, Entrada South, Entrada North, Legacy, Valencia Commerce Center)

Land Use	Acreage			Dwelling Units		Estimated Water Demand											
						Potable Use						Nonpotable Use				Total Use	
	Total	Detached	Attached	Detached	Attached	Interior Use gpcpd (a)	Exterior Use gpcpd (b)	Occupancy p/DU (c)	Interior (ac-ft/yr)	Exterior (ac-ft/yr)	**Subtotal (ac-ft/yr)**	Irrigated Area (d)	Acreage Multi-Family Units (Nonpotable Water)	Annual Use Rate (ac-ft/ac)	**Subtotal (ac-ft/yr)**	(ac-ft/yr)	Gallons Per Day Per Dwelling Unit
Estate (Single-Family Detached)	61.2	61.2	0.0	65	0	54	390	3.292	**13**	**94**	**107**	45%	0.0	0.0	**0**	**107**	**1,469**
Low (Single-Family Detached)	202.1	202.1	0.0	524	0	54	170	3.292	**106**	**330**	**436**	35%	0.0	0.0	**0**	**436**	**743**
Low Medium (Single-Family Detached)	480.7	480.7	0.0	2,693	0	54	70	3.292	**539**	**697**	**1,236**	25%	0.0	0.0	**0**	**1,236**	**410**
Low Medium (Multi-Family Detached)	140.6	140.6	0.0	1,133	0	50	34	2.367	**152**	**104**	**256**	15%	140.6	3.8	**83**	**339**	**267**
Low Medium (Multi-Family Attached)	166.9	0.0	166.9	0	3,312	50	34	2.367	**441**	**300**	**741**	15%	166.9	3.8	**98**	**839**	**226**
Medium (Multi-Family Detached)	239.7	239.7	0.0	1,865	0	50	34	2.367	**249**	**171**	**420**	15%	239.7	3.8	**139**	**559**	**268**
Medium (Multi-Family Attached)	270.3	0.0	270.3	0	7,516	50	34	2.367	**999**	**680**	**1,679**	15%	270.3	3.8	**157**	**1,836**	**218**
High and Mixed Use (Multi-Family)	243.9	0.0	243.9	0	5,313	50	34	2.367	**708**	**481**	**1,189**	15%	243.9	3.8	**142**	**1,331**	**224**
Apartments (Multi-Family)	207.5	0.0	207.5	0	4,425	50	32	2.103	**525**	**336**	**861**	15%	207.5	3.8	**122**	**983**	**198**
Total Water Demands									**3,732**	**3,193**	**6,925**				**741**	**7,666**	
Per-Capita Use (gallons/person/day)									**50**	**43**	**93**				**10**	**103**	

Notes:
(a) gpcpd = gallons per capita per day.
Interior water uses include drinking, bathing, laundry, sanitation, etc.
(b) gpcpd = gallons per capita per day.
Exterior water uses include landscape irrigation, washing cars, filling swimming pools, etc.
(c) p/DU = persons per dwelling unit.
(d) Irrigated areas include common areas, greenbelt irrigation within residential neighborhoods, etc.
The percentage value is the percentage of the gross lot area that is irrigated with nonpotable water.

In the "High and Mixed Use (Multi-Family)" category, these water demand calculations do not include the Mission Village senior assisted living facility (351 dwelling units [beds] on 13.6 acres); the demands for that facility are instead calculated under "Nonresidential Demands".

Updated August 2020 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year ac-ft/ac = acre-foot per acre

Single-family residences shown in green. Multi-family detached residences shown in blue. Multi-family attached residences shown in reddish-brown.

The values shown in this analysis are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 5-4
Water Demand Calculations for Nonresidential Development
West Side Communities (Landmark, Mission, Homestead South, Homestead North, Potrero, Entrada South, Entrada North, Legacy, Valencia Commerce Center)

Land Use	Acreage (acres)	Floor Space (sq. ft.)	Estimated Water Demand											
			Potable Use					Nonpotable Use			Total			
			Interior Rate (a)	Exterior Rate gpapd (b)	Interior Use (ac-ft/yr)	Exterior Use (ac-ft/yr)	Subtotal (ac-ft/yr)	Percent Irrigable Land	Annual Use (ac-ft/ac)	Subtotal (ac-ft/yr)	(ac-ft/yr)	Units	No. of Units	Gallons Per Day Per Unit
Mixed-Use Commercial														
Retail (including library)	41.6	1,433,067	0.01	0	17	0	**17**	25%	2.50	**29**	**46**	TSF	1,433	**29**
Office	197.9	4,143,113	0.05	0	212	0	**212**	25%	2.50	**127**	**339**	TSF	4,143	**73**
Commercial (Retail)	133.8	2,116,500	0.18	0	430	0	**430**	25%	2.50	**86**	**516**	TSF	2,117	**218**
Business Park (Office)	48.3	979,200	0.05	0	52	0	**52**	25%	2.50	**32**	**84**	TSF	979	**77**
Business Park (Industrial)	200.9	3,959,520	0.18	275	799	62	**861**	25%	2.50	**126**	**987**	TSF	3,960	**223**
Visitor Serving	36.6	2,500	0.01	275	1	12	**13**	25%	2.50	**23**	**36**	TSF	3	**12,855**
Water Reclamation Plant	11.1	0	0.18	0	0	0	**0**	25%	2.50	**7**	**7**	TSF	0	**0**
Electrical Substation	2.7		0.00	0	0	0	**0**	0%	0.00	**0**	**0**	TSF	0	**0**
Fire Stations	13.2	93,300	0.18	275	21	6	**27**	25%	2.50	**9**	**36**	TSF	93	**344**
Institutional	0.0	0	0.18	0	0	0	**0**	25%	2.50	**0**	**0**	TSF	0	**0**
Hotel/Spa	9.7	410,000	0.18	0	84	0	**84**	25%	3.30	**9**	**93**	ROOM	100	**830**
Hospital	0.0		450	0	0	0	**0**	25%	3.30	**0**	**0**	TSF	0	**0**
Sr. Assisted Living	24.8	337,000	90	108	72	4	**76**	25%	3.30	**22**	**98**	ROOM	0	**0**
Golf Club House	0.0	0	0.01	0	0	0	**0**	0%	2.50	**0**	**0**	TSF	0	**0**
Schools														
Elementary (5)	46.8		20	0	75	0	**75**	25%	4.90	**58**	**133**	STUDENTS	3,290	**36.1**
Middle (1)	18.0		20	0	26	0	**26**	25%	4.90	**23**	**49**	STUDENTS	1,075	**40.7**
High (1)	53.3		20	13	50	13	**63**	25%	4.90	**67**	**130**	STUDENTS	2,150	**54.0**
Total Water Demands					**1,839**	**97**	**1,936**			**618**	**2,554**			

Notes:
(a) Interior water uses include drinking and sanitation.
Units are in gallons per day per square foot for the commercial, business park, visitor serving, water reclamation plant, institutional, hotel/spa, and fire station land uses.
Units are in gallons per day per acre for the water treatment plant and electrical substation land uses.
Units are in gallons per day per student for schools.
Units are in gallons per day per bed for the hospital and Sr. Assisted Living land use cate In Table 5-1, the Sr. Assisted Living acreage is shown in the "High and Mixed Use (Multi-Family)" land use category.
(b) Potable water is used for outdoor uses that have potential human contact (e.g., swimming pools, wash water, some landscape irrigation). Units are in gallons per acre per day.
For Hospitals and for Sr. Assisted Living, the units are gallons per day per bed. For schools, this is the AF/year used by one swimming pool per high school (flushed 6 times/year); all other outdoor needs are met with nonpotable water.

Updated August 2020 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year ac-ft/ac = acre-foot per acre gpapd = gallons per acre per day TSF = thousands of square feet

Table 5-5
Water Demand Calculations for Recreation, Arterial, and Open Space Land Uses
West Side Communities (Landmark, Mission, Homestead South, Homestead North, Potrero, Entrada South, Entrada North, Legacy, Valencia Commerce Center)

Land Use	Acreage	Estimated Water Demand					
		Potable Use		Nonpotable Use			
		Potable Use gpapd	Subtotal (ac-ft/yr)	Percent Irrigable Land	Annual Use (ac-ft/ac)	Subtotal (ac-ft/yr)	Total (ac-ft/yr)
Recreation							
Recreation Centers	51.1	90	**8**	75%	4.30	**169**	**177**
Neighborhood Parks	121.7	90	**16**	75%	4.30	**396**	**412**
Lake - Water	0.3	0	**0**	100%	5.60	**2**	**2**
Lake - Park Area	0.0	0	**0**	100%	5.60	**0**	**0**
Golf Course	0.0	0	**0**	100%	5	**0**	**0**
Arterial Highways							
Hardscape/Road Section	688.1	0	**0**	0%	0	**0**	**0**
Landscape Area	226.1	0	**0**	100%	2.50	**568**	**568**
Open Areas							
Natural Open Space	3,953.4	0	**0**	0%	0	**0**	**0**
River Corridor	225.3	0	**0**	0%	0	**0**	**0**
Non-Irrigated Slopes	628.3	0	**0**	0%	0	**0**	**0**
Irrigated Slopes, Wet Zones	1,018.5	0	**0**	100%	2.50	**2,550**	**2,550**
O.S. Drainage Facilities	318.7	0	**0**	0%	0	**0**	**0**
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	56.1	0	**0**	90%	2.50	**130**	**130**
Total Water Demands			**24**			**3,815**	**3,839**

Updated August 2020 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year ac-ft/ac = acre-foot per acre gpapd = gallons per acre per day

The values shown in this analysis are approximate and are subject to change at the time of preparation of tentative or final land use maps.

Table 5-6
Summary of Water Demands
West Side Communities
(Landmark, Mission, Homestead South, Homestead North, Potrero, Entrada South, Entrada North, Legacy, Valencia Commerce Center)

Land Use	Water Demand (ac-ft/yr)		
	Potable	Nonpotable	Total
Residential Development			
Estate (Single-Family Detached)	107	0	107
Low (Single-Family Detached)	436	0	436
Low Medium (Single-Family Detached)	1,236	0	1,236
Low Medium (Multi-Family Detached)	256	83	339
Low Medium (Multi-Family Attached)	741	98	839
Medium (Multi-Family Detached)	420	139	559
Medium (Multi-Family Attached)	1,679	157	1,836
High and Mixed Use (Multi-Family)	1,189	142	1,331
Apartments (Multi-Family)	861	122	983
Subtotals	**6,925**	**741**	**7,666**
Nonresidential Development			
Mixed-Use Commercial			
Retail (including library)	17	29	46
Office	212	127	339
Commercial (Retail)	430	86	516
Business Park (Office)	52	32	84
Business Park (Industrial)	861	126	987
Visitor Serving	13	23	36
Water Reclamation Plant	0	7	7
Electrical Substation	0	0	0
Fire Stations	27	9	36
Institutional	0	0	0
Hotel/Spa	84	9	93
Hospital	0	0	0
Sr. Assisted Living	76	22	98
Golf Club House	0	0	0
Schools	164	148	312
Subtotals	**1,936**	**618**	**2,554**
Recreation, Arterials, Open Space			
Recreation			
Recreation Centers	8	169	177
Neighborhood Parks	16	396	412
Lake - Water	0	2	2
Lake - Park Area	0	0	0
Golf Course	0	0	0
Arterial Highways			0
Hardscape/Road Section	0	0	0
Landscape Area	0	568	568
Open Areas			0
Natural Open Space	0	0	0
River Corridor	0	0	0
Non-Irrigated Slopes	0	0	0
Irrigated Slopes, Wet Zones	0	2,550	2,550
O.S. Drainage Facilities	0	0	0
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	0	130	130
Subtotals	**24**	**3,815**	**3,839**
Totals	**8,885**	**5,174**	**14,059**

Updated August 2020 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year

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