GSI Water Solutions, Inc.

March 6, 2019

Kerri Cope
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301

RE: Seal Rock Water District - Water Management and Conservation Plan Progress Report

Dear Kerri,

On behalf of Seal Rock Water District (SRWD), GSI Water Solutions, Inc. is submitting this Water Management and Conservation Plan (WMCP) Progress Report. This WMCP progress report fulfills the requirement in the Final Order approving SRWD's 2014 WMCP (issued by the Oregon Water Resources Department on March 14, 2014) to submit a 5-year WMCP progress report and it contains the information required under OAR 690-086-0120(4).

This progress report contains eight exhibits that provide updates on SRWD's water management and conservation efforts.

Exhibit 1 describes SRWD's progress addressing the 5-year water management and conservation benchmarks included in the 2014 WMCP. The highlights of SRWD's water conservation efforts over the past five years were the replacement of 61,360 linear feet of pipeline from 2014 through 2016 and the installation of an Advanced Metering Integration (AMI) system in August 2018. The pipeline replacement resolved major pipeline leakage issues. AMI improves accounting by better aligning demand and consumption data, allows for faster leak detection, improves billing accuracy with installation of the new meters, and enables customers to access daily water use information so they can improve their water conservation efforts. The United States Department of Agriculture (USDA) Rural Development, through its Water and Waste Disposal Loan and Grant Program, provided SRWD with $5.5 million for water line replacement projects and $1.5 million for the AMI project. SRWD received the Outstanding Special District Program Award for Advanced Metering Integration (AMI) from the Special Districts Association of Oregon in February 2019 for its AMI project.

Exhibit 2 presents average monthly and daily diversions under SRWD's water rights from Fiscal Year (FY) 2012-2013 through FY 2017-2018.

Exhibit 3 presents SRWD's demand and consumption from 1982 through 2012, as reported in SRWD's 2014 WMCP, and **Exhibit 4** presents SRWD's demand and consumption from FY 2012-2013 through FY 2017-2018 to enable comparison of recent consumption to consumption reported in the 2014 WMCP. Consumption refers to the metered customer water use (i.e., annual water sold) within the finished water distribution system. Exhibit 3 shows that consumption decreased from around 100 MG to slightly more than 80 MG in the five most recent years reported in the 2014 WMCP (horizontal lines are

in 20 MG increments starting at zero and vertical lines are in one year increments starting in FY 1982-1983 and ending in FY 2011-2012). Since then, consumption has remained relatively even, ranging between approximately 82 MG and 88 MG (See Exhibit 4).

Exhibits 5 and 6 present annual metered water consumption by customer category from FY 2012-2013 through FY 2017-2018, and **Exhibit 7** presents monthly metered water consumption by customer category for the same time period.

Exhibit 8 presents SRWD's water loss from FY 2012-2013 through FY 2017-2018. Water loss represents the difference between demand and metered consumption plus accounted for water loss, divided by demand. Demand refers to the quantity of finished water delivered to SRWD's water distribution system. Consumption refers to the metered customer water use within the finished water distribution system. Accounted for water loss represents non-revenue water used for maintenance of the distribution system, including routine flushing, pipeline replacement flushing, and disinfection activities. SRWD's water loss values dropped dramatically in the past two fiscal years as a result of the replacement of 61,360 linear feet of pipeline throughout SRWD's service area from 2014 through 2016, and the installation of AMI in 2018. The pipeline replacement project did result in increased water demand and increased accounted for water loss from FY 2015-2016 through present due to increased flushing and disinfection. Meanwhile, water conservation and improved accounting stemming from the pipeline project and installation of AMI, respectively, resulted in the substantial decrease in water loss in the past four fiscal years. In FY 2017-2018, SRWD's water loss was 12.2 percent. SRWD attributes a large portion of the remaining water loss to leaks in the Toledo Supply Line, which SRWD will be addressing as resources allow.

If you have questions regarding the enclosed information, you may call me at 541-257-9006 or send an e-mail to sdeszoeke@gsiws.com.

Sincerely,
GSI Water Solutions, Inc.

Suzanne de Szoeke
Water Resources Consultant

Enclosures

cc: Adam Denlinger, Seal Rock Water District
Holly Halligan, United States Department of Agriculture
Michelle Bilberry, Business Oregon
Michael Adams, City of Toledo
Tim Gross, City of Newport
Paul Berg, Jacobs Engineering

Exhibit 1. Water Management and Conservation Five-Year Benchmark Progress Update.

Section Requirement	Sub-section Requirement	2014 Benchmarks	2019 Benchmark Status Summary
OAR 690-086-150 (4) A description of the specific activities, along with a schedule that establishes five-year benchmarks, for implementation of each of the following conservation measures that are required of all municipal water suppliers:	(a) An annual water audit that includes a systematic and documented methodology for estimating any un-metered authorized and unauthorized uses	Continue Comprehensive Annual Water Audit	SRWD continues to implement this measure. Operators continue to monitor water loss on a monthly basis to inform the annual water audit. The Automated Meter Integration (AMI) system installed in 2018 enables SRWD to more closely align accounting of its demand and metered consumption, thereby providing more accurate information related to water loss for future reporting. AMI also enables more rapid leak detection. Already, AMI has resulted in the identification of many leaks at residences. As leaks are detected earlier, SRWD anticipates that the need to provide customers with financial relief for identifying and repairing leaks will eventually be minimal, resulting in large financial savings for SRWD over time. SRWD received the Outstanding Special District Program Award for Advanced Metering Integration (AMI) from the Special Districts Association of Oregon in February 2019. The award was for installing AMI, a $1.5 million project fully funded through a grant provided by the United States Department of Agriculture (USDA) Rural Development through its Water and Waste Disposal Loan and Grant Program.
	(b) If the system is not fully metered, a program to install meters on all un-metered water service connections.	Continue to meter all system connections	SRWD's 2,564 water service connections are all equipped with a new meter as of August 2018.
		Annually for the next five years, install 40 dual-port radios and install 400 single-port radios.	In 2018, SRWD completed installation of an AMI system capable of radio read for every customer meter in the system.
	(c) A meter testing and maintenance program	Continue meter testing and maintenance program, including replacing meters older than 10 years old every five years	In 2018, SRWD replaced 2,000 meters in the system known to be 10-years old or older with AMI radio read meters.
		Randomly inspect 5 meters monthly starting in 2018	The AMI Program Manager routinely physically inspects problem meters on a weekly/monthly basis, averaging 12 to 15 meters a month. SRWD also virtually inspects a higher number of meters than that each day using the AMI electronic data system.
		Replace faulty meters as necessary starting in 2018	Faulty meters will be replaced as needed to maintain a robust AMI system.
	(d) A rate structure under which customers' bills are based, at least in part, on the quantity of water metered at the service connections	Continue a rate structure that charges customers based, in part, on the amount of water consumed.	SRWD continues to charge customers based, in part, on the volume of water consumed.
		Conduct an engineering rate study every 10 years, the next being in 2020.	SRWD will budget for this activity in the 2019/2020 budget process.
		Determine seasonal price differential.	SRWD continues to charge customers based, in part, on the volume of water consumed and SRWD has increased rates annually over the past five years. Given that both of those actions encourage customers to conserve water, SRWD has not yet investigated seasonal price differentials.
		Conduct an internal rate analysis annually starting in 2014.	SRWD Staff and Board annually evaluate the rates and adjust them as needed to meet levels of funding necessary for Operation and Maintenance activities as part of the annual budget process.
	(e) If the annual water audit indicates that system leakage exceeds 10 percent, a regularly scheduled and systematic program to detect leaks in the transmission and distribution system using methods and technology appropriate to the size and capabilities of the municipal water supplier;	Continue in-house SCADA daily audits, comprehensive annual water audit, biannual inspection of water tanks, and repair of leaky pipelines identified in the Capital Improvement Plan.	SRWD continues to implement this measure. SRWD field crews monitor the SCADA system daily, evaluating flow trends in several pressure zones throughout the system. A series of set points and alarms provide SRWD with advanced notification of leaks in the system. SRWD continues to implement its comprehensive annual water audits. SRWD last inspected the water tanks in 2015 and plans to budget for another inspection during the 2019/2020 budget process.
		Replace new leaking pipelines as necessary starting in 2022	SRWD replaced 61,360 linear feet of pipeline from 2014 through 2016 at a cost of $5.5 million. SRWD will endeavor to budget for an update to the 2010 Water Master Plan during the 2021/2022 budget process to develop an updated Capital Improvement Plan.
		Conduct a leak detection survey every 10 years, the next being in 2022.	SRWD will budget for this activity during the 2021/2022 budget process.
		Install automatic check valves.	SRWD currently maintains 11 pressure reducing valves (PRVs) in multiple locations throughout its service area. Nine of these PRVs were rebuilt in January 2019. SRWD is currently proposing to replace the remaining two PRVs in the south portion of the system in 2019.

Exhibit 1. Water Management and Conservation Five-Year Benchmark Progress Update (Continued).

Section Requirement	Sub-section Requirement	2014 Benchmarks	2019 Benchmark Status Summary
	(f) A public education program to encourage efficient water use and the use of low water use landscaping that includes regular communication of the supplier's water conservation activities and schedule to customers	Continue to provide flyer/brochures at the District office, offer free dye strips at the District office, send summer conservation information with bills annually, and mail Consumer Confidence Reports to customers annually.	SRWD continues to implement this measure. SRWD has updated its website with water conservation information. SRWD annually provides each customer with a copy of the consumer confidence report (CCR) and posts a copy of the report on its website. SRWD is recognized by the State as an Outstanding Performer. SRWD continues to offer conservation material at SRWD's office, such as water conservation and leak detection handouts. SRWD continues to encourage customers to respond to leaks. It recently purchased indoor water conservation kits containing toilet leak detection tablets, which will be offered for free to all customers upon request. SRWD also purchased outdoor water conservation kits. Both kits are detailed under 690-086-150(6)(b).
		Create a dedicated webpage.	In 2017, SRWD completed its website update, which included the addition of a webpage dedicated to providing water conservation tools and information.
		Conduct community seminars twice a year starting in 2014.	SRWD has provided numerous seminars to homeowner association (HOA) communities to update them regarding proposed water system improvements and to provide water conservation information. SRWD will host community meetings about the benefits of the AMI customer portal beginning in March 2019 and will discuss water conservation during these meetings. SRWD also will include door prizes for attendees, such as water conservation fixtures. SRWD will begin tracking the exact number of community outreach events beginning with the AMI outreach events in March 2019. SRWD anticipates that SRWD's use of the AMI system and customer use of the AMI customer portal will result in more water conservation and quicker leak detection and repair.
OAR 690-086-150 (5) If the supplier proposes to expand or initiate the diversion of water under an extended permit for which resource issues have been identified under OAR 690-086-0140 (5)(i), a description of the specific activities, along with a schedule that establishes five-year benchmarks, for implementation of:	(a) A system-wide leak repair or line replacement program to reduce system leakage to no more than 15 percent are sufficient information to demonstrate that system leakage currently is no more than 15 percent.	None.	See 690-086-150(4)(e).
OAR 690-086-150 (6) If the supplier serves a population greater than 1,000 and proposes to expand or initiate diversion of water under an extended permit for which resource issues have been identified under OAR 690-086-0140(5)(i), or if the supplier serves a population greater than 7,500, description of the specific activities, along with a schedule that establishes five-year benchmarks, for implementation of each of the following measures; or documentation showing implementation of the measures is neither feasible nor appropriate for ensuring the efficient use of water and the prevention of waste	(a) A system-wide leak repair or line replacement program to reduce system leakage to 15 percent and if the reduction of system leakage to 15 percent is found to be feasible and appropriate, to reduce system leakage to 10 percent	None.	See 690-086-150(4)(e).
	(b) Technical and financial assistance programs to encourage and aid residential, commercial, and industrial customers in implementation of conservation measures; and (c) Supplier financed retrofitting or replacement of existing inefficient water using fixtures, including distribution of residential conservation kits and rebates for customer investments in water conservation;	Distribute retrofit kits starting in 2014 (kit items could include a showerhead, leak detection tablets, faucet aerators, flowmeter bag, etc.)	SRWD recently purchased two types of water conservation kits, which SRWD will be able to make available in March 2019. The indoor water conservation kit contains a showerhead, bathroom faucet aerators, kitchen faucet aerators, and toilet leak detection tablets. The outdoor water conservation kit contains a multi-spray hose nozzle, rain gauge, soil moisture meter, and water conservation wheel with water conservation tips. SRWD provides technical information about leak detection when customers call with questions or contacting customers about suspected leaks. As previously described, SRWD will host community meetings about the benefits of the AMI customer portal beginning in March 2019 and will discuss water conservation during these meetings.
		Provide toilet replacement rebates starting in 2015	SRWD has decided not to provide toilet rebates at this time, and instead has focused its resources on offering indoor water conservation kits. The kit includes toilet leak detection tablets to reduce water loss from leaks.
		Provide appliance replacement rebates starting in 2015.	SRWD has decided not to provide appliance rebates at this time given that Central Lincoln Public Utility District offers clothes washer rebates already.
		Include information about landscape practices that can conserve water in water bills annually starting in 2014.	SRWD periodically provides indoor and outdoor water conservation information in water bills.
		Provide landscaping rebates starting in 2014	Landscape irrigation is minimal in SRWD's service area, so SRWD has decided not to pursue landscape rebates at this time. However, SRWD will offer free multi-spray hose nozzles in the outdoor water conservation kit to promote water conservation when using water outdoors.

Exhibit 1. Water Management and Conservation Five-Year Benchmark Progress Update (Continued).

Section Requirement	Sub-section Requirement	2014 Benchmarks	2019 Benchmark Status Summary
OAR 690-086-150 (6) If the supplier serves a population greater than 1,000 and proposes to expand or initiate diversion of water under an extended permit for which resource issues have been identified under OAR 690-086-0140(5)(i), or if the supplier serves a population greater than 7,500, description of the specific activities, along with a schedule that establishes five-year benchmarks, for implementation of each of the following measures; or documentation showing implementation of the measures is neither feasible nor appropriate for ensuring the efficient use of water and the prevention of waste	(d) Adoption of rate structures, billing schedules, and other associated programs that support and encourage water conservation;	None.	As previously described, SRWD continues to charge customers based, in part, on the volume of water consumed and periodically provides indoor and outdoor water conservation information in water bills.
	(e) Water reuse, recycling, and non-potable water opportunities; and	Reevaluate water reuse/recycling possibilities every five years, the next being in 2018, and seek professional analysis of possibilities as needed.	SRWD has limited opportunity for water reuse in its service area. However, this topic is being discussed in a broader context as part of the Mid-Coast Water Planning Partnership.
	(f) Any other conservation measures identified by the water supplier that would improve water use efficiency.	Join Water Sense is a promotional partner, promote Water Sense, and feature Water Cents on the District website in 2014. Participate in national outreach campaigns annually starting in 2014 and provide an update on promotional activities annually starting in 2015.	SRWD has not formally joined WaterSense, but SRWD does provide water conservation information to SRWD customers on the SRWD website, which has links to the EPA WaterSense website, among other websites about water conservation.
		Designate a conservation manager and review that manager every five years	SRWD has dedicated one full-time employee (FTE) to manage field activities related to the AMI program. This employee works daily with the community to educate customers about leaks and to encourage conservation. This employee is evaluated annually.
		Hire a professional survey company to conduct a customer survey (regarding their knowledge about water conservation and willingness to comply with conservation programs) in the District every five years, starting in 2015, or conduct the survey in-house every three years starting in 2015.	SRWD is currently evaluating whether to develop a customer survey. SRWD is concerned that feedback on a customer survey could be limited and not well representative of customers given that approximately 40 percent of the residences in SRWD's service area are vacation homes or rentals, and as such, would be less engaged.
		Coordinate with the real estate industry about requiring water fixture upgrades at the time of sale, then create and enforce an ordinance requiring water efficient water fixtures.	While SRWD routinely works with a number of real estate agencies, a benchmark for this item has yet to be established outside of SRWD's adopted Design Standards and Rules and Regulations.
		Establish new development requirements and enforce them starting in 2016.	SRWD's Design Standards manual, updated in 2012, provides requirements and recommendations to encourage and enforce conservation.
		Develop a water waste ordinance and enforce the ordinance starting in 2015.	SRWD Rules and Regulations address waste and theft of water, including enforcement measures.

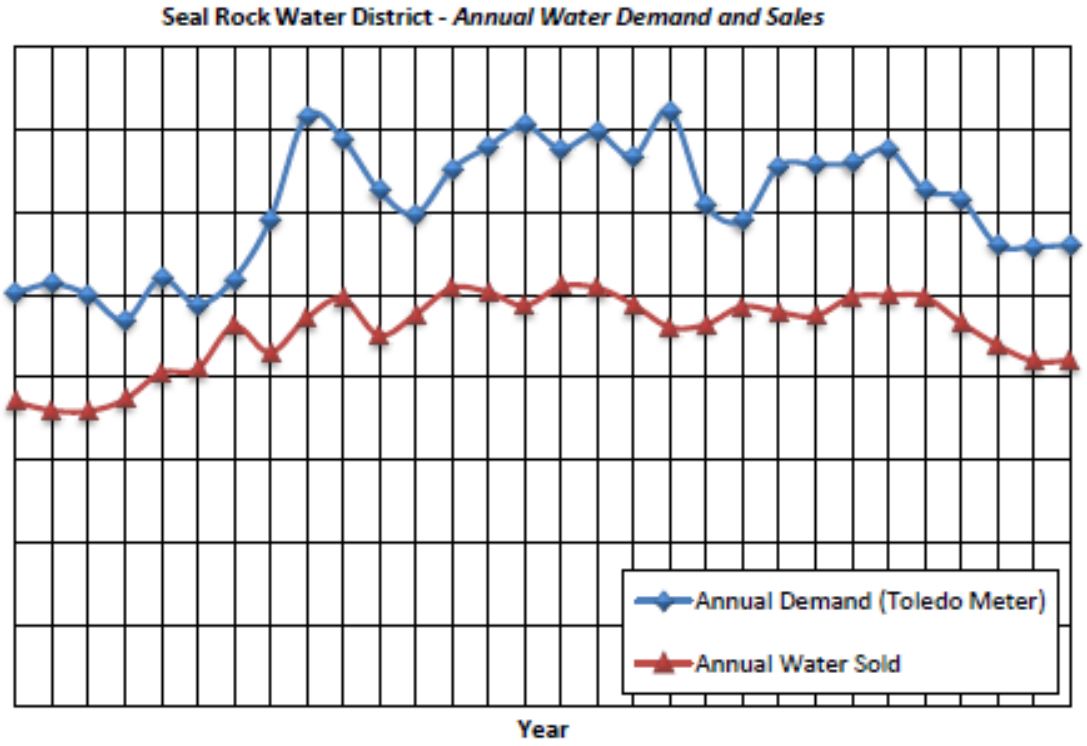
Exhibit 2. Annual, Average Monthly, and Average Daily Withdrawals, FY 2012-2013 to FY 2017-2018.

Application	Permit	Transfer	Certificate	Source	Annual Withdrawal (MG) Fiscal Years						Average Daily Withdrawal (mgd) Fiscal Years							Average Monthly Withdrawal (MG) Fiscal Years						
					2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	**5-yr AVG (2012-2013 to 2017-2018)**	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	**5-yr AVG (2012-2013 to 2017-2018)**
S-50094	S-40277[1]			Siletz River	108.2	109.3	115.8	128.3	110.7	110.2	0.30	0.30	0.32	0.35	0.30	0.30	0.31	9.0	9.1	9.7	10.7	9.2	9.2	9.6
S-33398	S-26489	T-12765 (Under Review)	32199	Hill Creek, a tributary of the Pacific Ocean	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S-23182	S-18315	T-12765 (Under Review)	21390	Henderson Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S-88124	S-55012			Beaver Creek, a tributary of the Pacific Ocean	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MG = million gallons
mgd = million gallons per day

[1]Withdrawals under Permit S-40277 are based on City of Toledo master meter records of the quantity of finished water delivered to SRWD.

Exhibit 3. Demand and Consumption Reported in the 2014 WMCP, FY 1982-1983 through FY 2011-2012.



Note: Horizontal lines are in 20 MG increments starting at zero and vertical lines are in one year increments starting in FY 1982-1983 and ending in FY 2011-2012.

Exhibit 4. Demand and Consumption, FY 2012-2013 to FY 2017-2018.

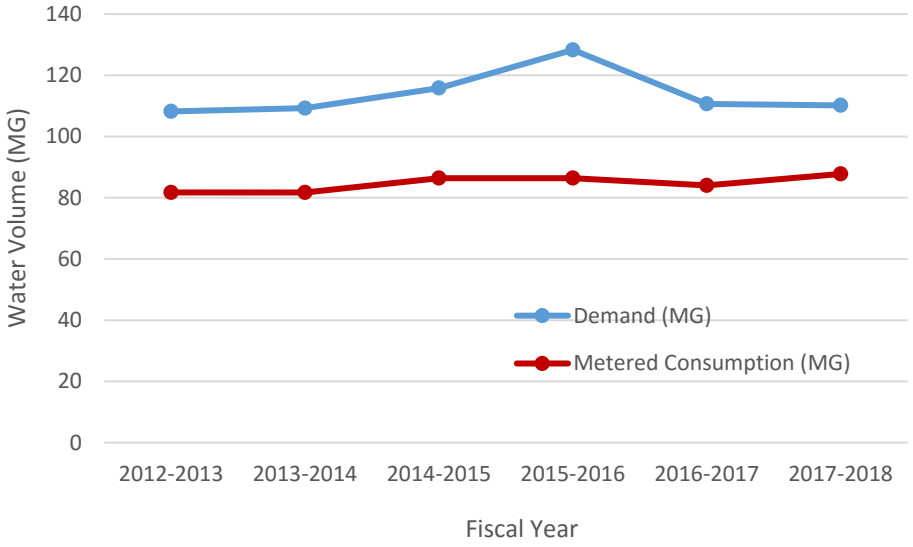


Exhibit 5. Annual Consumption by Customer Category, FY 2012-2013 to FY 2017-2018.

Fiscal Year	Residential	Commercial	Total
2012-2013	71.1	10.6	81.7
2013-2014	70.7	11.0	81.7
2014-2015	72.5	13.9	86.4
2015-2016	72.5	13.9	86.4
2016-2017	71.8	12.2	84.0
2017-2018	73.0	14.7	87.8

Exhibit 6. Annual Consumption by Customer Category, FY 2012-2013 to FY 2017-2018.

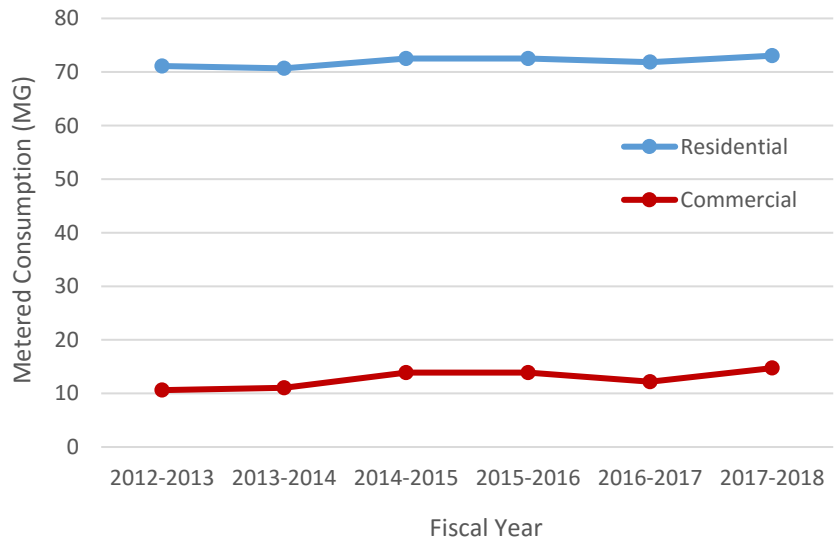


Exhibit 7. Monthly Consumption by Customer Category, FY 2012-2013 to FY 2017-2018.

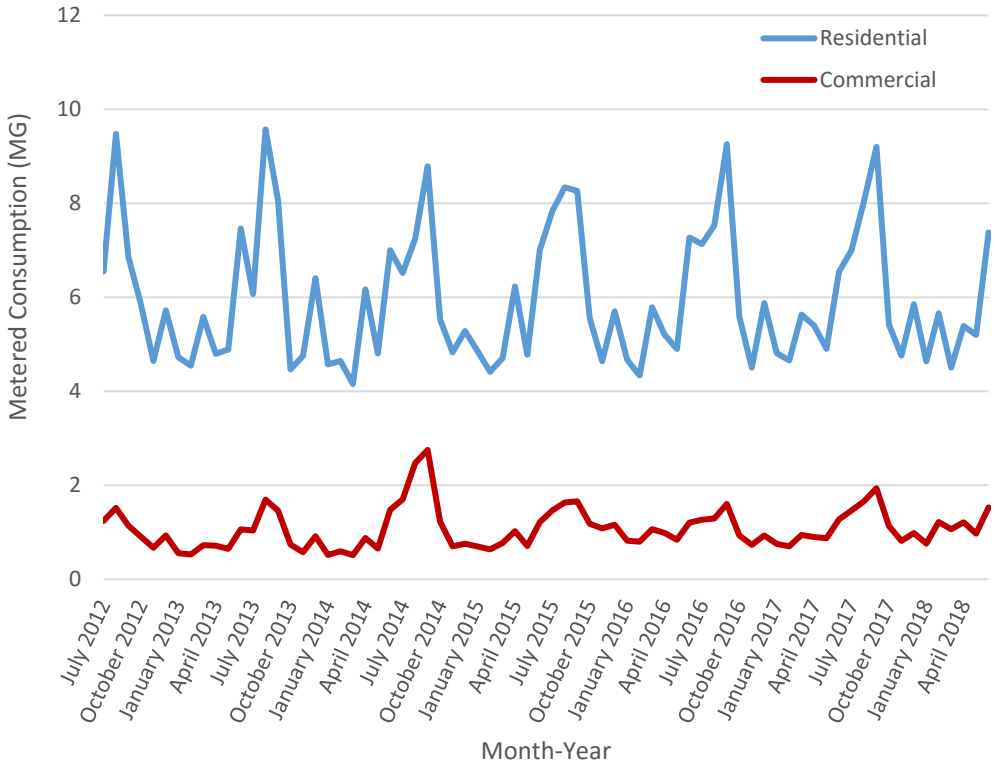


Exhibit 8. Annual Water Audit, FY 2012-2013 to FY 2017-2018.

Fiscal Year	Demand (MG)	Metered Consumption (MG)	Accounted For Water Loss (MG)	Water Loss (MG)	Water Loss (%)
2012-2013	108.2	81.7	3.2	23.3	21.5
2013-2014	109.3	81.7	4.3	23.3	21.3
2014-2015	115.8	86.4	11.6	17.8	15.3
2015-2016	128.3	86.4	22.6	19.3	15.4
2016-2017	110.7	84.0	9.2	17.4	15.7
2017-2018	110.2	87.8	9.0	13.5	12.2