TECHNICAL MEMORANDUM

Updated Water Demand Projections for the Legacy Village Project (Valencia, California)

To: Meridian Consultants

From: John Porcello, GSI Water Solutions, Inc.

Attachments: Tables 1 through 5
Attachments 1 and 2

Date: October 11, 2024

Introduction

This technical memorandum presents an updated water demand projection for the Legacy Village Project, which is being developed by Stevenson Ranch Venture in the Santa Clarita Valley, located in the northwestern portion of Los Angeles County, California.

The projected long-term average annual water demand for the fully built Legacy Village 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 projected long-term annual average water demand; provides a comparison of the updated water demand projection with projections presented in a prior Environmental Impact Report (EIR); 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 Legacy Village
- Attachment 2: Water Demand Calculations for Legacy Village

Proposed Project

The applicant proposes to develop the Legacy Village Project on a 1,186-acre area (the "Project Site") with a vesting tentative tract map (VTTM) and related entitlements with 2,850 residential units (the "Legacy Village Project" or "Project"). The Project Site is located in unincorporated Los Angeles County ("County") west of the City of Santa Clarita. The Project Site has been designated in the Los Angeles County Santa Clarita Valley Area Plan, One Valley One Vision ("Area Plan") for residential and commercial development. Development of the Legacy Village Project Site was analyzed in the *Santa Clarita Valley Area Plan Update Final Environmental Impact Report* (SCH #2008071119) (Impact Sciences, 2012) which is herein referred to as the "Area Plan EIR".

The Project includes supporting facilities and infrastructure necessary for the residential development, including roads, trails, drainage improvements, flood protection, potable and recycled water systems (including water tanks), sanitary sewer and dry utility systems, and other ancillary infrastructure facilities. Of the 1,186-acre VTTM site, the Project includes approximately 833.9 acres of open space (which consists of

approximately 688.9 acres of natural open space, 130.1 acres of graded open space, 8.8 acres of private recreation, and 6.1 acres of public park). The proposed Project also includes approximately 47.7 acres of ancillary offsite improvements, of which 26.6 acres located outside of the VTTM 084509 is irrigated, which includes offsite grading and drainage improvements to tie the Project's proposed improvements into the existing terrain along the Project's boundary.

Exhibit 1 below provides a comparative summary of the land uses for the Legacy Village Project as evaluated in the Area Plan EIR and as defined in VTTM 084509 for the current Project.[1] The current Legacy Village Project reduces the number of residential units and the amount of non-residential uses as compared to the development evaluated in the Area Plan EIR.

Legacy Village Proposed Project (VTTM 084509)	Area Plan EIR	Difference (Proposed Project Compared to Area Plan EIR)
• 2,850 Residential Units • No Commercial Non-Residential • Ancillary Uses (parks, etc.)	• 3,425 Residential Units • 840,200 SF Commercial Non-Residential • Ancillary Uses (parks, etc.)	• Reduces residential units by 575 units • Reduces commercial non-residential uses by 840,200 SF

Exhibit 1 Legacy Village Land Use Comparison (Area Plan EIR versus Current Project)

Water Demand Calculation Methodology

The current water demand projection and the projection incorporated into the Area Plan EIR 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 projections 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 Area Plan 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 Legacy Village 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 084509)[2] 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 condominiums, and (3) attached condominiums).

[1] The Area Plan EIR cumulative project list included development assumptions for Legacy Village, which are listed in the table. (Area Plan EIR, Table 4.0-1, North Los Angeles County Consolidated Projects.)
[2] 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.

- The lower portion of Table 2 shows the acreages that will be dedicated to residential units and 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 Legacy Village Project, as contained in VTTM 084509. 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 084509 and associated planning data for Legacy Village.
- The table presents the VTTM 084509 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 condominiums, plus the acreages associated with each of these types of residential units.
  - Public nonresidential areas in Legacy Village 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 Legacy Village 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 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. Demand factors for outdoor irrigation water demands that are anticipated to be met with nonpotable water supplies when available are listed in Table 4.

Water Demand Summary

The current projection of the long-term average annual water demand for the fully built Legacy Village 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 Legacy Village Project is estimated to be 1,256 acre-feet per year (AFY) and consists of 650 AFY of potable demand and 606 AFY of nonpotable demand. As shown in Table 1, this demand is for an estimated population of 6,760 residents and results in an estimated per-capita water use of 166 gallons per capita per day (gpcpd).

Comparison with Water Demand Projections for Legacy Village Incorporated into the Area Plan EIR

Table 5 compares the prior and current water demand projections for Legacy Village with the projections that were incorporated into the Area Plan EIR, 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 projection for the Area Plan EIR. Specifically:

- The current demand projection reduces potable water demand by 714 AFY (a 52 percent reduction compared with the demand projection incorporated into the Area Plan EIR)
- The current demand projection reduces nonpotable water demand by 561 AFY (a 48 percent reduction compared with the demand projection incorporated into the Area Plan EIR)
- The current demand projection reduces total water demand by 1,275 AFY (a 50 percent reduction compared with the demand projection incorporated into the Area Plan EIR)

References

GSI. 2024. *Water Demand Factor Review for Legacy Village (Valencia, California).* Technical Memorandum to Meridian Consultants. Prepared by John Porcello, GSI Water Solutions, Inc. (GSI). October 10, 2024.

Impact Sciences, Inc. 2012. *Final Program EIR for the County of Los Angeles' Proposed Santa Clarita Valley Area Plan: Volume I, Sections 1.0 through 2.0: One Valley One Vision 2012.* SCH # 2008071119. Prepared for the Los Angeles County Department of Regional Planning. January 2012.

Tables

Table 1
Summary of Projected Water Demands for Legacy Village

Demand Projection[1]	Potable Demand (AFY)	Nonpotable Demand (AFY)	Total Demand (AFY)	Total Population	Per Capita Demands (gpcpd)
Current Projection[2]	650	606	1,256	6,760	166

Notes

(1) The 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) The current projection of future water demands for Legacy Village 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
CFDG = California Department of Fish and Game EIR = Environmental Impact Report USACE = U.S. Army Corps of Engineers

Table 2
Legacy Village 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		Attached Condominiums		Total	
	Units	Acreage	Units	Acreage	Units	Acreage	Units	Acreage
Legacy Village	14	5.2	609	78.4	2,227	152.2	2,850	235.8

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

Development	Residential	Commercial Nonesidential Development	Other Nonresidential Development	Public Noncommercial (Recreation, Arterials, Open Space)	Total Acreage
Legacy Village	235.8	0	0	976.8	1212.6*

* Includes 26.6 acres of offsite irrigated acreage

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 Legacy Village

Residential Land Use Category	Indoor Use (gpcpd)	Outdoor Use (gpcpd)	Persons per Dwelling Unit	Total Potable Use (gpd/DU)
Low Medium (Single-Family Detached Houses)	54	71	3.292	412
Low Medium (Single-Family Detached Condos)	54	34	2.367	208
Low Medium (Attached Condos)	50	34	2.367	199
Medium (Attached Condos)	50	34	2.367	199

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

Table 4
Nonpotable Irrigation Water Demand Factors in Legacy Village

Land Use Category	Percentage of Gross Acreage Irrigated with Recycled Water if Available	Nonpotable Irrigation Demand Factors (AF/acre/year)
Residential		
Low Medium (Single-Family Detached Houses)	0%	---
Low Medium (Single-Family Detached Condos)	15%	5.09
Low Medium (Attached Condos)	15%	5.09
Medium (Multi-Family Attached)	15%	5.09
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 5
Changes in Water Demands Projections for Legacy Village

Demand Projection[1]	Potable Demand (AFY)	Nonpotable Demand (AFY)	Total Demand (AFY)	Total Population	Per Capita Demands (gpcpd)
Area Plan EIR Projection[2]	1,364	1,167	2,531	8,790	257
Current Projection[3]	650	606	1,256	6,760	166
Change from Area Plan EIR Projection	**-714**	**-561**	**-1,275**	**-2,030**	**-91**
Percentage Reduction	**-52%**	**-48%**	**-50%**	**-23%**	**-35%**

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) The demand projection for the Area Plan EIR used water conservation standards that pre-date the current CALGreen and MWELO standards.

(3) The current demand projection uses current CALGreen and MWELO water conservation standards. Additionally, the current projections of 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 current projections of 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 (2020) Urban Water Management Plan. The current 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 Table for Legacy Village
October 2024

Land Use Details for Legacy Village

Land Use Category	VTTM Planning Area	No. Of Units	Acreage	Product Type	Notes	Number of Dwellings					Acreage				
Residential						SFD Houses	SFD Condos	Total Detached	Attached	Total DU's	SFD Houses	SFD Condos	Total Detached	Attached	Total Acreage
Estate	---	0	0	SFD 2.5 avg. lots (20k min)	---	0	0	0	0	0	0	0	0	0	0
Low	---	0	0	SFD 1 avg. acre lots	---	0	0	0	0	0	0	0	0	0	0
Low Medium (1.1 - 12 DU/acre)	1a,1b,1c,2a, 2b, 3b,3c,4a,4b,5a,5b,8,10a,10c,12, 13a,14a,14b,17b,19c,21,22a,22b,23	1,208	143.9	SFD Detached Condo Attached Condo	Net acres	14	609	623	585	1,208	5.2	78.4	83.6	60.3	143.9
Medium (12.1 - 30 DU/acre)	2c,6a,6b,7a,7b,7c,10b,13b,15a,16, 17a,18a,18b,19a,19b,19d,20a,20b	1,642	91.9	Attached Condo	Net acres	0	0	0	1,642	1,642	0	0	0	91.9	91.9
High (30+ DU/acre)	---	0	0	---	---	0	0	0	0	0	0	0	0	0	0
Apartments	---	0	0	---	---	0	0	0	0	0	0	0	0	0	0
Subtotal		**2,850**	**235.8**			**14**	**609**	**623**	**2,227**	**2,850**	**5.2**	**78.4**	**83.6**	**152.2**	**235.8**
Recreation, Arterials, and Open Space															
Irrigated Slope			83.1		no slope factor applied										
Irrigated Flat			2.5												
Wet Zone (Unspecified Length)			4.5												
Roads/bridge			38.7												
Access Road			10.4												
Non irrigated slope			67.6		no slope factor applied										
Non irrigated flat			11.7												
Debris basin			1.9												
Water quality			5.9												
Natural OS			703.3												
Trail OS			0.7												
Parkways & medians			15.8												
Sidewalk			15.5												
Drainage			1.6												
Recreation centers			7.9												
Parks			5.7												
Subtotal			**976.8**												

	Units	Total Acreage	VTTM Acreage	Offsite Acreage
GRAND TOTAL	**2,850**	**1,212.6**	**1,186.0**	**26.6**

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

Attachment 2

Water Demand Calculations for Legacy Village
October 2024

Table 2-1
Land Use Plan Statistics
Legacy Village

Land Use	Has Water Demands?	Area (acres)			Dwelling Units			
		Detached	Attached	Total	Detached	Attached	Total	
Residential Development								
Low Medium (Single-Family Detached Houses)	Yes	5.2	0	5.2	14	0	14	
Low Medium (Single-Family Detached Condos)	Yes	78.4	0	78.4	609	0	609	
Low Medium (Attached Condos)	Yes	0	60.3	60.3	0	585	585	
Medium (Attached Condos)	Yes	0	91.9	91.9	0	1,642	1,642	
Subtotals		**83.6**	**152.2**	**235.8**	**623**	**2,227**	**2,850**	
Recreation, Arterials, Open Space								
Recreation								
Recreation Centers	Yes			7.9	Rec center (community park)			
Neighborhood Parks	Yes			5.7	Park (community park)			
Arterial Highways								
Hardscape/Road Section	No			64.6	Not irrigated			
Landscape Area	Yes			15.8	Landscape in parkways and medians			
Major Open Areas								
Natural Open Space	No			703.3	Open space that is not part of "High Country" category			
Non-Irrigated Slopes	No			79.3	Previously "Community Open Area"			
Irrigated Slopes, Wet Zones	Yes			90.1	Previously "Community Slopes"			
O.S. Drainage Facilities	No			9.4	Debris basins, water quality basins, drainage channels			
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	Yes			0.7	Previously "Ungraded Areas and Easements"			
Subtotal				**976.8**				
Totals				**1,212.6**	**623**	**2,227**	**2,850**	

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
Legacy Village

RESIDENTIAL LAND USE	Acreage	Dwelling Units		Occupancy persons/DU	Population Estimate
		Detached	Attached		
Low Medium (Single-Family Detached Houses)	5.20	14	0	3.292	46
Low Medium (Single-Family Detached Condos)	78.40	609	0	2.367	1,442
Low Medium (Attached Condos)	60.30	0	585	2.367	1,385
Medium (Attached Condos)	91.90	0	1,642	2.367	3,887
TOTAL	**235.80**	**623**	**2,227**		**6,760**

Average Occupancy

$$\frac{\text{Population}}{\text{Total Dwelling Units}} = \frac{6{,}760}{2{,}850} = \textbf{2.37 persons/DU}$$

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
Legacy Village

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)**	Percent Irrigated Area (d)	Irrigated Acreage (Nonpotable Water)	Annual Use Rate (ac-ft/ac)	**Subtotal (ac-ft/yr)**	(ac-ft/yr)	Gallons Per Day Per Dwelling Unit
Low Medium (Single-Family Detached Houses)	5.2	5.2	0.0	14	0	54	71	3.292	**3**	**4**	**7**	25%	0	0	**0**	**7**	**446**
Low Medium (Single-Family Detached Condos)	78.4	78.4	0.0	609	0	54	34	2.367	**88**	**55**	**143**	15%	11.76	5.09	**60**	**203**	**298**
Low Medium (Attached Condos)	60.3	0.0	60.3	0	585	50	34	2.367	**78**	**53**	**131**	15%	9	5.09	**47**	**178**	**272**
Medium (Attached Condos)	91.9	0.0	91.9	0	1,642	50	34	2.367	**218**	**149**	**367**	15%	13.79	5.09	**71**	**438**	**238**
Total Water Demands									**387**	**261**	**648**				**178**	**826**	
Per-Capita Use (gallons/person/day)									**51**	**34**	**86**				**24**	**109**	

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 Recreation, Arterial, and Open Space Land Uses
Legacy Village

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	7.9	90	**1**	75%	5.74	**35**	**36**
Neighborhood Parks	5.7	90	**1**	75%	5.74	**25**	**26**
Arterial Highways							
Hardscape/Road Section	64.6	0	**0**	0%	0	**0**	**0**
Landscape Area	15.8	0	**0**	100%	3.43	**55**	**55**
Major Open Areas							
Natural Open Space	703.3	0	**0**	0%	0	**0**	**0**
Non-Irrigated Slopes	79.3	0	**0**	0%	0	**0**	**0**
Irrigated Slopes, Wet Zones	90.1	0	**0**	100%	3.43	**310**	**310**
O.S. Drainage Facilities	9.4	0	**0**	0%	0	**0**	**0**
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	0.7	0	**0**	90%	3.43	**3**	**3**
Total Water Demands			**2**			**428**	**430**

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

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
Summary of Estimated Water Demands
Legacy Village

Land Use	Estimated Water Demand (ac-ft/yr)		
	Potable	Nonpotable	Total
Residential Development			
Low Medium (Single-Family Detached Houses)	7	0	7
Low Medium (Single-Family Detached Condos)	143	60	203
Low Medium (Attached Condos)	131	47	178
Medium (Attached Condos)	367	71	438
Subtotals	**648**	**178**	**826**
Recreation, Arterials, Open Space			
Recreation			
Recreation Centers	1	35	36
Neighborhood Parks	1	25	26
Arterial Highways			
Hardscape/Road Section	0	0	0
Landscape Area	0	55	55
Major Open Areas			0
Irrigated Slopes, Wet Zones	0	310	310
O.S. Drainage Facilities	0	0	0
O.S. LDZ, O.S. Trail LDZ, SD&SS easements	0	3	3
Subtotals	**2**	**428**	**430**
Totals	**650**	**606**	**1,256**

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

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