



SAN GORGONIO PASS
WATER AGENCY
• Established 1961 •

Economic and Community Impacts

of the San Geronio Pass Water Agency

September 2026





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Executive Summary

This study examines the economic and community value of the water that the San Geronio Pass Water Agency (SGPWA) helps manage and imports into the region. The San Geronio Pass is a relatively arid area whose local groundwater basins and surface flows yield roughly 20,300 acre-feet of supply in an average year, well short of what its residents now use. The remainder is purchased outside the region, conveyed more than 500 miles through the State Water Project, and recharged into local basins. This analysis is intended to inform policymakers and residents by setting out, in measurable terms, what that imported supply makes possible.

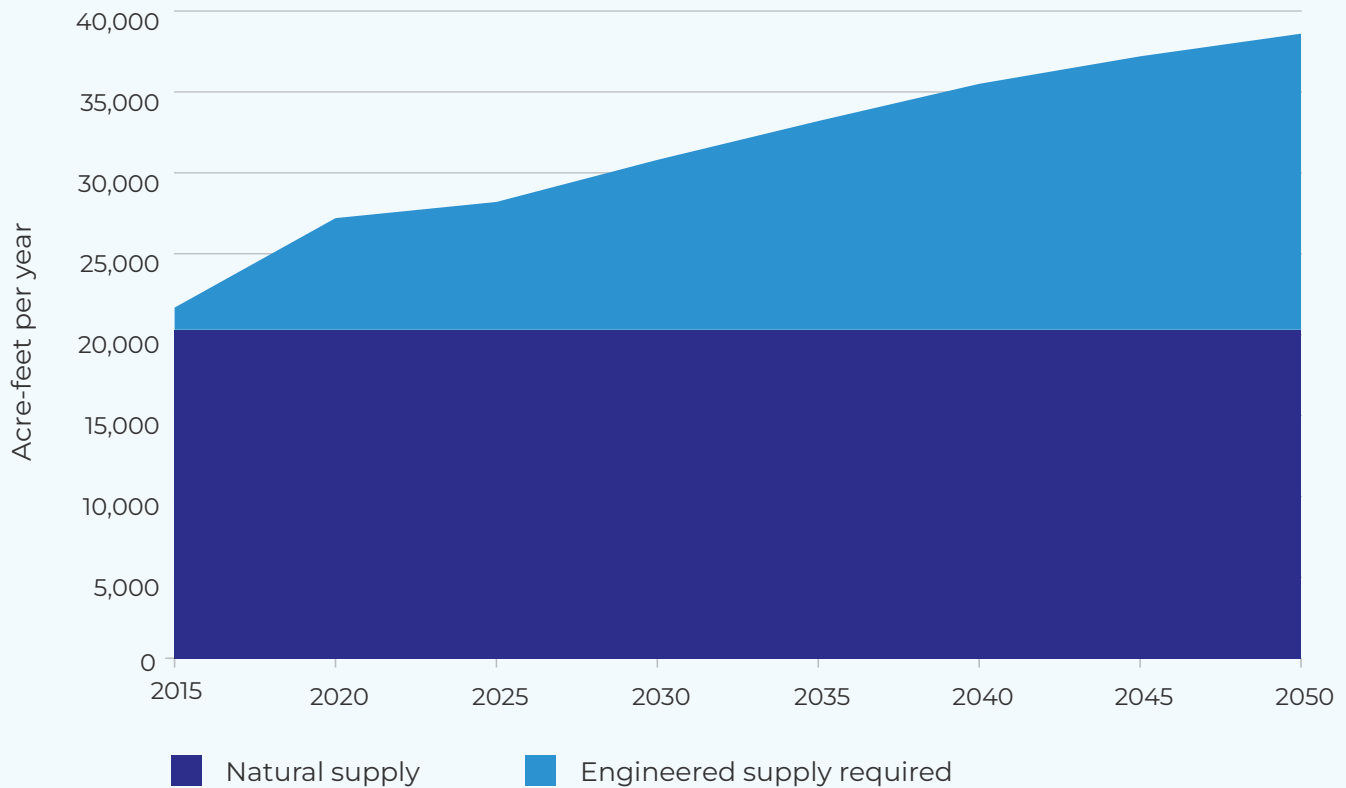
The analysis combines regional economic data, the Agency's 2025 water supply and demand projections, Beaumont-Cherry Valley Water District historical records, and a simulation of drought-year reliability. It distinguishes natural water from engineered water to assess how imported supplies and service infrastructure have supported regional growth and improved reliability.

Ultimately, we find that the region could not have expanded to its current size and prosperity without the water provided by the Agency, and this will be even more true in the future as its population and economy continue to grow.

Key Findings

- 🔥 Despite using water increasingly efficiently, the region cannot meet its own demand from local sources, and the shortfall grows over the planning horizon.
 - 💧 Natural yield across the service area is roughly 20,300 acre-feet per year, but regional demand in 2025 was 28,200 acre-feet, leaving 7,900 acre-feet, or 28%, to be met by “engineered” supply.
 - 💧 Engineered water means imported, stored, recycled, and captured water.
 - 💧 The service area population is projected to rise 57% to 187,374 residents by 2050, and regional water use is expected to increase about 37% to 38,600 acre-feet. This means engineered water will need to supply nearly half of the region's water.

Figure ES-1 Regional Water Demand Met by Natural and Engineered Supply, 2015 to 2050



Source: 2025 San Geronio Pass Regional Urban Water Management Plan

- 🔥 Each acre-foot of water delivered in the San Geronio Pass accompanies a measurable amount of economic and community activity.
- 💧 Including all water uses, even landscaping and parks, one acre-foot supports roughly four residents, about 1.4 households, and about 1.25 jobs. It supports about \$224,800 of resident income, about \$241,100 of household spending, and about \$147,200 in regional GDP.
- 💧 When considering water used only for domestic purposes, every acre-foot (about 326,000 gallons) serves approximately 3 four-person households for a year in newer houses.
- 💧 After applying the engineered share of supply (roughly 28%) to regional activity, water from outside the region supports roughly 33,400 residents, 10,800 households, 9,900 jobs, \$1.78 billion of personal income, and \$101.7 million of annual production taxes every year.

Table ES-1 Economic Activity and Engineered Water Attribution, San Geronio Pass, 2025

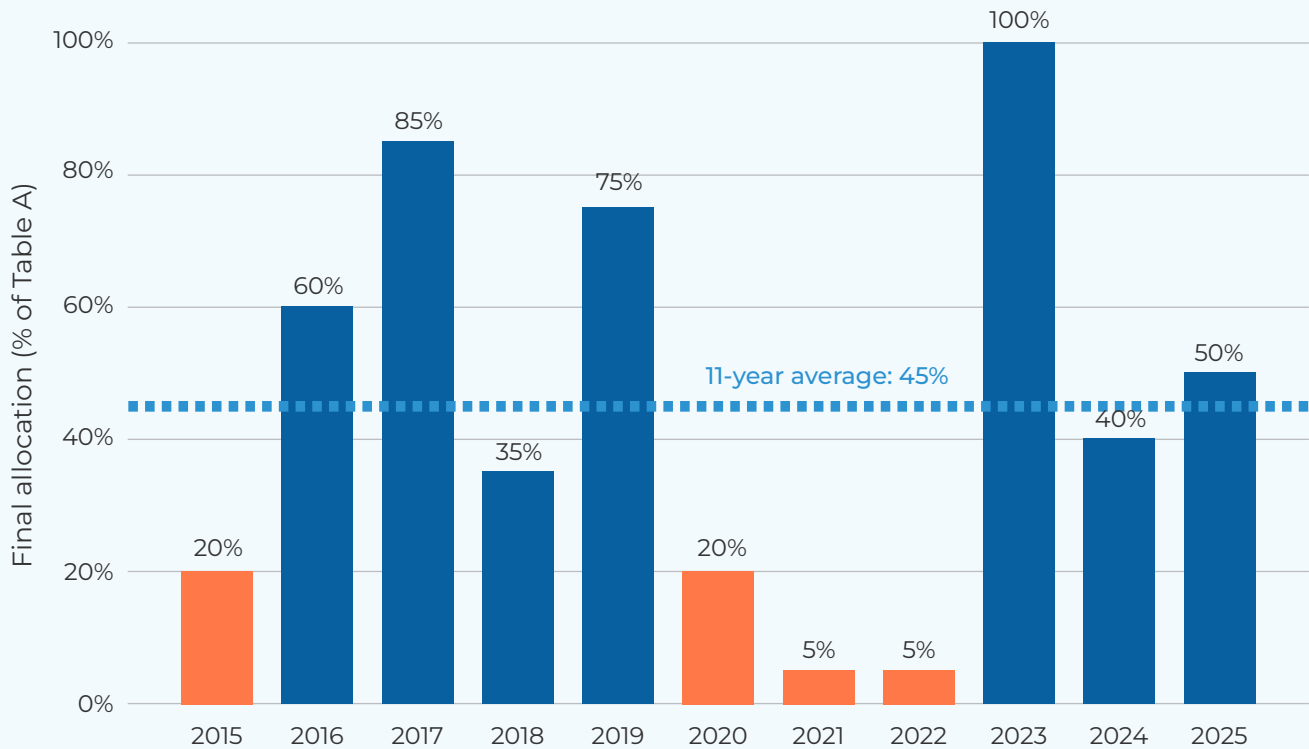
Measure	Regional total	Regional total per acre-foot	Regional activity supported by engineered supply	Regional activity supported by engineered supply, per acre-foot
Total personal income	\$6.34 billion	\$224,800	\$1.78 billion	\$63,000
Value added, the regional equivalent of GDP	\$4.15 billion	\$147,200	\$1.16 billion	\$41,200
Total economic output	\$6.85 billion	\$242,900	\$1.92 billion	\$68,000
Household spending	\$6.80 billion	\$241,100	\$1.90 billion	\$67,600
Taxes on production	\$362.9 million	\$12,900	\$101.7 million	\$3,600
Residents	119,216	4.23	33,400	1.18
Households	38,493	1.37	10,800	0.38
Jobs	35,223	1.25	9,900	0.35

Source: Beacon Economics regional model; 2025 San Geronio Pass Regional Urban Water Management Plan. Per-acre-foot ratios use 28,200 acre-feet, total regional water use in 2025. Engineered-supply totals apply 7,900/28,200 (approximately 28%) to regional totals and are rounded; they are not per-acre-foot values or estimates of water's independent causal contribution. Dollar amounts are annual; residents, households, and jobs are 2025 counts.

- 🔥 Naturally occurring water varies significantly on an annual basis, and so does imported water arriving at the physical end of the State Water Project.
- 💧 The Agency holds a contractual right to 17,300 acre-feet a year, but the share actually delivered is set annually by the State. Over the past 11 years, that share has ranged from 5% to 100% of contract, averaging 45%.
- 💧 Because most of the cost of the State Water Project is fixed and incurred whether water arrives or not, this variability is the reason the Agency holds a portfolio of sources and stores water underground rather than relying on a single contract.

Figure ES-2

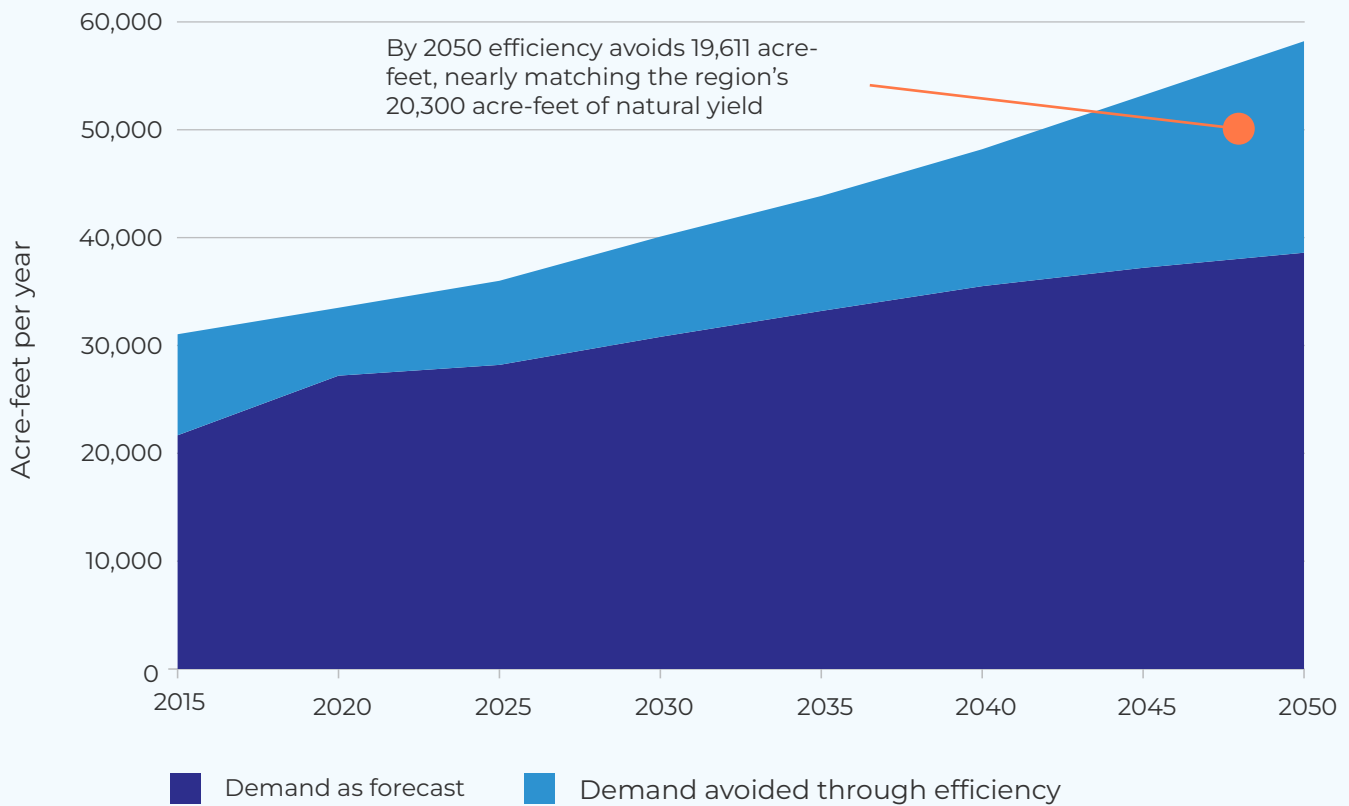
State Water Project Table A Allocations to the San Geronio Pass Water Agency, 2015 to 2025



Source: California Department of Water Resources, annual State Water Project allocation notices.

- 🔥 Water use efficiency nearly matches engineered supply today and is projected to become the region's second-largest source of "supply" by 2050.
- 💧 Through efficiency improvements, the region avoided using 7,798 acre-feet in 2025, nearly as much as the entire 7,900 acre-feet of engineered supply the Agency imports, conveys, and stores. These savings reflect reduced demand through water-use efficiency only and do not include recycled water, which is counted separately as a supply source.
- 💧 By the year 2050 that saving is expected to reach 19,611 acre-feet, slightly less than the 20,300 acre-feet the region's basins and surface diversions produce in an average year.
- 💧 Efficiency also explains part of the region's economic performance. At unimproved rates of use, the same resident income would be spread across more water, and personal income per acre-foot would be about \$176,100 rather than \$224,800. Roughly 28% of the region's economic output per unit of water is attributable to water-use efficiency.

Figure ES-3 Regional Water Demand With and Without Water-Use Efficiency, 2015 to 2050



Source: 2025 San Geronio Pass Regional Urban Water Management Plan, Appendix A, Table 5. The combined height of the two bands is demand as it would be at unimproved rates of use.

- 🔥 The experience of the Beaumont-Cherry Valley Water District shows what practical access to imported water makes possible.
- 💧 In the 1990s the City of Banning had about twice the population of the City of Beaumont. In the early 2000s, Beaumont was connected to the State Water Project and began growing rapidly. By 2025 that relationship had reversed, with the Beaumont and Cherry Valley area holding about 1.75 times the population of the Banning area.
- 💧 Similarly, from 2010 to 2025 the Beaumont and Cherry Valley area grew more than twice as fast as the Calimesa and Cabazon areas.
- 💧 Two-thirds of Beaumont's water is engineered. Its growth and prosperity would simply be impossible without engineered water provided by SGPWA.

Figure ES-4 Population of the San Geronio Pass Communities, 2001 to 2025

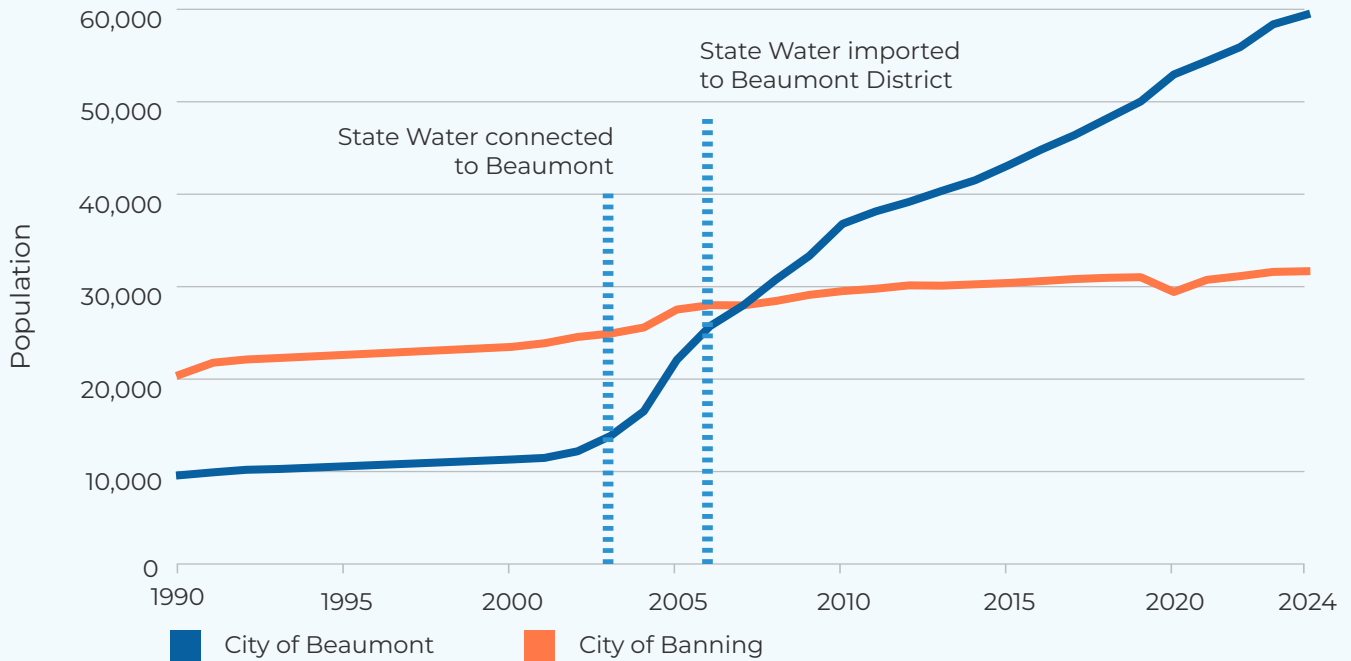
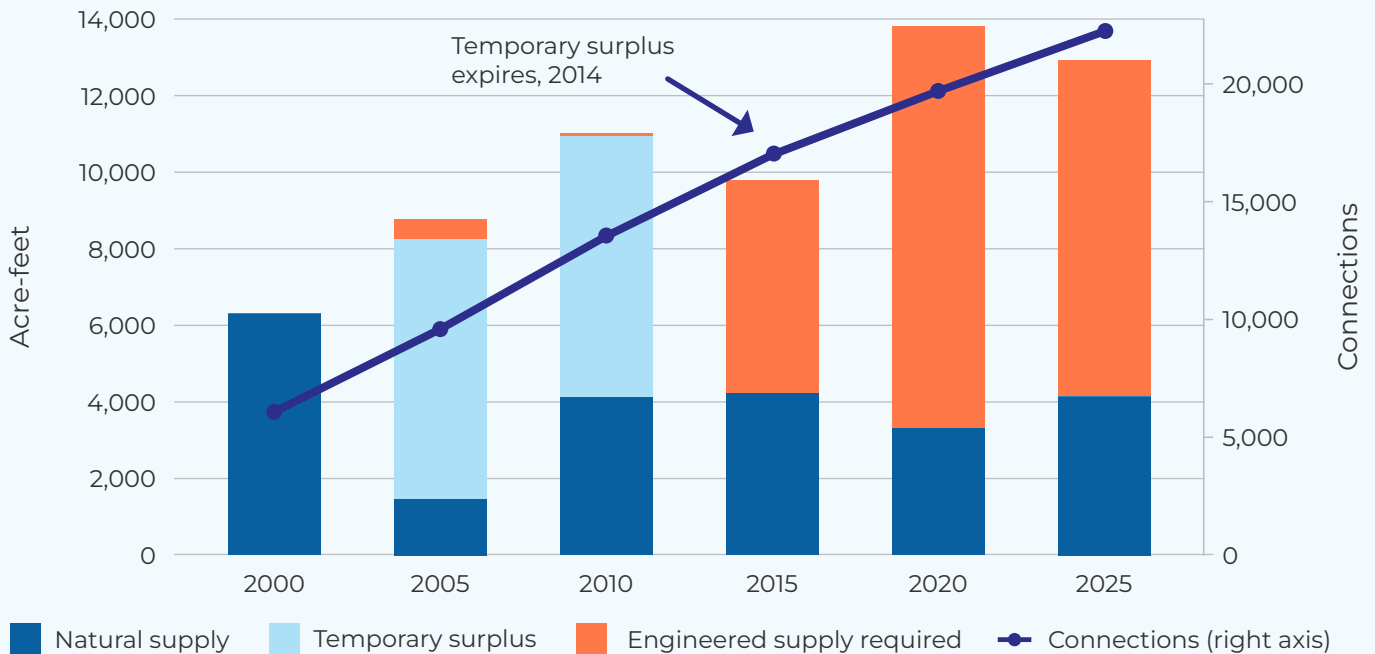


Figure ES-5 Beaumont-Cherry Valley Water District Water Supply by Origin and Connections Served, 2000 to 2025



Source: Beaumont-Cherry Valley Water District connections, production, and supply records; Beaumont Basin Watermaster annual reports.

Reliable supply also has value in dry years, by reducing how often households face drought surcharges.

- Urban water retailers in California maintain a water-shortage plans, which sets out in advance what the retailer might do at each level of shortage and what price increases go with it. Across the San Geronio Pass, some authorized schedules run from an additional 15% to 20% at the mildest stage up to 80% at the most severe, though these rates have not been applied in recent history.
- Beacon Economics uses this dynamic to help illustrate a monetary value for a reliable water supply. We built a model of how often the region will face drought over the next 50 years, drawing on 103 years of water-year history and accounting for the tendency of dry years to cluster rather than occur at random.
- The median result is \$1.33 billion in surcharges avoided over 50 years in today's dollars, with half of the simulations falling between \$1.11 billion and \$1.58 billion.
- Under a slightly drier future, the entire distribution shifts upward to a median result of \$1.52 billion in savings in surcharges.
- This measures only out-of-pocket billing costs. Many other savings should be included in a total estimation of the value of reliability, so this represents a lower-bound value, but serves as one illustration of the importance of a steady water supply.

The infrastructure described in this report is almost entirely invisible to the people who depend on it. Yet water is the main limiting factor in the region, and by raising those limits, SGPWA raises the ceiling of what economic and community development is possible. It enables more households to move into the area, and more families and workers to call the region 'home'. The Pass could not have grown into what it is today without the Agency's long-term investment and forward-looking management.



Introduction

The San Gorgonio Pass is a region shaped by its surrounding mountains, its desert climate, and the communities growing along the corridor connecting the Inland Empire and the Coachella Valley. Beaumont, Banning, Calimesa, Cherry Valley, Cabazon, and the surrounding areas have added homes, businesses, schools, and public services even though the region's natural water supply is limited and highly variable. At the physical end of the State Water Project, the San Gorgonio Pass Water Agency reaches far beyond the region to meet its needs. The Agency secures water from multiple sources, conveys it hundreds of miles, and stores it underground for use when conditions are dry. Most residents never see this system at work, but rely on it daily for water in their homes and workplaces.

This report reviews the economic benefits and the community value that the area's water infrastructure provides. It examines how the region's economy and household incomes have grown during the past two decades since State Water Project deliveries began, as well as how purchasing and storing water during wet years allows the region to prepare responsibly for dry periods. Beacon Economics prepared this report for the SGPWA to help measure the economic impacts of expanding and managing the region's water conveyance, recharge, and storage facilities.

The report explores the relationship among water supply, economic growth, efficiency, and reliability. It examines how much water the Pass receives naturally, how much must be imported or otherwise developed through infrastructure, and how the balance is expected to change as the population grows. It evaluates the residents, households, jobs, income, spending, economic output, and tax base associated with the water the region uses. It also examines Beaumont-Cherry Valley Water District as a detailed case study of what occurred when a rapidly growing community gained practical access to imported water, while recognizing the other factors that also contributed to development. Water-use efficiency is treated as another important part of the regional supply picture; conservation allows each acre-foot to support more households and economic activity. Finally, the report estimates the financial value of reliability by examining the drought surcharges that households and businesses may avoid when sufficient water remains available. Together, these topics demonstrate why water should be evaluated not only according to what it costs, but also according to what a dependable supply allows a community to sustain.

Chapter 2

A 500-Mile Journey

Water arrives in the San Geronio Pass by two different routes. Some of it falls on the surrounding mountains, seeps into the alluvial fans below, and is pumped to the surface within sight of where it lands. The rest begins as snowmelt in the northern Sierra Nevada mountains, more than 500 miles away, and reaches the Pass only after moving through one of the world's largest and most energy-intensive water systems.

It's easy to underestimate the scale of the infrastructure behind the water received from an ordinary tap in the region. The Pass does not simply buy water, but rather holds a share in a statewide conveyance system and has paid to extend that system to its own doorstep.

Although the State Water Project started in the early 1960s, the East Branch Extension, which finally connected San Geronio Pass, was not completed until 2003. The last facility on that extension is the Cherry Valley Pumping Station, the terminal pumping plant of the East Branch Extension. This means the San Geronio Pass sits at the physical end of the State Water Project, connecting it to water sources hundreds of miles away.

2.1 End of the Line

Water bound for the Pass begins in Lake Oroville on the Feather River, the State Water Project's principal storage reservoir, roughly a nine-hour drive north from the Pass. Released downstream, the water flows into the Sacramento River and then into the Sacramento-San Joaquin Delta, where state and Federal pumping plants move it into the California Aqueduct.

The water then flows south along the western edge of the San Joaquin Valley for more than 400 miles, down the entire length of the Central Valley. At the southern end of the valley it reaches the Tehachapi Mountains, where the massive A.D. Edmonston Pumping Plant lifts it 1,926 feet in a single stage using 14 pumps (80,000 horsepower each). This is the highest single water lift in the world.

Beyond the Tehachapis, the aqueduct divides, and the East Branch runs through the Mojave Desert and over Cajon Pass into Silverwood Lake, then drops through the Devil Canyon Powerplant into the San Bernardino Valley. At Devil Canyon, the water intended for the San



East
Branch
Aqueduct

3,000+ ft

total lift before
water reaches
the Pass

Gorgonio Pass leaves the main system and enters the East Branch Extension, which pumps it back uphill and eastward to Beaumont and Cherry Valley, at an elevation of roughly 2,600 feet.

Water delivered to Southern California is among the most energy-intensive in the state, and water delivered to the San Gorgonio Pass is more energy-intensive still, due to the pumping operation of the East Branch Extension after water leaves the main system.

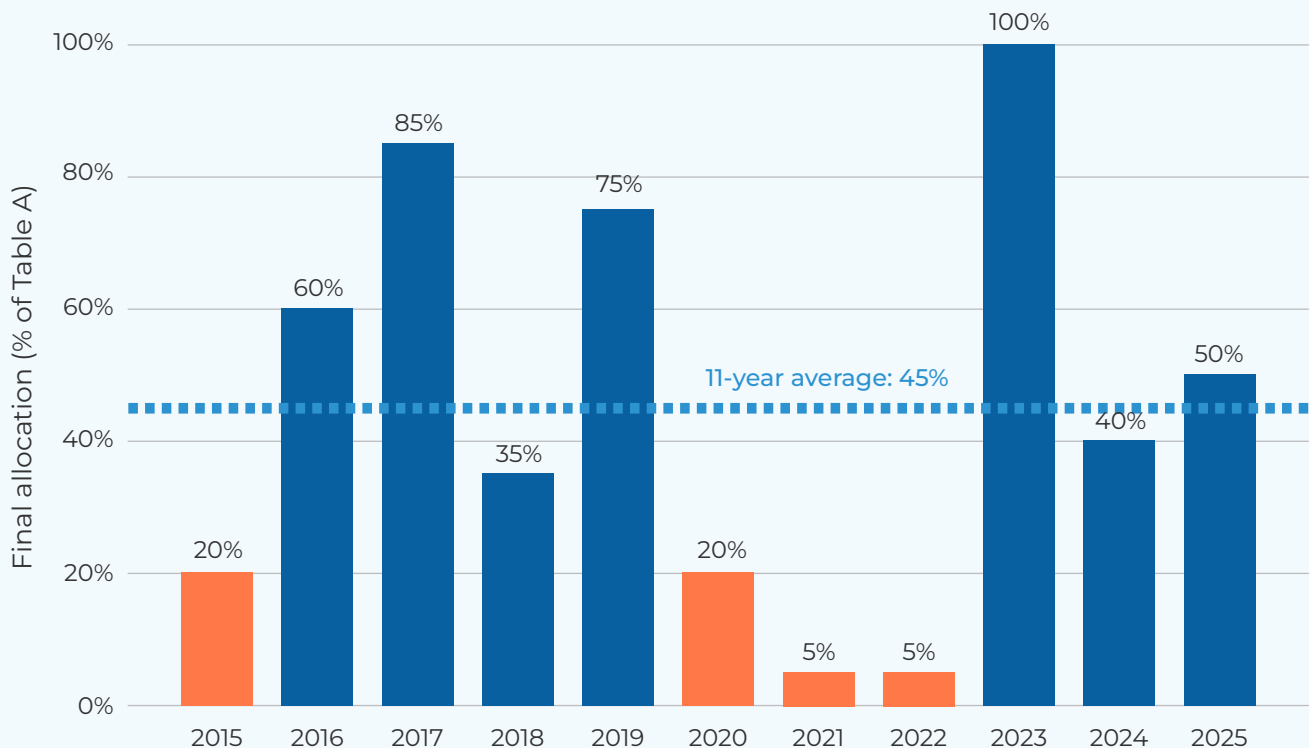
Taken together, the journey covers more than 500 miles and involves a gross lift of more than 3,000 feet before the water reaches users in the Pass. It is a supply chain that requires continuous energy input, spans nearly the length of the state, and depends on facilities in watersheds no resident of the Pass will likely ever see.

2.2 State Water Project Allocations

San Geronio Pass has a contract for 17,300 acre-feet of water annually; however, it is not a guarantee of 17,300 acre-feet. Each year the Department of Water Resources sets an allocation, expressed as a percentage of Table A, based on hydrology, storage, regulatory conditions in the Delta, and the combined requests of all contractors. During the past decade, that allocation has swung from 5% at times to 100%.

Figure 2-1

State Water Project Table A Allocations to the San Geronio Pass Water Agency, 2015 to 2025



Source: California Department of Water Resources, annual State Water Project allocation notices, 2015 to 2025. Years in which the Agency received one-fifth or less of its contract amount are shown in orange.

While the final allocation can vary widely, the Agency's payments to the State do not. Most of the cost of the State Water Project is fixed, incurred whether the water arrives or not. The Pass has supplementing agreements with other sources to diversify its portfolio, such as water from the City of Ventura and Antelope Valley-East Kern Water Agency. Each source carries a different price, a different term, and a different reliability profile. The Agency manages them together, buying when water is available and storing it for the years when it is not.

Natural Water and Engineered Water

This chapter illustrates how much water is sourced locally from naturally occurring sources, relative to how much is imported and provided through engineered infrastructure. It also explores the other side of the coin: how all this water is used.

3.1 Water Terminology

First, a brief note on terminology. The working unit of water in the water industry is the **acre-foot**, which is the volume required to cover one acre of ground to a depth of one foot. Imagine a football field, with a foot of water across it. An acre-foot is 325,851 gallons. This is a useful unit of measure because it scales to the size of the systems being discussed and also translates readily into households' use. In the San Gorgonio Pass, one acre-foot supports about 1.4 households, or a little under two residential service connections, for a full year. That ratio has changed considerably over time, as discussed later in this report.

For the purposes of this report, Beacon Economics divides the region's supply into two categories.

- 💧 **Natural water** is supply that would reach the Pass and be usable without engineered infrastructure. It includes local surface and subsurface flow from Edgar Canyon, the native yield of the Beaumont Basin, the San Gorgonio Pass Subbasin, and the service-area portion of the Yucaipa Subbasin, and local precipitation that recharges those basins.
- 💧 **Engineered water** is supply that exists only because infrastructure was built and continues to be maintained. It includes imported State Water Project deliveries, purchased transfers, imported water recharged into the groundwater basin and extracted later, recycled water, and captured stormwater.

3.2 Regional Water Supply

The SGPWA does not sell water to households. It is a wholesale agency, which means its primary job is to acquire water from outside the region, move it through the State Water Project, and place it into the ground, where local retailers can draw on it. Those retailers, a total of eight across the service area, operate the wells and pipes that deliver water to local homes and businesses, as well as the meters measuring their use.



Natural supply:

The San Gorgonio Pass receives roughly 16.75 inches of precipitation in an average year, concentrated between December and March. It has no perennial river. Its creeks run dry for most of the year, and recharge occurs mainly through infiltration of storm flows and subsurface seepage from the surrounding mountains.

Local groundwater basins and surface flows provide the region's natural yield. The Beaumont Basin, which underlies the western portion of the service area, had its safe yield redetermined in 2024 at 7,100 acre-feet per year. The San Gorgonio Pass Subbasin, which runs east from Banning toward Cabazon and serves the City of Banning, Cabazon Water District, the Morongo Band of Mission Indians, and Banning Heights Mutual Water Company, has a sustainable yield of approximately 10,200 acre-feet per year under its Groundwater Sustainability Plan. A modest volume of local surface water, roughly 1,000 acre-feet per year diverted from the Whitewater River through the San Gorgonio Flume System, also contributes to natural supply. Edgar Canyon supplies and the service-area portion of the Yucaipa Subbasin add approximately 1,000 acre-feet per year each, including local supply serving the Calimesa area. The Calimesa contribution comes from the southern, service-area portion of the Calimesa Management Area of the Yucaipa Subbasin. The management area crosses the Riverside-San Bernardino County line, so the estimate does not include its full geographic extent. High Valleys Water District is a separate retail agency that purchases treated water from the City of Banning; it is therefore an indirect recipient through Banning rather than an additional natural-water source.

Together these sources provide roughly 20,300 acre-feet per year. This figure is a long-run average rather than a dependable annual quantity (variation is examined in Section 3.4). The two additional 1,000-acre-foot amounts reflect SGPWA staff estimates for Edgar Canyon and the portion of the Yucaipa Subbasin within the Agency's service area (including part of the Calimesa Management Area), but do not represent the full Yucaipa Subbasin or the full management area.

Table 3-1 Regional Water Supply Portfolio by Origin, San Geronio Pass Water Agency Service Area

Source	Type	Annual amount (acre-feet)	Character
Beaumont Basin safe yield	Natural	7,100	Sustainable yield
San Geronio Pass Subbasin	Natural	10,200	Sustainable yield
Whitewater Flume Diversions	Natural	1,000	Local surface water
Edgar Canyon Supplies	Natural	1,000	Local surface and subsurface supply
Yucaipa Subbasin, and portions of the Calimesa Management Area	Natural	1,000	Service-area portion, including Calimesa
Total natural supply		20,300	Long-run average

Engineered supply

All other water used by the region is engineered, and is provided by four sources.

-  **Imported water** is purchased outside the region and delivered through the State Water Project. The Agency's contract entitles it to a maximum of 17,300 acre-feet per year, but it has assembled a portfolio beyond that single contract.
-  **Stored water** is imported water placed into the groundwater basin during wet years and extracted later. The Beaumont Basin functions as the region's reservoir, and the adjudication allocates its storage capacity among seven parties.
-  **Recycled water** is wastewater treated to a standard that permits reuse, either for irrigation or for groundwater recharge. It requires treatment plants, distribution systems, and it is classified here as engineered supply for that reason.
-  **Captured stormwater** is runoff intercepted and directed into recharge basins rather than allowed to leave the watershed. Beaumont-Cherry Valley's Master Drainage Plan Line 16 project, operational since 2023, is the region's principal example.

The imported water component is the largest and most complex. As described in Section 2.2, the Pass has a contract for 17,300 acre-feet of State Water Project water each year, making it the largest imported source. Because deliveries depend on statewide availability, actual allocations vary. The State's 2025 Delivery Capability Report estimates an average allocation of 54% over time, while actual allocations averaged about 45% from 2015 through 2025.

The next-largest source is a long-term lease with the City of Ventura, which provides an entitlement of 10,000 acre-feet per year but is also subject to allocation risk. Several smaller contracts supplement these two sources. Together, the two largest entitlements can provide up to 27,300 acre-feet before the smaller supplemental contracts are counted.

Of course, imported water does not always arrive when needed. More water arrives during wet years and when prices are favorable. Therefore, storage is important. The Beaumont Basin adjudication provides 290,000 acre-feet of storage capacity, allocated among seven parties, and that capacity is what allows the region to buy water in a wet year and use it during a dry one.

Table 3-2 **Beaumont Basin Storage Allocations by Agency**

Agency	Storage allocation (acre-feet)	Share of total
City of Banning	80,000	27.6%
Beaumont-Cherry Valley Water District	80,000	27.6%
Yucaipa Valley Water District	50,000	17.2%
City of Beaumont	30,000	10.3%
South Mesa Water Company	20,000	6.9%
Morongo Band of Mission Indians	20,000	6.9%
San Gorgonio Pass Water Agency	10,000	3.4%
Total	290,000	100%

Source: 2025 San Gorgonio Pass Regional Urban Water Management Plan.

Since 2003, water agencies in the region have recharged nearly 196,000 acre-feet of imported water into the Beaumont Basin, slightly more than the basin produced naturally over the same period. On average, regional recharge has added more water to the basin each year than the basin produces naturally.

Table 3-3 Cumulative Supplemental Recharge to the Beaumont Basin by Agency, 2003 to 2025

Agency	Cumulative recharge (acre-feet)	Share of total
Beaumont-Cherry Valley Water District	161,336	82.5%
City of Banning	18,227	9.3%
San Gorgonio Pass Water Agency	13,534	6.9%
Yucaipa Valley Water District	2,500	1.3%
Total	195,598	100%

Source: Beaumont Basin Watermaster 2025 Consolidated Annual and Engineering Report.

3.3 Regional Water Demand

Supply, however, is only half of the equation. This section discusses how much water the region uses, who uses it, and how that is expected to change during the next quarter century.

As shown in the table below, the largest retailer is the Beaumont-Cherry Valley Water District, which uses almost half of the water in the region. The City of Banning uses the second most, slightly less than 25% of the region's water.

Table 3-4 Regional Water Use by Retail Agency, 2020 to 2025 (acre-feet per year)

Water user category	2020	2021	2022	2023	2024	2025
Beaumont-Cherry Valley Water District	12,500	13,300	13,000	11,400	12,300	12,900
City of Banning	7,100	7,500	7,300	6,800	7,400	7,900
Yucaipa Valley Water District	1,800	2,500	2,400	3,000	3,200	3,300
South Mesa Water Company	900	900	800	800	800	800
Smaller Districts and Morongo	2,300	2,300	2,300	2,300	2,300	2,300
Small systems, rural, agricultural	900	900	900	900	900	1,000
Total water use in service area	25,500	27,400	26,800	25,200	27,000	28,200

Source: 2025 San Gorgonio Pass Regional Urban Water Management Plan.



Demand increased from 25,500 acre-feet in 2020 to 28,200 in 2025. Demand decreased in 2023 because it was an exceptionally wet year, with the region receiving 23 inches of precipitation, about 37% more than normal. The increased rainfall meant less water was needed for outdoor irrigation and other elastic uses of water.

Projections to 2050 are built from the bottom up rather than by extrapolating the regional total. Each of the four large retailers prepared its own forecast, and the Agency added estimates for smaller systems and rural users. Those forecasts combine expected population and development with an explicit assumption of increasingly efficient use, as the Water Code requires.

Table 3-5 **Projected Regional Water Use by Retail Agency, 2030 to 2050 (acre-feet per year)**

Water user category	2030	2035	2040	2045	2050
Beaumont-Cherry Valley Water District	15,500	16,600	17,900	18,700	19,400
City of Banning	8,800	9,600	10,100	10,600	10,900
Yucaipa Valley Water District	2,100	2,100	2,200	2,200	2,200
South Mesa Water Company	900	1,000	1,000	1,000	1,000
Total large retailers	27,300	29,300	31,200	32,500	33,500
Smaller Districts and Morongo	2,500	2,800	3,100	3,400	3,700
Small systems, rural, agricultural	1,000	1,100	1,200	1,300	1,400
Total water use in service area	30,800	33,200	35,500	37,200	38,600

Source: 2025 San Geronimo Pass Regional Urban Water Management Plan.

The forecast shows regional demand rising from 28,200 acre-feet in 2025 to 38,600 by 2050, an increase of about 37%. During the same period, the service area population is expected to grow from 119,216 to 187,374, an increase of about 57%. The region therefore plans to add roughly 68,000 residents while increasing water use by only about 10,400 acre-feet. Expressed per person, use falls from about 211 gallons per capita per day in 2025 to about 184 by 2050, a decline of roughly 13%. This decoupling of population growth from water consumption is one of the most consequential facts in the region’s water picture, and will be examined on greater detail later in this report.

Even with substantial assumed efficiency gains, the region still expects to need more than 10,000 additional acre-feet per year within a generation. There is no published figure for how much of the region’s water goes to single-family homes versus commercial, institutional, industrial, landscape, or agricultural users. However, data show that about two-thirds of Beaumont-Cherry Valley goes to residential connections. Beaumont-Cherry Valley has the region’s most concentrated commercial and logistics development along the Interstate 10 corridor. The other retail areas are more residential in character and less commercially developed. It is therefore reasonable to deem two-thirds residential as a lower bound for the region.

3.4 Supply and Demand Together

The region’s water supply can be understood as a balance between a relatively fixed natural endowment and a growing level of demand. In 2025, the region used 28,200 acre-feet of water, while its natural-supply benchmark was approximately 20,300 acre-feet. Engineered water provided the remaining 7,900 acre-feet, or about 28% of total use.

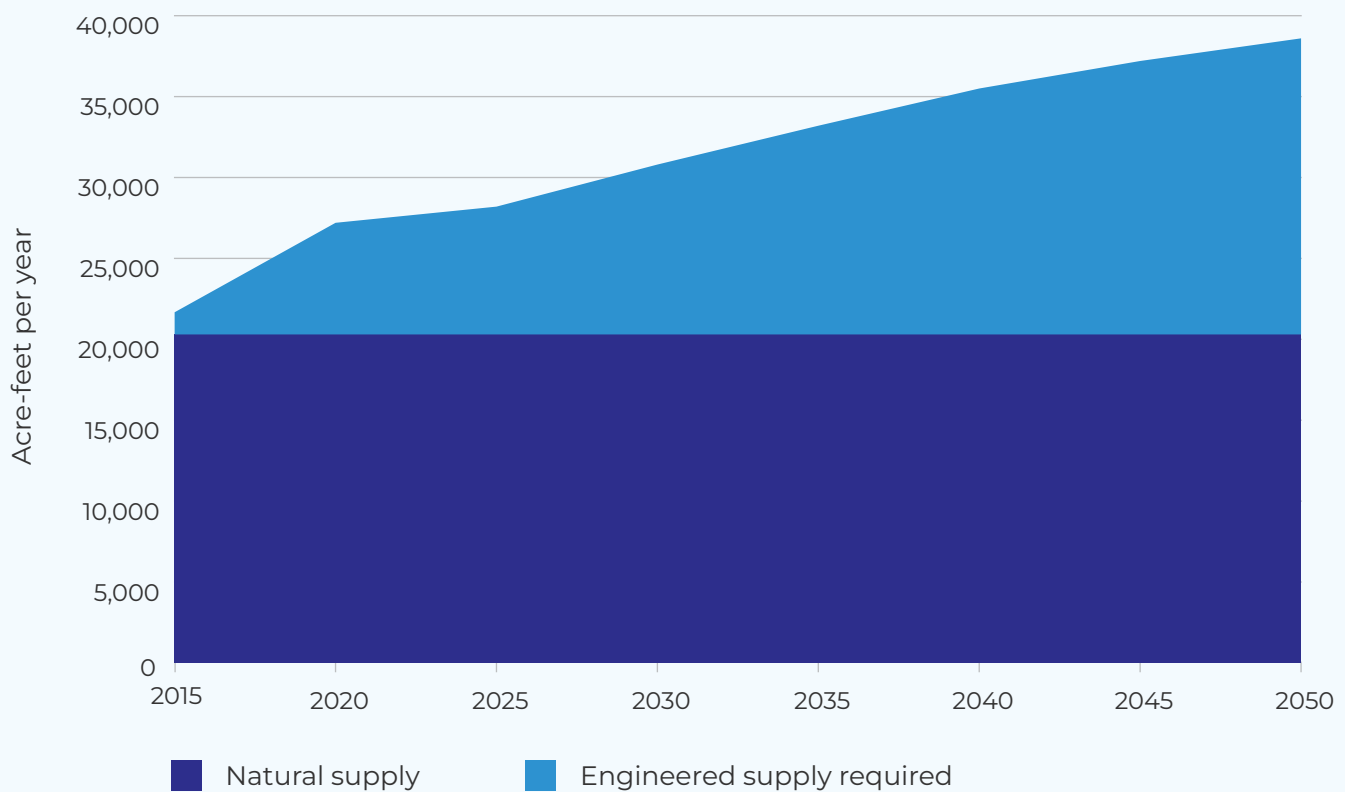
Table 3-6 Regional Water Supply and Demand Compared, 2025 and 2050

Measure	2025	2050 projected
Service area population	119,216	187,374
Total regional water demand (acre-feet)	28,200	38,600
Natural supply (acre-feet)	20,300	20,300
Share of demand met by natural supply	72%	53%
Shortfall requiring engineered supply (acre-feet)	7,900	18,300
Share of demand met by engineered supply	28%	47%
Natural supply per person (gallons per day)	152	97
Actual use per person (gallons per day)	211	184

Source: 2025 San Geronio Pass Regional Urban Water Management Plan.

The contribution of engineered water is expected to increase over time. Natural supply currently meets about 72% of demand. By 2050, projected demand rises to 38,600 acre-feet while the natural-supply benchmark remains 20,300, leaving 18,300 acre-feet, or 47%, to be supplied through imported, recycled, captured, or stored water. These projections already assume continued improvements in water-use efficiency.

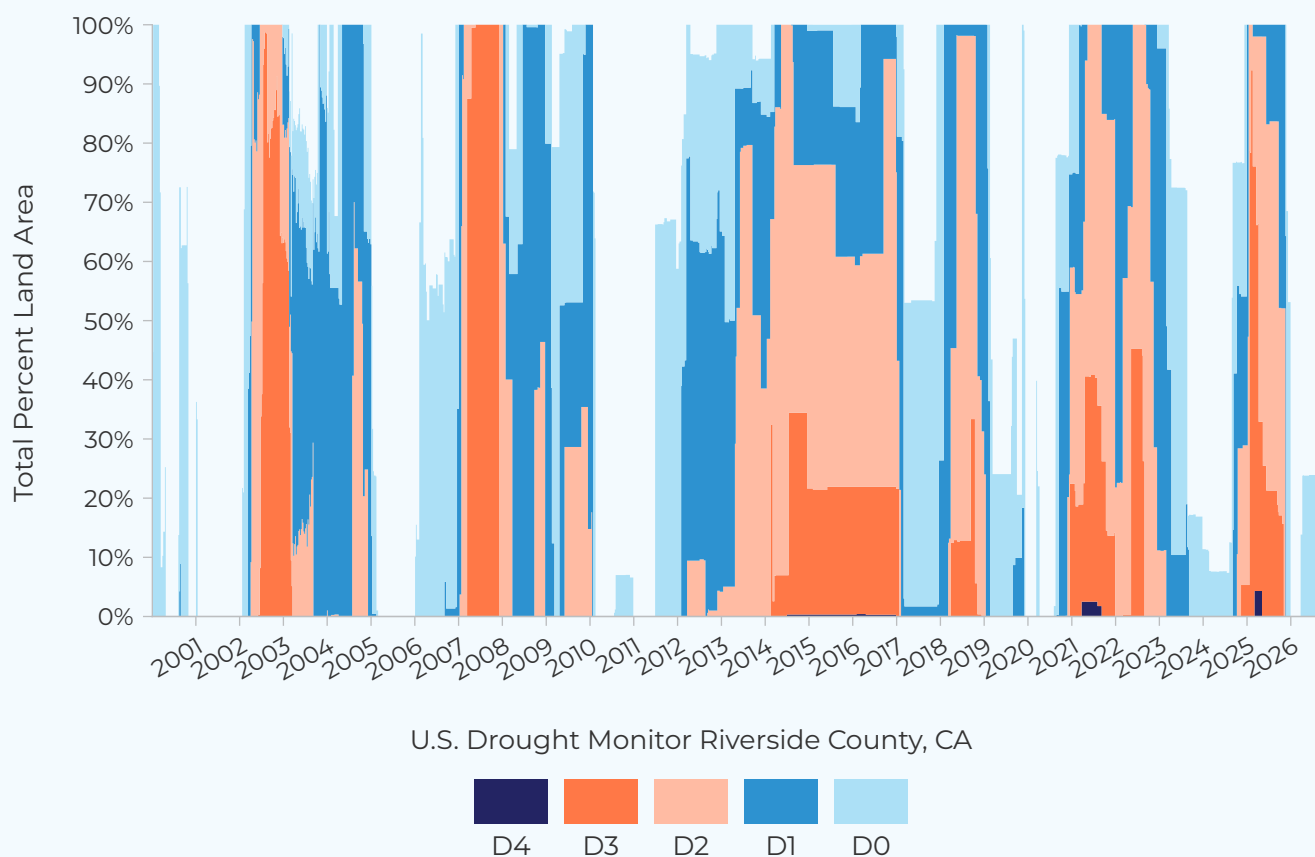
Figure 3-1 Regional Water Demand Met by Natural and Engineered Supply, 2015 to 2050



Source: 2025 San Geronio Pass Regional Urban Water Management Plan, Tables 2-8, 3-4, 4-1, and 4-2. Natural supply is held constant because sustainable yield is a long-run physical property rather than a growth variable.

Natural supply also varies from year to year. The 20,300-acre-foot estimate is a long-run planning benchmark rather than an amount available every year. Precipitation at in Beaumont averaged 16.75 inches from 1926 to 2025, but only 13.69 inches during the most recent 25 years. Figure 3-2 also shows that drought often persists across several consecutive years. This variability increases the value of supplemental supplies and groundwater storage.

Figure 3-2 Historical Drought Occurrence in Riverside County, 2000 to 2026



Source: U.S. Drought Monitor, a joint product of the National Drought Mitigation Center at the University of Nebraska-Lincoln, the U.S. Department of Agriculture, and the National Oceanic and Atmospheric Administration. Categories run from D0, abnormally dry, through D4, exceptional drought. Vertical axis shows the percentage of county land area in each category.

Imported water is also variable. State Water Project allocations have ranged from 5% to 100% of contract amounts during the past decade. The Agency received 865 acre-feet against its 17,300-acre-foot Table A contract in both 2021 and 2022, followed by the full 17,300 acre-feet in 2023. These fluctuations are not always synchronized with local precipitation, so combining local and imported sources can improve overall reliability.

SGPWA manages this variability through a diversified portfolio and storage, as previously mentioned. Water available in wetter years can be recharged into the Beaumont Basin and used later. Table 3-7 provides a historical illustration of a second benefit: surplus water has generally been less expensive when State Water Project allocations are higher.

Water acquisition costs can rise sharply when statewide supplies are scarce. In 2022, when the final State Water Project allocation was 5%, dry-year water sold for more than \$2,000 per acre-foot. In 2023, when the allocation reached 100%, some water was available for as little as \$175 per acre-foot.

From 2023 through 2025, the region recharged 57,468 acre-feet after a period of severe drought. This increased stored reserves and illustrates how recharge connects one year's available supply with future dry-year needs.

Taken together, the figures show that engineered water already supplies about 28% of the region's water use and is expected to become more important as demand grows. Because the amounts of both natural and imported water vary, the Agency's role is not limited to obtaining imported water. It also involves combining sources, managing timing, actively participating in the State's water market, partnering with other contractors throughout the state, and maintaining storage so that the regional supply is more dependable than any single source would be on its own.

Chapter 4

The Economic Yield of Water

This chapter calculates what the region's 28,300 acre-feet of water was used to support in 2025. It presents the region's population, households, employment, income, output, and tax generation on a per acre-foot basis, and discusses how much of that comes from the engineered supply. These figures report how much economic activity accompanies each unit of water. This calculation is not a return on investment; rather, it shows what the water is used for.

More than two-thirds of the region's water goes to residential customers. Most of the remaining water goes to commercial and government users, while only small percentages are used by industry (2%) and agriculture (1%).

As the following table shows, each acre-foot delivered in the San Geronio Pass supports roughly four residents, 1.4 households, and 1.25 jobs.



Table 4-1 Economic Activity per Acre-Foot of Water Used, San Gorgonio Pass, 2025

Measure	Regional total	Regional total per acre-foot	Regional activity supported by engineered supply	Regional activity supported by engineered supply, per acre-foot
Total personal income	\$6.34 billion	\$224,800	\$1.78 billion	\$63,000
Value added, the regional equivalent of GDP	\$4.15 billion	\$147,200	\$1.16 billion	\$41,200
Total economic output	\$6.85 billion	\$242,900	\$1.92 billion	\$68,000
Household spending	\$6.80 billion	\$241,100	\$1.90 billion	\$67,600
Taxes on production	\$362.9 million	\$12,900	\$101.7 million	\$3,600
Residents	119,216	4.23	33,400	1.18
Households	38,493	1.37	10,800	0.38
Jobs	35,223	1.25	9,900	0.35

Source: IMPLAN regional economic model and 2025 San Gorgonio Pass Regional Urban Water Management Plan. Analysis by Beacon Economics.

Note: Employment is total employment including proprietors and part-time positions. Production Taxes include sales tax, excise taxes, business property taxes, business licenses, and permit fees.

In 2025, each acre-foot of water used in the San Gorgonio Pass was associated with approximately \$242,900 in gross economic output and \$147,200 in value added, the regional equivalent of GDP. It was also associated with approximately \$224,800 in personal income, \$241,100 in household spending, and \$12,900 in annual tax revenue.

By comparison, the acquisition and delivery cost of engineered water is generally measured in the low thousands of dollars per acre-foot. The economic and fiscal activity dependent upon each acre-foot is therefore roughly 100 times larger than the direct cost of securing it.

This 100x should not be interpreted as a conventional return on investment, because in addition to water, regional output is created through the combined contribution of workers, businesses, land, capital, energy, transportation, and public infrastructure. Water, however, is a fundamentally critical input, and when it is reliably available, its cost represents a relatively small share of total economic activity. When it is unavailable, businesses cannot operate or expand as planned, housing cannot be developed and occupied, and investments in land and infrastructure cannot be fully utilized.

Engineered water functions not only as a purchased commodity, but also as a regional risk-management asset. It protects a recurring stream of production, income, household spending, employment, and tax revenue that is substantially larger than the cost of the water itself. Moreover, the acquisition price of an acre-foot does not fully capture the reliability premium and option value created by maintaining diversified supplies and storing water for future dry years. Investment in engineered water is a comparatively modest financial commitment that helps safeguard a much larger economic and fiscal base.

Table 4-1 also reports personal income of \$6.34 billion against GDP of \$4.15 billion, meaning resident income exceeds regional production by 53%. This is an unusually high difference and results from the fact that many residents work outside of the area. Commuting records show that roughly five of every six employed residents of the San Gorgonio Pass work outside it, in San Bernardino County, elsewhere in Riverside County, or in the Los Angeles metropolitan area.

The following table provides supporting details and reveals two important points. The first is that the number of employed residents has roughly doubled over the last 20 years, illustrating the significance of the San Gorgonio Pass area to the regional workforce. Second, the number of employed residents working within the San Gorgonio Pass rose about 120%, from 3,229 in 2005 to 7,108 in 2025. This indicates the region is not only growing, but also beginning to retain the economic activity its own population generates and create its own local economic ecosystems.

Table 4-2 Workplace Destinations of Employed San Gorgonio Pass Residents, 2005 to 2025

Workplace destination	2005	2015	2025	Change 2015 to 2025
San Bernardino County	4,987	8,412	11,671	+39%
Riverside County, outside the Pass	4,726	7,367	10,584	+44%
Los Angeles metropolitan area	4,600	5,841	8,341	+43%
Within the San Gorgonio Pass	3,229	4,531	7,108	+57%
Elsewhere in California	1,391	1,834	2,436	+33%
Total employed residents	18,934	27,985	40,139	+43%

Source: Lightcast. Analysis by Beacon Economics. Figures reflect residents of the SGPWA service area by the location of their employment.

As mentioned earlier, engineered supply accounted for 7,900 of the 28,200 acre-feet the region used in 2025, or 28%. If this percentage is applied to the economic activity in the region, it becomes apparent that engineered water accounts for \$1.78 billion in personal income, \$1.92 billion in economic output, about 33,400 residents, and roughly 9,900 jobs. These numbers should be considered a lower-bound estimate regarding the contribution of engineered water to the region's economy and population. This is because the natural supply of water is highly variable, as discussed earlier. Businesses do not invest in a new location, and people do not move to a new house, if the water in the area is uncertain. Therefore, one of the most important aspects of engineered water is the certainty and reliability it provides.

Table 4-3

Regional Economic Activity Attributable to Engineered Water Supply, 2025, not including a reliability premium

Measure	Regional total	Attributable to engineered water
Residents	119,216	33,400
Households	38,493	10,800
Jobs	35,223	9,900
Total personal income	\$6.34 billion	\$1.78 billion
Household spending	\$6.80 billion	\$1.90 billion
Total economic output	\$6.85 billion	\$1.92 billion
Value added	\$4.15 billion	\$1.16 billion
Taxes on production	\$362.9 million	\$101.7 million

Source: IMPLAN regional economic model and the 2025 San Geronio Pass Regional Urban Water Management Plan. Analysis by Beacon Economics. Attribution uses the unrounded engineered share of 7,900 / 28,200 (28.014%); displayed estimates are rounded.

Water, Public Services, and Community Well-Being

The value of a reliable water supply extends beyond the economic activity measured in the preceding tables. The World Health Organization identifies reliable access to safe water as a basic foundation of public health and community well-being. In practical terms, water supports the daily operation of homes, schools, childcare centers, hospitals, medical offices, restaurants, and emergency services. Reliability is especially important because these essential functions must continue during droughts, heat events, and other periods when natural water supplies are under the greatest pressure.

Reliable water also supports public services indirectly by enabling the households and businesses that comprise the regional tax base. New homes add assessed value, residents generate taxable spending, and businesses contribute through property taxes, sales taxes, permit fees, and other public revenues. In 2025, economic activity in the San Geronio Pass generated approximately \$363 million in taxes on production across all levels of government.¹ Applying the report's proportional framework, approximately \$101.7 million of that annual revenue was associated with the portion of regional activity supported by engineered water. These figures are not revenues received by the Agency, and not all taxes remain within the region. However, the portions going to local governments, school systems, and public agencies help finance police and fire protection, education, parks and recreation, libraries, streets, public health, and other community services.

Population and business growth have expanded taxable sales and supported employment in government, education, health care, and other locally serving industries. The relationship is mutually reinforcing: reliable water accommodates households and businesses; the resulting tax base finances public institutions; and those institutions improve community health, safety, opportunity, and quality of life. Engineered water should therefore be understood not simply as an economic input, but as essential community infrastructure.

Water Use Efficiency

The San Geronio Pass uses water much more efficiently now than a generation ago, and the savings are large enough to rank alongside physical sources of supply. The Regional Urban Water Management Plan reports what demand would have been without the efficiency gains achieved and expected, as shown in the table below.

¹ Taxes on production and imports are an economic-accounting measure that includes sales and excise taxes, property taxes, motor vehicle licenses, and similar charges, net of government subsidies. The measure excludes personal and corporate income taxes and payroll contributions.

Table 4-4 Regional Water Demand With and Without Water Use Efficiency, 2015 to 2050 (acre-feet per year)

Year	Demand with efficiency	Water use efficiency	Demand without efficiency
2015	21,671	9,370	31,041
2020	27,200	6,298	33,498
2025	28,200	7,798	35,998
2030	30,800	9,294	40,094
2035	33,200	10,661	43,861
2040	35,500	12,698	48,198
2045	37,200	15,994	53,194
2050	38,600	19,611	58,211

Source: 2025 San Geronio Pass Regional Urban Water Management Plan, Appendix A, Table 5. Reported water-use efficiency is the difference between demand as forecast and demand as it would be at unimproved rates of use, and is reported by the Agency in support of its regional self-reliance assessment. The 2020 figure is a planning estimate of demand with efficiency; Table 3-4 reports actual water use.

The region avoided using 7,798 acre-feet in 2025 through efficiency. Set against the sources described in Chapter 3, that quantity is close to the engineered supply of 7,900 acre-feet that the Agency imports, conveys, and stores. Efficiency is nearly as large as engineered supply, with natural yield remaining the largest source.

By 2050 the plan projects efficiency worth 19,611 acre-feet, which is slightly less than the 20,300 acre-feet the region's basins and surface diversions produce in an average year. Within a generation, conservation will be "supplying" nearly as much water as nature does, and more than the projected 18,300 acre-feet of engineered supply.

Table 4-5 The San Geronio Pass Region's Three Sources of Water, 2025 and 2050 (acre-feet per year)

Source	2025	2025 Proportions	2050 projected	2050 Proportions
Natural yield	20,300	56%	20,300	35%
Engineered supply	7,900	22%	18,300	31%
Water use efficiency	7,798	22%	19,611	34%

Source: 2025 San Geronio Pass Regional Urban Water Management Plan. Analysis by Beacon Economics. Proportions use demand without efficiency: 35,998 acre-feet in 2025 and 58,211 in 2050.

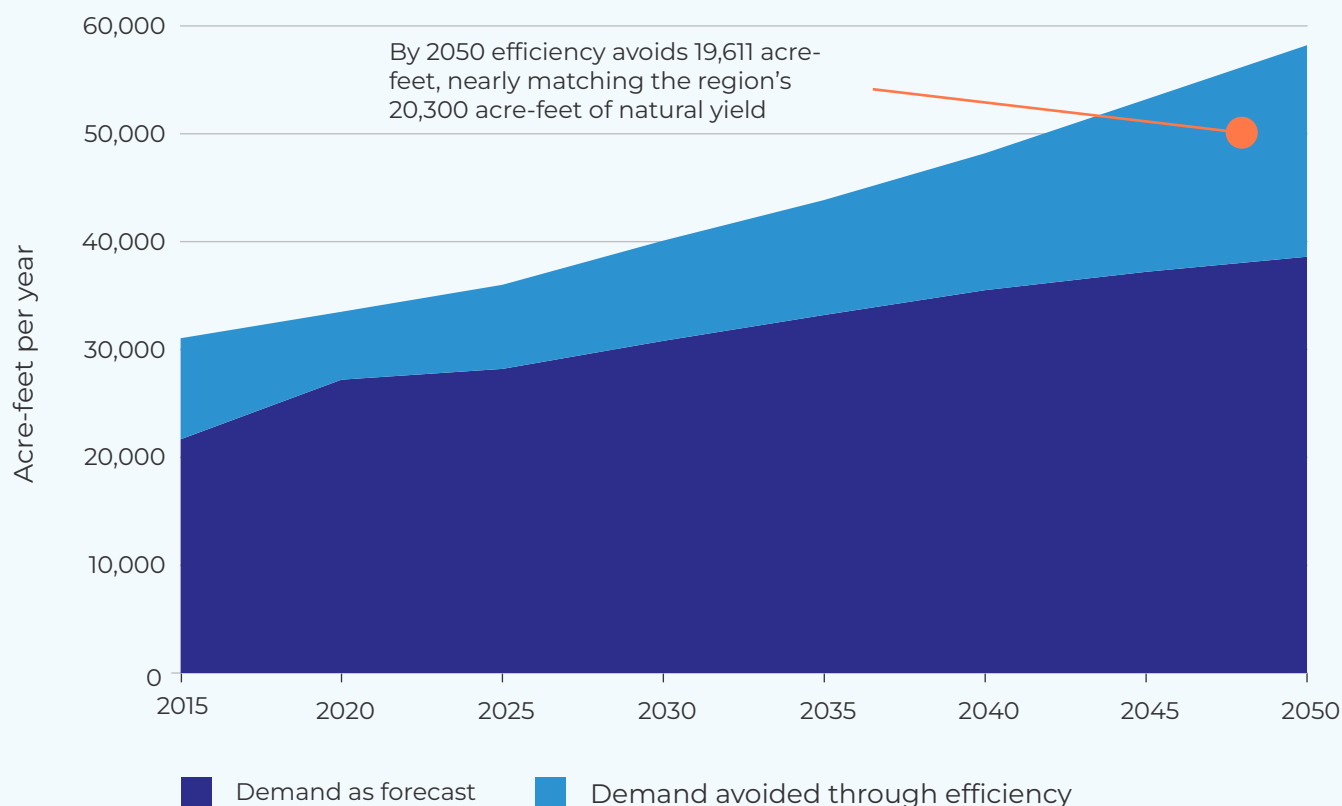


Demand Avoided Through Efficiency

Had per capita use remained at unimproved rates, demand in 2025 would have been 35,998 acre-feet rather than 28,200. Natural supply would cover only 56% of that instead of 72%, and the shortfall the Agency must close would be 15,698 acre-feet rather than 7,900. The region would need to import roughly twice as much water as it does.

Efficiency also explains part of the economic performance reported above. The region's \$6.34 billion of resident income uses 28,200 acre-feet on average. Without conservation improvements, the same income would be spread across 35,998 acre-feet, and personal income per acre-foot would be about \$176,100 rather than \$224,800. Roughly 28% of the region's economic output per unit of water is attributable to using water better rather than to producing more.

Figure 4-1 Regional Water Demand With and Without Water Use Efficiency, 2015 to 2050



Source: 2025 San Geronio Pass Regional Urban Water Management Plan, Appendix A, Table 5. The combined height of the two bands is demand as it would be at unimproved rates of use.

In Beaumont Cherry Valley Water District, the district with the longest continuous record of water usage in the region, a single-family home used about 530 gallons a day in 2000 but about 374 gallons per day in 2025, a reduction of 29%. Across all customer classes, the district's use per connection fell from 1.04 acre-feet a year to 0.58, a decline of 44%, while the number of connections it serves grew from 6,080 to 22,225.²

² Two features of the district's records affect this comparison. Multi-family residences were aggregated into the single-family category in the years 2000 and 2005, so the strictly comparable series begins in 2010, on which basis single-family use per connection fell 31% between 2010 and 2025. System losses were reported within the district's other water category before 2015 and separately thereafter, so system-wide figures include losses throughout for consistency. The district is examined in detail in Chapter 5.



The Limits of Further Efficiency

Efficiency has bought the region roughly a generation of growth, and it cannot be repeated at the same scale because the savings achieved so far resulted from indoor fixtures, and indoor fixtures are largely converted. The Water Research Foundation puts remaining indoor potential at 110 gallons per household per day against 138 today, which is meaningful but modest, and California's own standard steps down only five gallons between 2025 and 2030. The smaller reduction in the State standard is consistent with the view that, after widespread fixture replacement, future indoor conservation gains are likely to be more incremental.

What remains is the category of outdoor water useage, where savings are achieved slowly and cost more per acre-foot. In Beaumont-Cherry Valley, a landscape connection (for center medians, golf courses, parks, HOA, and commercial landscaping) uses about 5.0 acre-feet a year versus 0.42 for a single-family home, roughly 12 times as much, and residential and landscape use together account for about 82% of the district's water. Reducing that requires turf conversion and irrigation retrofits, which depend on capital and on homeowner participation rather than on a change in building code.

Therefore, while conservation has been very helpful, and still has some efficiencies to gain, it cannot be relied upon to continue to enable a growing population. The region has taken the savings that were available cheaply, and it still expects to need about 18,300 acre-feet of engineered supply a year by 2050, meaning that engineered water will play a larger role in the future.

Chapter 5

The Beaumont-Cherry Valley Water District Case

This chapter narrows the focus to a single water district in order to illustrate the economic and social benefits that a reliable water supply makes possible. Beaumont-Cherry Valley Water District (BCVWD) is well suited for this illustration because its service area sits cleanly within the Agency's boundary, unlike several neighboring districts, and it has kept records of water use and connections since before imported supply reached the Pass. That combination allows the region's experience to be examined in detail. BCVWD includes the City of Beaumont, Cherry Valley, and the surrounding communities.



5.1 A Divergence in Growth

For most of the 20th century, the City of Banning was larger than its companion community, Beaumont. At the time of the 1990 Census, the City of Banning was home to 20,570 residents; while Beaumont had 9,685, and more housing, more commerce, and a longer settled history.

This began to change after the State Water Project reached the Pass in 2003, which connected the City of Beaumont, but not the City of Banning, as Beaumont is within the BCVWD, but Banning is in a separate water district. Residential development accelerated, and by 2025 the Beaumont and Cherry Valley area had about 63,000 residents, approximately 1.75 times the roughly 36,000 in the Banning area. These are Lightcast comparison areas and should not be read as incorporated city boundaries.

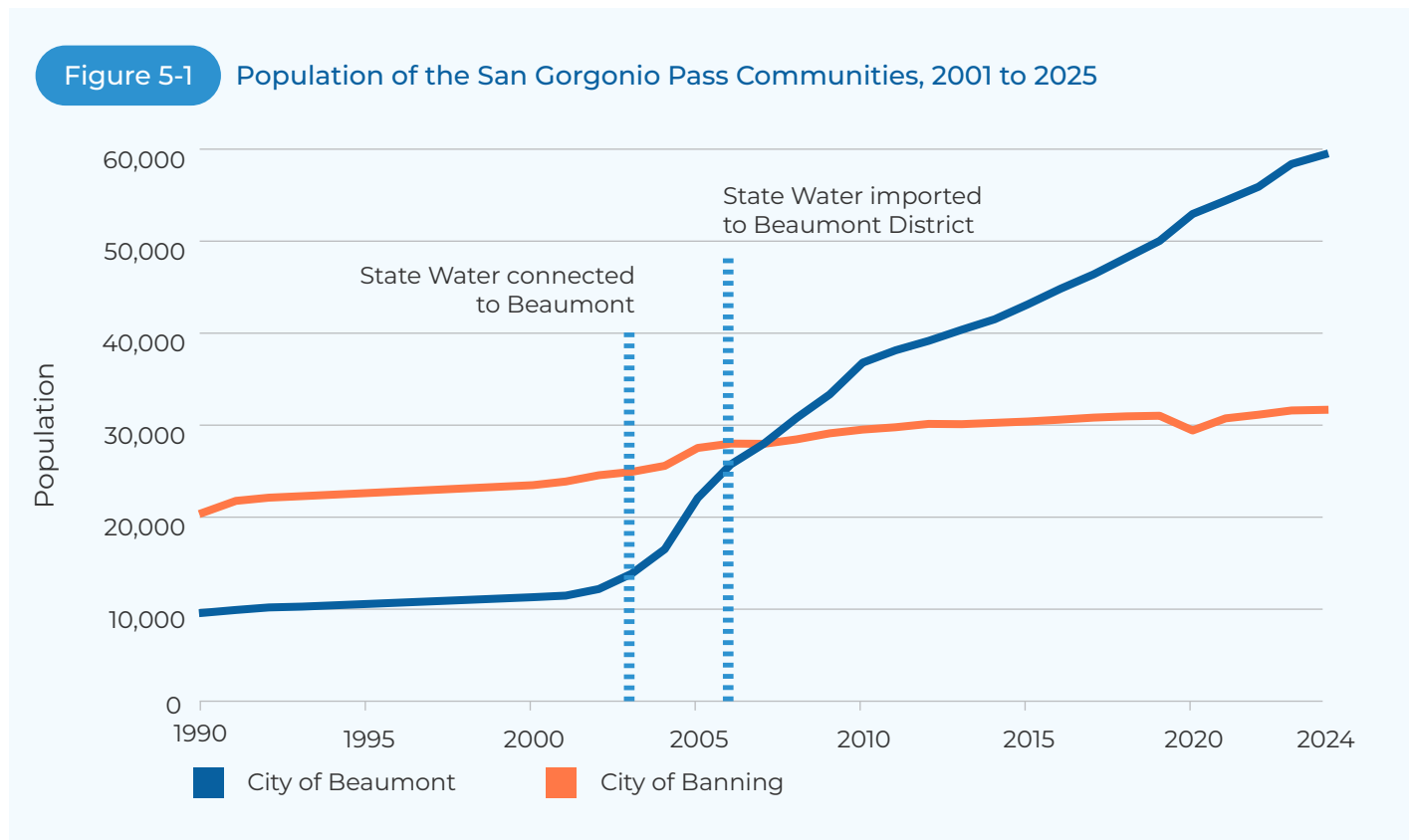




Table 5-1 Population of the San Geronio Pass Communities, 2001 to 2025

Area	2001	2010	2025	Growth 2001 to 2010	Growth 2010 to 2025
Beaumont and Cherry Valley	29,683	42,190	63,087	+42%	+50%
Banning	24,165	31,690	35,956	+31%	+13%
Calimesa	7,170	10,070	12,432	+40%	+23%
Cabazon	1,235	1,655	1,774	+34%	+7%

Source: Lightcast Q1 2026 data set. Analysis by Beacon Economics.

Building permits reflect the same divergence. Beaumont issued between 244 and 714 residential permits in every year from 2014 through 2024. Banning issued 14 in 2019, three in 2018, and two in 2014. These communities are within a few miles of one another along the same interstate, in the same county with the same climate, and are served by the same wholesale agency. These shared characteristics provide a useful basis for examining factors that may have contributed to their different growth patterns.

The comparison is not limited to Banning. From 2010 to 2025, the Beaumont and Cherry Valley area grew 50%, compared with 23% for Calimesa and 7% for Cabazon. The projections extend the pattern. Beaumont is expected to add residents faster than Banning, Cabazon, and Calimesa through the next decade.

5.2 The Arrival of Imported Supply

The State Water Project reached the San Geronio Pass in 2003, when the East Branch Extension was completed, 42 years after the Agency signed its contract with the State. The extension terminates at Noble Creek in Cherry Valley, inside BCVWD.

The BCVWD began recharging imported water at Noble Creek in 2006. It has since placed 161,336 acre-feet of purchased water into the Beaumont Basin, 82.5% of all supplemental recharge in the basin over that period. Banning, which holds an identical 80,000-acre-foot storage allocation under the same judgment, has recharged 18,227 acre-feet, or 9.3%. A second change followed in 2004, when the Beaumont Basin was adjudicated. Among other provisions, the judgment allowed the basin’s appropriators a temporary surplus for ten years, permitting extraction above safe yield while replacement supply was developed. That allowance expired at the end of 2014.³

Until 2014, the district could accommodate growth partly by drawing on that temporary allowance. Afterward it could not, and the water supporting new development in Beaumont has since come from supply the Agency purchased, conveyed more than 500 miles, and recharged into the basin on the district’s behalf. The table below shows these supply changes over time.

Table 5-2

Beaumont-Cherry Valley Water District Connections, Supply, and Demand, 2000 to 2025 (acre-feet)

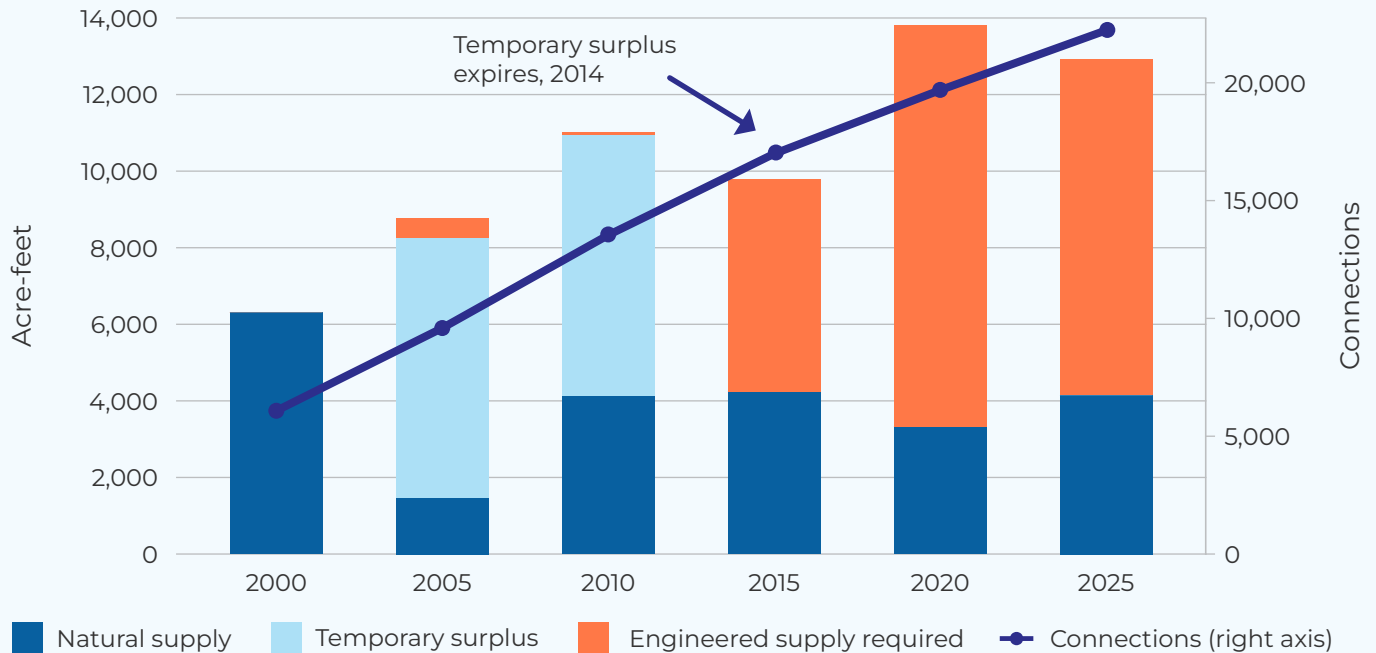
Year	Connections	Natural supply	Temporary surplus	Annual water use	Engineered supply required
2000	6,080	6,308	0	6,308	0
2005	9,591	1,463	6,802	8,787	522
2010	13,536	4,144	6,802	11,023	77
2015	16,988	4,255	0	9,792	5,537
2020	19,689	3,338	0	13,818	10,480
2025	22,225	4,153	0	12,927	8,774

Source: Beaumont-Cherry Valley Water District connections, production, and supply records; Beaumont Basin Watermaster annual reports. Natural supply is Edgar Canyon production plus the District’s portion of the natural Beaumont Basin yield. Engineered supply required is the shortfall between locally available supply and annual use, which is met by imported water taken directly or extracted from storage.

3 The 2004 Beaumont Basin judgment granted the basin’s appropriators a temporary surplus of 16,000 acre-feet per year for ten years, allowing extraction above safe yield while the parties developed replacement supply. Beaumont-Cherry Valley’s share was 42.51%, or 6,802 acre-feet. The allowance expired at the end of 2014, after which appropriators may extract only water they hold in storage or have been credited.

Figure 5-2

Beaumont-Cherry Valley Water District Water Supply by Origin and Connections Served, 2000 to 2025



Source: Beaumont-Cherry Valley Water District connections, production, and supply records; Beaumont Basin Watermaster annual reports.

5.3 The Carrying Capacity of Natural Supply

At its current average use of 0.58 acre-feet per connection, natural supply of 4,153 acre-feet would serve about 7,140 connections. The district serves 22,225. The remaining 15,085 connections are supported by water brought in from outside the region. At the household sizes prevailing in the Pass, that is approximately 44,000 residents along with the schools, stores, clinics, and employers who serve them.

Table 5-3 Connections Supportable by Natural Supply, Beaumont-Cherry Valley Water District, 2025

Measure	Value
Natural supply available	4,153 acre-feet
Average use per connection	0.58 acre-feet
Connections supportable on natural supply	7,140
Connections actually served	22,225
Connections attributable to engineered supply	15,085
Share of district attributable to engineered supply	67.9%

Source: Beaumont-Cherry Valley Water District connections and production records. Average use per connection is total 2025 water use of 12,927 acre-feet divided by 22,225 connections.

Single-family homes, which account for roughly two-thirds of deliveries, use 31% less water per connection today than in 2010. Across all customer classes, the district uses 44% less per connection than in 2000. The commercial and industrial figures have increased since 2010, reflecting the changing mix of businesses rather than declining efficiency, and both remain far below their 2000 levels.⁴

Table 5-4 Water Use per Connection by Customer Class, Beaumont-Cherry Valley Water District (acre-feet per year)

Customer class	2000	2010	2025	Change 2010 to 2025
Single-family residential	0.59	0.61	0.42	-31%
Multi-family residential		3.18	1.90	-40%
Commercial, institutional, and government	2.40	1.14	1.84	+61%
Industrial	30.29	3.91	4.85	+24%
Landscape irrigation	10.19	6.37	5.02	-21%
Agriculture	1.71	1.16	0.56	-52%
All classes, including system losses	1.04	0.81	0.58	-28%

Source: Beaumont-Cherry Valley Water District connections and production records.

⁴ Industrial and landscape figures before 2010 rest on very few accounts, seven industrial connections in 2000 and eight in 2005, and should be read as levels rather than as reliable per-connection rates. Multi-family residences were reported in the single-family category in 2000 and 2005.

The comparison between BCVWD and Banning is not exact. Both hold 80,000-acre-foot storage allocations in the Beaumont Basin and both have recharged imported water, but at very different scales. Banning has recharged 18,227 acre-feet since 2003, compared with 161,336 acre-feet by BCVWD. The region's recharge facilities are concentrated near the East Branch Extension's western terminus, which makes imported supply considerably easier for BCVWD to take and store. What differs is usable conveyance and recharge capacity, not entitlement.

Extending conveyance eastward toward Banning and Cabazon would make existing rights more usable and allow retailers to obtain imported water more directly. BCVWD's experience demonstrates the importance of this. The district's connections grew from 6,080 in 2000 to 22,225 in 2025, a 3.7-fold increase. Most of that growth came after imported deliveries began, with connections more than doubling between 2005 and 2025 even as local supply declined. Engineered water now supports roughly two-thirds of its deliveries and connections. Water access did not create BCVWD growth by itself, since land, and development approvals also mattered. It was, however, an essential condition.

Chapter 6

The Value of Supply Reliability

The preceding chapters presented what the region's water supports in an ordinary year, and how a single district grew once it gained access to imported supply. This chapter discusses a different kind of benefit, one that appears in the years when water is scarce. When a region runs short of water, households pay more for it. A reliable imported supply reduces the frequency of this, and this chapter estimates the value of those avoided charges over the next 50 years.

6.1 Surcharges and Price Elasticity

Every urban water retailer in California is required by State law to maintain a water-shortage contingency plan. The plan describes what the retailer will do at each level of shortage, from a request for voluntary conservation through to mandatory restrictions on outdoor watering, it also specifies the price increases that accompany each stage. Those increases are called drought surcharges. A surcharge is added to the volumetric portion of a water bill, which is normally billed in units of 100 cubic feet, or about 748 gallons.



Across the San Geronimo Pass, contingency plans authorize surcharges of roughly 15% to 20% at the first and mildest stage, which aims for about a 10% reduction in use. At the most severe stages, which target reductions of 40% or more, authorized surcharges reach 80%. For a household with a \$100 monthly water bill, the first stage would add roughly \$15 to \$20 a month, and the most severe stage could approach \$80 (although those severe rates have not been applied in recent history). At some agencies, the surcharge applies only to water used above a specified allowance rather than to the entire bill.

The surcharges must be large because water demand is quite inelastic, meaning people do not respond very much to changes in its price. Households cannot easily stop cooking, bathing, washing clothes, or flushing toilets, and those uses continue at nearly the same volume regardless of water price. A minority of household water use is more responsive, principally outdoor irrigation, pools, and vehicle washing. Commercial water customers behave similarly, since most water used by businesses is tied to occupancy and operations rather than discretionary choices.

Inelasticity is also what makes surcharges costly to households. If demand were elastic, a household could respond to a surcharge by using less water and therefore largely avoiding the additional cost. Because demand is inelastic, however, most of the extra charge is unavoidable. The household simply pays more for water it was always going to use. Avoiding that outcome is a genuine saving rather than a cost customers could have sidestepped through different behavior.

6.2 Model Parameterization and Specification

Estimating the value of surcharges avoided requires the model to answer the following questions: How often will the region face droughts severe enough to trigger surcharges? How much water will the region be using when that happens? And how much would a surcharge add to the cost of that water?

Predicting future droughts is inherently uncertain, so this analysis relies on the historical record rather than climate forecasts. Imported supply matters most in dry years, so the model needs a way to classify future years by how wet or dry they are.

Furthermore, dry years are not scattered at random. As previously mentioned, they cluster, and a dry year is far more likely to be followed by another dry year than by a year that is wet. The 2020 through 2022 period is a recent example. The model therefore uses a Markov

process, a method for generating sequences in which each year depends on the one before it. Drawing on 103 years of actual classifications, the analysis calculates how often each type of year historically followed each other type, and those observed frequencies govern the sequences the model generates. A second set was built with higher probabilities of dry and critical years, to test what reliability would be worth if climate change makes drought more common than the historical record suggests.

State regulations require agencies to project water demand 25 years ahead. This analysis extends those published projections across the full 50 years, assuming growth gradually slows, which reflects an expected moderation in population growth.

The model applies elasticity values between negative 0.23 and negative 0.33. Negative 0.23 means that a 10% price increase produces a 2.3% reduction in use, and negative 0.33 means a 3.3% reduction. The negative sign indicates that use falls as price rises. These values sit within the range of published estimates for urban customers at Southern California agencies. The model then links each simulated year to the surcharge stage that contingency plans would authorize under those conditions, with the steepest charges reserved for sustained critical periods, and treats that amount as avoided when reliable imported supply prevents the triggering of that stage.

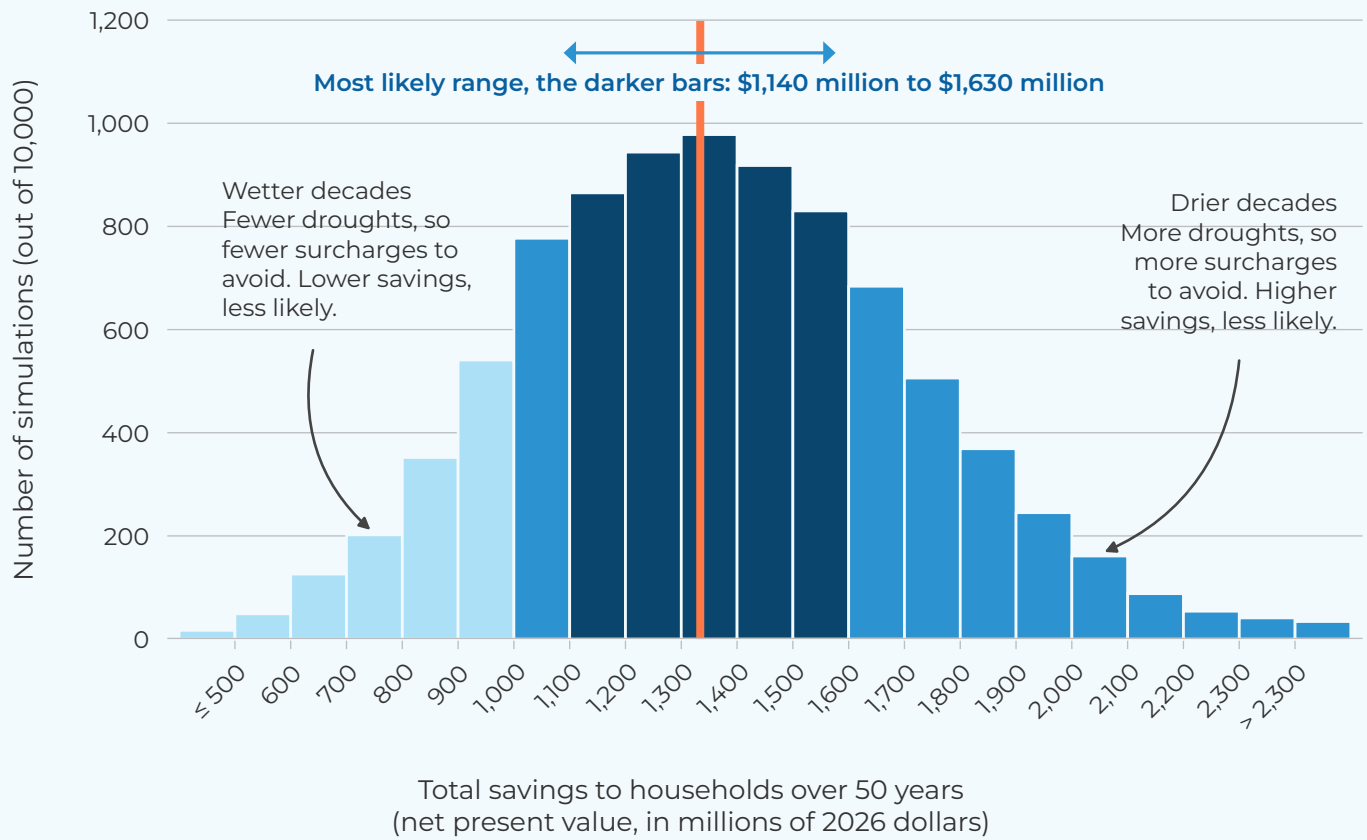
Finally, a discount rate is applied because a dollar saved 30 years from now is worth less to a household today than a dollar saved next year. Converting the whole 50-year expanse into a single figure in today's dollars produces the net present value, presented below.

Because the future sequence of wet and dry years cannot be known, the model is run 10,000 times, each run generating a different but historically plausible 50-year sequence. This is known as a Monte Carlo simulation. Runs drawing many wet years produce low values, because few surcharges would have been triggered, while runs drawing many dry years produce high values. The output is not a single forecast but a distribution showing the range of plausible outcomes and the likelihood of each. The exercise is repeated using the drier set of probabilities. In the two figures that follow, the horizontal axis shows the net present value of surcharges avoided, and the height of the curve shows how many of the 10,000 simulations produced each result.

Figure 6-1 Drought Surcharges Households Avoid Because Imported Water Is Reliable

Range of 50-year savings across 10,000 simulations, assuming drought occurs as often as it has since 1922

Median outcome: \$1,334 million (half of simulations above, half below)

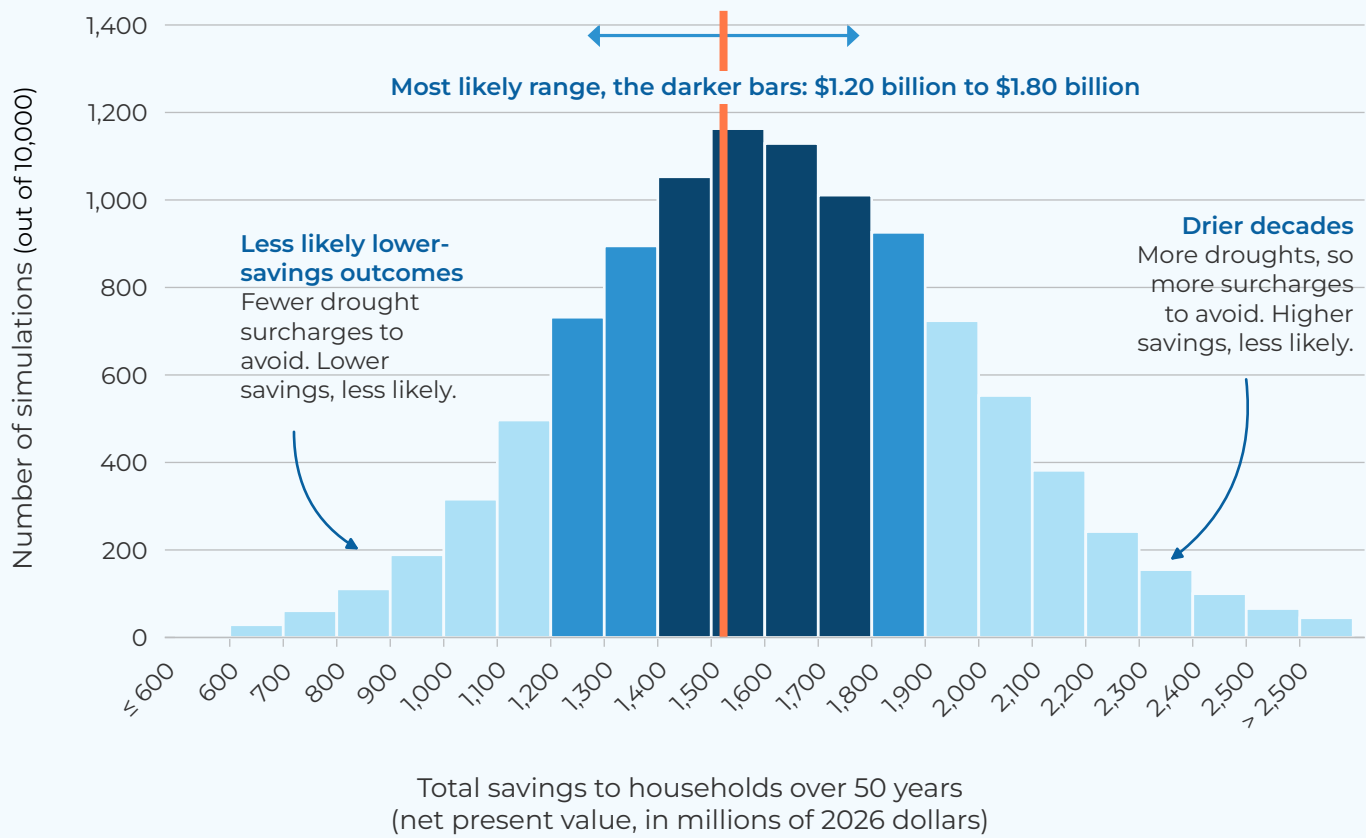


Source: Beacon Economics modeling.

Figure 6-2 The Same Savings If Droughts Become More Frequent

Range of 50-year savings across 10,000 simulations, assuming a drier future than the historical record

Median outcome: \$1,523 million (half of simulations above, half below)



Source: Beacon Economics modeling.



6.3 Model Output and Estimated Value

Under conditions resembling the historical record since 1922, the model estimates a median value of \$1.33 billion in drought surcharges avoided over 50 years, expressed in today's dollars. Median means half of the 10,000 simulations produced a higher figure and half a lower one. Half of all simulations fell between \$1.11 billion and \$1.58 billion, and 3.7% produced results above \$2 billion. Spread across the roughly 38,500 households in the service area today, the median amounts to about \$34,600 per household in present-value terms across the period.

Under the drier assumptions, the distribution shifts upward. The median rises to about \$1.52 billion, half of the simulations fall between \$1.29 billion and \$1.77 billion, and nearly 10% exceed \$2 billion, compared with 3.7% under historical conditions. The implication is that reliable supply becomes more valuable as drought becomes more frequent, and it is worth the most in the conditions that climate projections for inland Southern California consider most likely.

These results assume no growth in population or economic activity beyond what regional planning documents already forecast. If the San Geronio Pass grows faster than projected, more households would be exposed to any given surcharge and the value of avoiding it would be greater still.

Moreover, avoided surcharges are out-of-pocket billing costs, and billing costs are only part of what reliability is worth. Research on the value of water supply reliability has consistently found that customers value avoiding shortages well above their measurable billing losses. A drought restriction also means brown lawns, dead landscaping that is expensive to replace, limits on outdoor use, and the inconvenience of rationing. None of that appears on a water bill, and none of it is captured here. The figures should be read as a lower bound rather than a central estimate.

Finally, acre-foot that arrives dependably is worth more than one that may or may not arrive, because households, businesses, and public agencies can plan around the first and must hedge against the second. The diversified portfolio, conveyance capacity, and underground storage described in Chapter 3 are what convert an uncertain supply into a dependable one. This chapter puts a conservative floor on what that conversion is worth.

Conclusion

The value of essential systems is easiest to overlook when they work well. In the San Geronio Pass, reliable water is one of those foundations. Water by itself does not create growth; land, labor, capital, and sound public decisions also matter. Yet none can be sustained at scale without dependable water. This report finds that engineered water has expanded the region's capacity to grow while reducing its exposure to an uncertain natural supply.

The contribution is already substantial. The region used approximately 28,200 acre-feet in 2025, compared with a natural-supply benchmark of about 20,300 acre-feet. Engineered sources supplied the remaining 7,900 acre-feet, or roughly 28% of the total. By 2050, demand is projected to reach 38,600 acre-feet per year. With natural yield essentially unchanged, engineered supply would need to provide about 18,300 acre-feet, slightly less than half of all water used, even with continued gains in efficiency.

Quantity is only part of the story. Local precipitation and groundwater recharge vary, while State Water Project allocations have ranged from 5% to 100% during the past decade. SGPWA manages both forms of uncertainty through a diversified portfolio, imported-water conveyance, timely purchases, and underground storage. The 57,468 acre-feet recharged from 2023 through 2025 illustrate how this system carries wet-year availability forward to meet future needs.

The economic figures indicate the scale of activity that depends on this capacity. In 2025, each acre-foot used in the region was associated with approximately \$242,900 in economic output and \$147,200 in value added. These figures are not a return on the cost of water, nor do they suggest that water alone produced this activity. They show how an indispensable input supports a much larger economic system. On a proportional basis, engineered water was associated with about 33,400 residents, 9,900 jobs, \$1.92 billion in annual output, and \$101.7 million in annual tax generation. That tax base helps finance schools, public safety, parks, streets, health services, and other community benefits.



3.7×

growth in Beaumont-Cherry Valley connections, 2000 to 2025

Beaumont-Cherry Valley provides a practical example. From 2000 to 2025, district connections increased about 3.7-fold. Imported water did not cause this growth on its own, since market demand, land, wastewater service, and local approvals also mattered. Nevertheless, growth on this scale could not have been served by natural water alone.

Efficiency and reliability complete the picture. Conservation avoided an estimated 7,798 acre-feet of demand in 2025 and is projected to avoid 19,611 acre-feet by 2050. These savings stretch every source, but do not eliminate the need for engineered supply. Using authorized contingency-plan surcharge schedules, the reliability model estimates median present-value savings from potential charges forgone of about \$1.38 billion over 50 years under historical conditions and \$1.57 billion under drier conditions. This measure is separate from annual economic activity and likely understates the broader value of avoiding shortages and uncertainty.

The region's future therefore depends not simply on obtaining more water, but on preserving a flexible system that can acquire water when available, store it across years, move it throughout the service area, and use it efficiently. By performing these functions, SGPWA provides more than a commodity. It provides the reliability that allows households, employers, investors, and public institutions to plan with greater confidence. That reliability is the water system's most important economic and community contribution.

About Beacon Economics



Founded in 2006, Beacon Economics, an LLC and a certified Small Business Enterprise with the state of California, is an independent research and consulting firm dedicated to delivering accurate, insightful, and objectively based economic analysis. Employing unique proprietary models, vast databases, and sophisticated data processing, the company's specialized practice areas include sustainable growth and development, real estate market analysis, economic forecasting, industry analysis, economic policy analysis, and economic impact studies. Beacon Economics equips its clients with the data and analysis they need to understand the significance of on-the-ground realities and to make informed business and policy decisions.

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Project Team

Christopher Thornberg, PhD

Founding Partner (Project Advisor)

Stafford Nichols, MBA, MPP, PhD(c)

Research Manager

Emil Alexander Sabán, MA

Senior Research Associate

For further information about this report, or to learn more about Beacon Economics please contact:

Sherif Hanna

Managing Partner

sherif@beaconecon.com

Victoria Pike Bond

Director of Marketing and Communications

victoria@beaconecon.com

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