

**WaterSMART: Small-Scale Water Efficiency Projects for Fiscal Year 2019 Grant
Application**

AMI Mass Meter Changeout Project



Applicant:

Sharyland Water Supply Corporation

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Executive Summary

Applicant Information

Date: April 23, 2019

Applicant: Sharyland Water Supply Corporation

City, County, State: Alton, Hidalgo, Texas

Project Funding Request: \$73,656.27

Project Description

Sharyland Water Supply Corporation (SWSC) is planning to install Advanced Metering Infrastructure (AMI) by Kamstrup purchased through AguaWorks. All SWSC service connections will have an AMI meter (approx. 18600). SWSC estimated water loss to be at 7.45 percent due to outdated mechanical meters unable to register accurate readings due to the design and wear on these meters, also losses manifesting from being unable to detect leakage.

Kamstrup AMI meters will use ultrasonic technology to improve meter registering accuracy (description below) and drastically reduce water loss and faulty leakage detection. Considering these AMI meters have a .5% error rate, and the mechanical meter were tested and found to have a 7.45% water loss. Considering, SWSC produced 2,772,267,000 gallons in 2018, SWSC's water loss recovery of 192,672,556.50 gallons of water (2,772,267,000*6.95%).

Background Data

SWSC was created in 1968 and supplies water to Rural areas including the City of Alton, City of Palmhurst, City of McAllen, City of Edinburg and City of Mission. Some of which include Colonias, which are insufficient in that they have faulty infrastructure. The area which includes Colonias is 51,077 acres and includes 613 current customers.

SWSC applied for and completed the amendment to Water CCN #10558 to provide utility service in Hidalgo County. The total service area map is included below:

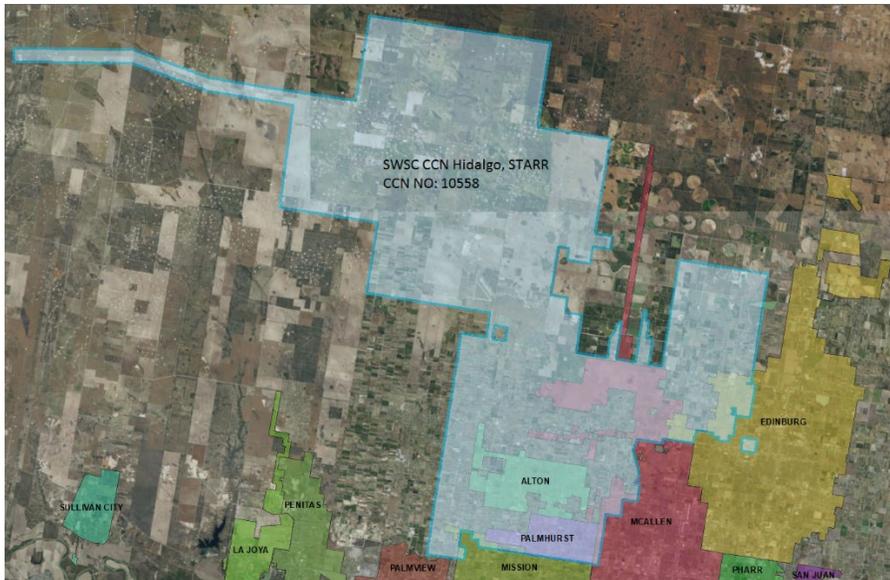


Exhibit 1: SWSC CCN

Sharyland Water Supply's Assets include three water treatment plants which include: (1) 6 MGD, and (2) 8 MGDs equaling to a total capacity of 22 MGDs. Servicing lines include 800 miles of water lines and five elevate storage tanks.

Water Rights:

- 2,000 acre-feet from Santa Cruz # 15 through District 1 for plant #2
- 3,465 acre-feet through HCID #1 for Water Treatment Plant #2
- 5,200 acre-feet through United ID for water treatment plants #1 and #3

Sources:

United Irrigation District and Santa Cruz Irrigation District which sources their water from the Rio Grande River.

Water Delivery System:

SWSC currently has 18,698 connections in service (As of December 31, 2018)

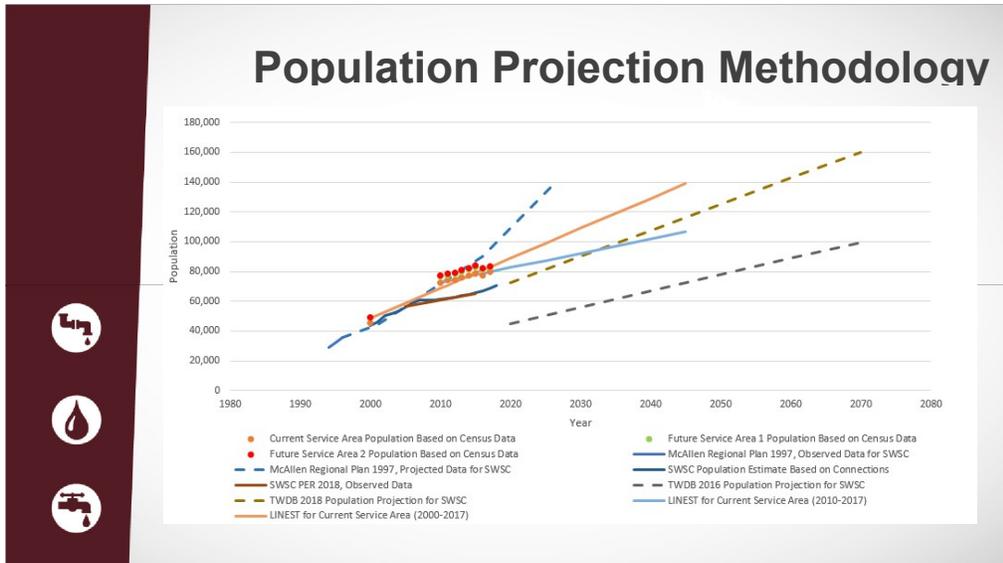


Exhibit 2

Garver, the conductors of the master plan, estimates 21,603 connections by 2025 by current CCN and the added Service Area 1; 24,827 connections which include projected service area expansion (Service Area 2).

Master Plan

Garver, are the consulting engineers for the Sharyland Water Supply Corporation Water System Master Plan. This consists of: projected demand analysis, facility field investigations, impact of precipitation on annual water production, production data comparisons to billing data, and a rate study. This also includes daily water system demands for the next 25 years and based off SWSC service area and is in align with TCEQ plan compliance. This will be referenced in the application and is a basis for water supply concerns and other criteria in the application. This is a multi-thousand-dollar study and contains information SWSC feels that the Reclamation will find useful. This is attached in **Appendix A**

Previous Association with Bureau of Reclamation

SWSC applied for a WaterSMART BOR-DO-18-F006 grant and was awarded to SWSC.

Project Location

The portion of the change-outs in this project will take place within Routes 5-9, of the SWSC Meter Reader Routes. This area is generally located between Los Ebanos Rd in Mission, TX on the West and Shary Rd in McAllen, TX on the East. Four corners Latitude and Longitude of the planned area are as follows. Upper left: Latitude 26.372698 Longitude -98.340611, Upper right:

Latitude 26.372921 Longitude -98.242237, Bottom left: Latitude 26.243167 Longitude -98.341593, Bottom right: Latitude 26.242916 Longitude -98.24179.

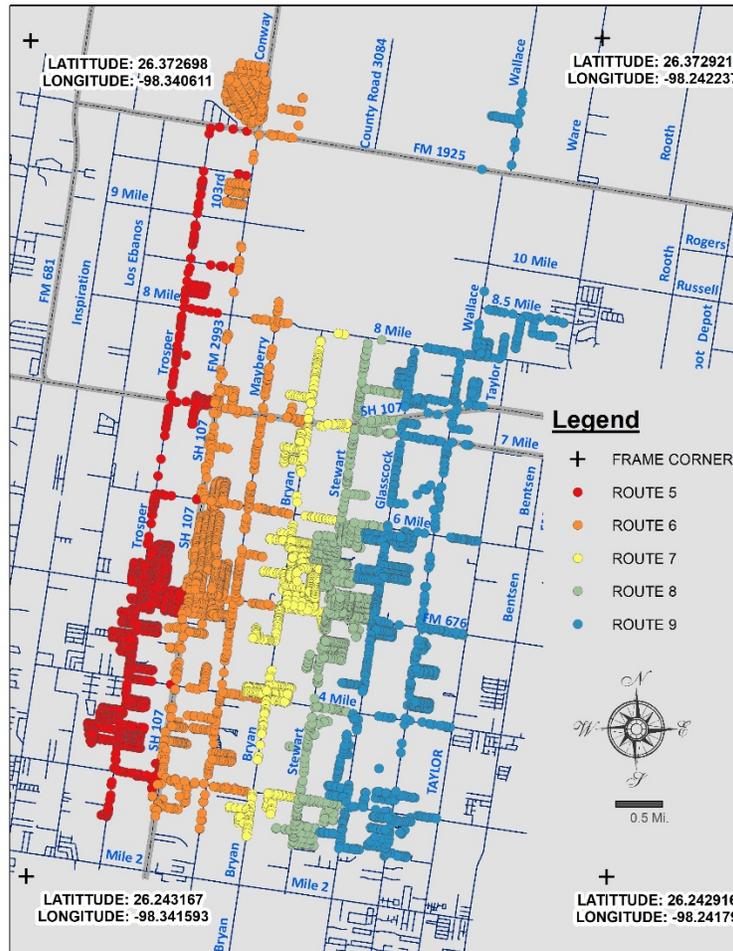


Exhibit 2: AMI Meter Installation Area

Estimated Schedule

The specific AMI Meters Changeout Project intended for BOR funding will begin October 15 and should be finished November 14. Thus, this project will conclude within the two-year allowance.

Technical Project Description

These meters employ the ultrasonic measurement principle; these meters are fully made in synthetic material polyphenylene sulfide (PPS). It has no wearing parts, which ensures longevity. The meter complies with all applicable AWWA standards. The water meter measures the water consumption electronically using a pair of ultrasonic signals. Through the two ultrasonic transducers, an audio signal is sent with and against the flow direction, the

transducer serves as both the ‘sender’ and ‘receiver’. Ultrasonic signal traveling with the flow will reach the opposite transducer first, while the signal running against the flow will be received later. The time difference, between the two signals, can be converted into velocity, and thereby also volume. This principle is called ‘bidirectional ultrasound technique based on the transit time method’ and is considered extremely accurate.

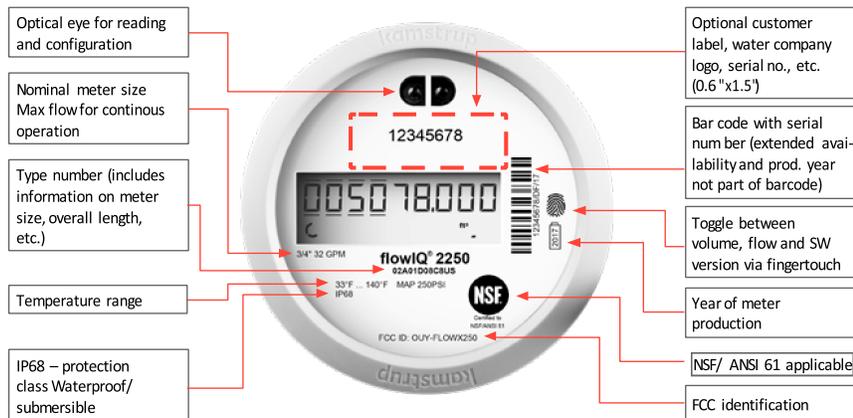


Image Source: <https://www.kamstrup.com>

Image 1

The water meter is powered by a lithium battery which can last for approximately 20 years. An optical eye is embedded into the meter which allows for save consumption data and info codes stored in the logger, using this with a USB connection, allows the meter to be configured. The water meters are available with a choice of two integrated data communication options:

- 902-928 MHz – Wireless Radio version (RF) for Wireless M-Bus – US localization of European standard for remote reading of meters EN 13757-4
- 450-470 MHz – used in AMI (Fixed network)

The wireless meter readings are picked up through a software READy app. The meters will be a part of a fixed network, and will be configured to the READy app, which include choosing a frequency and ensuring radio signal is to reach the collection device. Data package is sent out in 180-minute intervals, which sums up the daily values; volume will be displayed as gallons and can be configured to display up to 3 decimal places. Data can be saved for up to 460 for daily logs and 36 moths for monthly logs.

Energy Savings

Calculation: SWSC daily sends 5 to 6 vehicles to conduct meter readings, inspections, maintenance, etc., on multiple routes. For year 2018 gas consumption was calculated based of 5 vehicles (see Table 2). A total of 6,383 gallons was consumed totaling around \$15,691. With the AMI meters and READy software, only 2 vehicles will be needed in this department, using 2 of the more conservative vehicle data, only 2,432 gallons would've been consumed totaling \$5,938. In total a savings of 3,951 gallons of gas, totaling \$9,713.

Month (Year 2018)	Car 25 Gallons	Car 25 Cost	Car 23 Gallons	Car 23 Cost	Car 26 Gallons	Car 26 Cost	Car 29 Gallons	Car 29 Cost	Car 30 Gallons	Car 30 Cost
January	71.2	162.50	79.0	176.16	114.6	263.01	119.2	274.22	74.3	172.00
February	111.6	270.47	126.5	295.94	119.0	287.87	85.1	204.19	63.0	155.55
March	67.5	151.52	80.2	179.58	122.1	270.28	119.0	269.36	76.1	171.55
April	83.2	202.13	85.3	202.67	130.6	314.82	109.8	267.93	128.0	311.36
May	113.0	294.22	65.7	169.54	139.1	365.72	75.1	197.01	133.8	350.08
June	99.9	263.45	97.6	252.62	115.1	304.71	111.3	292.78	165.0	439.31
July	109.8	282.57	85.6	216.41	89.3	228.91	100.6	263.90	163.0	419.41
August	142.7	365.14	113.8	288.51	33.0	85.85	108.5	274.77	192.5	493.77
September	111.5	292.87	109.7	283.76	***	***	104.0	270.62	150.5	391.07
October	117.8	305.11	115.6	296.53	105.2	272.70	111.9	297.23	180.9	469.46
November	113.1	268.80	133.6	314.99	143.7	340.50	165.3	392.03	49.4	123.40
December	97.0	196.47	101.2	206.48	122.3	251.29	131.5	266.76	***	***
Total Gas/Cost	1,238	3055.25	1,194	2883.19	1,234	2985.66	1,341	3270.80	1,377	3496.96
Average Gal./Cost	103.19	\$ 254.60	99.48	\$ 240.27	112.19	\$ 271.42	111.76	\$ 272.57	125.14	\$ 317.91
Gallons (5 Cars)	6,384		Gallons (2 Cars)	2,432			Gallons Saving:	6383.84 gal - 2432.10 gal		3951.74
Cost (5 Cars)	\$ 15,691.86		Cost (2 Cars)	\$5,938.44			Gas Savings:	3951.74 gal * \$2.46		\$9,713.62
Avg. Cost per Gallon	\$ 2.46									

Table 1

Assumptions: (1) Meter reading vehicles would not need to read a route and return to home base, instead continuously read another route that is in the direction of home base, increasing efficiency. (2) Average gas \$2.46, based off cost of gas 2018 divided by gallons consumed.

Water Supply Concerns

Population in Hidalgo County in 2010 according to census.gov was 774,769 and is currently estimated to be around 860,661 for the year 2017, a nearly 11 percent increase over the course of 7-years. Rio Grande Valley being susceptible to drought as in recent years past. "The U.S Drought monitor started in 2000. Since 2000, the longest duration of drought (D1-D4) in Texas lasted 271 weeks beginning on May 4, 2010 and ending on July 7, 2015. The most intense period of drought occurred the week of October 4, 2011 where D4 affected 87.99% of Texas land (Drought.gov). With all the factors being considered, serious efforts must and are being taken to improve water loss efficiency, with the goal to preserve water from the Rio Grande River in mind.

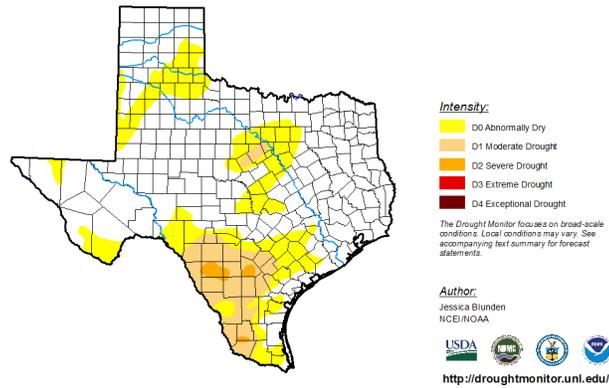


Image 2

Yellow indicating abnormally dry and brown indicating a moderate drought, a large area of these located along the Rio Grande River and region of South Texas.

<u>TPWD: 175% Population Growth</u>	Current	<u>2050 Projection</u>
Irrigation	87%	69%
Municipal	12%	30%

Table 2

Also included is TPWDs projections for water demand growth in our area. Further evidence to the growing population and water demand concern,

Evaluation Criteria A: Project Benefits

Describe the expected benefits and outcomes of implementing the proposed project

The improved accuracy decreases unaccounted for water, or water loss, which gives customers and more accurate reading leading to decreases in unnecessary water usage; leak alarm notifies when there is a leakage which is not unaccounted for but a complete water loss.

What are the benefits to the applicants' water supply delivery system

Adjustments are often made to customers' accounts overcompensating, or overcharging, for their usage based upon average and previous usage meters can be read and resulting usage is lower.

Extent to which the proposed projects improves overall water supply reliability

Water efficient habits will likely be adopted from resulting accurate reading and necessary changes to the account.

The expected geographic scope benefits from the proposed project (e.g. local, sub-basin, basin)

Being in the Lower Rio Grande Valley Basin region, and SWSC sourcing its water from the Rio Grande River (United Irrigation District), any decreasing in water loss ensures a less tampered with basin and river, preserving that habitat of its inhabitants which include endangered species and those on watch-list.

Extent to which the proposed project will increase collaboration and information sharing among water managers in the region

SWSC General Manager, Sherilyn Dahlberg, sits on the board of directors for the South Texas Water Utility Managers Association, SWSC Assistant General Manager, Javier A. Ramirez, is the President of the Texas Water Utility Association’s Citrus District, and SWSC Operations Manager, Gary Gracia, is the President of the Rio Grande Sector for the Texas American Water Works Association. These three managers have presided over regional meetings pertaining to the water conservation benefits of deploying AMI systems in the Rio Grande Valley, specifically the Kamstrup AMI Mass Meter Changeout Project at Sharyland WSC. The sharing of this information at regional meetings has caused the AMI deployment of the Kamstrup system at East Rio Hondo Water Supply Corporation and substantial consideration by the City of Pharr, City of McAllen, and the City of Edinburg.

Water allotted to SWSC that is not used is simply not picked up at our corresponding irrigation district’s diversion point at the Rio Grande. The water never has to be put through the irrigation district miles long canal system that is heavily susceptible to leakage, caused by aging and deteriorating canal linings, and evaporation caused by the miles long open canal system.

Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)

Positive impacts will be had across various sectors: SWSC has historically served the rural/agricultural sectors of Hidalgo County. While the actual farming has taken place within our service area, central or satellite operations and business offices have had to historically been located close to the urbanized areas, to take advantage of cost-effective access to utilities. Water savings that will directly translate into cost savings through this project, will help SWSC invest those dollars in its strategic CIP plan set forth by the comprehensive Water System Master Plan. SWSC will be able to provide feasibility to extending water service to areas close to agricultural operations, thus directly impacting the agricultural sectors in Hidalgo County.

The project will bring about positive impacts on the environment through the reduction of fossil fuels and water loss. Tourism will be indirectly benefited as well through preservation of habitats from these reductions. According to tpwd.gov, “The Rio Grande Valley hosts one of the most spectacular convergence of birds on earth with more than 525 species documented in this

unique place” and is home to Bentsen-Rio Grande Valley State Park, which attracts thousands of tourists each year.

Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the districts water supply.) Describe any on-farm efficient work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.

N/A. Contact was made with Ray Hinojosa at the local NRCS office at 2514 S Veterans Blvd, Edinburg, TX 78529 (4/17/19), and it was noted that this was not applicable with the proposed AMI meter changeout project.

Evaluation Criterion B: Planning Efforts Supporting the Project

Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

Water Savings

Precision Calibrate Meter Service tested a few of the mechanical meters to determine the water loss and potential savings of the new AMIs, the results are listed below:

The Ford Meter Box test bench uses a simple method to perform water meter testing, yet is extremely accurate. This test consists of two certified water tanks. Water first passes through the meters being tested and into one of the tanks. Once the tank reaches the required level (example 100 gallons) the flow is stopped, and the meter readings are noted, and the accuracy percentage is recorded. Example: meter reading 87.7 gallons, tank reading 100 gallons, meter accuracy = 87.7%. Residential meters are tested three different times at three different flow rates. The results are recorded as low, medium and high flow.

Manufacturer	Serial Number	reading	Low flow 1/4 GPM	Med. Flow 2 GPM	High flow 11 GPM
Sensus	45629315	4258390	80.0%	99.8%	99.4%
Sensus	64567210	3789300	71.0%	99.0%	98.8%
Sensus	54994390	4528520	0.0%	0.00%	0.0%
Sensus	41584427	5276020	65.0%	99.6%	97.7%
Sensus	47805267	2638590	90.0%	100.5%	99.7%

Table 3

In addition to this, SWSC has ordered and installed 500 of the AMI meters as a test of potential savings. The first readings came in recently in the month of April 2019 for the 500 AMI meters. These AMI readings were compared to the mechanical readings for the month of April of the previous year for the same household. A difference of 314,624 gallons was observed, meaning this difference is likely the manifestation of the more accurate AMI meters accounting for water usage that was lost by the mechanical meters for the same customers. See **Table 1** below.

Mechanical Total	5251980
AMI Total	5566604
Savings	314624
% Recovery Loss	5.65%

Table 4

Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures?

SWSC Master Plan conducted determined a changeout of current mechanical meter infrastructure as a priority on top of other projects in the Capital Improvement Plan as it results in a considerable water loss (thousands) which affects both SWSC, its customers and the Rio Grande Valley as a whole.

Evaluation Criteria C: Project Implementation

Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

The following information can be found in **Appendix A**

The specific AMI Meters Changeout Project intended for BOR funding will begin October 15 and should be finished November 14. The total project has begun March 5, 2019 and is scheduled to be finished December 18, 2019. April beginning with the agreement in place and necessary documentation being processed followed by preparation and READy software setup lastly ordering of a couple thousand AMI meters. May being collaboration meetings, training and installations based on the orders. June is Operator training, system collaboration and continued Handover, including an Evaluation period. July is Mass roll out for a few months (installation period). November is continued training, collaboration, final Handovers and evaluation period. Project concluding in mid-December.

Describe any permits that will be required, along with the process for obtaining such permits.

The only permit required is an FCC 601 license to operate the AMI collectors in a dedicated frequency band; application is in process, pending final approval. Once granted, the license is valid for 10 years. This process requires the submission of Form 601 with associated fees. The application is prepared by Kamstrup with support of a frequency coordinator who fills out and submits on our behalf.

Identify and describe any engineering or design work performed specifically in support of the proposed project

Comprehensive Water System Master Plan being conducted by Garver Engineers.

Describe any new policies or administrative actions required to implement the project.

Automated meter reading procedures and processes will be changed. Data collection and GIS/GPS processes will also be added.

Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?

The compliance costs have been discussed with the local Reclamation office (Thomas 4/17/19); meter-switch out occurring at previously established meter boxes and the above criteria is minimal.

Evaluation Criterion D: Nexus to Reclamation

Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following:

Does the applicant receive Reclamation project water?

No, Sharyland Water Supply Corporation is not a recipient of Reclamation project water.

Is the project on Reclamation project lands or involving Reclamation facilities?

No, this project is not on Reclamation project lands or involving Reclamation facilities.

Is the project in the same basin as a Reclamation project or activity?

Yes, the Bureau of Reclamation conducted a study in the Rio Grande Valley called, “The Lower Rio Grande Basin Study’ on 2013. The basin study evaluated the impacts of climate change on water supply and demand imbalances in the region. Part of the study’s planning objectives included reducing dependency on the Rio Grande, which this project also seeks to accomplish. The study cost was \$412,798.00. Attached is the Rio Grande Basin Study summary in **Appendix A**.

The Bureau of Reclamation has also funded several projects for irrigation districts in the Rio Grande Valley.

Will the proposed work contribute water to a basin where a Reclamation project is located?

Yes, the Bureau of Reclamation has funded several projects in the basin. The proposed work will preserve water in the Rio Grande River.

Will the project benefit any tribes?

No, the project will not benefit tribes.

Evaluation Criterion E: Department of Interior Priorities

1. Creating a conservation stewardship legacy second only to Teddy Roosevelt

a.) Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;

Ultrasonic flow measurement guarantees pinpoint accuracy and longevity. Ultrasonic flow measurement is based on the transit time method, and all measurements, references, readings, calculations and data communication are controlled by an advanced, specially designed electronic circuit (Kamstrup)

b.) Examine land use planning processes and land use designations the govern public use and access;

Land use planning process is being used in the current Water System Master Plan.

c.) Revise and streamline the environmental and regulatory review process while maintaining environmental standards

This project maintains environmental standards because the project has already been cleared environmentally in accordance with NEPA and USDA regulations. Additionally, the Environmental and Regulatory Reviews have been read and considered by those involved with the project to ensure these items and parts are carried out.

Environmentally friendly

The meter has been approved according to Drinking Water

The environmental report, Carbon Footprint, documents the meter's high reusability and low environmental impact, including recycling of materials. (Kamstrup.com)

d.) Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;

Considering DOIs 18-22' Strategic Plan, specifically Goal #2 changes in Water supply and demand including droughts (doi.gov): The implementation of the new AMI meters will help reach the specific goal of 1,392,000 mentioned in the Strategic Plan, along with other considerations mentioned.

e.) Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;

Water sourced from the United Irrigation District is a supplier of water to the Lower Rio Grande Valley Wildlife Refuge.

f.) Identify and implement initiatives to expand access to DOI lands for hunting and fishing;

According to the Press Release of 9/7/18 as per secretary Zinke, Texas was not mentioned in the effort to expand access to DOI lands for recreational purposes, but water extracted from the same sources that flow through a few of the Texas Public Hunting Grounds including the Las Palomas-WMAs; SWSC is staying current with these DOI announcements.

g.) Shift the balance toward providing greater public access to public lands over restrictions to access

N/A

2.Utilizing our natural resources

a.) Ensure American Energy is available to meet our security and economic needs;

Reduction in the Meter Reading department from 5 vehicles to 2 vehicles will dramatically reduce gas consumption through the lifespan of the AMI meters, ensuring the reduction in fossil fuels, which is a main source of American Energy. Gas consumption for 2018 was 6,384 gallons while implementation of the project would've resulted in 2,432 gallons, resulting in a savings of 3,951 gallons of gasoline. 2019 is expected to increase connections by about .1%, thus similar consumption is to be expected.

b.) Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;

Meter material: Standards in multiple countries, and it is certified to NSF/ ANSI 61. The meter housing and measuring part are made of the synthetic material polyphenylene sulfide (PPS) with 40 % fiberglass, which is free from lead and other heavy metals; uses recycled materials.

c.) Refocus timber programs to embrace the entire 'health forests; lifecycle;

N/A

d.) Manage competition for grazing resources.

N/A

3.Restoring trust with local communities

a.) Be a better neighbor with that closet to our resources by improving dialogue and relationships with persons and entities bordering our lands;

Dialogue is to be exchanged and ultimately improved with other water authorities which include: North Alamo Water Supply Corp., East Rio Hondo Water Supply Corp., City of McAllen, City of Edinburg, along with the contractors involved dealing with improvements. Also, information of improvements provided on the website, to educate parties of interest of the benefits of these meters to the environment through water conservation.

b.) Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.

SWSC deals directly with the either water treatment plant's corresponding irrigation district of which, United Irrigation District, delivers water to the Lower Rio Grande Wildlife Refuge. Additionally, SWSC has support from our local senator, state reps, city mayors and councils.

4.Striking a regulatory balance

a.) Reduce the administrative and regulatory burden imposed on U.S. industry and the public;

SWSC is examined and a model for improvements that can be made similarly by other organizations in the form efficiency of infrastructure (project specific) and organization via communicating with close by Water Supply corporations orally and to the general public through internet and media postings.

b.) Ensure that Endangered Species Act decisions are based on strong science and thorough analysis

According to the U.S. Fish and Wildlife Service, habitat around the Rio Grande River delta is home to endangered animals and biology such as Jaguarundi, Ocelot and Peregrine Falcon, all of which are listed on the federally-listed threatened and Endangered Species within the Lower Rio Grande Valley, such as Chachalacas, Green Jays and other important biology such as Spanish Moss.

5. Modernizing our infrastructure

a.) Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;

According to 2018 Budget: Infrastructure Initiative under Key Principles (Whitehouse.gov)
"1. Make targeted Federal Investments: When Federal funds are provided, they should be awarded to projects that address problems that are a high priority from the perspective of a region or the Nation, or projects that lead to long term changes in how infrastructure is designed, build, and maintained. 3. Align Infrastructure Investment with Entities Best Suited to

Provide Sustained and Efficient Investment” This project is in this Budgets best interest as it maximizes efficiency to previous installments to ensure a better treated total per acre-ft in water savings being disbursed to customer of the LRGV basin. “Fund the Water Infrastructure Finance and Innovation Act program (WIFIA) Program: The Environmental Protection Agency’s new WIFIA loan program is designed to leverage private investments in large drinking water and wastewater infrastructure projects, particularly those large, high-cost projects that have private ownership or co-investment.”

c.) Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure project serving American needs;

Meters are being manufactured in Atlanta, Georgia by Kamstrup and the sub-contracted meter installation company, Secure Vision of America, are based out of the Austin, TX area.

c.) Prioritize DOI infrastructure needs to highlight:

1. *Construction of infrastructure;*
2. *Cyclical maintenance;*
3. *Deferred maintenance.*

N/A

Environmental and Cultural Resource Considerations Summary

The effects of these AMI meter changeouts will have little to no further impact to the planned installation locations as it will simply replace the mechanical meters in the meter box. The AMI meters are certified to NSF/ ANSI 61. The meter housing and measuring part are made of the synthetic material polyphenylene sulfide (PPS) with 40 % fiberglass, which is free from lead and other heavy metals. Installation will not impact the environment in that they will be installed in the already established meter box, a small area located near the property not affecting any Federally threatened or endangered species; not with boundaries that fall under CWA jurisdiction as “Water of the United States”. Furthermore, the designated AMI meters have no modifications of effects to irrigations system, archeological sites, tribal lands or Historic Places. This project will also not introduce invasive species to the area or have adverse effects on low income or minority population.

Procurement Process

Competitive means were taken and determined (procured) that only one contractor/producer for the specific AMI project is located in the Rio Grande Valley; info regarding this in **Appendix A**. Extensive market research was done to determine competitive pricing of AMIs, taken from previous AMI changeout projects in Texas.

The following is an example of a similar project in the region from April 2018: City of Coppell, Texas spent \$6,390,000 (including meters, installation, software, etc.) for 13,375 meters, averaging \$477.75 per meter (coppelltx.gov). SWSC is quoted to spend \$5,157,525 for 18,600 meters, averaging a \$277.28 per meter.

Shared Costs

Source	Amount
Costs to be Reimbursd with the Requested Federal Fundi	\$ 73,656.27
Costs to be paid by the applicant	\$ 125,414.73
Value of third party contributions	\$0
Total Project Cost	

Funding Sources	
Non Federal Entitites	
1. Sharyland Water Supply	\$ 125,414.73
Non-Federal Subtotal	\$ 125,414.73
Other Federal Entities	
1. N/A	N/A
Other Federal Subtotal	\$0
REQUESTED RECLAMATION FUNDING	\$ 73,656.27

Budget Proposal

The budget proposal should include detailed information on the categories listed below and must clearly identify *all* items of cost, including those that will be contributed as non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those that will be covered using the funding requested from Reclamation, and any requested pre-award costs. Unit costs must be provided for all budget items including the cost of services or other work to be provided by the consultants and contractors. Applicants are strongly encouraged to review the procurement standards for Federal awards found at 2 CFR 200.317 through 22.326 before developing their budget proposal.

It is also strongly advised that applicants use the budget proposal format shown below in Table 2 or a similar format that provides this information. If selected for award, successful applicant must submit supporting documentation for all budgeted costs.

Budget Item Description	Computation		Quantity Type	Total Cost
	\$/Unit	Quantity		
Salaries and Wages	N/A	N/A	N/A	\$0
Employee 1	N/A	N/A	N/A	\$0
Employee 2	N/A	N/A	N/A	\$0
Employee 3	N/A	N/A	N/A	\$0
Fringe Benefits	N/A	N/A	N/A	\$0
Full-time Emploeyess	N/A	N/A	N/A	\$0
Part-time Employees	N/A	N/A	N/A	\$0
Travel	N/A	N/A	N/A	\$0
Trip 1	N/A	N/A	N/A	\$0
Trip 2	N/A	N/A	N/A	\$0
Equipment	\$ 221.45	730		\$ 161,658.50
Equipment	N/A	N/A	N/A	\$0
MISC	\$ 1.25	730		\$ 912.50
Supplie & Materials	N/A	N/A	N/A	
Item A				
Contractual/ Construction				
Construction	\$ 50.00	730	N/A	\$ 36,500.00
Demo & Removal	N/A	N/A	N/A	\$0
Other				
Contingency	N/A	N/A	N/A	\$0
TOTAL DIRECT COSTS				\$ 199,071.00
Indirect Costs				
Engineering fees	Percentage 0%	\$0 base		\$0
Project inspection fess	Percentage 0%	\$0 base		\$0
Total Estimated Project Cost				\$ 199,071.00

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR Part 200, available at the Electronic Code of Federal Regulations.

Salaries and Wages

N/A

Fringe Benefits

N/A

Travel

N/A

Equipment

The 730 units have a price each of \$221.45

Materials & Supplies

N/A

Contractual

Construction- Labor of the installments for 730 units.

Environmental and Regulatory Compliance Costs

The compliance costs have been discussed with the local Reclamation office (Thomas 4/17/19); meter-switch out occurring at previously established meter boxes and the above criteria is minimal.

Misc.

Software managing fee divided by the meters.

Other Expenses

N/A

Indirect Costs

N/A

Travel costs

N/A

Other Expenses

N/A

Indirect Costs

N/A

Budget Summary

Meter change-outs on previously established meter boxes, no necessary construction or expected contingencies.

Required Permits of Approval

The only permit required is an FCC 601 license to operate the AMI collectors in a dedicated frequency band.

Letters of Support

City of Alton

City of Edinburg

Additional Letters of Support will be submitted before May 30, 2019.

Find Letters of support attached in **Appendix B**

Official Resolution

Find resolution attached in **Appendix B**

Unique Entity Identifier and System for Award Management

SWSC is registered in SAM.gov; find SWSC's SAM.GOV information in **Appendix A**

References

<https://www.census.gov/quickfacts/fact/table/hidalgocountytexas,hidalgocountynewmexico,riograndecitycitytexas/PST045217#PST045217>

<https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?TX>

<https://tpwd.texas.gov/landwater/water/environconcerns/regions/southtexas.phtml#challenge>

https://www.fws.gov/refuge/Lower_Rio_Grande_Valley/wildlife_habitat.html

https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/budget/fy2018/fact_sheets/2018%20Budget%20Fact%20Sheet_Infrastructure%20Initiative.pdf

GoogleMaps.com

https://www.bls.gov/regions/southwest/news-release/occupationalemploymentandwages_mcallen.htm

<http://www.vfds.org/vfd-for-centrifugal-pumps-662716.html>

<https://www.hud.gov/sites/documents/CDBGCHAPTER15.PDF>

<https://www.doi.gov/sites/doi.gov/files/uploads/fy2018-2022-strategic-plan.pdf>

<https://www.doi.gov/pressreleases/secretary-zinke-expands-hunting-and-fishing-opportunities-30-americas-national>

<https://products.kamstrup.com/#>

<https://www.grants.gov/web/grants/forms/sf-424-family.html>

<https://www.dshs.texas.gov/borderhealth/default.shtm>

<https://www.tdhca.state.tx.us/oci/background.htm>

<https://tpwd.texas.gov/state-parks/bentsen-rio-grande-valley>

http://www.coppelltx.gov/Documents/2018%20AWM_Project%20Summary.pdf

Appendix A

SUMMARY

I. Background

The Lower Rio Grande Basin Study (Basin Study) proposal was selected for fiscal year 2011 funding in July 2011. The Bureau of Reclamation (Reclamation) and the Rio Grande Regional Water Authority (RGRWA) with its 53 member entities, in collaboration with other Texas water and environmental agencies, and the International Boundary and Water Commission (IBWC) conducted the cost-shared Basin Study to evaluate the impacts of climate variability and change on water supply imbalances within an eight-county region (State of Texas water planning Region M) along the U.S./Mexico border in south Texas. The study was conducted under the authority of Public Law (P.L.) 111-11, Subtitle F.

Water supplies in the area are primarily from the Rio Grande, with much of the drainage located in Mexico and regulated by releases from Falcon and Amistad Reservoirs (figure S-1), which are managed by the IBWC, in compliance with the *Treaty of 1944 Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande* (Treaty). Much of the water deliveries in the study area are made through a network of canals that are managed by 27 different irrigation districts. The supply issues facing the Lower Rio Grande Basin in both the United States and Mexico are extremely complex, ranging from a multinational to local scale.

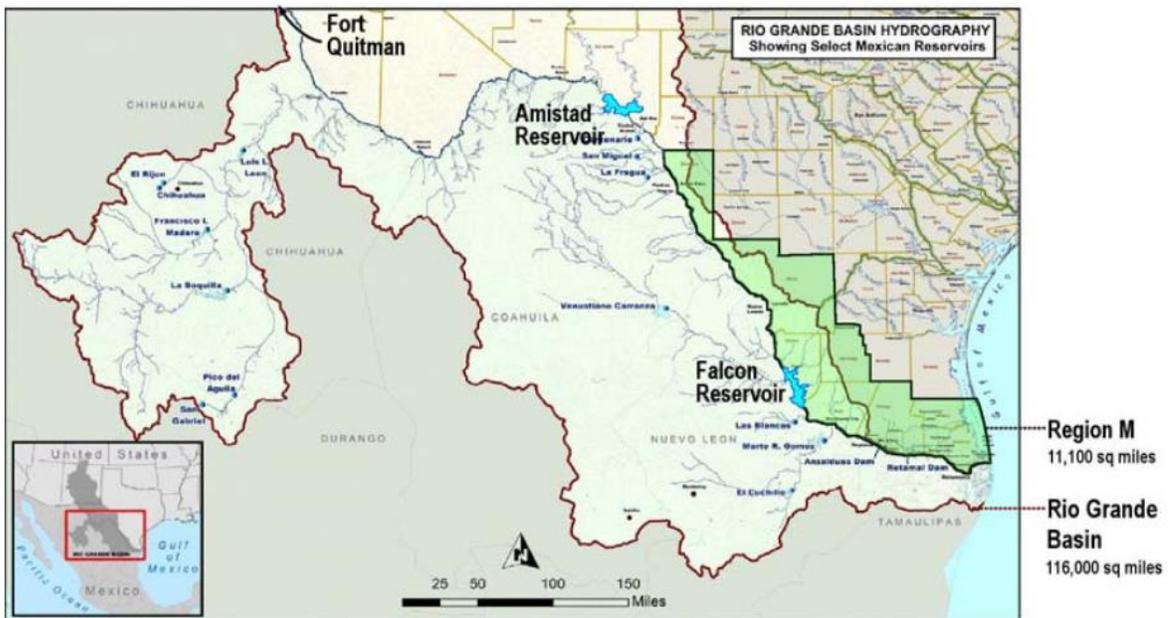


Figure S-1: Project study area.

Under the authority of the SECURE Water Act (Public Law [P.L.] 111-11), the U.S. Department of the Interior (Interior) established WaterSMART (Sustain and Manage America's Resources for Tomorrow) in February 2010 to facilitate the work of Interior's bureaus in pursuing a sustainable water supply for the Nation. The program focuses on improving water conservation and sustainability and helping water resource managers make sound decisions about water use. It identifies strategies to ensure that this and future generations will have sufficient supplies of clean water for drinking, economic activities, recreation, and ecosystem health. The program also identifies adaptive measures to address climate change and its impact on future water demands. The four required elements of a Basin Study are:

1. Projections of water supply and demand within the basin, including an assessment of risks to the water supply relating to climate change as defined in section 9503(b)(2) of the SECURE Water Act.

The study finds that climate change is likely to result in increased temperatures, decreased precipitation, and increased evapotranspiration in the study area (chapter 2).

2. Analysis of how existing water and power infrastructure and operations will perform in the face of changing water realities, such as population increases and climate change, as well as other impacts identified within section 9503(b)(3) of the SECURE Water Act as appropriate.

The study finds that in addition to the 592,084 acre-feet per year (ac-ft/yr) of supply shortfall (demand minus supply) predicted by the existing regional planning process by 2060, an additional 86,438 ac-ft/yr will be needed due to climate change. This will greatly reduce the reliability of deliveries to all users dependent on deliveries of Rio Grande water via irrigation systems (chapter 2).

3. Development of appropriate adaptation and mitigation strategies to meet future water demands.

The study developed a planning objective that would reduce dependency on the Rio Grande in the part of the study area most susceptible to water supply imbalances and would meet the additional shortfall projected (chapter 3).

4. A tradeoff analysis of the strategies identified and findings and recommendations as appropriate. This includes an analysis of all proposed alternatives in terms of their relative cost, environmental impact, risk (probability of not accomplishing the desired/expected outcome), stakeholder response, or other attributes common to the alternatives.

The study examined the existing water management strategies proposed by the regional planning process against the planning objective and selected four for further study (seawater desalination, brackish groundwater desalination [BGD], reuse, and fresh groundwater development) while emphasizing the continuing need for conservation and the need for a portfolio approach to include all approved elements of the regional planning process (chapter 3). The four strategies are examined further in chapter 4. Brackish groundwater desalination was recommended as being most suitable for preliminary engineering and affordability analysis. This strategy was further developed to recommend three generalized locations for future desalination plants, which were then analyzed using the Texas Water Development Board's (TWDB) Unified Costing Model (chapter 5), and an affordability analysis was conducted (chapter 6).

The study cost \$412,798 (52 percent (%) RGWRA; 48% Federal cost share) and was completed in 24 months.

II. Findings

A. Water Supplies and Demands

The magnitude and frequency of water supply shortages within the study area are severe, even before projecting the effects of climate change. Based on an analysis of the currently adapted Region M Plan, which is incorporated in the State Water Plan,¹ the population in the eight-county region is expected to grow from 1.7 million in 2010 to 4.0 million in 2060, resulting in the need for an additional 592,000 ac-ft/yr, or about 35%, of the total water demand. The State Water Plan identified strategies to meet those needs. This study determined that climate change may likely increase the shortage by an additional 86,438 ac-ft/yr, and this was the focus of this Basin Study.

B. Planning Objective

The study's planning objective was developed to address the 86,438 ac-ft/yr shortfall in consideration of the following requirements and constraints:

- Reduce dependency on the Rio Grande
- Preserve existing water rights

¹ Texas Water Development Board. 2012 Water for Texas State Water Plan. January 2012.

Federally-Listed Threatened and Endangered Species
within the Lower Rio Grande Valley
(Current as of December 2010)

Cameron County

Green sea turtle (T)	<i>Chelonia mydas</i>
Gulf Coast jaguarundi (E)	<i>Herpailurus yagouaroundi cacomitli</i>
Hawksbill sea turtle (E)	<i>Eretmochelys imbricata</i>
Kemp's Ridley sea turtle (E)	<i>Lepidochelys kempii</i>
Leatherback sea turtle (E)	<i>Dermochelys coriacea</i>
Loggerhead sea turtle (T)	<i>Caretta caretta</i>
Northern aplomado falcon (E)	<i>Falco femoralis septentrionalis</i>
Ocelot (E)	<i>Leopardus pardalis</i>
Piping plover (T w/CH)	<i>Charadrius melodus</i>
South Texas ambrosia (E)	<i>Ambrosia cheiranthifolia</i>
Texas ayenia (E)	<i>Ayenia limitaris</i>
West Indian manatee (E)	<i>Trichechus manatus</i>

Hidalgo County

Gulf Coast jaguarundi (E)	<i>Herpailurus yagouaroundi cacomitli</i>
Northern aplomado falcon (E)	<i>Falco femoralis septentrionalis</i>
Ocelot (E)	<i>Leopardus pardalis</i>
Star cactus (E)	<i>Astrophytum asterias</i>
Texas ayenia (E)	<i>Ayenia limitaris</i>
Walker's manioc (E)	<i>Manihot walkerae</i>

Starr County

Ashy dogweed (E)	<i>Thymophylla (=Dyssodia) tephroleuca</i>
Gulf Coast jaguarundi (E)	<i>Herpailurus yagouaroundi cacomitli</i>
Johnston's frankenia (E)	<i>Frankenia johnstonii</i>
Least tern (E)	<i>Sternula antillarum</i>
Ocelot (E)	<i>Leopardus pardalis</i>
Star cactus (E)	<i>Astrophytum (=Echinocactus) asterias</i>
Walker's manioc (E)	<i>Manihot walkerae</i>
Zapata bladderpod (E w/CH)	<i>Lesquerella thamnophila</i>

Willacy County

Gulf Coast jaguarundi (E)	<i>Herpailurus yagouaroundi cacomitli</i>
Ocelot (E)	<i>Leopardus pardalis</i>
Northern aplomado falcon (E)	<i>Falco femoralis septentrionalis</i>
Hawksbill sea turtle (E)	<i>Eretmochelys imbricata</i>
Kemp's Ridley sea turtle (E)	<i>Lepidochelys kempii</i>
Leatherback sea turtle (E)	<i>Dermochelys coriacea</i>
Texas Ayenia (E)	<i>Ayenia limitaris</i>
Green sea turtle (T)	<i>Chelonia mydas</i>
Loggerhead sea turtle (T)	<i>Caretta caretta</i>
Piping plover (T w/CH)	<i>Charadrius melodus</i>

INDEX

- E = Species in danger of extinction throughout all or a significant portion of its range.
- T = Species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
- C = Species for which the Service has on file enough substantial information to warrant listing as threatened or endangered.
- CH = Critical Habitat (in Texas unless annotated †)
- ~ = Protection restricted to populations found in the “interior” of the United States. In Texas, the least tern receives full protection, except within 50 miles (80 km) of the Gulf Coast.

County-by-County lists containing species information is available at the U.S. Fish and Wildlife Service’s (Service), Southwest Region, web site
<http://www.fws.gov/southwest/es/EndangeredSpecies/lists>.

Sharyland Water Supply Corporation
Notes to Financial Statements
December 31, 2018 and 2017

NOTE 2: DEPOSITS AND REQUIRED RESERVES (Continued)

A summary of the reserved and designated cash, cash equivalents, and investments is as follows:

	2018	2017
Reserved:		
Required reserve fund for retirement of USDA, rural development debt	\$ 587,759	\$ 602,131
Designated:		
For future expansion	10,166,000	9,857,100
Undesignated:		
For operations	11,018,086	9,784,046
Total	\$ 21,771,845	\$ 20,243,277

The total is funded as follows:

Cash and cash equivalents:		
Cash on hand/bank	\$ 2,394,629	\$ 3,266,116
Cash in escrow	125,000	-
Total cash and cash equivalents	\$ 2,519,629	\$ 3,266,116

Investments:		
Mutual funds	\$ 3,012,124	\$ 2,964,486
Certificates of deposit	16,240,092	14,012,675
Total investments	19,252,216	16,977,161
Total cash and investments	\$ 21,771,845	\$ 20,243,277

The Corporation maintains operating cash deposits with one financial institution, Frost Bank. The Corporation's operating deposits were held in several non-interest bearing accounts that are collateralized by Federal Deposit Insurance Corporation (FDIC) up to \$250,000.

In 2013, the Corporation entered into a Repurchase Agreement ("Repo Sweep") contract with their depository bank to "sweep" funds in excess of the \$250,000 FDIC limit overnight from their operating account. The funds are transferred to an account in the Bank's name to purchase certain securities while the Corporation maintains ownership of the funds transferred. In these purchase and assumption transactions, the sweep account and associated assets will be transferred back to the Corporation's bank account on the following business day. Should the bank enter into receivership the swept funds will not be considered deposits and therefore not protected by FDIC. In this situation, the swept funds are considered invested in a security in which the Corporation will be the legal owner of the funds.



- ⚠** ALERT: June 11, 2018: Entities registering in SAM must submit a [notarized letter](#) appointing their authorized Entity Administrator. Read our [updated FAQs](#) to learn more about changes to the notarized letter review process and other system improvements.
- ⚠** ALERT: SAM.gov will be down for scheduled maintenance Saturday, 05/11/2019, from 8:00 AM to 12:00 PM (EDT).
- ⚠** ALERT: CAGE is currently experiencing a high volume of registrations, and is working them in the order in which they are received. When your registration is assigned to a CAGE Technician, you will be contacted by CAGE, if necessary, for any additional information.

Entity Dashboard

Sharyland Water Supply Corporation 4210 E Main Ave
 DUNS: 055122717 CAGE Code: 650U4 Alton, TX, 78573 ,
 Status: Active UNITED STATES
 Expiration Date: 11/02/2019
 Purpose of Registration: Federal Assistance Awards Only

- › [Entity Overview](#)
- › [Entity Registration](#)
 - › [Core Data](#)
 - › [Assertions](#)
 - › [Reps & Certs](#)
 - › [POCs](#)
- › [Reports](#)
 - › [Service Contract Report](#)
 - › [BioPreferred Report](#)
- › [Exclusions](#)
 - › [Active Exclusions](#)
 - › [Inactive Exclusions](#)
 - › [Excluded Family Members](#)

Entity Overview

Entity Registration Summary

DUNS: 055122717
Name: Sharyland Water Supply Corporation
Business Type: Business or Organization
Last Updated By: Jesse Valadez
Registration Status: Active
Activation Date: 11/02/2018
Expiration Date: 11/02/2019

Exclusion Summary

Active Exclusion Records? No

[BACK TO USER DASHBOARD](#)



IBM-P-20190315-1318
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- [FAPIS.gov](#)
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- [Help](#)

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	19	Feb 18, '19	Mar 11, '19	Apr 1, '19	Apr 22, '19	May 13	M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S																											
1		Sharyland	207 days	Tue 3/5/19	Wed 12/18/19																																			
2		Order Issued	1 day	Mon 4/1/19	Mon 4/1/19					4/1																														
3		Order Processing	3 days	Tue 4/2/19	Thu 4/4/19	2																																		
4		FCC Application	30 days	Tue 3/5/19	Mon 4/15/19	2FS-20 days																																		
5		Procurement	20 days	Fri 4/5/19	Thu 5/2/19	3																																		
6		Kick-Off Meeting	1 day	Tue 5/7/19	Tue 5/7/19	3FS+4 days				5/7																														
7		Introductory Training	1 day	Wed 5/8/19	Wed 5/8/19	6																																		
8		Roll-out Preparation	20 days	Fri 4/5/19	Thu 5/2/19	3																																		
9		READY/Billing Interface setup	5 days	Fri 4/5/19	Thu 4/11/19	3																																		
10		Initial Roll-out (1000 MPs 26 days	Thu 5/9/19	Thu 6/13/19																																				
11		Initial Roll-out (Install)	15 days	Thu 5/9/19	Wed 5/29/19	5,8,7																																		
12		Initial Roll-out (Commissioning)	5 days	Thu 5/30/19	Wed 6/5/19	11																																		
13		Operator Training # 1	1 day	Thu 6/6/19	Thu 6/6/19	12																																		
14		Resolve Punch-List Item	5 days	Thu 6/6/19	Wed 6/12/19	12																																		
15		Initial Roll-out Handove	1 day	Thu 6/13/19	Thu 6/13/19	14						6/13																												
16		Evaluation Period	20 days	Fri 6/14/19	Thu 7/11/19	15																																		
17		Mass Roll-out (17000 MP:98 days	Fri 7/12/19	Tue 11/26/19																																				
18		Mass Roll-out (Install)	80 days	Fri 7/12/19	Thu 10/31/19	16																																		
19		Mass Roll-out (Commissioning)	10 days	Fri 11/1/19	Thu 11/14/19	18																																		
20		Operator Training # 2	1 day	Fri 11/15/19	Fri 11/15/19	19																																		
21		Resolve Punch-List Item	7 days	Fri 11/15/19	Mon 11/25/19	19																																		
22		Mass Roll-out Handover	1 day	Tue 11/26/19	Tue 11/26/19	21																																		
23		Evaluation Period	15 days	Wed 11/27/19	Tue 12/17/19	22																																		
24		Official Project Completion	1 day	Wed 12/18/19	Wed 12/18/19	23																																		

Project: Project Schedule - Shar

Task	Project Summary	Manual Task	Start-only	Deadline	Progress
Split	Inactive Task	Duration-only	Finish-only	Progress	Manual Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	Manual Progress	Manual Progress

TOTAL GALLONS FOR JAN:													TOTAL COST FOR JAN:												
1749.97													406276												
Car 19 Cf 0025 (SHER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (HAVER)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (KEY)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
54.965	97.446	88.02	48.166	58.882	233.057	49.826		91.982	46.896	119.200	53.871	71.242	114.572	78.989	74.347	12.959	67.111	66.535	36.221	109.754	85.84	108.204			
126.37	223.59	196.88	109.71	135.02	542.13	113.52		210.95	118.70	274.22	122.01	162.5	263.01	176.16	172.00	34.7	162.36	156.38	83.1	251.25	196.93	250.00			

TOTAL GALLONS FOR FEB:													TOTAL COST FOR FEB:												
1963.644													4799.36												
Car 19 Cf 0025 (SHER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (HAVER)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (KEY)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
95.856	87.847	39.465	25.556	59.837	203.562	59.623	23.567	75.910	69.856	85.121	114.842	111.643	119.006	126.458	62.995	28.862	85.807	31.969	85.114	108.968	112.077	129.703			
224.49	218.00	139.56	70.00	144.01	501.06	145.41	55.60	182.04	192.29	204.15	278.92	270.47	287.87	295.94	155.55	69.49	221.03	79.89	203.08	273.98	273.49	313.0			

TOTAL GALLONS FOR MAR:													TOTAL COST FOR MAR:												
1858.479													4252.93												
Car 19 Cf 0025 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
83.363	88.05		10.873	104.82	31.461	76.072		255.395	88.408	118.978	49.182	67.469	122.068	80.221	76.070	25.416	121.975	56.325	52.695	68.957	105.855	74.373	36.736	63.717	
189.47	197.17		30.00	237.01	72.33	172.3		578.42	211.23	269.36	110.71	151.52	270.28	179.58	171.55	57.16	311.22	126.51	120.07	157.16	238.31	167.5	84.10	149.89	

TOTAL GALLONS FOR APR:													TOTAL COST FOR APR:												
1817.413													4422.15												
Car 19 Cf 0045 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
111.282	111.253	14.136	22.756	77.039	26.804	27.535	182.833	50.215	84.246	109.793	67.289	83.168	130.620	85.327	127.989	15.007	70.014	29.328	89.364	85.407	112.716	92.246		30.444	
266.06	267.94	33.91	65.96	188.03	64.78	67.45	445.89	120.48	156.25	267.94	163.23	202.13	314.82	202.67	311.36	36.00	176.40	71.80	217.96	205.15	279.45	223.46		73.04	

TOTAL GALLONS FOR MAY:													TOTAL COST FOR MAY:												
1832.358													4736.46												
Car 19 Cf 0045 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
98.707	139.302	39.760	6.140	73.087	61.988	26.195	96.091	34.206	44.592	75.118	94.750	113.029	139.071	65.716	133.842	45.399	80.502	62.252	87.675	71.616	87.099	67.436	36.609	53.566	
249.77	364.45	104.15	19.33	182.02	162.81	70.18	248.37	90.55	115.70	197.61	245.89	294.22	365.72	169.54	350.08	119.01	215.40	164.85	231.19	187.11	228.65	176.0	94.43	138.02	

TOTAL GALLONS FOR JUN:													TOTAL COST FOR JUN:												
1946.231													5179.56												
Car 19 Cf 0045 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
103.591	89.069	19.794	35.562	35.163	11.595	104.840	15.525	242.038	28.801	109.392	111.285	149.811	99.945	115.082	97.606	165.004	15.676	104.889	55.673	66.725	91.274	114.686	64.335		
273.48	231.38	51.84	93.06	95.08	37.90	274.01	42.21	642.92	77.50	288.26	169.74	263.45	304.21	252.62	439.31	42.00	298.33	147.53	175.31	252.32	303.22	169.74			

TOTAL GALLONS FOR JUL:													TOTAL COST FOR JUL:												
2067.817													5355.69												
Car 19 Cf 0045 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
92.860	139.352	0.000	65.452	31.289	34.309	108.583	0.000	21.414	228.501	0.000	106.644	100.591	134.526	109.761	89.330	85.582	163.035	28.546	142.100	29.243	86.548	92.549	83.697	93.905	
\$ 236.13	\$ 359.39	\$ -	\$ 166.91	\$ 81.32	\$ 105.15	\$ 277.94	\$ -	\$ 555.13	\$ 586.00	\$ -	\$ 273.02	\$ 263.90	\$ 346.99	\$ 282.57	\$ 228.91	\$ 216.41	\$ 419.41	\$ 73.59	\$ 397.23	\$ 76.00	\$ 218.66	\$ 235.79	\$ 215.43	\$ 240.81	

TOTAL GALLONS FOR AUG:													TOTAL COST FOR AUG:												
2190.486													5608.25												
Car 19 Cf 0045 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
128.772	191.905	13.243	52.143	28.862	17.137	105.231		175.062	170.502	67.791	108.455	113.555	142.723	33.032	113.797	192.546	29.827	105.381	55.038	104.700	46.541	105.615	88.527		
326.42	481.03	34.42	133.18	72.38	52.91	268.01		448.74	436.95	172.65	274.77	291.51	365.14	85.85	288.51	493.77	76.00	287.36	139.85	265.01	117	270.61	226.1		

TOTAL GALLONS FOR SEP:													TOTAL COST FOR SEP:												
1707.753													4448.04												
Car 19 Cf 0045 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
89.983	145.444	18.74	36.572	***	10.015	118.663	***	129.036	74.544	***	91.676	103.954	18.470	111.488	***	109.652	150.465	27.421	72.863	55.621	100.687	67.415	110.274	64.770	
232.24	376.97	48.67	94.87	***	31.24	307.04	***	335.29	193.21	***	233.74	270.62	48.00	292.87	***	283.76	391.07	71.14	202.56	144.56	261.68	174.26	286.60	167.7	

TOTAL GALLONS FOR OCT:													TOTAL COST FOR OCT:												
2221.445													5794.44												
Car 19 Cf 0045 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
112.577	118.330	8.625	69.302	24.936	41.911	126.736		40.814	156.599		110.792	111.868	119.126	117.759	105.239	115.646	180.899	29.355	138.436	55.727	153.048	90.968	97.753	95.039	
289.47	307.05	22.33	176.38	64.81	118.93	328.02		104.15	404.55		285.34	297.23	307.84	305.11	272.70	296.53	469.46	76.00	394.94	144.24	393.01	237.35	252.50	246.50	

TOTAL GALLONS FOR NOV:													TOTAL COST FOR NOV:												
2131.995													5569.52												
Car 19 Cf 0045 (HAVER)	Car 12 Cf 0046 (JOE)	Car 27 Cf 0053 (OFFICE)	Car 31 Cf 0021 (DISTR)	Car 1 Cf 0026 (ESTEBAN)	Car 5 Cf 0027 (SPARE D)	Car 11 Cf 0043 (NOE)	Car 7 Cf 0047 (SPARE F)	Car 10 Cf 0048 (PLANT)	Car 21 Cf 0050 (IOE)	Car 29 Cf 0055 (TITO)	Car 24 Cf 0074 (LEO)	Car 25 Cf 0075 (LUIS)	Car 26 Cf 0076 (CHUY)	Car 23 Cf 0077 (JESSE)	Car 30 Cf 0078 (LUIS V)	Car 18 Cf 0025 (LYSSY)	UNI Cf 0016 (PLANT)	Car 15 Cf 0019 (RSND)	Car 2 Cf 0044 (ALEX)	Car 20 Cf 0049 (ROY)	Car 22 Cf 0051 (SAL)	Car 28 Cf 0054 (OZZY)			
92.471	124.473	20.557	108.393	27.240	21.329	68.931	135.316	8.726	105.370	31.228	15.717	87.839	1												



Q Search

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U.S. Fish & Wildlife Service



Lower Rio Grande Valley (/refuge/Lower_Rio_Grande_Valley/)

National Wildlife Refuge | Texas

Wildlife and Habitat

[WILDLIFE AND HABITAT \(/REFUGE/LOWER_RIO_Grande_Valley/WILDLIFE_HABITAT.HTML\)](/refuge/Lower_Rio_Grande_Valley/wildlife_and_habitat/wildlife_habitat.html)

[Species Lists \(/refuge/Lower_Rio_Grande_Valley/wildlife_and_habitat/species_list.html\)](/refuge/Lower_Rio_Grande_Valley/wildlife_and_habitat/species_list.html)

[Wildlife Watching Tips \(/refuge/Lower_Rio_Grande_Valley/wildlife_and_habitat/wildlife_watching_tips.html\)](/refuge/Lower_Rio_Grande_Valley/wildlife_and_habitat/wildlife_watching_tips.html)

Wildlife and Habitat



Known as the lower Rio Grande Valley, the lower four counties of Texas contain a documented 1,200 plants, 300 butterflies, and approximately 700 vertebrates, of which at least 520 are birds. It is to protect this important

biodiversity that the Lower Rio Grande Valley National Wildlife Refuge was established.

Thousands of years of geographic change and evolutionary adaptation have resulted in the creation of numerous and distinct plant and animal communities in the four most southern counties of Texas. Many of these are found in and protected by the Lower Rio Grande Valley National Wildlife Refuge.

The Ramaderos biotic community sits at the western edge of the refuge. This arid landscape is cut by deep arroyos and small tributaries that extend for miles from the Rio Grande. Wildlife travels unimpeded down the humid corridors of lush riparian vegetation, particularly during times of drought and extreme heat. The biota of these natural drainages is a result of higher moisture and deeper soils. A tree typically foraged upon by white-tailed deer and cattle, the seemingly unobtrusive guayacan, has a root system that plant ecologists speculate may endure for about 1,000 years.

At the eastern edge of the refuge, impaled insects and small rodents adorn the blades of large, 100-year-old yuccas called Spanish daggers, compliments of a migratory bird, the loggerhead shrike. The irony of this macabre scene is not lost on the people who visit Palmito Ranch, site of the last land battle of the Civil War and a refuge tract that falls within the Clay Loma/Wind Tidal Flats. This biotic community is interspersed with saline flats, marshes, shallow bays, and unique dunes of wind-blown clay known as lomas. Following the last few miles of the Rio Grande, this refuge tract links coastal and river corridors and is staging ground for the endangered peregrine falcon. It is also habitat for 17 other federally listed threatened and endangered species, including the Kemp's ridley sea turtle.

A species of great concern to the U.S. Fish and Wildlife Service is the ocelot, an endangered cat whose numbers have dwindled to fewer than 50 in the United States. The Mid-Delta Thorn Forest, a biotic community that once covered much of the delta, is a hunting ground for this nocturnal species. Texas ebony, Granjeno and colima are but a few of the trees and shrubs that house an array of small mammals and birds, prey for the ocelot. Typified in remnant strips along fence rows, canals and ditch banks, the diminished thorn forest habitat forces the solitary ocelot to cross open fields and risk the dangers of vehicular traffic and predators.

Before dams and water control structures significantly reduced the flow of the Rio Grande, periodic floods cut shifting channels into the delta creating crescent-shaped oxbows, referred to in the Valley as "resacas." Resacas, complemented by dense bottomland hardwood forest, are characteristic of the Mid-Valley Riparian Woodlands biotic community. This habitat is particularly favored by birds such as chachalacas and green jays, as well as another endangered and elusive cat, the jaguarundi. Draping Spanish moss and another epiphytic bromeliad, the rare Bailey's ball moss, cling to cedar elm and Texas ebony. Found throughout the delta, brush-bordered resacas typical of this community attract many of the neotropical migrants and waterfowl that funnel through the Valley on their way to and from Central and South America.

On the edge of the riparian woodlands is a unique and severely diminished biotic community of sabal palms. Originally spanning more than 40,000 acres, the remaining palms are restricted to about 50 acres. They comprise one of the few strongholds for one of the rarest snakes in the U.S., the speckled racer. The southern yellow bat, a rare, year-round resident, roosts within the fronds of the remaining sabal palms that grow along the southernmost bend of the Rio Grande. The more than 900 species of beetles found within the small grove represents only a fraction of the insect community that aids plant pollination and other essential ecological functions.

The Woodland Potholes and Basins ecosystem contains numerous freshwater playa lakes and three hyper-saline lakes. Deep ruts, remnant tracks of oxcarts used by Spanish colonists to haul mined salt, can still be seen at the 530 acre salt lake, La Sal del Rey or "the King's salt." Black-necked stilts, black skimmers, and least and gull-billed terns can be found nesting along the shorelines of the salt lakes. The salty waters support brine shrimp and a few species of salt-tolerant water insects. Set in a low woodlands of honey mesquite, prickly pear, and lote bush, the freshwater potholes and playa lakes serve as favorite roosting and feeding areas for migrating geese, waterfowl, shorebirds, and sandhill cranes. Vegetated corridors will eventually connect this tract to the river.

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WHAT WE DO

SHARYLAND WATER SUPPLY CORP.
P.O. BOX 1868
MISSION, TX 78573

AGUAWORKS BRANCH #002
2907 N. Central Avenue
Brownsville, TX 78526

Telephone: 956-831-2500

10/21/18 Bid ID: 5016244 METER CHANGE OUT PROPOSAL OPTION B Page 1

Line	Quantity	Sell Per	Description	Price Per	Unit Price	Extended Price
10	18600	EA	5/8"X3/4" FLOW IQ AMI METER		221.45	4,118,970.00
30	18600	EA	METER INSTALL		50.00	930,000.00
50	1	EA	KAMSTRUP MANAGEMENT FEES		N/C	76.53
70	1	EA	ANALYTICAL SOFTWARE		N/C	3.38
90	1	EA	WATER LOSS INTELIGENCE		N/C	10.26
110	1	EA	ANALYTICS SERVICES		N/C	2.16
130	1	EA	WATER LOSS SET UP		N/C	1.42
150	1	EA	READY CONVERTER ADVANCED DRIVE BY COLLECTOR		1,304.20	1,304.20
180	12	EA	AMI RF COLLECTER FIXED BASED COLLECTOR		7,000.00	84,000.00
210	1	EA	READY MANAGER SOFTWARE		N/C	53.29
230	1	EA	READY MANAGER YEARLY FEE		23,251.00	23,251.00

Subtotal: 5,157,525.20

Tax: .00

Bid Total: 5,157,525.20

**SHARYLAND WATER SUPPLY CORPORATION WATER
CONSERVATION AND DROUGHT
CONTINGENCY PLAN
14 AUGUST 2014**

WATER CONSERVATION PLAN

System Profile

Sharyland Water Supply Corporation ("Corporation") is a legally chartered, non-profit, rural water supply corporation, operating under the laws of the State of Texas for the purpose of providing a potable water supply to rural residents in central Hidalgo County as described in Certificate of Convenience and Necessity Number 10558. The certificate boundary encompasses approximately 100 square miles and is contiguous to the cities of McAllen, Mission, and Edinburg. The Corporation serves the entire City of Alton, Texas, most of the City of Palmhurst, and the small community of McCook, Texas.

The system presently serves 16,636 meter connections. The Board of Directors consists of 7 members of the Corporation, and are elected by the membership of the Corporation. The General Manager and her staff are employed by the Board of Directors to administer the operating policies and rules of the Corporation.

The Corporation's water treatment and distribution systems include the following:

1. Two water treatment plants with a total capacity of 14 million gallons per day. Plant #1 can produce 6 million gallons per day and Plant #2 can currently produce 8 million gallons per day. Both plants are supplied by separate irrigation canal systems which, in the event of a canal failure, give the Corporation the ability to supply its distribution system from either treatment plant. Both treatment plants have emergency backup generators systems that are capable of supplying power to operate the entire plant.
2. The Corporation also has 4 each, one million gallon ground storage tanks; one each, one million gallon elevated storage tank; two each, 250,000 gallon elevated storage tanks; and one each, 50,000 gallon elevated storage tank (McCook) which supplement the system in periods of high demand.
3. In the event of a supply source contamination the affected plant can be shut down and the remaining plant can serve the system until the problem is corrected.
4. System outage due to failure of a major pump will not affect the system because backup pumps are kept on hand for immediate replacement. Spare impellers are on hand for all major pumps. Any failed pump can be repaired within 4 to 6 hours.
5. Interconnection with another water system is unnecessary at their time due to the redundancy of our system, but could be accomplished in an emergency by connecting to the City of McAllen's distribution system in several different locations, or the City of Edinburg at an existing meter location.

Water Rate

The Corporation will maintain its current inclining rate schedule for all users of the system to promote water conservation.

Records Management

The Corporation will continue to manage its records system that allows for the segregation of water sales and uses into user classes of residential and commercial. Plans to define and categorize the various "users" and classify them in specific areas such as multi-family, commercial, industrial, schools, and institutional are being considered for future computer software upgrades.

Wholesale Water Supply Contracts

The Corporation does not provide Wholesale water to any individuals or entities at this time.

Plan Enforcement

The General Manager, and her staff, shall enforce their Water Conservation Plan with the authority of the Board of Directors.

DROUGHT CONTINGENCY PLAN

Declaration of Policy, Purpose, and Intent

The Corporation has adopted this policy in order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions.

Water uses regulated or prohibited under the Water Conservation & Drought Contingency Plan (Plan) are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply conditions are deemed to constitute a waste of water which subjects the offenders to penalties as defined in this Plan.

Public Involvement

Opportunity for the public to provide input into the preparation of the Plan was provided by the Corporation by public notice of a regular board meeting. The Corporation holds regular meetings on the second Thursday each month. These meetings are open to the membership and general public and conform to the Open Meetings law. Any person in attendance may speak to the Board of Directors about any issue that concerns them, and may give input to aid in the decision making process.

Even numbered addresses: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.

Non-essential water use: water uses that are not essential nor required for the protection of public, health, safety, and welfare, including:

- (a) Irrigation of landscape areas, including parks, or athletic fields, except otherwise provided under this Plan;
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (c) Use of water to wash down any sidewalks, walkways, driveways, or other hard-surfaced areas;
- (d) Use of water to wash down buildings or structures for purposes other than immediate fire protection;
- (e) Flushing gutters or permitting water to run or accumulate in any gutter or street;
- (f) Use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools;
- (g) Failure to repair a leak(s) within a reasonable period after having been given notice to repair the leak(s); and

Odd numbered addresses: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

Criteria for Initiation and Termination of Drought Response Stages

The General Manager or her designee shall monitor water supply and/or demand conditions on a monthly basis and shall determine when conditions warrant initiation or termination of each stage of the Plan, that is, when the specified "triggers" are reached.

The triggering criteria described below are based on the Rio Grande Regional Planning Group's recommendations.

Stage 1 Trigger – MILD Water Shortage Conditions

Requirements for initiation

Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses, defined in Section VII - Definitions, when the level of U.S. water stored in Amistad and Falcon Reservoirs reaches 51% or 1.66MAF.

Their phase consists of voluntary water conservation by all users of the system. All users of the system shall be requested to voluntarily conserve the use of water.

Drought Response Stages

The General Manager, or her designee, shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in the Plan, shall determine that a mild, moderate, or severe, water shortage condition exists and shall implement the following notification procedures:

Notification

Notification of the Public:

The General Manager, or her designee, may notify the public by publication in a newspaper of general circulation, by direct mail to each customer, by public service announcements, or by signs posted in public places.

Additional Notification:

The General Manager, or her designee, shall notify directly, or cause to be notified directly, the following individuals and entities:

The Board of Directors of the Corporation
The City of Alton Administrator
The City of Alton Fire Chief
The City of Edinburg Fire Chief
Critical water users due to medical reasons
TCEQ

Stage 1 Responses -MILD Water Shortage Conditions

Goal: Achieve a voluntary 5 percent reduction in monthly total water use.

Voluntary Water Use Restrictions:

- (a) All customers will be asked to voluntarily limit the irrigation of lawns and landscaped areas, and to irrigate only between the hours of midnight and 10:00 a.m.
- (b) All customers will be asked to practice water conservation and to minimize or discontinue water use for non-essential purposes.

Stage 2 Responses –MODERATE Water Shortage Conditions

Goal: Achieve a 5 percent reduction in monthly total water use.

Mandatory Water Use Restrictions: Under threat of penalty for violation, the following water use restrictions shall apply to all persons:

- (a) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to the hours of midnight until 10:00 a.m. However, irrigation of landscaped areas is permitted at any time if it is by means of a hand-held hose, a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system.

WATER ALLOCATION / ENFORCEMENT

In the event water shortage conditions threaten public health, safety, and welfare, the General Manager is hereby authorized to allocate water according to the following water allocation plan: Water shortages may be caused by water production or distribution system limitations, source contamination, or failure of a major water system component.

Single-Family Residential Customers

The allocation to residential water customers residing in a single-family dwelling shall be as follows:

Persons in Household	Gallons per Month Allowed
1 or 2	5,000
3 or 4	7,000
5 or 6	9,000
7 or 8	11,000
9 or 10	13,000
10 or more	15,000

"Household" means the residential premises served by the customer's meter. "Persons per household" includes only those persons currently physically residing at the premises and expected to reside there for the entire billing period. It shall be assumed that a particular customer's household is comprised of two

(2) persons unless the customer notifies the Corporation of a greater number of persons per household on a form prescribed by the General Manager. The General Manager shall give her best effort to see that such forms are made available to every residential customer. It shall be the customer's responsibility to go to the Corporation's office to complete and sign the form claiming more than two (2) persons per household. New customers may claim more persons per household at the time of applying for water service on the form prescribed by the General Manager. When the number of persons per household increases so as to place the customer in a different allocation category, the customer may notify the Corporation on such form and the change will be implemented in the next practicable billing period. If the number of persons in a household is reduced, the customer shall notify the Corporation in writing within two (2) days. In prescribing the method for claiming more than two (2) persons per household, the General Manager shall adopt methods to insure the accuracy of the claim.

Residential water customers shall pay the following surcharges:

- \$3.00 for the first 1,000 gallons over allocation.
- \$5.00 for the second 1,000 gallons over allocation.
- \$10.00 for the third 1,000 gallons over allocation.
- \$15.00 for each additional 1,000 gallons over allocation.

Surcharges shall be cumulative.

Persons requesting an exemption from the provisions of this Plan shall file a petition for variance with the General Manager within 5 days after the Plan, or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the General Manager and shall include the following:

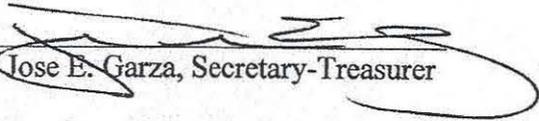
- (a) Name and address of the petitioner(s).
- (b) Purpose of water use.
- (c) Specific provision(s) of the Plan from which the petitioner is requesting relief.
- (d) Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Plan.
- (e) Description of the relief requested.
- (f) Period of time for which the variance is sought.
- (g) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
- (h) Other pertinent information.

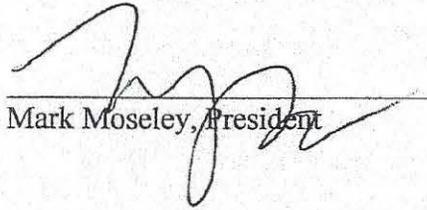
Variances granted by the Corporation shall be subject to the following conditions, unless waived or modified by the General Manager:

- (a) Variances granted shall include a timetable for compliance.
- (b) Variances granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

THEIR WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN WAS ADOPTED BY THE BOARD OF DIRECTORS (AS REVISED) AT A REGULAR MEETING HELD ON 14 AUGUST 2014. THEIR PLAN SHALL BE INCLUDED IN THE CORPORATION'S TARIFF AS SECTION G.


Jose E. Garza, Secretary-Treasurer


Mark Moseley, President

Water Master Plan

Baseline Development

Sharyland Water Supply Corporation

Alton, Texas

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January 2019

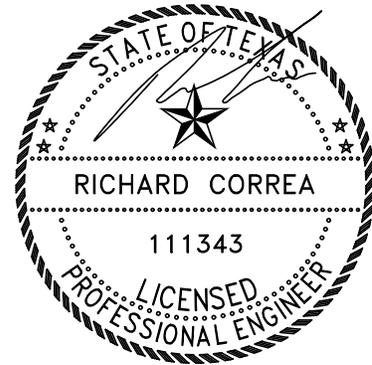
Garver Project No.: 17258065

Engineer's Certification

I hereby certify that this Baseline Development Technical Memorandum for the Water Master Plan was prepared by Garver under my direct supervision for Sharyland Water Supply Corporation.



Richard Correa, PE
State of Texas PE License 11343
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Digitally Signed 01/24/2019

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1.0 Introduction

This technical memorandum presents the data used and processes taken to develop population and demand projections within the Sharyland Water Supply Corporation (SWSC) service area to establish the baseline growth estimates for the SWSC Water Master Plan. Historical population data was used to develop growth trends for the service area. These growth trends were combined with historical water demand information to project water demands for the planning horizon. Projected water demands will be used as model inputs to assess system performance over various growth and operational scenarios, and to guide capital improvement plans for the planning horizon.

2.0 Baseline Development

2.1 Planning Horizon

The planning horizon for this Master Plan is 2020-2045. Demand and population projections will be provided for 5-year increments over this 25-year planning horizon. The 5-year evaluation increments are utilized to facilitate prioritization of the capital improvements plan (CIP).

2.2 Population Trends

2.2.1 Historical Population

This section outlines the methods used to determine historical population estimates for the existing SWSC service area.

2.2.1.1 SWSC Service Area Definitions

SWSC provided three Certificate of Convenience and Necessity (CCN) boundaries that represent their existing and future service areas. These areas were updated following comments from the client during project meetings. The list below outlines the boundaries for SWSC:

- The existing CCN boundary, which is SWSC's current legal boundary;
- A boundary containing proposed expansions to the Existing CCN boundary that was submitted to the Public Utility Commission of Texas (PUC) for approval in 2017, and;
- A boundary containing further proposed expansions, beyond those already submitted to the PUC.

Figure 2-1 shows the three CCN boundaries for SWSC.

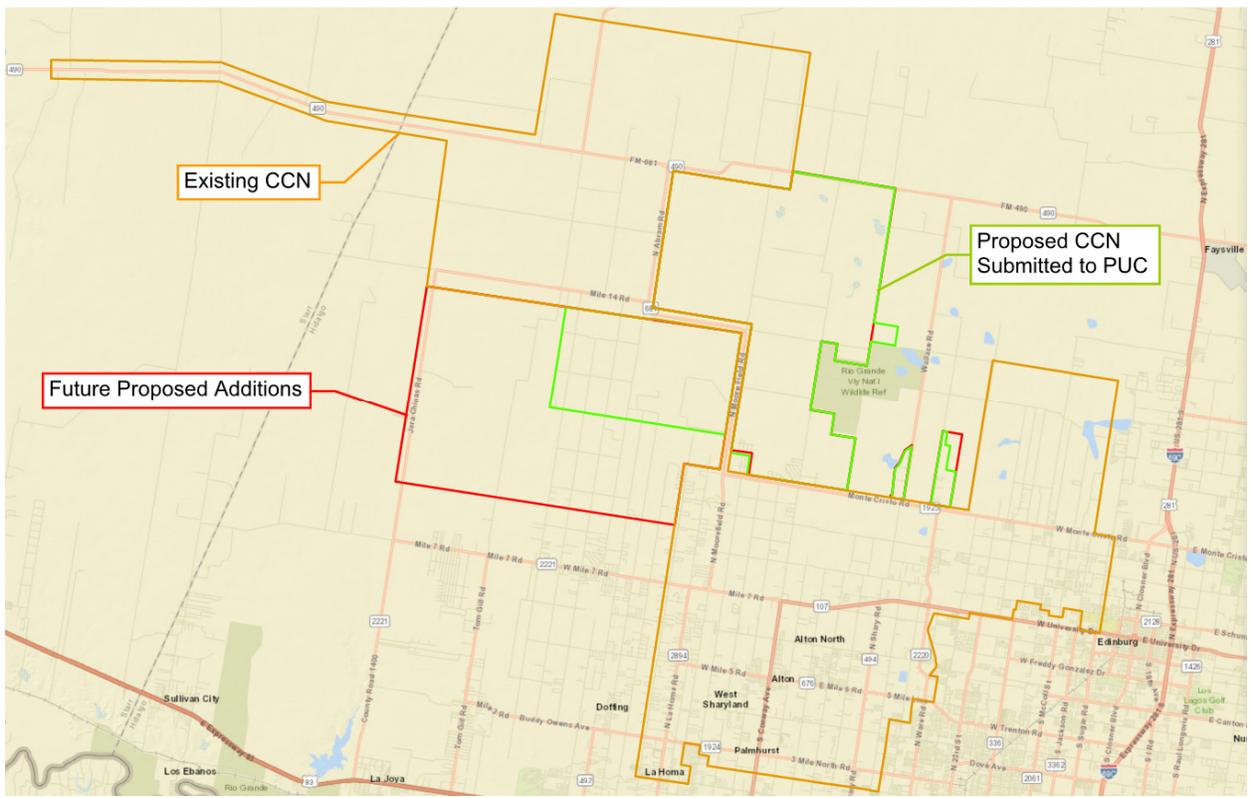


Figure 2-1: CCN Boundaries Provided by SWSC

SWSC also provided its current GIS data for its existing waterlines. These waterline layers were overlaid on the existing CCN boundary, and the boundary was corrected to reflect the current extent of the service area. Figure 2-2 shows the existing CCN boundary and the existing waterlines for the SWSC system.



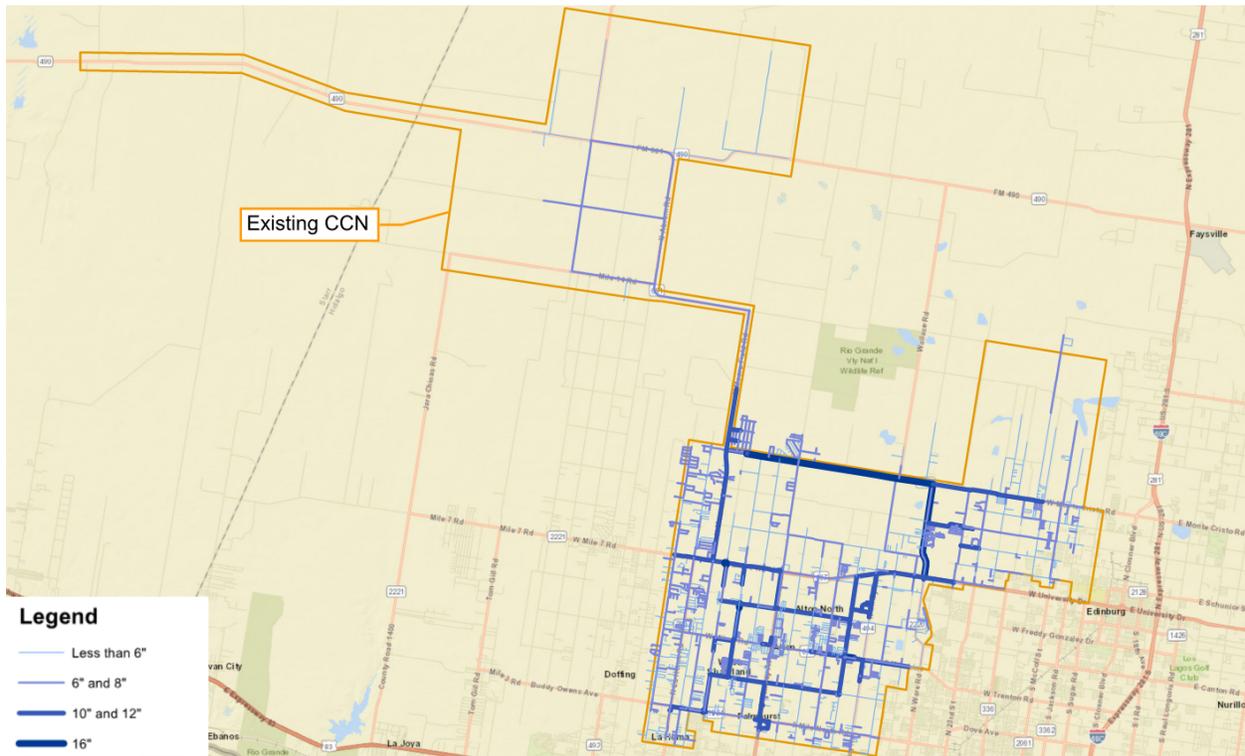


Figure 2-2: Existing CCN and Existing Waterlines

Areas where SWSC waterlines extended beyond the existing CCN were verified with the client for validity. In order to provide the most accurate population estimate, the existing CCN was modified to include the parcels that are served by the existing waterlines. This modified boundary will be considered the existing service area for SWSC for purposes of identifying existing served population. Figure 2-3 shows the areas (in green) of the existing CCN boundary that were modified to create the existing service area boundary.

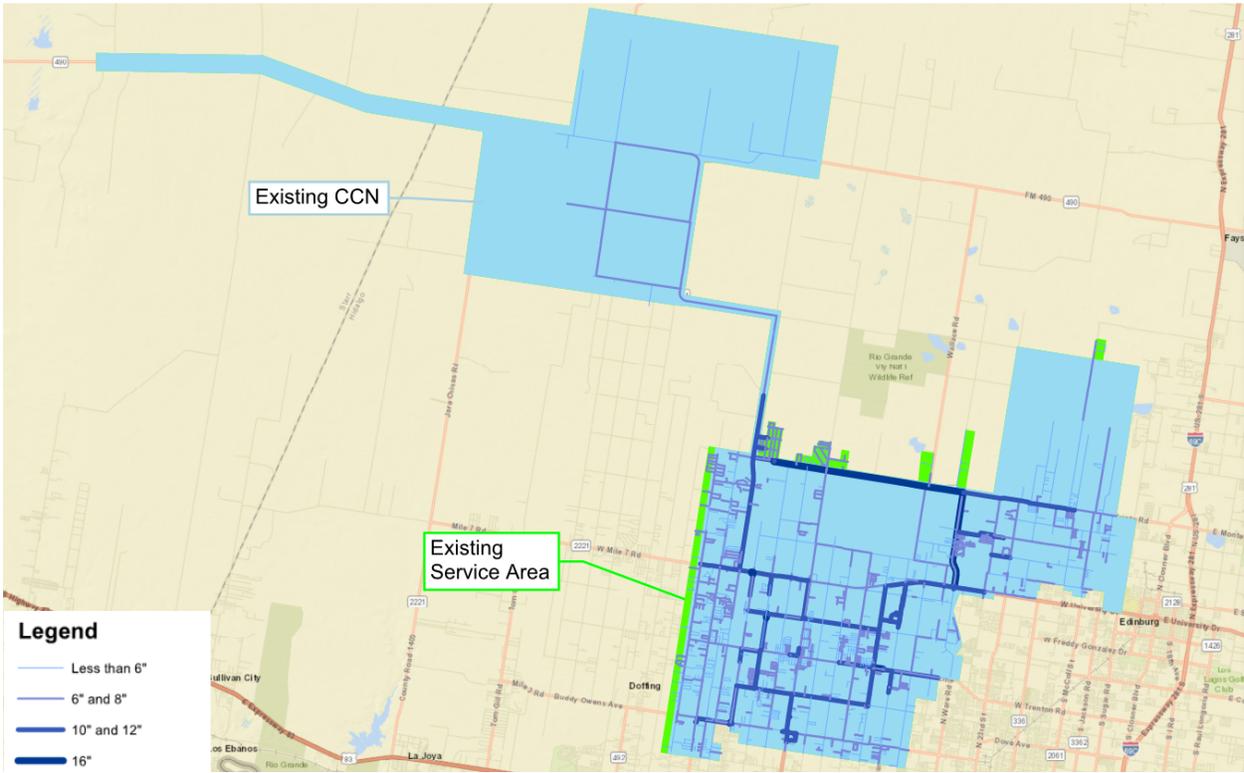


Figure 2-3: Existing Service Area Boundary

The existing SWSC service area was used alongside the proposed CCN submitted to PUC and the future proposed additions to develop two possible future service areas. The two future service areas are described below:

- Future Service Area 1 is the existing service area plus the proposed CCN submitted to PUC
- Future Service Area 2 is Future Service Area 1 plus the future proposed additions (beyond those already submitted to PUC)

Figure 2-4 shows the existing SWSC service area and the two future service areas.





Figure 2-4: Existing SWSC Service Area and Two Future SWSC Service Areas

2.2.1.2 Census Data Methodology

Census Bureau data was primarily used to develop population estimates for SWSC. To better facilitate the data collection and processing of its population surveys, and develop localized population estimates, the Census Bureau delineates geographical subdivisions called tracts, block groups, and blocks. The description of each of these statistical boundaries is provided below:

- Blocks are the smallest statistical boundary, and are bounded on all sides by visible (e.g. roads) and non-visible boundaries (e.g. city boundaries).
- Block groups are medium-sized clusters of blocks within the same census tract and comprise a population of approximately 600-3,000 people
- Census tracts are large clusters of block groups within the same county and comprise a population of approximately 1,200-8,000 people

The two means by which the Census Bureau develops population estimates are the Decennial Census and the American Community Survey (ACS). The Decennial Census is conducted every ten years, when every household is surveyed for a direct and comprehensive count of population and other demographic metrics. The responses from each survey are recorded and used to create a population estimate for the representative year; the Decennial Census data is considered the most complete and accurate count of population in a given area.

The American Community Survey (ACS) sends surveys to approximately 3 million random homes across the country throughout the year. The ACS uses the data collected from survey responses to develop 1-year and 5-year population estimates, based on a statistically representative sample of households. These estimates are valuable, as they provide continuous annual population estimates between the decennial counts. Table 2-1 highlights key differences between the 1-year and 5-year estimates.

Table 2-1: ACS 1-year and 5-year Estimate Comparisons

ACS 1-year Estimates	ACS 5-year Estimates
-12 months of collected data	-60 months of collected data
-Data for areas with populations of 65,000 or more	-Data for all size areas
-Smallest sample size of surveys	-Largest sample size of surveys
-Data estimates are the least accurate	-Data estimates are the most accurate
-More receptive of time varying data	-Less receptive of time varying data
-Released annually	-Released annually

ACS 5-year estimates were selected for the purposes of this study for the following reasons:

- 5-year data is more appropriate for the blend of concentrated and distributed/rural populations that make up the SWSC service area
- 5-year estimates are more accurate because they have lower margins of error (ACS uses a 90 percent confidence level to create margins of errors).

Ideally, to estimate the population within the SWSC service area, geographic boundaries that match the service areas would be used. However, none of the Census Bureau geographic areas perfectly match the SWSC service areas. Thus, the smallest possible geographic areas provided by the Census Bureau with 5-year ACS data available were used to match the SWSC service areas as best as possible. The two smallest Census Bureau geographic boundaries with 5-year ACS data available are census tracts and block groups. The block group level data was used to estimate the population inside the SWSC service area, because it has higher spatial precision than census tract level data.

Decennial census and ACS 5-year estimate data, at the block group level, were obtained from the National Historical Geographic Information System (NHGIS) service for all available years. NHGIS is a service provided by the Integrated Public Use Microdata Series (IPUMS). Census boundary information was obtained from the Topologically Integrated Geographic Encoding and Referencing (TIGER)/Line resource provided by the Census Bureau.

2.2.1.3 Service Area Population Projections

GIS was used to develop the service area population estimates for the current and two future service area boundaries. Each service area was overlaid on block group boundaries, one at a time, in order to select the block groups that fell within each service area. Data from selected block groups was used to develop population estimates for each service area, assuming a uniform population distribution inside each block group. Table 2-2 and Table 2-3 summarize the population estimates from the census block groups for all three service areas.

Table 2-2: Decennial Census Year Population Estimates

Year	Existing Service Area Population Estimate	Future Service Area 1 Population Estimate	Future Service Area 2 Population Estimate
2000	45,473	49,000	50,183
2010	72,447	76,698	80,493

Table 2-3: ACS 5-year Estimate Population Estimates

5 Year Estimate Period	Year Published	Existing Service Area Population Est.	Future Service Area 1 Population Est.	Future Service Area 2 Population Est.
2006 – 2010	2011	74,194	77,539	80,989
2007 – 2011	2012	74,261	78,528	82,307
2008 – 2012	2013	75,815	79,876	83,808
2009 – 2013	2014	77,349	81,378	85,481
2010 – 2014	2015	78,802	82,879	87,258
2011 – 2015	2016	77,535	81,473	85,745
2012 – 2016	2017	79,437	82,629	86,819

To verify the population estimate using census data and GIS, the trend in the population estimates for the existing service area was compared to the trend of the historical connection numbers provided by SWSC. Figure 2-5 shows the comparison of the trend for the population estimates based on census data and the trend in SWSC connections.

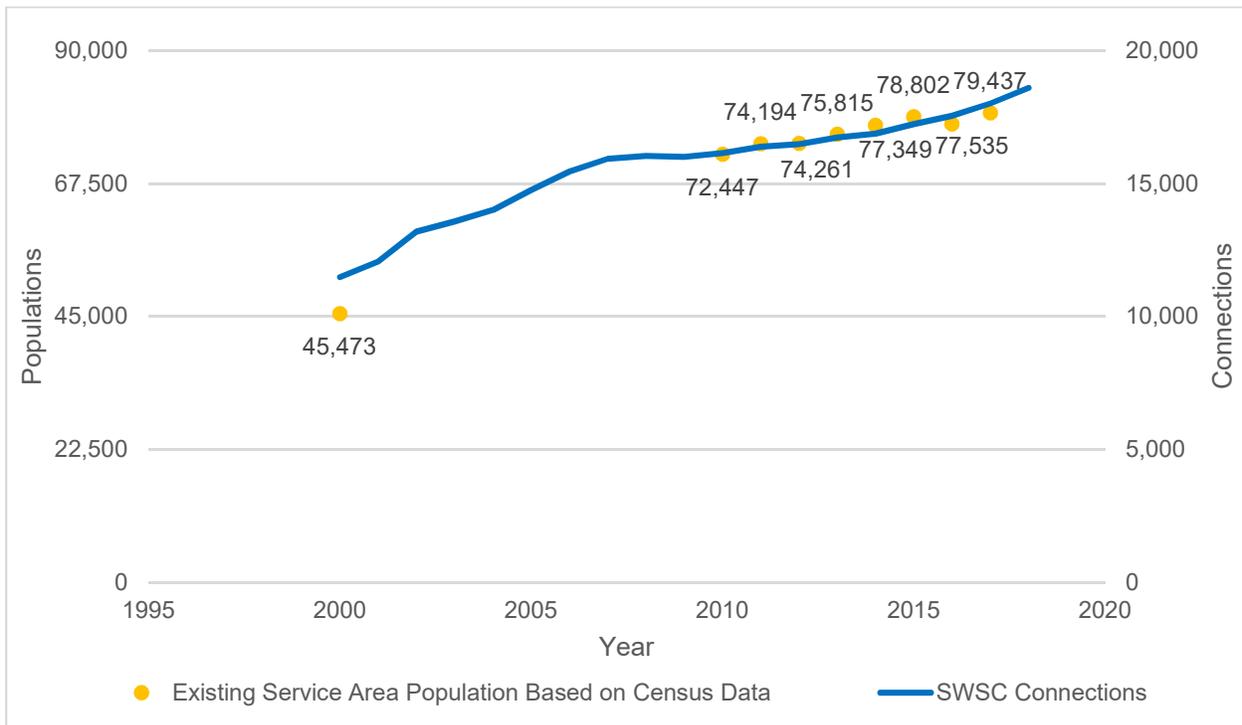


Figure 2-5: Existing Service Area Population Estimates and SWSC Connections Comparison

Figure 2-5 shows that the growth rate for the existing service area population estimate aligns well with the SWSC historical account/connection growth rate over this time period of data. It is reasonable to assume that the average number of people per connection does not vary greatly over short periods in time. Therefore, the similar growth rate between the population estimates and SWSC historical account/connection numbers validates the census data summary approach used to estimate the service area population.

In order to provide a population projection that best represents the population growth within the SWSC service area, the census data was compared to population estimates and projections from documents provided by the client and outside research for SWSC. Sources used include the following:

- SWSC preliminary design report for Water Treatment Plant No. 3, which contained population estimates, and historical connection numbers for SWSC
- McAllen regional masterplan for 1997, containing population estimates for SWSC from 1994-1996, and population projections to 2026
- Texas Water Development Board (TWDB) population projections for SWSC from the Region M TWDB planning documents

Figure 2-6 shows the relationship between the population estimates and projections from the block group census data, as well as the sources mentioned above. Two best-fit linear regressions were developed from the census data to compare to projected population growth from other sources. One linear regression was created using the census data from 2000-2017 and the other was created using the census data from 2010-2017.

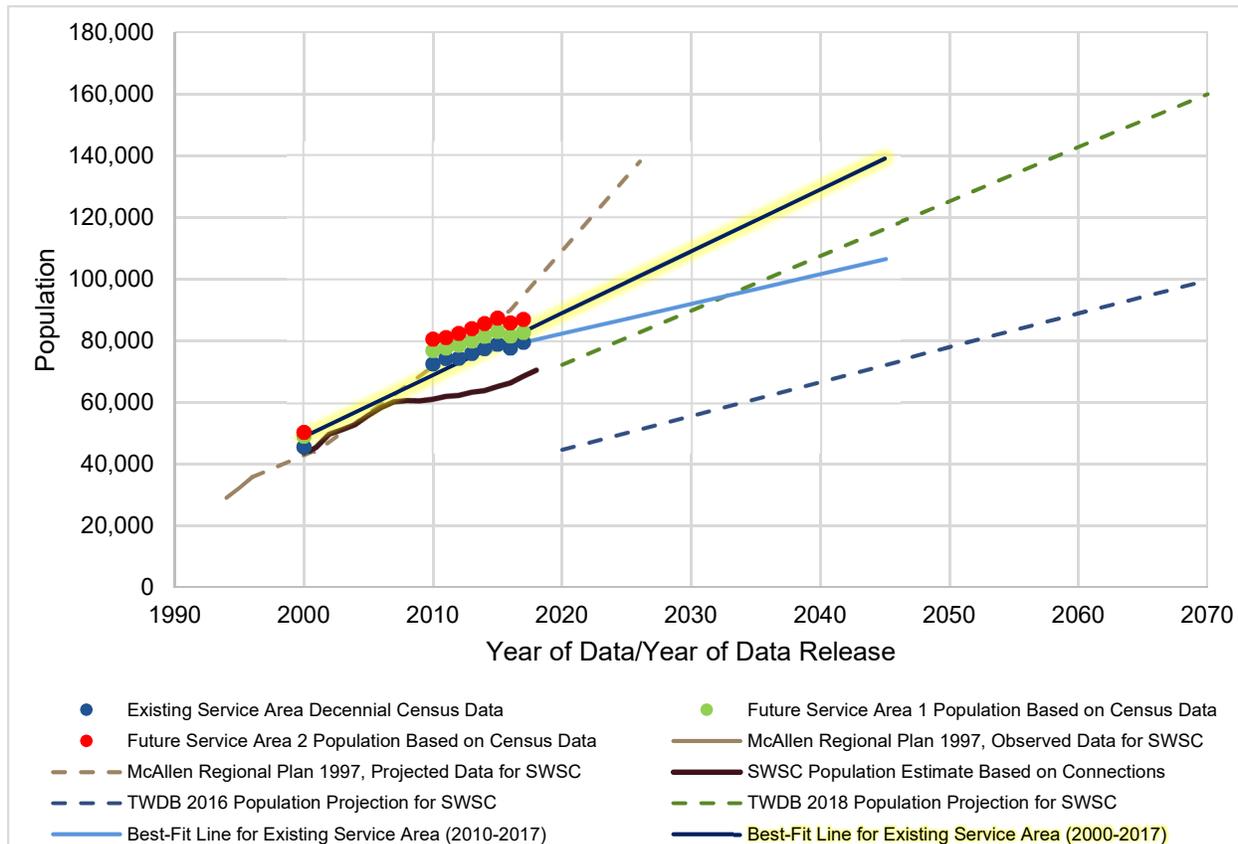


Figure 2-6: Population Trend Comparisons for SWSC

From Figure 2-6, the best-fit line for the existing service area population estimates from 2000 to 2017 (highlighted in yellow) experiences a similar growth rate as the TWDB population projection for SWSC from 2018. These lines are parallel to each other through 2045, which is the end of the planning horizon for this project. Since these lines are parallel over this time period, they experience the same linear growth. Because of this similarity, the 2018 TWDB linear growth trend was used for population projects for SWSC.

The TWDB projections use the cohort-component model to develop their population projections. The cohort-component model uses demographic information, such as age, gender, and racial-ethnic groups, along with birth rates, death rates, and migration rates to estimate future populations. Historical birth rates, death rates, and migration rates are assumed to remain constant for the projection period of interest with the cohort-component model. This type of model is widely used for demographic population estimates, because it accounts for the population change events (birth rates, death rates, and migration rates) for different demographic groups.

For the SWSC population projection, the 2018 TWDB growth rate equation was applied from the 2017 census data estimates. Table 2-4 contains the projected population estimates for all three SWSC boundaries.



Table 2-4: Projected SWSC Boundary Population

Year	Existing SWSC Service Area	Future SWSC Area 1	Future SWSC Area 2
2020	84,695	88,098	92,566
2025	93,459	97,214	102,144
2030	102,222	106,330	111,721
2035	110,986	115,445	121,299
2040	119,749	124,561	130,877
2045	128,513	133,677	140,455

To verify the 2018 TWDB model was a reasonable assumption, conceptual-level evaluations of potential buildout populations were completed utilizing total land area and assumed average buildout population density. Based on these calculations, it was concluded that a linear growth model is a reasonable assumption for the planning horizon of this project.

Following discussions with the client on planned CCN acquisitions for Future Service Area 1 and Future Service Area 2, the population projection outlined in Figure 2-7 best represents the expected growth pattern for SWSC. In Figure 2-7, Future Service Area 1 population projections were used in 2020 and 2025, while Future Service Area 2 population projections were used for 2030-2045. In Figure 2-7, dashed lines extend from the population estimates for Future Service Area 1 and Future Service Area 2 to help illustrate when the population projection switches from one service area to another.

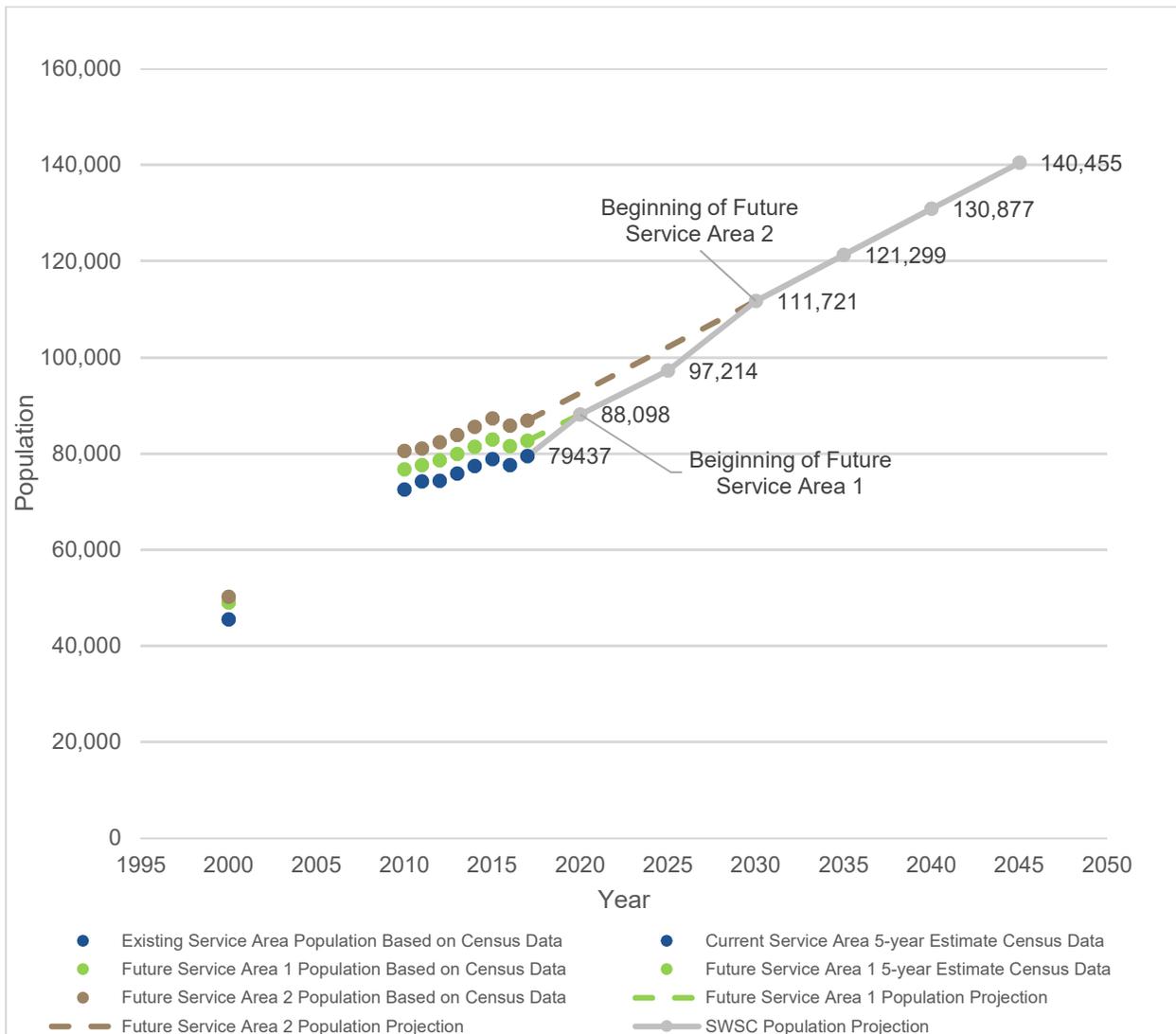


Figure 2-7: SWSC Population Projection

Figure 2-7 represents population projections that will be used for all other aspects of the project requiring population counts. The growth rates from 2017 to 2020 and from 2025 to 2030 show larger growth rates than 2018 TWDB projection growth rate, because the service area used between these range of years changes. From 2017 to 2020, the population projection moves from the existing service area to Future Service Area 1. From 2025 to 2030, the population projection moves from Future Service Area 1 to Future Service Area 2. These increases in land area correspond to larger starting populations in 2017 for the population projection, and leads to the larger growth rates when the existing service area for that year transitions to a larger service area. These transitions are illustrated by dashed lines extending from Future Service Area 1 and Future Service Area 2 population estimates.



2.3 Projected Service Area Connections

Connection projections were developed using the SWSC connection information and the current service area population estimates. Connection projections will be used as another way to track future growth in SWSC. Figure 2-8 shows the people per connection information from 2000-2017 where both population estimates and SWSC connection data are available.

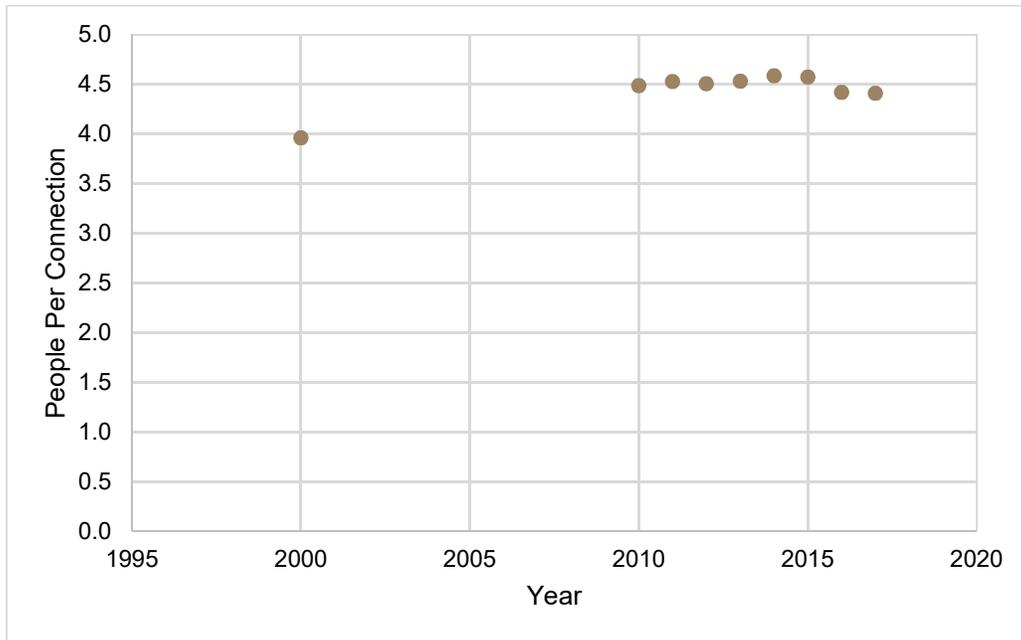


Figure 2-8: SWSC People Per Connection

From Figure 2-8, people per connection numbers are fairly consistent from 2010-2017. For this range of data, SWSC shows an average people per connection of approximately 4.50.

Table 2-5 shows the projected number of connections for each service area. Table 2-5 was created using 4.50 people per connection and the population projections from Table 2-4.

Table 2-5: Projected Number of Connections for SWSC Service Areas

Year	Existing SWSC Service Area	Future SWSC Area 1	Future SWSC Area 2
2020	18,821	19,577	20,570
2025	20,769	21,603	22,699
2030	22,716	23,629	24,827
2035	24,663	25,655	26,955
2040	26,611	27,680	29,084
2045	28,558	29,706	31,212

Figure 2-9 shows the expected growth pattern for the SWSC connections. In Figure 2-9, Future Service Area 1 connection projections were used in 2020 and 2025, while Future Service Area 2 connection projections were used for 2030-2045.

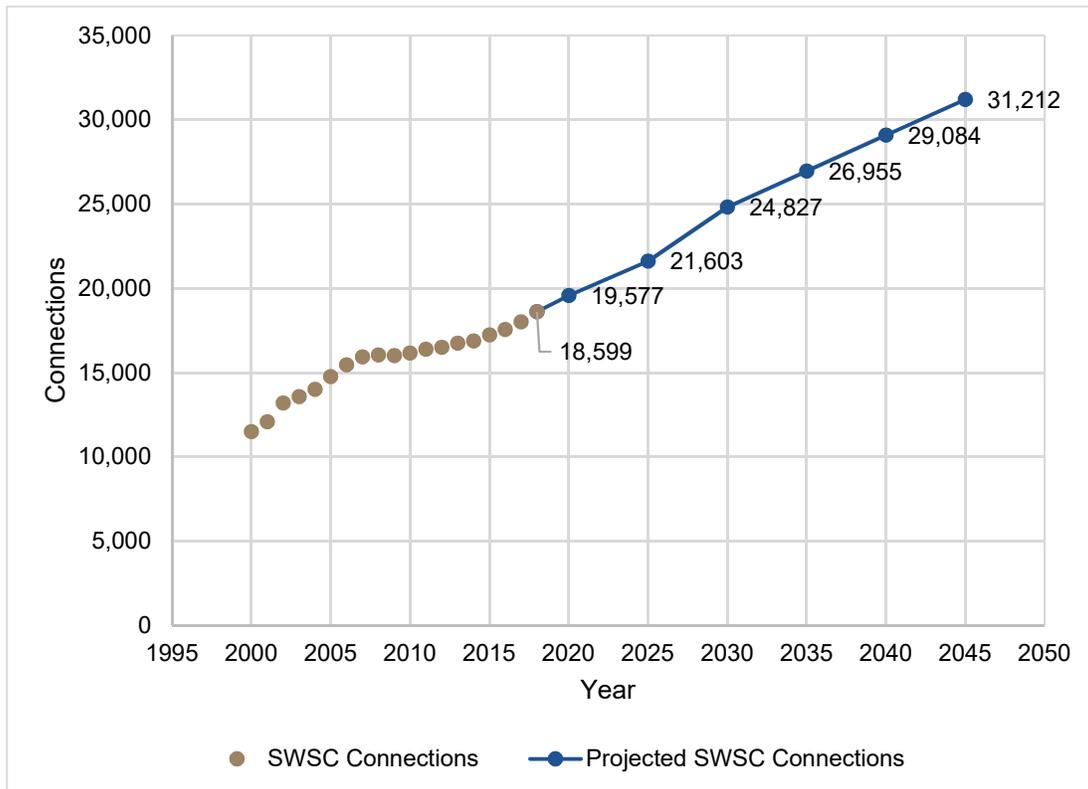


Figure 2-9: Projected Number of SWSC Connections

Figure 2-9 represents connection projections that will be used for all other aspects of the project requiring connection counts. Specifically, these counts will be used during the existing system analysis. Projected connection counts in Figure 2-9 will be used to determine TCEQ requirements for the system over the planning horizon, which will be used in the infrastructure assessments.

2.4 Water Usage Trends

A historical water trend must be established to project future demands. Historical production data records was analyzed to determine the amount of water used locally, identify seasonal variations, establish relationships to population trends, and, most importantly, establish average and maximum day demands. Evaluation of historical water production information is discussed in Section 2.4.1. Water billing data for the period of 2016-2018 was assessed to validate the production data and identify if major losses were occurring throughout the system. The results from the billing data analysis will also be used to support spatial allocation of demands in the distribution system hydraulic model. This billing data analysis is further discussed in Section 2.4.2. The historical average and maximum day demands are used in combination with population projections to predict future water usage, as discussed in Section 2.4.3.

2.4.1 Historical Water Production Information

Water production data was available for January 2015 to August 2018. The total water produced each day from the three water treatment plants was calculated by summing the monthly operating reports (MOR) production data for WTP1, WTP2, and WTP3. The maximum, average, and minimum day demands were then identified based on these daily production values; maximum and minimum weekly values, and maximum and minimum monthly values were also calculated on a rolling 7-day and 30-day basis, respectively. These values each represent “periods of record” for demand, and are used for a variety of applications throughout the course of planning, capacity analysis, and design.

As the most recent and complete data set, 2017 was selected as the target year for baseline development. Figure 2-10 shows the identified periods of record for 2017 and the precipitation data collected at the McAllen Miller International Airport, about 9.5 miles from WTP1, as reported by the National Climate Data Center (NCDC). The total water produced daily in 2017 is also shown in Figure 2-10. Typically, for a given time in the year (e.g., mid-July) water production is higher during periods of low rainfall amounts as compared to when rainfall is higher. Water production increases as more water is used for irrigation/yard maintenance, car washing, etc. The precipitation data was used as a general reference to compare to the production data.

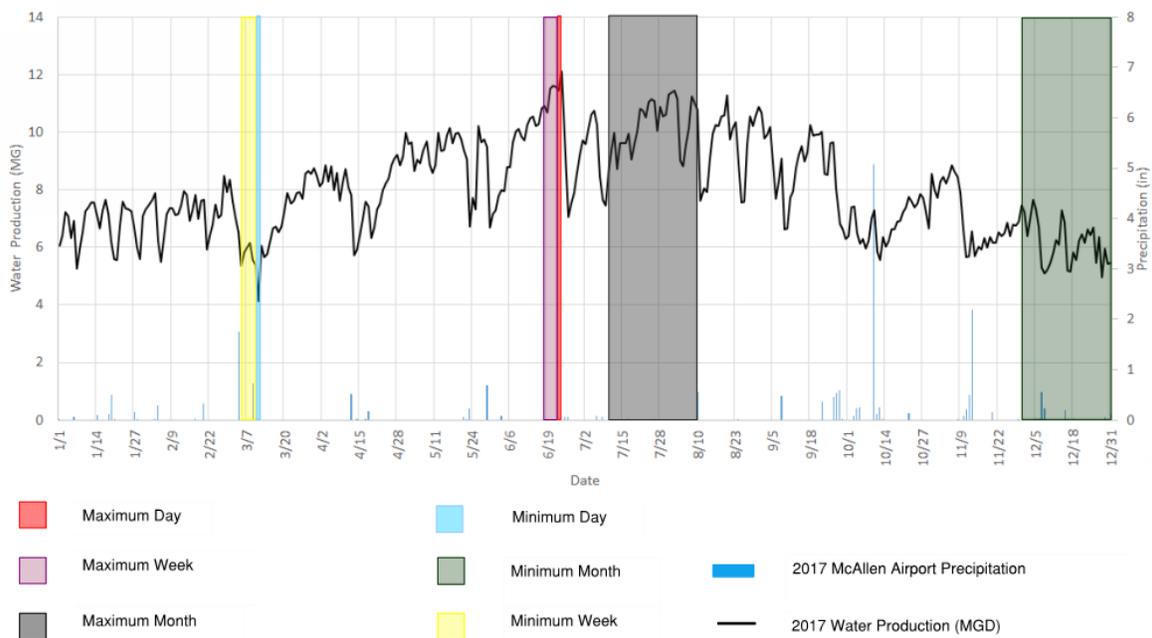


Figure 2-10: Periods of Record for 2017 Water Pumpage Data

Although not a direct relationship, high/low rainfall amounts generally coincide with expected high/low daily water production values, as shown in Figure 2-11. During the wet period from September 26th through October 12th, the water production was reduced. In August and late October, when rainfall was minimal, water production increased.

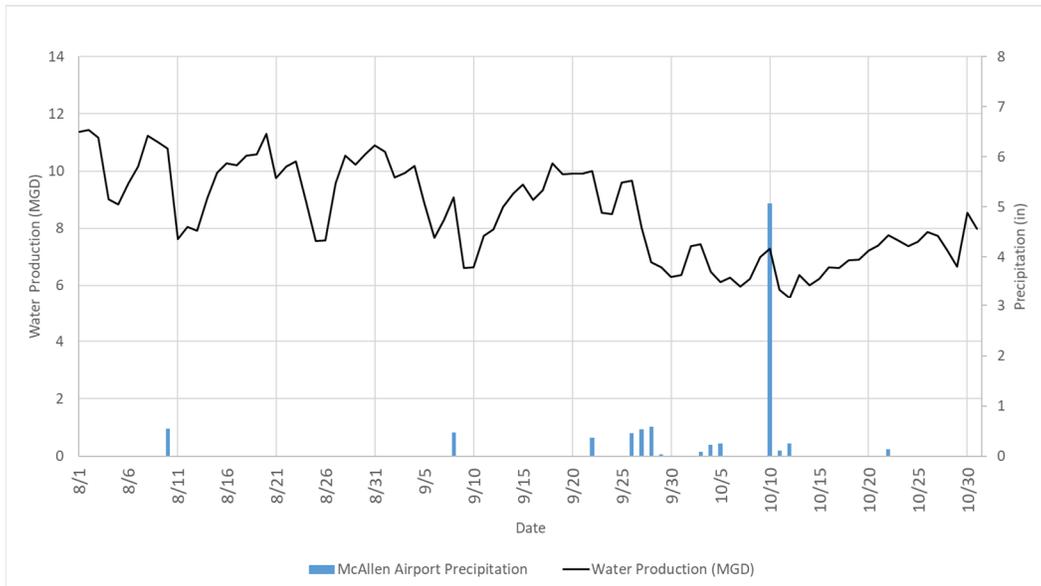


Figure 2-11: Precipitation Impact on Water Production Requirements (excerpt from 2017 annual graph)

The impact of rainfall is more apparent when comparing a wet year versus average years, as shown in Figure 2-12. Water production decreased in 2015 with higher than average rainfall totals. The rainfall in 2015 was 30.0 inches, which is 38% greater than the annual average rainfall of 21.7 inches. During the subsequent three years, annual rainfall was below average, with 2016 and 2017 being the two driest years. The total water production in these two years was the highest over the four-year period, and the water production in 2015 was significantly less (approximately 19%) than in subsequent years. This is taken into consideration when determining average and maximum demands.

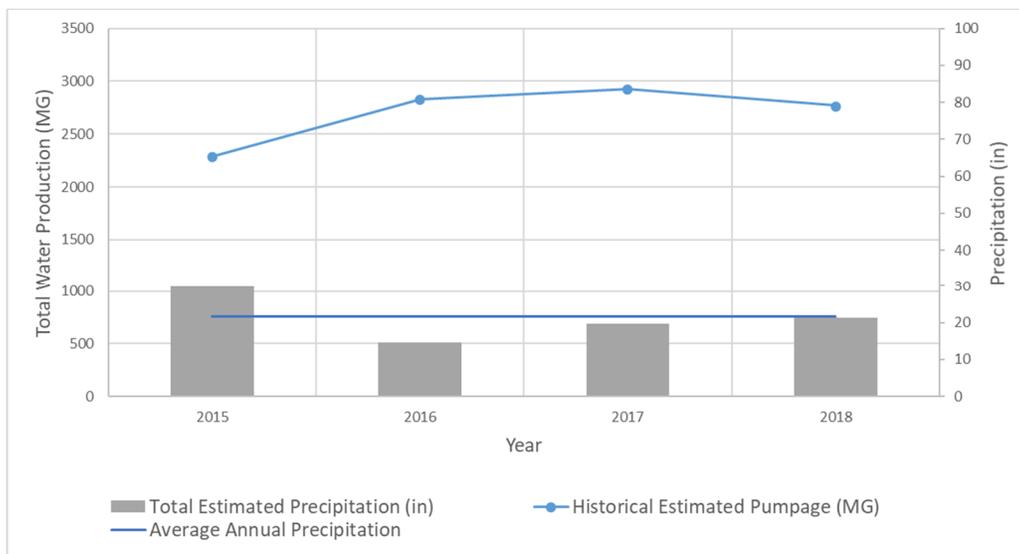


Figure 2-12: Impact of Precipitation on Annual Water Production Requirements

Table 2-6 shows the occurrence for each of the periods of record (as illustrated in Figure 2-10) and the associated demands. Table 2-6 also includes the demands and the per capita usage. The per capita usage calculated for each year is the average day demand divided by the estimated population for that year. The estimated population for 2017 was 79,437.

Table 2-6: Periods of Record for January to December 2017

Record	Demand (MGD)	Occurrence (date)
Maximum Day	12.12	6/24/2017
Maximum Week	11.41	6/18/2017-6/24/2017
Maximum Month	10.32	7/12/2017-8/10/2017
Average Day	8.02	NA
Minimum Month	6.08	12/2/2017-12/31/2017
Minimum Week	5.49	3/5/2017-3/11/2017
Minimum Day	4.14	3/11/2017
Maximum Day Per Capita Usage (gpcd)		152.6
Average Day Per Capita Usage (gpcd)		100.9

To establish average and maximum demands, similar analysis was completed for the data obtained for 2015, 2016, and 2018. Table 2-6 to Table 2-9 show the identified periods of record for January 2015 to August 2018.

On December 16, 2015, WTP3 came into operation. October 2015 records for WTP1 were not available; however, October 2016 and October 2017 did not have maximum/minimum periods of record, and it is assumed that October 2015 would be similar. Calculation of average day conditions requires data from the full year. To calculate the average day, the total production for WTP 1 from September through November was evaluated to estimate the missing October WTP 1 production values. The estimated population for 2015 was 78,802.

Table 2-7: Periods of Record for January to December 2015

Record	Demand (MGD)	Occurrence (date)
Maximum Day	10.33	7/20/2015
Maximum Week	10.02	8/11/2015-8/17/2015



Maximum Month	9.75	7/19/2015-8/17/2015
Average Day	6.33	NA
Minimum Month	5.03	1/2/2015-1/31/2015
Minimum Week	4.72	4/12/2015-4/18/2015
Minimum Day	4.22	1/15/2015
Maximum Day Per Capita Usage (gpcd)		131.1
Average Day Per Capita Usage (gpcd)		80.2

Average day requires data from the full year. To calculate the average day, erroneous data for September 23-30, 2016 at WTP 2 (repeated values of 1.0 MGD) were replaced with the WTP 2 2017 production for those same dates. The estimated population for 2016 was 77,535.

Table 2-8: Periods of Record for January to December 2016

Record	Demand (MGD)	Occurrence (date)
Maximum Day	11.72	7/28/2016
Maximum Week	11.14	8/7/2016-8/13/2016
Maximum Month	10.68	7/15/2016-8/13/2016
Average Day	7.76	NA
Minimum Month	5.78	1/1/2016-1/30/2016
Minimum Week	5.14	1/2/2016-1/8/2016
Minimum Day	4.53	1/2/2016
Maximum Day Per Capita Usage (gpcd)		151.2
Average Day Per Capita Usage (gpcd)		99.8

The periods of record for 2018 only reflect the data from January to August. The period of record for 2018 only reflects the data from January to August. Based on the previous years, the maximum day, maximum week, and maximum month typically occur during the period for which data was available. Therefore, there is a high level of confidence in those values. Average day requires data from the full year. The average day was estimated by replacing the missing data (from future months) with the corresponding average daily total productions from 2016 and 2017. The minimum month, minimum week, and minimum day generally occur during the first quarter of the year, but the minimum month during 2017 occurred in December. Therefore, there may be small errors in the minimum demand estimates due to the lack of data for the last four months of 2018. The estimated population for 2018 was 81,190.



Table 2-9: Periods of Record for January to August 2018

Record	Demand (MGD)	Occurrence (date)
Maximum Day	12.04	6/7/2018
Maximum Week	11.08	6/4/2018-6/10/2018
Maximum Month	10.06	8/1/2018-8/30/2018
Average Day	7.76	NA
Minimum Month	5.84	1/17/2018-2/15/2018
Minimum Week	5.47	1/1/2018-1/7/2018
Minimum Day	4.73	1/2/2018
Maximum Day Per Capita Usage (gpcd)		148.3
Average Day Per Capita Usage (gpcd)		98.1

A summary of the historical average and maximum production is shown in Table 2-10. The historical average and maximum per capita usage is shown in Table 2-10.

Table 2-10: Historical Average and Maximum Production from 2015 to 2018

Year	Average (MGD)	Average (gpcd)	Maximum (MGD)	Maximum (gpcd)
2015	6.3	80.2	10.3	131.1
2016	7.7	99.8	11.7	151.2
2017	8.0	100.9	12.1	152.6
2018	7.8	95.6	12.0	148.3

2.4.2 Water Billing Data Analysis

The billed usage data will be used for the spatial demand allocation in the hydraulic model. Additionally, assessment of billed usage relative to total production provides a means of validating the production numbers and a metric for non-revenue water in the system. The billing data reports were available from October 2016 to August 2018 and contained billed usage for each account on a monthly basis. To validate the water billing data, the production data previously evaluated in Section 2.4.1 was compared to the total amount of billed usage. The water production should be slightly greater than the total amount of billed usage.

The production data was available for January 2015 to August 2018 in the MOR; however, only the October 2016 to August 2018 was selected for this comparison based on the billing data limits. The daily production data was converted to monthly totals based on the billing cycle. On average the billing cycle period begins and ends on the 12th day of the month. Figure 2-13 shows the total produced water (green line) based on the billing cycle periods.

By plotting the two data sets, outlier values were identified within the data set. The outliers can potentially be attributed to software reporting errors. Outliers, identified as usage less than zero or greater than approximately 225,000 gallons per month, within the monthly data sets were removed and replaced with data from a similar water production month. The similar water production months were determined using the total produced water (green line) in Figure 2-13. For instance, February-March 2017 outliers were replaced with November-December 2016 data and December 2017-January 2018 outliers were replaced with January-February 2018 data, etc. Figure 2-13 shows the total billed water usage (orange line) compared to the total produced water (green line). The resulting total billed water usage is a representation of the billing data with the outlier corrections.

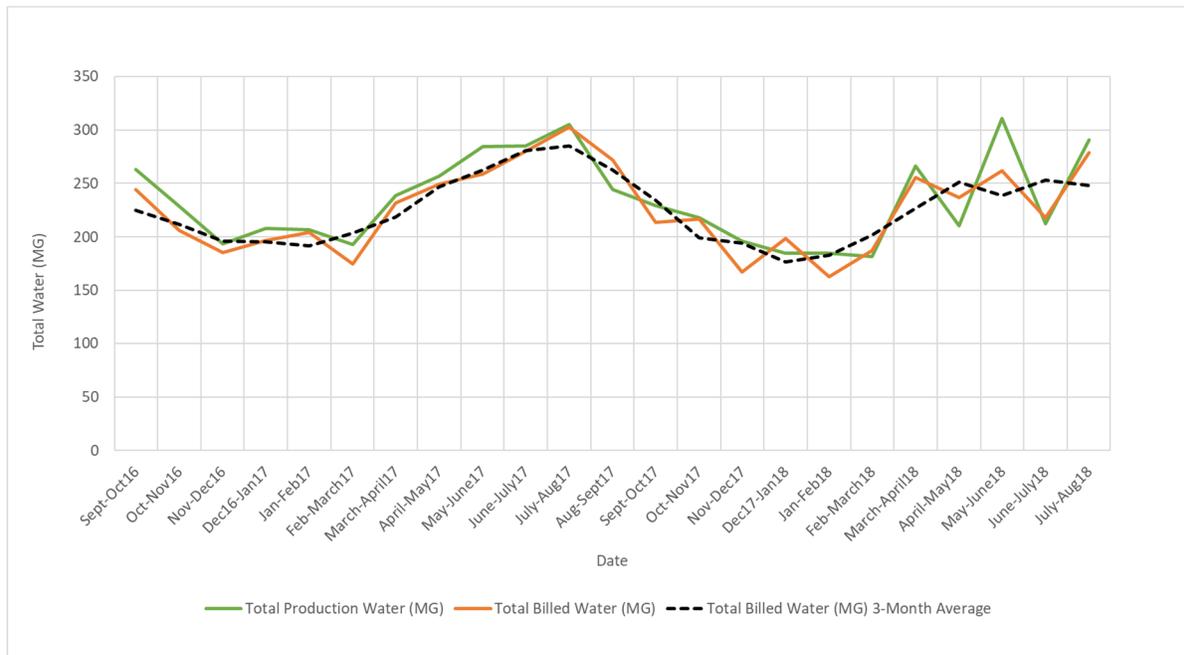


Figure 2-13: Production Data Compared to Billing Data from September 2016 to August 2018

Although large outliers were removed, a few cycle periods (August-September 2017, December 2017-January 2018, February-March 2018, April-May 2018, and June-July 2018) show slightly higher billed usage than water production. This is demonstrated as the orange line exceeds the green line in Figure 2-13. The higher billed usage can be attributed to the following factors discussed further below:

- 1) Misalignment between billing cycle dates and production cycle dates
- 2) Automatic usage inputs for no read scenarios

Although the production totals below are for a given billing cycle period (on average the cycle period begins and ends on the 12th day of the month), not every cycle period is the same for each account. For instance, in a given month one account cycle period can start on the 13th and another account cycle period can start on the 14th. The impact of these variations are estimated to be small and averaged out over multiple months. The average difference between the production and billing totals was approximately 3% over the period of September 2016 to August 2018.



2.4.3 Projected Water Usage

The previously determined historical average and maximum per capita usage were evaluated to determine the values to use in usage projections for the system. In selecting values to use in master planning to determine water rights and capital improvements needs, it is generally preferable to identify the upper range of historical average and maximum day values. This allows you to plan for worst-case (highest demand) situations, which are typically associated with hot and dry (drought) weather conditions. In contrast, if you are evaluating potential rate structures and revenue streams, it is generally preferable to look at demand conditions at and below average demands, to ensure the rate structure provides adequate revenue over the range of potential conditions.

Figure 2-14 shows the historical average and maximum day usage on a per capita basis, based on the estimated service population in each of the years. The average usage varies between 80 and 101 gpcd for the four years of data, with values near 100 gpcd for the last three years. In order to provide a number that is consistent with the historical record and relatively conservative, a value of 100 gpcd was selected for use in average usage projections. Based on the historical data, the maximum day usage varies between 131 and 153 gpcd. Consistent with the approach for average usage, a conservative value consistent with the historical data from the four years of record was desired. Therefore, a value of 155 gpcd was selected for use for maximum day usage projections.

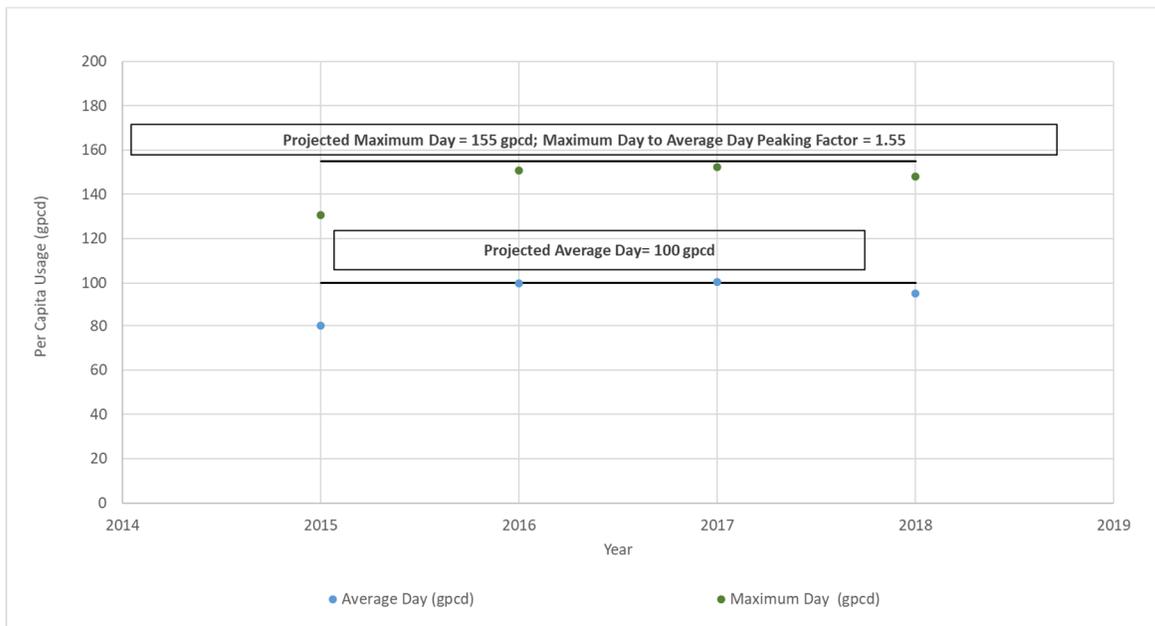


Figure 2-14: Historical and Projected Usage Rates (per capita)

The average and maximum water production for the future 2020, 2025, 2030, 2035, 2040, and 2045 were estimated by multiplying the projected per capita usage rates from Figure 2-14 and the population projections from Table 2-4. The results are shown in Table 2-11.



Table 2-11: Projected Average and Maximum Day Production

Year	Projected Average Day (MGD)	Projected Maximum Day (MGD)
2020	8.8	13.7
2025	9.7	15.1
2030	11.2	17.3
2035	12.1	18.8
2040	13.1	20.3
2045	14.0	21.8

The projected average day water production for the planning horizon will range from 8.8 MGD in 2020 to 14.0 MGD in 2045, and the projected maximum day water production will range from 13.7 in 2020 to 21.8 MGD in 2045. The usage projections are shown graphically in Figure 2-15, which also shows the historical water production rates.

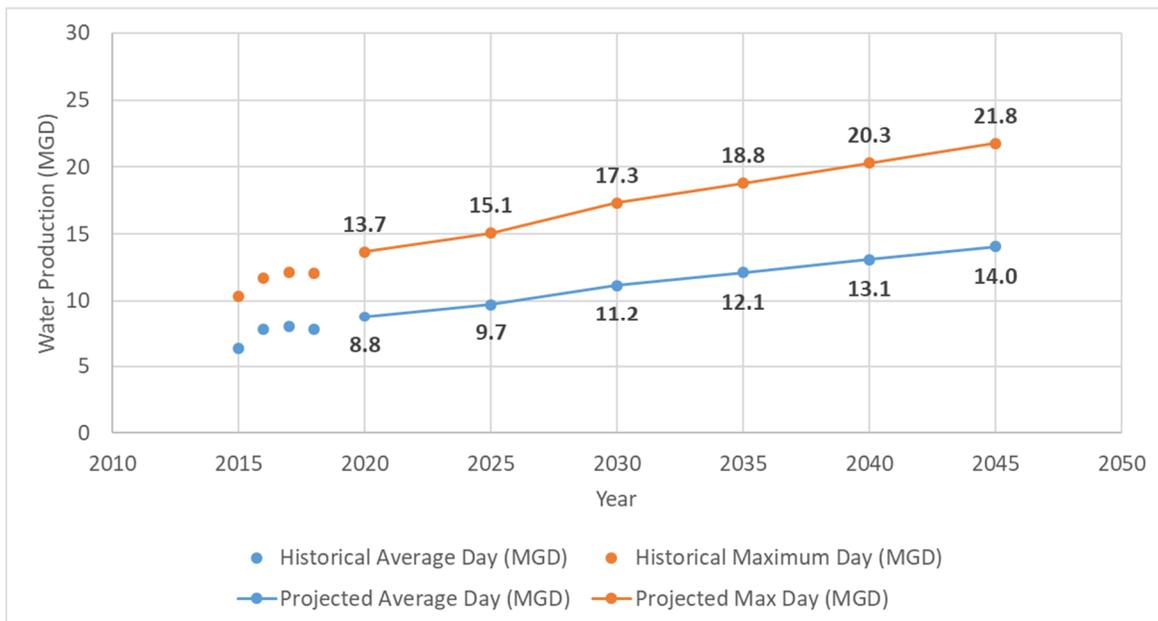


Figure 2-15: Historical and Projected Water Production from 2015 to 2045

Constant per capita usage rates are assumed, so increases in projected water production are directly proportional to projected growth. Growth rates are anticipated to be between 7% and 15% for each 5-year increment from 2020 to 2045. As previously discussed in Section 2.2.1.3, the addition of future service area will affect the population projections; the first addition is anticipated to occur prior to 2020, and the second addition is anticipated between 2025 and 2030. A total growth of 59% is predicted from 2020 to 2045. These water usage projections will be utilized to plan for future capital improvement projects.

To Whom It May Concern

Kamstrup Water Metering LLC
245 Hembree Park Drive
Suite 110
Roswell, GA 30076
USA

TEL: +1 404 835 6716
FAX: +1 678 387 3602
E-MAIL: info-US@kamstrup.com
WEB: www.kamstrup.com

Pages
1/1

Date
March 7, 2018

From
Jake Heikkinen

Kamstrup Distributor in Southern Texas

Aguaworks Pipe & Supply, LLC.
2907 N. Central Ave.
Brownsville, TX 78526
USA

Above mentioned company has the reselling rights in following counties in State of Texas:

- Cameron
- Willacy
- Hidalgo
- Starr
- Kenedy
- Brooks
- Jim Hogg
- Zapata
- Webb
- Duval

Kamstrup Water Metering LLC does not have other distributors for Kamstrup Water Meters and Automatic Meter Reading Systems in the above mentioned counties.

Kamstrup Water Metering L.L.C



Jake Heikkinen VP-Distributor Sales

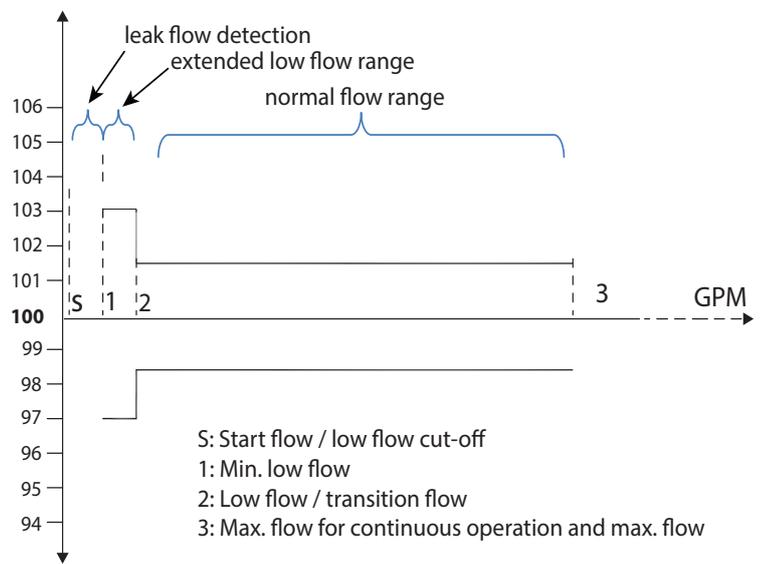


Data Sheet

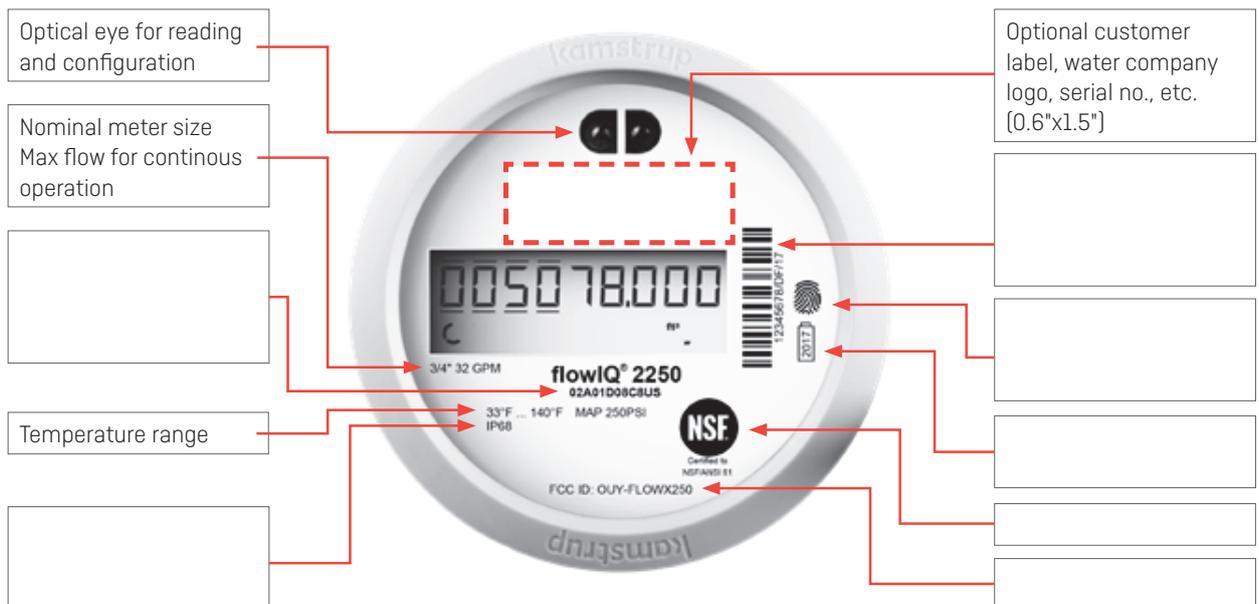
flowIQ® 2250

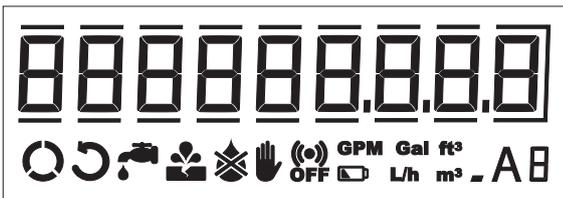
- Dual band radio
 - AMR (Walk-by/drive-by)
 - AMI (Fixed network)
- Ultrasonic measurement
- Pinpoint accuracy
- 20 year longevity
- Dual temperature measurement
- IP68 Vacuum sealed construction
- Lead free and certified to NSF/ANSI 61
- Flow measurement in display
- Hourly log





Type number	Meter size	Start flow (S)	Max. flow	Min. flow	Transition flow ¹⁾	Pressure loss ²⁾ at 15 GPM	Connection on meter	Lay length	Non-return valve	Strainer	Temp. measurement of water
RF version	Inches	GPM	GPM	GPM	GPM	PSI	NPSM thread	Inches			
02 A-01-D-0-8A-8US	5/8"	0.015	25	0.10	0.15	4.1	3/4" thread	7 1/2"	N/A	Yes	Yes
02 A-01-D-0-8B-8US	5/8" x 3/4"	0.015	25	0.10	0.15	4.1	1 thread	7 1/2"	Yes	Yes	Yes
02 A-01-D-0-8C-8US	3/4"	0.015	32	0.10	0.15	3.0	1 thread	7 1/2" or 9"	Yes	Yes	Yes
02-C-01-D-0-8D-8US	1"	0.04	55	0.25	0.4	4.0	1 1/4" thread	10 3/4"	N/A	No	No





Info code	Icon/symbol	Meaning
FLOW		The three segments will switch on alternately, to indicate water flow in the meter
REVERSE FLOW		An arrow appears if there is reverse flow
LEAK		Symbol is flashing if the water has not been stagnant in the meter during the past 24 hours. This may be a sign of a leaky faucet or toilet.
BURST		Symbol is flashing if the water flow has exceeded a pre-programmed limit for a minimum of 30 minutes, which is a sign of a pipe breakage
DRY		Symbol is flashing if the meter is not water filled
TAMPER		Icon appears by attempt of fraud. The meter is no longer valid for billing purposes
BATTERY		Icon appears when the expected capacity left is 6 months
ACTIVE METER INDICATION		A small flashing square indicates that the meter is active
METER ADJUSTMENT	AB	This info code will appear if the meter has been dismantled, tested and the basic flow measurement has been adjusted
RADIO OFF		Symbol is flashing if the meter is still in transport mode with the built-in radio transmitter turned off. The transmitter turns on automatically when the first ¼ gallon of water has run through the meter
VOLUME AND FLOW UNIT	GPM Gal ft³ L/h m³	Showing the configured volume unit. (Note! 'GPM' icon flashes continuously when the meter is set up to Imperial gallon)

Appendix B

RESOLUTION NO. 041819-2

A RESOLUTION OF THE BOARD OF SHARYLAND WATER SUPPLY CORPORATION (SWSC), APPROVING THE APPLICATION FOR GRANT FUNDS FOR THE BUREAU OF RECLAMATION'S WATERSMART GRANTS: WATER AND ENERGY EFFICIENCY GRANTS FOR FISCAL YEAR 2019 FOR SHARYLAND WATER SUPPLY CORPORATION AMI METER CHANGEOUT PROJECT

WHEREAS, Sharyland Water Supply Corporation has prepared an application to apply for federal funding from the United States Department of the Interior, Bureau of Reclamation to assist in the funding of the AMI Meter Changeout Project; and

WHEREAS, the finding opportunity provided by Reclamation through their Grant Program entitled "WaterSMART Grants: Water and Energy Efficiency Grants for FY 2019" Funding Opportunity Announcement NO. is BOR-DO-19-F005; and

WHEREAS, the proposed Project will benefit customers in SWSC's service area by providing accurate readings and alarm leak detection through the AMI Meter Changeout Project; and

WHEREAS, Sharyland Water Supply Corporation intends to enter into an agreement with Reclamation to carry out the AMI Meter Changeout Project if the WaterSMART Grant is awarded to Sharyland Water Supply Corporation.

NOW, THEREFORE, BE IT RESOVED that the Board of Sharyland Water Supply Corporation does hereby find, determine, and declare as follows:

SECTION 1. Approves the filing of an application for the AMI Meter Changeout Project;

SECTION 2. Certifies that Sharyland Water Supply Corporation understands they will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement;

SECTION 3. Certifies that the Applicant is capable of providing the amount of funding specified in the application; and,

SECTION 4. Appoints the General Manager, or Assistant General Manager, as agent to conduct all negotiations, execute, and submit all documents including, but not limited to applications,

agreements, payment requests and so on, which may be necessary for the completion of the
aforementioned project.

PASSED, APPROVED, and ADOPTED this 18th day of April, 2019.



Dr. Andrew H. Smith, III President



CITY OF ALTON

City On The Grow

509 S Alton Blvd. Alton, TX 78573-1196 • Office (956) 432-0760 • Fax (956) 432-0766

Salvador Vela
Mayor

Arturo Galvan Jr.
Mayor Pro Tem

Ricardo Garza
Commissioner

Richard Arevalo
Commissioner

Emilio Cantu, Jr.
Commissioner

Jeff Underwood
City Manager

April 17, 2019

Sherilyn Dahlberg
Sharyland Water Supply Corporation
P.O. Box 1868
Mission, TX 78573-0031

Re: Sharyland Water Supply Corporation's WaterSMART Grant Application for the Bureau of Reclamation

Dear Mrs. Dahlberg,

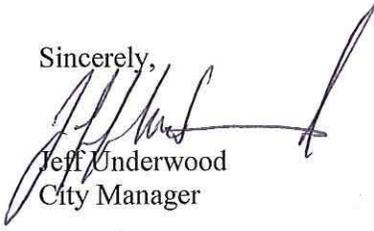
I write you in support of Sharyland Water Supply Corporation's (SWSC) application for the Bureau of Reclamation's WaterSMART Grant: Water and Energy Efficient Grants for Fiscal Year 2019.

Your application to secure funding for SCADA, VFDs, AMI Meters, Geomembrane reservoir linings, as well as other infrastructure improvements and studies (e.g. water lines, water management studies, optimization reviews) across your Water System (distribution and water plants), will benefit customers on your system as well as benefiting the Rio Grande Valley through your conservation efforts.

The area relies on SWSC for safe, clean drinking water now and in the future. Ensuring water conservation and energy savings for SCADA, VFDs, AMI Meters, Geomembrane reservoir linings, as well as other infrastructure improvements and studies (e.g. water lines, water management studies, optimization reviews) across your Water System (distribution and water plants), will help the conservation of water and provide this crucial resource for future generations.

I support your efforts to conserve water and energy use through the SWSC's Water System and encourage the Bureau of Reclamation to approve your proposed Project funding.

Sincerely,


Jeff Underwood
City Manager

"This institution is an equal opportunity provider and employer."



April 18, 2019

Mrs. Sherilyn Dahlberg
Sharyland Water Supply Corporation
P.O. Box 1868
Mission, TX 78573-0031

Re: Sharyland Water Supply Corporation's WaterSMART Grant Application for the Bureau of Reclamation

Dear Mrs. Dahlberg:

Please accept this letter of support for Sharyland Water Supply Corporation's (SWSC) application to the Bureau of Reclamation's WaterSMART Grant: Water and Energy Efficient Grants for Fiscal Year 2019.

Your application to secure funding for SCADA, VFDs, AMI Meters, Geomembrane reservoir linings, as well as other infrastructure improvements and studies (e.g. water lines, water management studies, optimization reviews) across your Water System (distribution and water plants), will benefit customers on your system as well as benefiting the Rio Grande Valley through your conservation efforts.

Many of our Edinburg residents rely on SWSC for safe, clean drinking water now and into the future. Ensuring water conservation and energy savings for SCADA, VFDs, AMI Meters, Geomembrane reservoir linings, as well as other infrastructure improvements and studies (e.g. water lines, water management studies, optimization reviews) across your Water System (distribution and water plants), will help the conservation of water and provide these increased resources for future generations.

I support your efforts to conserve water and energy use through the SWSC's Water System and encourage the Bureau of Reclamation to approve your proposed Project funding.

Sincerely,

Richard Molina
Mayor



COMMITTEES
FINANCE *Vice Chair*
TRANSPORTATION

THE SENATE OF TEXAS
JUAN "CHUY" HINOJOSA
DISTRICT 20

COMMITTEES
NATURAL RESOURCES &
ECONOMIC DEVELOPMENT
AGRICULTURE, WATER &
RURAL AFFAIRS

April 24, 2019

Sherilyn Dahlberg
Sharyland Water Supply Corporation
P.O. Box 1868
Mission, TX 78573-0031

Re: Sharyland Water Supply Corporation's WaterSMART Grant Application for the Bureau of Reclamation

Dear Mrs Dahlberg:

I write you in support of Sharyland Water Supply Corporation's (SWSC) application for the Bureau of Reclamation's WaterSMART Grant: Water and Energy Efficient Grants for Fiscal Year 2019.

Your application to secure funding for SCADA, VFDs, AMI Meters, Geomembrane reservoir linings, as well as other infrastructure improvements and studies (e.g. water lines, water management studies, optimization reviews) across your Water System (distribution and water plants), will benefit customers on your system as well as benefiting the Rio Grande Valley through your conservation efforts.

The area relies on SWSC for safe, clean drinking water now and for the future. Ensuring water conservation and energy savings for SCADA, VFDs, AMI Meters, Geomembrane reservoir linings, as well as other infrastructure improvements and studies (e.g. water lines, water management studies, optimization reviews) across your Water System (distribution and water plants), will help the conservation of water and provide these increased resources for future generations.

I support your efforts to conserve water and energy use through the SWSC's Water System and encourage the Bureau of Reclamation to approve your proposed Project funding.

Sincerely,

A handwritten signature in black ink that reads "J. J. Hinojosa".

Juan "Chuy" Hinojosa
State Senator, District 20

Application for Federal Assistance SF-424

* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): _____ * Other (Specify): _____
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------

* 3. Date Received: 04/23/2019	4. Applicant Identifier: _____
------------------------------------------	------------------------------------------

5a. Federal Entity Identifier: _____	5b. Federal Award Identifier: _____
------------------------------------------------	-----------------------------------------------

State Use Only:

6. Date Received by State: _____	7. State Application Identifier: _____
-----------------------------------------	-----------------------------------------------

8. APPLICANT INFORMATION:

*** a. Legal Name:** Sharyland Water Supply Corporation

* b. Employer/Taxpayer Identification Number (EIN/TIN): 741620231	* c. Organizational DUNS: 0551227170000
-----------------------------------------------------------------------------	---------------------------------------------------

d. Address:

* Street1:	4210 E Main Ave
Street2:	_____
* City:	Alton
County/Parish:	_____
* State:	TX: Texas
Province:	_____
* Country:	USA: UNITED STATES
* Zip / Postal Code:	78573-0289

e. Organizational Unit:

Department Name: _____	Division Name: _____
----------------------------------	--------------------------------

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr.	* First Name: Javier
Middle Name: _____	
* Last Name: Ramirez	
Suffix: _____	
Title: Assistant General Manager	

Organizational Affiliation:
Sharyland Water Supply Corporation

* Telephone Number: 956-585-6081	Fax Number: 956-585-5450
-----------------------------------------	---------------------------------

*** Email:** jramirez@sharylandwater.com

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

E: Regional Organization

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

U.S. Department of Interior Bureau of Reclamation

11. Catalog of Federal Domestic Assistance Number:

CFDA Title:

*** 12. Funding Opportunity Number:**

BOR-DO-19-F005

* Title:

WaterSMART Efficiency Grant

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

*** 15. Descriptive Title of Applicant's Project:**

AMI Meter Changeout Project

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant

* b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

17. Proposed Project:

* a. Start Date:

* b. End Date:

18. Estimated Funding (\$):

* a. Federal	<input type="text" value="73,656.27"/>
* b. Applicant	<input type="text" value="125,414.73"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="0.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="199,071.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- a. This application was made available to the State under the Executive Order 12372 Process for review on
- b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

Yes No

If "Yes", provide explanation and attach

Add Attachment

Delete Attachment

View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)

** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:

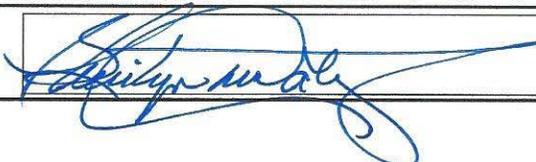
* Last Name:

Suffix:

* Title:

* Telephone Number: Fax Number:

* Email:

* Signature of Authorized Representative: 

* Date Signed:

BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	\$ 0.00	\$ 0.00	\$ 0.00
2. Land, structures, rights-of-way, appraisals, etc.	\$ 0.00	\$ 0.00	\$ 0.00
3. Relocation expenses and payments	\$ 0.00	\$ 0.00	\$ 0.00
4. Architectural and engineering fees	\$ 0.00	\$ 0.00	\$ 0.00
5. Other architectural and engineering fees	\$ 0.00	\$ 0.00	\$ 0.00
6. Project inspection fees	\$ 0.00	\$ 0.00	\$ 0.00
7. Site work	\$ 0.00	\$ 0.00	\$ 0.00
8. Demolition and removal	\$ 0.00	\$ 0.00	\$ 0.00
9. Construction	\$ 36,500.00	\$ 0.00	\$ 36,500.00
10. Equipment	\$ 161,658.50	\$ 0.00	\$ 161,658.50
11. Miscellaneous	\$ 912.50	\$ 0.00	\$ 912.50
12. SUBTOTAL (sum of lines 1-11)	\$ 199,071.00	\$ 0.00	\$ 199,071.00
13. Contingencies	\$ 0.00	\$ 0.00	\$ 0.00
14. SUBTOTAL	\$ 199,071.00	\$ 0.00	\$ 199,071.00
15. Project (program) income	\$ 0.00	\$ 0.00	\$ 0.00
16. TOTAL PROJECT COSTS (subtract #15 from #14)	\$ 199,071.00	\$ 0.00	\$ 199,071.00
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter eligible costs from line 16c Multiply X 37 % Enter the resulting Federal share.			\$ 73,656.27

ASSURANCES - CONSTRUCTION PROGRAMS

OMB Number: 4040-0009
Expiration Date: 02/28/2022

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0042), Washington, DC 20503.

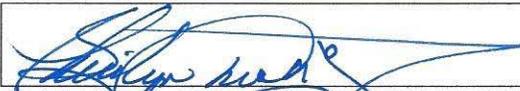
PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progressive reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards of merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
19. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
	General Manager
APPLICANT ORGANIZATION	DATE SUBMITTED
Sharyland Water Supply Corporation	04/24/2019