

MARSHALL MUNICIPAL UTILITIES
ANNUAL REPORT
2022/2023

TO: Board of Public Works
City Council

February 5, 2024

This annual report summarizes many of the improvements, accomplishments, and challenges to Marshall's publicly owned utility systems during the fiscal year ending September 30, 2023. Many of the accomplishments made in 2023 are not only important to provide reliable service to our community, but necessary for Marshall to develop and grow.

As a publicly owned utility, MMU is an Executive Department of the City governed by a 4-member Board of its customers/owners. These members are appointed by the mayor, confirmed by the City Council, and are responsible for the overall operation of Water, Wastewater, Electric, and Broadband services for Marshall. MMU has been in operation for over 100 years and developed into an award-winning utility, providing above-average service at below-average costs under the guidance of its Board.

2022/2023 Improvement Highlights:

The largest project for 2022/2023 was the completion of an upgrade to the aeration basins and final clarifiers at our Wastewater Treatment Plant. This was a multi-year project that was completed in 2023. MMU began working with Burns & McDonnell in April of 2020 to evaluate the Wastewater Treatment Plant and recommend improvements. Several major items were identified as past their useful life and in need of replacement, including the aeration basins and final clarifiers. Each of these had been installed during 1992 plant improvements.

The work on the aeration basins consisted of the replacement of the aeration system, including bridges, blowers, mixers, controls, and control building. All mechanical equipment in the three final clarifiers was replaced. This equipment consisted of the center columns, walkway bridges, suction headers, skimmers, scum boxes, and weirs. This major improvement to our wastewater treatment plant should serve the community of Marshall and its customers for many years.

A second large multi-year project for 2022/2023 that saw completion was the Southeast Substation transformer and switchgear replacement project. The switchgear replacement was completed in 2022 with the 161kV buss modifications and transformer addition completed in June 2023. This substation serves the South and East sections of Marshall and was originally installed in 1976. Improvements to this substation will help maintain reliable service for MMU electric customers.

The MMU IT & Broadband Department continued its work to extend high-speed internet services to rural areas of Saline County utilizing USDA ReConnect grant funding. MMU completed the construction of infrastructure for Round 1 and is nearing its target of around 240 customers. We have received all the reimbursements for the original loan/grant and have submitted the payment request for the final 10% supplemental funding. MMU's contractor completed the installation of approximately 80 miles (10

miles remaining) of conduit, pull boxes, and pedestals required for the first year of Round 2 of grant funding. MMU crews have been installing fiber, splicing, and installing service drops where conduit installation is completed. We are running approximately 5-6 months behind the contractor installing and splicing fiber. This has been pretty consistent since the beginning of the project. Bids were awarded in December for conduit, pull box, and pedestal installation for 4 sections (110 miles) of the second year of Round 2 grant and our contractor should begin work around January as weather permits. Round 2 is 450 miles in total.

Other Notable Accomplishments:

- Based on results of last year's sanitary sewer flow study, a smoke testing project was initiated and completed on approximately 240,000 lineal feet of sewer main to identify possible areas of I & I on both the public and private sides of sanitary sewer lines. We should have the completed report in January, 2024. MMU spends on average approximately \$250,000 annually to pump and treat rainwater caused by I & I.

MMU Mission Statement

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, wastewater treatment, broadband services, and natural gas transportation giving due consideration to conservation and environmental impacts; Plan for the future to assure adequate resources with progressive but sound economic reasoning.

Department information

The following information provides a glimpse of some of the challenges, accomplishments, and operations during the 2022-2023 fiscal year.

Electric Distribution

- The Southeast Substation transformer (T2) and switchgear replacement: The switchgear replacement was completed in the fall of 2022. The new transformer was energized and put in service on June 14th, 2023.
- We had issues with Miami 1 and Miami 2 transformer load tap changers at the same time between November 2022 and March 2023. We were able to schedule contractors to make repairs and put both transformers back in service.
- Miami 1 Switchgear Replacement: With extensive repairs made to the Miami 1 load tap changer over the winter and several test results, engineers recommended keeping the Miami 1 transformer and circuit switcher in service and replace the 15kV switchgear only. We are

currently working with engineers on the design and specifications for the Miami 1 switchgear replacement.

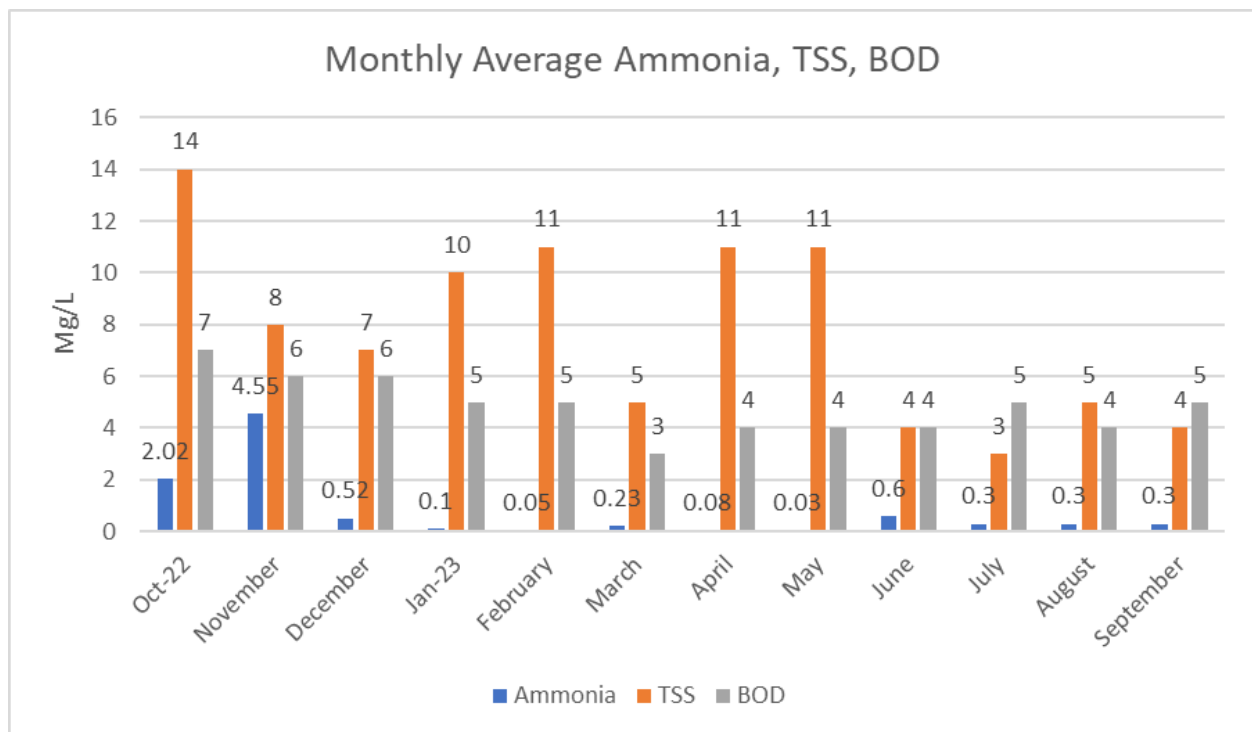
- Overhead to underground projects: We completed the overhead to underground project in the area between North Dr. and South Dr. We also buried lines between South Dr. and Morrow St. The crew buried approximately 2000' of primary and secondary lines and 35 house services.
- Pole Inspections: Contractors inspected a total of 1201 poles. They were able to identify 38 reject poles 3 of which were priority poles. All priority poles have been replaced; we are continuing to replace reject poles according to their remaining strength.
- Crews replaced T-8 fluorescent light fixtures with LED fixtures throughout MMU. This includes all light fixtures with the exception of a few task lights that we plan to replace as workload permits.
- Contractors completed the breaker and relay testing at the West Substation. This consisted of 9 electro-mechanical relays and thirteen SEL microprocessor relays. They also performed preventative maintenance on 7 medium-voltage circuit breakers.
- Street/Area Light Conversion: We replaced 15 high-pressure sodium area lights. That leaves 16 left to complete the conversion. The remaining high-pressure sodium area lights are replaced as they fail or during pole changeouts.
- Replaced or installed 70 new utility poles.
- Connected 3 new net-metering installations, this brings the total net meter installations connected to 33.

Water Treatment Plant

- The plant produced 868,274,000 gallons of water in FY23.
- Daily average water produced was 2.37 million gallons per day.
- Max day of production was 4.955 MGD on June 5th, 2023.
- We published and posted the annual consumer confidence report for 2022.
- Completed annual well treatment of 5 wells.
- Started a water treatment plant system study with Burns & McDonnell.
- Replaced a zero-turn mower at the plant.
- Filter media replacement project started on the remaining 3 of 5 filters, this project was completed in December of 2023.
- Filter influent valve & actuator replacement project started on 5 filters; the project was completed in December of 2023.
- New lime troughs were installed on all 3 primary basins.
- Land applied 213.75 tons of lime sludge on 78.6 acres
- Gave away roughly 888 tons of lime sludge to area farmers.

Wastewater Treatment Plant

- The plant treated approximately 791,580,000 gallons of wastewater. We applied roughly 562 tons of sludge to local farmland.
- Installation of submersible pumps for grit removal and industrial sump pump in the bottom of the grit pump chamber.
- Cleanup and repair of headworks building from flood damage. Replacement/repair of lighting fixtures, heaters, west bar screen, and grit chamber paddle drives.
- Completed replacement of 3 pumps at the headworks on the dry flow side. Pumps were downsized to match flow; all 6 pumps are currently the same size with one spare.
- Upgrades to the Aeration Basin as well as the Final Clarifiers were completed.
- Following are charts showing the wastewater treatment plant's effluent sampling results for FY22/23. The Plant continues to Stay Below 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.

Electric Production

- On June 15th, 2023 BHMG Engineers Inc. was onsite to perform NESHAP RICE testing on units 10 and 11. This testing is required every 3 years on all internal combustion engine generation and must show a 70% reduction in CO emissions. Both units performed well and indicated over 75% CO destruction.
- In 2022 we were awarded two grants from the Solid Waste Management District Region F. The first grant was for new truck scales to replace the 25+ year-old scales that we had. In March of 2023, Accurate Superior Scales installed the new scales. The second grant was for a new glass crusher that would replace the 25-year-old crusher we had. The lead time on this item was very long and we expect to receive the glass crusher in December of 2023.
- In January of 2023 we sent off a circulating water pump from unit 10 and one from unit 11 to be rebuilt. The work required for the pumps was very extensive and supply chain issues caused a long lead time on the repairs. The two pumps were completed and reinstalled in September of 2023. At this time the other two pumps were pulled out and sent off for the same repairs.
- In July of 2023 we began to notice some loss of load in unit 6. This was followed by some significant vibrations. We contacted Ethos Energy who is the OEM for this unit and spent a couple of months repairing a few suggested items. These repairs did not help the situation. We had a Bore Scope Inspection done on the unit and Ethos determined that the main cause of our issue was worn or missing seals inside the turbine. Repairs to this would mean splitting the case of the unit open. Once you split the case you are well on the way to a major overhaul. The last overhaul on this unit was in 2005. With all these factors we decided it was the best time to go ahead and perform a major overhaul. We are working with Ethos Energy on this project and it will begin on November 1st with hopes of completing shortly after the first of the year.

Underground Facilities

- Construction on North Street Pump Station Renovations was started in August 2023. All demolition was completed in November 2023. Completion of the project is expected in the first part of January 2024.
- Inspection and cleaning of the sewer mains continue throughout the collection system. The sewer camera was used to videotape over 6,707' 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. There were 12 new water services installed.
- MMU has approximately 100 miles of distribution mains, some of which are over 100 years old. Last year, we had a total of 58 main failures in the distribution system and 10 on the transmission line. The increase in main and transmission line failures can be attributed to the ongoing drought and dry ground conditions. We have a very well-maintained distribution system and have demonstrated that we can endure droughts and maintain water for major fires without having to curtail consumption.
- A sewer main project in the alley between West Arrow Street and West North Street was completed in September 2022. The 6" clay main was in poor condition with several holes and missing sections. The project consisted of approximately 480' of 8" PVC main, 12 services, and 2 new precast manholes.

- The Cured-in-place-pipe (CIPP) sewer main rehabilitation was awarded for approximately 5,000' of sewer main in the east Eastwood Street area. Work was completed in the fall of 2023.
- Burns & McDonnell Engineering Services conducted a smoke testing project on approximately 240,000' of sewer main to help identify inflow and infiltration (I & I) on both public and private lines and help develop a plan to correct those issues.
- Contractors from Midco Diving and Marine were awarded the bid for inspecting reservoir #1, followed by lime sludge removal.
- A water main replacement on Clara Street was completed in August 2023. The project consisted of replacing approximately 680' of 6" cast iron main with 6" PVC C900 main.
- A water main replacement project on North Lincoln Avenue between Slater Street and State Street was completed in the fall of 2023. The project consisted of replacing the 6" cast iron main that has failed several times with 8" PVC C900 as well as the 12" on Lincoln Avenue to the 8" on State Street. This will improve flow in the area.

IT & Broadband

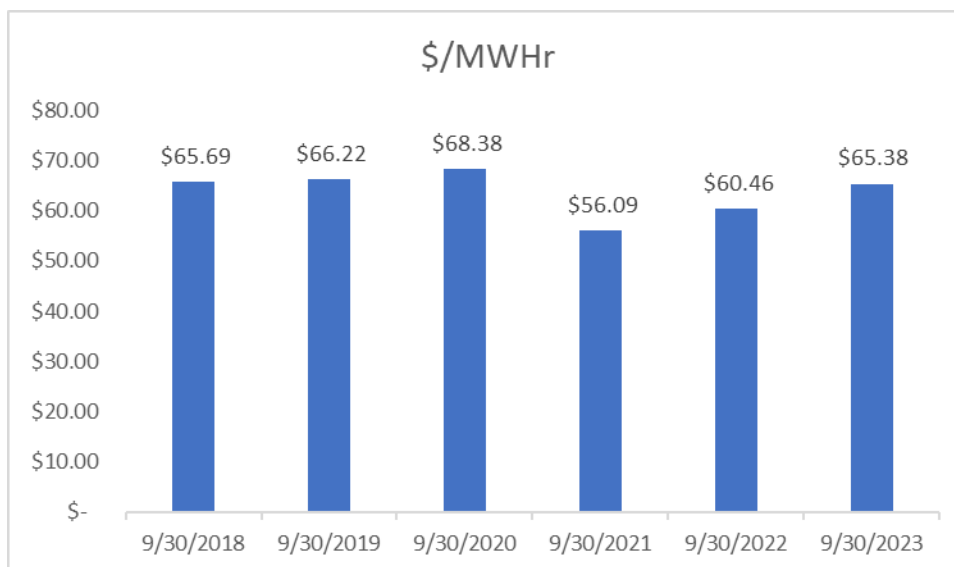
- We are nearing 4,100 customers, including over 220 in the grant areas.
- Construction for the 2019 USDA broadband grant is finished. We should be receiving the last of the normal grant funding soon. The USDA added supplemental funding to compensate for higher-than-expected inflation costs, so we will be able to make an additional request for funds.
- The 2020 (Round 2) USDA broadband grant is progressing nicely. The contractor is nearing completion of the first 90 miles of conduit. MMU crews have installed about 30 miles of fiber. We have sent out bids for the next 110 miles of conduit and should be selecting a bidder in December.

Administration

- Working with Toth & Associates on Time-Of-Use rates. MMU will plan on making a TOU rate available to all residential customers in June of 2024.
- In December of 2022 MMU established an Interdepartmental Loan Policy. This policy created a fund to be used for interdepartmental loans within departments. The fund will be capped at \$5 million and will be funded by current outstanding interdepartmental loan payments.
- In January of 2023 MMU started collecting 2.5% for trash billing services. This service prior to January 2023 was being donated but was reactivated when the City of Marshall outsourced trash to Rural Trash Services.

Wholesale Energy

MoPEP wholesale energy in the fiscal year 2022/2023 averaged approximately \$70.43/mw. Compared to the fiscal year 2021/2022 average of \$67.85/mw, wholesale energy was up approximately \$2.58/mw. The increase was less than the forecasted 7.5% increase. MMU generation for 2022/2023 was \$827,728. This resulted in an all-in cost of \$65.38/mw for the year.



Net Metering

In 2003, MMU adopted net metering in compliance with the Consumer Clean Energy Act. For fiscal year 2023, MMU reported a total of 27 net metering customers with a total KW capacity of 309 KW. During fiscal year 2023, those net metering customers produced 247,719 kWh of which 130,726 kWh was fed back to the electric grid.

HR/Personnel

In fiscal year 2023, a total of eight (8) people were hired. Six (6) of the eight (8) people were hired to fill vacancies created by departing or transferring personnel. Two (2) were hired to address the need for additional staff in MMU's IT & Broadband department. During the year:

- Two people were hired for Underground Facilities (General Maintenance/Meter Reader);
- Two people were hired for Wastewater Treatment (Operator);
- Two people were hired for IT & Broadband (one Fiber Optic Technician and one General Maintenance/Groundman);
- One person was hired for Electric Production (Systems Maintenance Mechanic); and
- One person was hired for Administrative Services (Customer Service Representative).

At year's end, we have seven (7) vacancies created by personnel who have departed (including retirements and deaths). Three (3) 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.

Jeff Bergstrom
General Manager

JB/jm

TABLE A

Fiscal Year 2022/2023

ELECTRIC:

Street Lighting Energy	\$ 57,193
Street Lighting Maintenance	3,991
Depreciation of Street Lighting	34,211
Labor and Material Donated	141
Marshall-Saline Development Corp.	30,000
Utilities Donated to City	107,395
	<u>232,931</u>

WATER:

Fire Hydrant Maintenance	5,139
Depreciation of Fire Hydrants	6,762
Labor and Material Donated	3,351
Utilities Donated to City	46,329
	<u>61,581</u>

WASTEWATER:

Labor and Material Donated	786
Utilities Donated to City	11,436
	<u>12,222</u>

IT BROADBAND:

Labor and Material Donated	995
Utilities Donated to City	12,222
	<u>13,217</u>

TOTAL	<u>\$ 319,951</u>
-------	-------------------

Payments in Lieu of Taxes

Electric Transfers to City General Fund	\$1,540,591
Water Transfers to City General Fund	206,007
	<u>\$1,746,598</u>

TABLE B

Operating Statistics

	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Average # Elec. Customers	5,919	5,935	5,949	5,979	6,018
Average # Water Customers	4,984	4,998	5,025	5,024	5,110
Average # IT Broadband Customers	2,691	2,971	3,266	3,543	4,004
Average Residential Bill (monthly)					
Water	\$30.79	\$32.02	\$31.82	\$32.13	\$31.89
Electric	\$101.22	\$101.68	\$94.05	\$95.22	\$91.49
Wastewater	\$37.23	\$37.18	\$37.13	\$39.29	\$41.71
IT Broadband	\$35.23	\$36.06	\$36.82	\$38.68	\$37.33
Uncollectable (Bad Debts)	\$66,058	\$86,943	\$83,053	\$65,570	\$90,207
Customers Assisted	434	536	677	538	1026
MVCAA	\$62,016	\$67,866	\$94,588	\$124,623	\$156,669
Other*	0	\$30,087	\$17,735	\$0	\$95,727
Peak Day Water (on production) (1,000,000 gal.)	7/20 4.7	10/14 4.09	10/19 4.42	7/7 4.71	6/5 4.95
Water Sold (1,000,000 gal.)					
Residential	201	205	204	209	219
Commercial	54	56	59	59	57
Small General	40	37	43	51	41
Large General	50	59	63	59	60
Industrial	215	216	229	233	218
Wholesale	220	223	228	208	251
TOTAL	780	796	826	819	846
Total Annual Water from Wells (1,000,000 gal.)	869	870	909	855	868
Water % Losses	10.24%	8.46%	9.21%	4.25%	2.61%
Tons Waste Lime (land applied)	0	0	44	900	214
# Acres	0	0	44	0	79

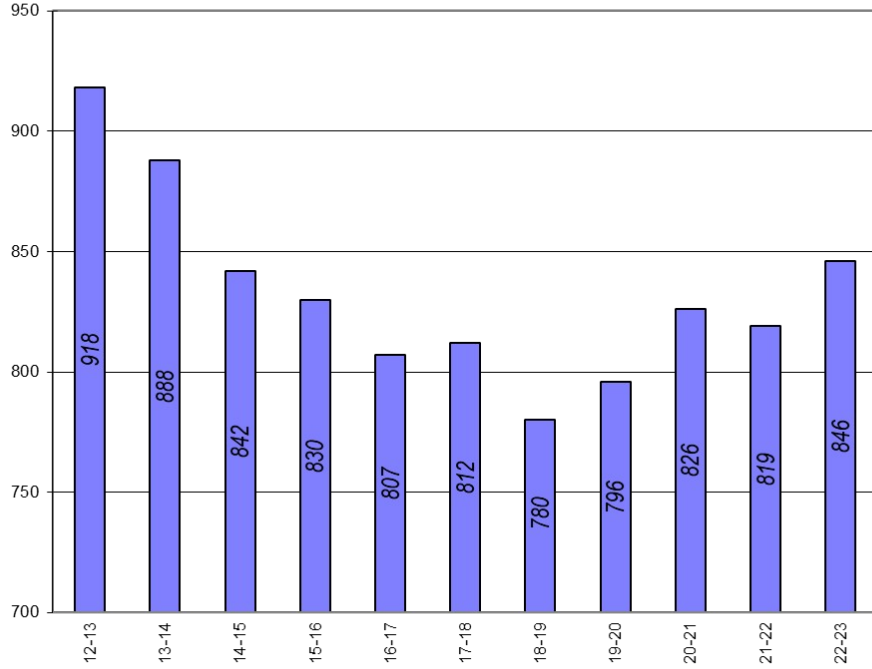
*Includes churches and Salvation Army.

TABLE B - Operating Statistics (cont.)

	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Peak Day Wastewater	25-May	23-Mar	30-Jun	23-Mar	16-Aug
(1,000,000 gal.)	10.31	7.88	11	5.87	5.69
Total Annual Wastewater	1,002	1,002	1,113	771	738
(1,000,000 gal.)					
Tons Wastewater Sludge	319	420	350	335	200
# Acres	820	710	466	430	730
Golf Course Irrigation Water 04-000429-01					
(1,000,000 gal.)					
Potable	5,925	6,412	6,687	7,589	5,997
Peak Load KW	36,800	35,730	37,781	36,790	38,666
Date	7/19	8/25	8/11	6/16	8/24
MWH sold					
General Lighting	125	114	104	74	0
Residential	49,848	50,051	49,850	51,446	50,851
Commercial	13,767	13,832	12,982	13,243	12,893
Small General	18,097	17,014	18,263	16,081	15,388
Large General	25,439	24,914	25,526	30,870	29,290
Industrial	64,004	63,191	65,276	60,451	54,796
Interruptible	81	78	65	36	0
Area Light	276	283	203	114	115
Street Lights	0	0	0	0	538
TOTAL	171,637	169,477	172,269	172,315	163,871
Total MWH Purchased	179,064	174,416	179,030	174,431	167,427
Total MWH Generated *	3,695	1,141	11,840	7,341	1,885
% Losses	2.08	2.18	3.71	1.62	2.12
Natural Gas Burned (MCF)	80,761	16,685	144,803	106,383	21,353
#2 Fuel Oil Burned (gal)	51,953	2,855	263,088	6,704	5,591
Paper Sold (tons)	237	194	172	175	67
Cardboard Sold (tons)	3,558	3,804	2,706	429	172

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

WATER SALES (MIL GAL)



ELECTRIC SALES (MWH)

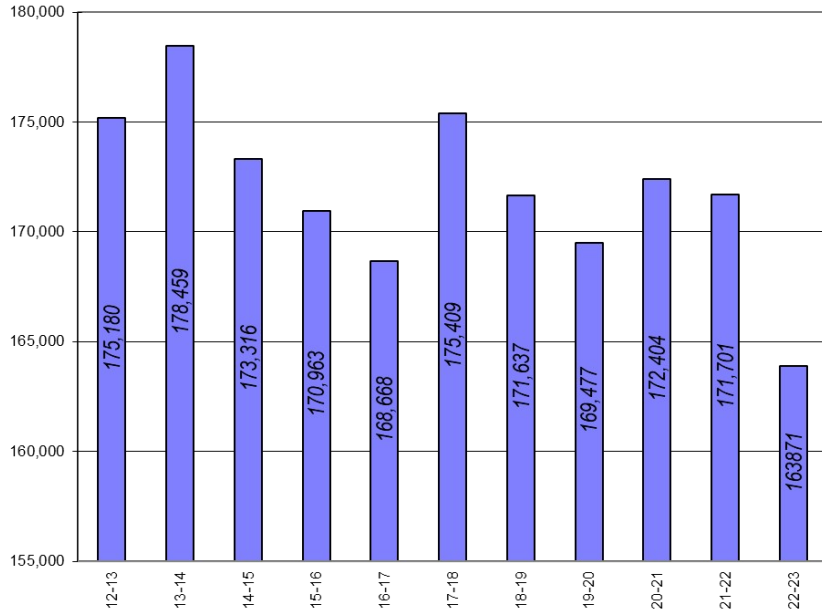


TABLE C

Cash Transaction Report
Fiscal Year 2022/2023

	<u>ELECTRIC</u>	<u>WATER</u>	<u>SEWER</u>	<u>INTERNET</u>	<u>GAS</u>	<u>TOTAL</u>
Fund Balance (10/1/22)*	\$ 14,386,498	\$ 3,437,815	\$ 4,228,598	\$ 425,558	\$ 939,314	\$ 23,417,783
Revenues	\$ 19,422,144	\$ 4,726,440	\$ 4,284,602	\$ 2,533,409	\$ 330,435	\$ 31,297,030
Disbursement:	\$ 22,801,145	\$ 5,023,247	\$ 4,059,997	\$ 3,085,441	\$ 76,530	\$ 35,046,360
Net Transfers	\$ (1,516,244)	\$ (46,097)	\$ (54,997)	\$ 2,467,338	\$ (850,000)	\$ -
Fund Balance (9/30/23)*	\$ 9,491,253	\$ 3,094,911	\$ 4,398,206	\$ 2,340,864	\$ 343,219	\$ 19,668,453
Investments (9/30/23)	\$ 4,867,292	\$ -	\$ 245,000	\$ -	\$ -	\$ 5,112,292

* Includes Investments

TABLE D

Water, Wastewater, and IT & Broadband Debt
(Subject to interest rate change semi-annually)

Estimated payments due for year ending:

Principal & Interest	Water	Wastewater	IT Broadband
9/30/2024	\$ 305,636	\$ 754,119	\$ 324,310
9/30/2025	\$ 309,859	\$ 754,119	\$ 324,310
9/30/2026	\$ 181,546	\$ 754,119	\$ 324,310

TABLE E-1

Cash and Investments
9/30/2023

	<u>TOTAL</u>	<u>CASH</u>	<u>INVESTMENTS</u> <u>(at cost)</u>
ELECTRIC			
Operating	2,145,613	2,145,613	-
Consumer Deposits	830,528	830,528	-
Equipment Reserve	5,378,436	511,144	4,867,292
Genset Reserves	287,308	287,308	-
Interdepartment Loan Fund	699,368	699,368	-
Economic Development	150,000	150,000	-
	<u>9,491,253</u>	<u>4,623,961</u>	<u>4,867,292</u>
WATER			
Operating	347,442	347,442	-
Water Reserve	2,748,019	2,748,019	-
	<u>3,095,461</u>	<u>3,095,461</u>	<u>-</u>
WASTEWATER			
Operating	728,667	728,667	-
Inflow & Infiltration	1,728,742	1,483,742	245,000
Main Replacement	1,203,799	1,203,799	-
Equipment Reserve	736,998	736,998	-
	<u>4,398,206</u>	<u>4,153,206</u>	<u>245,000</u>
INTERNET			
Operating	2,338,915	2,338,915	-
Equipment Reserve	1,948	1,948	-
	<u>2,340,863</u>	<u>2,340,863</u>	<u>-</u>
NATURAL GAS			
Operating	337,449	337,449	-
Equipment Fund	5,770	5,770	-
	<u>343,219</u>	<u>343,219</u>	<u>-</u>
	\$ 19,669,002	\$ 14,556,710	\$ 5,112,292

TABLE E-2
(Detail of Table E-1)

Investments
9/30/2023

	<u>COST</u>	<u>FACE VALUE</u>	<u>% YIELD</u>
ELECTRIC (Wood & Huston) 12/7/2023	\$ 4,867,292	\$ 5,000,000	5.483%
WASTEWATER (Community Bank) Certificate of Deposit 12/17/2023	\$ 245,000	\$ 245,000	2.50%
	<u>\$ 5,112,292</u>	<u>\$ 5,245,000</u>	

MMU RECYCLE CENTER

	<u>9/30/2023</u>
Operating Revenue	
Sales - Cardboard	\$ 12,117
Sales - Mixed Paper	1,296
Sales - Glass	(168)
	<u>13,246</u>
Operating Expense	
Salaries & Benfits	75,652
Utilities	11,513
Maintenance	6,888
Supplies	23,535
Depreciation	15,438
	<u>133,026</u>
Net Income Surplus (Deficit)	<u><u>\$ (119,780)</u></u>