2020 Urban Water Management Plan

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Comprehensive Water Planning

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This 2020 Urban Water Management Plan was prepared under the direction of a California licensed civil engineer.

Executive Summary Layperson's Description

After the devastating drought in the late 1970s, the California Legislature declared California's water supplies a limited resource, subject to ever-increasing demands and that the long-term, reliable supply of water is essential to protect California's businesses, communities, agricultural production, and environmental interests. The Legislature also recognized a need to strengthen local and regional drought planning and increase statewide resilience to drought and climate change. Thus, in 1983, the California Legislature created the Urban Water Management Planning Act (UWMPA).[1] The UWMPA requires urban water suppliers serving over 3,000 customers or supplying directly or indirectly at least 3,000 acre-feet of water annually to prepare and adopt an urban water management plan every five years,[2] and demonstrate water supply reliability in a normal year, single dry year, and droughts lasting at least five years over a twenty-year planning horizon.[3] The UWMPA also requires each urban water supplier to prepare a drought risk assessment and water shortage contingency plan.[4] And last, beginning in July 2022, each urban water supplier must prepare an annual water supply and demand assessment.[5] The California Legislature emphasizes that aggregating all of these legal requirements at the urban water supplier management level will improve local, regional, and statewide water planning and water resilience.

At a practical level, the Urban Water Management Plan (UWMP) is the water management foundation for urban water suppliers throughout California. A well-constructed UWMP will provide the supplier's elected officials, management, staff, and customers with an understanding of past, current, and future water conditions and management. The UWMP integrates local and regional land use planning, regional water supply, infrastructure, and demand management projects as well as addresses statewide challenges that may manifest through climate change and evolving regulations. Thoughtful urban water management planning provides an opportunity for the supplier to integrate supplies and demands in a balanced and methodical planning platform that addresses short-term and long-term planning conditions. In brief, the UWMP gathers, characterizes, and synthesizes water-related information from numerous sources into a plan with local, regional, and statewide practical utility.

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[1] California Water Code Section 10610 *et seq*. (Chapter 1 added by Stats. 1983, Ch. 1009, Sec. 1) and its subsequent amendments.

[2] California Water Code Section 10610 *et seq*.

[3] California Water Code Sections 10631-10635.

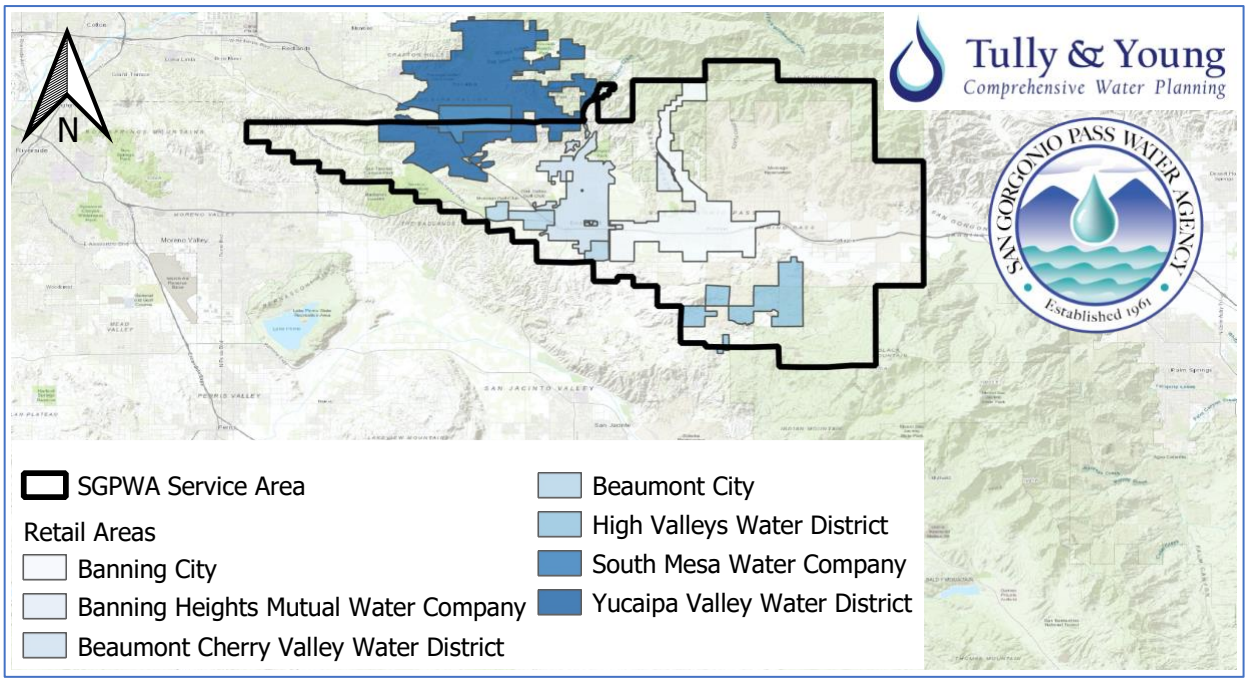
[4] California Water Code Sections 10632.

[5] California Water Code Sections 10632.1.

ES-1 San Gorgonio Pass Water Agency

The San Gorgonio Pass Water Agency (SGPWA) was formed in 1961 as a special act district codified in Chapter 101 of the California Water Code Appendix as the San Gorgonio Pass Water Agency Act (SGPWA Act).[6] The SGPWA Law states that SGPWA was created, in part, to eliminate groundwater overdraft conditions in the SGPWA service area.[7] The SGPWA Act further establishes that SGPWA's service area boundaries include very specific geographical locations in Riverside County as shown in Figure ES-1 that incorporate the entire of other retail water agencies.[8] In summary, SGPWA's fundamental purpose is to eliminate groundwater overdraft conditions by improving imported water service reliability within SGPWA's service area boundary.[9]

Figure ES-1: SGPWA Water Service Boundary with Additional Retail Areas



The SGPWA service area encompasses approximately 225 square miles of Riverside County. Its service area has numerous retail water purveyors that coordinate with SGPWA to obtain additional water supplies to supplement the limited supplies produced at the local level and contained in the groundwater basins. The retail water suppliers in the SGPWA service area are preparing individual plans under the UWMPA if they meet the Act's minimum threshold criteria. SGPWA's goals include sound fiscal and organizational policies, effectively managing water resources in conjunction with the State Water Project (SWP) and other imported supplies, maintaining water quality, and promoting efficient

[6] California Water Code Appendix, San Gorgonio Pass Water Agency Act, Section 101-1 *et seq*., 1961.
[7] SGPWA Act Section 101-15.
[8] SGPWA Act Section 101-2.
[9] SGPWA Act Section 101-15.5

use of the region's resources through local education programs, social media, and demonstration garden.

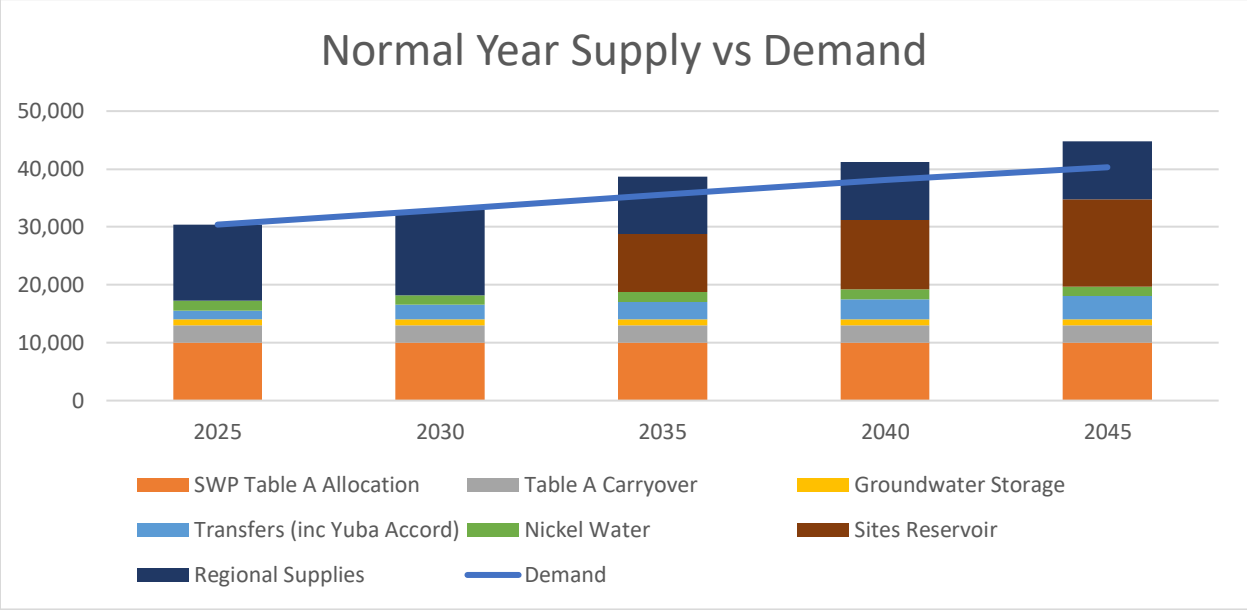
ES-2 SGPWA Water Service Reliability

San Gorgonio Pass Water Agency aggregates the regional water supplies and demands in this 2020 Urban Water Management Plan (UWMP) through its roles as a wholesale water purveyor of State Water Project supplies, importer of additional water supplies, and participant in regional groundwater management activities. All these efforts necessitate examination of water supplies at a region-wide level in order to ensure supply reliability among the numerous regional retail purveyors and others that depend upon the regional water resources.

SGPWA has extended the planning horizon considered in this 2020 UWMP from the statutorily required twenty-year timeline to a twenty-five-year period through 2045. This extended planning horizon allows SGPWA and the regional retail water purveyors to address longer-term land use planning, water planning, and infrastructure considerations. Moreover, the extended timeline assists SGPWA's Board of Directors in examining historical and long-term trends in water resources conservation, management, and use in order to ground current and future decision-making. Together, all these considerations help improve regional coordination and planning.

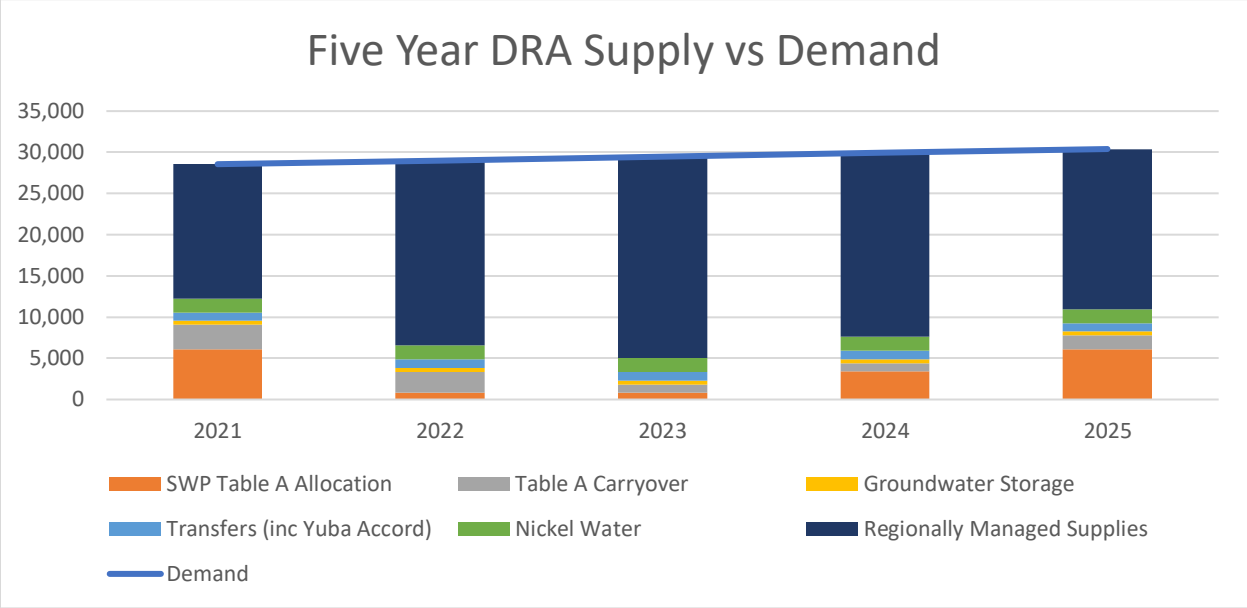
As shown in Figure ES-2, SGPWA has reliable water supplies through the 2045 planning horizon. SGPWA has assessed the available SWP supplies, imported supplies, and locally available managed water supplies to assess regional water supply reliability through this planning horizon. In addition, SGPWA engages in annual water transfers and exchanges and stores water both within SGPWA's service area boundaries and outside its boundaries to address variable water conditions. Together, these supplies make up SGPWA's regional water asset portfolio that is actively managed by coordinated actions between SGPWA and the regional retail agencies to ensure long-term reliability.

Figure ES-2: SGPWA's Water Service Reliability through 2045 (AFY)



SGPWA also coordinates management of its water supplies with the retail agencies to address projected dry conditions. Specifically, SGPWA and the retail agencies capture and store surplus imported water in normal and wet years in order to use the stored water assets to meet regional demands in dry years. Moreover, the retail agencies rely upon locally managed water supplies, including native groundwater, recycled supplies, surface water assets, and return flows, to meet their annual demands. These actions stabilize annual fluctuations in recurring imported supplies that may not meet regional demands under certain dry conditions. Figure ES-3 shows a water reliability assessment for a drought lasting five consecutive years where the retail agencies in SGPWA service area use stored water and regionally managed supplies to offset fluctuations in its SWP supplies.

Figure ES-3: SGPWA's Drought Risk Assessment from 2021 through 2025 (AFY)



In summary, SGPWA's diverse surface water supply portfolio, combined with its coordinated management of regionally managed surface and groundwater resources with retail purveyors, provide stable and reliable water supplies to meet SGPWA's current and 2045 future water demands in its service area.

Chapter 1
Introduction

The San Gorgonio Pass Water Agency (SGPWA) was established by the SGPWA Act, passed by the California Legislature in 1961. When formed, the service area population was approximately 21,000 but now exceeds 100,000. This population is served by numerous large and small urban retail suppliers, small public water systems, rural domestic users, and tribal governments. SGPWA's goal is to supplement water to protect and enhance local water supplies for use by current and future populations through the import of water that is managed by local water suppliers for regional sustainability.

SGPWA is a State Water Project (SWP) contractor, acting as a wholesale supplier to retail water suppliers and other water users in its service area. SGPWA's sound fiscal and organizational policies effectively manage the imported water resources in conjunction with the SWP, maintaining water quality, and promoting efficient use of the regions resources through regional conservation programs and public awareness.

Ensuring an adequate supply of water is available to help balance the local groundwater basins to serve the existing and future needs for water users within SGPWA's service area is a critical component of successful operations. This Urban Water Management Plan (UWMP) draws on local, regional, and statewide inputs to synthesize information from numerous sources into a reliable water management action plan designed to be referred to as management and Board level decisions arise and conditions change.

It is important to note that this UWMP has been completed to address regional resource management and does not address the particular conditions of any specific retail water agency or entity within the SGPWA service area. The retail urban water suppliers within SGPWA service area are preparing their own separate UWMPs where required, though SGPWA has facilitated coordination among the retailers to assure consistency.

1.1 Background and Purpose

SGPWA has prepared this 2020 UWMP to comply with the Urban Water Management Planning Act (UWMPA) requirements for urban wholesale water suppliers. This 2020 UWMP addresses SGPWA's water management planning efforts to assure adequate water supplies to meet forecast demands over the next 25 years. As required by the UWMPA, the 2020 UWMP specifically assesses the availability of its supplies to meet forecast water uses during average, single-dry, and five consecutive drought years through 2045. Verification that future demands will not exceed supplies and assuring the availability of supplies in dry-year conditions are critical outcomes of this 2020 UWMP.

The 2020 UWMP is an update to SGPWA's 2015 UWMP and presents new data and analysis as required by the California Department of Water Resources (DWR) and the California Water Code (CWC) since 2015. The 2020 UWMP is also a comprehensive water planning document that describes existing and future supply reliability, forecasts future water uses, presents demand management progress, and identifies local and regional cooperative efforts to meet projected water use.

The UWMP is designed to be a valuable water management and planning tool to guide and inform the SGPWA Board of Directors, managers, staff, local urban retail water suppliers, regional water users, and the State of California about its water management practices. The UWMP reflects SGPWA's planning assumptions and goals and should be used in combination with other planning resources and documents over the UWMP planning horizon.

The State of California's drought vulnerability and the additional pressures of climate change and population growth have emphasized the importance of planning ahead to meet water demands with potentially at-risk water supplies. Such forward planning is an important outcome of the 2020 UWMP.

1.2 Basis for Plan Preparation

SGPWA qualifies as an Urban Water Supplier as described in Water Code Section 10617: "An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers." Under this definition SGPWA is a Wholesale Water Supplier providing water for municipal purposes to more than 3,000 customers or 3,000 acre/feet of water per year. These qualifications require the preparation of an UWMP every five years.

The State Legislature passed numerous new requirements since the 2015 UWMP, which are detailed throughout this 2020 UWMP.[10] Major updates to the requirements are listed below along with a reference to the corresponding section in which they are addressed in this document.

- **Five Consecutive Dry-Year Water Reliability Assessment:** The Legislature modified the dry-year water reliability planning from a "multiyear" time period to a "drought lasting five consecutive water years" designation. This statutory change requires a Supplier to analyze the reliability of its water supplies to meet its water use over an extended drought period. This new requirement is addressed in Chapter 3—Water Supply Characterization, Chapter 4–Water Use, and Chapter 5—Water Service Reliability Assessment.
- **Drought Risk Assessment (DRA):** Due to the extensiveness of recent California droughts and the variability associated with climate change predictions, the California Legislature created a DRA requirement for UWMPs. The DRA requires assessment over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability for five consecutive dry years. SGPWA's water supplies are addressed in Chapter 3 – Water Supplies; the DRA is addressed in Chapter 5— Water Service Reliability Assessment, and Chapter 6—Water Shortage Contingency Plans.
- **Seismic Risk:** Evaluating seismic risk to water system infrastructure and facilities and having a mitigation plan is now required by the Water Code. Incorporating the water system into

[10] California Water Code Sections 10608 to 10608.44; Sections 10609 to 10609.38; Sections 10610 to 10657.

regional or county hazard mitigation planning is an important aspect of this new statue. Seismic risk is addressed in Chapter 6.

- **Water Shortage Contingency Plan:** In 2018, the Legislature modified the UWMPA to require a Water Shortage Contingency Plan (WSCP) with specific elements. The WSCP is a document that provides a Supplier with an action plan for a drought or catastrophic water supply shortage. The WSCP is in Chapter 6 of this UWMP.
- **Groundwater Supplies Coordination:** 2020 UWMPs are required to be consistent with Groundwater Sustainability Plans following the 2014 Legislature enactment of the 2014 Sustainable Groundwater Management Act (SGMA). Some of the groundwater supplies in SGPWA's service area are subject to adjudications, while others are in the development phase of Groundwater Sustainability Plans. Groundwater basins are described in Chapter 3—Water Supply Characterization.
- **Lay Description:** A synopsis of the fundamental determinations of the UWMP is a new statutory requirement in 2020. This section of the is intended for new staff, new governing members, customers, and the media, and it can ensure a consistent representation of the Supplier's detailed analysis.

1.3 Coordination and Outreach

As required by the UWMPA, SGPWA has coordinated with nearby agencies while developing this UWMP in order to ensure consistency with other related planning efforts such as city and county General Plans, local retailer UWMPs, Adjudications, and Groundwater Sustainability Plans (GSP). This requirement includes coordination with (a) water suppliers that share a common water source, (b) relevant water management agencies that affect SGPWA's water assets, and relevant public agencies that may have land use or other regulatory relationships with SGPWA. Qualified retail suppliers within SGPWA's service area are completing their own UWMPs and it should be noted that specific conditions within those individual retail service areas are addressed in the retailers' individual UWMPs. SGPWA has prepared this 2020 UWMP in coordination with all regional water purveyors and has appropriately notified and coordinated with other appropriate local government agencies as listed in Table 1-2.

Further, as stipulated in Water Code Section 10621(b), every urban water supplier shall seek active involvement from diverse elements of the community. SGPWA sought public participation through a public hearing and notices to members of the community. These coordination efforts and Statutory Requirements for Notice are also included in Table 1-1.

Table 1-1: Public and Agency Coordination

Coordinating Agencies	Coordinate Regarding Demands	Sent Copy of Draft UWMP	Sent 60-Day Notice	Notice of Public Hearing
City of Banning	X	X	X	X
Beaumont Cherry Valley Water District	X	X	X	X
Yucaipa Valley Water District	X	X	X	X
South Mesa Water District	X	X	X	X
High Valleys Water District	X	X	X	X
Banning Heights Mutual Water Company	X	X	X	X
Cabazon Water District	X	X	X	X
Morongo Band of Mission Indians	X	X	X	X
Riverside County Planning Department		X	X	
California Department of Water Resources		X		
Local Agency Formation Commission (LAFCO) for Riverside County			X	X
General Public				X

1.3.1 Water Supplier Information Exchange

Water Code Section 10631 requires wholesale and retail water agencies to provide each other with information regarding water supply and demand. Since SGPWA receives water from the State Water Project and provides water as a wholesaler to its retail customers, it has coordinated on both sides with supply and demand information as noted in Table 1-1.

1.3.2 Statutory Requirements for Notice

In accordance with the UWMPA, notification of the UWMP update was provided to cities and counties within the service area at least 60 days prior to the public hearing of the plan as required by Section 10621(b) of the Water Code. Electronic copies of the final UWMP will be provided to the County no later than 30 days after its submission to DWR.

1.4 UWMP Adoption

SGPWA held a public hearing regarding its 2020 UWMP on June 21, 2021. Before the hearing, a draft was made available for public inspection at the SGPWA's office building and on its website. Pursuant to CWC Section 10642, notice of the public hearing was provided through publication of the hearing date and time in local media under the requirements of Government Code 6066 and posting of the hearing at the SGPWA offices.

The SGPWA's elected body adopted this 2020 UWMP on June 21, 2021. A copy of the adopted 2020 UWMP will be submitted to DWR, provided to the County and the California State Library, and posted onto the SGPWA website.

SGPWA will submit all required documentation related to the UWMPA through the DWR submittal website soon after adoption. These include the following required DWR Excel workbooks:

- "FINAL Submittal 2020 UWMP Tables 04.02.2021.xls"
- "FINAL Energy Use Tables 04.01.21.xls"

1.5 Document Organization

This UWMP is organized as follows:

- Chapter 2 provides a description of the SGPWA service area, demographic characteristics, and climate, and describes the future population the Agency anticipates needing to serve.
- Chapter 3 describes SGPWA's current and future water supplies and the availability of the supplies through 2045.
- Chapter 4 details the regional customer uses, including the past and future estimated uses, and describes the SGPWA's past and on-going demand management measures.
- Chapter 5 presents the SGPWA's water system service reliability into the future, including an assessment of reliability if a drought occurred over the next five consecutive years.
- Chapter 6 is SGPWA's stand-alone water shortage contingency plan, incorporated as a chapter in this UWMP, but also available to be shared and utilized separate from the UWMP.

NOTE TO DWR:

San Gorgonio Pass Water Agency has written this Urban Water Management Plan (UWMP) primarily as a water resources planning tool to effectively manage water supply, reliability and demand. This UWMP also satisfies all the requirements of the Urban Water Management Planning Act (UWMPA).

The body of the document provides narratives, analysis and data that DWR requests in its 2020 UWMP Guidebook, including changes to the California Water Code since 2015. Efforts have also been made to include enhancements to this document wherever possible as recommended in the 2020 UWMP Guidebook.

To facilitate review by DWR for compliance with the UWMPA, data from the body of the document has been transferred into required DWR submittal tables consistent with the organization of the tables in Appendix E of the 2020 UWMP Guidebook. These tables are separately uploaded to DWR's web portal. This UWMP has been reviewed for adequacy according to the UWMP Checklist as contained in Appendix F in the 2020 UWMP Guidebook.

Chapter 2
Water Service and System Description

The SGPWA service area encompasses approximately 225 square miles of an arid inland zone in Southern California, connecting the San Bernardino Valley to the west, and the Coachella Valley to the east. The San Gorgonio Pass (aka Banning Pass) is a gap between the San Bernardino Mountains in the north and the San Jacinto Mountains in the south. The western half of the Pass is in the Santa Ana River watershed, while the eastern half drains to the Whitewater River. The area serves as a major transportation corridor with Interstate 10 and the Union Pacific railway running through it, connecting the Greater Los Angeles Area with the interior United States. SGPWA service area includes the incorporated cities of Calimesa, Beaumont, and Banning, and the communities of Cherry Valley, Cabazon, and the Banning Bench.

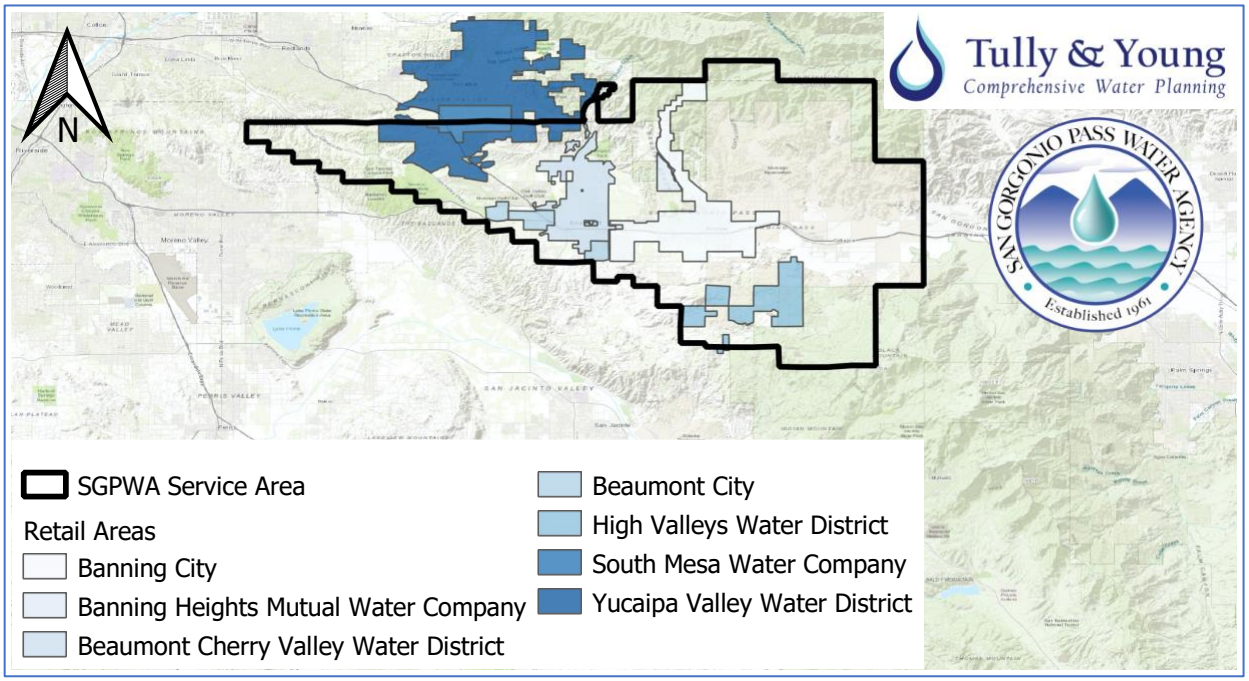
The Agency is one of 27 State Water Contractors (SWC), an association of public water agencies that represent the legal, policy, and regulatory interests of the State Water Project contractors, who are responsible for the capital and operations and maintenance costs of the SWP. The SWC works in partnership with other water organizations, and coordinates with Department of Water Resources on behalf of its members. Legislation for the State Water Project (SWP) passed in 1959 to begin work on the California Aqueduct, along with the Davis-Gunsky Act, which allowed regions the opportunity to form local water agencies. Soon after, in 1961, the SGPWA was formed to "import water to local water agencies and protect and enhance local water supplies for use by present and future water suppliers."[11] Water is imported into the service area by the California Aqueduct via the East Branch Extension and extensive transmission pipelines to local groundwater basins and reservoirs.

The SGPWA service area is divided into five geographical divisions, each one represented by a publicly elected board member who serves a four-year term. There are also two at-large Directors making a total of seven. Elections are held in November of even numbered years. SGPWA's Sphere of Influence (SOI) is generally contiguous with its service area. The service area is shown in Figure 2-1.

Water supply for the SGPWA's service area is sourced almost entirely from pumped groundwater from the various basins, subbasins, and aquifers in the area. Groundwater is recharged by natural storm water flows, infiltration of the local river and streams, SWP imports to recharge basins, other water supply imports, and irrigation and wastewater return flows derived from septic system and recycled water assets. SGPWA is working diligently with its retail partners to shore-up SGPWA's current and future surface water supplies and to help manage these supplies in the context of improved regional conservation and regional water resources management actions.

[11] San Gorgonio Pass Water Agency Strategic Plan, 2019

Figure 2-1: Water Service Area Map



2.1 Integrated Regional Water Management Plan

In 2016, the San Gorgonio IRWM Regional Water Management Group (RWMG) was formed to manage the development of a new IRWM Region in the San Gorgonio Pass. The RWMG includes the City of Banning, Banning Heights Mutual Water Company, Cabazon Water District, High Valleys Water District, Riverside County Flood Control and Water Conservation District, and the San Gorgonio Pass Water Agency. The RWMG is responsible for preparing the IRWM Plan and governing the planning process, as well as approving projects for inclusion in the Plan. In 2018 SGPWA and its regional partners adopted the first IRWM to establish a collaborative, stakeholder driven effort to manage water resources in the region[12]. The IRWM covers objectives, resources management strategies, localized water and land use planning, and other DWR requirements.

2.2 Retail Water Suppliers

The San Gorgonio Pass service area encompasses several retail public water entities that provide water service to residents within the service area mostly from groundwater supplies replenished by SWP water imported by SGPWA (see Figure 2-1). The City of Banning (Banning), Beaumont Cherry Valley Water District (BCVWD), and Yucaipa Valley Water District (YVWD) have historically been required to complete their own UWMPs, with South Mesa Water Company completing its first UWMP for 2020.[13] Table 2-1

[12] SGPWA IRMW Plan 2018 Text: https://28c3dd9f-69f5-4dd5-bf25-251074d401bb.filesusr.com/ugd/1f9eac_5c710c4ce81240acb3f01a38afb57bca.pdf
[13] California Water Code Section 10620

lists most of the retail public water entities within the SGPWA service area along with relevant service area and connection information.

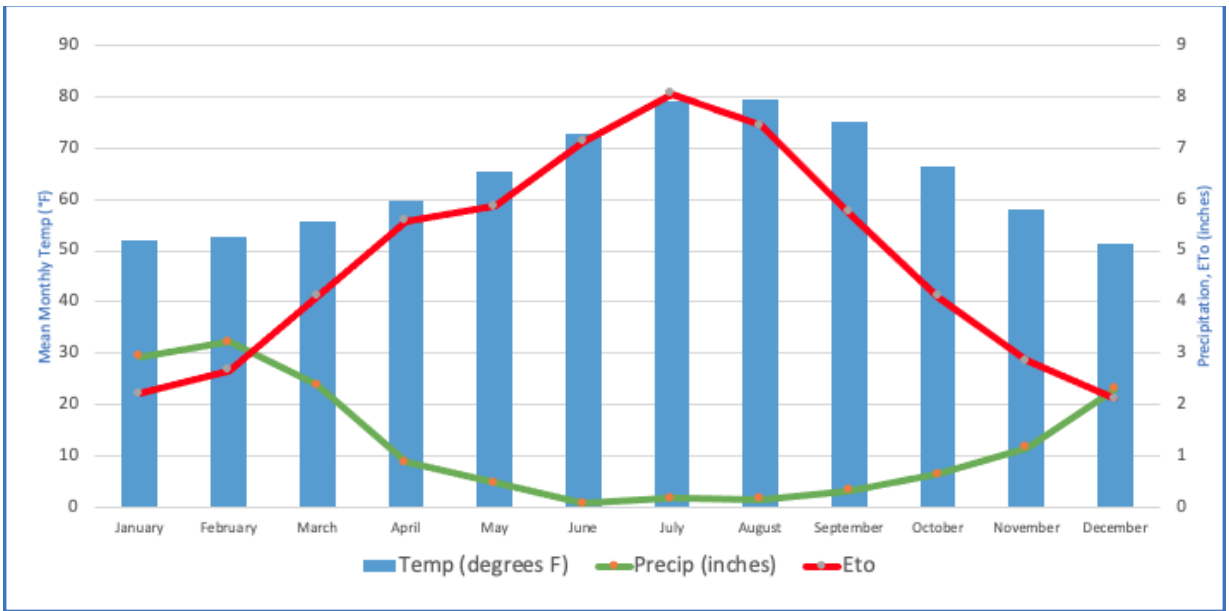
Table 2-1: Retail Water Suppliers

Retail Supplier	Approximate Connections
City of Banning	10,500
Beaumont-Cherry Valley Water District	19,300
Yucaipa Valley Water District (*partially in SGPWA*)	13,600
South Mesa Water Company (*partially in SGPWA*)	3,000
Cabazon Water District	930
Banning Heights Mutual Water Company	170
High Valleys Water District	250
Morongo Band of Mission Indians (*partially in SGPWA*)	12,750

2.3 Service Area Climate

The San Gorgonio Pass lies between the San Bernardino Mountains to the north and the San Jacinto Mountains to the south, with an elevation between 1,450 to 7,450 feet, but with most water use occurring from 1,450 to 3,500 feet. Typical of the area, the pass has a hot-summer Mediterranean climate with most of the precipitation falling in winter. Due to the higher elevation, the weather is usually 5-10 degrees cooler than neighboring lower lying areas, with occasional snowfall during winter. Historical averages show December through February as the coldest months, July and August as the hottest. The wet season is from December to March with a 30-year annual average rainfall of about 15 inches. The annual average temperature is 63 degrees, but the summer months can regularly see average highs in the mid-90s, and average winter lows drop down to the high 30s. Other climate characteristics include occasional summer thunderstorms from monsoonal moisture in the nearby low desert, but the amount of precipitation from these storms is very low. Snowfall is rare compared to the surrounding mountains. Any snow that does occur usually melts before it accumulates. Autumn remains very warm, cooling dramatically by late November, when the rainy season usually starts. Spring brings gradual warming by late March with most winter rain ending by late April. Evapotranspiration (ETo), representing the consumptive use of water from plants to the atmosphere, averages about 57.8 inches, or about 4.8 feet annually.

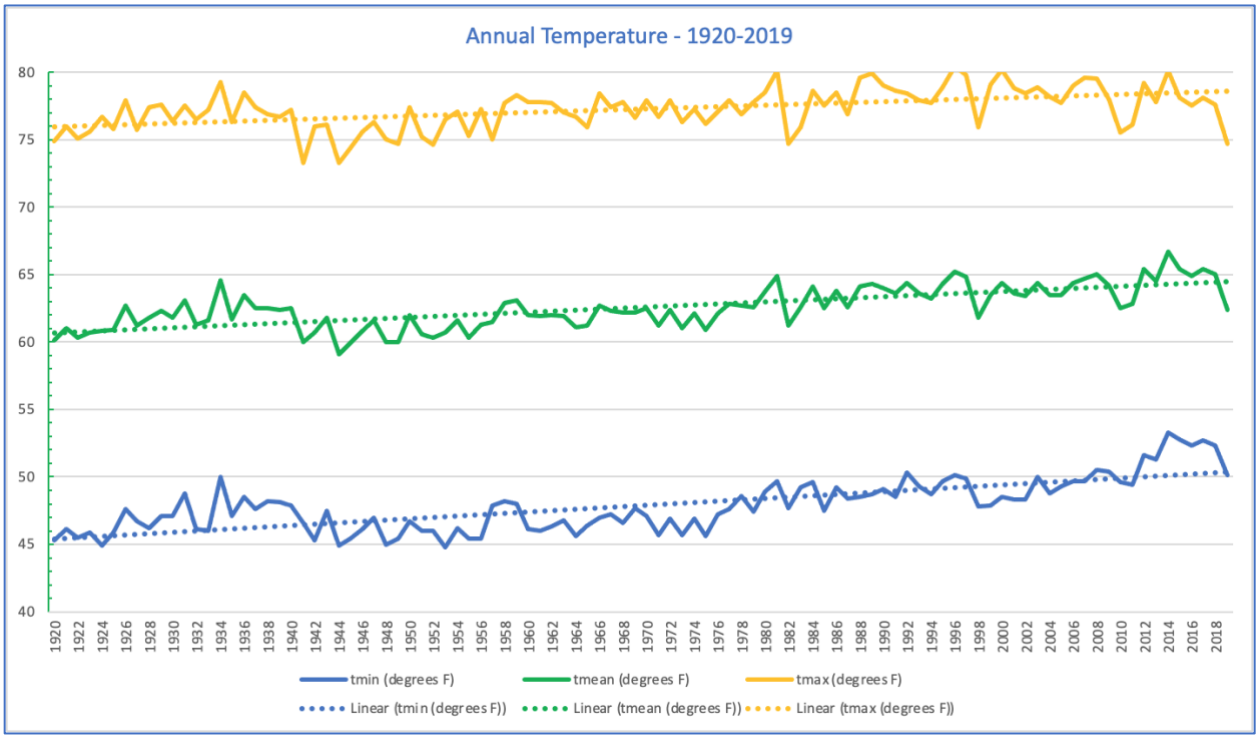
Figure 2-2: Average Climate Conditions[14]



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp	52.1	52.7	55.8	59.5	65.4	72.8	78.9	79.5	75.1	66.3	58.0	51.5
Precip	2.93	3.22	2.39	0.89	0.48	0.08	0.18	0.16	0.33	0.65	1.17	2.30
ETo	2.22	2.67	4.10	5.57	5.87	7.12	8.05	7.43	5.74	4.10	2.85	2.13

[14] Temperature and rainfall data represents annual averages from 1981-2019 from the PRISM Climate Group https://prism.oregonstate.edu/ Location: Lat: 33.9140 Lon: -116.8746 Elev: 2339ft. ETo data is from CIMIS Highland - Los Angeles Basin - Station 251, Oct 2016 - Jan 2021

Figure 2-3: Annual Precipitation Variability (1981 – 2019)



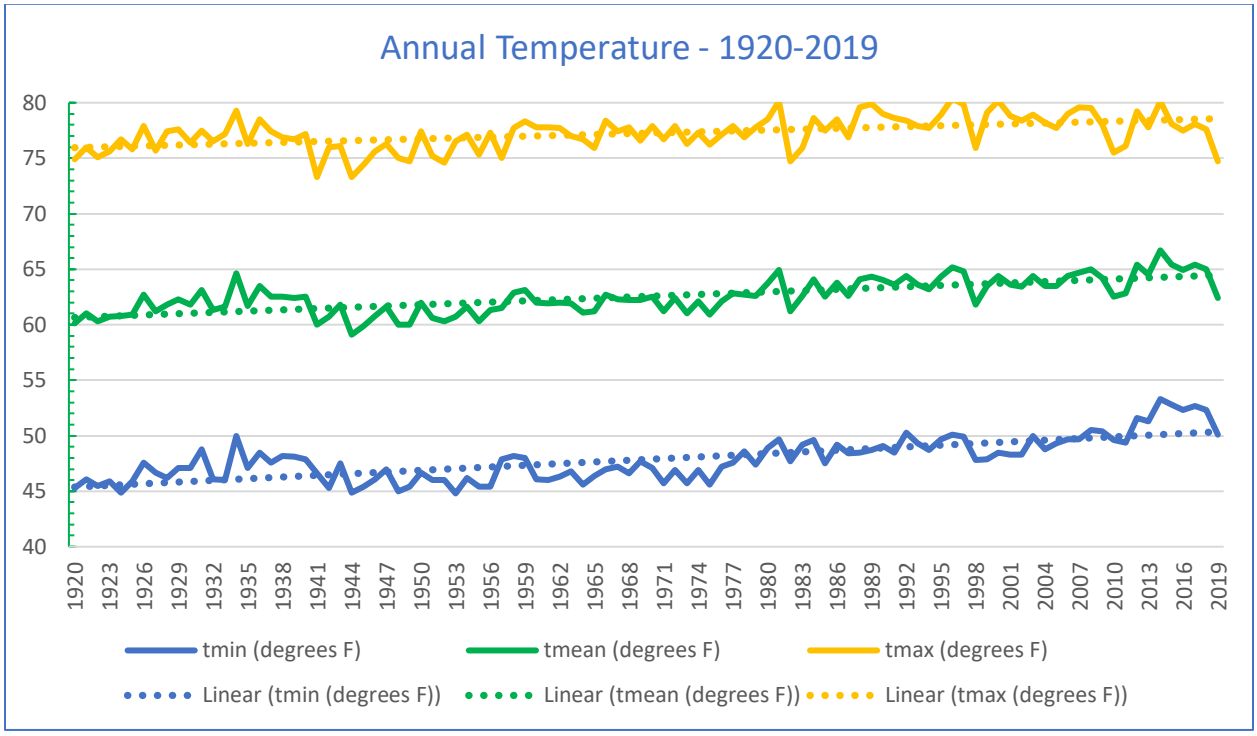
2.3.1 Climate Change

While the California Water Code now requires that water suppliers consider the effects of climate change in their water supply planning efforts. It also provides that climate change is appropriate to consider when assessing drought risk assessment, water conservation and use efficiency, and demand management and supply—both in a historical and projected context.

The San Gorgonio Pass Water Agency is one of 29 contractors that import water from Northern California and the Sacramento Delta through the State Water Project (SWP); it does so to help manage the local groundwater conditions. Any effect from climate change that impacts water flows derived from the Sierra Nevada snowpack will impact SWP water deliveries, including to the SGPWA. The State Water Project Delivery Capability Report (DCR) compiled by the California Department of Water Resources (DWR) addresses the capabilities of the SWP to operate during more intense flood and drought cycles predicted to occur as a result of future climate change, including risk management for the Delta against rising sea levels. These effects are discussed further in Chapter 3.

As shown by the trendlines in Figure 2-4 there has been a gradual warming in average temperatures over the past 100 years. Increasing temperatures locally within the service area can result in higher evapotranspiration, leading to additional water demand.

Figure 2-4: Historical Annual Temperature (1920-2019)[15]



The SGPWA participated in the Integrated Regional Water Management Plan for the Upper Santa Ana River Watershed, which included a comprehensive analysis of the impact climate change may have on water demand, water supply, water quality, sea levels, flooding, and the ecosystem for the region, including an assessment of the vulnerability of water resources. It addresses federal and state requirements for preparations to mitigate expected consequences on future water supply and encourage conservation. Further reductions in per capita water usage through mandatory conservation measures are expected to offset any increase in demand.

This 2020 UWMP Update includes additional Climate Charge discussion in Chapter 3, Chapter 4, and Chapter 5.

2.4 Current and Projected Population, Land Use, Economy, and Demographics

Service area population and land use projections are critical to developing a useful planning framework as population dynamics and growth are a primary influence on water use. These projections directly influence planning measures for system supply, delivery, infrastructure, and demand management. Similarly, understanding the service area's economic, social, and demographic trends provides valuable

[15] Temperature data is from the PRISM Climate Group https://prism.oregonstate.edu/ Location: Location: Lat: 33.9140 Lon: -116.8746 Elev: 2339ft.

insight to water management and planning. This section of the UWMP addresses these factors to provide a supportable basis for forecasting future water use.

2.4.1 Current Population and Historic Trends

The SGPWA service area includes three incorporated cities, Banning, Beaumont, and Calimesa, along with other unincorporated communities and census designated places in the San Gorgonio Pass region. The service area also encompasses the Morongo Band of Mission Indians sovereign nation lands and community, although they operate their own water department.

The population of the SGPWA service area grew steadily throughout the 20th century but a housing boom in the area caused a spike around the year 2000. With the region's close proximity to Los Angeles, increased residential development occurred within the SGPWA due to lower housing costs resulting in a jump in population over the past two decades. The cities of Beaumont and Banning were two of the fastest growing cities in the state over the last 20 years, with Beaumont growing over 200% between 2000 -2010.

Historical data of the incorporated cities were obtained from the California Department of Finance (DoF), which makes estimates available from 1970 forward on an annual basis. Historical population data for the cities of Beaumont, Banning, and Calimesa were correlated to surrounding unincorporated areas to determine the historical population of these non-census designated places.

The 2015 UWMP (Kennedy/Jenks) population of 87,192 was based on a five-year American Community Survey (ACS) estimate for 2010- 2014. This 2020 UWMP revises that number using historical California DoF data and newer GIS mapping tools including the California Hard-to-Count Index Interactive Map[16] and the DWR Disadvantaged Communities (DAC) Mapping tool.[17] Combined with available individual water retailer population forecast data and U.S. Census Vintage 2019 City and Town Population Tables,[18] this 2020 UWMP calculates an approximate historical population and rate of growth shown in Table 2-2.

Table 2-2: Regional Population Growth Rate – 2010-2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Population	74,902	77,360	79,818	82,276	84,734	87,192	90,443	93,695	96,946	100,198	103,400
Growth Rate		1.8%	1.3%	1.6%	2.4%	1.7%	2.1%	2.2%	2.2%	2.1%	3.2%

2.4.2 Projected Population

To forecast projected service area population as accurately as possible requires consideration of the past growth rate, local economic predictions, and current and projected land uses. Importantly, one of the recent statutory updates to the UWMP Act states urban water suppliers "shall coordinate with local or regional land use authorities" regarding land uses that may affect water management planning. SGPWA accomplished this by coordinating closely with the retail water suppliers that are each preparing

[16] https://census.ca.gov/
[17] https://gis.water.ca.gov/app/dacs/
[18] Annual Estimates of the Resident Population for Incorporated Places in California: April 1, 2010 to July 1, 2019

their own 2020 UWMP to assure consistency in population projections. Based upon these interactions, a regional population estimate was constructed to reflect growth within the incorporated and unincorporated regions of the service area. The resulting projected population through the planning horizon of 2045 is presented in Table 2-4.

Table 2-3: Regional Population Forecast

2020	2025	2030	2035	2040	2045
103,400	118,000	133,500	149,500	164,000	177,700

2.4.3 Economic Trends & Other Social and Demographic Factors

The San Gorgonio Pass region's economy has traditionally focused on retail and commercial services. It is a key transportation corridor with Interstate 10 and the Union Pacific railway running through it connecting the greater Los Angeles region with the Coachella Valley and beyond. Most of the regional economy is centered around the commercial districts of the incorporated cities and unincorporated communities adjacent to the freeway. The incorporated cities include Calimesa, Beaumont and Banning. Larger unincorporated communities include Cherry Valley and Cabazon, plus a small portion of Whitewater which is in the easternmost part of the service area and part of the small overlap of Mission Springs Water District. The local employment market is relatively small compared to the residential population since many households commute west to the San Bernardino Valley and Los Angeles area, or east to the Coachella Valley for work.

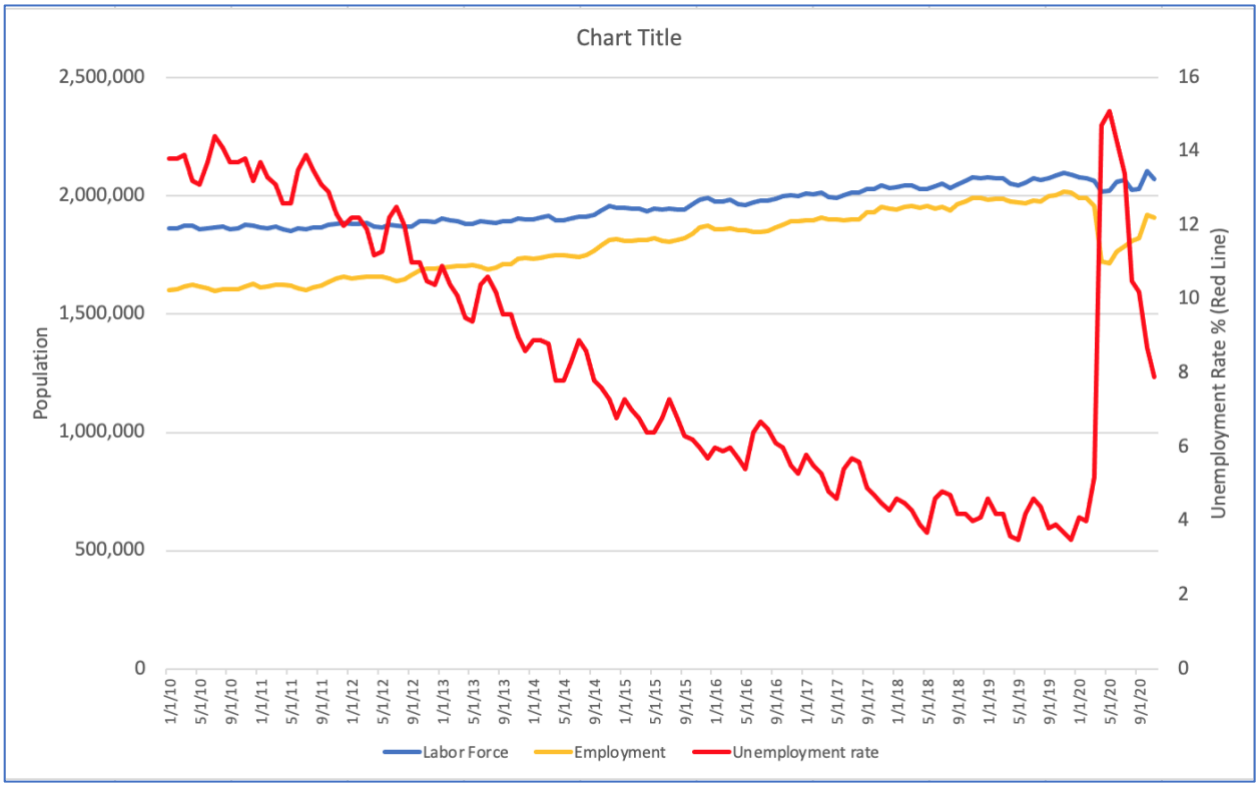
Major employment industries in the region include jobs in education, retail, production, transportation, and wholesale fulfillment. Large employers include an Amazon fulfillment warehouse in Beaumont (~1,000 jobs) and Nestle Water North America bottling plant in Cabazon (~1,000 jobs). Employment growth forecasts suggest that by 2040 professional services, healthcare and education, art and entertainment, and construction will develop as important employment industries in the region.[19]

Since 2010 Riverside County has seen steady growth, adding jobs and decreasing the unemployment rate from as high as 14.4% in 2010 to 3.5% as recently as May 2019.

The coronavirus pandemic crippled the national (and global) economy in 2020 and the San Gorgonio Pass region and Riverside County were no exception. The County's unemployment rate spiked to 15% in May 2020 – with the SGPWA region likely experiencing similar conditions. Since then, the County has regained some of the jobs but there remains a level of uncertainty with the pace of economic recovery due to the pandemic.

[19] https://ucreconomicforecast.org/index.php/services-for-business/

Figure 2-5: Riverside County Employment Data[20]



The San Gorgonio Pass region's average income is $52,493 which gives many communities in it a Disadvantaged Community status according to the DWR mapping tool. The designation is based on the median household income being less than 80% of the State's median household income. The mapping context is in order to provide funding pursuant to California Proposition 1 "Water Quality, Supply, and Infrastructure Improvement Act of 2014", Proposition 84, Integrated Regional Water Management (IRWM) Grant Program, and likely other forthcoming state assistance programs.

2.5 Delivery System Details

This subsection focuses specifically on San Gorgonio Pass Water Agency's water delivery system. The water supplies delivered through this system are described in Chapter 3, with water uses described in Chapter 4. Each retail water supplier serving over 3,000 AF/YR is required to complete its own UWMP describing their individual delivery system detail, so this UWMP will focus on the SGPWA wholesale delivery system.

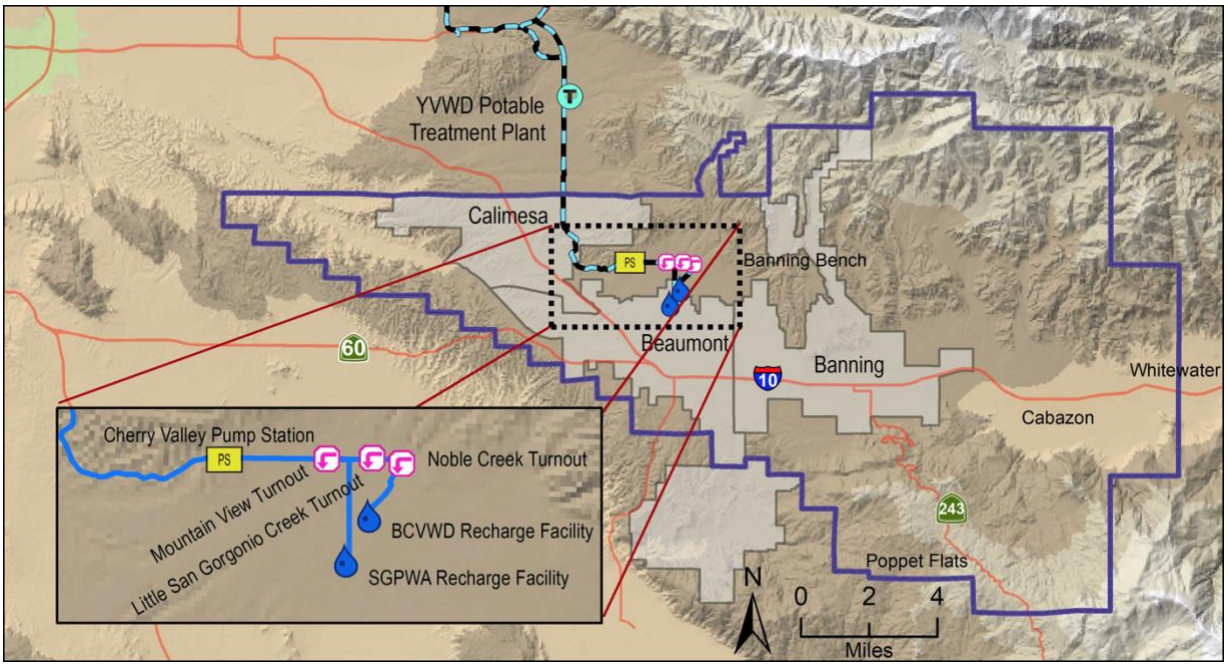
SGPWA imports water via the East Branch Extension (EBX) which begins at Devil Canyon Power Plant in San Bernardino and ends in Cherry Valley on Noble Street just south of Orchard Street in Beaumont. Phase 1 of the EBX was completed in 2003 and Phase 2 in 2018. Phase 2 infrastructure includes six miles of 66-inch pipe which travel under the Santa Ana River then through Mentone to the Yucaipa area.

[20] U.S. Bureau of Labor Statistics, https://www.bls.gov/regions/west/ca_riverside_msa.htm

Phase 2 facilities include a new Citrus Pump Station and Reservoir in Mentone, and additional pumps for the Crafton Hills and Cherry Valley Pump Stations.

The water received from the SWP goes to the Yucaipa Valley Regional Water Filtration Facility (YVRWFF) or directly into groundwater recharge basins without treatment or distribution (see Figure 2-7). Full delivery system descriptions for SGPWA retail customers are included in each entity's 2020 UWMP.

Figure 2-6: Water System



2.6 Energy Intensity

Among the statutory changes enacted with new requirements for 2020 UWMPs, an urban supplier shall include information it can readily obtain related to the energy use to produce, treat and deliver water.[21]

Referred to as the "Energy Intensity Reporting" for urban water suppliers, it is defined as the total amount of energy expended in kilowatt-hours (kWh) by the urban water supplier on a per acre-foot basis to take water from the location where the urban water supplier acquires the water to its point of delivery.

However, due to the unique circumstances of the SGPWA as a wholesale water supplier that receives water delivered by the EBX (see Figure 2-7), there is no energy used to produce, treat, or deliver water directly by the SGPWA. Rather, water flows by gravity from the EBX directly to the SGPWA's recharge basins or by gravity to retail water suppliers. Therefore, no energy intensity is reported in this UWMP.

[21] California Water Code Section 10631.2(a).

Chapter 3
Water Supply

This section describes San Gorgonio Pass Water Agency's (SGPWA) water supply sources. The description includes the historical sources available in the SGPWA service area and quantifies existing and projected water supply sources over five-year increments through 2045 under normal, single-dry, and five-year droughts. SGPWA delivers water supplies to retail agencies by making surface water deliveries to managed groundwater systems in the SGPWA service area boundary that can be extracted by retail agencies and end users. The section also captures regionally managed water supplies to address regional capabilities to meet regional demands.

SGPWA was created as a special district in 1961 per the San Gorgonio Pass Water Agency Act (Act).[22] The Act created the SGPWA, and section 101-15 described the "Powers of agency" to include acquisition of water, water rights and waterworks and to supply and deliver agency water to other entities. The Act established the SGPWA boundaries and expressly identified the need to acquire State Water Project water. The Act states: "It is the intent of the Legislature that, in allocating water received from the State Water Project pursuant to this act, the highest priority shall be given to eliminating groundwater overdraft conditions within any agency or district receiving the water."[23] In this way, SGPWA was charged with acquiring and distributing SWP water and other water supplies as available for delivery to entities within its boundaries.[24]

3.1 SGPWA Imported Water Supply Sources

In November of 1962, SGPWA entered a State Water Project water service contract (SWP Contract) with the State of California Department of Water Resources (DWR). The SWP Contract authorized DWR to deliver SWP water to SGPWA under certain terms and conditions. SGPWA's original SWP Contract has numerous amendments that modify the original 1962 terms and conditions. SGPWA's SWP Contract Amendment No. 19 was signed in 2019 to extend the term of the contract through 2085 with terms and conditions substantially similar to the existing terms and conditions.[25] However, the contract extension is not effective until the conditions are met per the "Contract Extension Amendment Effective Date"

[22] California Water Code Appendix Chapter 101 *et seq*., 1961. (CWC Appendix)
[23] CWC Appendix section 101-15.5.
[24] A detailed history of the SGPWA can be found here: https://www.sgpwa.com/wp-content/uploads/2021/01/History-of-San-Gorgonio-Pass-Water-Agency.pdf
[25] https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Water-Supply-Contract-Extension/Files/San_Gorgonio_WSC_Extension_Amendment_1_121520.pdf

provisions. Nevertheless, for purposes of the 2020 UWMP, SGPWA assumes that no major terms and conditions will change.

SGPWA also acquires water supplies through contracts with other agencies and annual water transfers and exchanges. SGPWA annually acquires Yuba Accord water as well as water under the Nickel Agreement. SGPWA may also acquire water through an agreement with San Bernardino Valley Municipal Water District (SBVMWD) as well as annual transfers and exchanges with other SWP contractors. And, in the future, SGPWA will acquire water through the Sites Reservoir Agreement. All of these additional supplies, beyond SGPWA's SWP supply, are discussed in other sections of this Chapter.

SGPWA's delivery of supplemental water includes both delivery to water filtration facilities and groundwater recharge basins to assist with the management of groundwater in the SGPWA service area. Whether by direct delivery, in-lieu recharge, or direct recharge, the SGPWA plays a critical role in the local management of groundwater and surface water resources.

3.1.1 State Water Project Overview

The State Water Project (SWP) is the largest state-built, multi-purpose water project in the country. It was authorized by the California State Legislature in 1959, with the construction of most facilities completed by 1973. Today, the SWP includes 28 dams and reservoirs, 26 pumping and generating plants, and approximately 660 miles of aqueducts.

The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. The water flowing in the Feather River is captured by the SWP in Oroville dam and reservoir. Storage released from Oroville Dam flows down natural river channels to the Sacramento-San Joaquin River Delta (Delta). While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct or diverted by SWP contractors upstream, the vast majority of SWP supplies are pumped from the southern Delta into the 444-mile-long California Aqueduct. The California Aqueduct conveys water along the west side of the San Joaquin Valley to the Edmonston Pumping Plant, where water is pumped over the Tehachapi Mountains. From there the California Aqueduct divides into the East and West Branches. SGPWA takes its SWP deliveries from the East Branch, which was completed in 2003. Phase 2 of the East Branch Extension was completed in 2018 which increased the capacity of the supplemental water supplies and allowed the SGPWA to take the Agency's official maximum allotment of State Project Water.

SGPWA delivers its SWP supplies, along with other water supplies, to recharge local groundwater basins through transmission pipelines and recharge systems as well as some delivery to Yucaipa Valley Water District. Figure 3-1 depicts the SWP facilities that deliver water to SGPWA and Figure 3-2 details the sections of the SGPWA systems that intersect the California Aqueduct.

Figure 3-1: SWP Facility Map

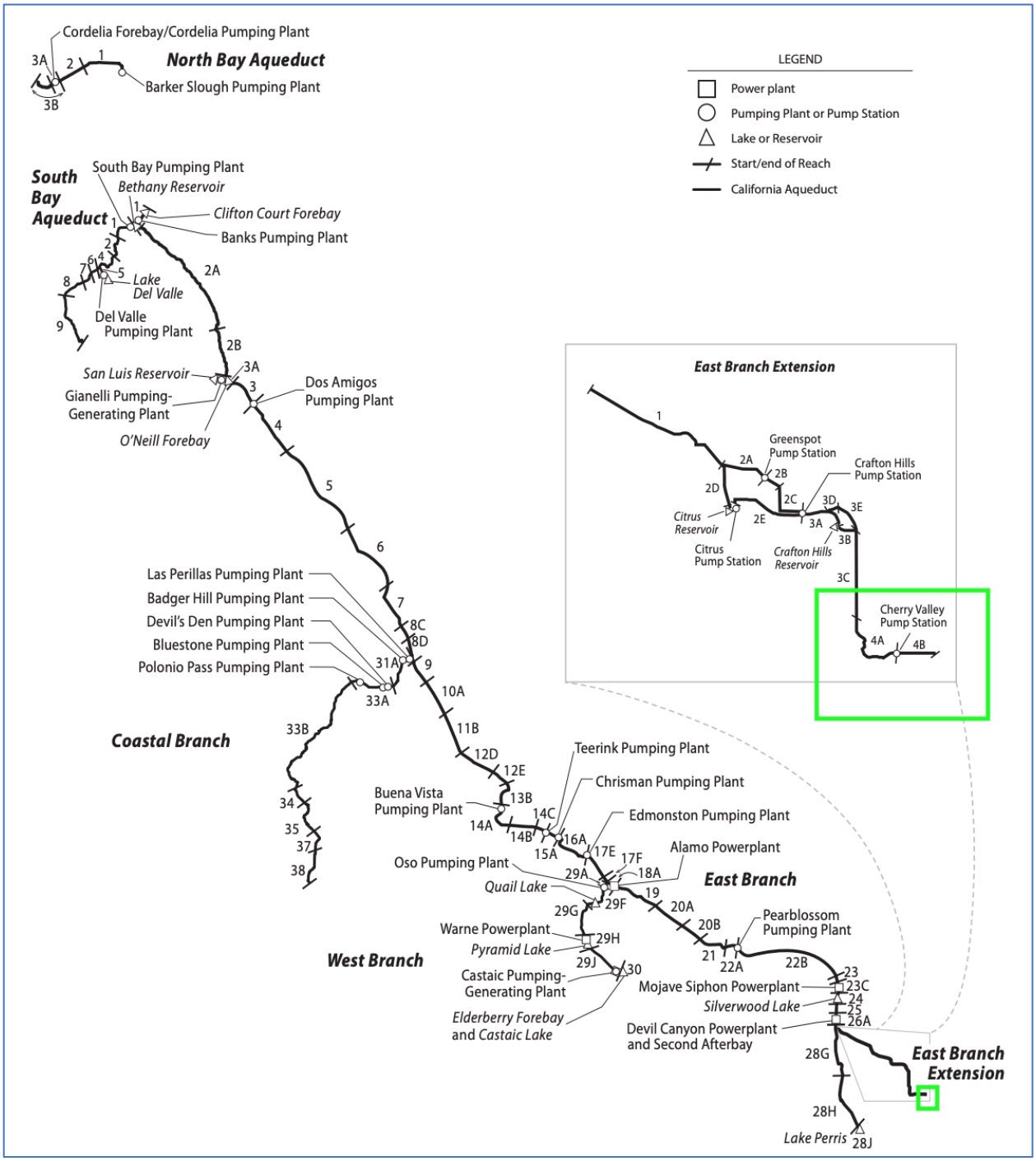
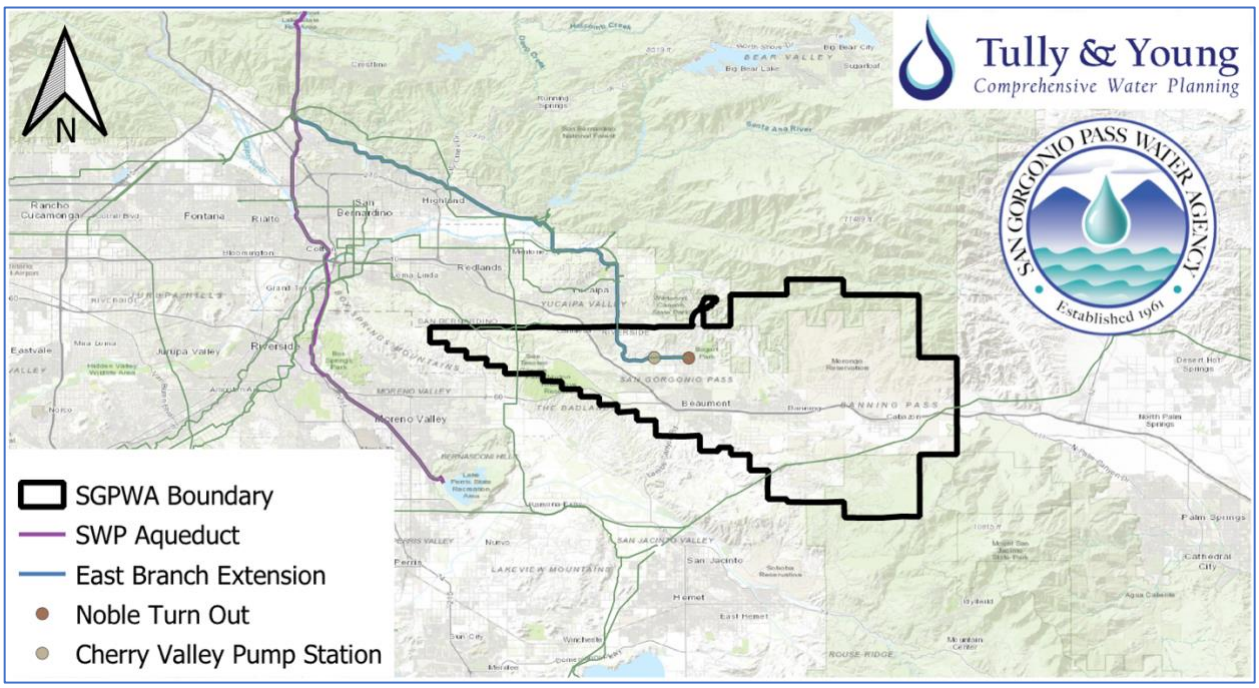


Figure 3-2: SWP SGPWA Aqueduct Reach Sections



SGPWA is one of 29 water agencies that have a SWP Contract with DWR. Each SWP contractor's SWP Contract contains a "Table A Annual Amounts" (Table A) which lists the contracted maximum amount of water an agency may receive under its contract. Table A is also used in determining each contractor's share of the total SWP water supply DWR determines to be available each year. The total planned annual delivery capability of the SWP and the sum of all contractors' maximum Table A amounts was originally 4.23 million acre-feet. The initial SWP storage and conveyance facilities were designed to meet contractors' water demands with the construction of additional storage facilities planned as demands increased. However, few additional SWP storage facilities have been constructed since the early 1970s and a portion of the original conveyance design was never completed. SWP conveyance facilities were generally designed and have been constructed to deliver Table A to all contractors. The maximum Table A of all SWP contractors now totals about 4.133 million AF.[26]

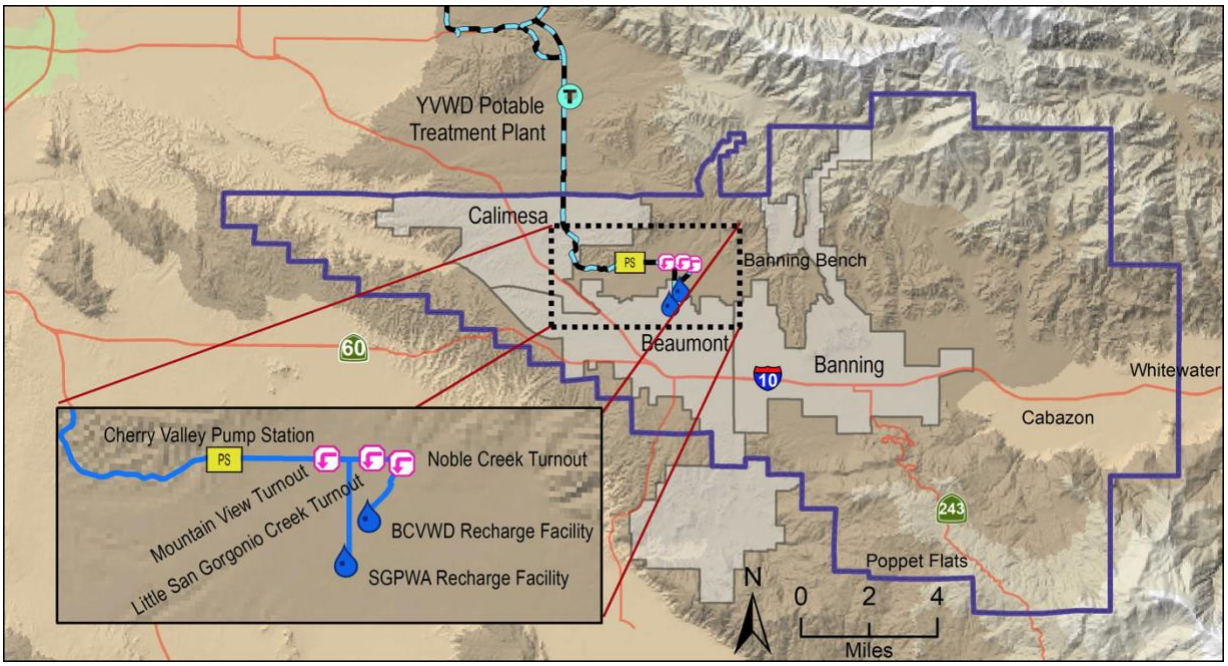
SGPWA manages its SWP supplies to maximize the availability of these supplies to its retail customers. In this way, SGPWA seeks to optimally manage its Table A wet year supplies, acquire additional SWP supplies through Article 21 conditions (SWP surplus conditions), access Advanced Table A supplies, and potentially exchange Table A supplies with other SWP contractors. All of these actions improve the long-term reliability of Table A supplies.

[26] The Final State Water Project Delivery Capability Report, DWR, August 2020 at 30.

3.1.2 SGPWA SWP Water Delivery Facilities

SGPWA receives its SWP water from the East Branch Extension of the California Aqueduct. Imported water delivered through the East Branch Extension is used to deliver supplemental water to water filtration facilities and recharge facilities in SGPWA's service area and additional facilities may be available for future deliveries throughout the region. Figure 3-3 below depicts the San Gorgonio Pass Water Agency's existing water turnout and delivery facilities.

Figure 3-3: SWP SGPWA Facilities



The turnouts and recharge facilities within the SGPWA service area typify the Agency's fundamental responsibility: to bring SWP supplemental surface water into the SGPWA service area to recharge the groundwater basins. These facilities provide the backbone infrastructure for SGPWA's water management activities. The groundwater basins and SGPWA's roles and responsibilities related to the groundwater basins are further described in elsewhere in this Chapter.

As shown in Figure 3-3, Beaumont Cherry Valley Water District's (BCVWD) Noble Creek facility is used to recharge SWP deliveries. The facility consists of 14 ponds and recharge facilities totaling approximately 25 acres and estimated to have a long-term recharge capacity of approximately 25,000 AFY. SWP deliveries to this facility consist of BCVWD's imported water supply requirements, plus any water purchased for long-term banking.

The primary SGPWA recharge facility shown in Figure 3-3 was completed in 2019 and enables SGPWA to import more water in wet years when available and to store it in the local groundwater basins. The SGPWA facility consists of five recharge basins totaling approximately 20 acres and a pipeline connecting the ponds to the East Branch Extension. This facility has an annual recharge capacity estimated at 20,000 AFY.

SGWPA has delivered some imported water directly to water treatment facilities via an exchange agreement with the neighboring State Water Contractor to the west, SBVMWD and an agreement with the Department of Water Resources. The imported supplies are distributed in both the SBVMWD and SGPWA service areas, including retail user areas contained within both San Bernardino County and Riverside County. Imported supplies utilized by the retail agencies are carefully tracked to ensure water used in each Contractor's service areas is properly accounted for and allocated to each agency's respective Table A contract.

3.1.3 Table A Allocations

SGPWA's Table A Annual Amount is 17,300 acre-feet per year up through the 2045 UWMP planning horizon. SGPWA's Table A represents a maximum contract amount that could be available each year assuming that the SWP could deliver 100% contract supplies to all SWP contractors. The last 100% allocation year occurred in 2006.[27] SGPWA's SWP Contract has numerous components that allow SGPWA to manage and control the annually available SWP water supplies.

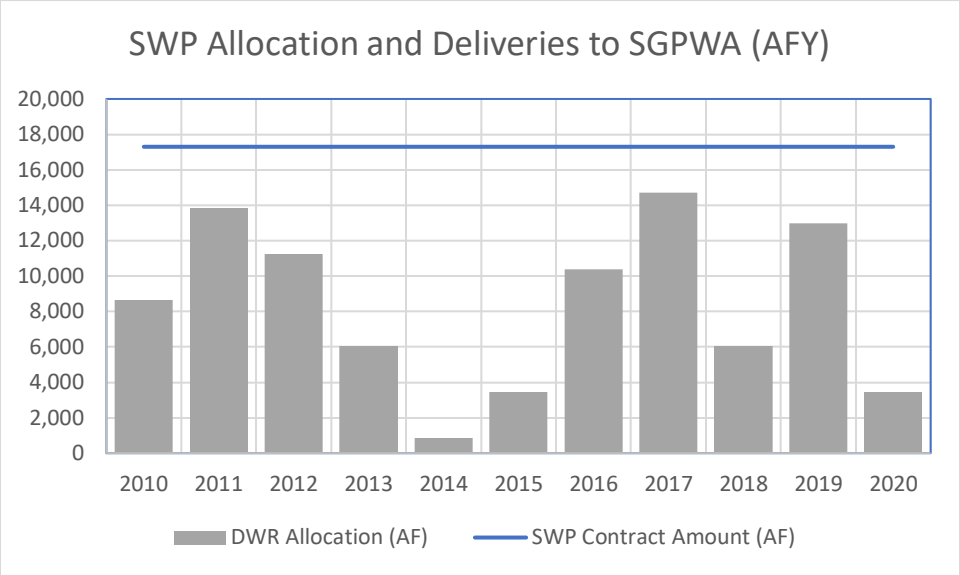
3.1.4 Historical SWP Allocations

More often than not, actual SWP allocations are less than 100% SGPWA's Table A Annual Amount. Annual SWP percentage Table A allocations fluctuate based upon hydrology, water storage, and regulatory criteria in the Delta. Table 3-1 below shows the SGPWA Table A Annual Amount from 2010 through 2020, the SWP allocation percentage, and the final available Table A allocation from 2010-2020. During this period, the SGPWA received on average 8,335 acre-feet, or about 48% of the Table A contract amount. It is important to recognize that this period included a significant and recent drought event.

Table 3-1: SWP Table A Allocations and Deliveries (AFY)

Year	SWP Contract Table A	Percent Allocation	Allocation Amount
2010	17,300	50%	8,650
2011	17,300	80%	13,840
2012	17,300	65%	11,245
2013	17,300	35%	6,055
2014	17,300	5%	865
2015	17,300	20%	3,460
2016	17,300	60%	10,380
2017	17,300	85%	14,705
2018	17,300	35%	6,055
2019	17,300	75%	12,975
2020	17,300	20%	3,460

[27] State Water Project Historical Table A Allocations Years 1996-2020.



3.1.5 Future SWP Allocations and Long-Term Reliability

DWR has projected that it is less likely that 100% allocation years will occur on a regular basis in the future. In August 2020, DWR finalized the "2019 SWP Delivery Capability Report" (DCR) that outlined the probable future water supply allocations for the SWP system. The DCR showed variations in future Table A deliveries based upon hydrological and regulatory conditions. These conditions are summarized in Table 3-2 below along with SGPWA's corresponding Table A amount.

Table 3-2: SWP Estimated Table A Deliveries from DCR[28] (values in acre-feet)

	Long Term Average		Single Dry Year (1977)		Dry Periods							
					2 Year Drought (1976-1977)		4-Year Drought (1931-1934)		6-Year Drought (1987-1992)		6 Year Drought (1929-1934)	
2017 Report	2,571	62%	336	8%	1,206	29%	1,397	34%	1,203	29%	1,408	34%
2019 Report	2,414	58%	288	7%	1,311	32%	1,228	30%	1,058	26%	1,158	28%

As shown in Table 3-2, DWR's long-term average reliability shows a downward trend from 62% in the 2017 SWP DCR to 58% in the 2019 DCR. DWR attributes this downward trend to climatological and hydrological factors that impact precipitation patterns and snowfall accumulation above its main SWP facility, Lake Oroville. In this way, SGPWA characterizes its average normal year SWP water supply through 2045 as 58% of its Table A Annual Amount in accordance with the DCR. Thus, from 2025 through 2045, SGPWA's projected Table A final available allocation will be 58% of 17,300 acre-feet or 10,034 acre-feet per year. Importantly, SGPWA anticipates years where its Table A Allocation exceeds the average normal year delivery of 58%. In these years, SGPWA will capture and store the surplus water assets.

[28] The Final State Water Project Delivery Capability Report, DWR, August 2020 at page 30 with values in TAF/Yr.

The single dry year characterization and five consecutive dry year characterization for the SWP supplies are also an important consideration in SGPWA's UWMP. The 2017 and 2019 DCR represent the single driest year as 1977 with an 8% SWP allocation estimate in 2017 DCR and a 7% SWP allocation estimate in 2019 DCR. The single lowest historical SWP allocation occurred in 2014 at 5%, and this 5% allocation is also representative of the 2021 Table A Allocation. As such, to be conservative in its projections, SGPWA will use 5% of 17,300 acre-feet or 865 acre-feet per year as the single dry year allocation through 2045 as depicted in Table 3-3.

The 2019 DCR also identifies various drought periods for purposes of characterizing SWP allocation percentages that would accompany those drought periods. The averaging of the allocations over the course of the drought period is not representative of SGPWA drought planning purposes. SGPWA will use the following drought characterization for its short-term and long-term planning: year 1 at 35%; year 2 at 5%; year 3 at 5%; year 4 at 20%; and year 5 at 35%. SGPWA examined the historical record and determined that there was no representative five consecutive year historical SWP delivery dry period that adequately reflects a potential future five-year critical drought condition that could drastically reduce SWP supply deliveries for SGPWA's service area. As such, taking a more conservative planning approach, SGPWA created a more restrictive dry year characterization that adequately represents a critical drought over five consecutive years. In this dry year modeled sequence, two consecutive critically dry years are bounded by Table A allocations that are reflected in the recent historical record. Table 3-4 shows the normal year, single dry year, and five consecutive dry years planned SWP Table A Allocation for San Gorgonio Pass Water Agency through 2045.

Table 3-3: SWP Future Table A Projected Water Year Deliveries (AFY)

Table A	Year Type	Amount
Normal		10,034
Single Dry Year		865
Multi-Year Drought	Year 1	6,055
	Year 2	865
	Year 3	865
	Year 4	3,460
	Year 5	6,055

Table 3-4: Future SWP Allocations by Year Type Through 2045 (AFY)

Total Supply		2025	2030	2035	2040	2045
Normal		10,034	10,034	10,034	10,034	10,034
Single Dry Year		865	865	865	865	865
Multi-Year Drought	Year 1	6,055	6,055	6,055	6,055	6,055
	Year 2	865	865	865	865	865
	Year 3	865	865	865	865	865
	Year 4	3,460	3,460	3,460	3,460	3,460
	Year 5	6,055	6,055	6,055	6,055	6,055

The characterizations of SGPWA's SWP Table A Allocation long-term reliability reflect numerous hydrological and regulatory issues that inform the DCR modeling, are reasonable assessments related to SWP system management, and reflect SGPWA's local conditions. Long-term water management hydrological and regulatory issues include the Bay-Delta Water Quality Control Plan, the Coordinated Operations Agreement, the Delta Biological Opinion, the Delta Conveyance Project, modifications to San Luis Reservoir, SWP seismic considerations, subsidence, DWR's emergency planning, and assessments related to SGPWA's local groundwater conditions and climate. These issues are all considered in SGPWA's planning incorporated into it supply characterizations in this 2020 UWMP.

3.1.6 Other SWP Water Supplies

SGPWA has opportunities to use additional SWP water assets that supplement its Table A amount. Specifically, Article 21 of SGPWA's SWP contract and the State Water Contractor's "Turnback Pool" may provide access to additional water supplies. Article 21 water is water that may be made available by DWR when excess flows are available in the Delta and the Turnback Pool allows State Water Contractors that have excess supplies to "turn back" some supplies for purchase by other contractors. Furthermore, where water supplies are acquired by a SWP Contractor but may be unused or stored, SGPWA may have opportunities to acquire these water supplies through transfers and exchanges. These supplies improve supply reliability and create flexible management opportunities for SGPWA that furthers the reliability of SGPWA's Table A allocation. In brief, the availability of wet year water supplies through SGPWA's Table A, Article 21, Turnback Pool, and SWP transfers and exchanges improve SGPWA's opportunities to store and manage all regional supplies for the benefit of its customers.

3.1.7 Table A Carryover Water

SGPWA's SWP Contract allows it to forego use of its allocated SWP Table A supply and retain a portion of that allocated supply in storage for future use. This retained supply is termed "Carryover" and is governed under Article 56 of SGPWA's SWP contract. Carryover water is water that is released from Oroville dam and reservoir, re-diverted at the Delta, and then stored in San Luis Reservoir – an off-stream reservoir located just outside the City of Santa Nella at the junction of Interstate 5 and California State Highway 152. San Luis Reservoir is jointly owned and operated by the state and federal governments and all SWP contractors may use the storage facility to manage Carryover water supplies. In short, the San Luis Reservoir receives, regulates, and stores exported water derived from the State Water Project and Federal Central Valley Project.

The amount of water that SGPWA may carryover in any given year is subject to a set of rules that implicate all SWP contractors throughout California. In brief, SGPWA delivers its Table A supplies to Carryover in San Luis Reservoir with an expectation that it will be able to divert all or a portion of these supplies in a subsequent year. In the event that water supplies are abundant, San Luis Reservoir may "spill." When San Luis Reservoir reaches a "spill" stage, DWR releases SGPWA's Carryover in accordance with the aforementioned rules as they apply in the context of all entities with stored water in San Luis Reservoir. Nevertheless, over the last 10 years SGPWA has retained a portion of its Table A Allocation as Carryover even in the driest years and continues to maintain a Carryover balance. Table 3-5 shows SGPWA's Carryover balance from 2010 through 2020.

Table 3-5: SGPWA Historic SWP Carryover Storage and Use (AFY)

Year	Source	Available Carryover
2010	97-12 Historic Delivery Database	2,719
2011	97-12 Historic Delivery Database	4,535
2012	97-12 Historic Delivery Database	4,956
2013	Finalization Report	5,277
2014	Finalization Report	5,264
2015	Finalization Report	954
2016	Finalization Report	936
2017	Finalization Report	1,700
2018	Finalization Report	5,159
2019	Finalization Report	2,668
2020	Finalization Report	4,211

The Carryover supplies noted in Table 3-5 combine a number of water management factors that impact SGPWA's overall water supply availability. For example, where SGPWA is able to acquire additional water assets in normal and wet year types, SGPWA may carryover SWP supplies to water shortage years for use. Moreover, where SGPWA may acquire alternative supplies through transfers and exchanges, even in the driest years, the Agency may then manage its supply portfolio to preserve Carryover supplies for later use. For instance, in 2015, SGPWA stored 954 acre-feet of water supplies as Carryover when SWP allocations were at the lowest historical allocation on record – five percent (5%) – in the 2014 water year (see Table 3-1). Similarly, in 2015 – a 20% allocation year – SGPWA was able to carryover 936 acre-feet of water into the 2016 water year by acquiring alternative supplies and flexibly managing regional supplies in coordination with the retail agencies. SGPWA's management actions coordinated the Agency's available water supply portfolio in these years with the regional retail agencies water supply portfolios and water conservation efforts in order to preserve SWP supplies for future uses.

SGPWA will have access to its Table A Carryover supplies in future years based upon the hydrological and regulatory conditions. The Table A Carryover supplies result from a number of variables that are tied to the SWP Table A annual percent allocation, operations in San Luis Reservoir, and water supply management by SGPWA throughout its service area. In wet years, SGPWA carries over substantial supplies that are considered in the annual carryover numbers.

Accordingly, water years 2013 through 2017 above are representative of a five-year Carryover supply availability for SGPWA – and include 2014 and 2015 two of the driest years on record. Furthermore, SGPWA conservatively estimates future Carryover supplies in a normal year to be approximately 5,200 acre-feet similar to 2013, 2014, and 2018 and carryover in a single dry year to be just over 900 acre-feet like 2015 and 2016. These supplies are estimated based upon typical SWP management in a normal year in context of SGPWA's total water supply portfolio. The future normal year Carryover supply represents approximately half of SGPWA's normal year carryover number as noted in Table 3-5 but other years represent Carryover supplies that may result from additional SGPWA multi-year

management actions that allow Carryover supplies to be available in these year types.[29] Table 3-6 shows the Carryover supplies through 2025 and Table 3-7 shows the representative Table A Carryover supplies through 2045

Table 3-6: Carryover Supplies Through 2025 (AFY)

Carryover	Year Type	Amount
Normal		3,000
Single Dry Year		936
Multi-Year Drought	Year 1	3,000
	Year 2	2,500
	Year 3	954
	Year 4	936
	Year 5	1,700

Table 3-7: Future Available Table A Carryover Supplies (AFY)

Year Type		2025	2030	2035	2040	2045
Normal		3,000	3,000	3,000	3,000	3,000
Single Dry Year		936	936	936	936	936
Multi-Year Drought	Year 1	3,000	3,000	3,000	3,000	3,000
	Year 2	2,500	2,500	2,500	2,500	2,500
	Year 3	954	954	954	954	954
	Year 4	936	936	936	936	936
	Year 5	1,700	1,700	1,700	1,700	1,700

3.1.8 Delta Conveyance Project Future SWP Increment

The Delta Conveyance Project, if implemented, would increase the future reliability of SGPWA water supplies derived from the SWP. Consistent with Executive Order N-10-19, in early 2019, the state announced a new single tunnel project, which proposed a set of new diversion intakes along Sacramento River in the north Delta for SWP. In 2019, the California Department of Water Resources (DWR) initiated planning and environmental review for a single tunnel Delta Conveyance Project (DCP) to protect the reliability of State Water Project (SWP) supplies from the effects of climate change and seismic events, among other risks. DWR's current schedule for the DCP environmental planning and permitting extends through the end of 2024. DCP will potentially be operational no later than 2040 following extensive planning, permitting, and construction.

DWR estimates of SWP supply reliability in its 2019 Delivery Capability Report are based on existing facilities, and so do not include the proposed conveyance facilities that are part of the DCP. Since this

[29] This conservative number was chosen based upon the ongoing negotiations between DWR and SWP Contractors to determine SWP water that will be permitted as Carryover in San Luis Reservoir. We anticipate that SGPWA carryover number will likely be more in an above normal year but use this figure as a conservative estimate for planning purposes.

UWMP uses DWR's 2019 Delivery Capability Report to estimate SWP supplies at 2045, any changes in SWP supply reliability that would result from the proposed DCP are not included in this UWMP.

Nevertheless, SGPWA anticipates that the DCP will increase access to water assets by providing conveyance opportunities that are currently unavailable. SGPWA recently increased its investment in the DCP from 1.22% to 2% of project capacity in order to improve future conveyance actions related to its water asset portfolio.[30] As such, the DCP investment should provide better access to SWP supplies in normal and wet years as well as opportunities to deliver alternative planned supplies as they become available to SGPWA.

3.2 SGPWA Additional Imported Water Supplies

SGPWA has numerous other current and future water assets besides its Table A Annual Amount and Table A carryover supplies. These supplies are derived from the following items: Yuba Accord, Nickel Agreement, San Bernardino Valley Municipal Water District Agreement, and Sites Reservoir Agreement. These additional water sources are more fully described below.

3.2.1 Yuba Accord Water

In 2008, SGPWA entered into the Yuba Accord Agreement and has amended the agreement several times through 2014. The Yuba Accord Agreement allows SGPWA to purchase water from Yuba County Water Agency through its contractual arrangement with DWR that permits 21 SWP contractors (including SGPWA) and the San Luis and Delta-Mendota Water Authority regular access to the supply.[31] Yuba Accord water comes from the Yuba River, located north of the Delta, and the water purchased under this agreement is subject to losses associated with transporting it to SGPWA's service area. While the amount of this water varies each year depending on hydrologic conditions, the Agency anticipates receiving an average future amount of approximately 300 AFY. The Agency recently signed an extension to this agreement allowing it to purchase this water well into the future. Table 3-8 shows the last five years of Yuba Accord water supplies coming to SGPWA.

Table 3-8: Last Five Years of Yuba Accord Water Deliveries (AFY)

Year	Yuba Accord Deliveries
2015	0
2016	0
2017	0
2018	124
2019	0
2020	406

[30] https://www.sgpwa.com/wp-content/uploads/2021/02/6B_Continued-Participation-in-the-Delta-Conveyance-Project-.pdf

[31] This Agreement has five additional amendments, with the latest amendment (Amendment 5) adopted in November 2014.

Table 3-9 shows the normal, single dry, and five consecutive dry year water supplies available under the Yuba Accord.

Table 3-9: Yuba Accord Future Water Deliveries in all Year Types (AFY)

Yuba Accord Supply		2025	2030	2035	2040	2045
Normal		400	400	400	400	400
Single Dry Year		100	100	100	100	100
Multi-Year Drought	Year 1	300	300	300	300	300
	Year 2	100	100	100	100	100
	Year 3	100	100	100	100	100
	Year 4	200	200	200	200	200
	Year 5	300	300	300	300	300

3.2.2 Nickel Agreement

SGPWA signed an agreement with Antelope Valley – East Kern Water Agency (AVEK) on July 7, 2017 (hereafter called "Nickel Agreement"). The Nickel Agreement entitles SGPWA to purchase 1,700 acre-feet of AVEK water each year under a take or pay provision. The AVEK water is non-project water that is provided by the Kern County Water Agency. The Nickel Agreement expires in 2036 and SGPWA has a right of first refusal for an additional 20-year term. AVEK is required to deliver 100% of the supply in all years. Table 3-10 shows SGPWA Nickel Agreement water deliveries since 2017.

Table 3-10: Nickel Agreement Water Deliveries since 2017 (AFY)

Year	Nickel Agreement Deliveries
2017	1,700
2018	1,700
2019	1,700
2020	1,700

SGPWA may consider the Nickel Agreement water supply always available in normal, single dry, and five consecutive dry years. The Nickel Agreement is a take or pay contract with no shortage provision that obligates AVEK to deliver the water in all year types.[32] Table 3-11 shows the SGPWA Nickel Agreement future water supply availability.

[32] Water Supply Agreement between San Gorgonio Pass Water Agency and Antelope-East Kern Water Agency signed July 7, 2017.

Table 3-11: Nickel Agreement Future Water Deliveries in all Year Types (AFY)

Nickel Agreement Deliveries		2025	2030	2035	2040	2045
Normal		1,700	1,700	1,700	1,700	1,700
Single Dry Year		1,700	1,700	1,700	1,700	1,700
Multi-Year Drought	Year 1	1,700	1,700	1,700	1,700	1,700
	Year 2	1,700	1,700	1,700	1,700	1,700
	Year 3	1,700	1,700	1,700	1,700	1,700
	Year 4	1,700	1,700	1,700	1,700	1,700
	Year 5	1,700	1,700	1,700	1,700	1,700

3.2.3 San Bernardino Valley Municipal Water District Agreement

SGPWA entered the Surplus Water Sale Agreement with San Bernardino Valley Municipal Water District Surplus Water Sale Agreement (SBVMWD Agreement) in June of 2018. SBVMWD is a SWP contractor that holds an entitlement to 102,600 acre-feet under its Table A Annual Amount in its 1960 SWP contract. The SBVMWD Agreement entitles SGPWA to purchase up to 5,000 acre-feet of SWP entitlement each year with SBMVWD's express concurrence. The SBVMWD Agreement expires on December 31, 2032, and there is no right of renewal. Nevertheless, SGPWA anticipates renewing this contract through the period covered by this UWMP.

The amount of water available under the contract varies each year and is subject to the "sole discretion" of SBVMWD whether the water will be made available for SGPWA to purchase. The water supply under this agreement may be available depending upon SBVMWD's supply availability determination. The SGPWA is not incorporating this potential supply into its water supply reliability determinations for all year types but considers the supply a component of its available transfer and exchange supplies and, when acquired, may be incorporated into its groundwater storage facilities.

3.2.4 Sites Reservoir Agreement

SGPWA signed the Sites Reservoir Agreement in 2019. Sites Reservoir is a proposed new 1,500,000 acre-feet off-stream storage reservoir in northern California near Maxwell. Sacramento River flows will be diverted during excess flow periods and stored in the off-stream reservoir and released for use in the drier periods. Sites Reservoir is expected to provide water supply, environmental, flood, and recreational benefits. The proponents of Sites Reservoir include 30 entities including several individual SWP Public Water Agencies (PWAs).[33] Sites Reservoir is expected to provide approximately 240 TAF of additional deliveries on average to participating agencies under existing conditions. Sites Reservoir is currently undergoing environmental planning and permitting. Full operations of the Sites Reservoir are estimated to start by 2029 following environmental planning, permitting, and construction. Sites was conditionally awarded $816 million from the California Water Commission for ecosystem, recreation,

[33] https://3hm5en24txyp2e4cxyxaklbs-wpengine.netdna-ssl.com/wp-content/uploads/2021/02/2020-Sites-Reservoir-Annual-Report-FINAL-1.pdf

and flood control benefits under Proposition 1. Reclamation has also invested in Sites Reservoir and has allocated $13.7 million in 2021 for the project.[34]

Both SGPWA and Beaumont Cherry Valley Water District have purchased shares in Sites Reservoir, 10,000 shares and 4,000 shares respectively, that would augment supplies in the San Gorgonio Pass Water Agency service area. Table 3-12 shows the future availability of Sites Reservoir water in the SGPWA's service area and incorporates both the SGPWA and Beaumont Cherry Valley potential supplies. Other stakeholders with investments in Sites Reservoir have accounted for available supplies in 2035 as well.[35]

Table 3-12: Future Availability of Sites Reservoir Water (AFY)

Sites Reservoir		2025	2030	2035	2040	2045
Normal		0	0	10,000	12,000	15,000
Single Dry Year		0	0	10,000	12,000	15,000
Multi-Year Drought	Year 1	0	0	10,000	12,000	15,000
	Year 2	0	0	10,000	12,000	15,000
	Year 3	0	0	10,000	12,000	15,000
	Year 4	0	0	10,000	12,000	15,000
	Year 5	0	0	10,000	12,000	15,000

3.2.5 Water Transfers and Exchanges

SGPWA also engages in water transfers and exchanges involving its SWP assets and other contractors' SWP water assets. Historically, SGPWA has both received and delivered water through these transfers and exchanges with various agencies throughout California. These transfers are essentially spot market transfers where short-term opportunities are identified and then actions taken for acquisition. These transfers help support management of SGPWA's and the retail agencies' water supply portfolios. Future SGPWA transfers and exchanges depend upon the allocations available to SGPWA and other water purveyors. As noted in section 3.2.1, SGPWA has regularly acquired Yuba Accord water through its transfer and exchange activities. In addition, the State Water Contractors collectively develop annual water transfer and exchange programs to develop transferable supplies and negotiate transfer terms. SGPWA regularly participates in SWC's transfer programs. SGPWA seeks to augment potential opportunities for exchanges and transfers with SWP contractors and alternative transfer opportunities like the SWC annual transfer program. Table 3-13 shows the planned future SWP and other water transfer opportunities that could be available for SGPWA.

[34] https://www.dailydemocrat.com/2020/12/29/sites-reservoir-receives-13-7-million-in-federal-spending-bill/
[35] https://www.dropbox.com/s/egtysmhlcry43u1/2020%20UWMP%20Public%20Draft%205-3-2021.pdf?dl=0 for Alameda Flood Control and Water Conservation District, Zone 7 and Coachella Valley Water District at http://www.cvwd.org/DocumentCenter/View/5437/Public-Review-Draft-2020-Coachella-Valley-Regional-Urban-Water-Management-Plan?bidId=

Table 3-13: SGPWA Future Transfers and Exchanges (AFY)

Target Supply	2025	2030	2035	2040	2045
State Water Project	500	1,000	1,000	1,000	1,000
Additional Supplies	600	1,100	1,600	2,100	2,600
Total Transfers	1,100	2,100	2,600	3,100	3,600

3.3 SGPWA Groundwater and Basin Description

Managed groundwater is the primary source of water for nearly all entities within the SGPWA service area. As noted above, SGPWA supports the groundwater basins in its service area by importing water supplies that are used to offset and replenish groundwater extractions and support the legal and regulatory requirements of the applicable management structures. Accordingly, SGPWA has important responsibilities in supporting water supply development in the various groundwater basins within its boundary.

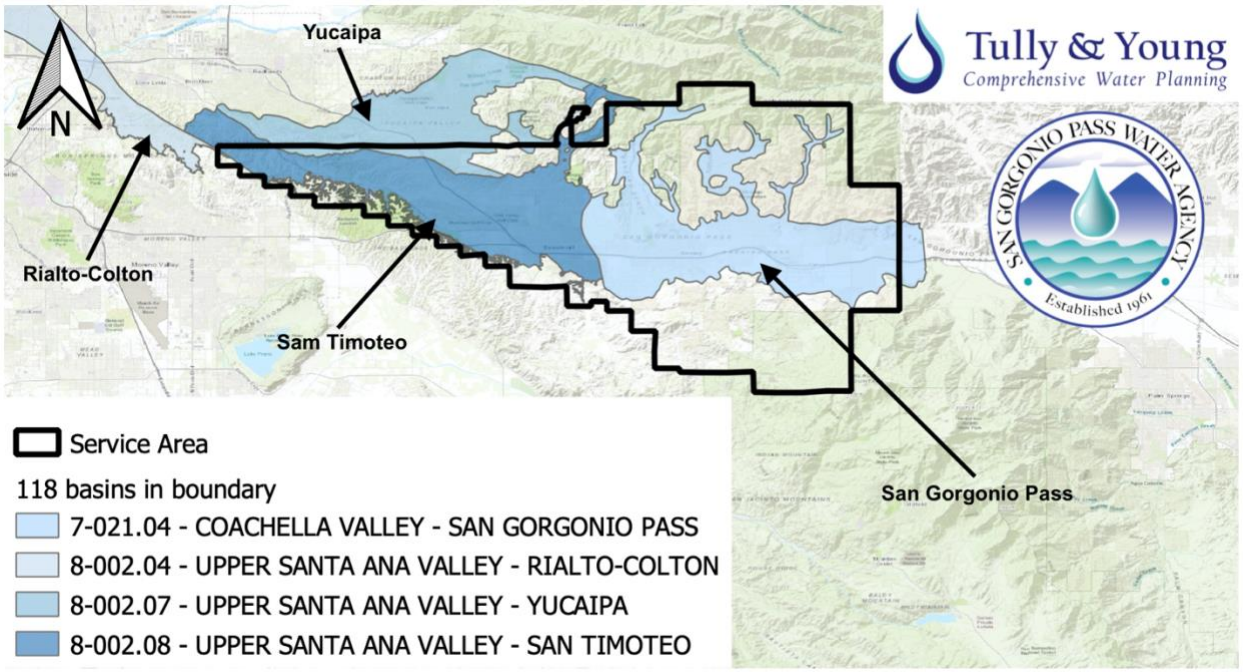
Managed groundwater does not provide a source of water to SGPWA. However, SGPWA provides supplies to recharge the Beaumont Groundwater Basin and allow potential offsets in extracted native groundwater with the recharged supplies. The storage capacity of the Beaumont Basin exceeds the total annual demand for water at build-out and this storage capacity is not likely to be a limiting factor for importing SWP supplies and any additional supplemental imported water.[36] The capacity to store imported water in the Beaumont Basin by spreading water in recharge basins is a key component of SGPWA's role as a wholesaler of SWP supply.

Local runoff of surface water accounts for a small portion of local water resources utilized by the retail agencies. Most of this runoff is typically recharged into local groundwater basins where it becomes part of the managed groundwater supply. Stormwater capture represents an additional source of water within the SGPWA service area; however, it is not currently considered a large supply source in the SGPWA service area. In addition, return flows derived from recycled water and percolating water also constitute an additional component of the supplies entering the Beaumont Basin and other groundwater basins in the region. Together, the native groundwater supplies, recharged groundwater supplies, and other local surface supplies are termed Regionally Managed Supplies and are aggregated as a supply source later in this Chapter.

SGPWA is underlain by portions of two large groundwater basins, the Upper Santa Ana Valley Basin and Coachella Valley Basin, both of which are divided into subbasins. Of the many subbasins, three fall within the SGPWA boundaries, including the Upper Santa Ana Valley – Yucaipa Subbasin, the Upper Santa Ana Valley – San Timoteo Subbasin, and the Coachella Valley – San Gorgonio Pass Subbasin. The latter two subbasins are in turn divided into water storage units, (locally called "basins"). The principal storage units and basins that are used by the water purveyors are the Beaumont, Banning, Yucaipa, and Cabazon groundwater basins. Figure 3-4 shows the DWR described groundwater subbasins.

[36] SGPWA 2015 UWMP.

Figure 3-4: DWR Groundwater Basin Descriptions



3.3.1 Upper Santa Ana Valley – Yucaipa Subbasin[37]

The Yucaipa Basin encompasses approximately 40 square miles and underlies the southeast part of San Bernardino Valley and the northern tip of the SGPWA service area. The Yucaipa groundwater subbasin underlies Yucaipa Valley in southwestern San Bernardino County and northwestern Riverside County. The subbasin is bound on the north by surface drainage divides, the Crafton Hills, and the San Andreas fault zone. The subbasin is bound on the east by surface drainage divides and consolidated rocks in the foothills of the San Bernardino Mountains. The southern boundary adjoins the San Timoteo groundwater subbasin and is defined by surface drainage divides and the Cherry Valley fault. The area overlying the basin is drained by Oak Glen, Wilson, and Yucaipa Creeks, which flow westerly toward San Timoteo Wash, a tributary to the Santa Ana River. The average annual precipitation ranges from 12 to 28 inches.

The Basin is not adjudicated, and the sustainable yield is estimated to be approximately 9,600 AFY with a storage capacity of more than 800,000 AF with extractions from the basin approximately 14,000 AFY.[38] The amount of groundwater pumping from the basin has significantly decreased being attributable to the supplemental supply of SWP and the use of recycled water. The Basin is conjunctively managed by

[37] Bulletin 118 description published March 3, 2020. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2016-Basin-Boundary-Descriptions/8_002_07_Yucaipa.pdf

[38] Bulletin 118 description published March 3, 2020. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2016-Basin-Boundary-Descriptions/8_002_07_Yucaipa.pdf

SGPWA, SBVMWD, YVWD, South Mesa Water Company, Western Heights Water Company, and the City of Yucaipa.

3.3.2 Upper Santa Ana Valley – San Timoteo Subbasin[39]

The Upper Santa Ana Valley – San Timoteo Subbasin crosses the boundary of San Bernardino County and Riverside County, with a majority of the subbasin in Riverside County. The San Timoteo Subbasin underlies Cherry Valley and the City of Beaumont in southwestern San Bernardino and northwestern Riverside Counties. The subbasin is bounded to the north and northeast by the Banning fault and impermeable rocks of the San Bernardino Mountains, Crafton Hills, and Yucaipa Hills, on the south by the San Jacinto fault, on the west by the San Jacinto Mountains, and on the east by a topographic drainage divide with the Colorado River Hydrologic Region. The surface is drained by Little San Gorgonio Creek and San Timoteo Canyon to the Santa Ana River. Average annual precipitation ranges from 12 to 14 inches in the western part to 16 to 18 inches in the eastern part of the subbasin.

3.3.3 Coachella Valley – San Gorgonio Pass Subbasin[40]

The San Gorgonio Pass Subbasin stretches from the City of Banning on its western edge to the Verbenia area to its east, including the community of Cabazon. The portion of the Coachella Valley Groundwater Basin that lies entirely within the San Gorgonio Pass is described as the San Gorgonio Pass Subbasin. This subbasin is bounded on the north by the San Bernardino Mountains and by semi-permeable rocks, and on the south by the San Jacinto Mountains. A surface drainage divide between the Colorado River and South Coastal Hydrologic Study Areas bounds the subbasin on the west. The eastern boundary is formed by a bedrock constriction that creates a groundwater cascade into the Indio Subbasin. Average annual rainfall over the subbasin ranges from 15 to 18 inches. The San Gorgonio River flows intermittently over the subbasin and is the main surface drainage feature for the subbasin. Precipitation in the northern San Bernardino Mountains contributes its runoff to the San Gorgonio River.

3.3.4 Groundwater Basins Management Activities

There are numerous groundwater management actions occurring in the SGPWA jurisdictional boundary that impact regional supply activities. These management actions include implementation of the Beaumont Basin Adjudication (Adjudication) and compliance with the Sustainable Groundwater Management Act. Figure 3-5 shows the Beaumont Basin Adjudication boundary.

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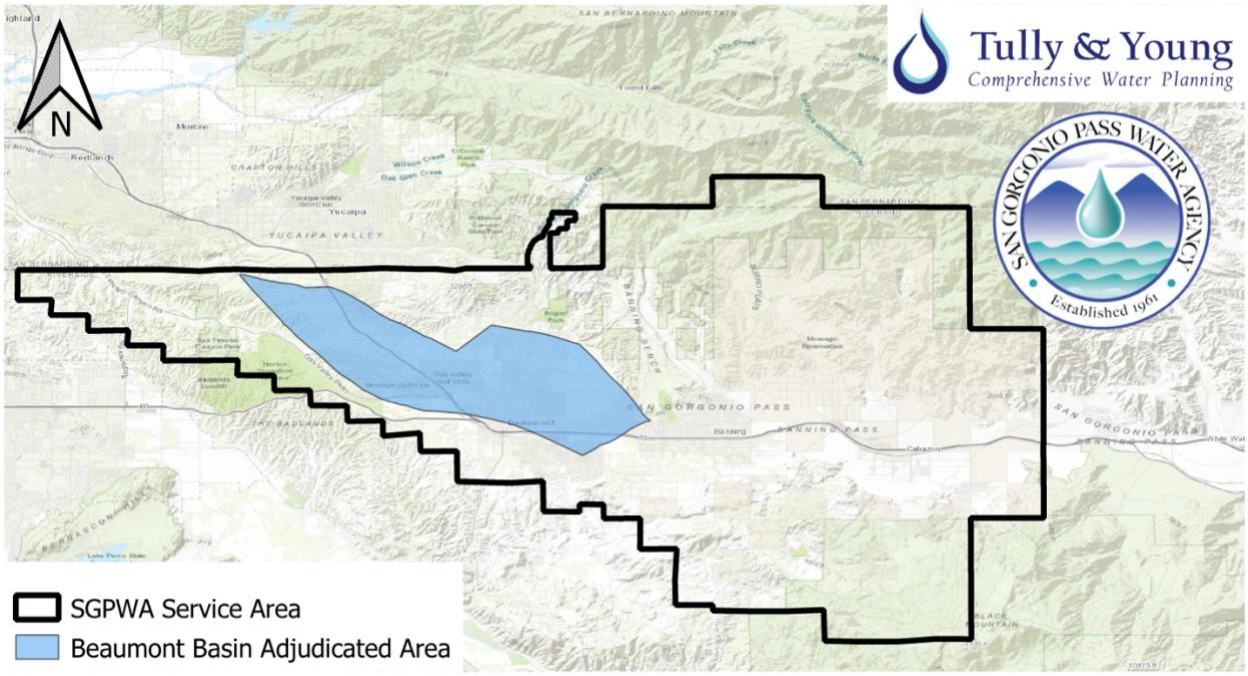
[39] Bulletin 118 description published March 3, 2020. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/8_002_08_SanTimoteoSubbasin.pdf

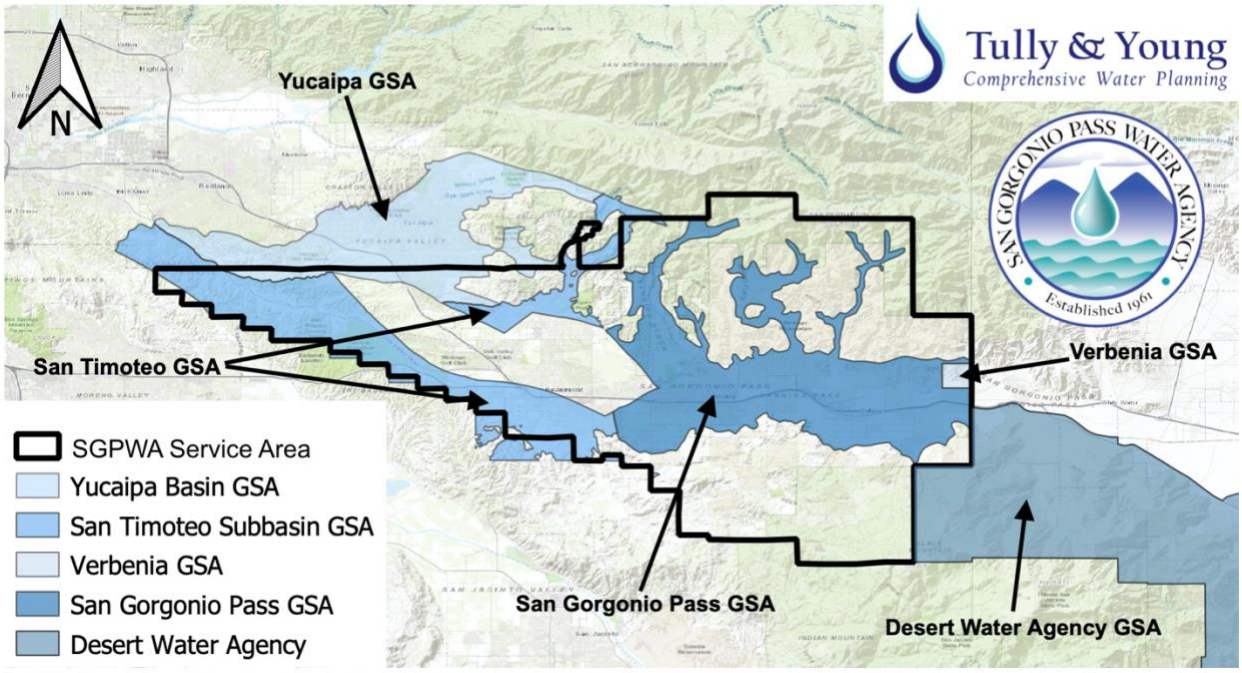
[40] Bulletin 118 description published March 3, 2020. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/7_021_04_SanGorgonioPassSubbasin.pdf

Figure 3-5: Beaumont Basin Adjudication Boundary



There are three groundwater sustainability agencies (GSAs) in the San Gorgonio subbasin. The Desert Water Agency acts as the exclusive GSA of the easternmost edge of the San Gorgonio subbasin but that GSA lies outside the service area of the SGPWA. Verbenia GSA covers one square mile in the eastern portion of the subbasin and the San Gorgonio Pass GSA encompasses the remainder – both of those GSA's are within the SGPWA service area boundary. Figure 3-6 shows the boundaries for the Yucaipa Basin GSA, San Timoteo Subbasin GSA, San Gorgonio Pass GSA, Verbenia GSA, and Desert Water Agency GSA.

Figure 3-6: GSA's Affecting Groundwater Basins Within SGPWA Boundaries



3.3.5 Beaumont Basin Judgment and Stipulation

The Beaumont Groundwater Basin lies in the heart of the SGPWA Service Area. On February 4, 2004, the stipulated judgment *San Timoteo Watershed Management Authority, vs. City of Banning, et al.*, Case No. RIC 389197, was signed in Riverside County Superior Court that created the five-member watermaster committee that manages all adjudicated water rights in the Beaumont groundwater basin. The members of the watermaster committee are the City of Banning, the City of Beaumont, Beaumont-Cherry Valley Water District, South Mesa Mutual Water Company, and the Yucaipa Valley Water District. The Riverside County Superior Court maintains ultimate jurisdiction over the watermaster should any disputes between the parties arise. As an adjudicated basin, the Beaumont Groundwater Basin is largely exempt from the requirements of the Sustainable Groundwater Management Act (SGMA).

The Beaumont Basin Stipulation allows the watermaster committee to allocate available storage to regional entities seeking to store water supplies for later extraction and use. As of December 31, 2019, the total storage allowed in the Beaumont Basin was 290,000 acre-feet with the allocation among participating agencies as follows:

- City of Banning 80,000 AF
- City of Beaumont 30,000 AF
- Beaumont Cherry Valley WD 80,000 AF
- South Mesa Water Company 20,000 AF
- Yucaipa Valley Water District 50,000 AF
- Morongo Band of Mission Indians 20,000 AF
- San Gorgonio Pass Water Agency 10,000 AF

The Judgment allocates pumping rights to both overlying groundwater users and groundwater appropriators and provides guidelines for conversion of pumping rights from overlying users to appropriators. Overlying users are parties that own land overlying the Beaumont Basin and have exercised pumping rights. Groundwater appropriators are the water purveyors who pump water to serve urban demands within the Beaumont Basin, including the City of Banning, BCVWD, SMWC, and YVWD. Groundwater appropriators can obtain additional pumping rights from an overlying user and the Beaumont Basin Watermaster develops annual projections of pumping rights conversion from overlying users to appropriators.

The long-term safe yield of the Beaumont Basin is 6,700 AFY.[41] SGPWA provides purchased surface water assets that augment the managed groundwater basin that is eventually delivered to retailers within SGPWA's service area.

3.3.6 San Timoteo Subbasin GSA

In 2017, the San Timoteo Groundwater Sustainability Agency was formed by a Memorandum of Agreement (MOA) between four forming parties: the City of Redlands, SGPWA, BCVWD, and YVWD. The San Timoteo GSA will manage the non-adjudicated portion of the San Timoteo Subbasin which straddles the adjudicated portion of the Beaumont Basin. Each agency overlies a portion of the groundwater basin and exercises water management, water supply and/or land use authority. The San Timoteo Groundwater Sustainability Agency will coordinate with Eastern Municipal Water District for the separate GSA in the southern portion of non-adjudicated part of the Basin and the Beaumont Basin Watermaster for the adjudicated portion of the basin. Figure 3-6 shows the San Timoteo GSA boundary.

3.3.7 Yucaipa Basin GSA

In July 2017, San Bernardino Valley Municipal Water District (Valley District) joined the City of Calimesa, the City of Redlands, San Gorgonio Pass Water Agency, South Mesa Water Company, South Mountain Water Company, Western Heights Water Company, the City of Yucaipa, and the Yucaipa Valley Water District to form the Yucaipa Basin Groundwater Sustainability Agency (Yucaipa GSA) under the Sustainable Groundwater Management Act (SGMA). The Yucaipa Basin GSA covers areas in both San Bernardino and Riverside Counties encompassing the entire Upper Santa Ana – Yucaipa Subbasin area. The Yucaipa Basin GSA is preparing a Groundwater Sustainability Plan (GSP) for publication in January of 2022. The GSP will impact retailers using water supplies and storage in the Yucaipa Basin and may provide opportunities for SGPWA to store imported water assets. Figure 3-6 shows the Yucaipa Basin GSA boundary.

[41] 2019 Consolidated Annual Report and Engineering Report, Beaumont Basin Watermaster, December 12, 2020 at 2-8.

3.3.8 San Gorgonio Pass Subbasin Groundwater Sustainability Agency

San Gorgonio Pass Subbasin GSA covers the majority of the area overlying the Coachella Valley - San Gorgonio Pass Subbasin. The San Gorgonio Pass GSA members include the SGPWA, Banning Heights Mutual Water Company, the City of Banning, and the Cabazon Water District. Figure 3-6 shows the San Gorgonio Pass Subbasin GSA boundary.

3.3.9 Verbenia Groundwater Sustainability Agency

The Verbenia GSA covers the one square mile in the eastern part of the San Gorgonio Subbasin where the service areas of the SGPWA and Mission Springs Water District overlap. The SGPWA and Mission Springs WD are the two members of this GSA. Figure 3-6 shows the Verbenia GSA boundary.

3.3.10 Desert Water Agency Groundwater Sustainability Agency

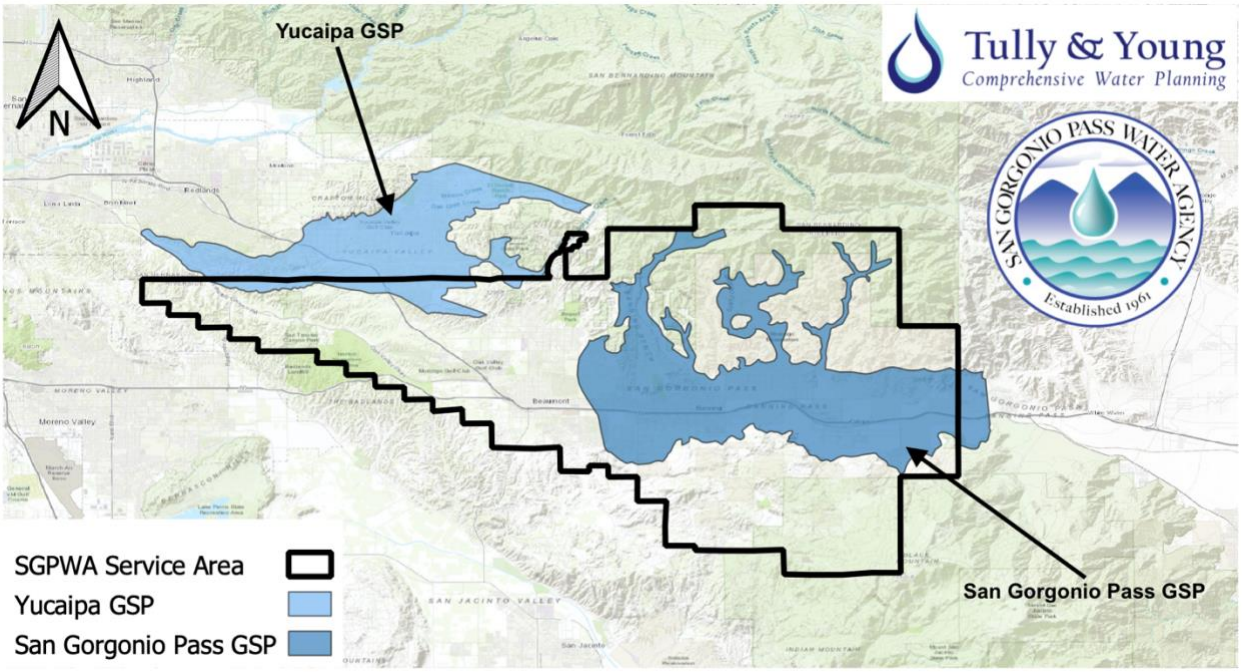
The Desert Water Agency occupies an area outside the SGPWA boundary but influences the water management actions of the San Gorgonio Pass Groundwater Basin. This GSA will coordinate development of planning activities as they apply to the San Gorgonio Pass Groundwater Basin.

3.3.11 Groundwater Sustainability Plans

The Yucaipa Basin GSA will prepare a single GSP that will cover the entire Upper Santa Ana Valley – Yucaipa Subbasin area. This GSP will be finalized January 31, 2022.

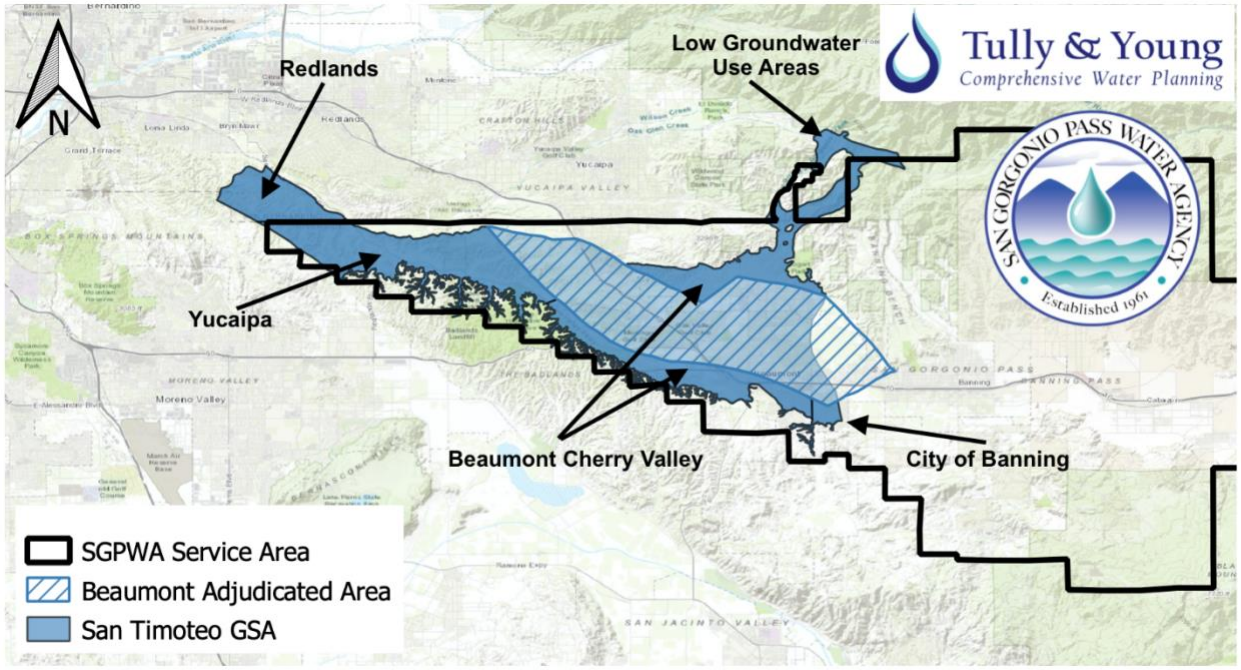
The Coachella Valley – San Gorgonio Pass Subbasin will also have a single GSP that will be jointly prepared by the GSA's overlying the subbasin – San Gorgonio Pass Subbasin GSA, the Verbenia GSA, and Desert Water Agency GSA. The Morongo Band of Mission Indians will likely provide input on San Gorgonio Pass Subbasin GSP because the reservation is entirely contained in the subbasin, but the Morongo Band is not subject to the requirements of the Sustainable Groundwater Management Act because of their status as a sovereign nation. Figure 3-7 shows the Yucaipa GSP and San Gorgonio Pass GSP boundaries that have been submitted to the state as of 2020.

Figure 3-7: Yucaipa and San Gorgonio Groundwater Sustainability Plan Boundaries



Lastly, the San Timoteo Subbasin GSA will develop a GSP that will cover the five separate sub-areas and will coordinate efforts with the Beaumont Basin Judgment as that judgment applies to the Upper Santa Ana Valley – San Timoteo Subbasin. Figure 3-8 shows the boundaries for the five sub-areas that will be created in the unadjudicated portion of the San Timoteo Subbasin. As of early 2021, San Timoteo has not submitted a proposed GSP boundary to the state.

Figure 3-8: Sub-Areas in the Unadjudicated San Timoteo Subbasin



Collectively, the Beaumont Basin Adjudication and the GSAs that are developing groundwater basin GSPs will provide a comprehensive approach to the groundwater systems that may impact SGPWA's water storage and management interests.

3.3.12 SGPWA Groundwater Storage

SGPWA also stores imported water supplies in the Beaumont Basin within the SGPWA service area and anticipates storing water in other basins when appropriate agreements and protocols can be developed. SGPWA's total stored water in 2020 was approximately 471.8 acre-feet in the Beaumont Basin.[42] SGPWA entered the Beaumont Basin Watermaster Groundwater Storage Agreement (Agreement) in 2018 consistent with the Beaumont Basin Adjudication storage allocation to SGPWA. [43] The Agreement allows SGPWA to store up to 10,000 acre-feet of water in the Beaumont Basin. The Agreement has no expiration, but the Beaumont Basin Watermaster may unilaterally terminate the Agreement with 180 day written notice. There is no indication that the Agreement will be terminated now or in the future. As such, the ability to store as much as 10,000 acre-feet in the Beaumont Basin is incorporated into the UWMP planning efforts. Table 3-14 shows SGPWA's total groundwater storage accounts in 2020.

Table 3-14: SGPWA Stored Groundwater[44] (AF)

Total Groundwater Storage	Beaumont Basin	Yucaipa Subbasin	San Timoteo Basin	San Gorgonio Subbasin
471.8	471.8	0	0	0

SGPWA will continue to store water supplies as allowed in each groundwater basin. Additional storage may occur in the Yucaipa, San Timoteo, and San Gorgonio groundwater basins as systems allow water supplies to reach these basins. Table 3-15 shows SGPWA's conservative estimate of total future storage supplies in five-year increments through 2045 in the regional groundwater basins, including SGPWA's ability to exclusively use the Beaumont Basin if no other groundwater storage options materialize. The conservative estimates reflect supplies available for use in an identified year rather than total stored water managed by SGPWA.

Table 3-15: SGPWA Future Stored Groundwater (AF)

2025	2030	2035	2040	2045
1,000	1,000	1,000	1,000	1,000

[42] 2019 Consolidated Annual Report and Engineering Report, Beaumont Basin Watermaster, December 12, 2020 at 3-12.

[43] Beaumont Basin Watermaster Groundwater Storage Agreement, February 8, 2018.

[44] The SGPWA has yet to develop formal water storage accounts in Yucaipa Subbasin, San Timoteo Basin, and the San Gorgonio Subbasin but is actively engaged in those discussion per the ongoing Sustainable Groundwater Management Act efforts.

3.3.13 Total Water Supplies

The projected total water supplies needed to meet all the regional retail agencies' demands and other demands within SGPWA's service area is summarized in Table 3-16 below. SGPWA does not anticipate providing all the supplies through the collective water assets that it controls, but it will work closely with the retail agencies and other interest to manage water assets so that the regional water supplies can meet the projected regional water demands. The supplies that make up the water supply portfolio to meet the needs shown below include, SWP Table A, SWP Carryover Supplies, Yuba Accord Water, Nickel Agreement Water, Sites Reservoir water shares, Water Transfer and Exchange Water, native groundwater, local water rights, groundwater return flows, and recycled water supplies. The annual characterization of each of these supplies is shown in section 3.7 of this Chapter.

Table 3-16: Projected Total Water Supply for SGPWA Region through 2045[45] (AFY)

Service Area Water Supply to Meet Demands	2025	2030	2035	2040	2045
City of Banning	9,473	10,198	10,853	11,565	12,278
Beaumont Cherry Valley	14,963	16,160	17,515	18,710	19,693
Yucaipa Valley WD (Riverside Portion)	1,509	1,841	2,174	2,507	2,839
South Mesa WC (Riverside Portion)	1,032	1,084	1,138	1,196	1,196
High Valley WD	3,400	3,600	3,900	4,100	4,300
Cabazon County WD					
Mission Springs (SGPWA area)					
Other SGPWA service area not served by named retailers					
Total SGPWA Boundary Supply to meet Demands	30,400	32,900	35,600	38,100	40,300

3.4 Water Quality

Water quality is a critically important consideration in the SGPWA service area. All consumer water supplies are derived from groundwater extractions that blend many sources of water. SGPWA provides imported State Water Project water supplies to the groundwater basins in its service area.

3.4.1 State Water Project Water Quality

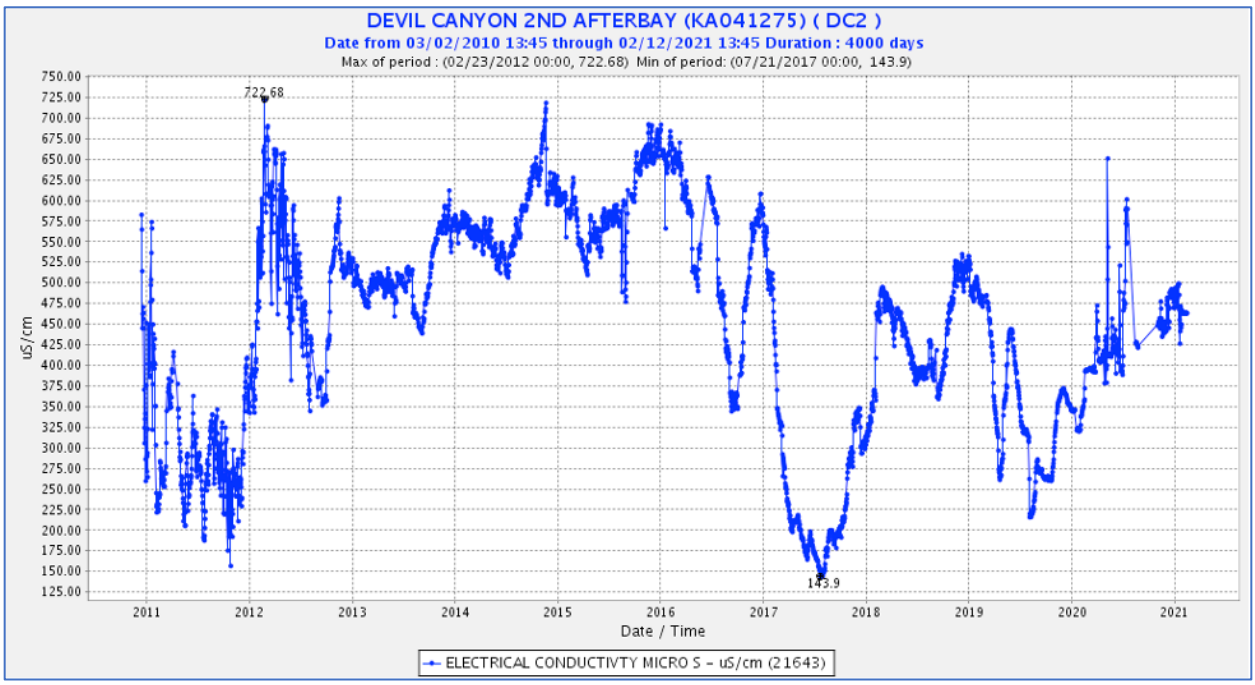
State Water Project (SWP) water quality is monitored by the California Department of Water Resources (DWR) Division of Operations and Maintenance. DWR maintains 16 continuous water quality monitoring stations located throughout the State Water Project and data from these stations is regularly uploaded to the California Data Exchange Center (CDEC). The parameters for monitoring SWP water quality include the following: electrical conductivity, water temperature, turbidity, pH, and fluorescence. SWP water quality changes as the water moves from the precipitation and snowmelt

[45] The supply totals necessary to meet demands in Table 3-16 are rounded to the nearest 100.

runoff to its termination areas in southern California. As such, the water quality measurements at each station are important for purposes of tracing water quality constituents in the SWP system.

Of the 16 water quality monitoring stations, "Devil Canyon Afterbay" is located closest to San Gorgonio Pass Water Agency's turnouts. Figure 3-9 shows the measured publicly available electroconductivity since 2010, Figure 3-10 shows the measured publicly available temperature information since 2017, and Figure 3-11 shows the measured publicly available Turbidity at Devil Canyon since 2013. Figure 3-12 shows pH at Devil Canyon since 2017. Last, Figure 3-13 shows fluoresce at Pacheco Pumping Plant since 2010.[46] The SWP water quality falls within normal parameters.

Figure 3-9: Devil Canyon Electrical Conductivity 2010-2020



[46] These locations were chosen because Check 66 did not have these water quality parameters and the Kern and PPP locations were the nearest to Check 66 with the appropriate SWP water quality parameters.

Figure 3-10: Devil Canyon Water Temperature 2017-2020

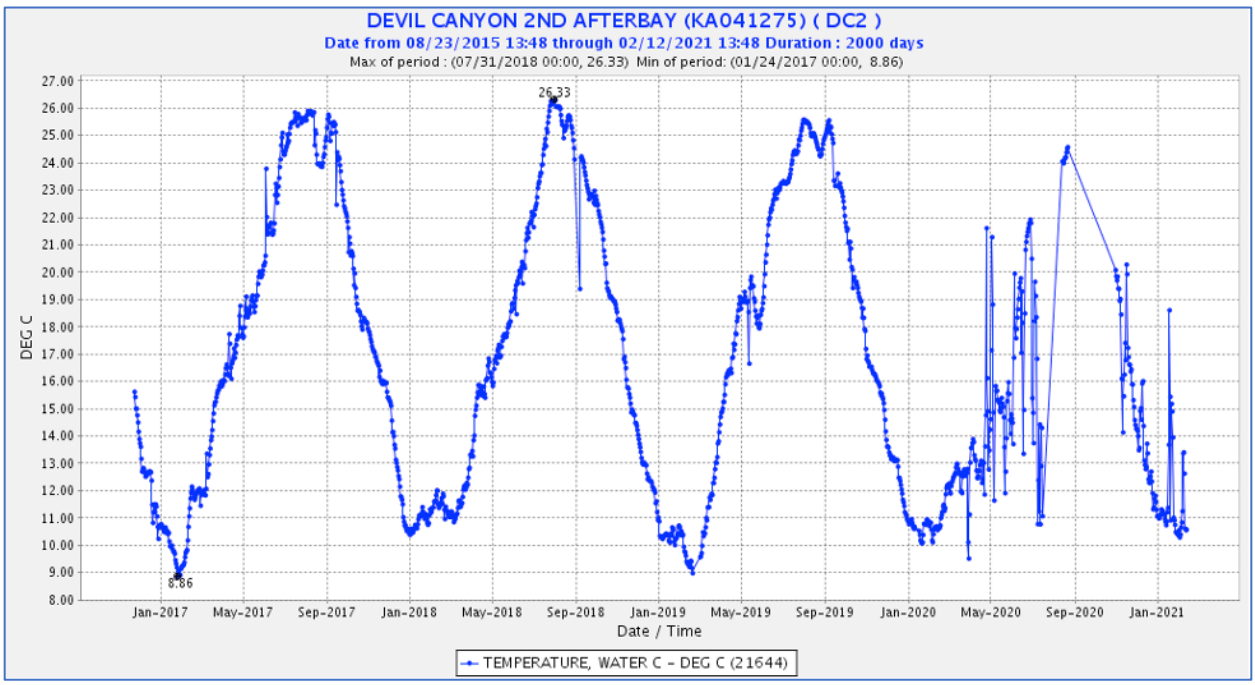


Figure 3-11: Devil Canyon Turbidity 2013-2020

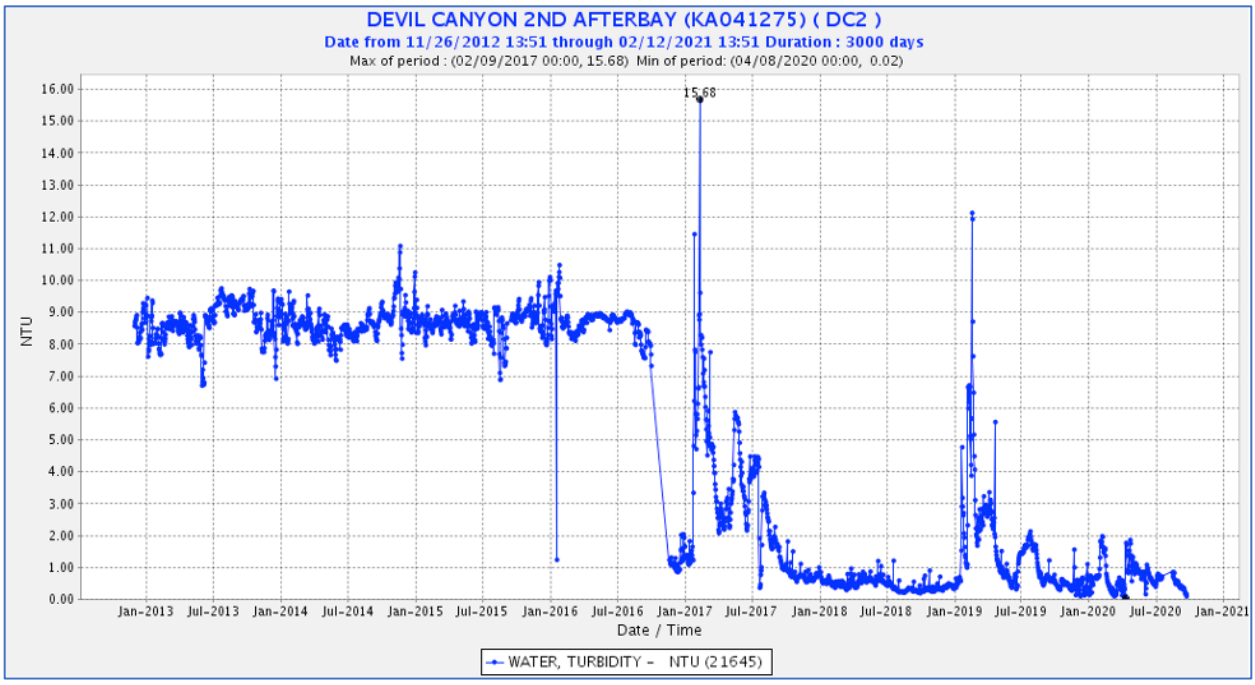


Figure 3-12: Devil Canyon pH Value

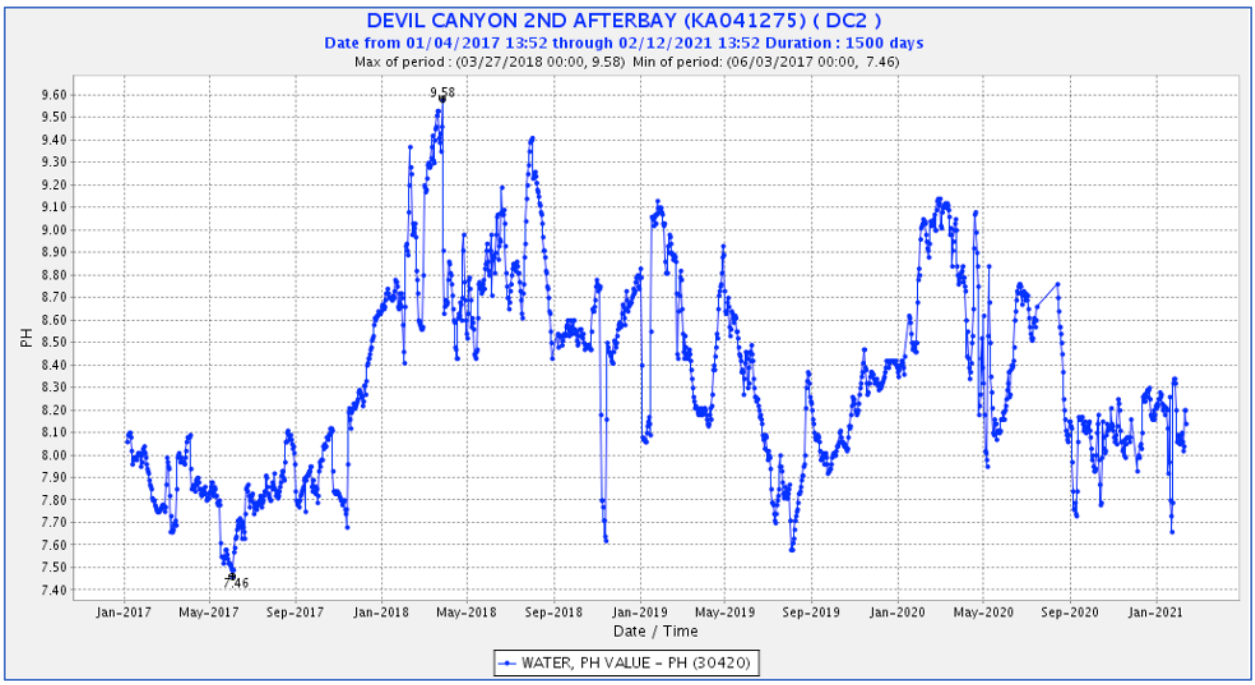
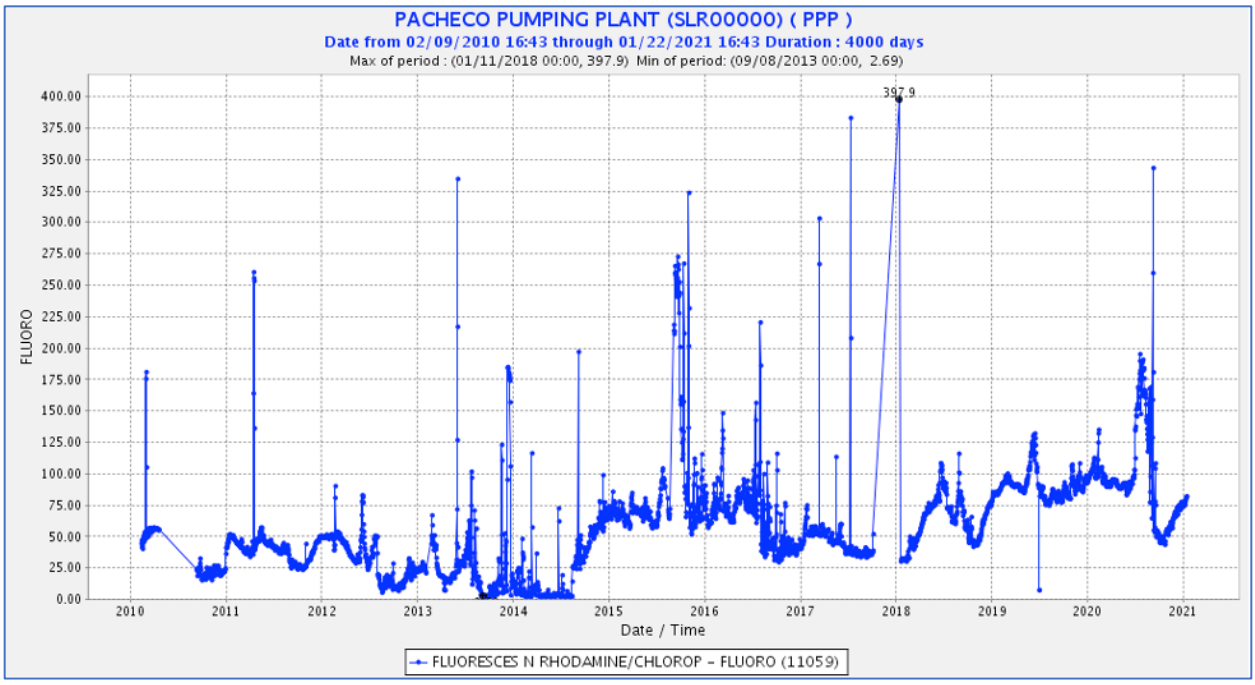


Figure 3-13: PPP Fluoresces 2010-2020



3.4.2 Groundwater Quality in the SGPWA Service Area

Groundwater quality in the SGPWA region is very good. There is no known historical industrial or mining activity in the region that has generated harmful plumes of pollutants. The Santa Ana RWQCB has a "maximum benefit" goal of 330 parts per million (ppm) for TDS (or salinity) for the Beaumont Basin. The current ambient TDS concentration in the Beaumont Basin is approximately 280 ppm (Report on Water Conditions, 2019). The Basin Plan requires local entities to begin planning desalters when the ambient TDS increases to 320 ppm. YVWD has constructed a desalination plant and brine disposal pipeline to address the TDS issue.

In addition to salinity or TDS, nitrate is also monitored closely. This too is regulated by the RWQCB, but nitrate concentrations are currently well within the maximum benefit standards. Over the past few years there have been isolated incidents of high nitrates at individual wells for short periods of time, typically after a large rainstorm that causes flushing of the system. These have not proven to be a health hazard.

Total chromium has been regulated by the SWRCB at an MCL of 50 microgram per liter (µg/L), which includes both chromium-3 and chromium-6. In 2011, California EPA Office of Environmental Health Hazard Assessment set a Public Health Goal (PHG) of 0.02 µg/L for chromium-6. California Department of Public Health then reviewed the PHG and recommended an MCL for chromium-6 at the level of 10 µg/L, which went into effect 2020.

Within the SGPWA service area, chromium-6 concentrations have been measured at levels above the MCL in several wells owned by the City of Banning and BCVWD, forcing some wells to be taken out of production temporarily, pending implementation of a fix to the problem.

More details on groundwater quality management actions are identified in the retail water agencies' UWMPs.

3.4.3 Groundwater Monitoring and Protection

The general goal of groundwater protection activities is to maintain the groundwater and the aquifer to ensure a reliable high quality water supply. Activities to meet this goal include continued and increased monitoring, data sharing, education and coordination with other agencies that have local or regional authority or programs.

SGPWA participates in the DWR Municipal Water Quality Investigations (MWQI) Program. The MWQI Program is funded by the sixteen SWP Contractors that provide water to their customers for municipal and industrial uses. The mission of the MWQI Program is to: a) support the effective and efficient use of the Sacramento-San Joaquin Delta (Delta) and the SWP as a source water supply for municipal purposes through monitoring, forecasting, and reporting water quality; b) provide early warning of changing conditions in source water quality used for municipal purposes; c) provide data and knowledge based support for operational decision-making on the SWP; d) conduct scientific studies of drinking water importance; and e) provide scientific support to DWR, the State Water Project Contractors Authority MWQI-Specific Project Committee, and other governmental entities.

The MWQI Program conducts extensive monitoring in the Delta and the outlet to San Luis Reservoir. The data from this program, combined with data collected throughout the SWP by the DWR Division of Operations and Maintenance, are used to understand how water quality changes from the Delta to the turn outs of the SWP Municipal and Industrial (M&I) Contractors. The MWQI Program has also developed a forecasting model to forecast organic carbon concentrations and salinity levels throughout the SWP. A daily report is sent out via email to the M&I Contractors with recent water quality data at key locations and information on Delta conditions and pumping at the Banks and Jones pumping plants.

Ongoing work includes refinement of the forecasting model to predict water quality conditions more accurately and to better model the impacts of groundwater and surface water pump-ins. The MWQI Program is also conducting studies to better understand the dynamics of algal and aquatic plant growth in the SWP. Algae and aquatic plants create a number of problems, including taste and odor issues, wide swings in pH, filter clogging, and clogging of conveyance structures. The MWQI Program also conducts the sanitary survey of the SWP, which must be submitted to the State Water Resources Control Board Division of Drinking Water every five years.

3.5 Desalination Opportunities and Water Recycling

The California UWMP Act requires a discussion of potential opportunities for use of desalinated water (Water Code Section 10631[g]). Groundwater supplies within the SGPWA service area impacted by total dissolved solids, and desalination could be implemented by the individual retail agencies to address this issue. YVWD, for example, is close to obtaining a permit to serve desalted recycled wastewater for non-potable uses. At this time, SGPWA does not have plans to develop desalination for brackish water supplies.

Because the SGPWA service area is not in a coastal area, it is neither practical nor economically feasible for SGPWA to implement a seawater desalination program. However, SGPWA could provide financial assistance to other SWP contractors in the construction of their seawater desalination facilities in exchange for SWP supplies.

The Agency does not provide supplemental treatment to recycled water and does not distribute recycled water, nor does the Agency have plans to provide recycled water as a part of its deliveries.

3.6 Climate Change

The California Water Code now requires that water suppliers consider the effects of climate change in their water supply planning efforts. It also provides that climate change is appropriate to consider when assessing drought risk assessment, water conservation and use efficiency, and demand management and supply – both in an historical and future-projection context. SGPWA's primary climate change concern involves its capability of providing imported SWP water for groundwater recharge. As shown in this section, SGPWA uses DWR's Delivery Capability Report (DCR) to assess current and future reliability of SWP Contract Table A supplies. The DCR modified the normal year reliability of Table A Contract Allocations from 62% to 58% by incorporating, among other things, climate change. In addition, the DCR used a 7% supply reliability number for a single dry year whereas the SGPWA used 5% to reflect climate

contingencies. These characterizations are depicted in Table 3-2. SGPWA took a more conservative approach to short-term and long-term reliability to incorporate potential unforeseen conditions attributable to climatic variability. As shown in Table 3-3, SGPWA chose to maintain its 58% DCR projection despite planned improvements in SWP conveyance. And, as shown in Table 3-4, SGPWA used the driest year on record with the lowest Table A percentage allocation of 5% to characterize both the single dry year supply availability as well as two of the five years in the 5-year drought scenario. And finally, SGPWA also considered the driest year on record to reflect its Table A Carryover supplies that may be available in order to best consider climatological variability. In addition, other sources of water and management activities like Sites Reservoir and the Delta Conveyance Project, also provide some additional protections against the potential effects of climate change. Accordingly, SGPWA's conservative approach to capture supply availability captures future unpredictable climatological issues that may impact water supply reliability beyond the considerations reflected by DWR in its 2020 DCR.

3.7 Supply Summary

The available supplies in the SGPWA service area include supplies that are managed exclusively by SGPWA and other supplies that are managed by retail agencies. SGPWA and the retail agencies coordinate the supplies in order to meet regional demands. This section summarizes the total supplies available in the San Gorgonio Pass Water Agency service area after bifurcating supplies into those managed by SGPWA and those managed by the retail agencies.

3.7.1 Supplies Coordinated Through SGPWA

The total current and projected supplies that will be used in the SGPWA Service Area from sources coordinated by SGPWA are as follows:

Table 3-17: Table A Current and Projected Supplies Through 2045 (AFY)

SWP Table A		2025	2030	2035	2040	2045
Normal		10,034	10,034	10,034	10,034	10,034
Single Dry Year		865	865	865	865	865
Multi-Year Drought	Year 1	6,055	6,055	6,055	6,055	6,055
	Year 2	865	865	865	865	865
	Year 3	865	865	865	865	865
	Year 4	3,460	3,460	3,460	3,460	3,460
	Year 5	6,055	6,055	6,055	6,055	6,055

Table 3-18: SWP Carryover Current and Projected Supplies Through 2045 (AFY)

SWP Carryover		2025	2030	2035	2040	2045
Normal		3,000	3,000	3,000	3,000	3,000
Single Dry Year		940	940	940	940	940
Multi-Year Drought	Year 1	3,000	3,000	3,000	3,000	3,000
	Year 2	2,500	2,500	2,500	2,500	2,500
	Year 3	950	950	950	950	950
	Year 4	940	940	940	940	940
	Year 5	1,700	1,700	1,700	1,700	1,700

Table 3-19: Current and Projected Stored Groundwater Supplies Through 2045 (AFY)

Groundwater Storage		2025	2030	2035	2040	2045
Normal		1,000	1,000	1,000	1,000	1,000
Single Dry Year		1,000	1,000	1,000	1,000	1,000
Multi-Year Drought	Year 1	1,000	1,000	1,000	1,000	1,000
	Year 2	1,000	1,000	1,000	1,000	1,000
	Year 3	1,000	1,000	1,000	1,000	1,000
	Year 4	1,000	1,000	1,000	1,000	1,000
	Year 5	1,000	1,000	1,000	1,000	1,000

Table 3-20: Total Water Transfer and Exchanges Through 2045 (AFY)[47]

Water Transfers		2025	2030	2035	2040	2045
Normal		1,500	2,500	3,000	3,500	4,000
Single Dry Year		1,500	2,500	3,000	3,500	4,000
Multi-Year Drought	Year 1	1,500	2,500	3,000	3,500	4,000
	Year 2	1,500	2,500	3,000	3,500	4,000
	Year 3	1,500	2,500	3,000	3,500	4,000
	Year 4	1,500	2,500	3,000	3,500	4,000
	Year 5	1,500	2,500	3,000	3,500	4,000

[47] Includes Yuba Accord and additional transfers and exchanges as they become available to SGPWA.

Table 3-21: Nickel Water Supplies Through 2045 (AFY)

Nickel Water		2025	2030	2035	2040	2045
Normal		1,700	1,700	1,700	1,700	1,700
Single Dry Year		1,700	1,700	1,700	1,700	1,700
Multi-Year Drought	Year 1	1,700	1,700	1,700	1,700	1,700
	Year 2	1,700	1,700	1,700	1,700	1,700
	Year 3	1,700	1,700	1,700	1,700	1,700
	Year 4	1,700	1,700	1,700	1,700	1,700
	Year 5	1,700	1,700	1,700	1,700	1,700

Table 3-22: Sites Reservoir Current and Projected Supplies Through 2045 (AFY)

Sites Reservoir		2025	2030	2035	2040	2045
Normal		0	0	10,000	12,000	15,000
Single Dry Year		0	0	10,000	12,000	15,000
Multi-Year Drought	Year 1	0	0	10,000	12,000	15,000
	Year 2	0	0	10,000	12,000	15,000
	Year 3	0	0	10,000	12,000	15,000
	Year 4	0	0	10,000	12,000	15,000
	Year 5	0	0	10,000	12,000	15,000

3.7.2 Regionally Managed Supplies

The supplies that are beyond the purvey of SGPWA are considered regionally managed supplies. These supplies consist of locally available surface water, groundwater extractions, recycled supplies, and other supplies that the retail agencies may use in meeting demands in addition to supplies provided by SGPWA. Table 3-23 depicts the regionally managed supplies available to meet demands in the SGPWA service area. The table does not reflect details about specific sources of supplies that each retail agency uses. These details would be best captured in the local agencies planning documents, including their 2020 UWMP updates, where applicable.

Table 3-23: Regionally Managed Water Supplies Available to Meet Demands (AFY)

Regional Supplies		2025	2030	2035	2040	2045
Normal		13,170	14,670	10,000	10,000	10,000
Single Dry Year		24,400	25,900	18,100	18,100	16,800
Multi-Year Drought	Year 1	17,150	18,650	10,850	10,850	9,550
	Year 2	22,840	24,340	16,540	16,540	15,240
	Year 3	24,380	25,880	18,080	18,080	16,780
	Year 4	21,800	23,300	15,500	15,500	14,200
	Year 5	18,450	19,950	12,150	12,150	10,850

3.7.3 Combined SGPWA and Retail Water Supplies

Table 3-24 depicts the total water supplies available to meet demands in the SGPWA service area from 2021 through 2025 during normal, single dry, and five consecutive dry years. Table 3-25 shows the total water supplies available to meet demands in the SGPWA from 2025 through 2045.

Table 3-24: Total Water Supplies Available to Meet Demands Through 2025 (AFY)

Year		SWP Table A Allocation	Table A Carryover	Groundwater Storage	Transfers (inc Yuba Accord)	Nickel Water	Regionally Managed Supplies	Total
Normal		10,030	3,000	500	1,000	1,700	11,830	28,060
Single Dry		870	940	500	1,000	1,700	23,100	28,110
Multi-Year Drought	Year 1	6,060	3,000	500	1,000	1,700	16,310	28,570
	Year 2	870	2,500	500	1,000	1,700	22,460	29,030
	Year 3	870	950	500	1,000	1,700	24,460	29,480
	Year 4	3,460	940	500	1,000	1,700	22,340	29,940
	Year 5	6,060	1,700	500	1,000	1,700	19,450	30,410

Table 3-25: Total Water Supplies Available to Meet Demands Through 2045 (AFY)

Total Supply		2025	2030	2035	2040	2045
Normal		30,400	32,900	38,700	41,200	44,700
Single Dry Year		30,400	32,900	35,600	38,100	40,300
Multi-Year Drought	Year 1	30,400	32,900	35,600	38,100	40,300
	Year 2	30,400	32,900	35,600	38,100	40,300
	Year 3	30,400	32,900	35,600	38,100	40,300
	Year 4	30,400	32,900	35,600	38,100	40,300
	Year 5	30,400	32,900	35,600	38,100	40,300

Chapter 4
Water Use

Understanding water use characteristics throughout the region is essential to enable the San Gorgonio Pass Water Agency to reliably and cost-effectively manage water supplies to continue to support the water needs within its service area. As described in Chapter 2, SGPWA imports water supplies to the region to support the urban, rural, industrial, recreational, and other users throughout an expansive area in eastern Riverside County. This section quantifies the current regional water use within the service area and forecasts future needs for a planning horizon extending to 2045. This comprehensive projection of water use becomes the foundation for integration with SGPWA's water supplies (see Chapter 3) to assess long-term water system reliability (see Chapter 5).

This chapter is organized as follows:

- Current Regional Water Use – This subsection presents data reflecting regional water use for 2015 through 2020.
- Forecasting Regional Water Use – This subsection presents the derivation and results of future regional water use within the service area.
- Demand Management Measures – This subsection provides a narrative description of SGPWA's historic and planned regional-level water demand management measure.
- Forecasting Regional Water Use for DRA and Annual Assessment – This subsection focuses on the subset of the regional water use forecast necessary for completing the 5-year Drought Risk Assessment (DRA) and defining the "unconstrained demand" for purposes of annual water supply and demand assessment.

4.1 Current Regional Water Use

As described in Chapter 2 and Chapter 3, SGPWA imports water supplies to help assure sufficient and reliable water supplies for use by large and small urban retailers, rural domestic users, industry, and other uses in the region. However, because SGPWA does not manage the water supplies used by the various groundwater users, the representation of current regional water use is provided as a combined value for the entire region.

Information gathered from the primary retail water suppliers as well as additional estimates for small public water systems and rural users was used to develop a historic representation of regional water use – derived from all sources. Table 4-1 provides the resulting regional historic and current water use.

This recent and current regional water use helps SGPWA understand water use trends and other pertinent water use factors relevant to forecasting future regional water use.

Table 4-1: Regional Water Use 2015 to 2020 (AFY, rounded to nearest 100 acre-feet)

2015	2016	2017	2018	2019	2020
21,700	23,000	24,300	25,600	26,900	28,100

4.2 Forecasting Regional Water Use

Forecasting future regional water needs begins with an understanding of the existing regional needs and trends, recognizing the additional customers expected through growth, and considering the factors that will influence the water use of both existing and new customer well into the future – especially factors that directly affect the efficiency of water use.

Pursuant to California Water Code 10610.4(c), an urban water supplier "*shall be required to develop water management plans to actively pursue the efficient use of available supplies*." As required by the Act, the future water use of both existing customers and those added over the 25-year planning horizon should reflect the "efficient use" of water.

The four primary urban retail water suppliers within the SGPWA's service area have prepared water use forecasts to reflect the effects of efficient use of water on both existing customers' future use and the new use of new customers anticipated with various growth projections and specific development projects. SGPWA coordinated with the four primary retail suppliers to obtain the future demand forecast from each, adding additional growth anticipated within other smaller retail areas and by private domestic users in rural parts of the service area. The resulting estimate of future regional water needs represents users throughout the service area for which SGPWA imports water to support. The forecast for each 5-year increment through 2045 is provided in Table 4-2.

Table 4-2: Future Regional Water Use (AFY, rounded to nearest 100 acre-feet)

2020	2025	2030	2035	2040	2045
28,100	30,400	32,900	35,600	38,100	40,300

4.2.5 Adjusting Water Use Forecasts for Single-Dry and Multiple Dry Conditions

The regional water use forecast represents expected water needs under normal climatic conditions. Often, to reflect lower rainfall conditions which may trigger water users to begin irrigating sooner, adjustments to this forecast should be made. However, in the high desert climate of the SGPWA area, water users are generally not managing landscape or agricultural irrigation systems based upon any variance from "normal." In other words, rainfall to meet landscape or crop water needs is not relied upon, thus the seasonal lack of it does not materially change behavior as it may in climates with higher rainfall.

As a result, the regional forecast presented in Table 4-3 is not adjusted for single dry or multiple dry years. The regional forecast represents the "unconstrained demand" that would be expected in all year types.[48]

4.2.6 Climate Change Considerations

Including climate change into a water use analysis aids in understanding the potential effects on long-term reliability, which in turn, allows SGPWA to proactively begin planning appropriate responses. For example, hotter and drier weather may lead to an increased demand in landscape irrigation, especially during spring and fall months, increasing the pressure on water supplies that may have availability restrictions during these periods.

However, as indicated previously, the high desert climate already has low rainfall and extreme temperatures. Thus, adjustments for the near-term planning horizon are not warranted.

Long-term effects of climate change may increase the evapotranspiration rates of irrigated crops and landscapes. But such effects will be nominal when compared to the existing rates already occurring in the high desert climate. SGPWA will continue to assess the potential effect of climate change in future UWMPs and other regional water planning efforts.

4.3 Demand Management Measures

Pursuant to California Water Code Section 10631(e)(2), SGPWA provides a narrative discussion of several foundational water demand management measures it participates in or implements. This information helps demonstrate SGPWA's commitment to efficient resource management.

The following describes the foundational demand management measures (DMMs) that underpin the SGPWA's operations and management of imported water supplies to help support regional water needs. These particular DMMs represent existing policies and long-standing budgeted conservation programs.

4.3.1 Metering

SGPWA does not provide water directly to the region's water users and does not have traditional distribution system metering. SGPWA does replenish the groundwater basin by recharging imported SWP water at several locations throughout the service area, as described in Chapter 3. The SWP water is metered at the turnouts from where SGPWA receives the water into its service area. All retail water suppliers in the SGPWA service area meter all customer connections.

[48] California Water Code Section 10632(a)(2) states water suppliers should use "unconstrained demand" when performing their annual water supply and demand assessment. This reflects the expected demand prior to implementing shortage response actions as detailed in a Water Shortage Contingency Plan.

4.3.2 Public Education and Outreach

SGPWA recognizes the importance of public education and outreach for water resource conservation and works towards providing materials to its customers informing them on ways to conserve water. A number of different resources including "Save our Water," "EPA Water Sense," "Be Water Wise," maintaining a public demonstration conservation garden, local school education programs, social media, and other activities related to conservation are made available on the Agency website free of charge for the benefit of its customers and the public.[49] SGPWA is involved in a number of outreach programs.

4.3.3 Water Conservation Program Coordination and Staffing Support

Since 2014, SGPWA has partnered with the Inland Empire Resource Conservation District to assist with social media presence which is heavily focused on conservation and a school education program.[50]

Through these efforts, the Inland Empire Resource Conservation District provides water conservation themed presentations in local schools for the three school districts within the SGPWA's service area. The programs focus on groundwater using a physical tabletop groundwater model purchased by the Agency. The program also describes the local retail water supplier that serves the school, where its water comes from, where the SGPWA's water comes from, how much water is used for everyday activities and to grow food, and other conservation-themed subjects.

4.3.4 Distribution System Asset Management

SGPWA imports water into the region for recharge to the local groundwater basins as described in Chapter 2 and Chapter 3. Systems are operated in a manner that meet regulatory requirements and, where appropriate, use Supervisory Control and Data Acquisition (SCADA) to remotely monitor and manage facilities, such as flow into recharge ponds.

4.3.5 Wholesale Supplier Assistance

SGPWA supports its retail agencies efforts for implementing conservation programs and strategies through collaboration and coordination with other managers and community leaders. SGPWA is working on a more formalized supplier assistance program to help assure the retailers have the needed tools and support to continue water conservation efforts. These new efforts will be vital to helping the region meet forthcoming water use objectives imposed under Water Code Section 10609 et seq.

4.4 Forecasting Water Use for the DRA and Annual Assessment

The California Legislature created two new UWMP requirements to help suppliers prepare for drought conditions: The Drought Risk Assessment,[51] and the Annual Water Supply and Demand Assessment.[52]

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[49] http://www.sgpwa.com/conservation
[50] https://www.iercd.org/sgpwa
[51] California Water Code Section 10635(b)
[52] California Water Code Section 10632.1

These new planning requirements were established in part because of the significant duration of recent California droughts and the predictions about hydrological variability attributable to climate change.

The Drought Risk Assessment (DRA) requires assessing water supply reliability over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability under a reasonable prediction for five consecutive dry years.

As a slight variant, the Annual Water Supply and Demand Assessment (Annual Assessment) undertakes a similar analytical exercise as the DRA but is to focus on actual, and not hypothetical, conditions anticipated for the upcoming water year. The previously presented water use forecasts facilitate both of these planning exercises as described in the following subsections.

4.4.1 Projecting Water Use for 5-year Drought Risk Assessment

A critical component of new statutory language for the 2020 UWMP cycle is the requirement to prepare a five-year DRA using a supplier-defined hypothetical drought conditions expected to occur from 2021 through 2025. This drought condition is meant to allow suppliers to test the resiliency of their water supply portfolio and their Water Shortage Contingency Plan actions to meet severe conditions.

DWR recommends that suppliers first estimate expected water use for the next five years without drought conditions (also known as unconstrained demand). In other words, unconstrained demand is water demand absent any water supply restrictions and prior to implementing any short-term WSCP demand reduction actions. If normal water use includes water conservation programs, either currently implemented or planned for implementation, estimated water use values would incorporate the effect of those conservation programs when reporting projected water use during this period.

For SGPWA, the increase in regional water use forecast for 2025 is equally distributed between the 2020 representation and 2025. The resulting forecast is presented in Table 4-3.

Table 4-3: Regional Forecast DRA Water Use for 2021 through 2025 (AFY)

2021	2022	2023	2024	2025
28,560	29,020	29,480	29,940	30,400

4.4.2 Projecting Water Use for Annual Reliability Assessments

SGPWA will need to perform an Annual Assessment and submit the findings to DWR beginning in 2022. To evaluate the plausible water service reliability conditions under current “normal” and “single-dry” conditions, as further described in Chapter 5, it is recommended that SGPWA use the 2020 regional water use shown in Table 4-1.

Chapter 5
Water System Reliability and Drought Risk Assessment

This chapter provides the San Gorgonio Pass Water Agency's (SGPWA) water system reliability findings as required under Water Code Section 10635 and provides reliability information SGPWA may use in completing an annual supply and demand assessment under Water Code Section 10632.1.

Assessing water service reliability is the fundamental purpose for SGPWA in preparing its 2020 UWMP. Water service reliability reflects SGPWA's ability to demonstrate that the regional water needs, including those of the retail urban suppliers, may be satisfied under projected hydrological and regulatory conditions. SGPWA's 2020 UWMP considers the reliability of meeting water demands by analyzing plausible hydrological variability, regulatory variability, climate conditions, and other factors that impact the regional water supplies. The reliability assessment looks beyond SGPWA's past experience and considers what could be reasonably foreseen in the future to reflect potential water supply planning scenarios. This chapter synthesizes the details imbedded in Chapters 3 and 4 and provides a rational basis for future decision-making related to supply management, demand management, and project development. This chapter presents three system reliability findings:

- Five Year Drought Risk Assessment: The 2021 through 2025 Drought Risk Assessment (DRA) for SGPWA's service area.
- Long-Term Service Reliability: The reliability findings for a Normal Year, Single Dry Year, and Five Consecutive Dry Years in five-year increments through 2045.
- Annual Reliability Assessment: The reliability findings for an existing condition for both a Normal Year and Single Dry Year that can inform an annual supply and demand assessment for 2021 or 2022.

In summary, SGPWA service area has sufficient water supplies to meet retail demands.

5.1 Fundamental Reliability Considerations

SGPWA aggregates the regional water supplies and demands in this 2020 Urban Water Management Plan (UWMP) as a wholesale water purveyor of State Water Project supplies, its role in acquiring and providing additional regional water supplies, and its surface and groundwater storage actions. All of these efforts necessitate examination of water supplies at a region-wide level in order to ensure supply reliability among the numerous regional retail purveyors and others that depend upon the regional water resources.

SGPWA has extended the planning horizon considered in this 2020 UWMP from the statutorily required twenty-year timeline to a twenty-five-year period through 2045. This extended planning horizon allows SGPWA and the regional retail water purveyors to address longer-term land use planning, water planning, and infrastructure considerations that go beyond the UWMP Act's statutory requirements. Moreover, the extended timeline will assist SGPWA's Board of Directors in examining historical and long-term trends in water resources conservation, management, and use in order to ground current and future decision-making. Together, these considerations help improve regional coordination and planning.

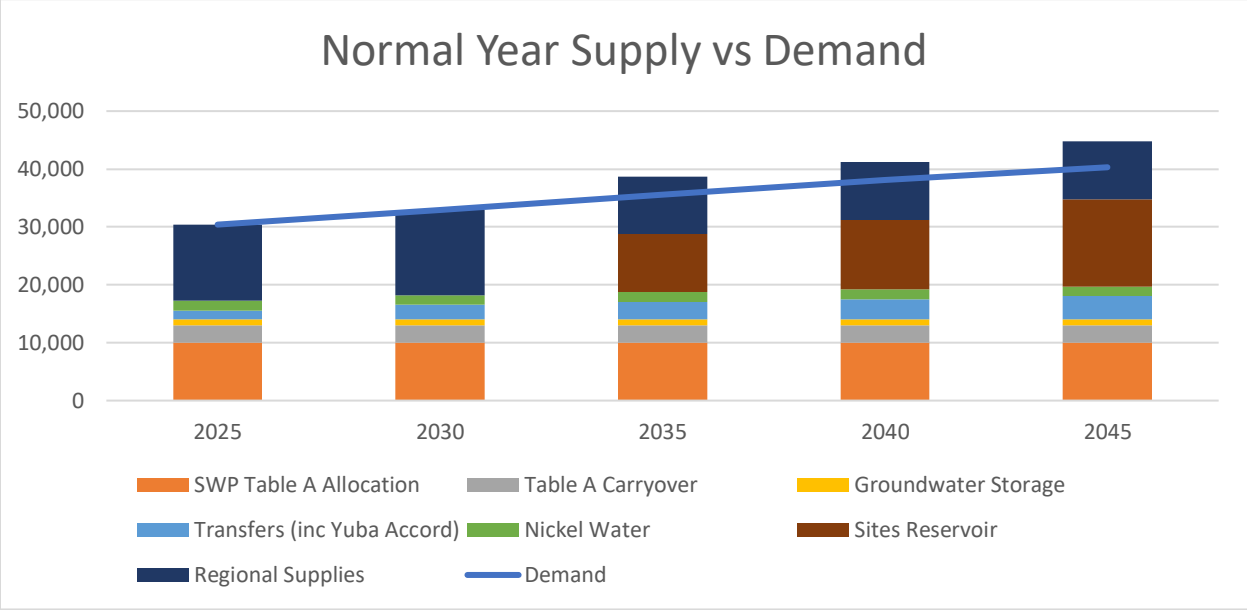
SGPWA obtained population figures from the retail service providers in the SGPWA service area. The fundamental conclusion of the population figures was that regional population is increasing faster than what was predicted in the 2015 UWMP. Specifically, in the 2015 UWMP the regional population was projected to reach 148,226 people by 2040[53] but the 2020 UWMP projections show a more substantial population of 164,000 people by 2040 and 177,700 people by 2045 (see Chapter 2).

The regional water demands are tied to these population projections. Importantly, the region's retail water agencies have successfully achieved significant per-capita water use reductions related to efforts to comply with gallon-per-capita-day (GPCD) reduction targets mandated by the State.[54] Using these lower GPCD values, coupled with the projected population forecasts, SGPWA was able to estimate future regional water demands of 40,300 acre-feet per year at 2045 (see Chapter 4). This reduced long-term average per capita demand affects the water management and project development actions by SGPWA and its retail partners.

Similarly, the averaged reliability of State Water Project (SWP) supplies that are used for groundwater replenishment throughout the region has also declined from 62% SWP reliability in 2015[55] to 58% reliability in 2040. These reliability numbers are derived from California Department of Water Resources' (DWR) 2020 Delivery Capability Report (DCR).[56] Nevertheless, despite these long-term changes in SWP supply availability, SGPWA and the regional retail agencies can demonstrate that the region has reliable water supplies available to meet the regional water demands through 2045. In short, regional water supplies within the SGPWA service area boundaries are reliable during normal, single dry, and five consecutive dry years through 2045. Figure 5-1 below shows the SGPWA's individual water supplies compared against the water demands from 2025 through 2045.

[53] San Gorgonio Pass Water Agency 2015 Urban Water Management Plan at 2-2.
[54] California Water Code Section 10608.24(b).
[55] San Gorgonio Pass Water Agency 2015 Urban Water Management Plan at 3-1 citing DWR's 2015 Delivery Capability Report.
[56] The Final State Water Project Delivery Capability Report (DCR), California Department of Water Resources (DWR), August 2020 at 30.

Figure 5-1: Representation of Normal Year Water Reliability through 2045 (AFY)



5.2 SGPWA Five Year Drought Risk Assessment

The SGPWA Service Area has a unique water supply portfolio and system operations. As noted in Chapter 3, the regional supplies that are included in SGPWA's service area include State Water Project Table A Annual Amount, Yuba Accord Water, Nickel Agreement water, transferred and exchanged supplies, regionally managed supplies, and Stored and SWP Carryover supplies. These supplies are managed in different locations both inside and outside SGPWA's service area. For example, although SGPWA brings its annual SWP Table A allocation into its service area for delivery into the SGPWA groundwater systems, it also may store some of its Table A allocation within the SWP under the Carryover provisions in the Agency's SWP Contract or may store portions of the Table A allocation in regional groundwater basins for use in later years. As such, the annual management of the diverse water supply sources in the regional water supply portfolio forms the supply reliability assessment described in this Chapter.

SGPWA manages its water supplies to address projected dry conditions. Specifically, SGPWA captures and stores surplus imported water in normal and wet years in order to use those water assets to meet regional demands in dry years. These actions stabilize annual fluctuations in supplies that may not meet regional demands under certain dry conditions. In other words, any surplus imported supplies are captured and stored for future delivery in order to improve long-term supply reliability.

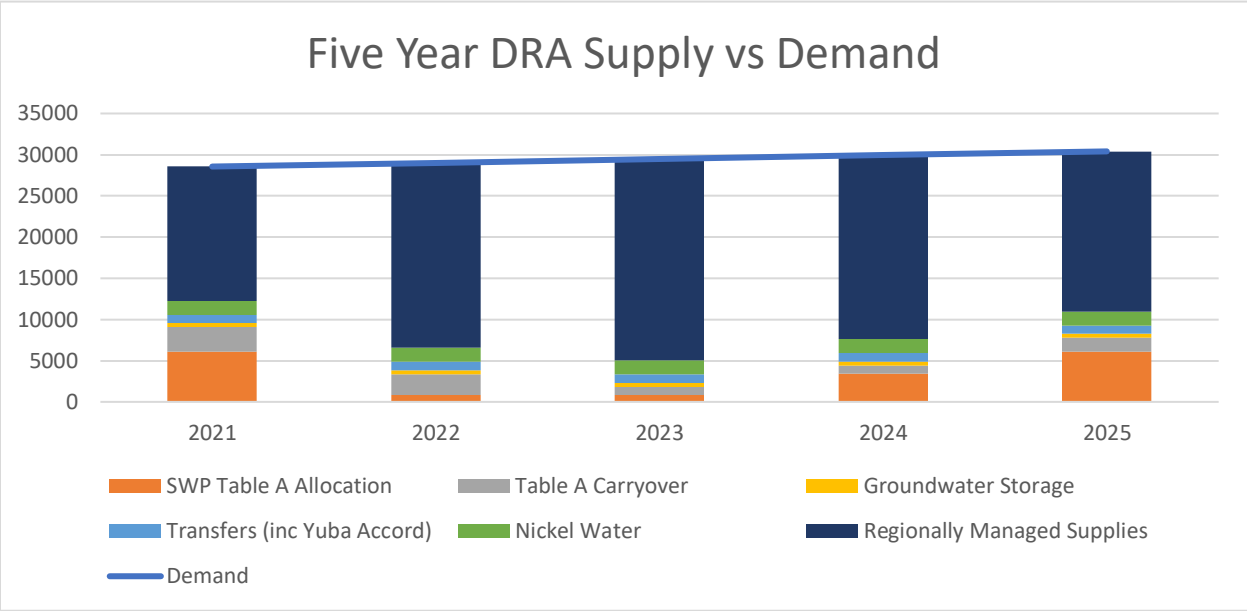
Table 5-1 below shows SGPWA's five-year Drought Risk Assessment (DRA) that integrates all of the regional water supplies for 2021 through 2025 as described in Chapter 3 and reflects the dry year water uses described in Chapter 4. As the table shows, SGPWA service area has adequate water assets available to meet the dry year conditions.

Table 5-1: SGPWA Five Year Drought Risk Assessment (AFY)

	2021	2022	2023	2024	2025
Supply	28,560	29,020	29,480	29,940	30,400
Demand	28,560	29,020	29,480	29,940	30,400
Difference	0	0	0	0	0

Figure 5-2 below shows the San Gorgonio Pass Water Agency's individual water supplies compared against the water demands in five consecutive dry years from 2021 through 2025. The important component to note is that the regional agencies use additional regionally managed water assets in the middle of the drought period address reductions in the imported supply.

Figure 5-2: Representation of SGPWA's Drought Risk Assessment from 2021 through 2025 (AFY)



5.3 SGPWA Long Term Service Reliability

The Urban Water Management Planning Act directs urban water purveyors to analyze water supply reliability in a normal, single dry, and five consecutive dry years over a 20-year planning horizon. The 2020 UWMP Guidebook recommends extending that period to 25 years to provide a guiding document for future land use and water supply planning through the next UWMP cycle.[57] The following subsections describe the long-term water service reliability for SGPWA through 2045.

[57] https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Urban-Water-Management-Plans

5.3.1 Normal and Single Dry Conditions 2025-2045

SGPWA's long term service reliability is characterized in normal, single dry, and five consecutive dry years through 2045. SGPWA's future water supplies in normal and single dry conditions depicted in this section reflect the same hydrological, regulatory, and institutional criteria associated with each water asset as described in Chapter 3. In normal years, for example, SWP supplies are generally constrained only by the projected Table A allocations derived from DWR's 2020 Delivery Capability Report. In dry years, additional hydrological, regulatory, and institutional issues may constrain the availability of water that reduce SWP supply availability based on reduced allocation percentages as noted in Chapter 3. However, other future water supplies, like return flow, tend to grow in annualized volumes as annualized demands grow in parallel. All of this information is described in detail in Chapter 3 and is reflected in the tables below.

SGPWA's future water demands in normal and single dry conditions through 2045 reflect the same considerations described in previous sections of this chapter. In both normal and dry conditions, demands tend to reflect anticipated uses based upon the climatological conditions in the San Gorgonio Pass Water Agency service area. Future water demands are generally predicted to increase as land uses and populations within SGPWA's service area grow. This information is detailed in Chapter 4 and reflected in the numbers shown in the tables below. In normal and wet years, SGPWA projects surplus water conditions that allow it to store water for dry conditions. In a single dry year, SGPWA uses its stored water assets in combination with the regionally managed supplies to satisfy the regional demands. Table 5-2 shows the normal year supplies and demands on an annual timestep from 2025 through 2045.

Table 5-2: Normal and Single Dry Year Water Supply and Demand through 2045 (AFY)

Normal Year	2025	2030	2035	2040	2045
Supply	30,400	32,900	38,700	41,200	44,700
Demand	30,400	32,900	35,600	38,100	40,300
Surplus Supply	0	0	3,100	3,100	4,400

Single Dry Year	2025	2030	2035	2040	2045
Supply	30,400	32,900	35,600	38,100	40,300
Demand	30,400	32,900	35,600	38,100	40,300
Surplus Supply	0	0	0	0	0

5.3.2 SGPWA Five Consecutive Dry Years through 2045

SGPWA defines drought condition lasting five consecutive years as one that constrains SGPWA from obtaining some of its water supplies in its SGPWA water supply portfolio due to hydrological, regulatory, and institutional constraints. These conditions include more restrictive regulatory constraints that limit its Table A allocation but do not limit the availability of regionally managed water supplies.

The future dry year projections show SGPWA greatly improving its water use efficiencies and bringing on additional sources of water as its population grows and water demands increase. These future conditions indicate that SGPWA will couple improved per capita efficiencies with additional sources of water to meet future dry year demand conditions. Importantly, starting in 2035, SGPWA will begin to access additional sources of supply that increase its overall water supply condition. Accordingly, SGPWA will have adequate water supplies to meet the regional demands for five consecutive dry years in 2045 by improving its water efficiency and accessing additional sources of supply. These issues are described in significant detail in Chapter 3 and reflected in the monthly reliability table below. Table 5-3 below shows the water supply and demand conditions for SGPWA's service area in five consecutive dry years from 2025 through 2045.

Table 5-3: Five Consecutive Dry Years Water Supply and Demand through 2045 (AFY)

		2025	2030	2035	2040	2045
Year 1	Supply	30,400	32,900	35,600	38,100	40,300
	Demand	30,400	32,900	35,600	38,100	40,300
	Surplus Supply	0	0	0	0	0
Year 2	Supply	30,400	32,900	35,600	38,100	40,300
	Demand	30,400	32,900	35,600	38,100	40,300
	Surplus Supply	0	0	0	0	0
Year 3	Supply	30,400	32,900	35,600	38,100	40,300
	Demand	30,400	32,900	35,600	38,100	40,300
	Surplus Supply	0	0	0	0	0
Year 4	Supply	30,400	32,900	35,600	38,100	40,300
	Demand	30,400	32,900	35,600	38,100	40,300
	Surplus Supply	0	0	0	0	0
Year 5	Supply	30,400	32,900	35,600	38,100	40,300
	Demand	30,400	32,900	35,600	38,100	40,300
	Surplus Supply	0	0	0	0	0

5.4 Annual Reliability Assessment

The SGPWA may consider current supply and demand conditions and perform an annual water supply and demand assessment (Annual Assessment) pursuant to Water Code Section 10632.1 to evaluate real-time or near-term circumstances that are different than the DRA scenario. This assessment would evaluate actual current water supply and use conditions. For purposes of this UWMP, the "current" water use conditions as described in Chapter 4 are compared to the availability of SGPWA's existing water supplies as described in Chapter 3. Two scenarios are illustrated for the SGPWA service area:

- Normal Year condition: reflects the availability of supplies under normal conditions and the "current" water uses.
- Single-Dry Year condition: reflects the availability of supplies under a severe, single-dry year and elevated "current" water uses reflecting increased demands expected in a single dry year.

5.4.1 SGPWA Normal Year Supply and Current Demand

SGPWA defines a normal year condition as one that allows the agency to obtain water supplies from all sources under its water supply portfolio under normalized conditions. These conditions include normally anticipated regulatory constraints on its SWP Table A allocation and availability of the regionally managed water sources and stored water supplies. These conditions are described in significant detail in Chapter 3 and reflected in the supply determinations shown below.

Normal year demands include the anticipated demands based upon historical trends in water usage in non-drought conditions in SGPWA's service area. Demands in normal conditions generally are lower in the wetter months and higher in the drier months but these are aggregated in the annual demand figure shown below. The normal year demand also accounts for reasonable water conservation measures derived from improved efficiencies in indoor fixtures, improved management of outdoor landscape irrigation, and a general awareness of the value of long-term water conservation at the consumer level. These demand conditions are described in significant detail in Chapter 4 and reflected in the demand figure shown below. Table 5-4 below shows the normal year water supply and demand conditions for SGPWA's service area. In a normal year, SGPWA has sufficient regional water assets needed to meet regional demands.

Table 5-4: Normal Year Water Supply and Demand in SGPWA (AFY)

Normal Year	Current
Supply	28,100
Demand	28,100

It is important to note that SGPWA and the retail agencies only use supplies that are necessary to meet the regional demands. In years where supplies are plentiful, SGPWA uses those supplies to bolster regional water supply reliability. The characterization of supply equaling demand in Table 5-4 only represents the actual water supplies used to meet demands in a normal year.

5.4.2 SGPWA Single Dry Year Supply and Dry-Year Current Demand

SGPWA defines a single dry year condition as one that constrains SGPWA from obtaining some of its water supplies in its SGPWA water supply portfolio due to hydrological, regulatory, and institutional constraints. These conditions include more restrictive regulatory constraints on its SWP Table A supplies, yet unconstrained conditions on the region's ability to access regionally managed water sources and stored water supplies. The restrictive conditions manifest in changed management of SGPWA's water supply portfolio in a single dry year condition by requiring SGPWA to rely more heavily on the regionally managed water sources. The changed water management conditions are described in significant detail in Chapter 3.

Single dry year demands include the anticipated demands based upon historical trends in water usage in drought conditions by SGPWA's customers. As described in Chapter 4, demands in dry conditions in the SGPWA Service Area remain stable because of the climatological conditions. Table 5-5 below shows the single dry year water supply and demand conditions for SGPWA's service area.

Table 5-5: Single Dry Year Water Supply and Demand in SGPWA (AFY)

Single Dry Year	Current
Supply	28,100
Demand	28,100

5.5 SGPWA Regional Water Supply Reliability Summary

San Gorgonio Pass Water Agency and its retail partners have a robust water supply portfolio capable of meeting the water demands in normal, single dry, and five consecutive dry years from 2020 through 2045. SGPWA's diverse water supply portfolio coupled with the system's flexible operations render the supply reliable in all year types including reasonable planned growth through 2045.

Table 5-6: Water Reliability Summary Table Through 2045 (AFY)

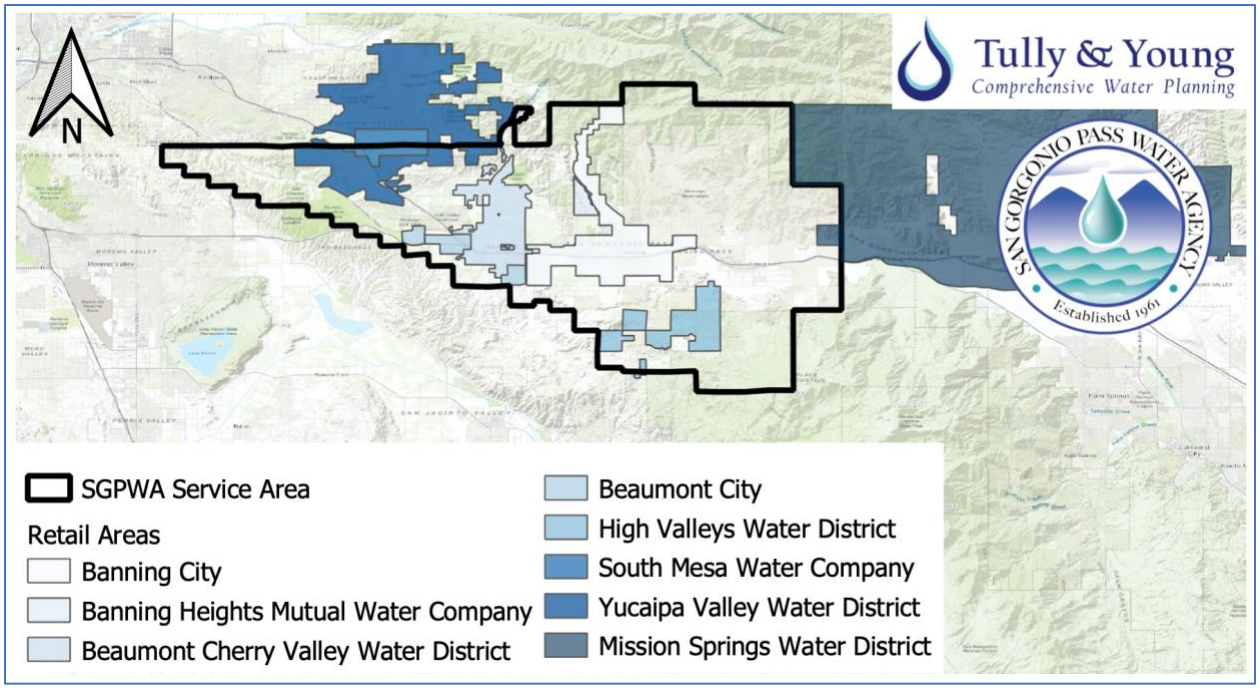
Supply Reliability	2025	2030	2035	2040	2045
Total Supply	30,400	32,900	38,700	41,200	44,700
Total Demand	30,400	32,900	35,600	38,100	40,300
Difference	0	0	3,100	3,100	4,400

Chapter 6
Water Shortage Contingency Plan

This Water Shortage Contingency Plan (WSCP) addresses the requirements in California Water Code (CWC) Section 10632 of the Urban Water Management Planning Act (The Act). The WSCP is incorporated into the 2020 Urban Water Management Plan (UWMP) and used by San Gorgonio Pass Water Agency (SGPWA or "the Agency") to respond to water shortage contingencies in the SGPWA service area as they may arise.

SGPWA was established in 1961 by the California State Legislature through the San Gorgonio Pass Water Agency Law. The Agency is a wholesale water agency that sells water to retail water agencies within its service area to reduce groundwater overdraft in the San Gorgonio Pass Water Agency service area. Figure 6-1 shows the SGPWA service area boundary and the retail agencies.

Figure 6-1: SGPWA Service Area Boundary with Retail Agencies



The San Gorgonio Pass is located between the San Bernardino Mountains on the north and the San Jacinto Mountains on the south, connecting the San Bernardino Valley on the west to the Coachella Valley on the east. The retail agencies are the direct purveyor of water service to retail customers. As such, SGPWA relies on a coordinated approach to water shortage management with the retail water

agencies within its service area. SGPWA's efforts in Water Shortage Contingency Planning are focused on the maintaining and augmenting groundwater supplies in order to mitigate against extended drought conditions and catastrophic water outages. And because SGPWA is a wholesale urban water supplier, elements that pertain only to retail water suppliers are not addressed in this WSCP. This chapter will address all aspects of SGPWA's WSCP actions and address specific outage scenarios that SGPWA's water management actions alleviate.

Section 10631 of the Urban Water Management Plan Act lists the following required elements for wholesale water purveyors:

1. An analysis of water supply reliability
2. Procedures for conducting an annual water supply and demand assessment
3. Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage and the shortage response actions that align with the defined shortage levels.
4. Communication protocols and procedures
5. A description of legal authorities
6. A description of financial consequences
7. Reevaluation and improvement procedures
8. Special Water Feature Distinction (10632(b))
9. Plan Adoption, Submittal, and Availability

This WSCP is a stand-alone plan, that may be adopted independently from the UWMP and may be amended or refined and readopted as needed over coming months and years independently from the UWMP.

6.1 Water Supply Reliability Analysis

The Agency provides water to retail agencies within its service area under its water rights and contracts. SGPWA is one of 29 State Water Project Contractors (Contractors) that have access to water supplies derived from the State Water Project (SWP). As a Contractor, the Agency is responsible for paying its share of the debt service on the State Water Project. While most of this construction occurred in the 1960's and 1970's, it is still going on today with both capital projects and major operation and maintenance projects throughout the SWP service area. The East Branch Extension, the pipeline that brings State Project Water into the Agency's service area, was completed in 2003. The State Water Project supplies are discussed in significant detail in Chapter 3.

SGPWA's service area has a current population approaching 105,000 people, which is expected to grow to nearly 177,000 by 2045. SGPWA's service area demand analysis includes both the population

assessment and relevant land use information provided by each retail provider. The SGPWA service area demands are set to increase from approximately 23,780 acre-feet per year in 2020 to over 40,300 acre-feet per year in 2045. These demands are discussed in detail in Chapter 4.

SGPWA has sufficient supplies available to supplement the regional water supply portfolio and meet regional demands through 2045. These supplies include SWP supplies, other acquired supplies, and stored water both within the SWP system and groundwater storage within and outside the SGPWA service area. In concert with the regional supplies available to local agencies, SGPWA supplies improve water supply reliability for the retail agencies in dry year conditions. Accordingly, SGPWA service area has reliable water supplies available to contribute to meeting normal, single dry, and five consecutive dry year regional water demands through 2045.

6.2 Annual Water Supply and Demand Assessment Procedures

The WSCP describes SGPWA's procedural methodology for managing shortages and developing its Annual Water Supply and Demand Assessment (Annual Assessment). The Annual Assessment will be submitted to DWR by July 1 each year with the first Annual Assessment due July 1, 2022. The Annual Assessment examines SGPWA's anticipated water reliability for the current year and one additional dry year to determine what, if any, water shortage stages may be triggered during the required period. The Annual Assessment will be used by SGPWA decision-makers to prepare for and initiate implementation of any needed response actions, as well as to inform customers, the general public, interested parties, and local, regional, and state government entities to prepare for such required actions, if necessary.

6.2.1 Analytical and Decision-making Processes

The Agency plans to conduct its Annual Assessment according to the following timeline and process:

By February 1	Initial data collection, analysis, and coordination with retail agencies
By March 1	Preliminary Draft Annual Assessment subject to internal review
By April 1	Draft Annual Assessment and results briefing of Agency decision-makers
By May 1	Approval of Annual Assessment to the Agency decision-makers
By June 1	Public Release of Annual Assessment and Public Notifications
By June 15	Submit Annual Assessment to DWR in advance of July 1 deadline

The Agency will prepare its Annual Assessment using the following key data and analytical methods:

- Prepare supply estimates for each water source for the analysis period.
- Update unconstrained regional demand and estimate anticipated actual water use for the analysis period.

- Update infrastructure assessment, including estimated water supply availability for the analysis period.
- Identify and quantify any locally applicable factors that may influence or disrupt supplies during the analysis period.

For the purposes of conducting the Annual Assessment, the Agency's definition of "dry year" mimics characteristics of 2014-2015 water year.

6.2.2 Submittal Procedure

SGPWA anticipates submitting its Annual Assessment to DWR via email by June 15 each year, but in no case later than July 1 each year. At the time of the DWR submittal, the Agency will also notify all retail water agencies, the public, and other stakeholders concerning the results of the Annual Assessment and where it is available for review.

6.3 Six Standard Water Shortage Stages and Shortage Response Actions

The WSCP requires both wholesale and retail water suppliers to adopt six water shortage stages, which correspond to progressively severe water shortage conditions (up to 10%, 20%, 30%, 40%, 50%, and greater than 50% percent shortage) as compared to the normal reliability condition. These water shortage stages have been standardized to allow for a consistent regional and statewide approach to conveying the relative severity of water supply shortage conditions. Changes in supply availability will trigger an appropriate water shortage stage. SGPWA will then implement the response actions as specified below in accordance with the powers incorporated in its enabling legislation.

The WSCP is required to identify locally appropriate shortage response actions that align with the defined shortage stages and include demand reduction actions, supply augmentation actions, system operational changes, and mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions. For each response action the WSCP is to provide an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

SGPWA has grouped the actions to be taken during a water shortage condition into the six stages, providing flexibility to address water shortages up to and in excess of the 50 percent shortage level condition. The following is an overview of the staged response the Agency could follow during a given water shortage condition including sequential Stages (1-6) based on shortage severity, relative supply conditions for each stage, and percent shortage reduction levels. SGPWA will adopt the six standard water shortage stages for this 2020 WSCP as shown in Table 6-1.

Table 6-1: Shortage Stages and Response Actions

Shortage Stage	Shortage Percentage	Shortage Response	
1	Up to 10%	• Access Stored Supplies, as needed • Access Flexible Supplies, as needed • Implement Voluntary Demand Reduction	• 0-100% met by Storage • 0-100% met by Flexible Supplies • 0-10% met by communicating voluntary demand reduction
2	10%-20%	• Access Stored Supplies, as needed • Access Flexible Supplies, as needed • Implement Voluntary Demand Reduction	• 0-100% met by Storage • 0-100% met by Flexible Supplies • 0-20% met by communicating voluntary demand reduction
3	20%-30%	• Access Stored Supplies, as needed • Access Flexible Supplies, as needed • Implement Voluntary Demand Reduction	• 0-100% met by Storage • 0-100% met by Flexible Supplies • 0-30% met by communicating voluntary demand reduction
4	30%-40%	• Access Stored Supplies, as needed • Access Flexible Supplies, as needed • Implement Voluntary Demand Reduction	• 0-100% met by Storage • 0-100% met by Flexible Supplies • 0-30% met by communicating voluntary demand reduction
5	40%-50%	• Access Stored Supplies, as needed • Access Flexible Supplies, as needed • Implement Voluntary Demand Reduction	• 0-100% met by Storage • 0-100% met by Flexible Supplies • 0-30% met by communicating voluntary demand reduction
6	More than 50%	• Access Stored Supplies, as needed • Access Flexible Supplies, as needed • Implement Voluntary Demand Reduction	• 0-100% met by Storage • 0-100% met by Flexible Supplies • 0-30% met by communicating voluntary demand reduction

Stage 1 (up to 10 percent shortage) – When Stage 1 is implemented, voluntary water conservation is encouraged. The drought situation is explained to the public and governmental bodies. SGPWA explains the possible subsequent water shortage stages in order to forecast possible future actions for the retail agencies. The activities performed by SGPWA during this stage may include, but are not limited to:

- Implementation of all Voluntary Water Conservation Measures to a level addressing up to 10% water conservation savings.
- Public information campaign consisting of distribution of literature, speaking engagements, website updates, bill inserts, and conversation messages printed in local newspapers.
- Educational programs in area schools.
- Initiating a Conservation Hotline to answer customer questions about conservation and water use efficiency.
- Access stored supplies to address supply deficits, as needed.
- Access alternative water supplies to address supply deficits, as needed.

Stage 2 (11 - 20 percent shortage) – When Stage 2 is implemented, voluntary water conservation is strongly encouraged. SGPWA coordinates actions with regional retail water purveyors. The drought situation is explained to the public and governmental bodies. SGPWA explains the possible subsequent water shortage stages in order to forecast possible future actions for the customer base. The activities performed by SGPWA during this stage may include, but are not limited to:

- Implementation of all Voluntary Water Conservation Measures to a level addressing up to 20% water conservation savings.
- Public information campaign consisting of distribution of literature, speaking engagements, website updates, bill inserts, and conversation messages printed in local newspapers.
- Educational programs in area schools.
- Expanding the Conservation Hotline, a toll-free number with trained Conservation Representatives to answer customer questions about conservation and water use efficiency.
- Access stored supplies to address supply deficits, as needed.
- Access alternative water supplies to address supply deficits, as needed.

Stage 3 (21 - 30 percent shortage) – When Stage 3 is implemented voluntary water conservation is strongly encouraged and demand reduction measures are repeatedly communicated. SGPWA coordinates actions with regional retail water purveyors and emphasizes SGPWA's ability to assist with supply re-allocation. The seriousness drought situation is explained to the public and governmental bodies. SGPWA explains the possible subsequent water shortage stages in order to forecast possible future actions for the customer base. The activities performed by SGPWA during this stage may include, but are not limited to:

- Implementation of all Voluntary Water Conservation Measures to a level addressing up to 30% water conservation savings.

- Aggressive public information campaign consisting of distribution of literature, speaking engagements, website updates, bill inserts, and conversation messages printed in local newspapers.
- Educational programs in area schools.
- Expanding the Conservation Hotline, a toll-free number with trained Conservation Representatives to answer customer questions about conservation and water use efficiency.
- Access stored supplies to address supply deficits, as needed.
- Access alternative water supplies to address supply deficits, as needed.

Stage 4 (31 - 40 percent shortage) – When Stage 4 is implemented voluntary water conservation is strongly encouraged and demand reduction measures are repeatedly communicated. SGPWA coordinates actions with regional retail water purveyors and assesses opportunities for supply reallocation among participating retail water purveyors. The seriousness of the drought situation is explained to the public and governmental bodies. SGPWA explains the possible subsequent water shortage stages in order to forecast possible future actions for the customer base. The activities performed by SGPWA during this stage may include, but are not limited to:

- Implementation of all Voluntary Water Conservation Measures to a level addressing up to 30% water conservation savings.
- Aggressive public information campaign consisting of distribution of literature, speaking engagements, website updates, bill inserts, and conversation messages printed in local newspapers.
- Educational programs in area schools.
- Expanding the Conservation Hotline, a toll-free number with trained Conservation Representatives to answer customer questions about conservation and water use efficiency.
- Access stored supplies to address supply deficits, as needed.
- Access alternative water supplies to address supply deficits, as needed.

Stage 5 (41 - 50 percent shortage) – When Stage 5 is implemented voluntary water conservation is stressed to all regional purveyors and demand reduction measures are repeatedly communicated. SGPWA coordinates actions with regional retail water purveyors and assesses opportunities for supply reallocation among participating retail water purveyors. The dire situation caused by the water shortage is explained to the public and governmental bodies. SGPWA explains the possible subsequent water shortage stages in order to forecast possible future actions for the customer base. The activities performed by SGPWA during this stage may include, but are not limited to:

- Implementation of all Voluntary Water Conservation Measures to a level addressing up to 30% water conservation savings.

- Aggressive public information campaign consisting of distribution of literature, speaking engagements, website updates, bill inserts, and conversation messages printed in local newspapers.
- Educational programs in area schools.
- Expanding the Conservation Hotline, a toll-free number with trained Conservation Representatives to answer customer questions about conservation and water use efficiency.
- Access stored supplies to address supply deficits, as needed.
- Access alternative water supplies to address supply deficits, as needed.

Stage 6 (greater than 50 percent shortage) – When Stage 6 is implemented voluntary water conservation is stressed to all regional purveyors and demand reduction measures are repeatedly communicated. SGPWA coordinates actions with regional retail water purveyors and assesses opportunities for supply reallocation among participating retail water purveyors. The emergency situation caused by the water shortage is explained to the public and governmental bodies. SGPWA explains conditions leading to supply reductions to all retail purveyors. The activities performed by SGPWA during this stage may include, but are not limited to:

- Implementation of all Voluntary Water Conservation Measures to a level addressing up to 30% water conservation savings.
- Aggressive public information campaign consisting of distribution of literature, speaking engagements, website updates, bill inserts, and conversation messages printed in local newspapers.
- Educational programs in area schools.
- Expanding the Conservation Hotline, a toll-free number with trained Conservation Representatives to answer customer questions about conservation and water use efficiency.
- Access stored supplies to address supply deficits, as needed.
- Access alternative water supplies to address supply deficits, as needed.

6.3.1 Supply Augmentation Actions

The following water supply augmentation actions may be used as response actions for the appropriate Water Shortage Stage. SGPWA may access its stored water sources in various locations inside and outside its service area. This storage occurs as carryover water in the State Water Project as well as groundwater storage within the SGPWA Service Area and outside the SGPWA boundary. These stored supplies may be transferred or exchanged with other purveyors that can assist in providing water supplies to SGPWA's service area. In addition, SGPWA will work with DWR to access supplies that may be made available in the statewide conveyance systems. Last, SGPWA may take additional supply

augmentation actions that become available during the identified water shortage condition like acquiring water from other entities through transfers or exchanges that may be delivered into SGPWA's water system.

6.3.2 Operational Changes

The following water system operational changes may be used as response actions for the appropriate Water Shortage Stage. SGPWA may use its water storage and conveyance facilities to expedite water acquisitions, transfers, and exchanges that may alleviate identified water shortage conditions for retail agencies. SGPWA will assess the utility associated with full operational capacity at its conveyance, spreading, and storage facilities and coordinate operational actions with retail agencies that will help address water shortage conditions. Moreover, where operational flexibility exists in SGPWA's turnout from the East Branch of the State Water Project, SGPWA may exercise operational options to facilitate water shortage mitigation actions.

6.3.3 Emergency Response Plan for Catastrophic Water Shortages

This section identifies actions to be undertaken by SGPWA to prepare for, and implement during, a catastrophic interruption of water supplies. A catastrophic interruption could result from natural and man-made events that causes a water shortage severe enough to trigger a Stage 1-6 water supply shortage condition. In addition, SGPWA's State Water Project water supplies are conveyed through the California Aqueduct system operated by DWR, which has several emergency plans to address catastrophic outages. This section addresses the catastrophic outage scenarios and relevant actions that SGPWA will undertake should a catastrophic outage occur.

Earthquakes are an issue of concern in the San Gorgonio Pass region. The San Andreas Fault passes through San Gorgonio Pass Water Agency's Service Area and an earthquake on that fault could significantly impact water service and infrastructure. The California Department of Water Resources DWR has noted that an earthquake could damage the California Aqueduct conveyance system through structural damage or electrical failures which could potentially halt water deliveries to SGPWA. In short, an earthquake may create regional turmoil that could impact local infrastructure or cause power outages for extended periods of time.

DWR has a contingency California Aqueduct outage plan for restoring the California Aqueduct to service should a major break occur because of an earthquake or other catastrophic reason. DWR estimates that a major break in the California Aqueduct would take approximately four months to repair. Although extended water supply shortages may manifest for SGPWA's imported water supplies, the retail agencies and SGPWA have alternative water supplies available to meet fundamental customer demands. Retail agencies have access to managed groundwater throughout the SGPWA Service Area and SGPWA continues to store water supplies that could be used to meet crisis conditions. Local effects of a catastrophic outage on local water systems may require additional cooperative efforts among regional water purveyors.

In addition to earthquakes, the SWP could experience other emergency outage scenarios. Past examples include slippage of aqueduct side panels into the California Aqueduct near Patterson in the

mid-1990s, the Arroyo Pasajero flood event in 1995 (which also destroyed part of Interstate 5 near Los Baños), Flood damage to the East Branch of the Aqueduct in 2015, and various subsidence and leakage repairs needed along the Main Branch and East Branch of the Aqueduct since the 1980s. All of these outages were short-term in nature (on the order of weeks to several months), and DWR's Operations and Maintenance Division worked diligently to devise methods to keep the Aqueduct in operation and continue SWP deliveries while repairs were made. Thus, the SWP contractors generally experienced no interruption in total annual deliveries but local actions to mitigate the outage were implemented.

It is important to note that nearly all of SGPWA's SWP imported supply is used to replenish groundwater recharge facilities. These groundwater augmentation efforts insulate regional purveyors against an outage of the SWP system. Combining this stored water with other stored supplies by the local retail agencies as well as the existing groundwater supplies in the region, SGPWA and its retail member agencies may sustain water supplies in a catastrophic outage of the SWP delivery systems. Even an interruption in SWP supplies for several months would not provide any immediate threat to potable water deliveries from groundwater production wells.

The area's water sources are generally of good quality, and no insurmountable problems resulting from industrial or agricultural contamination are foreseen. If contamination did result from a toxic spill or similar problematic event, the contamination would be isolated and should not significantly impact the total water supply in the region. In addition, such an event would be addressed in the retailers' emergency response plan.

6.3.4 SWP Emergency Outage Scenarios

There are numerous events which could result in significant outages and potential interruption of service. Examples of possible nature-caused events include a levee breach in the Delta near the Harvey O. Banks Pumping Plant, a flood or earthquake event that severely damages the Aqueduct along its San Joaquin Valley traverse, or an earthquake event along either the West or East Branches. Such events could impact some or all SWP contractors south of the Delta.

The response of DWR, SGPWA, and other SWP contractors to such events would be highly dependent on the type and location of any such event. In typical SWP operations, water flowing through the Delta is diverted at the SWP's main pumping facility, located in the southern Delta, and is pumped into the California Aqueduct. During the relatively heavier runoff period in the winter and early spring, Delta diversions generally exceed SWP contractor demands, and the excess is stored in San Luis Reservoir. SWP California Aqueduct terminal reservoirs, such as Pyramid and Castaic Lakes, are also replenished during these periods. During the summer and fall, when diversions from the Delta are generally more limited and less than contractor demands, releases from San Luis Reservoir are used to make up the difference in deliveries to contractors. The SWP share of maximum storage capacity at San Luis Reservoir is 1,062,000 AF.

SGPWA receives its SWP deliveries through the East Branch of the California Aqueduct. The other contractors receiving deliveries from the East Branch are Metropolitan Water District, Antelope Valley-East Kern Water Agency, Palmdale Water District, Mojave Water Agency, Crestline-Lake Arrowhead Water Agency, San Gabriel Valley Municipal Water District, San Bernardino Valley Municipal Water

District, Desert Water Agency, and Coachella Valley Water District. The East Branch has two terminal reservoirs, Silverwood Lake and Lake Perris, which were designed to provide emergency storage and regulatory storage (i.e., storage to help meet peak summer deliveries) for several of the East Branch contractors. However, SGPWA does not have contract rights to storage capacity in those reservoirs. In addition to SWP storage south of the Delta in San Luis and the terminal reservoirs, a number of contractors have stored water in groundwater banking programs in the San Joaquin Valley and more recently along the East Branch, and many also have surface and groundwater storage within their own service areas.

Three scenarios that could impact the delivery to SGPWA of its SWP supply or other supplies delivered to it through the California Aqueduct are described below. For each of these scenarios, it was assumed that an outage of six months could occur. SGPWA's ability to meet demands during the worst of these scenarios is presented following the scenario descriptions.

Scenario 1: Levee Breach near the Sacramento-San Joaquin Delta

DWR has estimated that in the event of a major earthquake in or near the Delta, regular water supply deliveries from the SWP could be interrupted for up to three years, posing a substantial risk to the California business economy. Accordingly, a post-event strategy has been developed which would provide necessary water supply protections. The plan has been coordinated through DWR, the Army Corps of Engineers (Corps), Bureau of Reclamation, California Office of Emergency Services (Cal OES), the Metropolitan Water District of Southern California, and the State Water Contractors. Full implementation of the plan would enable resumption of at least partial deliveries from the SWP in less than six months.

DWR Delta Flood Emergency Management Plan ("Emergency Pathway"). DWR has developed the Delta Flood Emergency Management Plan to provide strategies for a response to Delta levee failures, which addresses a range of failures up to and including earthquake-induced multiple island failures during dry conditions when the volume of flooded islands and saltwater intrusion are large. Under such severe conditions, the plan includes a strategy to establish an emergency freshwater pathway from the central Delta along Middle River and Victoria Canal to the export pumps in the south Delta. The plan includes the pre-positioning of emergency construction materials at existing and new stockpiles and warehouse sites in the Delta, and development of tactical modeling tools (DWR Emergency Response Tool) to predict levee repair logistics, water quality conditions, and timelines of levee repair and suitable water quality to restore exports. The Delta Flood Emergency Management Plan has been extensively coordinated with state, federal and local emergency response agencies. DWR, in conjunction with local agencies, the Corps and Cal OES, regularly conduct simulated and field exercises to test and revise the plan under real time conditions.

DWR and the Corps provide vital Delta region response to flood and earthquake emergencies, complementary to an overall Cal OES structure. Cal OES is preparing its Northern California Catastrophic Flood Response Plan that incorporates the DWR Delta Flood Emergency Management Plan. These agencies utilize a unified command structure and response and recovery framework. DWR and the Corps, through a Delta Emergency Operations Integration Plan, would integrate personnel and resources during emergency operations.

Levee Improvements and Prioritization. The DWR Delta Levees Subvention Program has prioritized, funded, and implemented levee improvements along the emergency freshwater pathway and other water supply corridors in the central and south Delta region. These efforts have been complementary to the DWR Delta Flood Emergency Management Plan, which along with use of pre-positioned emergency flood fight materials in the Delta, relies on pathway and other levees providing reasonable seismic performance to facilitate restoration of the freshwater pathway after a severe earthquake. Together, these two DWR programs have been successful in implementing a coordinated strategy of emergency preparedness for the benefit of SWP and CVP export systems. Moreover, levee improvements along the pathway and Old River levees consisting of crest raising, crest widening, landside slope fill and toe berms, meet the needs of local reclamation districts and substantially improve seismic stability to reduce levee slumping and create a more robust flood-fighting platform. Many urban water supply agencies have participated or are currently participating in levee improvement projects along the Old and Middle River corridors.

Scenario 2: Complete Disruption of the California Aqueduct in the San Joaquin Valley

The 1995 flood event at Arroyo Pasajero demonstrated vulnerabilities of the California Aqueduct (the portion that traverses the San Joaquin Valley from San Luis Reservoir to Edmonston Pumping Plant). Should a similar flood event or an earthquake damage this portion of the California Aqueduct, deliveries from San Luis Reservoir could be interrupted for a period of time. DWR has informed the SWP contractors that a four-month outage could be expected in such an event. SGPWA's assumption is a six-month outage.

Arroyo Pasajero is located downstream of San Luis Reservoir and upstream of the primary groundwater banking programs in the San Joaquin Valley. Assuming an outage at a location near Arroyo Pasajero that resulted in the California Aqueduct being out of service for six months, supplies from San Luis Reservoir would not be available to those SWP contractors located downstream of that point. This would include SGPWA.

Scenario 3: Complete Disruption of the East Branch of the California Aqueduct

The East Branch of the California Aqueduct begins at a bifurcation of the California Aqueduct south of Edmonston Pumping Plant, which pumps SWP water through and across the Tehachapi Mountains. From the point of bifurcation, the East Branch is an open canal. If a major earthquake (an event similar to or greater than the 1994 Northridge Earthquake) were to damage a portion of the East Branch, deliveries could be interrupted. The exact location of such damage along the East Branch would be key to determining emergency operations by DWR and the East Branch SWP contractors. Specifically, SGPWA's turnout on the system could be impacted. For this scenario, it was assumed that the East Branch would suffer a single-location break and deliveries of SWP water from north of the Tehachapi Mountains or of contractor water stored in groundwater banking programs in the San Joaquin Valley would not be available. It was also assumed that Silverwood and Perris dams would not be damaged by the event and that water in Silverwood and Perris Lakes would be available to the East Branch SWP contractors.

In any of these three SWP emergency outage scenarios, DWR and the SWP contractors would coordinate operations to minimize supply disruptions. Depending on the particular outage scenario or outage location, some or all of the SWP contractors south of the Delta might be affected. But even among those contractors, potential impacts would differ given each contractor's specific mix of other supplies and available storage. During past SWP outages, the SWP contractors have worked cooperatively to minimize supply impacts among all contractors. Past examples of such cooperation have included certain SWP contractors agreeing to rely more heavily on alternate supplies, allowing more of the outage-limited SWP supply to be delivered to other contractors, and exchanges among SWP contractors, allowing delivery of one contractor's SWP supply or other water to another contractor, with that water being returned after the outage was over.

Of these three SWP outage scenarios, the scenario of an East Branch outage along with no delivery of stored water from Silverwood Lake presents the worst-case scenario for SGPWA. In this scenario, SGPWA and retail agencies would continue to rely solely on local managed groundwater supplies (native water, natural recharge, return flow, and stored imported water).

Seismic Risk Assessment and Hazard Mitigation Plan

Beginning January 2020, CWC Section 10632.5 mandates urban water suppliers include in their UWMP a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities. This requirement can be met by submittal of a copy of the most recent adopted local hazard mitigation plan (LHMP) or multi-hazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multi-hazard mitigation plan addresses seismic risk. SGPWA intends to submit a copy of the Riverside County Multi-Jurisdictional Hazard Mitigation Plan (July 2018), which addresses Countywide seismic risk including in the Agency's services area. This Hazard Mitigation Plan is currently being updated and may be adopted before the next Urban Water Management Plan cycle in 2025.

The fundamental hazards identified in this plan include Earthquake, Flood, Pandemic Flu, Wildfire, Drought, and other significant natural and man-made hazards. The HMP addresses vulnerabilities associated with these hazards, financial issues that impact implementation of the HMP, and provides a comprehensive mitigation strategy. Accordingly, the HMP is incorporated by reference into SGPWA's WSCP.

6.4 Communication Protocols

SGPWA will engage in specific communication protocols in developing and implementing the WSCP to inform the Regional Water Purveyors and neighboring public agencies of water shortage conditions. SGPWA will seek to engage customers and provide notice with locally relevant actions that further the water shortage response actions. These locally relevant actions to may include:

- Publishing information on SGPWA's website.
- Establishing a telephone hotline.

- Coordinating through direct correspondence with Retail Agencies on water supply management
- Preparing social media posts to communicate SGPWA actions.
- Advertising actions on other local audio and video media.
- Coordinating voluntary and mandatory water shortage condition activities with other public agencies.

Taken together, these communication actions will result in a more effective implementation of SGPWA's WSCP.

6.5 Legal Authorities

SGPWA is a wholesale water agency formed under the "San Gorgonio Pass Water Agency Law" set forth in CWC Appendix 101-1 et seq. and is empowered to implement and enforce its WSCP and water shortage response actions as specified in Section 101-15(m) states as follows:

To restrict the use of agency water during any emergency caused by drought, or other threatened or existing water shortage, and to prohibit the wastage of agency water or the use of agency water during such periods, for any purpose other than household uses or such other restricted uses as may be determined to be necessary by the agency; to prohibit the use of such water during such periods for specific uses which the agency may from time to time find to be nonessential.

In addition, the Agency is able to exercise general powers granted to water distributors in CWC §§ 350-359 and 375-378. Riverside County and cities within the County and the Agency's service area have adopted water conservation ordinances. CWC §350 authorizes the governing body of a distributor of a public water supply to declare a water shortage emergency whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent there would be insufficient water for human consumption, sanitation, and fire protection. If necessary, the Agency shall declare a water shortage emergency in accordance with CWC section 350. Upon a finding of such an emergency condition, the distributor can adopt such regulations and restrictions on the delivery and consumption of water as will conserve the water supply for the greatest public benefit, with particular regard to domestic use, sanitation, and fire protection (CWC §353). The regulations and restrictions remain in force and effect until the supply of water available for distribution within such area has been replenished or augmented, and restrictions may include the right to deny new service connections and discontinue service for willful violations (CWC §355 and §356). SGPWA also coordinates and shall continue to coordinate with other special districts, cities, and counties within its service area for possible proclamation of a "local emergency" under California Government Code, California Emergency Services Act (Article 2, Section 8558).

6.6 Financial Consequences of WSCP

The SGPWA does not experience unusual financial consequences of water shortage conditions. The water shortage conditions result in some lost revenue due to the lack of water sales to retail agencies, but these conditions are anticipated as part of the Pass Agency's ongoing financial considerations. Accordingly, SGPWA does not anticipate unusual financial consequences for implementing its WSCP.

6.7 Re-evaluation and Improvement Procedures

SGPWA will continually review and assess its procedures for implementing the WSCP. Specifically, SGPWA will use the monitoring and reporting protocols identified above as a quality assurance and quality control measure to understand the effectiveness of water shortage activities. These re-evaluation and improvement procedures will include developing reports, memoranda, and presentations that assess the effectiveness of water shortage actions and the WSCP. These protocols will be continually assessed and updated by SGPWA management staff.

6.8 Special Water Feature Distinction

SGPWA's water shortage response actions focus on health and safety issues and working with retail agencies to manage available supplies. SGPWA will work with the retail agencies on communicating and implementing those agencies' special water feature distinction issues that may arise in a critical water shortage condition.

6.9 Plan Adoption, Submittal, and Availability

The WSCP has been adopted, submitted, and is available as required by the Urban Water Management Planning Act. As a stand-alone document, the WSCP is also subject to the following separate adoption, submittal, and availability processes, and whenever it is separately amended or revised in the future. SGPWA has followed all applicable law in adopting the WSCPs. The current adopted WSCP shall be available to the following entities in the Agencies' service area: Yucaipa Valley Water District, the Beaumont Cherry Valley Water District, the cities of Banning, Beaumont, and Calimesa, Riverside and San Bernardino counties, South Mesa Water Company, Cabazon Water District, Banning Heights Mutual Water Company, High Valleys Water District, Mission Springs Water District, and the Morongo Band of Mission Indians, and the State Water Contractors within 30 days of its adoption. A copy of the current WSCP is available for public inspection during business hours at 1210 Beaumont Avenue, Beaumont, CA 92223 (subject to current COVID-19 restrictions). The current WSCP is posted and available for download here https://www.sgpwa.com/public-documents/.

Appendix A
SGPWA Delta Reliance

This Appendix provides the Delta Reliance assessment of San Gorgonio Pass Water Agency (SGPWA) and the retail water service agencies located within SGPWA's service area boundary. The retail agencies in SGPWA's service area boundary in this assessment include: City of Banning, Beaumont Cherry Valley Water District, Yucaipa Valley Water District, South Mesa Water Company, High Valley Water District, Cabazon County Water District, Mission Springs, and other smaller retailers that need not prepare an Urban Water Management Plan (UWMP). These retail agencies work with SGPWA on managing regional water supplies. SGPWA and its retail agencies, as a whole, reduce reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. Reliance on the Delta for SGPWA and its retail agencies can only be measured regionally, not by individual retail agencies. Demand management programs in the region increase the future reliability of water resources for the region, and demand management programs, including increased water use efficiency, provide region-wide benefits by decreasing the demand for imported water. It is infeasible to quantify the individual reliance on the Delta for SGPWA's retail agencies, and it accordingly reported on a regional basis.

This assessment is consistent with all applicable water management activities within the SGPWA service area boundary including the Beaumont Basin Adjudication and the formulative Groundwater Sustainability Plan (GSP) coordinated among the Yucaipa Basin GSA, San Timoteo Subbasin GSA, Verbenia GSA, and San Gorgonio Pass GSA.

A.1 Delta Reform Act and Certification of Consistency

The Delta Reform Act of 2009 requires state and local agencies to prepare a written certification of consistency with Delta Plan policies before initiating a covered action in the Delta. The written certification of consistency must be submitted to the Delta Stewardship Council and include detailed findings as to whether the covered action is consistent with applicable Delta Plan policies. The submitted certification of consistency may be appealed by any person and the Delta Stewardship Council may grant the appeal to address contested issues. In short, water suppliers that anticipate participating in a proposed covered action must comply with the requirements of the Delta Reform Act.

Proposed covered actions may include a multi-year water transfer, a conveyance facility, or a new diversion that involves transferring water through, exporting water from, or using water in the Delta. Urban purveyors that may participate in a proposed covered action should provide information in their Urban Water Management Plans (UWMP) that can be used to demonstrate consistency with the Delta Plan. Specifically, the urban purveyors may demonstrate consistency with Delta Plan Policy WR P1 –

Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1). WR P1 subsection (a) states that:

> Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:
>
> (1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);
>
> (2) That failure has significantly caused the need for the export, transfer, or use; and
>
> (3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above. WR P1 subsection (c)(1) states:

> Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:
>
> (A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;
>
> (B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and
>
> (C) Included in the Plan, commencing with 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).

The analysis in this Appendix includes all of the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future proposed covered action.

A.2 Expected Outcomes for Reduced Delta Reliance and Regional Self Sufficiency

The expected outcomes for this Delta reliance and improved regional self-reliance assessment were developed using guidance described in Appendix C of DWR's Urban Water Management Plan Guidebook 2020 issued in March 2021 (Guidebook 2020). The data used in this assessment represent the total regional efforts of SGPWA and the retail agencies and were developed as part of a region-wide, coordinated process. Table A-1 shows SGPWA's expected outcomes for reduced Delta reliance through 2045.

Table A-1: Expected Outcomes for Reduced Reliance on the Delta

Change in Supplies from the Delta Watershed	2015	2020	2025	2030	2035	2040	2045
Total Water Supplies from the Delta Watershed	36.6%	34.3%	37.8%	35.8%	42.6%	48.6%	52.0%
Change in Water Supplies from the Delta Watershed	-15.5%	-17.9%	-14.3%	-16.3%	-9.6%	-3.6%	-0.1%

The methodology for demonstrating reduced reliance on the Delta is consistent with DWR's Guidebook 2020. SGPWA calculated its expected outcomes for reduced Delta reliance by measuring its current and anticipated water use against a baseline condition. SGPWA chose to use a weighted average of the retail agencies water conservation calculations for their 2015 UWMPs as its baseline for this assessment. SGPWA then assessed its Delta Reliance against the baseline condition for years 2015 through 2045.

The analysis uses normal water year demands to assess the supplies that would be used in the future. In addition, because WR P1 considers water use efficiency savings as a source of supply, the UWMP Act 20% water conservation mandates and the rules governing quantification help support water use efficiency quantification in the SGPWA service area. Table A-2 shows the SGPWA service area demands without water use efficiency and the reported water use efficiency consistent with the recommendations of Guidebook 2020.

Table A-2: Demands Without Water Use Efficiency

Change in Supplies from the Delta Watershed	2015	2020	2025	2030	2035	2040	2045
Service Area Demands with Water Use Efficiency	21,671	28,059	30,377	32,883	35,580	38,077	40,306
Estimated Water Use Efficiency Since Baseline	7,609	4,674	6,736	9,056	11,464	13,474	15,487
Service Area Demands without Water Use Efficiency	29,280	32,733	37,113	41,939	47,044	51,552	55,793

SGPWA must also report the expected outcomes for measurable improvement in regional self-reliance. Table A-3 shows the expected outcomes for supplies contributing to regional self-reliance. This assessment considers the total supplies that are used to meet regional water demands and shows the local supply percentages. These local supplies consist of various water rights, groundwater supplies, recycled water and other supplies that are locally developed and managed by retailers in the SGPWA service area.

Table A-3: Supplies Contributing to Regional Self-Reliance

Regional Self Reliance Assessment	2015	2020	2025	2030	2035	2040	2045
Percent of Demand met by Local Supplies	72.1%	67.9%	72.6%	74.7%	75.5%	75.4%	75.4%
Quantity of Local Supply	21,106	22,235	26,940	31,348	35,541	38,850	42,085

The data presented in this section demonstrate the expected outcomes for reduced Delta reliance and regional self-reliance and show that SGPWA and its retail agencies are measurably reducing their Delta reliance. The information contained in this Appendix is also intended to be an addendum to SGPWA's 2015 UWMP consistent with WR P1 subsection (c)(1)(C) as well as an addendum to participating retail agencies' UWMPs as desired. The information has been noticed and presented in accordance with applicable law.

A.3 UWMP Implementation

In addition to the analysis and documentation above, WR P1 subsection (c)(1)(B) requires that programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, be identified, evaluated, and implemented consistent with the implementation schedule. Water Code section 10631(f) requires water suppliers to provide a detailed description of expected future projects, and Chapter 3 in SGPWA's UWMP includes this discussion as it relates to SGPWA's future projects as do the relevant sections of the UWMPs prepared by SGPWA's retail agencies.