



TECHNICAL MEMORANDUM

Updated Water Demand Projections for the Homestead South Project (Valencia, California)

To: Meridian Consultants

From: John Porcello, GSI Water Solutions, Inc.

Attachments: Tables 1 through 6
Attachments 1 and 2

Date: October 11, 2024

Introduction

This technical memorandum presents an updated water demand projection for the Homestead South Project, which is being developed by The Newhall Land and Farming Company (Newhall), in the Santa Clarita Valley, located in the northwestern portion of Los Angeles County, California. Homestead South is one of five villages (i.e., developments) comprising the Newhall Ranch Specific Plan.

The projected long-term average annual water demand for the fully built Homestead South Project is provided in Table 1. The remainder of this technical memorandum discusses the water demand calculation methodology; presents the current land use plans and a description of each land use type; summarizes the water demand factors associated with each type of land use; describes the estimated long-term annual average water demand; provides a comparison of the updated demand projection with projections presented in two prior Environmental Impact Reports (EIRs); and lists the references cited in this technical memorandum. Supporting information is also provided in the following attachments:

- **Attachment 1:** Detailed Land Use Tables for Homestead South
- **Attachment 2:** Water Demand Calculations for Homestead South

Water Demand Calculation Methodology

The updated water demand projection for Homestead South has been prepared using the same calculation methodology that was used in the two prior EIRs. Water demands were first prepared for the Newhall Ranch Specific Plan in the mid- and late-1990s (CH2M HILL, 1996 and 1999) and incorporated into the *Newhall Ranch Specific Plan Environmental Impact Report* (Specific Plan EIR) (Impact Sciences, Inc., 2003) which was approved by Los Angeles County on May 27, 2003. Updates prepared by GSI Water Solutions, Inc. (GSI) (2008) were later prepared to support the preparation of the *Newhall Ranch Resource Management and Development Plan and Spineflower Conversation Plan Final Joint Environmental Impact Statement and Environmental Impact Report* (USACE and CDFG, 2010) (State-certified EIR). The current water demand projection and the prior water demand projections each evaluate how water demands can be met using a combination of potable and nonpotable water supplies. Generally, nonpotable water demand can be met with potable water supplies when nonpotable supplies are not available or can be met with nonpotable water supplies (e.g., recycled water) when available. Past and current estimates of potable and nonpotable water

demands have been prepared using a water demand projection methodology that was first developed by the Irvine Ranch Water District and was adapted to local conditions in Santa Clarita during preparation of the Specific Plan EIR and State-certified EIR.

The water demand calculation methodology has been programmed into a series of linked Microsoft Excel spreadsheets that estimate potable and nonpotable water demands. Land use details (discussed below) are manually entered in the spreadsheets and are coupled with pre-programmed water demand factors to calculate and categorize the amounts of indoor (potable) water demands, outdoor potable water demands, and outdoor nonpotable water demands.

Land Use Plan

Table 2 summarizes the current land use plan for the Homestead South Project. 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 map (VTTM 084508)¹ regarding the number of dwelling units and their acreage on an area-wide basis. Table 2 also differentiates between the three primary types of residential units: (1) single-family residences, (2) detached multi-family residential units (detached condominiums), and (3) attached multi-family residential units (attached condominiums).
- The lower portion of Table 2 shows the acreages that will be dedicated to residential units, nonresidential developments, and other nonresidential land uses that provide public services (i.e., recreation, arterials, stormwater management facilities, slope stability, and open space).

Attachment 1 provides the details of the land uses for the Homestead South Project, as contained in VTTM 084508. Key aspects of the table and land uses shown in Attachment 1 are as follows:

- The 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 VTTM 084508 and associated planning data for Homestead South.
- The table presents the VTTM 084508 Planning Area designations and a description of the product type in each case where this information applies. Noteworthy aspects of these products include the following:
 - For residential developments, information is provided on the number of detached houses, detached condominiums, and attached residences, plus the acreages associated with each of these types of residential units.
 - For nonresidential developments, two specialty land uses in Homestead South are identified because of the unique nature of their water needs—specifically, fire stations and schools.
 - Public nonresidential areas in Homestead South are listed in Table 2 under the heading “Recreation, Arterials, and Open Space.” These land uses focus primarily on irrigation along public rights of way, including transportation corridors, irrigated slopes, and stormwater facilities. Parks and recreation centers are also included in the “Recreation, Arterials, and Open Space” land use category and have a mixture of potable water demands and nonpotable (landscape irrigation) demands.

Water Demand Factors

The water demand factors for indoor and outdoor uses of water in Homestead South are described in a separate memorandum prepared by GSI (2024). 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

¹ The vesting tentative tract map (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.

Model Water Efficient Landscape Ordinance (MWELo), and by accounting for (1) the effects of climate-change, consistent with guidance from the Santa Clarita Valley Water Agency and the California Department of Water Resources regarding the anticipated effects of climate change on future water supplies; and (2) the effects of overwatering on urban irrigation, consistent with guidance from the Santa Clarita Valley Water Agency. See GSI (2024) for details regarding the derivation of, and basis for, the demand factors. Demand factors for potable water uses are listed in Table 3 for residential development and in Table 4 for nonresidential development. Demand factors for outdoor irrigation water demands that are anticipated to be met with nonpotable water supplies when available are listed in Table 5.

Water Demand Summary

The current projection of the long-term average annual water demand for the fully built Homestead South Project is presented in Table 1. Supporting calculations for the current water demand projection are provided in Attachment 2. Under the current land use plan, and with implementation of current water conservation standards, the long-term average annual water demand for the fully built Homestead South Project is estimated to be 2,201 acre-feet per year (AFY) and consists of 1,142 AFY of potable demand and 1,059 AFY of nonpotable demand. As shown in Table 1, this demand is for an estimated population of 9,080 residents and results in an estimated per-person water use of 216 gallons per capita per day (gpcpd).

Comparison with Water Demand Projections in Prior EIRs

While the Specific Plan EIR and the State-certified EIR accounted for development inside the area where the Homestead South Project will be developed, neither EIR specifically identified Homestead South as a specific project nor included a VTTM for Homestead South. In 2003, the Specific Plan EIR presented water demand projections for the Specific Plan as a whole and did not identify village-specific demands. In 2008, the State-certified EIR presented water demand projections for a project named Homestead Village, which was later split into two separate projects (Homestead South and Homestead North). Stantec (2024) has identified estimated equivalent Homestead South Project parameters as analyzed in the two EIRs, which consist of the following:

- For the Specific Plan EIR:
 - 4,655 residential units, versus 3,617 residential units in the existing VTTM (a reduction of 1,038 residential units)
 - 253,000 square feet of commercial development, versus no commercial square footage in the existing VTTM
- For the State-certified EIR:
 - 3,889 residential units, versus 3,617 residential units in the existing VTTM (a reduction of 272 residential units)
 - 119,000 square feet of commercial development, versus no commercial square footage in the existing VTTM

GSI has developed estimates of the likely land uses and accordant water demands associated with Homestead South in the prior EIRs using the following approach:

- For each residential land use type, acreages are estimated using the residential unit counts listed above, the residential unit counts for Newhall Ranch as a whole, and the same dwelling-units-per-acre counts computed for each residential land use type in Newhall Ranch.
- For each nonresidential land use type, the acreages are scaled using the ratio of the Homestead South dwelling unit count to the dwelling unit count for Newhall Ranch.

Table 6 compares these EIR-based water demand projections with the updated water demand projection, including comparisons of population projections and per-capita water use. Potable demand, nonpotable demand, and total demand are all lower under the current demand projection than under the prior EIRs.

- The current demand projection reduces **potable** water demand compared to the prior EIRs as follows:
 - An estimated 645 AFY reduction compared with the Specific Plan EIR (a 36 percent reduction compared with the potable demand of 1,787 AFY in the Specific Plan EIR)
 - An estimated 387 AFY reduction compared with the State-certified EIR (a 25 percent reduction compared with the total demand of 1,529 AFY in the State-certified EIR)
- The current demand projection reduces **nonpotable** water demand compared to the prior EIRs as follows:
 - An estimated 856 AFY reduction compared with the Specific Plan EIR (a 45 percent reduction compared with the nonpotable demand of 1,915 AFY in the Specific Plan EIR)
 - An estimated 95 AFY reduction compared with the State-certified EIR (an 8 percent reduction compared with the total demand of 1,154 AFY in the State-certified EIR)
- The current demand projection reduces **total** water demand compared to the prior EIRs as follows:
 - An estimated 1,501 AFY reduction compared with the Specific Plan EIR (a 40 percent reduction compared with the total demand of 3,702 AFY in the Specific Plan EIR)
 - An estimated 482 AFY reduction compared with the State-certified EIR (an 18 percent reduction compared with the total demand of 2,683 AFY in the State-certified EIR)

References

- CH2M HILL. 1996. *Water Resources and Wastewater Management for the Newhall Ranch Project*. Prepared for The Newhall Ranch Land and Farming Company. June 1996.
- 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.
- 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, GSI Water Solutions, Inc. (GSI). September 24, 2008.
- GSI. 2024. *Water Demand Factor Review for Homestead South (Valencia, California)*. Technical Memorandum to Meridian Consultants. Prepared by John Porcello, GSI Water Solutions, Inc. (GSI). October 10, 2024.
- 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.
- Stantec. 2024. *Homestead South Traffic and Transportation Consistency with Previously Approved Environmental Reviews*. Memorandum to Tony Locacciato, Meridian, from Maria Morris and Daryl Zerfass. June 5, 2024.
- USACE and CDFG. 2010. *Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan Final Joint Environmental Impact Statement and Environmental Impact Report: SCH No. 2000011025*. Prepared by U.S. Army Corps of Engineers (USACE) and California Department of Fish and Game (CDFG). June 2010.

Tables

Table 1
Summary of Projected Water Demands for Homestead South

Demand Projection ⁽¹⁾	Potable Demand (AFY)	Nonpotable Demand (AFY)	Total Demand (AFY)	Total Population	Per Capita Demands (gpcpd)
Current Projection ⁽²⁾	1,142	1,059	2,201	9,080	216

Notes

(1) The demand estimates are in units of acre-feet per year (AFY), except per-person demands are in units of gallons per capita per day (gpcpd).

(2) The current projection of future water demands for Homestead South uses current CALGreen and MWELO water conservation standards. Additionally, the outdoor demands include a climate-change factor of 1.0377, consistent with guidance from the Santa Clarita Valley Water Agency and the California Department of Water Resources regarding the anticipated effects of climate change on future water supplies. The outdoor demands also include an over-irrigation factor of 26.5 percent for residential land uses, and an over-irrigation factor of 25.6 percent for non-residential land uses, consistent with the methodology employed by the Santa Clarita Valley Water Agency in the most recent Urban Water Management Plan. This projection of future water demands is approximate and subject to change at the time of preparation of final land use maps.

Abbreviations

AFY = acre-feet per year gpcpd = gallons per capita per day

CALGreen = State of California’s Green Building Standards Code MWELO = Model Water Efficient Landscape Ordinance

Table 2
Homestead South Land Use Summary from Vesting Tentative Tract Maps

Residential Land Use Plan (Dwelling Unit Counts and Acreages)

Development	Single-Family Detached Houses		Single-Family Detached Condominiums		Single-Family Attached Dwellings		Multi-Family Attached Dwellings		Total	
	Units	Acreage	Units	Acreage	Units	Acreage	Units	Acreage	Units	Acreage
Homestead South	561	113.36	668	68.63	1,050	79.29	1,338	66.57	3,617	327.85

Residential, Commercial Nonresidential, Other Noncommercial, and Public Land Uses (Acreages)

Development	Residential	Commercial Nonresidential Development	Other Nonresidential Development	Public Noncommercial (Recreation, Arterials, Open Space)	Total Acreage
Homestead South	327.85	0	80.88	1,343.18	1,751.91

Notes

See Attachment 1 for land use details.

All data and acreages are subject to change at the time of preparation of final land use maps.

Table 3
Potable Water Demand Factors for Residential Development in Homestead South

Residential Land Use Category	Indoor Use (gpcpd)	Outdoor Use (gpcpd)	Persons per Dwelling Unit	Total Potable Use (gpd/DU)
Low (Single-Family Detached Houses)	54	148	3.292	665
Low Medium (Single-Family Detached Houses)	54	80	3.292	441
Low Medium (Single-Family Detached Condos)	54	34	2.367	208
Low Medium (Single-Family Attached)	50	34	2.367	199
Low Medium (Multi-Family Attached)	50	34	2.367	199
Medium (Single-Family Detached Houses)	54	78	3.292	435
Medium (Single-Family Detached Condos)	54	34	2.367	208
Medium (Single-Family Attached)	50	34	2.367	199
Medium (Multi-Family Attached)	50	34	2.367	199
High (Single-Family Detached Condos)	50	34	2.367	199
High (Multi-Family Attached)	50	34	2.367	199

Notes

DU = dwelling units

gpcpd = gallons per capita per day

gpd = gallons per day

Table 4
Potable Water Demand Factors for Nonresidential Development in Homestead South

Nonresidential Land Use Category	Indoor Use		Outdoor Use
	Units	Factor	gpapd
Fire Stations	gpd/sq. ft.	0.18	275
Schools	gpd/student	20	13

Notes

For schools, the exterior value of 13 has units of AF/pool/year (not gpapd).

Abbreviations

gpapd = gallons per acre per day, based on average square footage per acre

gpd = gallons per day

sq. ft. = square foot

Table 5
Nonpotable Irrigation Water Demand Factors in Homestead South

Land Use Category	Percentage of Gross Acreage Irrigated with Recycled Water if Available	Nonpotable Irrigation Demand Factors
		(AF/acre/year)
Residential		
Low (Single-Family Detached Houses)	0%	---
Low Medium (Single-Family Detached Houses)	0%	---
Low Medium (Single-Family Detached Condos)	15%	5.09
Low Medium (Single-Family Attached)	15%	5.09
Low Medium (Multi-Family Attached)	15%	5.09
Medium (Single-Family Detached Houses)	0%	---
Medium (Single-Family Detached Condos)	15%	5.09
Medium (Single-Family Attached)	15%	5.09
Medium (Multi-Family Attached)	15%	5.09
High (Single-Family Detached Condos)	15%	5.09
High (Multi-Family Attached)	15%	5.09
Apartments (Multi-Family)	15%	5.09
Nonresidential		
Fire Stations	25%	3.43
Schools	25%	6.58
Recreation, Arterials, Open Space		
Recreation Centers	75%	5.74
Neighborhood Parks	75%	5.74
Arterial Highway Hardscape / Road Section	0%	---
Arterial Highway Landscaped Areas	100%	3.43
Natural Open Space	0%	---
Non-Irrigated Slopes	0%	---
Irrigated Slopes, Wet Zones	100%	3.43
O.S. Drainage Facilities	0%	---
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	90%	3.43
Notes		
An entry of — denotes that this land type is not irrigated.		
AF = acre-feet O.S. = open space		

Table 6
Changes in Water Demands Projections for Homestead South

Demand Projection ⁽¹⁾	Potable Demand (AFY)	Nonpotable Demand (AFY)	Total Demand (AFY)	Total Population	Per Capita Demands (gpcpd)
Projection from Newhall Ranch Specific Plan EIR ⁽²⁾	1,787	1,915	3,702	12,706	260
Projection from State-Certified EIR ⁽³⁾	1,529	1,154	2,683	10,595	226
Current Projection ⁽⁴⁾	1,142	1,059	2,201	9,080	216
Change from Newhall Ranch Specific Plan EIR	-645	-856	-1,501	-3,626	-44
Change from State-Certified EIR	-387	-95	-482	-1,515	-10

Notes

- (1) All demand estimates are in units of acre-feet per year (AFY), except per-capita demands are in units of gallons per person per day (gpcpd).
- (2) These demand estimates have been back-calculated using the percentage of Newhall Ranch's residential count and commercial square footage that was attributable to Homestead South, which was part of the Newhall Ranch Specific Plan EIR (Impact Sciences, 2003).
- (3) These demand estimates have been back-calculated using the percentage of Homestead Village's residential count and commercial square footage that was attributable to Homestead South. Land uses for Homestead Village are documented in the State-certified EIR.
- (4) The current projection of future water demands for Homestead South uses current CALGreen and MWELO water conservation standards. Additionally, the outdoor demands include a climate-change factor of 1.0377, consistent with guidance from the Santa Clarita Valley Water Agency and the California Department of Water Resources regarding the anticipated effects of climate change on future water supplies. The outdoor demands also include an over-irrigation factor of 26.5 percent for residential land uses, and an over-irrigation factor of 25.6 percent for non-residential land uses, consistent with the methodology employed by the Santa Clarita Valley Water Agency in the most recent Urban Water Management Plan. This projection of future water demands is approximate and subject to change at the time of preparation of final land use maps.

Abbreviations

AFY = acre-feet per year EIR = Environmental Impact Report gpcpd = gallons per capita per day
 CALGreen = State of California's Green Building Standards Code MWELO = Model Water Efficient Landscape Ordinance

Attachment 1

**Detailed Land Use Tables for Homestead South
October 2024**

Land Use Details for Homestead South



Land Use Category	VTTM Planning Area	No. Of Units	Acreage	Product Type	Notes	Number of Dwellings						Acreage					
						SFD Houses	SFD Condos	Total Detached	SF Attached	MF Attached	Total DU's	SFD Houses	SFD Condos	Total Detached	SF Attached	MF Attached	Total Attached
Residential																	
Estate	---	0	0	SFD 2.5 ave lots (20k min)	Net acres	0	0	0	0	0	0	0	0	0	0	0	0
Low	LCN-4,5	250	67.10	SFD 1 ave ac lots	Net acres	250	0	250	0	0	250	67.10	0	67.10	0	0	67.10
Low Medium	SF Detached = LCN-6 and MW-14 SFDC = Detached Condos = LCS-8,9,12,13,14 SF Attached = MW-6,7,9	687	76.55	SFD Detached Condo Attached Condo	Net acres	151	268	419	268	0	687	23.02	29.88	52.90	23.65	0	23.65
Medium	SF Detached = MW-15 SFDC = Detached Condos = MW-8,10,11 SF Attached = LCS-2,4,10,11 and OF-1,2,3 MF Attached = LCN-1A,1B, LCS-1, OF-4, and MW-1,3	2,046	146.11	SFD Detached Condo Attached Condo	Net acres	160	291	451	782	813	2,046	23.24	29.82	53.06	55.64	37.41	93.05
High	SFDC = Detached Condos = LCS-6 MF Attached = LCS-5,7 and MW-4,5	634	38.09		Net acres	0	109	109	0	525	634	0	8.93	8.93	0	29.16	29.16
Apartments		0	0		Net acres	0	0	0	0		0	0	0	0	0	0	0
Subtotal		3,617	327.85			561	668	1,229	1,050	1,338	3,617	113.36	68.63	181.99	79.29	66.57	145.86

Non-Residential				
Fire Station	LCS-17		1.48	
Elementary School(s)	LCS-16		8.10	
Middle School	LCN-3		18.00	
High School	LCN-2		53.30	
Subtotal			80.88	

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

Note: All data in this table is approximate and is subject to change at the time of preparation of final land use maps.

Recreation, Arterials, and Open Space				
Irrigated Slope			123.22	no slope factor applied
Irrigated Flat			12.10	
Roads/bridge			90.43	
Access Road			23.73	
Non irrigated slope			137.61	no slope factor applied
Non irrigated flat			22.70	
Debris basin			2.86	
Water quality			10.68	
Natural OS			756.05	
Trail OS			2.34	
Parkways & medians			62.86	
Sidewalk			24.53	
Drainage			58.34	
Recreation centers	OF-5; LCS-3; MW-2		5.45	
Parks	LCS-15; MW-12		10.28	
Subtotal			1,343.18	

GRAND TOTAL	Units	Total Acreage	VTTM Acreage	Offsite Acreage
	3,617	1,751.91	1,683.31	68.60

Attachment 2

**Water Demand Calculations for Homestead South
October 2024**

**Table 2-1
Land Use Plan Statistics
Homestead Village South**

Land Use	Has Water Demands?	Area (acres)			Dwelling Units		
		Detached	Attached	Total	Detached	Attached	Total
Residential Development							
Estate (Single-Family Detached Houses)	Yes	0	0	0	0	0	0
Low (Single-Family Detached Houses)	Yes	67.10	0	67.10	250	0	250
Low Medium (Single-Family Detached Houses)	Yes	23.02	0	23.02	151	0	151
Low Medium (Single-Family Detached Condos)	Yes	29.88	0	29.88	268	0	268
Low Medium (Single-Family Attached)	Yes	0	23.65	23.65	0	268	268
Low Medium (Multi-Family Attached)	Yes	0	0	0	0	0	0
Medium (Single-Family Detached Houses)	Yes	23.24	0	23.24	160	0	160
Medium (Single-Family Detached Condos)	Yes	29.82	0	29.82	291	0	291
Medium (Single-Family Attached)	Yes	0	55.64	55.64	0	782	782
Medium (Multi-Family Attached)	Yes	0	37.41	37.41	0	813	813
High (Single-Family Detached Condos)	Yes	8.93	0	8.93	109	0	109
High (Multi-Family Attached)	Yes	0	29.16	29.2	0	525	525
Subtotals		181.99	145.86	327.85	1,229	2,388	3,617
Nonresidential Development							
Fire Station	Yes			1.48	Fire station(s)		
Schools	Yes						
Elementary (1)	Yes			8.10			
Middle (1)	Yes			18.00			
High (1)	Yes			53.30			
Subtotal				80.88			
Recreation, Arterials, Open Space							
<u>Recreation</u>							
Recreation Centers	Yes			5.45	Rec center (community park)		
Neighborhood Parks	Yes			10.28	Park (community park)		
<u>Arterial Highways</u>							
Hardscape/Road Section	No			138.69	Not irrigated		
Landscape Area	Yes			62.86	Landscape in parkways and medians		
<u>Major Open Areas</u>							
Natural Open Space	No			756.05	Open space that is not part of "High Country" category		
Non-Irrigated Slopes	No			160.31	Previously "Community Open Area"		
Irrigated Slopes, Wet Zones	Yes			135.32	Previously "Community Slopes"		
O.S. Drainage Facilities	No			71.88	Debris basins, water quality basins, drainage channels		
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	Yes			2.34	Previously "Ungraded Areas and Easements"		
Subtotal				1,343.18			
Totals				1,751.91	1,229	2,388	3,617

Updated October 2024 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 the final land use map.

**Table 2-2
Verification of Updated Population and Density
Homestead Village South**

RESIDENTIAL LAND USE	Acreage	Dwelling Units		Occupancy persons/DU	Population Estimate
		Detached	Attached		
Low (Single-Family Detached Houses)	67.10	250	0	3.292	823
Low Medium (Single-Family Detached Houses)	23.02	151	0	3.292	497
Low Medium (Single-Family Detached Condos)	29.88	268	0	2.367	634
Low Medium (Single-Family Attached)	23.65	0	268	2.367	634
Low Medium (Multi-Family Attached)	0.00	0	0	2.367	0
Medium (Single-Family Detached Houses)	23.24	160	0	3.292	527
Medium (Single-Family Detached Condos)	29.82	291	0	2.367	689
Medium (Single-Family Attached)	55.64	0	782	2.367	1,851
Medium (Multi-Family Attached)	37.41	0	813	2.367	1,924
High (Single-Family Detached Condos)	8.93	109	0	2.367	258
High (Multi-Family Attached)	29.16	0	525	2.367	1,243
TOTAL	327.85	1,229	2,388		9,080

Average Occupancy

$$\frac{\text{Population}}{\text{Total Dwelling Units}} = \frac{9,080}{3,617} = 2.51 \text{ persons/DU}$$

Updated October 2024 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 the final land use map.

**Table 2-3
Water Demand Calculations for Residential Development
Homestead Village South**

Land Use	Acreage		Dwelling Units		Estimated Water Demand												
	Total	Detached	Attached	Detached	Attached	Potable Use			Nonpotable Use			Total Use					
						Interior Use gpcpd (a)	Exterior Use gpcpd (b)	Occupancy p/DU (c)	Interior (ac-ft/yr)	Exterior (ac-ft/yr)	Subtotal (ac-ft/yr)	Percent Irrigated Area (d)	Irrigated Acreage (Nonpotable Water)	Annual Use Rate (ac-ft/ac)	Subtotal (ac-ft/yr)	Gallons Per Day Per Dwelling Unit	
Low (Single-Family Detached Houses)	67.1	67.1	0.0	250	0	54	148	3,292	50	137	187	35%	0	0	0	187	668
Low Medium (Single-Family Detached Houses)	23.0	23.0	0.0	151	0	54	80	3,292	31	45	76	25%	0	0	0	76	449
Low Medium (Single-Family Detached Condos)	29.9	29.9	0.0	268	0	54	34	2,367	39	25	64	15%	4.48	5.09	23	0	0
Low Medium (Single-Family Attached)	23.7	0.0	23.7	0	268	50	34	2,367	36	25	61	15%	3.55	5.09	19	80	266
Low Medium (Multi-Family Attached)	0.0	0.0	0.0	0	0	50	34	2,367	0	0	0	15%	0	5.09	0	0	—
Medium (Single-Family Detached Houses)	23.2	23.2	0.0	160	0	54	78	3,292	32	47	79	25%	0	0	0	0	0
Medium (Single-Family Detached Condos)	29.8	29.8	0.0	291	0	54	34	2,367	42	27	69	15%	4.47	5.09	23	0	0
Medium (Single-Family Attached)	55.6	0.0	55.6	0	782	50	34	2,367	104	71	175	15%	8.35	5.09	43	218	249
Medium (Multi-Family Attached)	37.4	0.0	37.4	0	813	50	34	2,367	108	74	182	15%	5.61	5.09	29	211	232
High (Single-Family Detached Condos)	8.9	8.9	0.0	109	0	50	34	2,367	15	10	25	15%	1.34	5.09	7	32	262
High (Multi-Family Attached)	29.2	0.0	29.2	0	525	50	34	2,367	70	48	118	15%	4.37	5.09	23	0	0
Total Water Demands									527	509	1,036				167	804	
Per-Capita Use (gallons/person/day)									52	50	102				17	79	

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.

Updated October 2024 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year ac-ft/ac = acre-foot per acre

Single-family detached houses shown in green. Single-family detached condos shown in blue. 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 the final land use map.

**Table 2-4
Water Demand Calculations for Nonresidential Development
Homestead Village South**

Land Use	Acreage (acres)	Estimated Water Demand								
		Potable Use			Nonpotable Use			Total Use (ac-ft/yr)		
		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)
Fire Stations	1.5	0.18	275	0	1	1	25%	3.43	2	3
Schools										
Elementary (1)	8.1	20	0	15	0	15	25%	6.58	14	29
Middle (1)	18.0	20	0	25	0	25	25%	6.58	30	55
High (1)	53.3	20	13	49	13	62	25%	6.58	88	150
Total Water Demands				89	14	103			134	237

Notes:
(a) Interior water uses include drinking and sanitation.
Units are in gallons per day per square foot for fire stations.
Units are in gallons per day per student for schools.
(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 schools, this is the AF/year used by 1 Olympic-size swimming pool per high school (flushed 6 times/year); all other outdoor needs are met with nonpotable water.

Updated October 2024 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 sq. ft. = square feet

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

**Table 2-5
Water Demand Calculations for Recreation, Arterial, and Open Space Land Uses
Homestead Village South**

Land Use	Acreage	Estimated Water Demand					Total (ac-ft/yr)
		Potable Use		Nonpotable Use			
		Potable Use gpapd	Subtotal (ac-ft/yr)	Percent Irrigable Land	Annual Use (ac-ft/ac)	Subtotal (ac-ft/yr)	
Recreation							
Recreation Centers	5.5	90	1	75%	5.74	24	25
Neighborhood Parks	10.3	90	2	75%	5.74	45	47
Arterial Highways							
Hardscape/Road Section	138.7	0	0	0%	0	0	0
Landscape Area	62.9	0	0	100%	3.43	216	216
Major Open Areas							
Natural Open Space	756.1	0	0	0%	0	0	0
Non-Irrigated Slopes	160.3	0	0	0%	0	0	0
Irrigated Slopes, Wet Zones	135.3	0	0	100%	3.43	465	465
O.S. Drainage Facilities	71.9	0	0	0%	0	0	0
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	2.3	0	0	90%	3.43	8	8
Total Water Demands			3			758	761

Updated October 2024 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

O.S. = open space

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

Table 2-6			
Summary of Estimated Water Demands			
Homestead Village South			
Land Use	Estimated Water Demand (ac-ft/yr)		
	Potable	Nonpotable	Total
Residential Development			
Low (Single-Family Detached Houses)	187	0	187
Low Medium (Single-Family Detached Houses)	76	0	76
Low Medium (Single-Family Detached Condos)	64	23	87
Low Medium (Single-Family Attached)	61	19	80
Low Medium (Multi-Family Attached)	0	0	0
Medium (Single-Family Detached Houses)	79	0	79
Medium (Single-Family Detached Condos)	69	23	92
Medium (Single-Family Attached)	175	43	218
Medium (Multi-Family Attached)	182	29	211
High (Single-Family Detached Condos)	25	7	32
High (Multi-Family Attached)	118	23	141
Subtotals	1,036	167	1,203
Nonresidential Development			
Fire Stations	1	2	3
Schools	102	132	234
Subtotals	103	134	237
Recreation, Arterials, Open Space			
Recreation			
Recreation Centers	1	24	25
Neighborhood Parks	2	45	47
Arterial Highways			
Hardscape/Road Section	0	0	0
Landscape Area	0	216	216
Major Open Areas			
Natural Open Space	0	0	0
Non-Irrigated Slopes	0	0	0
Irrigated Slopes, Wet Zones	0	465	465
O.S. Drainage Facilities	0	0	0
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	0	8	8
Subtotals	3	758	761
Totals	1,142	1,059	2,201

Updated October 2024 by GSI Water Solutions, Inc.
ac-ft/yr = acre-feet per year O.S. = open space

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