

MARSHALL MUNICIPAL UTILITIES
ANNUAL REPORT
2015/2016

TO: Board of Public Works

January 12, 2017

City Council

This annual report summarizes some of the key issues and many of the accomplishments and improvements to Marshall's publicly owned utility systems during the fiscal year ending September 30, 2016.

The top story for fiscal year 2015/2016 was completing the plans and specifications for the project to reduce trihalomethanes in the water supply. They were submitted to the Department of Natural Resources for review and approval in February. The construction permit was received in August. We issued the request for bids advertisement in September, opened bids on November 3, and the contract was awarded on November 21. The notice to proceed was issued with a start date of January 3, 2017. This project will continue until roughly the end of March 2018. The major components of the project include—

- Installation of mixing systems in the elevated and ground storage tanks in town,
- Construction of a 500,000 gallon ground storage clearwell at the water treatment plant,
- Installation of new high service pumps,
- Installation of an ammonia feed system to convert to chloramines as the residual disinfectant,
- Installation of baffles in the existing clearwells and conversion to contact basins
- Upgrade of the SCADA system, and
- Construction of a new administration building to house the plant office, laboratory, a conference/training room, bathrooms, and SCADA control instrumentation.

The second top story was the changes MMU made in providing healthcare benefits to our employees. On December 1, 2015, we began offering a high deductible health plan (HDHP) that is health savings account (HSA) qualified. We continued offering our more traditional co-pay plan as well. However, the HSA-qualified HDHP offers premium savings to both MMU and employees. With these premium savings, MMU was able to make contributions to HSA's held by employees selecting the HDHP.

The HSA-qualified HDHP gives employees strong incentives to pay careful attention to their healthcare costs, become better informed consumers, and avoid unnecessary costs and services. HSAs can help employees save on taxes in three ways: 1) Annual HSA contributions are tax-advantaged; 2) Interest accrued on HSA balances is not taxable; and 3) Withdrawals for qualified out-of-pocket healthcare expenses are tax-free. HSA's can further promote a sense of shared accountability among employees because any money saved stays in their HSA. It is an opportunity to build a healthcare nest egg.

We are pleased to report that 70% of MMU employees selected the HSA-qualified HDHP the first year it was offered.

The third top story this year is the upgraded controls and generator protection relays completed on unit #6. Unit #6 is a 15mw gas turbine. The previous Bailey infi90 controls were installed approximately 20 years ago. This early generation digital control system is no longer supported by the manufacturer and replacement parts are becoming costly and difficult to locate.

Our new controls are PLC based using off the shelf Allen Bradley parts. All design, control engineering and labor were done in-house, which eliminates the need for monthly service contracts. Also, our personnel have a great hands-on knowledge of the system if any repairs or changes are needed. Cost of this project is estimated to be approximately 1/3 of a traditional turn-key project using outside contractors.

It is our responsibility to provide for the current needs and to plan for the future needs of Marshall's citizens. We must never forget that Marshall's citizens are the owners of MMU. The citizens of Marshall can be assured that the employees of MMU are committed to continuing the efforts necessary to fulfill our mission, which is to:

Provide reliable utility service for our owners at the lowest reasonable cost; maintain and operate facilities that will assure safe, dependable electricity, potable water and wastewater treatment, giving due consideration to conservation and environmental impacts; plan for the future to assure adequate resources with progressive but sound economic reasoning.

The following bulleted points provide a glimpse of some of the accomplishments and operations during this past year.

Electric Distribution

The following is a summary of the accomplishments of the Electric Distribution department for the fiscal year 2015-2016.

- * Crews completed overhead to underground projects in easements behind Slater, Shamrock, High, Mar, Grant and Edsel Primary and secondary lines serving 52 homes were relocated to underground.
- * Work was completed on the North Side of the Fairgrounds for the MC Power Solar Farm interconnect. The new Utility Scale Solar Farm will have a nameplate capacity of 3.2mw and should produce around 2.7 mw peak. It was connected at a point where it can feed into either Southeast or West Substations. Most of the energy produced will be consumed on the distribution system before back feeding into the subs.
- * Work began on a project to re-conductor feeder 16B, replacing #1 solid copper with 336.4 ACSR. Crews installed 18,000' of primary and neutral conductor. The last section (2,000') will be completed in 2016-2017.

We started conversion of High Pressure Sodium Street and area lights to new LED fixtures. Approximately 600 new LED fixtures were installed.

Miscellaneous:

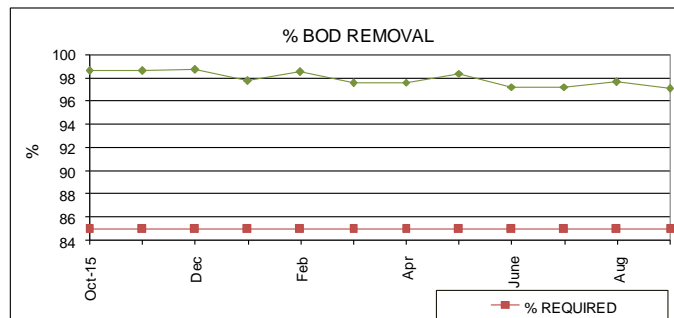
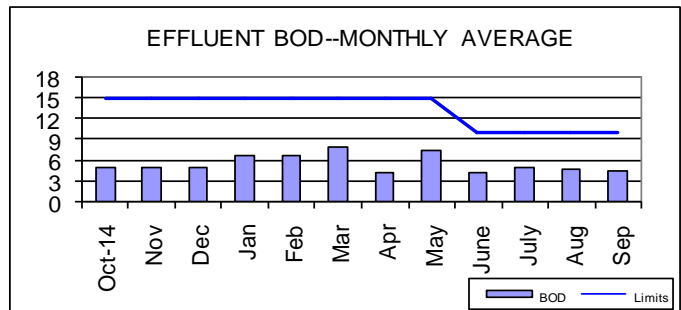
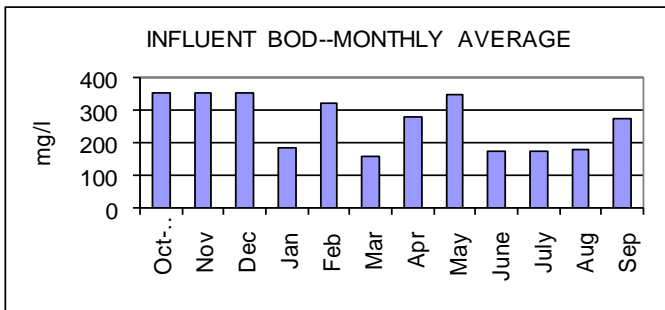
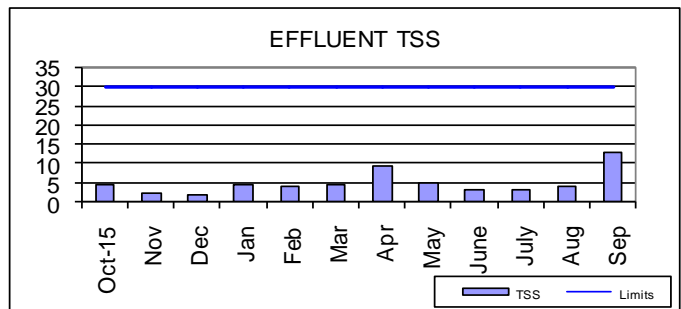
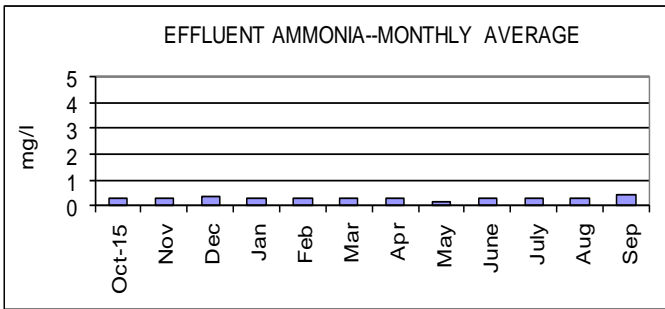
- Replaced/Installed 86 utility poles
- Installed services for several new buildings/businesses:
 - Common Good Natural Living- S. Odell
 - College apartments- E. Morrow
 - Fox Creek Villa Addition-S Atchison
 - State Administration Building- Industrial Park.
 - Coreslab Turntable- W. Arrow
- Performed maintenance/upgraded services:
 - McDonalds- W. College
 - Marshall Municipal Airport-S. Odell
 - Cargill Lagoons-Hemlock Ave.
 - Elmer Hare Ford-W North
 - Americold Logistics-W. Arrow

Water Treatment Plant

- * The plant produced 880,500,000 gallons of water, down approximately 3% from the 907,800,000 gallons produced in FY15. The average day was 2.4 million gallons
- * We published and mailed the annual consumer confidence report for 2015.

Wastewater Treatment Plant

- * The plant treated 1,124,000,000 gallons of wastewater, an approximate 8% increase from the 1,041,000,000 gallons for FY15. We applied roughly 378 tons of sludge to local farmland.
- * Following are charts showing the wastewater treatment plant’s effluent sampling results for FY15 compared against the effluent limits set by DNR.



BOD – biochemical oxygen demand

TSS – total suspended solids

mg/l – milligrams per liter or parts per million

There currently is no discharge limit, only a monitoring requirement, for ammonia.

Environmental

- * Filed the annual toxic chemical release inventory (TRI) report with EPA; the annual Tier II reports with the Missouri Emergency Response Commission, the Saline and Pettis County LEPCs, and local fire departments; and the annual hazardous waste generator report with DNR.

Electric Production

- * Our most unfortunate event of the year was an explosion which occurred in Unit #4 boiler on July 19th, 2016, while preparing the unit for operation. Some injuries did occur but we were thankful that none were considered serious. Significant damage to the boiler, FD fan and ductwork occurred. The Power Plant building also received some damage but it has since been repaired. We hired INSCO Environmental to perform a clean-up project in the building based on samples taken of debris which tested positive for asbestos containing materials. This was an expensive project. Unfortunately, because of the nature of the explosion our insurance carrier denied our claim. Because of this, we made a decision based on several key factors not to repair this unit. We are preparing plans to decommission the steam units in the Power Plant. These are not easy decisions. The amount of revenue from our MoPEP Capacity payments will be greatly reduced which will present new challenges for us as we move into 2017.
- * Our Recycle Center has shown a negative income the last few years. Recently the Sheltered Workshop announced that would no longer process ConAgra's cardboard as of December 9th, 2016. Through discussions with ConAgra we are planning to start receiving their cardboard as of December 10th, 2016. This will be on a trial basis to determine if our methods of operation and theirs can work together efficiently. ConAgra produces approximately 200 tons of cardboard a month. Our existing baler is not capable of processing that amount during a normal 8 hour shift. Temporarily, we plan to add and operate a second shift to keep up with the demand. If the trial basis proves successful a different baler would need to be purchased that could process the cardboard at a much faster rate. This would allow us to return to a normal schedule. We are hopeful that this will be a successful venture and benefit both parties. These are some of the events and projects of 2016.

Underground Facilities

- * Approximately 10,000 feet of sewer main was reconditioned with cured-in-place pipe (CIPP) method. This type of trenchless main replacement consists of a flexible, resin saturated fabric liner that is installed inside the old main. The liner takes the shape of the old pipe and is cured with hot water or steam. There were different sections throughout the collection system. In some of the areas the mains were located in backyards in an easement. To replace the mains in these areas by the traditional open excavation method would take many months to complete. The main liner should last for 59 years and possibly up to 100 years. This was the ninth year that repairs were made to the collection system using the CIPP method.
- * The four inch main on Eastwood St from Odell Ave to Brunswick Ave was in poor condition and had failed many times in the years past. The first phase of this project included installation of a new six inch ductile iron pipe (DIP) from Odell Ave to Allen Ave and included approximately 420 feet of main, seven new control valves and five services.
- * The twelve inch main on Atchison Ave was extended approximately seven hundred feet to the intersection of YY Hwy to serve the new Crisis Center that is under construction. Two fire hydrants, three control valves, and 2 - two inch water services were also installed to serve this property.
- * Most new buildings for different types of business usually need large meters and fire protection. Tees and valves are installed for the fire line that serves the sprinkler system. This past year we installed a connection for a fire line, a new hydrant and 2 - two inch water services for Missouri Valley College. A fire line was also installed for the Missouri State Administration Building.
- * A lot of focus was on residential house services. This past year over thirty shut-offs and twenty meter boxes have been repaired.

- * Inspection and cleaning of the sewer mains continue throughout the collection system. Water from a high pressure sewer cleaner was used to clean over 23 miles of sewer main. The sewer camera was used to videotape over 25 miles of sewer mains. These video inspections reveal areas that need to be repaired, totally replaced or reconditioned, as well as identifying other potential problems in the collection system.
- * MMU personnel have also made 10 sewer main repairs this last year. There were 18 new water services installed, 21 main breaks in the distribution system, and 16 main breaks on the transmission line between the Water Treatment Plant near Malta Bend and the reservoirs at the Power Plant.
- * Improvements and maintenance in the wastewater collection system are an ongoing process. The six inch main on North English Ave from Ohio St to High St was replaced with approximately 800' of new eight inch PVC pipe and two new pre-cast manholes to replace the old brick manholes.
- * The six inch main on North Seargent Ave was replaced with approximately 290' of new eight inch PVC pipe and one pre-cast manhole.
- * Approximately 650' of six inch PVC pipe was installed at the Airport for the remodeling of the airport offices.
- * Manholes downstream from the force mains from southwest lift station and located on Stone Hedge Golf Course were deteriorated by hydrogen sulfide. A fiberglass liner, supported by a concrete slurry mix was installed in effort to rehab them.

In fiscal year 2016, a total of 7 people were hired. All people were hired to fill vacancies created by departing personnel. During the year, four people were hired for Underground Facilities (three General Maintenance/Meter Readers, one GIS/Records Associate) one for Electric Distribution (Apprentice Lineman) and one for Administrative Services (Meter Reader). Additionally, a Safety Specialist was hired. We began the year with 2 part-time Janitors. One individual departed and that part-time position was eliminated. The remaining part-time Janitor position was modified to full-time. At year's end, we have 18 vacancies created by personnel who have departed or retired. Sixteen of these vacancies will remain unfilled indefinitely.

The information and statistics above are intended to give you a feel for what was accomplished this last year, but these statistics do not begin to convey the importance of the utility services provided to the citizens of Marshall by the citizens of Marshall. This local ownership yields many hometown advantages, not the least of which is having the Business Office right here in town and having decisions made by citizen owners.

Kyle D. Gibbs
General Manager

KDG/jm

TABLE A

Free Services
Fiscal Year 2015/16

WATER:

Fire Hydrant Maintenance	\$	5,599
Depreciation of Fire Hydrants	\$	6,386
Labor and Material Donated	\$	<u>8,491</u>
	\$	20,476

ELECTRIC:

Street Lighting Energy	\$	150,482
Street Lighting Maintenance	\$	18,848
Depreciation of Street Lighting	\$	40,453
Labor and Material Donated	\$	5,816
Marshall-Saline Development Corp.	\$	<u>30,000</u>
	\$	245,599

TOTAL	\$	<u><u>266,075</u></u>
-------	----	-----------------------

Payments in Lieu of Taxes

Water Transfers to City General Fund	\$	181,451
Electric Transfers to City General Fund	\$	<u>1,802,162</u>
	\$	1,983,613

TABLE B

	<u>Operating Statistics</u>				
	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Average # Elec. Customers	5,910	5,913	5,920	5,933	5,949
Average # Water Customers	4,929	4,940	4,947	4,933	4,957
Average # Internet Customers	491	743	1,075	1,456	1,821
Average Residential Bill (monthly)					
Water	\$25.97	\$25.31	\$26.82	\$27.48	\$29.92
Electric	\$90.19	\$86.42	\$93.04	\$92.91	\$98.93
Wastewater	\$29.97	\$36.15	\$37.99	\$37.84	\$37.60
Uncollectables (Bad Debts)	\$63,877	\$56,452	\$67,187	\$60,930	\$77,665
Customers Assisted	559	394	420	456	474
MVCAA	\$72,560	\$39,947	\$59,924	\$49,956	\$68,433
Other*	\$9,589	\$11,608	\$17,868	\$15,430	
Peak Day Water (on production)	8/2	8/8	4/8	8/13	8/20
(1,000,000 gal.)	5.60	5.07	6.66	5.37	4.75
Water Sold (1,000,000 gal.)					
Residential	257	231	229	209	216
Commercial	77	65	70	68	59
Small General	50	44	42	44	42
Large General	78	73	55	48	54
Industrial	247	243	247	234	212
Wholesale	239	262	243	239	243
TOTAL	948	918	886	842	830
Total Annual Water from Wells	1,009	1,019	970	927	913
(1,000,000 gal.)					
Water % Losses	6.05	9.91	8.66	9.17	9.10
Tons Waste Lime (land applied)	1,970	5,500	486	2,300	0
# Acres	850	1,300	180	1,040	0

* Includes churches and Salvation Army.

TABLE B - Operating Statistics (cont.)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Peak Day Wastewater (1,000,000 gal.)	3/23 11.6	4/18 14.01	4/4 6.41	7/9 12.03	8/1 18.31
Total Annual Wastewater (1,000,000 gal.)	758	1,213	779	1,057	1,124
Tons Wastewater Sludge (land applied)	995	414	806	384	378
# Acres	1,030	614	1,303	643	673
Golf Course Irrigation Water (1,000,000 gal.)					
Effluent	0	0	17,421	0	0
Potable	12,039	16,870	0	10,643	11,452
Peak Load KW	38,200	38,600	37,800	38,351	38,600
Date	8/12	7/18	8/25	7/28	7/20
MWH sold					
General Lighting	141	158	154	138	122
Residential	49,904	48,528	50,117	48,121	48,439
Commercial	13,283	12,406	15,127	14,497	13,140
Small General	18,655	17,942	18,808	17,376	18,601
Large General	26,222	25,879	22,383	22,283	22,032
Industrial	68,527	71,225	68,872	70,222	67,898
Interruptible	44	42	39	37	38
Area / Street Light	0	0	0	632	693
TOTAL	176,776	176,180	178,459	173,316	170,963
Total MWH Purchased	186,898	185,925	188,373	185,042	179,472
Total MWH Generated *	2,007	6,261	166	4,527	249
% Losses	5.42	5.24	4.92	6.34	4.74
Natural Gas Burned (MCF)	21,051	9,678	1,944	4,368	3,260
#2 Fuel Oil Burned (gal)	8,628	3,200	4,470	1,680	2,272
Coal Burned (tons)	5,089	3,488	0	2,896	0
Paper and Cardboard Sold (tons)	652	899	1,051	843	990

* Beginning in June 2006, all energy generated is sold to MoPEP.

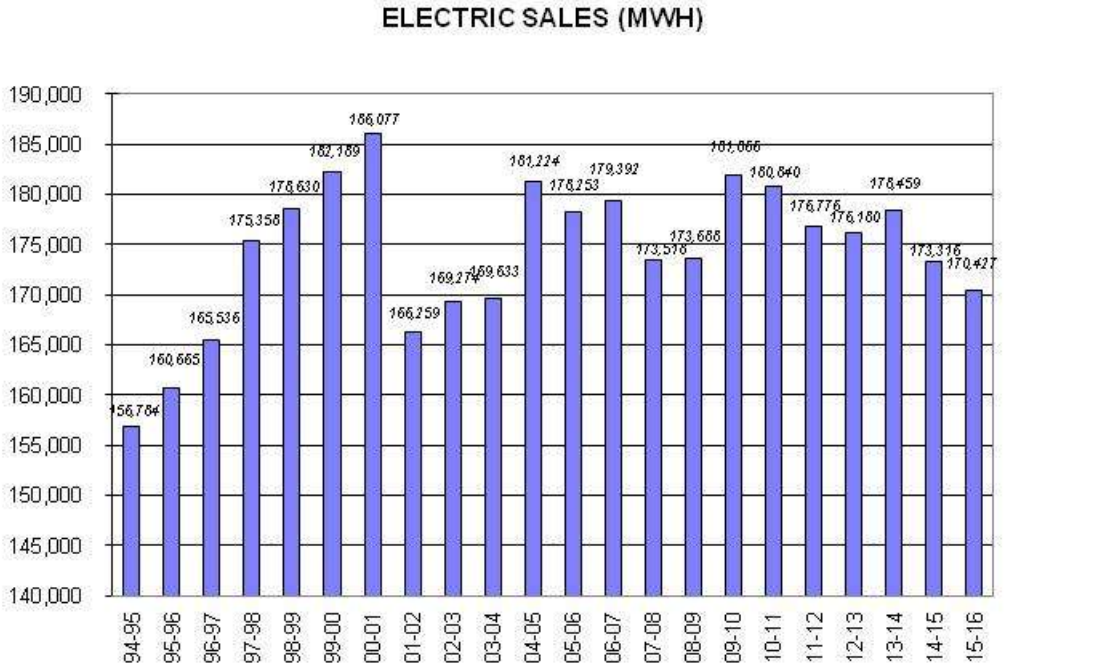
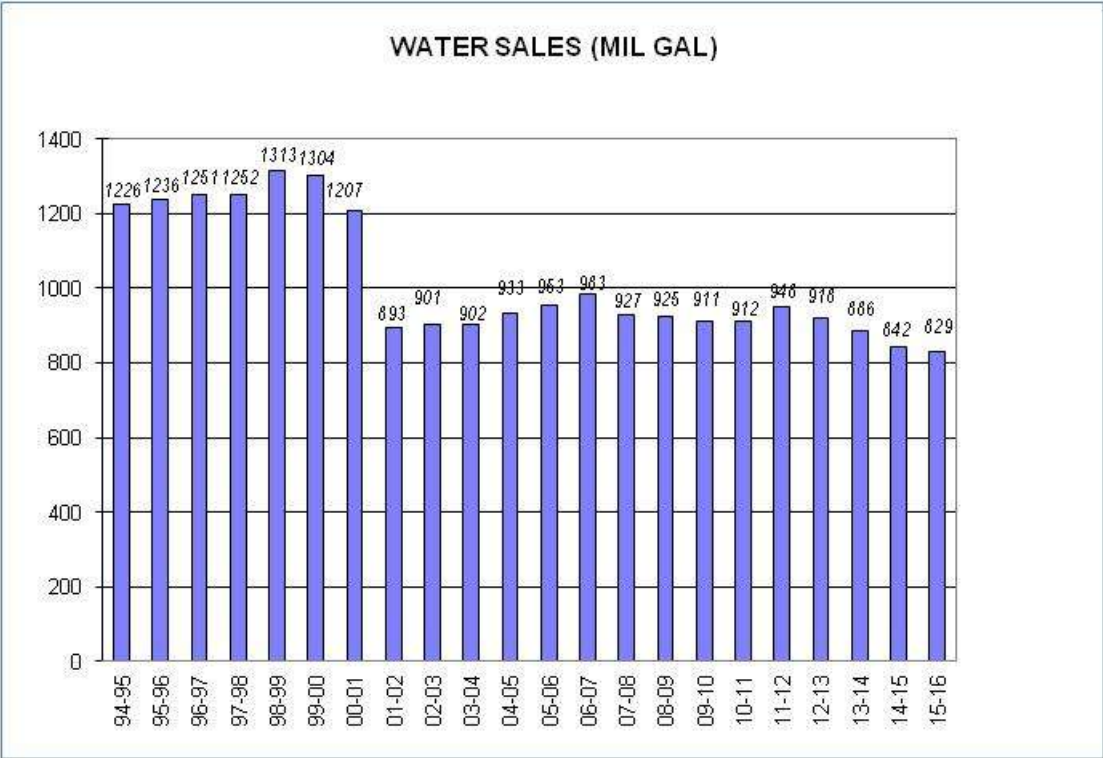


TABLE C

Cash Transaction Report

Fiscal Year 2015/16

	<u>WATER</u>	<u>ELECTRIC</u>	<u>SEWER</u>	<u>INTERNET</u>	<u>GAS</u>	<u>TOTAL</u>
Fund Balance (10/1/16)*	\$1,825,036	\$17,728,656	\$2,913,687	\$6,464	\$2,377,359	\$24,851,202
Revenues	\$3,970,104	\$20,303,383	\$2,930,084	\$826,615	\$75,106	\$28,273,939
Disbursements	\$3,263,637	\$18,317,593	\$2,457,522	\$693,768	\$75,106	\$24,807,626
Net Transfers		\$480,000	(\$480,000)			
Fund Balance (9/30/16)*	\$2,531,503	\$20,194,446	\$2,906,249	\$139,311	\$2,545,006	\$28,317,515
Investments (9/30/16)	\$500,000	\$14,969,389	\$1,243,130		\$1,995,450	\$18,707,969

* Includes Investments

TABLE D

Wastewater Debt

(Subject to interest rate change semi-annually)

Estimated payments due for year ending:

	Principal & Interest
9/30/16	\$494,735
9/30/17	\$492,671

TABLE E-1

Cash and Investments

9/30/16

	<u>Total</u>	<u>Cash</u>	<u>Investments</u> <u>(at cost)</u>
WATER:			
Operating	\$1,039,573	\$1,039,573	\$0
Water Plant	\$1,543,893	\$1,043,893	\$500,000
Insurance Reserve	\$0	\$0	\$0
Equipment Reserve	\$0	\$0	\$0
	<hr/>	<hr/>	<hr/>
	\$2,583,466	\$2,083,466	\$500,000
 ELECTRIC:			
Operating	\$4,754,665	\$4,754,665	\$0
Consumer Deposits	\$575,352	\$575,352	\$0
Insurance Reserve	\$5,000,000	\$10,111	\$4,989,889
Equipment Reserve	\$10,230,149	\$250,649	\$9,979,500
	<hr/>	<hr/>	<hr/>
	\$20,560,166	\$5,590,777	\$14,969,389
 WASTEWATER:			
Operating	\$630,986	\$630,986	\$0
Inflow & Infiltration	\$1,472,994	\$728,929	\$744,065
Insurance Reserve	\$500,000	\$935	\$499,065
Main Replacement	\$332,179	\$332,179	\$0
Equipment Reserve	\$0	\$0	\$0
	<hr/>	<hr/>	<hr/>
	\$2,936,159	\$1,693,029	\$1,243,130
 INTERNET:			
Operating	\$149,756	\$149,756	\$0
 NATURAL GAS			
Operating	\$542,953	\$542,953	\$0
Equipment	\$2,003,359	\$7,909	\$1,995,450
	<hr/>	<hr/>	<hr/>
	\$2,546,312	\$550,862	\$1,995,450

TABLE E-2
 (Detail of Table E-1)
Investments 9/30/16

	<u>Cost</u>	<u>Face Value</u>	<u>% Yield</u>
WATER (Bank Midwest)			
CD Santander 11/04/16	\$250,000	\$250,000	0.650 %
CD Ally Bank 05/05/17	\$250,000	\$250,000	0.900 %
	<u>\$500,000</u>	<u>\$500,000</u>	
ELECTRIC (Wood & Huston)			
Treasury Bill Maturing 11/03/16	\$4,990,016	\$5,000,000	0.401 %
Treasury Bill Maturing 12/15/16	\$4,989,889	\$5,000,000	0.406 %
Treasury Bill Maturing 01/19/17	\$2,993,478	\$3,000,000	0.437 %
Treasury Bill Maturing 02/02/17	\$1,996,006	\$2,000,000	0.401 %
	<u>\$14,969,389</u>	<u>\$15,000,000</u>	
WASTEWATER (Community Bank):			
CD - Community Bank 12/17/16	\$245,000	\$245,000	0.25 %
Treasury Bill Maturing 01/19/17	\$998,129	\$1,000,000	0.38 %
	<u>\$1,243,129</u>	<u>\$1,245,000</u>	
NATURAL GAS (Wood & Huston)			
Treasury Bill Maturing 02/23/17	\$1,995,399	\$2,000,000	0.46 %
	<u>\$1,995,399</u>	<u>\$2,000,000</u>	
	<u>\$18,707,917</u>	<u>\$18,745,000</u>	

(Organization Chart)