Water Management Plan
Semiannual Report
January-June 2013

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About the cover:
The three photos feature various segments of the Regional Carrizo Project Construction: Well No. 10 drilled in late 2011, the delivery pipeline project with 36-inch steel pipe and the ground storage tank at the Schertz Parkway Pump Station.

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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 in February and September of each year covering the previous six month time frame.

This report documents the Water Resources activities pertaining to the implementation of SAWS 2012 Water Management Plan from Jan. 1 to June 30, 2013. The report will review SAWS progress on the water management plan including the following activities:

- The water supply developed during the reporting period.
- Revenues generated from the water supply fee.
- The uses of the water supply fee.
- Water supply development costs.
- Progress status report on SAWS diversified water portfolio.
- Updates on the acquisition of additional water resources.
- The status of maintenance and operational expenses for completed projects as well as contracts awarded.

San Antonio Water System’s (SAWS) current water supply portfolio consists of groundwater supplies from the Edwards Aquifer, Trinity Aquifer 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. As part of its diversified water supply portfolio, SAWS maintains the largest direct recycled water system in the country. SAWS also operates an aquifer storage and recovery (ASR) facility – the third largest in the nation – which serves 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 supplies. A firm water supply is vital for continued economic development 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. From inception in 2001 through June 2013, the water supply fee has generated $862 million toward the investment of a diversified water supply portfolio.

Implementation of SAWS’ four planned water supplies, three of which are identified in the table below, would tally up to an additional 107,629 acre-feet of firm water to SAWS’ increasingly diversified water inventory portfolio, which includes: Brackish Groundwater Desalination Program, the expanded Bexar County Carrizo Aquifer Project, the acquisition of Edwards Aquifer Water Rights, and the Regional Water Supply Project. Together, the capital costs of these proposed projects would total approximately $622 million including the construction of the Water Resources Integration Pipeline. However, when including the Regional Water Supply Project, Request for Competitive Sealed Proposals may add an additional $100 million due to integration costs of the project(s) which have not thus far been selected.

### Total Projected Capital Cost by Project

- **Expanded Bexar County Carrizo**: $33,632,550
- **Additional Edwards Rights**: $55,233,356
- **Brackish Groundwater Desal**: $296,807,455
- **Water Resources Integration Pipeline**: $236,770,467
Introduction

This report describes progress made in implementing San Antonio Water System’s 2012 Water Management Plan (WMP) for the period January through June 2013. The report is organized according to the major elements of the WMP. The current report provides a short summary of the recently adopted 2012 WMP, followed by descriptions and the status of current supplies, planned projects 2012-2020, planned projects for the midterm (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 June 2013.

San Antonio Water System was created by an act of San Antonio City Council in May 1992, through Ordinance 75686. The District Special Project (DSP) was created 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 serves 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) extends into Comal County. This includes more than 465,000 water connections and 412,000 wastewater connections.

SAWS and DSP delivers potable groundwater from the Edwards, Trinity and Carrizo aquifers and delivers potable surface water from Canyon Lake, Medina Lake and River system and Lake Dunlap to domestic, commercial, industrial, governmental and agricultural 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. This report, in conjunction with an annual briefing to the Council, partially satisfies the requirements of Section 34-1349, Accountability Procedures.
Water Supply:

2012 Water Management Plan

A Proven Plan


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 acquire 107,629 acre-feet of additional firm supplies 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:

- The best water conservation program in the country.
- The nation’s largest direct recycled water system.
- The third largest underground storage facility in the nation.

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.

*Thanks to thoughtful, strategic water planning, San Antonio’s dependence on the Edwards Aquifer continues to decrease.*
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. By implementing the plan, San Antonio will avoid water shortages through 2040. 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. Improved year-round conservation and new programs play a vital role in water savings which are included in future water supply calculations.

Groundwater desalination

Construction of a brackish groundwater desalination facility will be completed in 2016, providing 12,210 acre-feet of water annually, tapping a plentiful unused source of water in southern Bexar County. Through two additional phases, the desalination plant will yield a total of 30,525 acre-feet annually by 2026.

Expansion of Local Carrizo Aquifer supply

San Antonio currently produces Carrizo Aquifer water in southern Bexar County. Pumping may 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 from the Carrizo Aquifer by 2026 for a total Expanded Carrizo Project yield of 21,000 acre-feet.
Additional Edwards Aquifer rights

The market for Edwards Aquifer water rights is still active. In 2012, SAWS identified 10,900 acre-feet of additional Edwards Aquifer permits that could be procured by SAWS. These permitted supplies already contain environmental protections for 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. After further evaluation of the proposals, the list was reduced to four finalists. SAWS anticipates selecting the best proposal(s) and committing to an agreement that will provide San Antonio with up to 50,000 acre-feet of annual water supply by 2018.

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 and the local Carrizo Aquifer Project (and Expanded Carrizo Project) to high growth areas in western San Antonio.
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, San Antonio Water System 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 Texas recorded history – Texans have grown 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.

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 San Antonio Water System. After its passage in both the House of Representatives and the Senate, an election date was set for November 2011 when BexarMet ratepayers voted to dissolve the utility and 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 water resources portfolio which is now included in SAWS’ water resources portfolio serving both SAWS and DSP customers with high-quality, sustainable, affordable, water supplies.

Edwards Aquifer

Currently more than 90 percent of drinking water used by SAWS customers comes from the Edwards Aquifer. Beginning in 2001, with the inception of the Water Supply Fee, SAWS has invested $222.9 million to acquire 43,802 acre-feet of Edwards Aquifer water rights. With a total allocation of 572,000 acre-feet, the Edwards Aquifer Authority (EAA) has issued water rights through an established permitting process, of which SAWS and DSP have combined control of approximately 52 percent (296,000 acre-feet) of those 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 0 percent to 44 percent. Overall, SAWS and DSP Edwards Aquifer permits have a firm yield of 165,760 acre-feet of total water resources available to SAWS with a 44 percent cutback during worst-case drought conditions. This resource has been the community’s mainstay since its inception. SAWS continues to review other opportunities to maximize its allocations of Edwards Aquifer supply.

In 1993, the Texas Legislature created the EAA to manage groundwater withdrawals from the Edwards Aquifer and provide for appropriate springflow during drought
periods. The EAA implemented a permitting system based on historic use of the Edwards Aquifer, regulating and limiting 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 the Edwards Aquifer Habitat Conservation Plan (EAHCP) with approval from the EAA and other parties.

SAWS will play 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 springflows. Approved in February 2013 by the U. S. Fish and Wildlife Service (USFWS), the habitat conservation plan will play a key role in the protection of the Edwards Aquifer for all stakeholders. The USFWS Environmental Impact Statement identified the EAHCP as the preferred alternative. An Incidental Take Permit (ITP) was issued allowing municipal, agricultural and environmental uses of the Edwards Aquifer to be balanced and 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 assuring endangered aquatic species associated with the aquifer and its springs will be protected during droughts.

2013 Project Status

From January to June 2013, SAWS has succeeded in executing 3,676 acre-feet of Edwards Aquifer lease renewals and has 868 acre-feet pending renewal. Based on the current target, this is approximately 50 percent of the renewals slated for the year with half of the year still available to conduct re-leasing for 2014. Staff also is in final negotiations for the purchase of approximately 3,650 acre-feet of Edwards Aquifer permitted water. The acquisition program successes have resulted in all the WMP assumptions, with regards to the Edwards inventory being met – actually slightly exceeding timing assumptions.
Medina System

With an ultra-filtration membrane facility build in 2000, water from the Medina river in southwest Bexar County became the first modern surface water project in San Antonio. Agreements with the Bexar-Medina-Atascosa Water Control & Improvement District No. 1 (BMA) give 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 are 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 temporarily discontinue delivery due to decreased water quality as a result of declining Medina Lake levels. As of June 30, 2013, Medina Lake levels continue to decline and SAWS has not requested BMA resume delivery.

Recycled Water

In 1996 the SAWS Board of Trustees committed to build the nation's largest direct recycled water delivery system.

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 large amount of Edwards Aquifer water for potable use. Additionally, SAWS provides 50,000 acre-feet of recycled water to CPS Energy for use in its Calaveras and Braunig power generation plants.
The system also was designed to supplement base flows in the upper San Antonio River and Salado Creek. About 5,800 acre-feet is used to ensure flow during low flow periods or in the event of a drought. 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 became the first non-Edwards Aquifer drinking water through SAWS pipelines. Although relatively small, two projects – Oliver Ranch and Bulverde Sneckner Ranch — play a role in providing additional sources to enhance the region’s water supply. More recently with the acquisition of the former BexarMet, additional Trinity Aquifer supplies have been added.

A number of production facilities built by both SAWS and the former BexarMet 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 located in North Central Bexar County for water supply from the Trinity Aquifer, providing up to 17,000 acre-feet per year when 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).

**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 then 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 Carrizo-Wilcox Aquifer project known as Wells Ranch from Gonzales and Guadalupe counties. 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.
Through the first half of 2013, SAWS received approximately 2,815 acre-feet of water from the Lake Dunlap and Wells Ranch projects. This allows SAWS to service customers in the northeast area with a non-Edwards Aquifer supply, giving SAWS the flexibility to optimize its Edwards Aquifer acquisitions between EAA cutbacks and utilization of SAWS ASR.

**Canyon Lake Project**

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 2 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 with a 3 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 projects that it will receive approximately 8,000 acre-feet of water under the contract with GBRA. 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 Twin Oaks Aquifer Storage and Recovery Project**

The Twin Oaks Aquifer Storage & Recovery facility is a key component of 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 facility in south Bexar County for use during periods of drought when access to SAWS water supplies has been curtailed.
The ASR facility has been an unquestioned success. With the ability to store water and to recover that water during droughts, peak usage, or when demand on the Edwards Aquifer is high, the storage and recovery plant has proven to be a very 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 – soon will join 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 (injection 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.

We strive to be environmentally sensitive leaving our job sites – like this one near the ASR project – preserved in their natural splendor.
2013 Project Status

The year began with more than 94,900 acre-feet of stored water. Due to the continuing drought and cutbacks imposed by the EAA on SAWS Edwards Aquifer supplies, SAWS has brought back 11,246 acre-feet of stored Edwards Aquifer water from ASR during the first half of 2013. As of June 30, 2013, 83,671 acre-feet of Edwards Aquifer groundwater remains stored in ASR and is available for recovery. Although it is expected that EAA cutbacks may worsen during the remainder of 2013, SAWS is optimistic that due to our ability to recover water from the ASR facility as well as customers’ adherence to current drought restrictions, more stringent drought restrictions for 2013 may be avoided.

Local Carrizo Water Project

SAWS has access of 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 ASR designated land associated with ASR project that add additional production capacity above the 6,400 acre-feet. In addition to the DSP Carrizo Aquifer facilities in southern Bexar County, SAWS has the ability to produce approximately 10,000 acre-feet. 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 has produced more than 4,400 acre-feet of water from the Carrizo Aquifer in southern Bexar County through the end of June. The project is on pace to produce up to 9,900 acre-feet by the end of 2013.
Regional Carrizo Water Supply Program

The Regional Carrizo Project 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 all currently in the construction phase. 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 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 of additional water from SSLGC if it is available and has an agreement for approximately 1,000 acre-feet with the Gonzales County Water Supply Corporation.

The water provided by this project will provide water for approximately 60,000 households and will supply SAWS ratepayers with the largest non-Edwards water supply to date through an innovative and cost-saving infrastructure-sharing arrangement.
2013 Project Status

Construction of the Regional Carrizo Project continues with the well field 75 percent complete, the collection system 85 percent complete, the water delivery pipeline 75 percent complete and the Schertz Parkway Pump Station (Photo below) is nearing completion as of June 30, 2013.

San Antonio Water System expects production to commence late 2013.

Schertz Parkway Pump Station
Ground Storage Tank is 60 feet tall, has four high service pumps, and has a capacity of 2 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 also has pending plans to acquire an additional 10,900 acre-feet of Edwards Aquifer water rights in the years to come.

Expanded Carrizo Production

A potential new project is Expanded Carrizo Production 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 project could leverage the benefits of this existing infrastructure, assist in the management of stored Edwards water in the ASR, and provide a comparatively low cost water supply near San Antonio while remaining within the current DFCs for Groundwater Management Area 13 (GMA-13) covering 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 with subsequent phases planned in 7,000 acre-feet increments scheduled for 2022 and 2026. Expanded Carrizo Production ultimately provides 21,000 acre-feet per year of supply for the purposes of the 2012 WMP.
2013 Project Status

During the first half of 2013 work on the Expanded Carrizo is in its startup phase. Preliminary work has identified potential locations for the new water production wells and is developing preliminary layout of infrastructure needed to provide the water to SAWS distribution. SAWS staff has been assessing 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 plan is being explored.

Brackish Groundwater Desalination Program

SAWS is currently developing a brackish groundwater desalination 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 Texas Water Development Board has confirmed that a vast supply of brackish groundwater — water too salty to drink — 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 10.9 million gallons of water per day (mgd) or 12,210 acre-feet per year from the 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 16.35 mgd or 18,315 acre-feet of water. The total capital costs of the program for all three phases, including land acquisition, feasibility, design, construction, and SAWS overhead is currently estimated at $296,807,455. The cost per acre-foot of all three phases of the program is estimated at $1,003. To date SAWS has invested $51.2M in capital improvement for the BGD Program.

Feasibility studies confirm that there is sufficient quantity and quality of brackish groundwater available in the 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 Brackish Groundwater Desalination Program (BGD) for the period January to June 2013 were dominated by design engineering of the first phase of the program. Amendment No. 1 to the Black & Veatch Program Management contract for full design engineering was approved by SAWS Board of Trustees in January. The Basis of Design memorandums for all components of the program have been completed and 30 percent design engineering for all components of the first phase of the program has been received. SAWS completed the drilling of the first eight Wilcox Aquifer brackish production wells in May. The water quality and production rates from these new wells are similar to the results of the initial test wells drilled in 2007. The remaining five production wells required for the first phase of the program are currently under design and will be drilled in 2014. Zachry-Parsons is SAWS Construction Manager at Risk (CMAR) on the program. The remainder of 2013 will be 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. SAWS will seek Board approval of the GMP late in the year or in very early 2014.

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

The 2009 WMP Update identified Other Water Supplies as a Long-Range strategy (2035-2060) to help meet and fill anticipated permitted supply gaps. In 2009 and 2010, SAWS staff evaluated various ways of obtaining qualified proposals from vendors that might have water available to provide to SAWS in a manner that provides long-term stability and assurance to SAWS while shifting the development risks to the vendor. It was determined that the best method to accomplish these goals was a Request for Competitive Sealed Proposals (RFCSP). A subsequent addendum to the 2009 WMP Update identified the RFCSP as a mid-term strategy at up to 20,000 acre-feet per year, and increasing in the long-term supply up to 60,000 acre-feet per year of firm yield water supplies.

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.

2013 Project Status

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 includes 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 2012 WMP projects that up to 50,000 acre-feet per year could be requested in 2018 and additional water, if available, added as required.

Responses to Addendum 1 were submitted June 14, 2013. Responses were received from all four of the finalists: Abengoa, Dimmit Utilities Water Supply Corporation, Oscar Renda Contracting, and V. V. Water Supply Company. These responses are being
carefully reviewed by SAWS staff and will be turned over to a management Selection Committee for further evaluation and potential selection.

Through the RFCSP process, SAWS expects to add further to the city’s diverse water supply portfolio for San Antonio.
Planned Projects for the Mid Term (2021-2039)

While the 2012 WMP expects the dry year consumption to remain 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. Phase II and III of the Brackish Groundwater Desalination Program (additional 12,210 acre-feet per year by the year 2021, followed by an additional 6,105 acre-feet per year by the year 2026) for a total yield of 30,525 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).

- 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 – through 2040.
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 toward the 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 worst year of a future drought of record-like event that would need to be addressed.

Some conceptual solutions are:

- Additional ASR capacity or ASR operations
- New future conservation paradigms
- Expansion of Brackish Desalination
- Future Regional Water Project(s) (RFCSP)
- Ocean Desalination

Building on our achievements as a national leader in conservation and water supply management, San Antonio Water System 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.
Financial Report

Utility Integration

SAWS assumed responsibility for the former Bexar Metropolitan Water District on Jan. 28, 2012. Due to large differences in SAWS and DSP commercial rates and the rate structure, full integration of both systems into one rate structure and system is not expected until 2017.

Water Supply Fee

On Oct. 19, 2000, the San Antonio City Council (“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:
<table>
<thead>
<tr>
<th>RATE CLASS</th>
<th>Usage Blocks</th>
<th>Assessed Fee RATE PER 100 GALLONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>First 5,985</td>
<td>$0.1080</td>
</tr>
<tr>
<td></td>
<td>Next 6,732</td>
<td>$0.1562</td>
</tr>
<tr>
<td></td>
<td>Next 4,488</td>
<td>$0.2204</td>
</tr>
<tr>
<td></td>
<td>Over 17,205</td>
<td>$0.3857</td>
</tr>
<tr>
<td>General</td>
<td>Base*</td>
<td>$0.1661</td>
</tr>
<tr>
<td></td>
<td>&gt;100-125% of Base</td>
<td>$0.1661</td>
</tr>
<tr>
<td></td>
<td>&gt;125-175% of Base</td>
<td>$0.1661</td>
</tr>
<tr>
<td></td>
<td>&gt;175% of Base</td>
<td>$0.1661</td>
</tr>
<tr>
<td>Wholesale</td>
<td>Base*</td>
<td>$0.1661</td>
</tr>
<tr>
<td></td>
<td>&gt;100-125% of Base</td>
<td>$0.1661</td>
</tr>
<tr>
<td></td>
<td>&gt;125-175% of Base</td>
<td>$0.1661</td>
</tr>
<tr>
<td></td>
<td>&gt;175% of Base</td>
<td>$0.1661</td>
</tr>
<tr>
<td>Irrigation</td>
<td>0 Gallons</td>
<td>$0.0000</td>
</tr>
<tr>
<td></td>
<td>Next 6,732</td>
<td>$0.1661</td>
</tr>
<tr>
<td></td>
<td>Next 10,473</td>
<td>$0.2204</td>
</tr>
<tr>
<td></td>
<td>Over 17,205</td>
<td>$0.4183</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>San Antonio Water System</th>
<th>Sources and Uses of Funds</th>
<th>Water Supply</th>
<th>2001-June 2013</th>
<th>($ in Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply Fee</td>
<td>$ 861.76</td>
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<tr>
<td>Operating Transfer from Water Delivery</td>
<td>136.96</td>
<td></td>
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<tr>
<td>Non-operating income &amp; Other</td>
<td>52.57</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Recycle Water Revenues</td>
<td>45.11</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Water Supply Impact Fees</td>
<td>79.26</td>
<td></td>
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<td></td>
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<tr>
<td>Bond Proceeds</td>
<td>668.79</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Water Supply O&amp;M</td>
<td>(486.66)</td>
<td></td>
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</tr>
<tr>
<td>Debt Service</td>
<td>(338.81)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Funding</td>
<td>(792.56)</td>
<td></td>
<td></td>
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<tr>
<td>Funds Provided</td>
<td>226.42</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Restrictions on Cash</td>
<td>118.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designations on Cash</td>
<td>68.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted/Undesignated Funds</td>
<td>$ 39.11</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### San Antonio Water System
### Operating & Maintenance Expenditures
#### 2001-June 2013
#### ($ in Millions)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount ($ in Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating and Maintenance Costs</td>
<td></td>
</tr>
<tr>
<td>Western Canyon Project - GBRA</td>
<td>61.08</td>
</tr>
<tr>
<td>Oliver Ranch - Lease Payments &amp; Production Costs</td>
<td>17.10</td>
</tr>
<tr>
<td>BSR - Lease Payments &amp; Production Costs</td>
<td>3.82</td>
</tr>
<tr>
<td>Regional Carrizo - Water Sales Agreements &amp; Other</td>
<td>22.11</td>
</tr>
<tr>
<td>Brackish Desalination</td>
<td>1.32</td>
</tr>
<tr>
<td>Recycled Water Operations</td>
<td>31.55</td>
</tr>
<tr>
<td>Edwards - Lease Expense &amp; Other</td>
<td>48.62</td>
</tr>
<tr>
<td>Aquifer Storage &amp; Recovery Project</td>
<td>28.35</td>
</tr>
<tr>
<td>Aquifer Protection &amp; Compliance</td>
<td>26.51</td>
</tr>
<tr>
<td>Conservation Program - net loss</td>
<td>6.72</td>
</tr>
<tr>
<td>Stormwater program - net loss</td>
<td>5.32</td>
</tr>
<tr>
<td>LCRA - Study Period and Other, Net of Cash Recovery</td>
<td>23.57</td>
</tr>
<tr>
<td>Lower Guadalupe Water Supply Project</td>
<td>6.26</td>
</tr>
<tr>
<td>Simsboro Aquifer</td>
<td>4.41</td>
</tr>
<tr>
<td>Recharge Initiative</td>
<td>0.80</td>
</tr>
<tr>
<td>Facilities Maintenance</td>
<td>16.50</td>
</tr>
<tr>
<td>Communication &amp; Outreach</td>
<td>10.17</td>
</tr>
<tr>
<td>Legal - Water Law</td>
<td>6.63</td>
</tr>
<tr>
<td>Billing &amp; Collections</td>
<td>31.48</td>
</tr>
<tr>
<td>Other Water Resources Cost</td>
<td>9.05</td>
</tr>
<tr>
<td>Finance &amp; Information Systems</td>
<td>33.25</td>
</tr>
<tr>
<td>Corporate Facilities</td>
<td>9.52</td>
</tr>
<tr>
<td>Human Resources, Safety, Other Benefits</td>
<td>26.14</td>
</tr>
<tr>
<td>Other Support Services</td>
<td>27.38</td>
</tr>
<tr>
<td>Transfer to COSA</td>
<td>29.01</td>
</tr>
</tbody>
</table>

**Total Operating & Maintenance** $486.66

---

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 $12.4 million write-off of pipeline design costs made obsolete with the agreement with Schertz Seguin Local Government Corporation to transport water from Gonzales county to SAWS.
4. Total program cost net of cash recovered from LCRA settlement.
San Antonio Water System
Water Supply Capital Spending
2001-June 2013
($ in Millions)

<table>
<thead>
<tr>
<th>Water Supplies:</th>
<th>FUNDING</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pay-as-you-go</td>
<td>Debt</td>
<td>Total</td>
</tr>
<tr>
<td>Non-Edwards Water Supplies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Canyon Project - GBRA</td>
<td>$ 3.31</td>
<td>$ 10.87</td>
<td>$ 14.18</td>
</tr>
<tr>
<td>Trinity Aquifer Projects (Oliver Ranch/BSR)</td>
<td>12.49</td>
<td>(0.00)</td>
<td>12.49</td>
</tr>
<tr>
<td>Local Carrizo</td>
<td>1.31</td>
<td>13.51</td>
<td>14.82</td>
</tr>
<tr>
<td>Brackish Desalination</td>
<td>13.09</td>
<td>38.08</td>
<td>51.17</td>
</tr>
<tr>
<td>Regional Carrizo</td>
<td>32.83</td>
<td>51.51</td>
<td>84.34</td>
</tr>
<tr>
<td>Aquifer Storage &amp; Recovery Project (ASR)</td>
<td>1.73</td>
<td>246.73</td>
<td>248.46</td>
</tr>
<tr>
<td>Recycled Water System</td>
<td>2.78</td>
<td>82.92</td>
<td>85.70</td>
</tr>
<tr>
<td>Total Non-Edwards</td>
<td>67.54</td>
<td>443.61</td>
<td>511.16</td>
</tr>
<tr>
<td>Edwards Aquifer Water Rights</td>
<td>64.72</td>
<td>158.21</td>
<td>222.92</td>
</tr>
<tr>
<td>Total Water Supply Capital Spending</td>
<td>132.26</td>
<td>601.82</td>
<td>734.08</td>
</tr>
<tr>
<td>Other Capital Spending:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration</td>
<td>6.28</td>
<td>12.83</td>
<td>19.11</td>
</tr>
<tr>
<td>Unallocated Project Overhead</td>
<td>7.05</td>
<td>-</td>
<td>7.05</td>
</tr>
<tr>
<td>Land, Buildings &amp; Equipment</td>
<td>27.69</td>
<td>4.63</td>
<td>32.32</td>
</tr>
<tr>
<td>Total</td>
<td>41.02</td>
<td>17.46</td>
<td>58.48</td>
</tr>
<tr>
<td>Total Capital Spending</td>
<td>$ 173.28</td>
<td>$ 619.28</td>
<td>$ 792.56</td>
</tr>
</tbody>
</table>
## San Antonio Water System

### Cash Restrictions/Designations

#### Water Supply

**2001-June 2013**

*(\$ in Millions)*

<table>
<thead>
<tr>
<th>Restrictions on Cash:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Reserve</td>
<td><strong>$ 13.30</strong></td>
</tr>
<tr>
<td>Reserve Fund</td>
<td><strong>17.70</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construction Funds:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 &amp; Prior CIP program (bond funded)(^1)</td>
<td><strong>17.41</strong></td>
</tr>
<tr>
<td>2014 CIP (bond funded)</td>
<td><strong>37.43</strong></td>
</tr>
<tr>
<td>Impact Fees(^2)</td>
<td><strong>32.65</strong></td>
</tr>
</tbody>
</table>

\[\text{Total Construction Funds} = 17.41 + 37.43 + 32.65 = 87.49\]

<table>
<thead>
<tr>
<th>Designations on Cash:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Future Reserve Fund deposits</td>
<td><strong>1.65</strong></td>
</tr>
<tr>
<td>PGA Monitoring/WQEE</td>
<td><strong>0.89</strong></td>
</tr>
<tr>
<td>Interest Mitigation Fund(^3)</td>
<td><strong>5.83</strong></td>
</tr>
<tr>
<td>2013 &amp; Prior CIP program (cash funded)</td>
<td><strong>60.45</strong></td>
</tr>
</tbody>
</table>

\[\text{Total Designations} = 1.65 + 0.89 + 5.83 + 60.45 = 69.82\]

| Unrestricted/Undesignated Funds | **39.11** |

| Total Water Supply Funds Available | **$ 226.42** |

---

\(^1\) 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 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
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."