San Antonio Water System

Water Management Plan Semiannual Report

July-December 2013

This page intentionally left blank

Water Management Plan
Semiannual Report
July-December 2013

About the cover:

The three photos feature various segments of the Regional Carrizo Project construction: above ground piping at well number 10; the flow meter station at the Schertz-Seguin Water Treatment Plant; and storage tanks at the Schertz-Seguin Treatment Plant.

This page intentionally left blank

Executive Summary

The Semiannual Report to San Antonio City Council is a requirement of Chapter 34 of the Municipal Code, Section 34-1349. The semiannual reports will be submitted to City Council twice each year covering the January through June and July through December time frames.

This report documents the Water Resources activities pertaining to the implementation of San Antonio Water System's *2012 Water Management Plan* covering July 1 through December 31, 2013. The report will review SAWS' progress on the Water Management Plan, progress status report on the utility's diversified water portfolio, water supply developed during the reporting period, updates on the acquisition of additional water resources, SAWS water production for 2013, revenues generated from the water supply fee, uses of the water supply fee, water supply development costs, maintenance and operational expenses for completed projects, and status on the awarding of contracts.

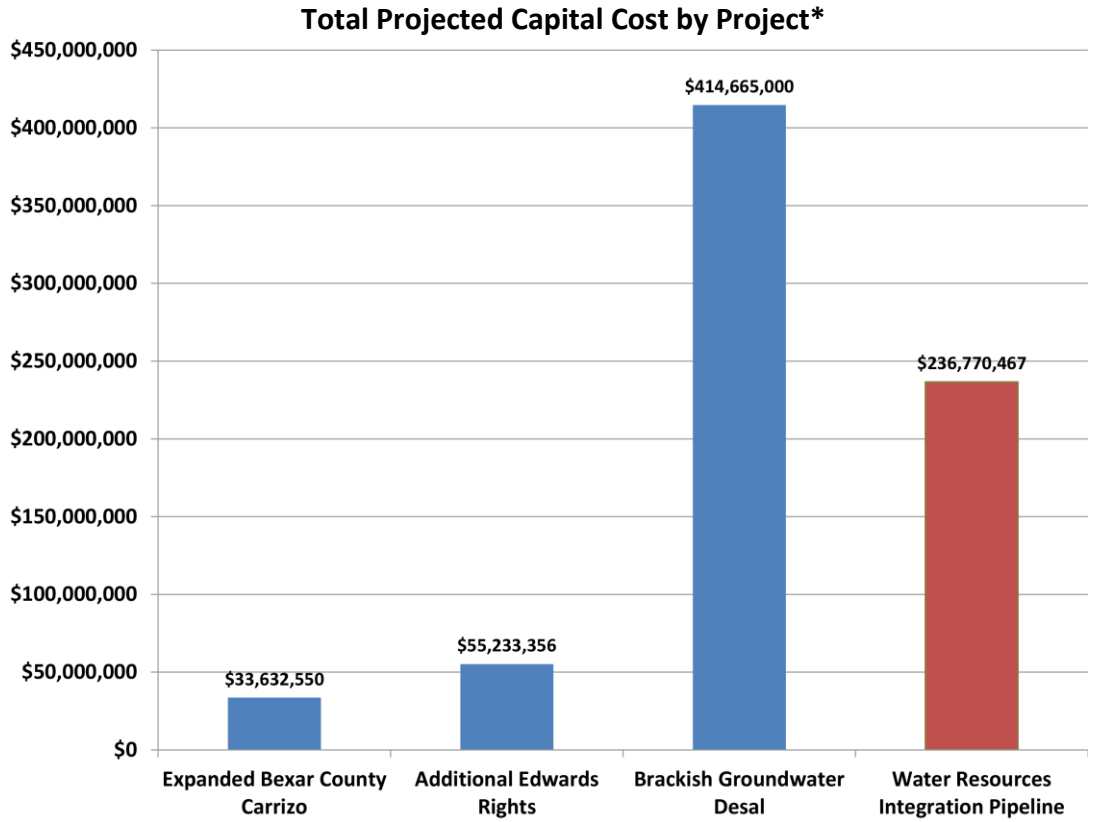
In 2013, SAWS had a total demand of 236,666 acre-feet or 124 gallons per capita per day. This demand includes SAWS District Special Project (DSP, former BexarMet), and does not include the 8,070 acre-feet of Edwards Aquifer water that was stored in SAWS Aquifer Storage & Recovery Twin Oaks facilities (ASR). SAWS Edwards supply in 2013 amounted to 82 percent of its total potable supply.

SAWS current water supply portfolio consists of groundwater supplies from the Edwards Aquifer, Trinity Aquifer from groundwater sources in Bexar County and the Carrizo Aquifer from local groundwater sources in southern Bexar County, the Carrizo Aquifer from Gonzales County for the Regional Carrizo Program, and the Guadalupe and Gonzales County Carrizo Aquifer wells through the Wells Ranch Project by Canyon Regional Water Authority (CRWA). SAWS surface water supplies include the Guadalupe-Blanco River Authority's Canyon Lake Project, Medina Lake and River system, and CRWA's Lake Dunlap Project. In addition, SAWS maintains as part of its diversified water supply portfolio the largest direct recycled water system in the country, and SAWS' Aquifer Storage and Recovery (ASR) facility is the third largest in the nation, serving SAWS and the region as a supply management tool.

The Water Supply Fee is a multi-year funding mechanism for the development, construction and management of additional water supply. A firm water supply is vital for continued economic development for the future of San Antonio and the region. Secure water infrastructure, physical presence of supply, protection of environmental resources, and reasonable costs to ratepayers are all critical to the greater region to support economic development. Since its implementation in 2001, the Water Supply

Fee has generated nearly $911 million to support the expansion and diversification of SAWS' water portfolio. The money generated from the Water Supply Fee has been used to fund capital investments, operating and maintenance expenses and debt service associated with new water supply projects. SAWS' capital investment in water supply projects since 2001 totals more than $849 million.

Implementation of SAWS four planned water supplies, three of which are identified in the table below, would add up to an additional 110,937 acre-feet of firm water by 2026 to SAWS increasingly diversified water inventory portfolio. These four planned water supplies are: Brackish Groundwater Desalination Program, Expanded Bexar County Carrizo Aquifer, acquisition of Edwards Aquifer Water Rights, and the Regional Water Supply Project. Together, the capital costs of these proposed projects would total approximately $740 million including the construction of the Water Resources Integration Pipeline. However, including the Regional Water Supply Project – Request for Competitive Sealed Proposals may add an additional $100-$170 million due to integration costs of the project(s) which have not thus far been selected.



*Cost shown for expanded Bexar County Carrizo, additional Edwards rights, and water resources integration pipeline are reflective as of December 2013. Costs for brackish groundwater desal reflect updated costs as of March 2014.

Note: SAWS 2012 WMP identifies 10,900 acre-feet of Edwards permits to be purchased. To date 5,587 acre-feet have been permanently added.

Introduction

This report describes progress made in implementing SAWS *2012 Water Management Plan* (WMP) for the period July through December 2013. The report is organized according to the major elements of the WMP. The current report provides a short summary of the 2012 WMP, which is followed by descriptions and status of current supplies, planned projects 2012-2020, planned projects for the mid-term (2021-2039), and conceptual projects for the long term (2040-2070). The report also provides the budget status for each project or program as of December 2013.

SAWS was created by an act of San Antonio City Council in May 1992, through Ordinance 75686. The District Special Project (DSP) was authorized in October 2011 by City Ordinance 2011-10-0845 for the purpose of transferring the assets, liabilities, rights, duties and obligations of the former Bexar Metropolitan Water District to SAWS. SAWS and DSP combined serve approximately 1.6 million people in a service area of 927 square miles, in Bexar County, and in limited areas of Atascosa and Medina Counties, while SAWS Certificate of Convenience and Necessity (CCN) extend into Comal County. This includes more than 465,000 water connections and 417,000 wastewater connections.

SAWS and DSP deliver potable groundwater from the Edwards, Trinity and Carrizo Aquifers, and deliver potable surface water from Canyon Lake, Medina Lake and River system and Lake Dunlap to domestic, commercial, industrial and governmental customers.

Chapter 34 of the City Code requires SAWS to submit a semiannual report to City Council. SAWS shall also brief the City once per year in an open session meeting of the City Council. The semiannual reports, in conjunction with an annual briefing to the Council, satisfy the requirements of Section 34-1349, Accountability Procedures.

2012 Water Management Plan

A Proven Plan

San Antonio's first Water Management Plan, *Securing Our Water Future Together, Water Resource Plan,* developed in 1998, began the process of planning and managing San Antonio's water supplies. Since the city instituted a policy to reduce its reliance on the Edwards Aquifer, residents of San Antonio have nurtured a nationally recognized conservation ethic and invested wisely in diversified sources of water.

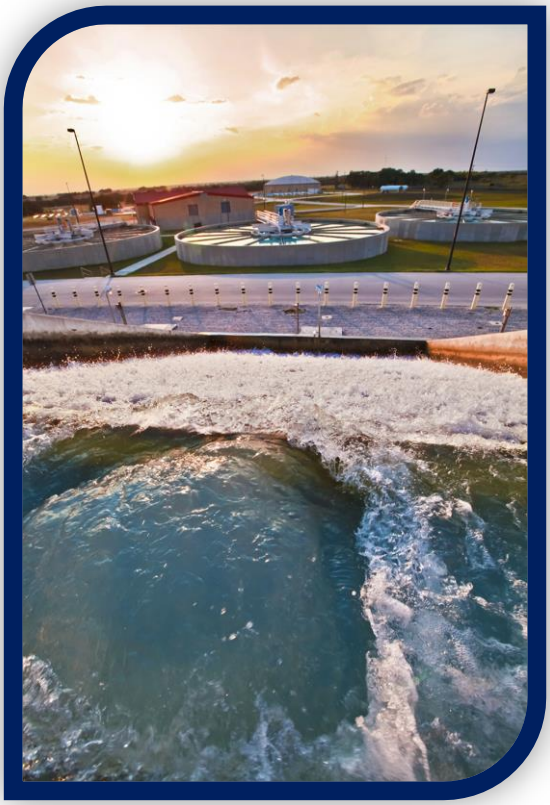
The 2012 update to the WMP continues to strike a productive balance between water conservation and new supplies. By implementing the WMP, SAWS customers will incrementally save more than 16,500 acre-feet of water per year by 2020 through refocused conservation efforts and SAWS will add 110,937 acre-feet of additional firm supplies to its water inventory by 2026. This effort will meet the growing demands associated with projected economic development as well as the addition of 20,000 new residents per year.

The plan builds on the success of prior efforts. Through thoughtful planning and investment, San Antonio now boasts:

- One of the leading water conservation programs in the country
- The nation's largest direct recycled water system
- The third largest underground storage facility in the country

In addition, non-Edwards water sources include supplies from the Trinity Aquifer, the Carrizo Aquifer (Bexar, Gonzales and Guadalupe Counties), Canyon Lake, Medina Lake and River system and Lake Dunlap. Together, these accomplishments make San Antonio water's most resourceful city.

Strategic Elements of the Plan



Through a thoughtful and strategic process, SAWS has developed a well-balanced plan that, if implemented, will ensure the availability of water for a growing population, even in the face of the worst drought conditions encountered to-date. The strategic elements include:

Continued commitment to water conservation

Water conservation is a year-round approach to improve the efficiency of water use. In 2011, a historically dry year, San Antonio recorded water use of 143 gallons per capita per day (GPCD). The WMP calls for a reduction of GPCD to 135. Through a programmatic effort to improve the efficiency of outdoor watering for lawns and landscapes, water conservation will provide a savings of at least 1,650 acre-feet each year, or more than 16,500 acre-feet per year by 2020. In other words, SAWS 2012 WMP anticipates saving nearly 80,000 acre-feet of water between 2012 and 2020. Improved year-round conservation and new programs are key to water savings, which are included in future water supply calculations.

Groundwater desalination

Construction of a desalination plant will be completed in 2016, tapping a veritable ocean of brackish groundwater in southern Bexar County. The desalination plant was originally planned to yield 12,210 acre-feet of water annually and with two planned expansions increase the yield to 30,525 acre-feet per year by 2026. Since the 2012 WMP, SAWS has learned of industry best practices which will increase the efficiency and yield of the desalination plant to 13,440 acre-feet per year in 2016 and 33,600 acre-feet per year by 2026.

Expansion of Local Carrizo Aquifer supply

San Antonio currently produces Carrizo Aquifer water in southern Bexar County.

Pumping can be expanded to yield an additional 7,000 acre-feet of annual supply by 2017. The project includes another two phases that will add an additional 14,000 acre-feet per year from the Carrizo Aquifer by 2026 for a total Expanded Carrizo Project yield of 21,000 acre-feet per year.

Additional Edwards Aquifer rights

The market for Edwards Aquifer water rights is still active. In 2012, SAWS identified that 10,900 acre-feet per year of additional Edwards Aquifer permits could be procured by SAWS of which 5,587 acre-feet has been acquired through December 2013. These permitted supplies already contain environmental protections for the endangered species habitats in the Comal and San Marcos Springs.

Regional water supply project

In July 2011, in a unique effort to solicit offers for water supplies from around the state, SAWS received nine proposals from private water developers to bring water to San Antonio. At the end of 2013, after further evaluation of the proposals, the list was reduced to three finalists who could each provide San Antonio with up to 50,000 acre-feet of annual water supply by 2018.

A new pipeline would bring water from southern Bexar County to the high growth areas of San Antonio.

Water supply pipeline

An additional pipeline is needed to move new and existing supplies from southern Bexar County into San Antonio. While utilizing an existing pipeline to store unused water in or recover water from SAWS underground reservoir, the new pipeline will be capable of simultaneously moving water from the desalination plant, the Aquifer Storage and Recovery (ASR) project, local Carrizo Aquifer Project and Expanded Carrizo Project to

high growth areas in western San Antonio. Construction packages for the 60-inch pipeline will be awarded in 2014.

A Real Solution is at Hand

Charged with providing sustainable affordable water services, SAWS has already invested wisely in the development of new supplies. Building on a track record of success, SAWS has identified additional supplies to meet the city's future demands through 2040. By investing in these supplies today, San Antonio can avoid the limited availability of water sources and increased costs in the future. In the wake of 2011, the hottest, driest year in recorded history, Texans have grown even more keenly aware of the importance of water planning.

Competition for water for growing cities, agriculture, industry and power will only increase future water costs and reduces its availability.

Continued economic development and population growth in San Antonio will add to the water requirements of a dynamic community that strives to attract new businesses and jobs while maintaining a high quality of life. The appeal of a vibrant city is directly related to the availability of water.

Current Supplies: SAWS and DSP

Integration of SAWS and BexarMet

Filed in 2011 by State Sen. Carlos Uresti, Senate Bill 341 set the course for merging Bexar Metropolitan Water District (BexarMet) with SAWS. After its passage in both the House of Representatives and the Senate, an election date was set for November 2011 when BexarMet ratepayers would vote on whether to dissolve the utility. As a result of these developments, in 2011 the ratepayers of the former BexarMet voted to incorporate BexarMet into SAWS. In the first quarter of 2012, the final state and federal clearances were obtained, and SAWS assumed responsibility for all aspects of the former BexarMet. SB 341 calls for the full integration of BexarMet within five years. It further requires SAWS to keep finances separate until a final merger can be completed without any adverse fiscal impact to SAWS customers or bond holders. BexarMet, now known as the SAWS District Special Project (DSP), brought its own, although inadequate water resources portfolio which is now included in SAWS water resources portfolio serving both SAWS and DSP customers.

Edwards Aquifer

On average, 90 percent of drinking water used by SAWS customers comes from the Edwards Aquifer, with 82 percent supplied by the Edwards Aquifer in 2013. Beginning in 2001, with the inception of the Water Supply Fee, SAWS has invested $239.7 million to acquire 47,501 acre-feet of Edwards Aquifer water rights. The Edwards Aquifer Authority (EAA) has a total allocation of 572,000 acre-feet and issued the water rights through an established permitting process. Today, SAWS and DSP own and lease approximately 52 percent (297,000 acre-feet) of the permitted water rights. Access to these permitted groundwater withdrawal rights is subject to varying levels of availability (cutbacks) depending on drought restrictions. These cutbacks in any given year may range from zero percent to 44 percent. Overall, SAWS and DSP Edwards Aquifer permits have a firm yield of 166,880 acre-feet, during worst-case drought conditions with a 44 percent cutback. This wonderful resource has been the mainstay for this community since its founding.

In 1993, the Texas Legislature created the EAA to manage groundwater withdrawals from the Edwards Aquifer and provide for appropriate spring flow during drought

periods. The EAA implemented a permitting system based on historic use of the Edwards Aquifer, and regulates and limits withdrawals from the Edwards Aquifer during periods of drought.

In 2007, the Texas Legislature passed Senate Bill 3, establishing a regional pumping cap of 572,000 acre-feet of Edwards Aquifer withdrawals. Senate Bill 3 also incorporated restrictions on withdrawal limits during drought periods, making these restrictions state law. In addition, the Texas Legislature prescribed a Recovery Implementation Program (RIP) for the Edwards Aquifer region. The RIP identified and evaluated methods to protect threatened and endangered species associated with the Edwards Aquifer, as required by state and federal law. After much deliberation, the RIP stakeholders recommended, and the EAA and other parties ultimately approved, the Edwards Aquifer Habitat Conservation Plan (EAHCP).

SAWS plays a significant role related to the EAHCP. This effort is a proactive plan to balance all the human interests which depend on the Edwards Aquifer, San Antonio's cornerstone water resource, and the Federal Endangered Species Act. The plan will allow human interests to co-exist with the protection and recovery of endangered species dependent on Edwards Aquifer spring flows. The approval of the EAHCP in February 2013, by the United States Fish and Wildlife Service (USFWS) is a major new chapter and will play a key role in the protection of the Edwards Aquifer for all stakeholders, and future success can be built off this action. The USFWS' Environmental Impact Statement identified the EAHCP as the preferred alternative and the Incidental Take Permit (ITP) was issued allowing municipal, agricultural and environmental uses of the Edwards Aquifer to be balanced, bringing certainty in the region's current and future water supply from the Edwards. An ITP is important to SAWS and other applicants to allow the human use of the Edwards Aquifer to continue, while ensuring endangered aquatic species associated with the Aquifer and its springs will be protected during droughts.

2013 Project Status

From July to December 2013, SAWS has reviewed and changed the terms of the various lease agreements used to acquire Edwards permitted groundwater withdrawal rights under temporary lease agreements. These actions were warranted in that SAWS had not significantly altered the program in seven years and was facing the prospect of not being able to maintain 50 percent of the 2013 annum lease renewals targeted (approximately 5,000 acre-feet per year). The current drought conditions, increased competition for

water and SAWS stagnant terms were all contributors to the situation. SAWS conducted a *face to face meeting* with prospective new lessors and sent mail outs to existing and prospective lessors describing the changed terms. Results have materialized in 2,000 acre-feet per year of potential lease renewals. SAWS staff is hopeful that the trends continue but will again work on targeting the limited amount of acquisitions via purchase to remain in line with the 2012 WMP assumptions. Permitted Edwards groundwater withdrawal rights are a regulated and limited resource as acknowledged by SAWS 2012 WMP. SAWS continues to maintain inventories through purchases and leases consistent with current the plan.

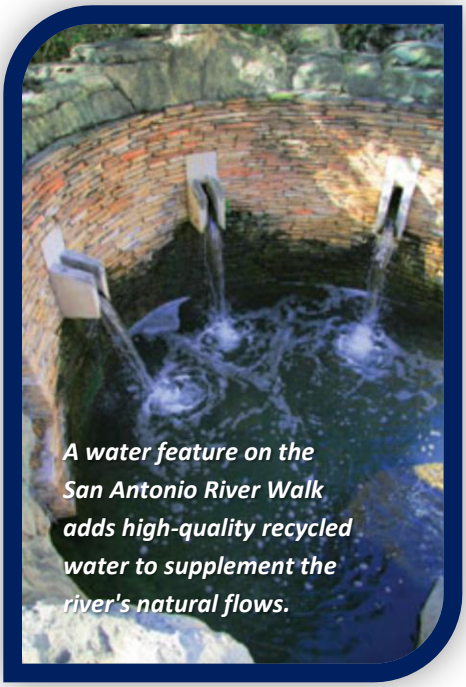
Medina Lake and River System

This was the first modern surface water project in San Antonio. The plant, built in 2000, is an ultra-filtration membrane plant located on the Medina River in southwest Bexar County. Agreements with the Bexar-Medina-Atascosa Water Control & Improvement District #1 (BMA) gives DSP access to 19,974 acre-feet per year of water stored in Medina Lake and delivered to the treatment plant via the Medina River. DSP also owns and leases run-of-river surface water rights on the Medina River in the amount of 9,214 acre-feet per year. Presently, the ultra-filtration membrane plant has treatment capacity of up to 13,000 acre-feet per year. However, given the drought sensitivity of the lake and the limited size of the contributing watershed, firm-yield estimates during extreme droughts is zero acre-feet per year. This is consistent with the South-Central Texas Regional Water Planning Group (Region L) and the Texas Water Development Board (TWDB) State Water Plan.

2013 Project Status

Between January and April of 2013, SAWS requested an average of 14 acre-feet per day from BMA. On April 25, 2013, SAWS requested BMA to

discontinue delivery due to decreased water quality as a result of declining Medina Lake levels. SAWS requested and received 1,555 acre-feet from BMA in 2013. As of December 31, 2013, Medina Lake levels were at 976.23 feet (9,500 acre-feet or 3.73 percent full). The continued decline forced SAWS to not resume delivery. At the end of 2013, SAWS was successful in negotiating with BMA to waive the Canal Maintenance Fee for a period of five years, saving SAWS approximately $1 million over that time frame.



A water feature on the San Antonio River Walk adds high-quality recycled water to supplement the river's natural flows.

Recycled Water

In 1996 the SAWS Board committed to build a direct recycled water delivery system that is the nation's largest. Thirteen years have proved out the wisdom in making full use of an asset that was once considered a liability. The recycled water produced by SAWS Water Recycling Centers holds an important role now and in the city's future.

Today, more than 130 miles of pipeline delivers highly treated recycled water to golf courses, parks, commercial and industrial customers throughout the city. SAWS can provide up to 25,000 acre-feet of recycled water per year to these customers, thereby conserving a significant amount of Edwards Aquifer water for potable use. Additionally, SAWS has a contract to provide 50,000 acre-feet per year of recycled water to CPS Energy for use in its Calaveras and Braunig power generation plants.

The system was also designed to supplement base flows in the upper San Antonio River and Salado Creek. An amount of 5,800 acre-feet per year have been committed to maintain flow in these streams. The result has been significant and lasting environmental improvements for the aquatic ecosystems in these streams.

Trinity Aquifer

Introduced in 2002 as a new source for San Antonio's water supply, the Trinity Aquifer was the first non-Edwards Aquifer drinking water through SAWS pipelines. Although relatively small, two projects – Oliver Ranch (OR) and Bulverde Sneckner Ranch (BSR) play a role in providing additional sources to enhance the region's water supply. More recently with the acquisition of DSP, additional Trinity Aquifer supplies have been added.

A number of production facilities built by both SAWS and the DSP utilize the Trinity Aquifer as a water resource to continue serving ratepayers in the high-growth areas of north-central San Antonio. The ability to serve this elevated portion of the service area with up to 8,800 acre-feet provides a significant value to SAWS. The location of the projects allows SAWS to flow water from higher elevations in far northern Bexar County thereby saving SAWS ratepayers operating costs by not having to push Edwards Aquifer water from lower elevations. In the 2009 WMP, SAWS did not consider the Trinity Aquifer to be a firm supply. Given experience managing this resource through the record breaking drought of 2011 and the conjunctive management now possible between SAWS and DSP Trinity Aquifer operations, the 2012 WMP assigns a firm yield of 2,000 acre-feet per year to this supply.

SAWS maintains a contract with Water Exploration Company (WECO) located in North Central Bexar County for water supply from the Trinity Aquifer providing up to 17,000 acre-feet per year when the water is available to be produced.

SAWS also owns and operates the following water systems, which account for a limited volume of Trinity Aquifer production from: Anaqua Springs (~10 acre-feet), Bulverde Sneckner Ranch (~500 acre-feet), Concept Therapy Institute (~14 acre-feet), Hidden Springs (~20 acre-feet), Oliver Ranch (~3,000 acre-feet), Timberwood Park (~1,300 acre-feet) and Village Green (~6 acre-feet).

By the end of 2013, SAWS and DSP annual production from Trinity Aquifer sources was nearly 5,400 acre-feet. As the drought continues into 2014, SAWS will be closely monitoring production from the Trinity and make sure that adjustments are made as necessary to best manage and sustain the available water supply.

Canyon Regional Water Authority (CRWA)

The CRWA is a partnership of water supply districts, utilities, water supply corporations, and cities which purchase untreated surface water from Canyon Lake through the Guadalupe-Blanco River Authority (GBRA). The water is withdrawn from Lake Dunlap and the San Marcos River, treated to potable quality, and distributed to its member entities. The DSP has an agreement to receive up to 4,000 acre-feet per year of treated surface water from Lake Dunlap. However, of this volume, the DSP has leased 500 acre-feet per year to the City of Cibolo through 2018. The CRWA agreement with GBRA expires in 2024 which would terminate the ability of CRWA to send Lake Dunlap water out of the Guadalupe-Blanco River basin to DSP.

CRWA is also working with its members on a multi-phased project in the Carrizo and Wilcox aquifers in Gonzales and Guadalupe Counties known as Wells Ranch. Originally a project of the DSP, CRWA has completed the first phase of this project. The DSP has an agreement for 2,800 acre-feet per year of supplies, for a total of 6,800 acre-feet per year from CRWA sources with the option for delivery of up to 8,250 acre-feet per year from all CRWA sources by 2015. The agreement between DSP and CRWA concerning the Wells Ranch Project expires in 2047 with an option to extend.

Lake Dunlap surface water from Canyon Regional Water Authority is one of the water supply sources for the SAWS northeast service area.

2013 Project Status

For the second half of 2013, SAWS received approximately 2,131 acre-feet of water from the Lake Dunlap and Wells Ranch projects. This water served the Northeast service area providing SAWS the ability to service its customers in this area predominately on a non-Edwards Aquifer supply which grants SAWS the flexibility in optimizing its Edward's Aquifer acquisitions between EAA cutbacks and utilization of SAWS ASR. For the totality of 2013, SAWS met most of the demand in this area by providing approximately 4,900 acre-feet of CRWA water. SAWS and CRWA staff are in discussion to explore the possibility of additional water availability from the Wells Ranch groundwater project.

Canyon Lake

In March 1998, SAWS approved a contract with the Guadalupe-Blanco River Authority (GBRA) to buy surface water from Canyon Lake. Treated water is delivered to project participants in portions of Comal, Kendall, and Bexar counties. SAWS has agreed to maintain a steady delivery rate and take additional amounts that other participants cannot take at any given time for the benefit of the project. Using this concept, the Canyon Lake Project serves as a base load water supply.

With a twist of the ceremonial spigot, SAWS first-ever surface water project gushed to life in April 2006, delivering purified Canyon Lake water to customers in northwest San Antonio. The two million gallon water storage tank at the Winwood Pump Station is the first storage facility for SAWS Western Canyon water project. In August 2007, the second delivery point (Oliver Ranch pump station three-million-gallon storage tank), near U.S. 281 North and Bulverde Road in North Central San Antonio, began receiving purified Canyon Lake water.

2013 Project Status

In 2013, SAWS received 8,282 acre-feet of Canyon Lake water from the Guadalupe-Blanco River Authority, at a cost of approximately $7.6 million, or $914/acre-foot. The amount available under this contract is expected to fluctuate as the demands of other

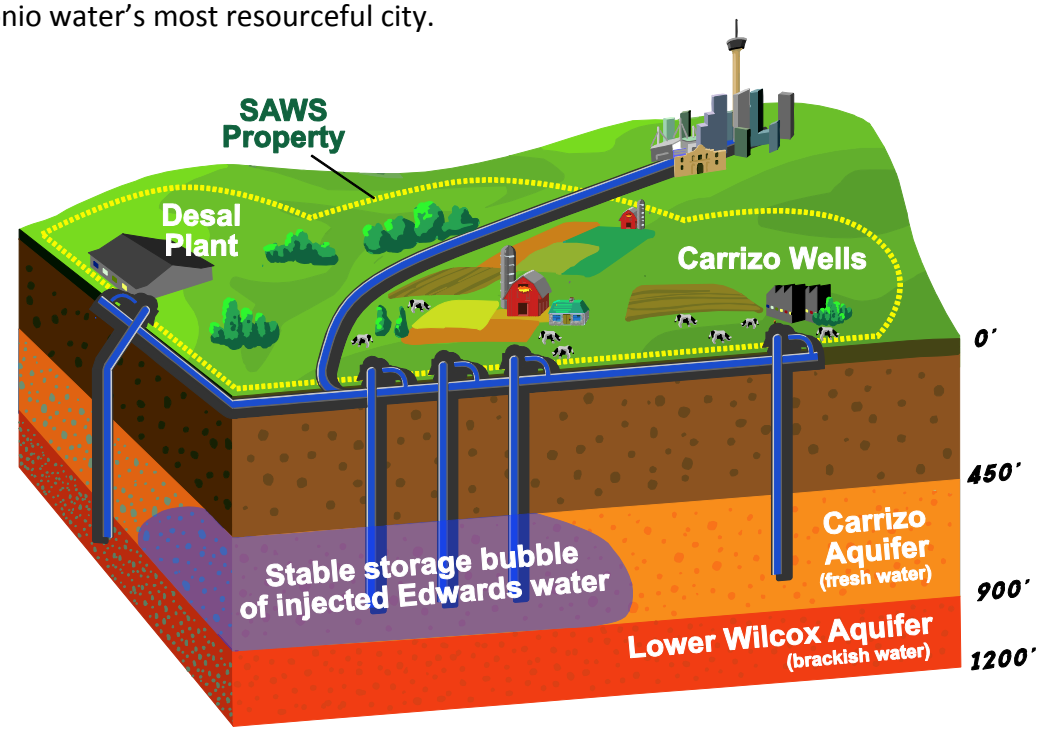
participants increase and additional supply is made available in the future. SAWS installed a granulated activated carbon (GAC) system at the Winwood tank site to improve water quality reliability.

Twin Oaks Aquifer Storage and Recovery

The Twin Oaks Aquifer Storage and Recovery facility is a key component of the *2012 WMP*. The first major project funded by SAWS customers through the Water Supply Fee, SAWS commissioned the Twin Oaks ASR in June 2004.

SAWS stores excess Edwards Aquifer permits in a large-scale underground water storage formation in south Bexar County for use during periods of drought when access to SAWS water supplies has been curtailed.

The ASR has been an unquestioned success. With the ability to store water and to recover that water during droughts (when demand on the Edwards Aquifer is high), the ASR has proven to be a capable water management tool. The ASR has had as much as 96,000 acre-feet in storage at its peak in late 2012. The project recovered large volumes of previously-stored Edwards Aquifer water to San Antonio during the drought of 2009 and the record-breaking drought of 2011. With the approved Edwards Aquifer Habitat Conservation Plan (EAHCP), the entire Edwards Aquifer region – from the Texas Hill Country to the coastal bays and estuaries – will soon be joining SAWS in benefiting from the success of this project. The ASR is San Antonio's (and soon our regional neighbors') "savings account for a sunny day" and is a premier example of what has made San Antonio water's most resourceful city.



Saving for a Sunny Day

Excess Edwards Aquifer water of 120,000 acre-feet or more can be diverted to storage in the Carrizo Aquifer (storage mode). The water is withdrawn during dry periods (recovery mode) to help lessen the effects of drought on the Edwards Aquifer which helps maintain spring flows in New Braunfels and San Marcos, ensuring the protection of endangered species.

2013 Project Status

The year began with over 94,917 acre-feet of stored water. Due to the continuing drought and cutbacks imposed by the EAA on Edwards Aquifer supplies, SAWS brought back 14,711 acre-feet of stored Edwards Aquifer water from ASR through mid-September. Because of efforts by SAWS customers to reduce demand and projected surplus of Edwards Aquifer permits, it was determined that storage operations could take place through the end of the year. On September 18, 2013, with ASR storage at 80,221 acre-feet, SAWS began storage operations, sending Edwards water down to the ASR. By the year's end, SAWS had pumped 8,069 acre-feet down into storage, of which 1,869 acre-feet earmarked for the EAHCP and ended the year with 88,275 acre-feet in storage. SAWS engaged UTSA to perform new studies to determine storage capacity of ASR. Early indications are that the storage capacity may be 200,000 acre-feet or more. Results of the study will be available in the spring of 2014.

Carrizo Aquifer – Bexar County

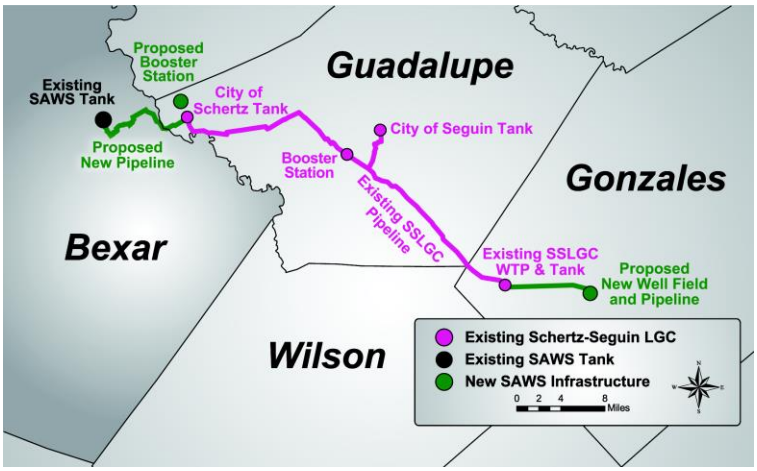
SAWS has access to up to 6,400 acre-feet per year of Carrizo Aquifer water associated with ownership of land in southern Bexar County for the ASR Project. There are additional wells located outside of the land associated with the ASR project that add additional production capacity. In total, SAWS has the ability to produce approximately 10,000 acre-feet per year. The Local Carrizo Project assists in countering the natural subsurface drift of stored Edwards Aquifer water volumes in and around the ASR well field.

2013 Project Status

SAWS produced 6,696 acre-feet of water from the various Carrizo Aquifer sites in southern Bexar County from January 1 through September 16, 2013. Local Carrizo production uses the same pipeline that transports water in and out of the ASR. When

the decision was made to begin storing water in ASR in mid-September, production from the Local Carrizo well field was shut down through the end of the year.

Regional Carrizo Program



The Regional Carrizo Program is located in Gonzales County, approximately 50 miles from San Antonio. The project delivers water from western Gonzales County. Up to 16 million gallons per day (MGD) of water produced from this well field will be transported by pipeline to an integration point in northeast San Antonio, where it will enter the SAWS distribution system.

Instead of building a new pipeline, SAWS is "renting" available capacity in an existing pipeline owned and operated by Schertz-Seguin Local Government Corporation (SSLGC). The well field, supply pipeline, Schertz pump station and delivery pipeline are in varying stages of construction. Additionally, the SSLGC treatment plant is being expanded to treat SAWS water.

This regional partnership has helped to secure the largest non-Edwards supply in SAWS history. SAWS can produce up to 11,688 acre-feet per year of Carrizo Aquifer groundwater under permits issued in 2010 by the Gonzales County Underground Water Conservation District. The water will then be treated and transported by SSLGC to a SAWS integration point. Additionally, SAWS has the option to purchase up to 5,000 acre-feet per year of additional water from SSLGC if it is available and has an agreement for approximately 1,000 acre-feet per year with the Gonzales County Water Supply Corporation.

2013 Project Status

SAWS began receiving surplus water from the SSLGC in mid-November. Although the Regional Carrizo Program has not reached final completion, SAWS was able to continue its receipt of surplus water through the end of the year. SAWS will be able to take its full allotment once the well field and new treatment plant are complete. The completion of this project is estimated to be in spring of 2014.

Schertz Parkway Pump Station Ground Storage Tank is 60 feet tall, has four high service pumps, and has a capacity of two million gallons.

Planned Projects for 2012-2020

Additional Edwards Aquifer Supplies

Under the direction of the SAWS Board of Trustees, SAWS continues to acquire Edwards Aquifer water rights through lease or purchase. SAWS goal is to continue to maintain its current inventory of Edwards Aquifer leases (approximately 44,000 acre-feet at the time of this report) by renewing existing leases as they expire or by purchasing water rights. SAWS plans to acquire an additional 10,900 acre-feet of Edwards Aquifer water rights between 2012-2017. In 2013, SAWS executed and closed on approximately 3,700 acre-feet of purchases; half of that water was currently under lease agreements while the other half was new water adding to the overall inventory. When acquisitions impact the lease inventory, SAWS develops new lease relationships to maintain the targeted lease inventory.

Expanded Carrizo Production

The Expanded Carrizo Project is a new project that is designed to increase production from the Carrizo Aquifer in southern Bexar County. SAWS already has experience in designing, building, and operating projects that produce freshwater from the Carrizo Aquifer in southern Bexar County. Expanded Carrizo Production is a project to develop additional Carrizo Aquifer wells in southern Bexar County proximate to the ASR site.

Hydrologic modeling was conducted to determine the amount of additional Carrizo production that could be supported given current SAWS and DSP activities in the area and the future operation of the Brackish Groundwater Desalination Program. This analysis also examined whether the project would remain within the limits set by the Desired Future Conditions (DFCs) for the area, any impacts on water stored by SAWS in the ASR facility, and potential impacts on the well mitigation program. Potential synergies are present with existing and planned SAWS treatment and distribution infrastructure as well as DSP facilities in the vicinity.

This Expanded Carrizo project would leverage the benefits of existing infrastructure, assist in the management of stored Edwards water in the ASR, and provide a comparatively low cost water supply near San Antonio. The project remains within the DFCs for Groundwater Management Area 13 (GMA-13), which covers a 17 county area from Dimmit and Zavala Counties to the southwest to Caldwell County to the northeast. The project will be constructed in three phases starting in 2017 at 7,000 acre-feet per year, ultimately providing 21,000 acre-feet per year by 2026.

2013 Project Status

Work on Expanded Carrizo production started during the spring of 2013. During the second half of the year, SAWS staff continued to assess geochemical data from existing wells in the area to make sure that water produced by this project will be or can be made compatible with water in the SAWS distribution system. Additionally, the need for an expanded treatment plant is being explored. The project team started coordinating efforts with the Brackish Desalination Project to optimize road and pipeline routing in the ASR vicinity. Preliminary well locations have been selected for the first two phases of drilling. Well drilling & testing design specs are being developed by Water Resources staff and well collection design RFQ specifications were completed and will go out for bid in 2014. By carefully coordinating efforts, schedules and efficiencies, it will be possible to have all three phases of the project in production by 2021.

Brackish Groundwater Desalination Program

SAWS is currently developing a brackish groundwater desalination (BGD) program in southern Bexar County. Brackish groundwater is a plentiful, previously untapped local source of water that will help diversify San Antonio's supplies.

The brackish desalination program is part of the 2012 WMP, designed to meet the city's water needs while reducing dependence on the Edwards Aquifer. The TWDB has confirmed that a vast supply of brackish groundwater exists in our region and has yet to be developed. The South Central Regional Planning Group (Region L) has identified brackish groundwater as a supply management strategy to meet future needs.

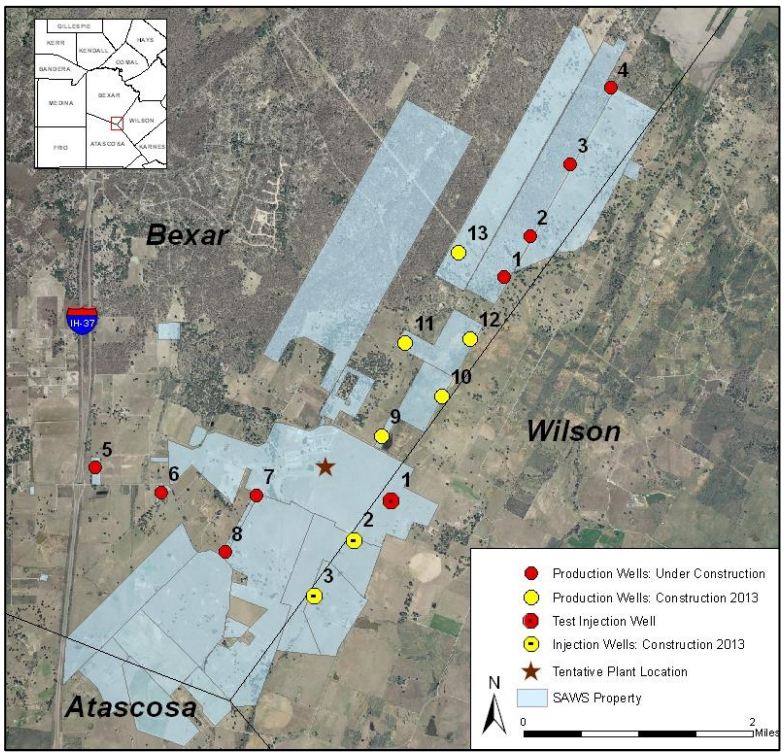
SAWS future desalination facility will generate about 13,440 acre-feet per year from the Lower Wilcox Aquifer in Phase I. The plant will be located at the existing SAWS ASR site. The well sites will be located on adjacent SAWS property. Phases II and III will be completed in 2021 and 2026 respectively and will deliver an additional 20,160 acre-feet per year of water, for a total firm yield of 33,600 acre-feet per year. At year's end 2013, the total capital costs of the Program for all three phases, including land acquisition, feasibility, design, construction, and SAWS overhead was estimated at $414,665,000. The cost per acre-foot of all three phases of the program is estimated at $1,138 without the cost to integrate the water into SAWS distribution system. To date SAWS has invested $59.1M in capital improvement for the BGD Program.

Feasibility studies confirm that there is sufficient quantity and quality of brackish groundwater available in the Lower Wilcox Aquifer to support the SAWS desalination program. Brackish water, which contains dissolved solids, will be treated to drinking standards using a reverse osmosis treatment facility.

Pilot testing confirms that reverse osmosis treatment is suitable for the SAWS program. In addition, SAWS has completed tests and studies to define:

- Well field productivity
- Long-term water quality
- Treatment plant operation
- Pretreatment and post treatment requirements
- Concentrate disposal (deep well injection)

The proposed desalination facility location at the ASR site is close to the brackish water source and also near the proposed areas for brine disposal.



The first phase of the program includes development of a production well field, well field collection system, and reverse osmosis treatment plant. Brine disposal will be accomplished through the use of Class I injection wells located on SAWS property in nearby Wilson County. The treatment facility also will be designed to accommodate additional capacity and technology upgrades in the future.

2013 Project Status

Activities for the SAWS BGD program for 2013 were dominated by design engineering of the first phase of the program. The Basis of Design memorandums for all components of the program were completed and 90 percent design engineering for all components of the first phase of the program were received. SAWS completed the drilling of the first eight Lower Wilcox Aquifer brackish production wells in May 2013. Water quality and production rates from the new wells are similar to results of the initial test wells drilled in 2007. The remaining five production wells required for the first phase of the program were being designed during the second half of the year and will be drilled in 2014. Zachry-Parsons is SAWS Construction Manager at Risk (CMAR) on the program. The remainder of 2013 was focused on the completion of design engineering and the development of a Guaranteed Maximum Price (GMP) by the CMAR for the first phase of the program.

Production Well #5 (BGD-5) was the last of the eight initial production wells drilled. BGD-5 was completed to a depth of 1,490 feet.

Regional Water Supply - Request for Competitive Sealed Proposals (RFCSP)

In January 2011, in accordance with the 2009 WMP Update, SAWS requested competitive sealed proposals for a water supply to supplement future water inventory. The RFCSP document specified that SAWS could accept up to 20,000 acre-feet of water per year in 2020 and might gradually increase the quantity by up to 1,500 acre-feet annually beginning in 2021. Nine proposals were received by the July 2011 deadline. An exhaustive evaluation of nine separate proposals resulted in four of the projects being deemed responsive to the utility's request. Each proposal was analyzed to determine overall responsiveness and qualifications utilizing pre-determined criteria, including ownership and control of water, proposed solution for delivery, price, financial strength, project management and quality control/assurance.

With the completion of the 2012 WMP, SAWS updated its needs for the RFCSP and issued Addendum I to the RFCSP to the four finalists in March 2013. This addendum included consideration of recent critical factors such as the integration of DSP, the EAHCP, and 2010 Census data in making the final determination of the size and timing of the RFCSP. The addendum requested 50,000 acre-feet per year with delivery in 2018.

2013 Project Status

Responses to the addendum were submitted to SAWS by June 14, 2013. Responses were received from all four of the finalists: Vista Ridge Consortium, Dimmit Utilities Water Supply Corporation, Oscar Renda Contracting, and V. V. Water Supply Company**.** The responses were carefully reviewed by SAWS staff and turned over to a management Selection Committee in July 2013 for further evaluation and potential selection. One submittal was deemed non-responsive. The three remaining finalists, Vista Ridge Consortium, Dimmit Utilities, and V. V. Water Supply Company were invited to participate in interviews, which took place on October 18, 2013. Results of the interviews and other materials submitted by the three finalists were being reviewed and evaluated by the Selection Committee at the end of 2013.

Planned Projects for the Mid-Term (2021-2039)

While the 2012 WMP expects the dry year consumption to be at 135 GPCD beyond the year 2020, population is expected to continue to grow, resulting in an overall increase in total demand. For this reason, the mid-term Program calls for SAWS to execute additional phases of the BGD Program and the Expanded Carrizo project.

The 2012 WMP outlines a water management strategy that maintains SAWS current supplies, successfully develops supplies in the Short Term, and builds on those supplies in the Mid Term:

- Conservation programming that maintains consumption at 135 GPCD beyond 2020

- Phase II and III of the Brackish Groundwater Desalination Program (additional 13,440 acre-feet per year by the year 2021, followed by an additional 6,720 acre-feet per year by the year 2026) for a total yield of 33,600 acre-feet per year for the Program

- Phase II and III of Expanded Carrizo (additional 7,000 acre-feet per year by the year 2022, followed by an additional 7,000 acre-feet per year by the year 2026) for a total yield of 21,000 acre-feet per year

- The completion of the water supplies identified in the short- and mid-term programs will ensure that SAWS has water security – even in a future repeat of drought-of-record-like conditions

Conceptual Projects for the Long Term (2040-2070)

The nature of long term planning requires SAWS to examine what might be expected in the future based on the best information available today. There will undoubtedly be significant new information and technology advancements during the timeframes covered by the short- and mid-term programs. New information on population growth, water demand and the changing water regulatory setting will be evaluated by SAWS with an eye towards this future.

By this time, SAWS experience in desalination will be as established as its leadership in conservation and ASR management is today. It is clear that, even developing the full slate of planned projects, there could be up to approximately 101,000 acre-feet of permitted supply gap in the late 2060's in the worst year of a future drought of record-like event that would need to be addressed.

Some solutions in planning phases are:

- Additional ASR capacity or ASR operations
- New future conservation paradigms
- Expansion of brackish desalination

Some solutions in conceptual stages include:

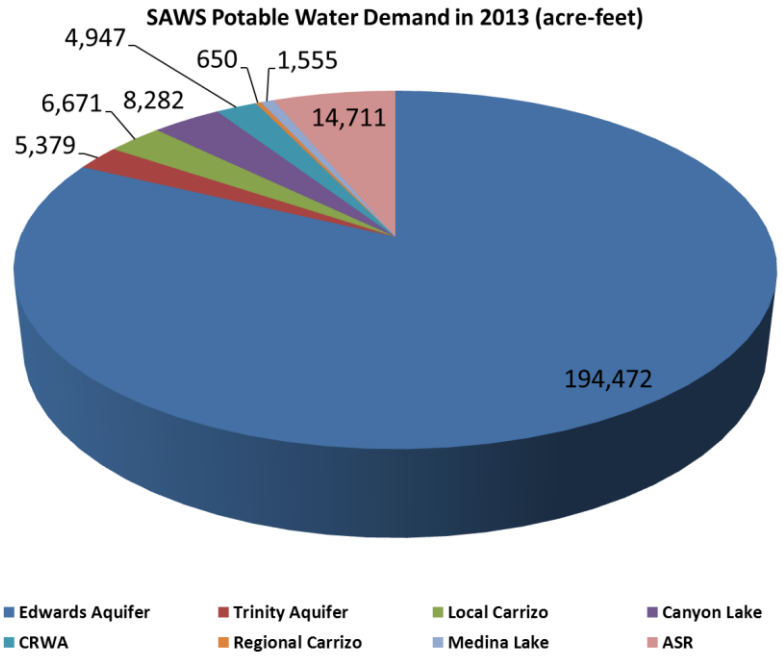
- Future regional water project(s) RFCSPs
- Ocean desalination

Building on our achievements as a national leader in conservation and water supply management, SAWS plans to meet the city's water needs for the next 50 years by effectively managing our existing supplies while developing new water sources for the future.

SAWS 2013 Production Report

In 2013, SAWS had a total potable demand of 236,666 acre-feet. This includes the demand of SAWS DSP and does not include the 8,070 acre-feet of Edwards Aquifer water that was stored in SAWS ASR. This total demand was supplied by:

- 194,472 acre-feet - Edwards Aquifer
- 5,379 acre-feet - Trinity Aquifer
- 6,671 acre-feet - Local Carrizo Aquifer
- 8,282 acre-feet - Canyon Lake
- 4,947 acre-feet - Lake Dunlap/Wells Ranch
- 650 acre-feet - Regional Carrizo Aquifer
- 1,555 acre-feet - Medina Lake
- 14,711 acre-feet - recovered ASR



As indicated above, 236,666 acre-feet represents SAWS potable water demand in 2013. SAWS built the nation's largest direct-use recycled water system, and has a longstanding indirect recycled water partnership with CPS Energy, which have brought new jobs, electricity, economic development, recreation opportunities, and environmental restoration and maintenance. All while managing to conserve up to 75,000 acre-feet of precious potable water resources every year.

SAWS finished 2013 with an approximate 30 percent regulatory cutback to its Edwards Aquifer supply. The 30 percent regulatory cutback was the largest regulatory reduction to the Edwards Aquifer supply to date. Although challenging, SAWS has historically planned for these types of events and was well positioned to successfully meet demand. With the drought projected to continue into 2014, SAWS will again rely on diversified supplies including ASR and drought management to meet demand through a potential fourth consecutive drought year.

Subsequent Events

This report is focused on status and activities relating to the 2012 Water Management Plan and Water Supply Fee for the period July to December 2013. Subsequent to December 2013, certain events have transpired that will have an impact on future activities. On March 4, 2014, the SAWS Board of Trustees voted unanimously to reject two of the remaining proposed regional water supply projects while authorizing further discussions on a third proposal with the Vista Ridge Consortium. The proposed project could potentially deliver up to 50,000 acre-feet of water from the Carrizo Aquifer by 2018.

In a separate action, the Board approved a $109 million contract for construction of phase I of the utility's brackish groundwater desalination program; a project that will be the foundation for a supply that will ultimately provide 33,600 acre-feet of water. In conjunction with award of the phase 1 construction contract, the capital cost estimates for all three phases of the project were revised to $414 million.

In early 2014, SAWS also began to consider the expansion of our brackish groundwater program by an additional 50,000 acre-feet. This potential expansion of our brackish groundwater desalination program is still in a feasibility phase but is seen as a way to meet future water needs.

These items will be thoroughly described in more detail in the next semiannual report covering the January to June 2014 time period.

Financial Report

Utility Integration

SAWS assumed responsibility for the former Bexar Metropolitan Water District on January 28, 2012. Full integration of both systems into one rate structure and system is required by 2017, unless SAWS requests an extension of time from the Texas Commission on Environmental Quality.

Water Supply Fee

On October 19, 2000, the San Antonio City Council via Ordinance #92753 approved a funding mechanism for the construction and development of additional water resources to meet projected water demands for the City of San Antonio and Bexar County for the next 50 years.

The Water Supply Fee assists in funding expenditures for the development of new water resources to include all operating, maintenance, research and development, and capital costs (including debt service when capital expenditures are debt funded). Additionally, the use of recycled water to displace current and future potable water needs is a key element of the long-range plan.

The Water Supply Fee is tiered for residential and irrigation customers. The average residential customer will pay $0.13 per 100 gallons (average). See below:

RATE CLASS	Usage Blocks Gallons	Assessed Fee RATE PER 100 GALLONS
Residential	First 5,985 Next 6,732 Next 4,488 Over 17,205	$0.1080 $0.1562 $0.2204 $0.3857
General	All blocks	$0.1661
Wholesale	All blocks	$0.1661
Irrigation	0 Gallons Next 6,732 Next 10,473 Over 17,205	$0.0000 $0.1661 $0.2204 $0.4183

Water Supply Fee Financial Reports

The following tables provide an accounting of the collection and uses of the Water Supply fee since its inception in 2001.

San Antonio Water System
Sources and Uses of Funds
Water Supply
2001-December 2013
($ in Millions)

Water Supply Fee	$ 910.86
Operating Transfer from Water Delivery	139.77
Non-operating income & Other	54.31
Recycle Water Revenues	47.87
Water Supply Impact Fees	84.20
Bond Proceeds	714.51
Water Supply O&M	(504.09)
Debt Service	(352.86)
Capital Funding	(849.34)
Funds Provided	245.22
Restrictions on Cash	126.05
Designations on Cash	64.23
Unrestricted/Undesignated Funds	$ 54.94

San Antonio Water System
Operating & Maintenance Expenditures
2001-December 2013
($ in Millions)

Operating and Maintenance Costs	
Western Canyon Project - GBRA	$ 64.81
Oliver Ranch - Lease Payments & Production Costs	18.23
BSR - Lease Payments & Production Costs	4.22
Regional Carrizo - Water Sales Agreements & Other[3]	22.79
Brackish Desalination	1.32
Edwards - Lease Expense & Other	50.61
Aquifer Storage & Recovery Project	30.73
Aquifer Protection & Compliance	27.30
Recycled Water Operations	32.08
Conservation Program - net loss	7.27
Stormwater program - net loss	4.69
LCRA - Study Period and Other, Net of Cash Recovery[4]	22.17
Lower Guadalupe Water Supply Project	6.26
Simsboro Aquifer	4.41
Recharge Initiative	0.80
Other Water Resources Cost	10.25
Facilities Maintenance	17.33
Communication & Outreach	10.13
Legal - Water Law	6.76
Billing & Collections	33.82
Finance & Information Systems	33.62
Corporate Facilities	9.49
Human Resources, Safety, Other Benefits[1]	26.80
Other Support Services[2]	27.73
Transfer to COSA	30.49
Total Operating & Maintenance	$ 504.09

[1] Includes workers compensation and dependent and retiree health insurance.

[2] Includes executive management, Board of Trustees, Internal Audit, Legal (corporate) and other miscellaneous.

[3] Includes a $12.4 million write-off of pipeline design costs made obsolete with the agreement with Schertz Seguin Local Government Corporation to transport water from Gonzales county to SAWS.

[4] Total program cost net of cash recovered from LCRA settlement.

San Antonio Water System
Water Supply Capital Spending
2001-December 2013
($ in Millions)

	FUNDING		
	Pay-as-you-go	Debt	Total
Water Supplies:			
Non-Edwards Water Supplies			
Western Canyon Project - GBRA	$ 3.31	$ 10.87	$ 14.18
Trinity Aquifer Projects (Oliver Ranch/BSR)	12.49	(0.00)	12.49
Local Carrizo	1.31	13.51	14.82
Brackish Desalination	8.19	50.90	59.09
Regional Carrizo	53.76	63.77	117.53
Aquifer Storage & Recovery Project (ASR)	1.73	245.46	247.19
Recycled Water System	1.00	84.63	85.63
Total Non-Edwards	81.79	469.14	550.93
Edwards Aquifer Water Rights	86.52	153.15	239.67
Total Water Supply Capital Spending	168.31	622.29	790.60
Other Capital Spending:			
Integration	11.85	11.06	22.91
Unallocated Project Overhead	3.42	-	3.42
Land, Buildings & Equipment	27.12	5.29	32.41
	42.39	16.35	58.74
Total Capital Spending	$ 210.70	$ 638.64	$ 849.34

San Antonio Water System
Cash Restrictions/Designations
Water Supply
2001-December 2013
($ in Millions)

Restrictions on Cash:	
Operating Reserve	$ 13.30
Reserve Fund	19.16
Construction Funds:	
Bond Funds [1]	70.79
Impact Fees[2]	22.80
	126.05
Designations on Cash:	
Future Reserve Fund deposits	1.20
PGA Monitoring/WQEE	1.08
Interest Mitigation Fund[3]	6.06
2013 & Prior CIP program (cash funds)	55.89
	64.23
Unrestricted/Undesignated Funds	54.94
Total Water Supply Funds Available	$ 245.22

[1] Represents bond proceeds currently on hand. These proceeds have all been committed to be used on existing projects.

[2] Represents unspent impact fees. These have all been committed to fund CIP projects in the 2013 & Prior CIP program or that will be used to help fund the 2014 CIP program.

[3] Represents funds accumulated as a result of favorable variances in debt service. Funds may be used for CIP or to otherwise reduce debt service costs.

Glossary

AF/yr	Acre-Foot per year (325,851 gallons)
ASR	Aquifer Storage & Recovery Facility / underground storage facility
BGDP	Brackish Groundwater Desalination Program
BMA	Bexar-Medina-Atascosa Improvement District #1
BMWD	Bexar Metropolitan Water District
BSR	Bulverde Sneckner Ranch
CCN	Certificate of Convenience and Necessity
CRWA	Canyon Regional Water Authority
DFC	Desired Future Condition
DOR	Drought of Record
DSP	District Special Project (former BexarMet)
EAA	Edwards Aquifer Authority
EAHCP	Edwards Aquifer Habitat Conservation Plan
GCD	Groundwater Conservation District
GBRA	Guadalupe-Blanco River Authority
GPCD	Gallon Per Capita Per Day
HCP	Habitat Conservation Plan
MGD	Million Gallons per Day
OR	Oliver Ranch
RCP	Regional Carrizo Project
RFCSP	Request For Competitive Sealed Proposals
SAWS	San Antonio Water System
SB	Senate Bill
SSLGC	Schertz-Seguin Local Government Corporation
TWDB	Texas Water Development Board
WMP	2012 Water Management Plan
WSC	Water Supply Corporation

Firm Yield – The volume of water which can be produced from a defined source during a repeat of the drought of record under existing regulatory, legal, contractual, hydrological or infrastructure constraints.

Desired Future Condition – Defined by Title 31, Part 10, §356.10 (6) of Texas Administrative Code as "the desired, quantified condition of groundwater resources (such as water levels, spring flows, or volumes) within a management area at one or more specified future times as defined by participating groundwater conservation districts within a groundwater management area as part of the joint planning process."

San Antonio Water System

2800 U.S. Hwy 281 North • P.O. Box 2449 • San Antonio, Texas 78298-2449 • 210-704-SAWS (7297) • www.saws.org