Santa Clara Valley Water District

Water Use Projections, Water Demand Elasticity, and Customer Affordability Study – Final Results

Water Supply and Demand Management Committee

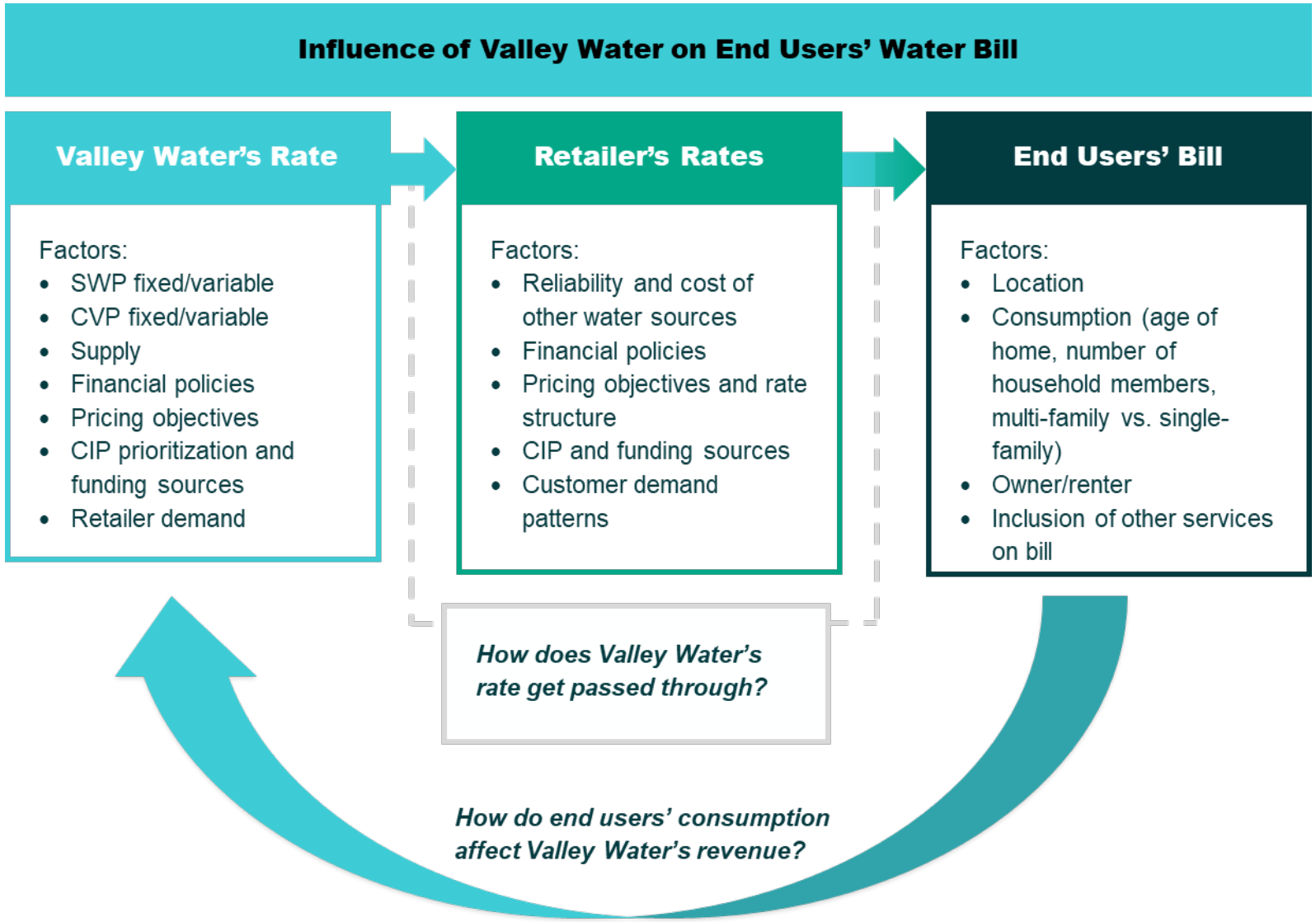
March 23, 2026

RAFTELIS

Hazen

Project Goals

- Identify how Valley Water's rates impact water demand (elasticity) and affordability of water service in Santa Clara County
- Validate and/or refine water demand forecasting for purposes of annual rate setting and long-term capital planning
- Tasks:
  - Demand Forecast
  - Elasticity Analysis
  - Affordability Assessment



Preliminary Results – Fall 2025 Meetings

Oct. 15, 2025
Quarterly Water Retailers Meeting

Oct. 22, 2025
Santa Clara Valley Water Commission

Oct. 27, 2025
Water Supply and Demand Management Committee

Nov. 12, 2025
Board of Directors

Final Results – Spring 2026 Meetings

Mar. 23, 2026
Water Supply and Demand Management Committee

Apr. 8, 2026
Santa Clara Valley Water Commission

Apr. 28, 2026
Board of Directors

Summarized Feedback

- Affordability results averaged by retailer may not tell the whole story within a community
- How to harmonize these affordability indicators with other non-utility indicators? How does affordability relate to other known socio-economic indictors?
- At what change in rates would people make behavioral changes? What is that elasticity estimate?
- Does Valley Water have a low-income assistance program?
- What is Valley Water doing to increase recycled water use?

Key Findings

Task 1: Water Use Projections

- Declining demands across the Valley Water service area
- Forecasting approach by Valley Water is a) consistent with peers and b) largely accurate in near-term projections (low budget-to-actual variance)
- Evaluation of alternatives demonstrate Valley Water's approach falls between other approaches

FY 2025 Ranges	Valley Water Method	Time Series Method	Regression Method	*Average*
Low Range	208	187	221	***205***
Medium Range	217	198	230	***215***
High Range	223	204	234	***220***

Values represent thousand acre-feet per year (TAF)

Task 2: Water Demand Elasticity

- Goal: Estimate the relationship between water prices and water consumption
- Estimates across three methods: **-0.18 to -0.21**
  - Confirms water demand is inelastic with respect to price
  - A 10% change in price would be expected to drive a 2% change in demand
- Results align with prior Valley Water studies and academic literature
- Supplemental finding: wholesale-to-retail volumetric pass-through
  - **83%** of the annual variation in retail volumetric prices is explained by the change in Valley Water's wholesale rates

Task 3: Customer Affordability

Retail Metrics	North Zone	South Zones	Total Valley Water Service Area	Metric Thresholds
AR20	1.5% - 3.4%	1.3% - 3.4%	**2.5%**	***5%***
HMW	2.7 – 3.8	2.8 – 5.4	**4.6**	***4***
LQI RI	0.7% - 0.9%	0.7% - 1.6%	**1.2%**	***2%***
MHI RI	0.4% - 0.5%	0.4% - 0.8%	**0.7%**	***2%***

[1]*All results shown at essential water use of 6 HCF*

Affordability results averaged by retailer may not tell the whole story within a community.

How to harmonize these affordability indicators with other non-utility indicators?

Single Family Residential Affordability Results by Retailer

	Single Family Residential Water Affordability Metrics			
Retailer (and Service Area)	**LQI**	**MHI**	**HMW**	**AR_{20}**
City Of Gilroy	0.7%	0.4%	2.7	1.5%
City Of Milpitas	1.1%	0.7%	4.6	2.0%
City Of Morgan Hill	0.9%	0.5%	3.8	1.6%
City Of Mountain View	0.9%	0.5%	3.1	1.8%
City Of Santa Clara	1.1%	0.6%	4.2	2.3%
City Of Sunnyvale	0.7%	0.4%	2.8	1.4%
CWSC Los Altos Suburban	0.9%	0.5%	4.1	1.6%
Great Oaks Water Company	0.8%	0.5%	2.9	1.7%
San Jose Municipal Water System (Coyote)	1.1%	0.7%	3.6	2.5%
San Jose Municipal Water System (Evergreen/Edenvale)	1.2%	0.8%	5.4	2.0%
San Jose Municipal Water System (North San Jose/Alviso)	0.8%	0.6%	4.6	1.3%
San Jose Water	1.6%	0.8%	5.3	3.4%
Valley Water Service Area of Included Retailers*	**1.2%**	**0.7%**	**4.6**	**2.5%**
Affordability Thresholds - Water Service	*2.0%*	*2.0%*	*4.0*	*5.0%*

Census tract information - American Community Survey maintained by the US Census Bureau and Consumer Expenditure survey

**Weighted based on the population served by each retailer*

Single Family Residential AR_{20} by Retailer and Census Tract

Retailer (and Service Area)	Weighted Average Census Tracts	Affordable Census Tracts (Count)	Unafford. Census Tracts (Count)
City Of Gilroy	1.5%	13	1
City Of Milpitas	2.0%	16	5
City Of Morgan Hill	1.6%	9	2
City Of Mountain View	1.8%	22	3
City Of Santa Clara	2.3%	26	7
City Of Sunnyvale	1.4%	40	1
CWSC Los Altos Suburban	1.6%	40	2
Great Oaks Water Company	1.7%	18	5
San Jose Municipal Water System (Coyote)	2.5%	4	1
San Jose Municipal Water System (Evergreen/Edenvale)	2.0%	18	4
San Jose Municipal Water System (North San Jose/Alviso)	1.3%	8	1
San Jose Water	3.4%	125	88
Valley Water Service Area of Included Retailers	**2.5%***	**339**	**120**

**Weighted based on the population served by each retailer*

Resulting Retailer Metrics – Estimate of Affordability Impact[1]

Retail Metrics	North Zone (per Retailer)	South Zones (per Retailer)	Estimated Households Valley Water Service Area[2]
Estimated Number of Customers with Unaffordable Water Bills	200 – 24,000	1,000 - 1,200	**37,000**

[1] Estimate of customers that could be have bills considered unaffordable
[2] Out of approximately 624,500 households

- Estimates extrapolated based on public use micro statistics (PUMS) household survey data including self reported income, water use, household size, and/or payment of a water bill
- Then, calculate bills over 2% of reported household income *and* estimated essential water use at each retailers' service area rates
- **Household water bills estimated as unaffordable across the Valley Water service area is 5.95%**

Comparison with Non-Utility Indicators

Source/Method	% of Households
Social Security Income (SSI) Households	8.3%
Income Deciles	3.6% to 4.9%
Supplemental Nutrition Assistance Program (SNAP) Enrolled	7.7%
Public Use Microdata Sample (PUMS) Analysis	**5.95%**

- PUMS analysis is based on a survey of self-reported income and self-reported household size
- The estimate of 5.95% of households in the Valley Water service area having unaffordable water bills tracks with other indicators that reflect lower income and needs based households

Customer Assistance Programs (CAP) and Valley Water

- Retailers offer their own customer assistance programs
  - These vary by retailer and are distinct between private / IOUs and public / municipal utilities
- Valley Water contributes directly across the service area via $1 million annual funding to Sacred Heart Community Service
- Annual monitoring can help inform Valley Water's future level of direct support
- Valley Water can further work with retailers on related assistance like payment programs, rate design, and customer outreach

Backup

Glossary of Terms

- HCF: Hundred Cubic Feet (748 gallons)
- gpcd: gallons per capita per day
- MHI: Median Household Income
- LQI: Lowest Quintile of Income
- AR: Affordability Ratio
- HW: Hours at Minimum Wage
- PPI: Poverty Prevalence Indicator
- HBI: Household Burden Indicator
- SFR: Single Family Residential
- MFR: Multi-Family Residential
- PPH: Persons per Household
- CPUC: California Public Utilities Commission
- EPA: United States Environmental Protection Agency
- MIT: Massachusetts Institute of Technology
- CIP: Capital Improvement Program
- SWP: State Water Project
- CVP: Central Valley Project
- SFPUC: San Francisco Public Utilities Commission
- RI: Residential Indicator
- AWWA: American Water Works Association
- WEF: Water Environment Federation
- NACWA: National Association of Clean Water Agencies
- PUMS: Public Use Micro Statistics
- FPL: Federal Poverty Level
- California Urban Water Agencies (CUWA)
- California Water Association (CWA)

Residential Affordability Indicators

Measurement Approaches (Metrics):		Used By
MHI RI: Median Household (Income) Residential Indicator	*Average* Water Bill / 50th Percentile Household Income	California Urban Water Agencies (CUWA), California Water Association (CWA), EPA, SFPUC
LQI RI: Lowest Quintile Income	*Essential* Water Bill / 20th Percentile Household Income	EPA, SFPUC
HMW: Hours at Minimum Wage	*Essential* Water Bill / Minimum Wage Rate	California PUC, EPA
AR_{20}: Affordability Ratio	*Essential* Water Use Bill / (Total Income - Non-Discretionary Expenses[1])	California PUC[2]
HBI: Household Burden Index (HBI)	*Average* Water Bill / LQI	AWWA/NACWA "New Framework"
PPI: Poverty Prevalence Indicator	Population at or below 200% FPL/ Total population	AWWA/NACWA "New Framework"
Essential Water Use Bill	Bill at 47 gallons per capita per day	California PUC, CWA
Average Water Use Bill	Bill at 64 gallons per capita per day	CUWA, EPA, SFPUC

[1, 2] *Non-Discretionary expenses = Housing, health care, food, and home energy*
[3] *Federal Poverty Level*

Retailer Affordability Characteristics*

Characteristics	North Zone	South Zones	Total Valley Water Service Area
% of Total Service Area Population	4% - 52%	3% - 5%	**100%**
Average Household Size	2.3 – 3.5	3.1 – 3.4	**3.0**
Minimum Hourly Wage	$18.20 - $19.00	$18.20	**$18.30**
Median Household Income (MHI)	$120k - $236k	$142k - $169k	**$169k**
Lowest Quintile Income (LQI)	$68k - $80k	$69k - $112k	**$76k**
Monthly Water Bill @ Essential Use (~6 HCF)	$54 - $98	$45 - $64	**$83**
Monthly Water Bill @ Average Use (~8 HCF)	$65 - $118	$52 - $71	**$96**

*All figures are rounded

Resulting Retailer Metrics – AR20, HMW, LQRI, MHRI[1]

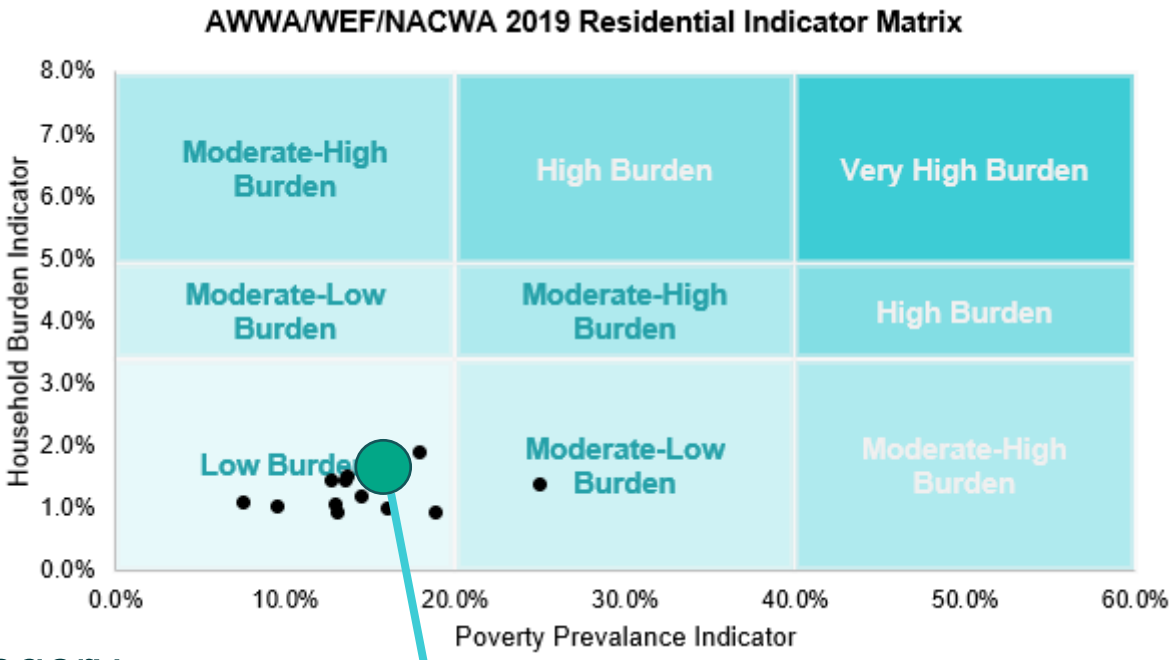
Retail Metrics	North Zone	South Zones	Total Valley Water Service Area	Metric Thresholds
AR20	1.4% - 3.8%	1.7% - 1.9%	**2.8%**	***5%***
HMW	3.7 – 6.2	2.7 – 3.8	**5.3**	***4***
LQI RI	0.8% - 1.7%	0.8% - 1.0%	**1.3%**	***2%***
MHI RI	0.4% - 0.7%	0.4% - 0.5%	**0.6%**	***2%***

[1]*All results shown at essential water use of 6 HCF*

- AR20, LQI, and MHI are all below thresholds across the service area
- HMW is modestly above the threshold value across the service area
- Results are generally lower (water bill is less burdensome) in the South zones

Resulting Retailer Metrics – HBI/PPI Matrix

Retail Metrics	North Zone	South Zones	Total VW Service Area	Metric Threshold Low Burden
HBI	0.8% - 1.7%	0.8% - 1.0%	**1.3%**	***3.5%***
PPI	7.5% - 25%	13% - 19%	**15.7%**	***20%***



Valley Water Service Area Result (Weighted Average)

- HBI and PPI are both within the low burden category
  - All but one retailer are in the Low Burden category
- Both metrics have a wider range in the North zones than in the South zones

Groundwater Benefit Zones

North County Zone W2

- Santa Clara County north of Metcalf Road

South County Zone W5

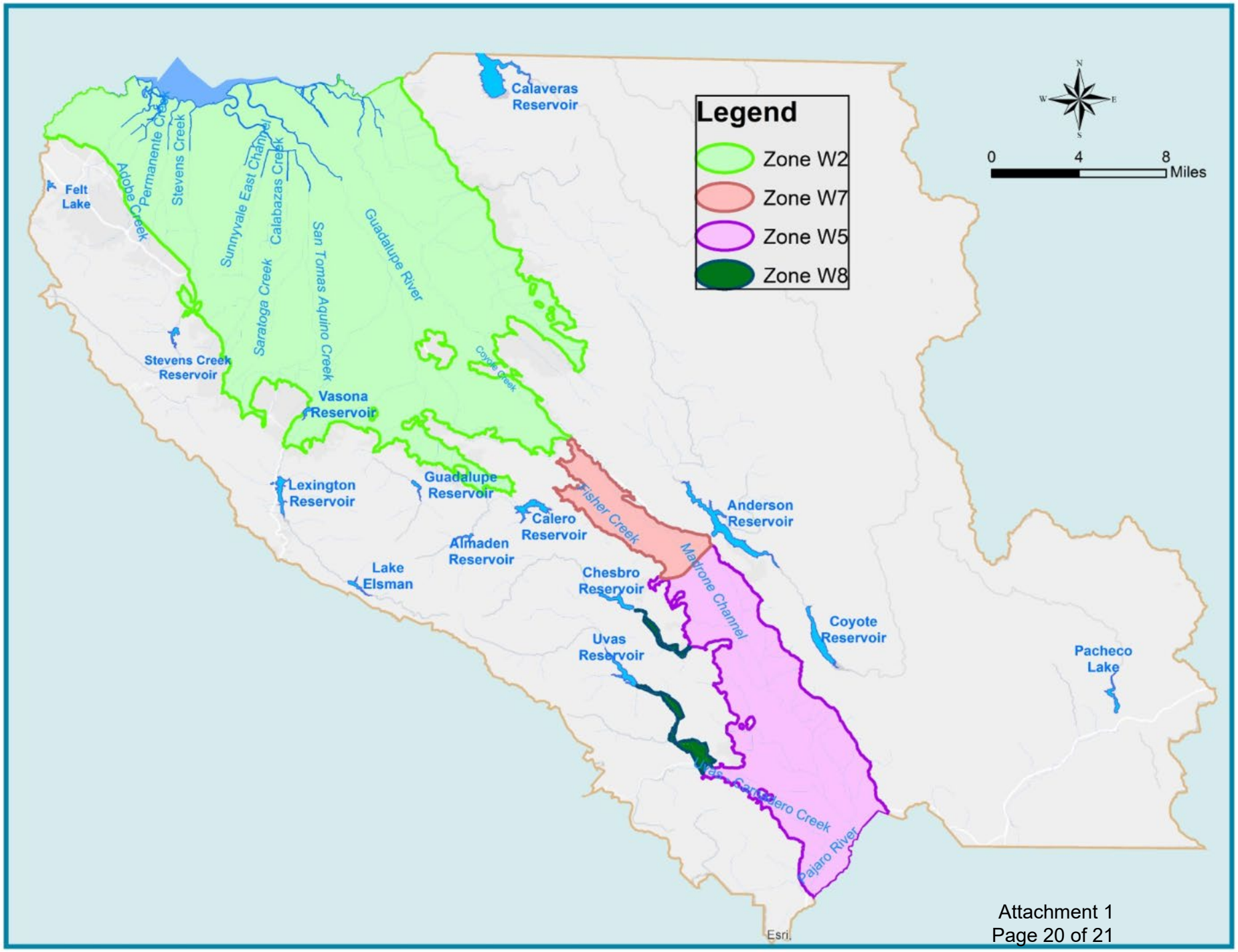
- Morgan Hill to Pajaro River

South County Zone W7

- Coyote Valley

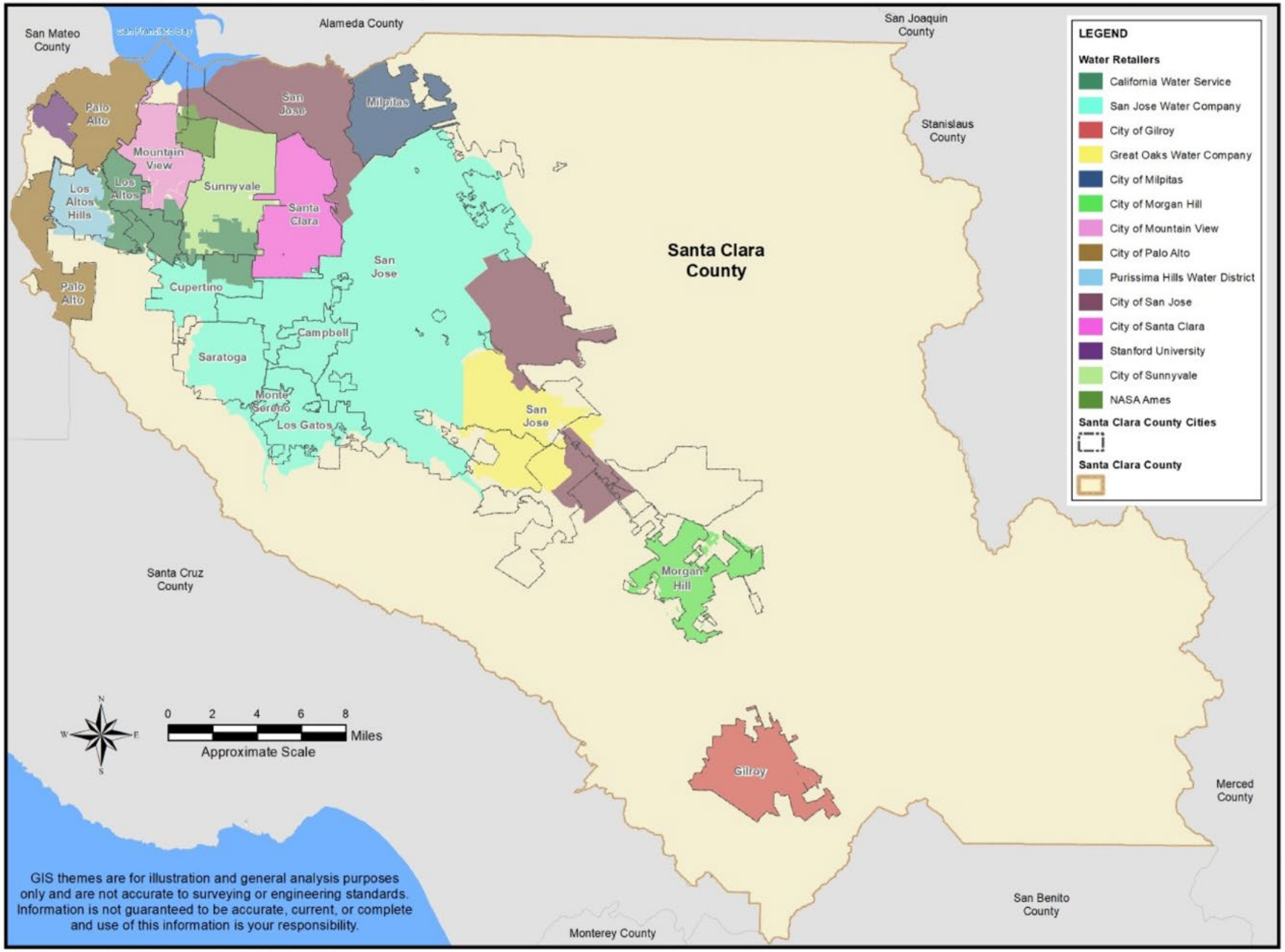
South County Zone W8

- Foothills below Uvas & Chesbro Reservoirs



Valley Water

Water Retailers in Santa Clara County



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