

# **Water Supply Fee Semiannual Report**

## **July-December 2019**

This page intentionally left blank

# Water Supply Fee Semiannual Report July - December 2019

<b>3</b>	<b>Introduction</b>
<b>5</b>	<b>Water Supply Summary</b>
<b>9</b>	<b>Featured Projects</b>
<b>19</b>	<b>Distribution to Customers</b>
<b>21</b>	<b>Financial Report</b>
<b>27</b>	<b>Acronyms and Abbreviations</b>
<b>28</b>	<b>Glossary</b>

## About the cover:

Top: The last piece of the Vista Ridge pipeline was installed on September 25, 2019 in Guadalupe County between New Braunfels and Seguin. It is a 45 foot long piece of 60 inch diameter steel pipe. The contractor is Garney Construction.

Bottom Left: Tunneling activity along Loop 1604 Frontage Rd in preparation for installation of 54-inch diameter water transmission main in early 2020.

Bottom Center: 5 Million Gallon Ground Storage Tank Rehabilitation at SAWS' Maltsberger Pump Station, which will accept Vista Ridge water in 2020.

Bottom Right: Drought tolerant Mystic Spires salvia, a Texas SuperStar, are featured in the Children's Vegetable Garden area at the San Antonio Botanical Garden.

This page intentionally left blank

## Introduction

San Antonio Water System (SAWS) is pleased to present the July – December 2019 Water Supply Fee Semiannual Report to San Antonio City Council. This report is a requirement of Chapter 34 of the Municipal Code, Section 34-1349 and put in place by a 2005 initiative to ensure SAWS was achieving the development of the water supply plan. The requirement has never been altered and as such is submitted to City Council twice each year, covering the periods of January through June, and July through December.

SAWS was created by an act of the City Council in May 1992, through Ordinance 75686. SAWS serves approximately 1.9 million people. The service area covers 933 square miles primarily in Bexar County and portions of Atascosa, Medina and Comal counties.

This report documents the water resources activities pertaining to the implementation of San Antonio Water System's long-term planning efforts, with focus on activities during the period of July 1 through December 31, 2019. The report will:

- Review the progress on the Water Management Plan,
- Provide a status report on the utility's water production,
- Recap the water supplies developed and costs during the reporting period,
- Provide an update on the acquisition of additional water supplies,
- Summarize revenues generated from the water supply fee, capital spending on water supply projects, and,
- Summarize the maintenance and operational expenses for completed projects.

SAWS had a total potable demand of 246,344 acre-feet (AF) during 2019. Included in this total is 191,941 AF of Edwards Aquifer production to distribution. During 2019, Edwards Aquifer supply accounted for approximately 66 percent of the total potable demand. One AF of water is equal to 325,851 gallons.

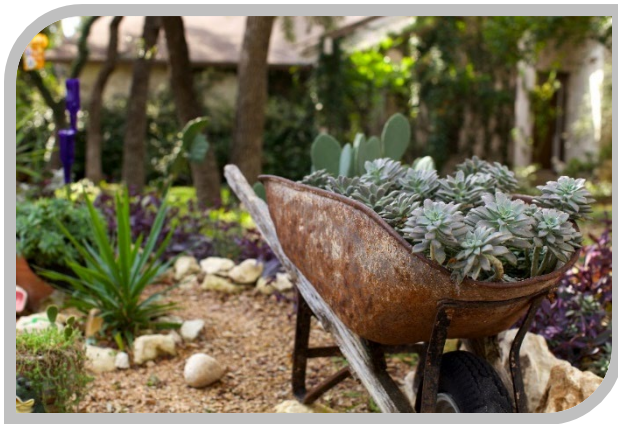
The current groundwater and surface water supply portfolio consists of:

- Edwards Aquifer
- Canyon Lake
- Carrizo Aquifer
- Lake Dunlap
- Lower Wilcox Aquifer
- Medina Lake & River Rights
- Trinity Aquifer

As part of its diversified water supply portfolio, SAWS maintains the largest direct recycled water system and the largest groundwater-based Aquifer Storage & Recovery (ASR) facility in the nation.

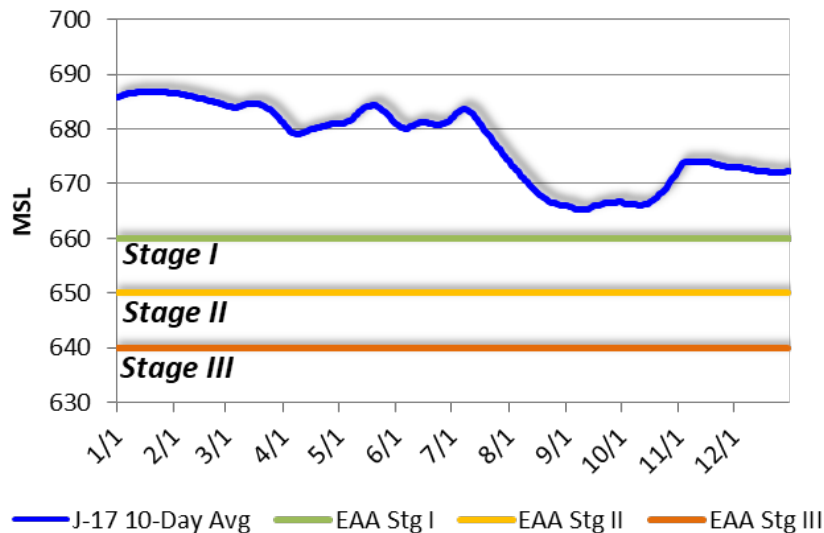
*50% of residential customers surveyed after installing a flow sensing device found leaks, identifying opportunities to save water and money.*

SAWS finished 2019 with no regulatory cutback to its Edwards Aquifer supply, as the Edwards Aquifer Authority (EAA) did not need to declare critical period. While San Antonio recorded 22.02 inches of rain for the year, 10.26 inches below historical average of 32.27 inches, the first half of 2019 produced fairly consistent precipitation which resulted in above average aquifer conditions throughout the year. SAWS ended December 31 with no regulations and zero days of drought restrictions, which allows customers to use spray irrigation before 11a.m. or after 7 p.m. on any day.



San Antonio J-17 Index well levels for the reporting period are shown in the graph below. Edwards Aquifer 10-day average levels remained above 660' mean sea level (msl) for all of 2019.

### Edwards



## Water Supply Summary

This section summarizes the status for each water resource project for the second half of 2019.

Supply	Acre-Feet Distributed (July-Dec. 2019)	Activity
Edwards Aquifer	110,073	<ul style="list-style-type: none"> <li>2019 available permit was 272,372 AF</li> <li>No regulatory cutbacks through December 31, 2019</li> </ul>
Medina Lake and River System	0	<ul style="list-style-type: none"> <li>Medina Lake began 2019 at 98 percent of capacity and with below average rainfall for the second half of the year in the watershed, had 78 percent of capacity as of December 31, 2019</li> </ul>
Direct Recycled Water	6,952 <ul style="list-style-type: none"> <li>4,464 (<i>consumptive</i>)</li> <li>2,488 (<i>river flow</i>)</li> </ul>	<ul style="list-style-type: none"> <li>System Supply: 25,000 AF</li> <li>Contracted consumptive commitments: 12,024 AF (excludes volumes for streamflow augmentation)</li> <li>Volume available for consumptive use: 12,976 AF</li> </ul>
Trinity Aquifer	8,081	<ul style="list-style-type: none"> <li>Higher than average aquifer recharge in early 2019 led to greater production volumes</li> <li>Production levels in the second half of the year dropped off considerably due to significantly lower rainfall totals</li> </ul>

Supply	Acre-Feet Distributed (July-Dec. 2019)	Activity
Canyon Regional Water Authority (CRWA)	733	<ul style="list-style-type: none"> <li>CRWA was returned to primary water supply serving the NE Service Area</li> </ul>
Canyon Lake	3,892	<ul style="list-style-type: none"> <li>Canyon Lake continued to deliver a steady and reliable supply of water</li> </ul>
H <sub>2</sub> Oaks Aquifer Storage and Recovery	ASR storage to distribution system: 1,892 Edwards Water Stored: 5,445	<ul style="list-style-type: none"> <li>Total volume of stored Edwards water on December 31, 2019: 178,880 AF               <ul style="list-style-type: none"> <li>Total volume of Edwards water stored/credited on behalf of the EAHCP: 116,042 AF</li> </ul> </li> </ul>
H <sub>2</sub> Oaks Carrizo Aquifer (Bexar County)	3,985	<ul style="list-style-type: none"> <li>Local Carrizo Aquifer production through December 31</li> </ul>
H <sub>2</sub> Oaks Brackish Groundwater Desalination Program	2,972	<ul style="list-style-type: none"> <li>Plant continued normal operation throughout the second half of the year</li> <li>Installation of silt filters at two well sites completed</li> </ul>
Regional Carrizo Project	5,943	<ul style="list-style-type: none"> <li>Includes SAWS Buckhorn wellfield production in Gonzales County plus water purchased from Schertz-Seguin Local Government Corporation</li> <li>Produced 99 percent of permit (11,568 AF) during 2019</li> </ul>



Planned Projects 2017-2025	Status
<p>Central Water Integration Pipeline &amp; Vista Ridge Construction</p>	<ul style="list-style-type: none"> <li>• CWIP – Overall construction progress for the CWIP, the consortium of 8 projects required to integrate Vista Ridge water into the existing SAWS distribution system, progressed to 76% complete with \$127 million spent of the \$167 million total.</li> <li>• CWIP – The first phase of the Agua Vista Station, the new \$70 million water conditioning facility required to treat Vista Ridge water to ensure compatibility with SAWS’ other water sources, was on target for completion by Q1 2020 for the contractual testing period</li> <li>• VR - As of December 31, 2019, all 142 miles of pipeline have been constructed across seven counties: Bureson, Lee, Bastrop, Caldwell, Guadalupe, Comal, and Bexar</li> <li>• VR - Construction of 3 pump station facilities delivering the water was approximately 98% complete as of Dec. 31, 2019</li> </ul>
<p>Conservation Programming</p>	<p>Program highlights from the second half of 2019 include:</p> <ul style="list-style-type: none"> <li>• Continuing WaterSmart Software Pilot, which is open to all residential customers. Sending over 41,000 personalized reports per month helping customers identify and participate in conservation opportunities. One-third of customers enrolled in the program are customers designated as low-income customers receiving an affordability discount</li> <li>• 478 Plumbers to People and Conservation Makeover visits in the second half of 2019, with proactive efforts to enroll more customers through the WaterSmart pilot and Conservation Makeover Program</li> <li>• 1,423 Irrigation Consultations completed at homes in the second half of 2019, averaging over 1,100 gallons per month in savings at each home</li> <li>• 161 households and 32 businesses used Irrigation Efficiency rebates in the second half of 2019</li> <li>• 319 WaterSaver Landscape and 57 WaterSaver PatioScope Coupons redeemed in the second half of 2019 to replace grass with drought-tolerant plants and patioscapes</li> <li>• Nearly 4,000 customers are signed up for the WaterSaver Rewards program, with 626 rewards coupons redeemed in 2019</li> <li>• Over 2,800 required accounts are in compliance with the Irrigation Check-Up regulation, resulting in 85 percent compliance by December 31, 2019</li> <li>• Over 750 customers had devices installed in early 2019 as part of two random control trial pilots to improve understanding of water savings associated with flow sensing devices and app-based irrigation controllers</li> <li>• Conservation initiatives have successfully targeted the need for management of outdoor water demands</li> <li>• Programming to reduce planned average year consumption from 124 gallons per capita per day (GPCD) in 2017 to 111 GPCD in 2025.</li> </ul>

<b>Planned Projects 2026-2040</b> (2017 WMP assumptions)	<b>Status</b>
Conservation Programming	<ul style="list-style-type: none"> <li>• Programming to reduce average year consumption from 110 GPCD in 2026 to 96 GPCD in 2040</li> <li>• Strategies to achieve reduction will include continued investment in conservation education, incentives, and reasonable regulation</li> <li>• There will be continued development of programs that help residential and commercial customers manage their water usage. This will accelerate adoption of water efficient technology, encourage use of technology and other techniques to monitor leaks and education to encourage adoption of behavioral changes that save water</li> </ul>

<b>Planned Projects 2041-2070</b> (2017 WMP assumptions)	<b>Status</b>
Conservation Programming	<ul style="list-style-type: none"> <li>• Programming to reduce average year consumption from 96 GPCD in 2041 to 88 GPCD in 2070</li> <li>• Strategies to achieve reduction will include continued investment in conservation education, incentives, and reasonable regulation</li> <li>• There will be continued development of programs that help residential and commercial customers manage their water usage. This will accelerate adoption of water efficient technology, encourage use of technology and other techniques to monitor leaks and education to encourage adoption of behavioral changes that save water</li> </ul>
Brackish Groundwater Desalination Program	<ul style="list-style-type: none"> <li>• Future phases will deliver up to an additional 22,400 AFY of water, for a project total of up to 33,600 AFY</li> <li>• All additional phases will be constructed outside Bexar County</li> <li>• Construction is anticipated to begin in the late 2040s depending on demand</li> <li>• Hydrologic modeling has been conducted to determine the amount of additional Wilcox Aquifer production and number of wells that will be needed for future phases</li> </ul>
Expanded Carrizo (Bexar County) Project	<ul style="list-style-type: none"> <li>• Future phases are anticipated to provide an additional 7,000 AF annually for each phase for a total of 21,000 AFY</li> <li>• Construction is anticipated to begin in the late 2040s</li> <li>• Project can be designed and constructed quickly, relative to other projects</li> </ul>

## Featured Projects

### Vista Ridge – Regional Water Supply

**Project Status:** Project approved, contract signed, construction nearing completion.

**Water Supply:** Groundwater, Carrizo and Simsboro Aquifers; leases in Burleson and Milam Counties, wells in Burleson County.

**Background:**

Following SAWS Board approval on September 29, 2014, and San Antonio City Council's approval on October 30, 2014, SAWS Chairman Berto Guerra, SAWS President/CEO Robert R. Puente, and city officials signed a contract with the Vista Ridge Project Company to bring a new water supply of 50,000 AFY (16.3 billion gallons annually) to San Antonio. The agreement calls for the Vista Ridge project company to build and operate wells and a pipeline system to pump groundwater from Burleson County to San Antonio for a period of 30 years. In exchange, SAWS will pay a fixed unit price for water produced and made available plus all operating and maintenance and electrical costs. At the end of the contract term, the wellfield and pipeline system ownership will transfer to SAWS.

A second agreement with the owner of the groundwater leases gives SAWS the right to continue producing water for an additional 30-year term beginning upon the transfer of system ownership to SAWS. In combination, both agreements will provide over 60 years of contracted water supply.

The project is divided into three phases: Development, Construction, and Operations. The contract signing initiated the Development Phase involving permitting, easement acquisition, and other activities required to secure funds necessary to finance construction of the system. After financing was secured, the project envisions slightly under four years for the Vista Ridge project company to complete the Construction Phase. Thereafter, the Operations Phase will begin and continue for 30 years. SAWS is responsible for the construction of its Central Water Integration Pipeline project (CWIP) to integrate the Vista Ridge water fully into the SAWS distribution system.

The Vista Ridge project construction is expected to be complete in the first quarter of 2020 to begin testing. Commercial operation of the project is expected to begin in April of 2020.

### Activities this Period:

The Vista Ridge project company, under the leadership of Garney Construction, is nearing completion of the 142-mile long pipeline, pump station facilities, and water wells. As of December 31, 2019, all 142 miles of pipeline have been constructed across seven counties which include Burleson, Lee, Bastrop, Caldwell, Guadalupe, Comal, and Bexar Counties. Construction has been completed for all 18 wells in Burleson County and construction of the three pump station facilities delivering water is approximately 98 percent complete.



*Tunnel shaft piping for crossing the San Marcos River. Completed Simsboro Aquifer 900 hp production well.*



*The final segment of 60-inch steel pipe was installed September 25<sup>th</sup> in Guadalupe County between New Braunfels and Seguin.*



*Intermediate Pump Station 1 near Elgin, Texas to maintain flow to Agua Vista Station in San Antonio.*



*Site restoration work in Bureson County which includes placing of top soil and reseeding. The site is reseeded with a blend of native herbaceous seed mixture for surface restoration of native pastures areas which includes: Little Bluestem, Big Bluestem, Switchgrass, Sideoats Grama and Buffalograss among others.*



*Switchgrass, one of the native grasses used for site restoration, on display at the San Antonio Botanical Garden, is a very large dense deep-rooted clump grass with tall panicles of flowers in late summer and fall. Once one of the dominant tallgrasses of the Blackland prairie.*



*Sideoats grama is the state grass of Texas and a warm season bluish-green bunchgrass, purplish in autumn with distinctive oat-like seedheads on one side of the stem. Sideoats grama is one of several native grasses planted during site restoration.*

## Central Water Integration Pipeline (CWIP)

**Project Status:** Construction completed on 2 of the 8 projects and progressing on the other 6 projects included in the CWIP program.

**Water Supply:** Groundwater, Carrizo and Simsboro Aquifers; leases in Burleson and Milam Counties, wells in Burleson County.

### Background:

To receive and effectively distribute the total volume of Vista Ridge water to the SAWS distribution system, the Central Water Integration Pipeline (CWIP) Project was developed. The project includes: design and construction of water storage and conditioning facilities at the water delivery point, a new pump station to serve the Stone Oak area, new sections of transmission pipeline to connect to existing pipeline and facilities, upgrades to major pump stations, new pressure reducing valves, and automation through the SAWS supervisory control and data acquisition (SCADA) system of over 50 facilities that will receive Vista Ridge water.



*SAWS Agua Vista Station – water conditioning facility at point of delivery; Phase 1 nearing completion to accept Vista Ridge water during performance testing.*



*SAWS Bitters Pump Station Improvements – control valve piping installation to facilitate integration of Vista Ridge water.*



*Pipeline Segment 5-1 will convey Vista Ridge water from Agua Vista Station to the SAWS system through a tunnel.*



*SAWS Maltsberger Pump Station Improvements – new electrical building nearing completion that will improve system reliability.*

**Activities This Period:**

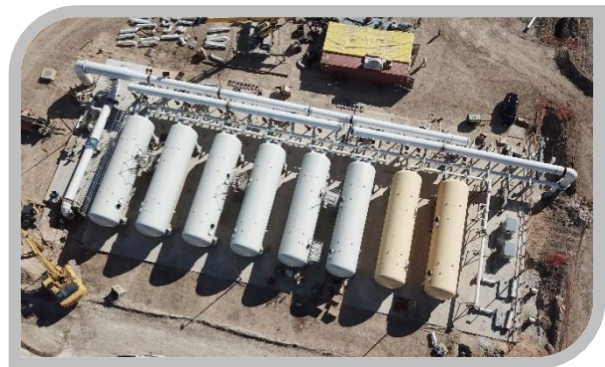
Construction is progressing towards completion of major milestones, and the status of each project is summarized below:



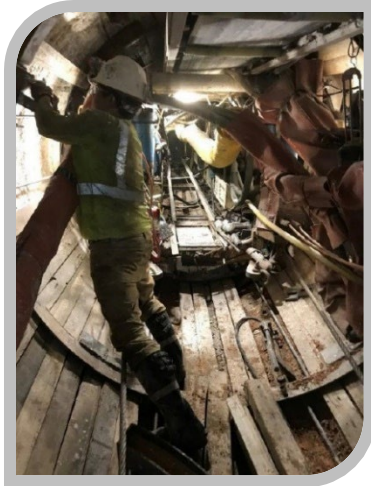
- Agua Vista Station Ground Storage Tank: a 10 million gallon prestressed concrete tank; substantially complete.



- Pipeline Segment 5-2: approximately 3,500 linear feet of 36-inch pipe connecting the Stone Oak Pump Station at Agua Vista to the SAWS distribution system at Knights Cross; substantially complete with restoration in residential areas complete.



- Agua Vista Station: water treatment plant with the facilities needed to produce water compatible with other System sources and the existing distribution system piping along with a high service pump station that will serve the Stone Oak area; contractor is on schedule to complete the Phase 1 facilities by January 15, 2020 so Vista Ridge water can be conveyed through the treatment plant during performance testing; 79 percent complete.



- Tunnel to Loop 1604 (Pipeline Segment 5-1): approximately 10,300 linear feet of 54-inch pipe, with 8,700 feet of that being tunneled; the schedule has slipped due to tunneling challenges, but measures have been implemented to recuperate scheduling challenges to the extent possible; 61 percent complete.



- Bitters Pump Station Improvements and Pipeline Segment 5-3: a new booster pump station, a new 5 million gallon prestressed concrete tank, a new flow control valve, and approximately 1,900 feet of 48-inch pipe connecting to an existing 48-inch water transmission main in Hill Country Village; ground storage tank and pipeline are finished; 83 percent complete.

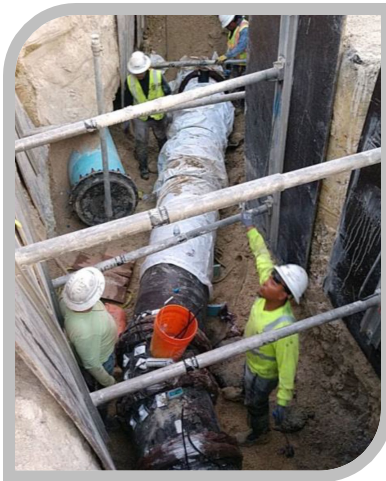


- Maltsberger Pump Station Improvements: a new electrical building and replacement of aging electrical equipment and wiring, flow control valve assemblies to accept the Vista Ridge water at the Maltsberger and Basin Pump Stations, and two pressure reducing valve assemblies in the water distribution system; 67 percent complete.





- Maltzberger Ground Storage Tank Rehabilitation: the tank will be put back in service in early 2020.



- Pipeline Segment 5-4: approximately 5,500 linear feet of 24-inch and 30-inch pipe connecting to Basin Pump Station; pipeline installation is complete with final restoration of residential roadways progressing; 90 percent complete.

## Nonrevenue Water (NRW)

### Background:

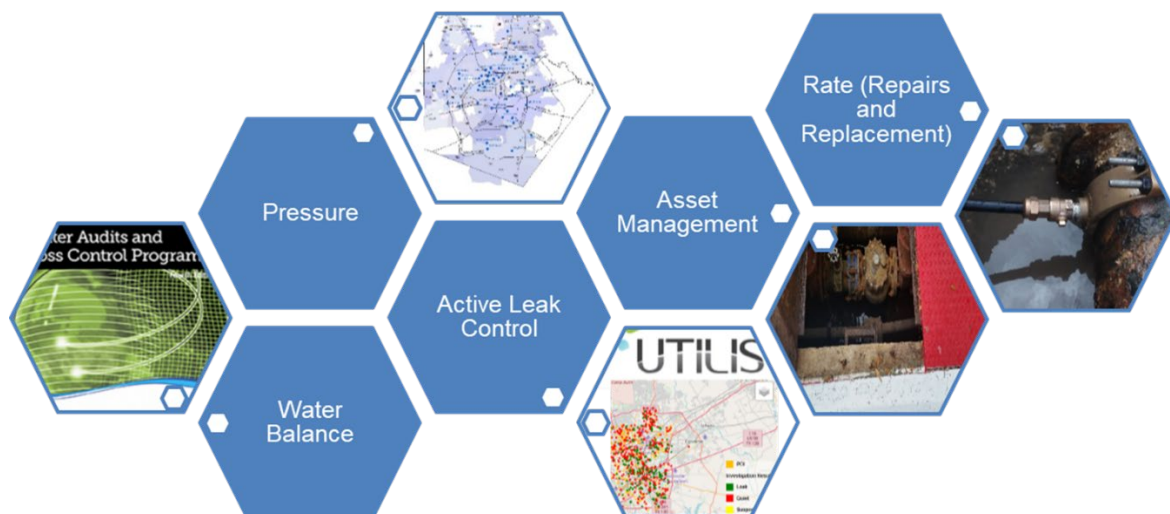
The key to Nonrevenue Water (NRW) is understanding and eliminating instances of it, using practical, cost effective implementation opportunities. SAWS is committed to performing best business practices in efforts to address NRW. SAWS performs state required water balance audits annually and works with loss control professionals to implement the best strategies for SAWS.

NRW is multifaceted and incorporates more than just addressing leaks. NRW is comprised of authorized use, apparent losses and real losses, definitions of which can be found in the glossary.

While SAWS is one of the nation's largest and most complex utilities, it outperforms other water systems when comparing performance benchmarks. Regarding NRW, SAWS has outperformed other utilities by maintaining a low Infrastructure Leakage Index (ILI) which is a performance metric of real water loss in a distribution system.

### Activities This Period:

The efforts during this reporting period are best described as administrative. In order for SAWS continued and sustained success the organization has to be working with sound data and coordinated cost effective implementation strategies across the business.



- An updated version of an internal document *Non-Revenue Water Calculation Handbook* was completed. It is the basis for process and procedures outlining how SAWS staff will perform and validate annual Texas Water Development Board (TWDB) reporting. Going into the next reporting period it will be tested and adjusted, as it is used to perform the SAWS 2019 water loss report for TWDB. The goal for this Handbook is to guide SAWS preparation of annual reports and to document the process. (Water Balance in graphic above)
- The Water Loss Control Team is comprised of SAWS staff across functional areas that are critical to assessing NRW holistically. This is an innovative approach where the Team can engage with NRW information proactively. During the reporting period, the SAWS team met and discussed various NRW indicators and the utilities disposition. Despite late summer higher monthly levels of NRW, SAWS audited 2019 data reflected improved water loss numbers over 2018. The Water Loss Control Team work provides SAWS a competitive utility advantage in addressing comprehensive NRW challenges. This team is in addition to the everyday Water Resources staff and Executive Management steering guidance in place to advance water loss control programming.
  - Three times a year the SAWS Water Loss Control Team and Specialized Water Loss Control Consultants meet. Water loss within the SAWS system is dynamic throughout the course of a year and can be impacted by a multitude of influences that include how much water the utility is producing, current weather and other factors. To be more proactive and develop communication across the organization leading indicators around water loss are discussed using quarterly data rather than only on an annual basis. Based on data reported during these meetings, the overall water loss as a percent by total volume was trending lower. This will be confirmed through the 2019 annual report.

Note – American Water Works Association (AWWA) officially released documentation advocating water industry stakeholders discontinue using percentage indicators and embrace those existing and newly recommended performance indicators. These are more nuanced performance indicators such as normalized water loss by connection by day and financial costs.

SAWS normalized metrics such as Infrastructure Leak Index (ILI) and losses per day per connection have generally been stable and or improved. SAWS is also heavily investing in making sure that data supports decisions. Over the last five years SAWS has collected field information helping to validate and improve desktop water balance and auditing techniques.

The TWDB reporting includes a number of versions of more normalized performance indicators but percentage water loss is often the highlighted results by the general public or media.

The SAWS Water Loss Control Team has compiled a draft framework for actionable and implementable activities to drive water loss control reduction and produce superior water balance audits. This five year roadmap was shared with key SAWS management and will be furthered during the next reporting cycle. Some highlights:

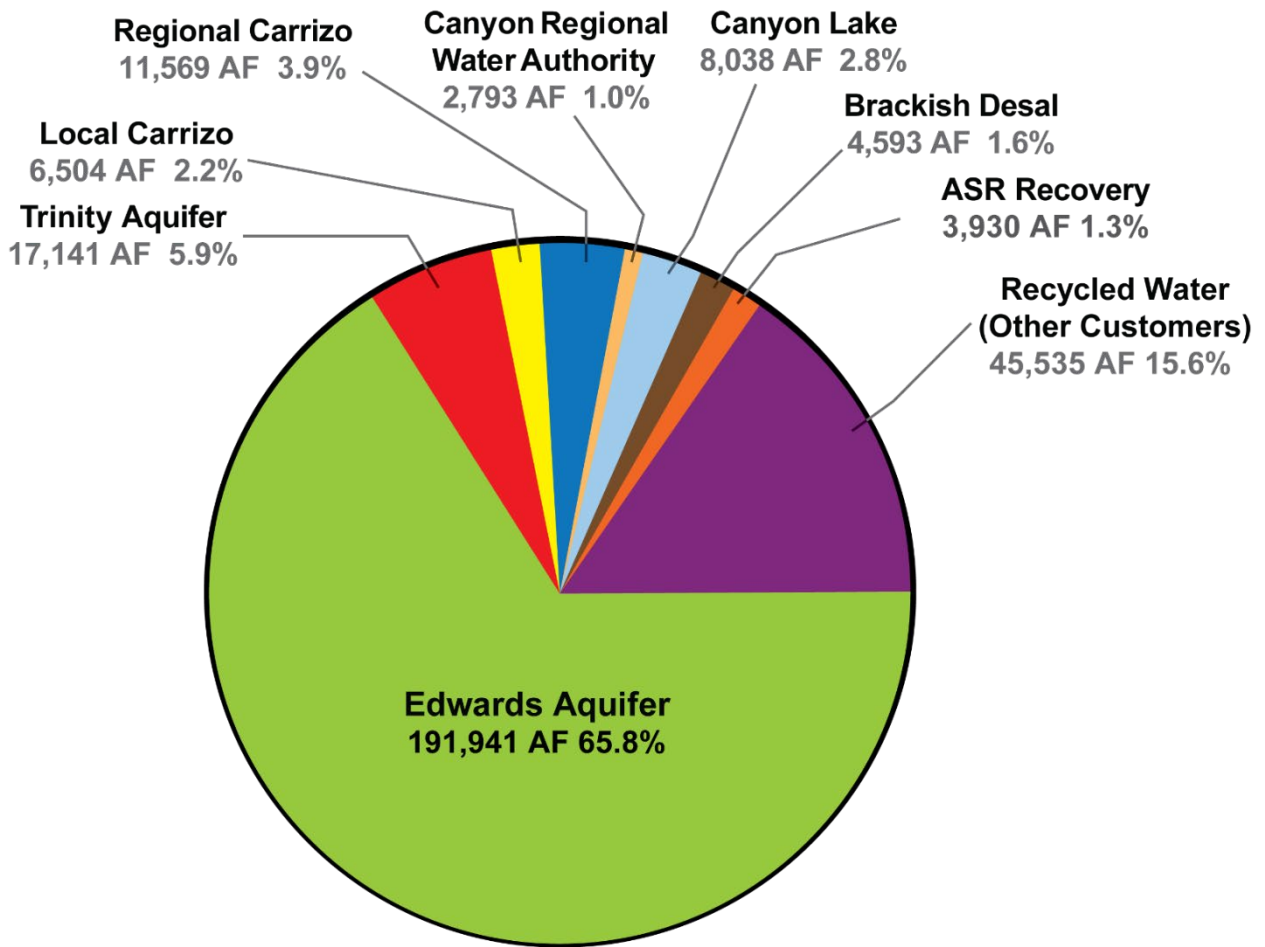
- Improved Work Order Documentation.
- Improved confidence tests on production and customer meter accuracies for better audit assessment.
- Leverage of new technology, innovations and materials.

Nonrevenue water is a complex challenge for all utilities. One process will not identify all the water loss components of a complex system such as SAWS. NRW improvements will require time and investment. SAWS and Water Systems Optimization (WSO) staff will be comprehensively reflecting on five years of data that will help guide future activities related to cost effectively managing loss control.

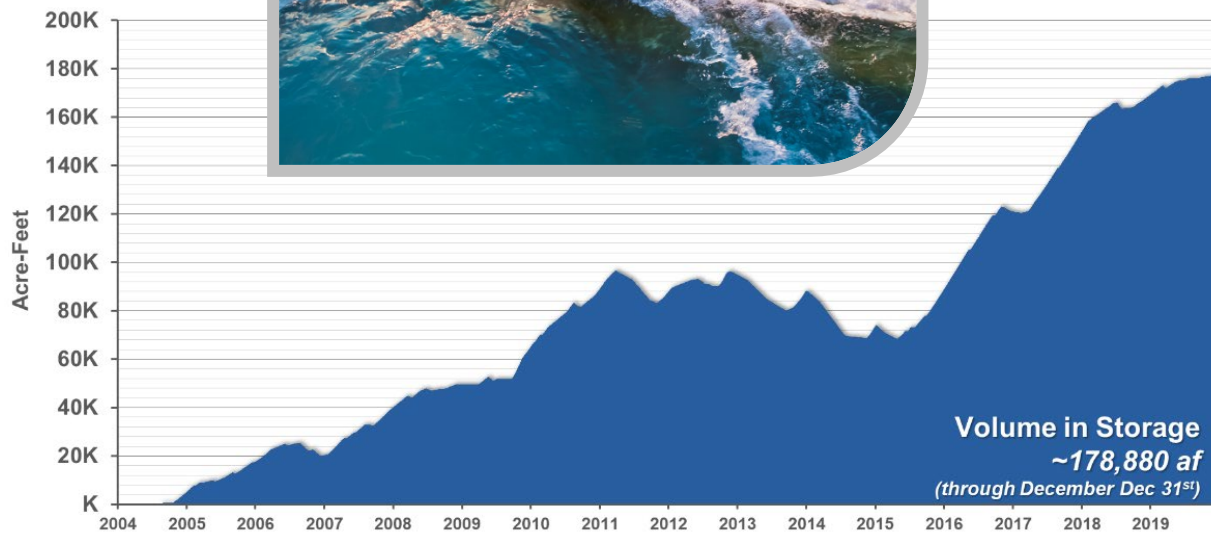
## Distribution to Customers

### 2019 Distribution of Potable and Non Potable Water to Customers

In 2019, SAWS distributed a total potable water volume of 246,344 AF. This does not include the 13,597 AF of Edwards Aquifer water that was stored in H<sub>2</sub>Oaks Aquifer Storage & Recovery facility. In addition, 45,535 AF of recycled water was supplied to our customers; 34,784 AF to CPS Energy and 10,751 AF to the remaining customers. The total water demand was supplied by the following sources:



SAWS stored 13,597 AF of Edwards Aquifer water in ASR during 2019, which brought the total net volume of water stored in ASR to 178,880 AF on December 31, 2019.



Source: San Antonio Water System

## Financial Report

### Water Supply Fee

On Oct. 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 SAWS service area 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). As mentioned earlier, SAWS has the largest direct recycled water system in the nation, which moderates the size of the Water Supply Fee by reducing the need for additional water supplies.

The Water Supply Fee per 100 gallons in 2019 for each customer class is summarized on the following page.



*Recycled water used for commercial landscape irrigation at Frost operations building.*

<b>RATE CLASS</b>	<b>Usage Block Thresholds Gallons</b>	<b>Assessed Fee RATE PER 100 GALLONS</b>
<i>Residential</i>	2,992	\$0.1040
	4,489	\$0.1819
	5,985	\$0.2338
	7,481	\$0.2859
	10,473	\$0.3379
	14,962	\$0.3899
	20,199	\$0.4678
	Over 20,199	\$0.6756
<i>General</i>	Base*	\$0.1961
	125% of Base	\$0.2256
	175% of Base Over	\$0.2941
	175% of Base	\$0.3433
<i>Wholesale</i>	Base**	\$0.2554
	Over Base	\$0.7665
<i>Irrigation</i>	8,229	\$0.2566
	17,954	\$0.3592
	162,316	\$0.4619
	Over 162,316	\$0.5903

\* The Base Use for General Class is defined as 100 percent of the Annual Average Consumption.

\*\* The Base Use for the Wholesale Class is defined as 100 percent of the Annual Average Consumption or as agreed to by the wholesale customer and approved by the SAWS Board of Trustees.



## 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.

<b>San Antonio Water System</b> <b>Sources and Uses of Funds</b> <b>Water Supply</b> <b>2001 – 2019</b> <i>(\$ in Millions)</i>	
Water Supply Fee	\$1,707.88
Operating Transfer from Water Delivery	173.55
Non-operating income & Other	96.47
Recycle Water Revenues	80.81
Water Supply Impact Fees	237.35
Bond Proceeds	871.81
Water Supply O&M	(928.79)
Debt Service <sup>1</sup>	(685.72)
Capital Funding	<u>(1,283.18)</u>
Funds Provided	<u>270.18</u>
Restrictions on Cash	102.72
Designations on Cash	<u>73.49</u>
Unrestricted/Undesignated Funds	<u>\$ 93.97</u>

<sup>1</sup> Includes Principal, Interest and Defeasance Payments.

**San Antonio Water System**  
**Operating & Maintenance Expenditures**  
**2001 – 2019**  
*(\$ in Millions)*

Operating and Maintenance Costs	
Western Canyon Project - GBRA	\$ 110.55
Oliver Ranch - Lease Payments & Production Costs	30.43
Trinity Stein/Rogers Ranches	51.07
BSR - Lease Payments & Production Costs	6.60
Regional Carrizo - Water Sales Agreements & Other <sup>1</sup>	79.22
Canyon Regional	26.84
Brackish Desalination	11.96
Medina Lake	11.38
Edwards - Lease Expense & Other	75.77
Aquifer Storage & Recovery Project	49.30
Aquifer Protection & Compliance	45.79
Vista Ridge	9.93
Recycled Water Operations	44.12
Conservation Program - net loss/(income)	(7.22)
Stormwater program - net loss	2.07
LCRA - Study Period and Other, Net of Cash Recovery <sup>2</sup>	13.77
Lower Guadalupe Water Supply Project	6.26
Simsboro Aquifer	4.41
Recharge Initiative	0.80
Other Water Resources Cost	19.83
Facilities Maintenance	36.20
Communication & Outreach	15.50
Legal - Water Law	8.97
Billing & Collections	64.05
Finance & Information Systems	56.33
Corporate Facilities	14.09
Human Resources, Safety, Other Benefits <sup>3</sup>	50.86
Other Support Services <sup>4</sup>	34.42
Transfer to COSA	54.67
<b>Total Operating &amp; Maintenance</b>	<b>\$ 927.97</b>

<sup>1</sup>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.

<sup>2</sup>Total program cost net of cash recovered from LCRA settlement.

<sup>3</sup>Includes workers compensation and dependent and retiree health insurance.

<sup>4</sup>Includes executive management, Board of Trustees, Internal Audit, Legal (corporate) and other miscellaneous.

**San Antonio Water System**  
**Water Supply Capital**  
**Spending 2001 – 2019**  
*(\$ in Millions)*

	FUNDING		
	Cash Funding	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	-	12.49
Local Carrizo	1.31	13.51	14.82
Brackish Desalination	53.05	149.33	202.38
Regional Carrizo	56.00	63.81	119.81
Aquifer Storage & Recovery Project (ASR)	2.86	245.60	248.46
Expanded Carrizo	0.44	0.26	0.70
Recycled Water System	1.35	84.93	86.28
Total Non-Edwards	130.81	568.31	699.12
Edwards Aquifer Water Rights	87.73	153.18	240.91
Total Water Supply Capital Spending	218.54	721.49	940.03
Other Capital Spending:			
Integration	171.32	136.72	308.04
Land, Buildings & Equipment	29.81	5.30	35.11
	201.13	142.02	343.15
Total Capital Spending	\$ 419.67	\$ 863.51	\$ 1,283.18

<b>San Antonio Water System</b> <b>Cash Restrictions/Designations</b> <b>Water Supply</b> <b>2001 – 2019</b> <b>(\$ in Millions)</b>	
Restrictions on Cash:	
Operating Reserve	\$ 21.94
Reserve Fund	10.03
Construction Funds:	
Debt Funds <sup>1</sup>	7.74
Impact Fees <sup>2</sup>	<u>63.01</u>
	102.72
Designations on Cash:	
PGA Monitoring/WQEE/Conservation	12.15
Interest Mitigation Fund <sup>3</sup>	6.15
2019 & Prior CIP program (cash funds)	<u>55.19</u>
	73.49
Unrestricted/Undesignated Funds	<u>93.97</u>
Total Water Supply Funds Available	<u>\$ 270.18</u>

<sup>1</sup> Represents bond proceeds currently on hand. These proceeds have all been committed to be used on existing projects.

<sup>2</sup> Represents unspent impact fees. These have all been committed to fund CIP projects in the 2019 & prior CIP program or they will be used to help fund future CIP programs.

<sup>3</sup> 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.

## Acronyms and Abbreviations

AF	Acre-Foot (325,851 gallons)
AFY	Acre-Feet per Year
ASR	Aquifer Storage & Recovery Facility / underground storage facility
CRWA	Canyon Regional Water Authority
CWIP	Central Water Integration Pipeline
EAA	Edwards Aquifer Authority
EAHCP	Edwards Aquifer Habitat Conservation Plan
GBRA	Guadalupe-Blanco River Authority
GPCD	Gallons per Capita per Day
MGD	Million Gallons per Day
MSL	Mean Sea Level
NRW	Nonrevenue Water
SAWS	San Antonio Water System
SCADA	Supervisory Control and Data Acquisition
TWDB	Texas Water Development Board
WMP	Water Management Plan
WSO	Water Systems Optimization

## Glossary

**Apparent Losses** occur when the water is successfully delivered to a water user but for various reasons are not measured or recorded accurately, thereby introducing a degree of error in the amount of actual customer consumption. The most common example is a mechanical meter aging or wearing out and not registering all of the flow, resulting in the utility not recovering the revenue due for the service. Other examples are theft and computer processing errors when transferring large amounts of data.

**Authorized Use** is a consumptive use approved by the utility, thereby providing a benefit to the community. Some examples would be water quality line flushing, firefighting, sampling, etc.

**Infrastructure Leak Index (ILI)** – A performance indicator quantifying how well a distribution system is managed (maintenance, repaired, rehabilitated) for the control of real (leakage) losses at the current operating pressure. (Source: Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs, American Water Works Association, 2016.

**Real Losses** are physical losses from the distribution system when pipes fail and leakage occurs. Not all leaks are created equal and they are categorized into hidden (some can be leak detected) and visible (reported) occurrences.

This page intentionally left blank

