



# Consulting Engineer's Annual Report

OPERATION AND MAINTENANCE OF  
WATERWORKS SYSTEM CALENDAR YEAR 2017

Prepared for:

**Municipal Authority of the  
Borough of Lewistown**

**70 Chestnut Street  
Lewistown, PA 177044**

Prepared by:

**Uni-Tec Consulting Engineering, Inc  
2007 Cato Avenue  
State College, PA 16801  
(814) 238-8223**

**March 20, 2018**



## TABLE OF CONTENTS

	<b>Page</b>
<b>PART I: EXTENSIONS, REPAIRS AND IMPROVEMENTS</b>	
A. Transmission Mains/Water Supply	1
B. Distribution Mains	1
C. Maintenance of Mains and Valves	3
D. Service Lines	4
E. Meters	5
F. Fire Hydrants and Fire Line Service	5
G. Filtration Plant, Intake and Dam Structures	5
H. Control and Pumping Stations	6
I. Reservoirs, Storage Tanks and Standpipe	7
J. Fill Stations	7
K. Automotive Equipment On Hand	8
<b>PART II: OPERATIONS</b>	
A. Consumers	9
B. Use of Water	10
C. Operating Revenues and Expenses	12
D. Additions and Retirements – Fixed Assets and Capital	13
E. Budget for Year 2018	15
F. Employment and Labor Relations	17
<b>PART III: QUALITY OF WATER</b>	
A. Bacteriological Analysis	18
B. Purification	18
C. Laurel Run Filtration Plant	20
<b>PART IV: INSURANCE</b>	
A. Schedule of Insurances in Effect as of December 31, 2017	21
<b>PART V: ADEQUACY OF RATES AND STATUS OF FUNDS</b>	
A. Adequacy of Rates	22
B. Status of Funds	24

## LIST OF TABLES

	<b>Page</b>	
Table 1	Main Extensions Installed by Main Extension Developer's Agreements During 2017	2
Table 2	Water Supplied to Metered Consumers Over the Past 10 Years	10
Table 3	2018 Capital Budget Additions and Improvements	16
Table 4	2017 Annual Report – Colilert	19
Table 5	Schedule of Insurance in Effect as of December 31, 2017	21
Table 6	Statement of Estimated Revenues and Expenditures for the Period January 1, 2018 to December 31, 2018	22

# PART I EXTENSIONS, REPAIRS AND IMPROVEMENTS

## A. TRANSMISSION MAINS/WATER SUPPLY

The Municipal Authority of the Borough of Lewistown (MABL) serves residents in Mifflin County, Pennsylvania by providing potable drinking water, through a complex maze of almost 300 miles of transmission and distribution mains, as well as providing fire protection through nearly 600 hydrants. MABL served approximately 30,000 residents in the county and maintained over 11,000 billable accounts in 2017.

## B. DISTRIBUTION MAINS

Four (4) distribution mains were completed in 2017:

- 1) Installed 1260' of 2" Polyethylene on Logan Street Extended, Brown Township. Project # 125015  
The cost of 1260' of installed pipe was \$25,945 (\$21/ft.)
- 2) Installed 240' of 2" Polyethylene on SR 655, Brown Township.  
The cost of 240' of installed pipe was \$3,406 (\$14/ft.)
- 3) Installed 500' of 8" cement lined ductile iron pipe (stream crossing) on 1<sup>st</sup> Avenue, Burnham. Project # 125056  
The cost of 500' of installed pipe was \$37,236 (\$74/ft.)
- 4) Installed 450' of 2" Polyethylene on South Boiling Springs Avenue, Yeagertown.  
The cost of 450' of installed pipe was \$4,668 (\$10/ft.)

One (1) distribution main was replaced in 2017:

Installed 400' of 2" Polyethylene on 3<sup>rd</sup> Street, Pleasant Acres, Lewistown.  
The cost of 400' of installed pipe was \$9,781 (\$24/ft.)  
Replaced aged and deteriorated infrastructure - 400' of 4" cast iron pipe.  
Transferred 6 service line connections to the installed pipe.

Average installation costs 2017:

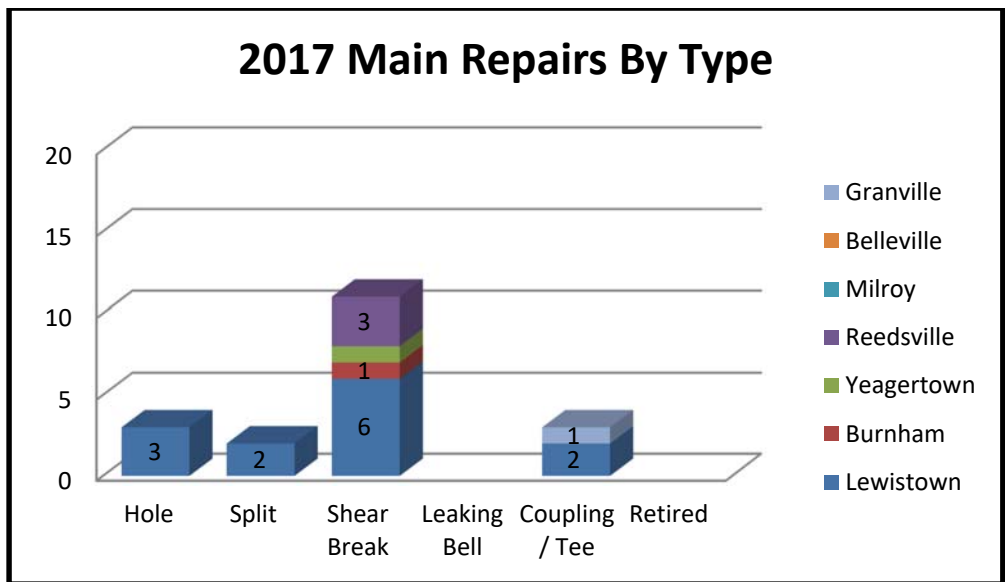
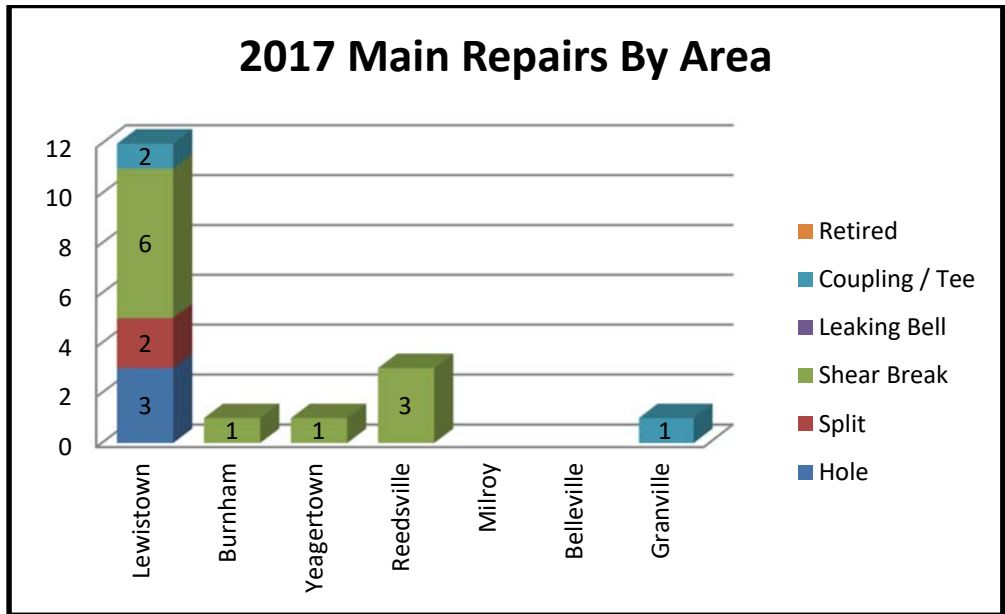
<u>Material</u>	<u>\$ Cost / Foot 2017</u>	<u>\$ Cost / Foot Historically</u>
2" Polyethylene	17	19
6" Cement Lined Ductile Iron	-	89
8" Cement Lined Ductile Iron	74	70
10" Cement Lined Ductile Iron	-	125
12" Cement Lined Ductile Iron	-	Not Available
20" Cement Lined Ductile Iron	-	279
4" DR 18 PVC	-	37
6" DR 18 PVC	-	45
8" DR 18 PVC	-	54
Cement Lined Ductile Iron / Mixed DR 18 PVC	-	79

**TABLE NO. 1  
 MAIN EXTENSIONS INSTALLED UNDER NO-REFUND AGREEMENTS  
 DURING THE YEAR 2017**

<u>EXTENSION#</u> <u>NAME &amp; ADDRESS</u>	<u>LINE SIZE</u>	<u>LENGTH</u>	<u>COST</u>
3-2016 Happy Holiday LLC	8"	960'	\$36,625
1-2017 Habitat for Humanity Mifflin County	2"	150'	\$2,800
2-2017 William M Shafranich	2"	500'	\$5,000
TOTAL			1610' \$44,425

**C. MAINTENANCE OF MAINS AND VALVES**

In addition to the preceding improvements, the following graphs summarize the repairs made by area and the type of repairs and maintenance that were completed throughout the system during 2017:



**Maintenance and Other General Repairs**

<ul style="list-style-type: none"> <li>Semi-annual leak detection</li> <li>Flushing</li> <li>Installed 2 New Automatic Flushing Stations</li> </ul>	Entire System Entire System Summit Dr & Laurel Rd Lewistown
<ul style="list-style-type: none"> <li>Blow off maintenance</li> </ul>	Repaired – 1 Replaced – 3 New – 0
<ul style="list-style-type: none"> <li>Abandoned Mains</li> <li>Abandoned Service Lines</li> </ul>	12" – 1, 10" – 1 2 – Green Ave Ext & Mifflin County Commons

**D. SERVICE LINES**

**New Service Lines Installed 2017:**

- 12 3/4" Copper Line
- 6 3/4" Copper Line with Meter Pit
- 28 3/4" Polyethylene Line
- 4 3/4" Polyethylene Line with Meter Pit
- 1 1" Service
- 1 2" Service
- 1 6" Service

**Service Lines Renewed 2017:**

- 2 3/4" Copper Replacing 3/4" Galvanized
- 2 3/4" Copper Replacing 3/4" Copper
- 6 3/4" Copper Multiple Service to Individual Service

The total expenditure of \$38,399.13 for service line installations can be categorized as follows:

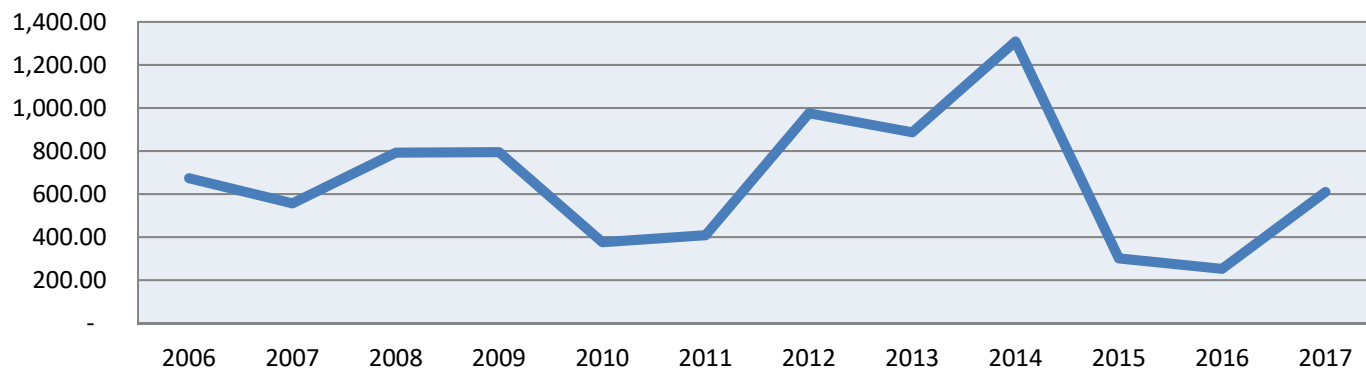
\$18,611.80 Labor  
 \$19,787.33 Materials, Permits, Restoration  
 \$38,399.13 Total

The following tabulation shows the breakdown of the costs of Authority service lines from 2006 to 2017 inclusive:

**HISTORICAL ANALYSIS OF ANNUAL SERVICE LINE COSTS**

YEAR	NEW SERVICES	SERVICES RENEWED	TOTAL	TOTAL COST OF SERVICE LINES (\$)	COST OF LABOR PER SERVICE (\$)	MATERIAL & PERMITS PER SERVICE (\$)	TOTAL COST PER SERVICE (\$)
2006	39	11	50	33,681.00	468.16	205.46	673.62
2007	38	71	109	60,673.58	335.24	221.40	556.64
2008	26	6	32	25,357.20	335.69	456.72	792.41
2009	26	4	30	23,840.89	637.91	156.78	794.70
2010	31	12	43	16,159.35	267.88	107.92	375.80
2011	11	7	18	7,355.40	257.30	151.34	408.63
2012	16	3	19	18,532.57	409.12	566.27	975.40
2013	19	2	21	18,628.28	572.89	314.17	887.06
2014	20	7	27	35,344.84	629.14	679.93	1,309.07
2015	93	1	94	28,285.33	186.45	114.46	300.91
2016	117	7	124	31,307.75	104.68	147.80	252.48
2017	53	10	63	38,399.13	295.43	314.08	609.51

**Total Cost Per Service 2006 - 2017**



The unit cost of service line installation was \$609.51, an increase of \$357.03 or a 27% increase compared to 2016.

**E. METERS**

New Meters and ERT's purchased in 2017:

No. Purchased	Meter Size & Type
4	5/8 x 3/4 Badger Meter
10	5/8 x 3/4" Sensus IPerl Meter
-	5/8 x 1/2" Sensus IPerl Meter
-	3/4" Sensus IPerl Meter
-	1" M55 Badger Meter
4	1" Sensus Meter
5	2" Sensus Meter
-	4" Sensus Meter
-	100W+ Itron Pit ERT
184	Badger HR-E Register
2	Badger 2" HR-E Register

Meters Scrapped

- 4 5/8"x1/2", 5/8"x3/4"
- 1 6" Badger

ERT's Scrapped:

- 154 Itron 50W & 60W

During 2017, there were 2380 service calls made. An 22% decrease compared to 2016.

**Meter Vault Maintenance:**

- Pumping as needed
- 3<sup>rd</sup> Street – Geisinger/Lewistown Hospital replaced 6" meter.

**F. FIRE HYDRANTS AND FIRE LINE SERVICE**

Eight (8) hydrants were replaced by the Authority:

- Highland Avenue and 8<sup>th</sup> Street, Lewistown
- North Penn Street, Belleville
- Pennsylvania Avenue and W 5<sup>th</sup> Street, Lewistown
- Church Street and Walnut Street, Reedsville
- SR 655 Mechanic Street and Valley Circle, Belleville
- Greenleaf Avenue and W 5<sup>th</sup> Street, Lewistown
- Green Avenue Extended and Chestnut Street Extended, Lewistown
- S Kish Street, Belleville

One (1) new hydrant was installed:

- Happy Valley Drive, Reedsville

Thirty-nine (39) hydrants were repaired with Authority forces.

**G. LAUREL CREEK FILTRATION PLANT, INTAKE, WATER SUPPLY AND DAM STRUCTURES**

During 2017, regular maintenance was performed at the Laurel Creek Filtration Plant intakes and dam as well as the following items:

Laurel Creek Filtration Plant

- Installed a new circuit board on the gate opener



#### Water Supply

- Installed a VFD at Milroy Well

#### Ozone Generator/Contact Room

- Replaced streaming current monitor

#### Sodium Hypo Room

- Installed a new touch screen on generator

#### Laboratory

- Replaced a benchtop laser turbidimeter

#### Office & Controls

- Installed a new block heater, anti-freeze emergency generator
- Installed a new CL17 monitor in old pipe gallery
- Replaced the overhead door at the boathouse

#### Storage Tanks

- Sedimentation basins drained and cleaned
- Utility Service cleaned and installed a new drain valve contact tank #1

### **H. CONTROL AND PUMPING STATIONS**

Transmission mains deliver water from the Laurel Creek Filtration Plant to twenty-three (23) individual pressure control stations located throughout the distribution system. Valve operation and flow values were recorded quarterly. Closing speeds were inspected and adjustments were made accordingly. Maintenance performed during 2017:

Hartman's Center & RT 322 – Milroy

Electric Avenue & RT 322 – Milroy

- Cleaned the controls

Treaster Valley – Milroy

Fisher/Sanyo RT 322 – Milroy

- Cleaned the controls

Coopers Gap – Reedsville

- Cleaned the controls
- Installed a new ladder in vault
- Replaced the 2" meter chamber

Tea Creek – Reedsville

- Cleaned the controls

Reedsville Mill – Reedsville

- Cleaned the controls

Lumber City – Reedsville

- Cleaned the 2" pressure reducing valve

Bender Park – Reedsville

- Cleaned the 6" pressure reducing valve

East Belleville PRV/Altitude Valve – Belleville

- Installed a new ladder in vault

Ferguson Valley Road (Police Station) – Yeagertown

- Added 4" valves to isolate the 4" pressure reducing valve
- Installed a 2" meter
- Cleaned the 2" and 4" pressure reducing valve

Ferguson Valley Road – Lewistown

Freedom Avenue – Burnham

East Lewistown Parcheytown – Lewistown

Rolling Hills/Derry Tank – Lewistown

Amy Lane – Lewistown

3<sup>rd</sup> Avenue & Highland Avenue (Ort Valley) – Lewistown

Sandy Lane – Lewistown

Ard's Ridge – Lewistown

- Cleaned the 6" pressure reducing valve

Helen Street – Lewistown

West 4<sup>th</sup> Street – Lewistown

- Adjusted outlet pressure to accommodate West End Tank by pass pressure reducing valve

US 22/522 N (Lowes) – Lewistown  
 Industrial Park Road – Lewistown

There are four (4) pumping stations that are used to increase water pressure or to fill storage tanks. The pumping stations, the pumping capacities - gallons per minute (GPM) and maintenance for the year 2017 are as follows:

- Route 655 Woolen Mills – Reedsville  
 Capacity (GPM): 700
  - Quarterly inspection
- Mechanic Street – Belleville  
 Capacity (GPM): 240
  - Quarterly inspection
- Oak Street – Milroy  
 Capacity (GPM): 100
  - Quarterly inspection
- Oakridge Road – Lewistown  
 Capacity (GPM): 100
  - Quarterly inspection

**I. RESERVOIRS, STORAGE TANKS AND STANDPIPE**

In addition, the distribution system provides water from two (2) clear well tanks and six (6) storage tanks. The tanks and their capacities are outlined below. Maintenance consisted of quarterly inspections and the following:

<b>Location/Tank:</b>	<b>Capacity</b>	<b>Maintenance</b>
Laurel Creek Filtration Plant Clear Well Tank #1	1,250,000	Replaced a 12" butterfly valve for the drain
Laurel Creek Filtration Plant Clear Well Tank #2	1,250,000	
North Walnut Street – Lewistown	2,000,000	Cleaned and inspected Replaced a 6" butterfly valve on by pass pressure reducing valve pipe
West End – Lewistown	1,287,000	Demolished welded steel tank to construct a new bolted glass fused to steel tank
Derry Township – Lewistown	250,000	Repaired the vent screen Cleaned and inspected Installed plumbing to isolate fill pipe and effluent pipe Installed a new screen and cover on the overflow pipe
Swarey Lane – Belleville	250,000	Adjusted fill level
Juniata Terrace – Lewistown	135,000	
Rockville – Belleville	97,000	

**J. FILL STATIONS**

Normal preventative maintenance and quarterly inspections were completed throughout the year at the following locations:

Depot Street, Lewistown

Parcheytown Road, Lewistown

Mill Street, Reedsville

**K. AUTOMOTIVE EQUIPMENT ON HAND - DECEMBER 31, 2017**

<b>YEAR</b>	<b>MAKE (ID #)</b>	<b>MILEAGE</b>
	<b>VEHICLES</b>	
1998	International Dump Truck (#3-08928)	137,432
2005	Ford F350 (#17-87141)	165,670
2005	Ford F250 (#2-27959)	121,769
2006	Ford F350 Crew Cab (#16-53140)	103,694
2006	Ford Ranger (#4-54390)	99,502
2007	Ford F-750 Dump Truck (#9-74129)	80,472
2008	Ford Escape (#5-12921)	81,132
2011	Ford Dump Body (#14-20023)	48,338
2013	Ford F350 Utility Body (#11-80880)	72,756
2013	Ford F150 (#1-92111)	54,333
2015	Chevrolet Silverado 1500 Crew Cab (#6-97523)	45,486
2015	Chevrolet Silverado 1500 (# 12-96545)	51,584
2017	International Dump Truck (#8-01892)	5,814
	<b>MACHINERY</b>	<b>HOURS</b>
1995	John Deere Backhoe (14263)	9,354
2002	Mustang Excavator	8,349
2006	Mustang Skid Loader	2,642
2010	Case 590 Backhoe (32401)	2,729
2013	Takeuchi 285 Excavator	1,366
2003	Moritz Trailer (08868)	N/A
2008	Landscape Trailer (80196)	N/A
2010	Hudson Trailer 12 Ton (00006)	N/A
2015	12 Ton Hudson Trailer (00029)	N/A
2016	Homesteader Job Trailer	N/A
	Trailer, Boat (7323018)	N/A
	Hudson Trailer 9 Ton (00080)	N/A
	Trailer Mounted Water Buffalo (13686)	N/A
	Trailer Mounted Generator	N/A

## PART II OPERATIONS

### A. CONSUMERS

The number of metered consumers served by the Authority totaled 11,036 as of December 31, 2017. The total number of metered consumers increased by 92 compared to 2016.

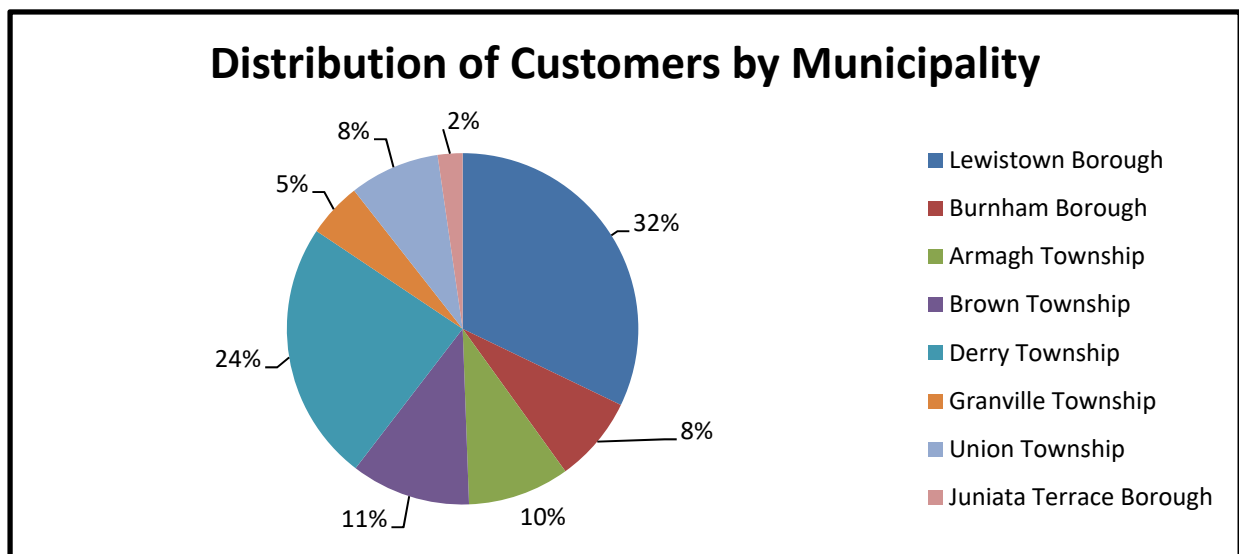
The following tabulation of metered consumers for the past five (5) years is shown for comparative purposes:

<u>Classification</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
Domestic	9,437	9,434	9,446	9,619	9,693
Commercial	1,055	1,059	1,059	1,089	1,101
Industrial	81	79	80	67	66
Public	151	160	165	169	176
TOTAL	10,724	10,732	10,750	10,944	11,036

Multiple dwelling units totaled 297.

Average Daily Water Consumption - As of December 31, 2017

<u>Customer Type</u>	<u># of Customers</u>	<u>Percentage</u>	<u>Consumption GPD</u>
Domestic	9,693	87.83%	1,040,263
Commercial	1,101	9.98%	375,978
Industrial	66	0.60%	388,140
Public	176	1.59%	74,551
Total, Existing Service Area	11,036	100%	1,878,932



**B. USE OF WATER**

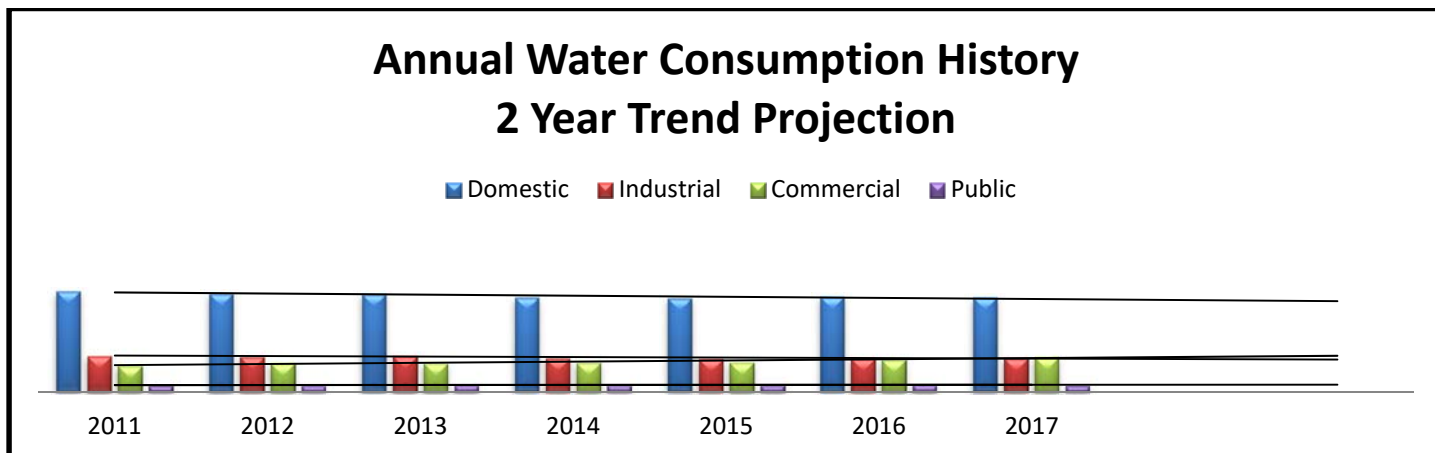
The total water consumption by metered customers for the year 2017 was 685,810,000; average daily metered consumption was 1,879,000 gallons. The daily metered consumption was consistent with the year 2016. There are no significant variances to report. An increase occurred in Commercial and Industrial accounts. A tabulation of the water usage by metered customers for the last 10 years (2008 - 2017) is presented in the following table.

**TABLE No. 2  
The Municipal Authority of the Borough of Lewistown  
Water Supplied to Metered Consumers – 10 Year History**

<b>METERED CONSUMPTION '000 GALS</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>
Domestic	379,696	383,824	377,856	382,597	393,730	397,316	406,553	467,657	457,973	470,384
Commercial	137,232	137,219	136,100	138,323	147,156	144,575	147,475	128,728	128,253	138,127
Industrial	141,671	131,192	121,319	121,782	118,716	118,028	107,186	103,253	95,212	112,247
Public	27,211	31,235	28,765	29,346	29,709	28,561	27,003	10,234	10,074	10,300
<b>ANNUAL METERED CONSUMPTION</b>	<b>685,810</b>	<b>683,470</b>	<b>664,040</b>	<b>672,048</b>	<b>736,253</b>	<b>730,091</b>	<b>729,382</b>	<b>750,693</b>	<b>732,383</b>	<b>771,058</b>
<b>DAILY METERED CONSUMPTION (MGD)</b>	<b>1,879</b>	<b>1,873</b>	<b>1,819</b>	<b>1,841</b>	<b>1,889</b>	<b>1,886</b>	<b>1,886</b>	<b>1,945</b>	<b>1,895</b>	<b>2,003</b>
<b>ANNUAL PLANT PRODUCTION</b>	<b>787,699</b>	<b>849,859</b>	<b>843,760</b>	<b>859,195</b>	<b>935,775</b>	<b>905,884</b>	<b>905,077</b>	<b>937,419</b>	<b>1,012,971</b>	<b>1,027,221</b>
<b>DAILY PLANT PRODUCTION (MGD)</b>	<b>2,158</b>	<b>2,328</b>	<b>2,312</b>	<b>2,354</b>	<b>2,564</b>	<b>2,482</b>	<b>2,480</b>	<b>2,568</b>	<b>2,775</b>	<b>2,814</b>
<b>UNACCOUNTED WATER (MG/Year)</b>	<b>101,889</b>	<b>166,389</b>	<b>179,720</b>	<b>187,147</b>	<b>199,522</b>	<b>175,793</b>	<b>175,695</b>	<b>186,726</b>	<b>280,588</b>	<b>256,163</b>
<b>UNACCOUNTED WATER (MGD)</b>	<b>0.279</b>	<b>0.456</b>	<b>0.492</b>	<b>0.513</b>	<b>0.547</b>	<b>0.482</b>	<b>0.481</b>	<b>0.512</b>	<b>0.769</b>	<b>0.702</b>
<b>UNACCOUNTED WATER (%)</b>	<b>12.94%</b>	<b>19.58%</b>	<b>21.30%</b>	<b>21.78%</b>	<b>21.32%</b>	<b>19.41%</b>	<b>19.41%</b>	<b>19.92%</b>	<b>27.70%</b>	<b>24.94%</b>

Based on total finished water production at the filtration plant released to the system of 787,699,000 gallons and the total metered consumption of 685,810,000 gallons the total percentage of unaccounted for water is 12.94% or 101,889,000 gallons (0.279 MGD). Unaccounted for water is the difference between the amount of water produced and delivered from the source of supply, and the amount of metered consumption. Unaccounted for water includes unmetered uses such as hydrant flushing, firefighting, leakage from pipeline joints and broken pipes and under registration of customer meters. The acceptable standard adopted by the DEP for modern water distribution systems is 20% maximum unaccounted for water. Active water leak detection is completed semi-annually, at a minimum, as a remedy to reduce unaccounted for water.

There were 1,566,798 gallons sold off-system to fire companies for filling swimming pools, landscape contractors, highway projects etc.



### Total Water Produced, Sold and Unaccounted For

Period	# of Water Customers	Water Produced 000's Gallons	Water Consumption 000's Gallons	Unaccounted for 000's Gallons	% of Loss
2005	10,495	1,294,934	858,293	436,641	33.7
2006	10,552	1,101,528	826,130	275,398	25.0
2007	10,629	999,871	810,045	189,826	19.0
2008	10,680	1,027,221	771,058	256,163	24.9
2009	10,709	1,012,971	732,383	280,588	27.7
2010	10,755	937,419	750,693	227,547	19.9
2011	10,728	905,077	729,382	175,695	19.4
2012	10,723	905,884	730,091	175,793	19.4
2013	10,724	935,775	736,253	199,522	21.3
2014	10,732	859,195	672,048	187,147	21.8
2015	10,750	843,760	664,040	179,720	21.3
2016	10,944	849,859	683,470	166,389	19.6
2017	11,036	787,699	685,810	101,889	12.94

The following tabulation illustrates changes in water consumption and the number of consumers between 2016 and 2017 and presents the average daily usage per consumer during 2017:

<u>Classification</u>	<u>2016 vs. 2017 Change in Gallons</u>	<u>2016 vs. 2017 Change by Percent</u>	<u>Consumer Change 2017</u>	<u>2017 Avg Daily Use Per Consumer</u>
Domestic	-4,128,000	-1.08%	74	107
Commercial	13,000	0.01%	12	341
Industrial	10,479,000	7.99%	-1	5881
Public	-4,024,000	-12.88%	7	424
TOTAL	2,340,000	-6.0%	92	

**C. OPERATING REVENUES AND EXPENSES**

In accordance with the Trust Indenture dated as of June 11, 1998, an operating budget of \$4,568,508 was recommended by the Consulting Engineer for the year 2017 and was adopted by the Authority Board on December 21, 2016.

A tabulation of the actual operating revenues and maintenance expenses incurred during 2017 and a comparison to the actual budget adopted December 21, 2016 is shown below. The actual revenues were over the adopted budget by \$92,797 and the operating expenses were under the adopted budget by \$192,535

	2017 Actual Revenues	2017 Approved Budget	Over (Under) Budget
Metered	5,369,167	5,353,419	15,748
Unmetered	395,293	318,244	77,049
<b>TOTAL</b>	<b>\$5,764,460</b>	<b>\$5,671,663</b>	<b>92,797</b>

	2017 Actual Expenses	2017 Approved Budget	Under (Over) Budget
Water Collection System	11,474	51,200	39,726
Purification System	145,749	125,000	(20,749)
Filtration Plant	366,425	369,000	2,575
Control/Pumping Stations	42,285	43,800	1,515
Distribution System	385,404	416,000	30,596
Security	3,597	6,000	2,403
Timber Management	0	3,500	3,500
General & Administration	3,260,388	3,393,357	132,969
<b>TOTAL</b>	<b>\$4,215,322</b>	<b>\$4,407,857</b>	<b>\$192,535</b>

The following tabulation is a comparison between 2015, 2016 and 2017 revenues billed and the changes in percent and dollar amounts:

	2015	2016	2017	Compare 2016 to 2015		Compare 2017 to 2016	
				\$\$\$'s	%	\$\$\$'s	%
Domestic	3,235,347	3,380,900	3,489,444	145,553	4.5%	108,544	3.2%
Commercial	900,230	947,063	982,879	46,833	5.2%	35,816	3.8%
Industrial	325,450	340,290	370,762	14,840	4.6%	30,472	9.0%
Public	240,503	254,247	254,465	13,744	5.7%	218	0.1%
<b>TOTAL</b>	<b>\$ 4,701,530</b>	<b>\$ 4,922,500</b>	<b>\$5,097,550</b>	<b>220,971</b>	<b>4.7%</b>	<b>175,049</b>	<b>3.6%</b>

**D. 2017 ADDITIONS AND RETIREMENTS TO FIXED ASSETS/CAPITAL**

The following capital additions were recorded in 2017.

<b>Account #</b>	<b>Account</b>	<b>Description</b>	<b>Itemized</b>	<b>Total \$</b>
1.00.104000	Filtration Plant	Chlorine Analyzer	3,333.84	
		Overhead Door Boat House	1,365.00	
		Deep Vault Steps	5,163.92	<b>9,862.76</b>
1.00.106000	Water Supply & Storage Tanks	Milroy Well VFD	7,974.60	<b>7,974.60</b>
1.00.110000	Control Facilities & Equipment	Milroy Well Soft Start	8,505.00	<b>8,505.00</b>
1.00.113000	Distribution Mains	Logan St Extended - Reedsville 125015	25,945.21	
		Freedom Ave Stream - Burnham 125056	37,236.25	
		SR 655 (#6271 & 6263) - Belleville	3,405.97	
		3rd St - Pleasant Acres - Lewistown	9,781.45	
		Boiling Springs Ave - Yeagertown	4,668.42	
		Auto Flushing Station	5,244.30	
		3-2016 Happy Holiday LLC	36,625.00	
		1-2017 Habitat for Humanity Mifflin County	2,800.00	
		2-2017 William M Shafranich	5,000.00	<b>130,706.60</b>
1.00.114000	Service Lines 3/4"	Labor/Material & Supplies	25,712.63	<b>25,712.63</b>
1.00.114010	Service Lines 1"	Labor/Material & Supplies	2,495.25	<b>2,495.25</b>
1.00.114020	Service Lines Over 1"	Labor/Material & Supplies	14,115.03	<b>14,115.03</b>
1.00.115000	Meters	New Meters 5/8 x 3/4"	3,138.96	
		New Meters 1", 2" or Larger	7,408.80	
		Meter Pit Material	10,015.39	<b>20,563.15</b>
1.00.116000	Fire Hydrants	New System Hydrants	33,635.69	<b>33,635.69</b>
1.00.117000	General Office Structure	Overhead Door Shop	1,240.00	
		Replacement Windows Office	6,480.30	<b>7,720.30</b>
1.00.120000	Other General Equipment	Pallet Jack	4,100.00	
		Truck Decal 2016	250.00	<b>4,350.00</b>
		<b>Total</b>		<b>265,641.01</b>



The following fully depreciated items were recorded as of 12/31/17 per policy. The assets have been removed from service or retired after five (5) years of full depreciation.

<b>Account - Description</b>	<b>Asset Retired</b>	<b>Depreciation \$</b>	<b>Gain/(Loss)</b>
115 – Meters	Labor	1,611	0
	Material & Supplies	5,213	0
	Meter Boxes < 1 ½”	31,996	0
	Meter Boxes > 1 ½”	18,404	0
120 – Other General Equipment	2001 Ford F150 Pickup Truck	14,401	0
	16’ Moritz Utility Trailer	1,669	0
	<b>TOTAL VALUE:</b>		<b>0</b>

**E. BUDGET FOR YEAR 2018**

In compliance with the Trust Indenture, an operating budget for the year 2018 was submitted on December 20, 2017. The budget with a 2% increase was adopted by the Authority on December 20, 2017 and submitted to the Trustee, Bank of New York Mellon as follows:

<b>REVENUES</b>		
Metered	5,513,008	
Unmetered	338,995	
	<b>Total Revenues:</b>	<b>\$5,852,003</b>
<b>OPERATING EXPENSES</b>		
Water Collection System	51,200	
Purification System	132,000	
Filtration Plant	405,300	
Control Stations	43,800	
Distribution System	416,000	
Security	6,000	
Timber Management	3,500	
General Expenses	3,333,284	
	<b>Total Operating Expenses:</b>	<b>\$4,391,084</b>
<b>MANAGEMENT EXPENSES</b>		
Board Salaries & Expenses	16,200	
Consulting Engineer Fees	73,000	
Legal Services	35,000	
Audit Fees	40,000	
	<b>Total Management Expenses:</b>	<b>\$164,200</b>
	<b>Total 2018 Operating Budget Expenses:</b>	<b>\$4,555,284</b>

The operating budget for 2018, which according to the Trust Indenture must be prepared prior to the closing of the books for the previous year, shows an increase of \$147,427 compared to the operating budget for the year 2017. For 2018, the interest expense and depreciation has been added to the operating budget.

**Table No. 3  
THE MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTOWN  
2018 CAPITAL BUDGET ADDITIONS AND IMPROVEMENTS**

<b>Control Facilities and Equipment</b>		
Pressure Reducing Valves	30,000	<b>30,000</b>
<b>Laurel Run Dam and Reservoir</b>		
Outlet Pipe Inspection	75,000	
Seepage Collection Maintenance	30,000	<b>105,000</b>
<b>Filtration Plant</b>		
SCADA Upgrade	68,503	
Ozone Generators	1,300,000	
Monitoring Equipment	20,000	
Monitoring Mag Meters	21,000	<b>1,419,503</b>
<b>General Equipment</b>		
Excavator (Lease)	27,944	
Chevy 1500 Pick Up	26,000	
Ford F350 Extended Cab Pick Up and Snow Plow	40,000	<b>93,944</b>
<b>Fire Hydrants</b>		
Fire Hydrants	35,000	<b>35,000</b>
<b>Mains</b>		
Cooper's Gap Main Improvement (9500' HDPE)	100,000	
Potlicker 20" Main 322 Crossing – (100' of 20")	600,000	<b>700,000</b>
<b>Meters</b>		
Meters and ERT Replacements	40,000	<b>40,000</b>
<b>Reservoirs, Water Supply and Storage Tanks</b>		
West End Tank	1,000,000	<b>1,000,000</b>
<b>Office</b>		
Fiber Optic Installation and Hardware	3,000	
Billing Software Data Conversion	22,500	
Office Network / Server Upgrade	13,500	<b>39,000</b>
	<b>TOTAL</b>	<b>3,462,447</b>

**F. Employment and Labor Relations**

The following table shows the Authority employees by classification as of December 31, 2017:

Classification	Total Employees	Employees Represented by AFSCME Local 213
Administrative/Service	8	2
Filter Plant	5	4
Distribution	11	7
TOTAL	24	13

The Authority has not experienced a labor union strike since 1976. Current union relations are characterized as very good. The current contract with the Union expires on December 31, 2019.

## PART III QUALITY OF WATER

### A. BACTERIOLOGICAL ANALYSIS

Bacteriological analysis of samples of the treated water from various points on the distribution system were made weekly throughout 2017. The samples were tested at our Laurel Creek Water Treatment Plant using Colilert testing. These samples were incubated at 34.5 – 35.5 degrees Celsius for 24 hours. The samples were then analyzed for growth. We are required by law to report any growth of total coliforms as a “presence” while no growth is reported as “absence”.

The series of analysis consisted of 396 samples. The number of 100ml samples showing growth as well as the percentage of positive samples is represented in Table 4. Thirty-one (31) to thirty-seven (37) samples from predetermined locations are required monthly.

The number of positive results of coliform growth, which is determined by the presence of at least one colony, has been shown.

Standards of the US EPA stipulate that for treated water of acceptable quality, not more than 10% of all standard 100ml portions examined per month by the Colilert procedure shall show the presence of coliform organisms.

### B. PURIFICATION

Treatment Plant Chemicals Consumed:

Chemical	2013 Chemical Feed (lbs)	2014 Chemical Feed (lbs)	2015 Chemical Feed (lbs)	2016 Chemical Feed (lbs)	2017 Chemical Feed (lbs)
Soda Ash (dry)	52,450	90,900	79,900	80,600	76,850
Ultra Flocc	0	0	0	0	0
Alum (dry)	0	0	0	0	0
Del PAC 2020	76,770	75,064	88,712	81,888	91,556
Polymer (dry)	0	0	0	0	0
Corrosion Inhibitor	25,960	22,715	21,417	23,364	29,369
Fluoride (dry)	6,500	6,250	5,350	6,950	6,850
Salt (Purex)	63,860	48,000	47,900	47,960	48,580
Sodium Hypo-Chlorite Gal	166,584	158,143	126,241	145,509	174,894

**Table No. 4  
THE MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTOWN  
2017 Annual Report – Colilert**

**Bacteriological Test Results Showing Coliform Organisms per 100ml. For Required Water Samples and Percent of 100ml. Portions of Treated Water Showing Coliform Organisms**

	<b>Total Monthly Tests</b>	Coopers Gap	Knob Mountain Road	Schrader Church	Track Lane	Derry Township	Rolling Hills	Rt 522 N – Log Cabin Inn	Oakridge Road	Apron Green Lane	Belleville Lane	Rockville Tank	Mechanic Street Pump Station	Belleville Tank	Walnut Street Tank	Juniata Terrace Tank	Locust Drive, Reedsville	Laurel Creek Filtration Plant	Ferguson Valley Road	Rt 522 S – Lerch	Granville Industrial Park Rd	Greenbriar Road	Geisinger Lewistown Hospital	Derry Tank	West End Tank	Lewistown Waste Water Plant	70 Chestnut St – MABL	Burnham Borough Office	West Railroad Street	Tollgare Hill	Oak Street Pump Station	<b>Number Positive</b>	<b>% Positive</b>
JAN	37	1	1	1	1	1	2	1	1	3	1	1	2	1	1	1	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	0	0
FEB	31	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
MAR	31	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
APR	31	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
MAY	37	1	1	1	1	1	2	1	1	3	1	1	2	1	1	1	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	0	0
JUN	31	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
JUL	31	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
AUG	37	1	1	1	1	1	2	1	1	3	1	1	2	1	1	1	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	0	0
SEP	31	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
OCT	37	1	1	1	1	1	2	1	1	3	1	1	2	1	1	1	2	1	2	1	2	1	1	1	1	1	1	1	1	1	1	0	0
NOV	31	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
DEC	31	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
<b>Total</b>	<b>396</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>16</b>	<b>12</b>	<b>12</b>	<b>28</b>	<b>12</b>	<b>12</b>	<b>16</b>	<b>12</b>	<b>16</b>	<b>12</b>	<b>16</b>	<b>12</b>	<b>16</b>	<b>12</b>	<b>16</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>0</b>	<b>0</b>	

**C. LAUREL RUN FILTRATION PLANT**

During the year 2017, the Filtration Plant was operated on a “tank fill” mode of operation, where the clearwells were allowed to draw down overnight and then refilled during the next 12-16 hours of operation. The estimated total of finished, treated water produced by the Filtration Plant was 864,229,000 gallons. 787,699,000 gallons went directly to the distribution system while the remainder was used to backwash the four mixed media gravity filters as well as for various processes within the plant.

Rainfall recorded at the plant for 2017 totaled 39.35 inches. This was 15.0 inches more than the amount recorded for 2016. The four (4) wettest months were May, July, August and October. The four (4) driest months were February, June, September and December. Rainfall recorded at the Filtration Plant from 2010 to 2017 follows:

	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
January	2.65	1.20	4.40	3.15	1.50	1.55	2.35	3.15
February	1.40	2.90	1.00	1.20	2.80	.25	4.05	1.35
March	4.05	5.25	2.10	1.70	1.85	1.50	.90	2.50
April	1.05	6.90	1.35	1.30	2.30	2.35	1.25	2.15
May	3.80	8.50	5.35	1.20	5.50	.85	2.25	6.15
June	2.85	3.80	2.20	4.50	5.50	7.85	1.70	1.50
July	2.15	3.60	2.39	3.50	4.15	2.95	1.15	6.65
August	5.35	3.80	3.45	1.75	6.25	2.95	3.00	4.00
September	3.90	9.15	4.80	1.10	0.50	3.10	2.00	1.50
October	4.70	4.10	4.40	4.10	4.65	3.50	1.05	7.05
November	3.25	3.20	0.35	2.95	1.45	1.55	1.90	1.95
December	3.80	4.45	3.60	3.60	2.25	4.80	2.75	1.40
<b>Total</b>	<b>38.95</b>	<b>56.85</b>	<b>35.39</b>	<b>30.05</b>	<b>38.70</b>	<b>33.20</b>	<b>24.35</b>	<b>39.35</b>

Average annual rainfall for the period 2010-2017 is 37.11 inches.

## PART IV INSURANCE

### A. SCHEDULE OF INSURANCES

The properties of the Authority are insured in compliance with the Trust Indenture. The amount of fire insurance coverage is adequate and in accordance with the recommendation of the Authority's Consulting Engineer.

It is recommended that all existing annual policies for public liability, automobiles, and employees compensation expiring during the year be renewed with the limits of coverage as now exists.

A complete list of all insurance policies in effect as of December 31, 2017 is presented in Table No. 5. Certificates of Insurance covering all policies are on file with the Trustee in accordance with the Trust Indenture.

Under terms of the agreement with the union representing the employees, the Authority has provided life insurance for all its employees. This insurance is under the group plan of Mutual of Omaha Life Insurance Company and has coverage of \$20,000 for all of the regular employees, Office Manager, Operations Manager, Distribution Foreman, Maintenance Foreman; coverage of \$25,000 on the Executive Director.

**TABLE NO. 5  
THE MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTOWN  
SCHEDULE OF INSURANCE IN EFFECT AS OF 12/31/2017**

<u>POLICY NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>COMPANY</u>	<u>COVERAGE</u>	<u>LIMITS</u>	<u>PREMIUMS</u>
PA B0686PC2014-1	06/13/17 to 06/13/18	PIRMA	General Liability & Legal Liability Defense & Claim Payment	\$10,000,000	
			Building & Personal Property Value	21,269,836	
			Inland Marine	Included	
			Boiler & Machinery	Included	
			Automobile Physical Damage	ACV	
			Extensions of Coverage:		
			Data Processing Equipment & Media	100,000	
			Errors & Omissions	500,000	
			Employee Benefits	100,000	
			Pollution	500,000	
				<b>Total Premium</b>	<b>\$58,457</b>

A complete re-appraisal and report of the buildings, fixed contents and movable contents of the Authority's various locations was effective October 24, 2012. The inspection and analysis was completed by Industrial Appraisal Company personnel in accordance with a formal agreement authorizing the appraisal.



PART V  
ADEQUACY OF RATES AND STATUS OF FUNDS

A. ADEQUACY OF RATES

The rates charged for services rendered by The Municipal Authority of the Borough of Lewistown are adequate to meet calendar year 2018 financial obligations as required by Trust Indenture Section 5.01. The rate tests required by the Indenture were conducted as part of preparing the 2018 Operating Budget and were submitted to the Trustee along with the approved 2018 Operating Budget.

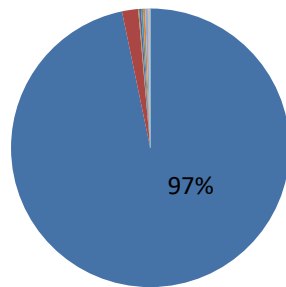
**TABLE NO. 6**  
**STATEMENT OF ESTIMATED REVENUES AND EXPENDITURES FOR THE PERIOD**  
**JANUARY 1, 2018 TO DECEMBER 31, 2018**

<b><u>REVENUES</u></b>		
Metered		5,513,008
Unmetered		338,995
	<b>TOTAL REVENUES</b>	<b>\$ 5,852,003</b>
<b><u>OPERATING EXPENSES</u></b>		
Water Collection System		51,200
Purification System		132,000
Filtration Plant		405,300
Control Stations		43,800
Distribution System		416,000
Security		6,000
Timber Management		3,500
General Expenses		3,333,284
	<b>TOTAL OPERATING EXPENSES</b>	<b>\$ 4,391,084</b>
<b><u>MANAGEMENT EXPENSES</u></b>		
Board Salaries & Expenses		16,200
Consulting Engineer Fees		73,000
Legal Services		35,000
Audit and Consulting Fees		40,000
	<b>TOTAL MANAGEMENT EXPENSES</b>	<b>\$ 164,200</b>
	<b>TOTAL OPERATING AND MANAGEMENT EXPENSES</b>	<b>\$ 4,555,284</b>
	<b>NET OPERATING INCOME (EXPENSE)</b>	<b>\$ 1,296,719</b>
<b><u>NON-OPERATING EXPENSES</u></b>		
Debt Service Principal		1,380,000
PennVest Loan Principal		97,978
	<b>NET INCOME (EXPENSE)</b>	<b>\$ (181,259)</b>
	<b>LESS:</b>	
	Depreciation	1,326,055
	<b>NET CASH 2018</b>	<b>\$ 1,144,796</b>

**THE MUNICIPAL AUTHORITY OF THE BOROUGH OF LEWISTOWN  
10 LARGEST CUSTOMERS - 2017**

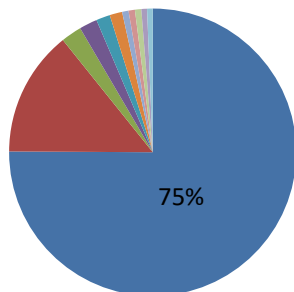
	<b>FIRM</b>	<b>BUSINESS</b>	<b>REVENUE</b>
1	Standard Steel LLC	Steel Fabrications	231,659
2	Mifflin County School District	Public School	78,227
3	Valley View Haven	Nursing Home / Assisted Living	67,377
4	Mifflin County Housing Authority	Apartment Complex	58,074
5	Geisinger Lewistown Hospital	Health Care	44,675
6	First Quality Baby Products	Manufacturing	38,391
7	Mifflin County Prison	Prison	14,062
8	Ohesson Manor	Nursing Home	13,123
9	Guardian Elder Care	Nursing Home	13,000
10	Trinity Plastics Inc	Manufacturing	11,900
		<b>Total</b>	<b>\$570,488</b>

**2017 Top 10 Revenue - 3%**



- OTHER USERS
- STANDARD STEEL LLC
- MIFFLIN COUNTY SCHOOL DISTRICT
- VALLEY VIEW HAVEN
- MIFFLIN CO HOUSING AUTHORITY
- GEISINGER LEWISTOWN HOSPITAL
- FIRST QUALITY BABY PRODUCTS
- MIFFLIN COUNTY PRISON
- OHESSON MANOR
- GUARDIAN ELDER CARE
- TRINITY PLASTICS INC

**2017 Top 10 Consumption - 25%**



- OTHER USERS
- STANDARD STEEL LLC
- FIRST QUALITY BABY PRODUCTS
- GEISINGER LEWISTOWN CANCER
- MIFFLIN CO HOUSING AUTHORITY
- VALLEY VIEW HAVEN
- MIFFLIN COUNTY SCHOOL DISTRICT
- MIFFLIN COUNTY PRISON
- MCIDC
- GUARDIAN ELDER CARE
- OHESSON MANOR

Minimum Monthly Water Charge – Current and Historic

Meter Size	Gallons	01/01/17	01/01/16	01/01/15	01/01/14	01/01/13	01/01/12
5/8"	1,000	19.52	18.95	18.40	17.52	17.18	16.68
3/4"	6,000	52.39	50.86	49.38	47.02	46.10	44.76
1"	12,000	74.57	72.40	70.29	66.96	65.65	63.74
1 1/2"	30,000	142.86	138.70	134.66	128.25	125.73	122.07
2"	75,000	297.32	288.66	280.25	266.90	261.67	254.05
3"	130,000	496.93	482.46	468.41	446.11	437.36	424.62
4"	270,000	976.14	947.71	920.11	876.29	859.11	834.09
6"	500,000	1,553.26	1,508.02	1464.10	1,394.38	1367.04	1327.22
8"	600,000	1,818.69	1,765.72	1714.29	1,632.65	1600.64	1554.02
10"	800,000	2,382.17	2,312.79	2245.43	2,138.51	2096.58	2035.51
12"	1,000,000	3,106.52	3,016.04	2928.19	2,788.75	2734.07	2654.44

In addition to the minimum charge, the following charges were applied to all water consumed.  
Water Usage Charge per 1,000 Gallons – Current and Historic

	Gallons/ Month	01/01/17	01/01/16	01/01/15	01/01/14	01/01/13	01/01/12
First	7,000	4.82	4.68	4.54	4.33	4.24	4.12
Next	250,000	2.89	2.81	2.73	2.61	2.56	2.49
All Over	257,000	1.98	1.92	1.86	1.78	1.74	1.69

Where two or more customers are supplied through one meter, the sum of \$14.87 per month shall be added to the total calculated water bill for each customer (see below for Fee History).

<u>Year</u>	<u>Per Month</u>	<u>Per Quarter</u>
2017	\$14.87	\$44.61
2016	\$14.44	\$43.32
2015	\$14.02	\$42.06
2014	\$13.35	\$40.05
2013	\$13.09	\$39.27
2012	\$12.71	\$38.13

Dry Valley, Glenwood, Maitland and Granville service areas, the rate is equal to the applicable water usage charge plus a Capital Additions Component Charge. The charge is assessed to amortized costs relating to the extension of service to these areas.

**B. STATUS OF FUNDS**

The Trust Indenture actual balances of funds as of December 31, 2017 were as follows:

Fund	Actual Balance December 31, 2017
Debt Service Fund	1,564,543.82
2015 A Debt Service Fund	14,983.88
1998 Debt Service Reserve Fund	2,019,750.47
1998 Bond Redemption & Improvement Fund	2,671,939.93
<b>Total</b>	<b>\$ 6,271,218.10</b>