

Franklin Township Municipal Sanitary Authority
3001 Meadowbrook Road
Murrysville, PA 15668

**Chapter 94 Municipal Wasteload
Management Report Operating Year 2018**

for:

**Franklin Township Municipal
Sanitary Authority
Meadowbrook Road Water
Pollution Control Plant
NPDES Permit Number PA0025674
Sewerage Permit No. 468S017 & 6583414
Westmoreland County, Pennsylvania**

**Includes Municipality of Murrysville,
Export Borough, Delmont Borough,
Parts of Penn and Salem Townships,
Part of Monroeville and
Part of Plum Borough
(Holiday Park Treatment Plant)**

March 2019

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1. INTRODUCTION

In compliance with Chapter 94, Section 94.12 of the Department of Environmental Protection Rules and Regulations, this report is submitted by the Franklin Township Municipal Sanitary Authority (FTMSA) as a summary of the loading and conditions existing at the Authority's Meadowbrook Road Water Pollution Control Plant, seven sewage pumping stations, and its sewage collection and conveyance system for Operating Year **2018**. In addition, this report also covers three sewage pumping stations in Salem Township, three sewage pumping station in Penn Township and the sewage collection and conveyance systems in Export Borough, Delmont Borough, part of Monroeville, and parts of Penn and Salem Townships and sewage from Murrysville treated by Plum Borough at the Holiday Park Treatment Plant. The Service Area Location Map is shown on Plate 1, on page 1.3.

This report includes projections of the anticipated loading at the Meadowbrook Road Water Pollution Control Plant for the next five years (**2019-2023**) and at the sewage pumping stations for the next two years (**2019-2020**).

The Meadowbrook Road Water Pollution Control Plant is located on Meadowbrook Road, Municipality of Murrysville, Westmoreland County and is operated by the Franklin Township Municipal Sanitary Authority under Sewerage Permit Nos. 468S017 and 6583414, and **NPDES Permit No. PA0025674 which expires on April 30, 2019**. The Authority has applied for renewal of it's NPDES permit. The plant also has a permit for Class A Biosolids, **General Permit No. PAG076103**.

The treatment plant is an aerobic biological treatment facility with grit removal, primary clarification, trickling filters, secondary clarification, nitrification towers, shallow bed sand filtration units, ultraviolet disinfection, sludge thickening, anaerobic biological sludge stabilization, sludge dewatering, thermally treated sewage sludge process, septage receiving station, and methane gas utilization facilities. The current permitted hydraulic capacity of the facility is **4,900,000 gallons per day** and the organic loading as approved by the plant's permit is **10,000 # BOD₅/Day**.

Please refer to Plates 2, 3 and 4 - Meadowbrook Road Water Pollution Control Plant, which shows the existing facilities on page 1.4, 1.5 and 1.6.

Insert Plate 1

Insert Plate 2

Insert Plate 3

Insert Plate 4

2. HYDRAULIC LOADING GRAPH

The following hydraulic loading graph for the Meadowbrook Road Water Pollution Control Plant illustrates the hydraulic loading at the sewage treatment plant for each of the past five years (2013-2017), a projection of the anticipated hydraulic loading for each of the next five years (2018-2022), and the hydraulic loading as approved by the plant's permit of **4.90 MGD**.

	2014	2015	2016	2017	2018
Average Daily Flow MGD					
January	3.89	3.21	3.31	4.66	4.68
February	4.82	3.46	4.51	3.68	7.49
March	3.94	5.57	3.37	4.58	4.35
April	4.40	4.59	3.21	4.45	5.20
May	4.30	3.40	3.55	4.81	3.96
June	3.98	5.17	3.41	4.60	4.47
July	3.15	4.33	2.78	3.58	3.52
August	3.63	2.63	2.93	3.49	4.02
September	2.52	2.85	2.67	2.99	5.32
October	2.46	2.90	3.58	3.45	4.64
November	2.63	2.89	2.67	4.52	5.12
December	3.47	4.12	4.11	3.09	5.22
Average	3.60	3.76	3.34	3.99	4.83

	2019	2020	2021	2022	2023
Projected	DEP Chapter 94 - Average Daily Flow MGD				
Average	3.96	4.00	4.04	4.08	4.10

Insert Graph

3. ORGANIC LOADING GRAPH

The following organic loading graph for the Meadowbrook Road Water Pollution Control Plant illustrates the organic loading at the sewage treatment plant for each of the past five years (2013-2017), the anticipated organic loading for each of the next five years (2018-2022), and the organic loading as approved by the plant's permit of **10,000 # BOD₅/Day**.

	2014	2015	2016	2017	2018
	Average # Influent BOD ₅ /Day				
January	3,962	5,071	4,667	5,503	4,241
February	3,660	3,326	4,923	5,263	4,780
March	4,749	4,776	4,621	4,948	4,757
April	4,921	5,136	5,315	5,204	4,184
May	5,296	5,247	6,053	5,366	4,295
June	4,355	5,171	5,846	4,848	5,616
July	5,117	5,119	5,053	5,306	5,486
August	3,874	5,688	7,189	4,910	4,945
September	3,739	5,933	5,735	5,077	4,272
October	3,979	5,529	5,397	5,033	4,382
November	4,013	5,874	5,948	4,424	5,096
December	3,846	6,358	5,261	4,703	5,368
Average	4,293	5,269	5,501	5,049	4,785

Shading demotes highest monthly loading in calendar year.

	2019	2020	2021	2022	2023
Projected Average	DEP Chapter 94 - Average # Influent BOD 5 / Day				
	5,045	5,099	5,153	5,193	5,226

Insert Graph

4. DEFINITIONS

For the purpose of interpretation and understanding of terms used in this year's Municipal Wasteload Management Report, the following definitions are provided.

- **Average daily flow** - The arithmetic mean of daily flow measurements taken over a calendar month. Expressed in gallons per day (GPD) or millions of gallons per day (MGD).
- **Average daily organic load** - The arithmetic mean of all samples of Five-day Biochemical Oxygen Demand, expressed in terms of pounds per day, collected over a calendar month.
- **BOD** - Biochemical Oxygen Demand - The quantity of oxygen utilized in the biochemical oxidation of organic matter in a specified time and at a specified temperature. It is not related to the oxygen requirements in chemical combustion, being determined entirely by the availability of the material as a biological food and by the amount of oxygen utilized by the microorganisms during oxidation.
- **Capacity** - The rated ability of the plant to receive and effectively treat a specified hydraulic and/or organic load. When used in reference to a pump station or sewer system, the term refers to the rated ability to effectively convey a specified load and can be expressed in gallons per minute (GPM).
- **CBOD** - Carbonaceous Biochemical Oxygen Demand - The rate at which microorganisms use the oxygen in water or wastewater for the biochemical degradation of organic material (carbonaceous) and inorganic material such as sulfides and ferrous iron. Oxygen consumption due to the oxidation of reduced forms of nitrogen, (nitrogenous demand) is prevented through the use of an inhibitor.

- **EDU** - Equivalent dwelling unit used to equate wastes generated by commercial and industrial developments into that similar to one or more single family dwellings.

- **Extension** - An addition to the sewer system to accommodate more than one connection.

- **GPCD** - Gallons per capita per day used to express usage of the sewerage system by an individual.

- **Hydraulic Overload** - The condition that occurs when the hydraulic portion of the load, as measured by the average daily flow entering a plant, exceeds the average daily flow upon which the permit and the plant design are based during each month of a consecutive three-month period or when the flow in any portion of the system exceeds its hydraulic carrying capacity.

- **MHs** - Designation used for manholes which are structures along the sewer system allowing access for inspection and cleaning purposes.

- **Organic Overload** - The condition that occurs when the average daily organic load exceeds the organic load capacity upon which the permit and the plant design are based.

- **Subsystem** - Divisional portion of the collector sewer system serving one or more housing plans or developments, used for isolation of study areas.

- **TDH (Total Dynamic Head)** - Design capability of a pump measured as the total discharge head minus the total suction head, or plus the total suction lift.

5. DISCUSSION OF HYDRAULIC AND ORGANIC LOADINGS

The hydraulic loading has been plotted in the preceding graph for the Meadowbrook Road Water Pollution Control Plant for the past five years (**2014-2018**). The average daily flows for each month and the average daily flows for each year are shown from **January 2014 through December 2018**.

The organic loading graph for the treatment plant was developed by plotting the average daily influent BOD₅ loading for each month and for each year are shown from **January 2014 through December 2018**.

The operational summary for the Meadowbrook Road Plant for **2018** is provided in Appendix A.

The Authority has projected its customer growth in the Meadowbrook Road Plant service area over the next five years (**2019-2023**) based upon previously approved and probable new subdivisions to be developed in that time and respective loading values associated with these developments. A list of these subdivisions together with estimated hydraulic and organic loading conditions is shown in Table I.

Loading projections for the Meadowbrook Road Plant were developed on the basis of average 2018 loading conditions at the Meadowbrook Road Plant and the following criteria for projected customers: an average daily wastewater flow of 100 gallons per capita per day, an average organic loading of 0.17 pounds BOD₅ per day per capita and a population density of 2.63 persons per customer per the DEP Chapter 94 required parameters.

Insert Page 1 of Table I here

Insert Page 2 of Table I here

Insert Page 3 of Table I here

Insert Page 4 of Table I here

Insert Table II here

6. ALLEVIATING PLANT OVERLOADS

HYDRAULIC

The Meadowbrook Road Water Pollution Control Plant (STP) recorded flows to the plant which exceeded its rated capacity of 4.9 mgd in 2011 as follows:

1. Feb, 2011 - 5.10 mgd
2. Mar. 2011 - 5.34 mgd
3. Apr. 2011 - 5.71 mgd
4. May 2011 - 5.28 mgd

Because of the above hydraulic overload in 2011, Department of EP ordered a Corrective Action Plan on FTMSA in 2012. A Corrective Action Plan was submitted to the Department of Environmental Protection on March 28, 2012. The Corrective Action Plan was approved on May 23, 2012. Corrective Action Plan reports were required to be submitted to the Department of Environmental Protection by July 31 and January 31 of each year. During 2012, the first progress report was submitted on July 30, 2012. A request to amend the Corrective Action plan was submitted on October 29, 2012. The Department of Environmental Protection approved amendment of the Corrective Action Plan on November 30, 2012. During 2013, a progress report was submitted on July 19, 2013. On January 20, 2014 the required progress report was submitted. On January 26, 2015 and July 20, 2015, the required progress reports were submitted. The eighth required progress report was submitted on January 26, 2016. The Corrective Action Plan requires the following:

1. Replace the force main for the Main Pump Station - This project was completed in 2016.
2. Develop and Implement a Comprehensive O&M Program for the sewage treatment plant - This has been completed.
3. City of Export Flood Relief Project Post-Construction Flow Monitoring - this requirement has been eliminated..
4. Tap Control Plan - The PADEP approved 316 EDUs and 256 for the years 2014 and 2015, respectively.

In 2016, the Authority completed all items for the Corrective Action Plan.

Since May of 2011 the treatment Plant's Hydraulic Loading has not exceeded the permitted 4.9 MGD three months in a row and the Organic Loading has never exceeded the Permit Limits.

ORGANIC

_____The organic loading as approved by the plant's permit is 10,000# BOD/Day. There were no months during 2018 when the organic loading was exceeded.

7. INDUSTRIAL WASTE

In **2018**, there were no new industrial waste customer added to the system.

A copy of Sections IV and V of the Franklin Township Municipal Sanitary Authority's Rules and Regulations for sewage service is attached as Appendix B. These sections address the admission of industrial waste to the sewer system and set forth criteria to be used in the determination of unacceptable industrial waste.

In 1989 (Amended 02-15-01 and 02-21-08), the Authority compiled and adopted Industrial Pretreatment Rules and Regulations for use in regulating any industrial waste discharges into the sewer system. A copy of these regulations is contained in Appendix C.

The pretreatment customers are Circuits LLC located in Murrysville, Dominion Gas located in Salem township and Dura-Bond Industries, Inc. located in Export. These facilities are regulated under Industrial Sewer Service Agreements, and are required to submit a monthly lab analysis of the pretreated waste to the Authority in accordance with the Rules and Regulations. Dominion Gas will expire in 2023. The Circuits LLC Agreement will expire in 2019. Dura-Bond Industries, Inc. will expire in 2021. See Appendix D.

The Authority accepts leachate from three landfills: Seneca, Apex, Greenridge and waste from Diamond Mulch . All waste are hauled by them by tank truck to the Authority. 2,432,310 gallons were treated from these companies in 2018.

A copy of the DEP sludge landfill permit is attached in Appendix F.

8. SEWER EXTENSIONS

One sewer extension were underway within the Franklin Township Municipal Sanitary Authority service area during **2018**. See Appendix H. A listing of the sewer extensions in progress or completed during **2018** are as follows:

<u>Project Name</u>	<u>Percent Completion</u>
Blackthorne Phase 3 (Penn Twp)	99%

8.1 Sewer Extensions - Plum Borough

The sewage from this area is treated at the Holiday Park Treatment Plant. A listing of the sewer extensions in progress or completed during **2018** is as follows:

<u>Project Name</u>	<u>Percent Completion</u>
None	

Additional information regarding these projects is provided in Table Nos. III and IV. Planned development in the approved subdivisions is shown in Section 4 of this report.

Insert Table III Here

Insert Table IV Here

8.2 Proposed Sewer Extensions

In 1996, the Authority completed an Act 537 Study for a portion of Salem Township. This study was presented to Salem Township for their review and was given their approval and submittal to DEP. In 1998, upon DEP's approval of this study, the Authority is helping Salem apply for grants and loans through the Rural Utility Service to implement the Act 537 Plan. This plan calls for the relocation and enlargement of the Cramer Pump Station.

The Municipality of Murrysville completed an Act 537 Study in the Turtle Creek Watershed area in its community in 2001. In conjunction with this study the Authority has constructed a facility for accepting septic waste at the plant for treatment. The Municipality of Murrysville submitted this study to DEP and the Study was approved. The Authority plans to implement accepting septic waste in the future. The Municipality of Murrysville completed an Act 537 Study in the Puckity Creek Watershed area in its community in 2003 and submitted this Study to DEP for their approval.

Washington Township constructed a sewer system in the above Puckity Creek watershed and in order to service 37 affected properties by this new sewer system in the Municipality of Murrysville, the Authority agreed to update their Act 537 Plan in 2015. A service agreement should be obtained with all entities involved during the first half of 2019.

9. SEWER SYSTEM MONITORING, MAINTENANCE, REPAIR AND REHABILITATION

The Authority's sanitary sewer conveyance and collection system consists of approximately **332.7** miles of sanitary sewer lines ranging in size from six (6) inches to thirty-six (36) inches in diameter and force main sewer lines ranging in size from two (2) inches to twenty-four (24) inches in diameter, **five (5)** sewage regulators that service the Borough of Export, **14** sewage pump stations. These components are further broken down as **245.0** miles of collector, main and force main sewers and **7** pump stations in the Municipality of Murrysville as well as **13.6** miles of collector sewer in the portion of the Municipality of Murrysville in which the sewage is conveyed and subsequently treated by Plum Borough (Holiday Park Treatment Plant). The Authority is also responsible for the maintenance of **23.1** miles of collector and force main sewers, **3.4** miles of collector sewers in the Municipality of Monroeville, **24.0** miles of collector and force main sewers and **4** sewage pump stations in Penn Township and **19.3** miles of collector and force main sewers and **2** sewage pump stations in Salem Township. The monitoring, maintenance, repair and rehabilitation of **5** miles of collector sewers in Export Borough are presently being operated by Export Borough.

The Authority Manager is responsible for the administration, operation, and maintenance of the sewage treatment plant, sewer system, regulators and pump stations. He directly supervises the work of a plant supervisor, an assistant manager, one field supervisor, one lab technician, and 11 plant operators and laborers. Also, if needed on a part-time basis, field inspectors from the Authority's Consulting Engineer help the field supervisor on new construction associated with development.

The monitoring employed at the Meadowbrook Road Plant and throughout the sewer system consists of routine monitoring as well as special monitoring.

The routine monitoring employed at the Meadowbrook Road Plant is conducted in compliance with State Permit requirements and Federal National Pollution Discharge Elimination System (NPDES) Permit requirements. On May 1, 2014, the Department of Environmental Resources issued a new NPDES permit containing effluent limitations. The Authority appealed several parameters in this new permit and settled this appeal in early 2015. The monitoring presently being performed reflects these

parameters. The parameters monitored, the frequency of analysis and the type of samples collected are shown in Table V.

TABLE V
MEADOWBROOK ROAD WPCP
NPDES PERMIT REQUIREMENTS

<u>Parameter</u>	<u>Frequency</u>	<u>Sample Type</u>
Total Flow	Continuous	Record
CBOD₅	Two days per week	24 hour composite on influent and effluent
BOD₅	Two days per week	24 hour composite on influent and effluent
Suspended Solids	Two days per week	24 hour composite on influent and effluent
Ammonia Nitrogen	Two days per week	24 hour composite on influent and effluent
Fecal Coliform	Two days per week	Grab on effluent
pH	Daily	Grab on effluent
Dissolved Oxygen	Daily	Grab on effluent
Total Residual Chlorine	Daily	Grab on effluent
Ultraviolet Light Transmittance	Daily	Measured
Bromide	Once per month	Grab on effluent
Chloride	Once per month	Grab on effluent

Sulfate	Once per month	Grab on effluent
Total Dissolved Solids	Once per month	Grab on effluent
Total Nitrogen	Once per quarter	Grab on effluent
Total Phosphorus	Once per quarter	Grab on effluent
Total Aluminum	Once per quarter	Grab on effluent
Total Iron	Once per quarter	Grab on effluent
Total Manganese	Once per quarter	Grab on effluent

The Manager and plant operators complete a Monthly Operating Report form and NPDES Report which are submitted to the Department of Environmental Protection monthly. A copy of the NPDES Report form is also submitted monthly to the U.S. Environmental Protection Agency (EPA). These forms are also reviewed by the Consulting Engineer for compliance and as a means of monitoring plant performance.

Routine inspection of new sewer extensions includes air testing, deflection testing and lamping of all new sections of newly installed sewer pipe. New manholes are tested by means of water exfiltration or vacuum testing. Approximately 12 months after construction, the sewers are relamped and during rain events are visually inspected for infiltration/inflow and the manholes are visually inspected. Sewer laterals are inspected and tested as shown in Appendix E.

Special monitoring includes inspection of various portions of the sewage collection and conveyance system, the five (5) sewage regulators and fourteen (14) sewage pump stations. In the inspection of the sewage collection and conveyance systems, the personnel perform daily inspections of various manholes for signs of structural damage, blockages, unusually high volumes of sewage, unusual appearance of sewage, etc. Sewage regulators are visited following each period of excessive wet weather and/or at least twice per month during the summer and once per month during the winter. Pump stations are visited on a daily basis.

In addition to physical inspection by Authority personnel, each pump station is electronically monitored by the Authority's computer operated, Motorola Moscad System, upgraded in 2010. Each station is monitored for the following alarm conditions: high wet well level, low wet well level, sump pump, and power outage. Alarms are electronically reported to the base station at the Meadowbrook Road Plant. With the exception of the Main Pump Station, a chlorine alarm monitor, gas monitoring and daily pump running times are totalized and logged by the base station computer. Continuous flow meter readings from the Main Pump Station are transferred to a recorder in the main instrument panel at the Meadowbrook Road Plant. The main instrument panel at Meadowbrook Road Plant is also connected to the Motorola System. The plant instrumentation system monitors the presence of hazardous and explosive gases, and the malfunction of key plant process equipment.

When the plant is not staffed, the Motorola System transfers both pump station and plant alarms to remote pagers. Authority personnel are then contacted on off hours and advised of the alarm condition. In 2010 a new SCADA System was added to the Motorola System giving the operators many more alarms at the plant and the ability to remotely turn pumps and valves on or off through this new SCADA System.

Maintenance operations at the Meadowbrook Road Plant and pump stations are conducted by the operators and laborers.

The Authority has three general service categories for major equipment maintenance operations at the treatment plant and pump stations: preventive maintenance; corrective maintenance; and major repairs. **Preventive maintenance** consists of maintenance functions that are generally performed while the treatment plant or pump station is operating. This would include routine inspection of equipment, equipment lubrication, and minor adjustments. **Corrective maintenance** measures are the various repairs made while the plant or pump station is still in operation with minimum equipment downtime. These maintenance functions would include packing pumps, changing belts, replacing bearings, brushes, etc. **Major repairs** generally result in a unit being out of service, and are performed by the operators or contracted out.

Preventive maintenance is performed daily at the wastewater treatment plant and/or pump stations. Major or corrective maintenance is performed on an as required basis. Maintenance records are kept to indicate all work performed and when preventive maintenance is needed on a piece of equipment.

The Authority has two categories of maintenance for the sewage collection and conveyance systems: (1) preventive maintenance, and (2) corrective maintenance.

Preventive maintenance operations conducted by Authority personnel would include routine manhole and sewer line inspections as well as scheduled routine sewer and/or manhole cleaning. The pump station wet wells are vacuum cleaned twice yearly.

Corrective maintenance operations include the repair of a broken line, cleaning a blocked sewer line, manhole, etc.

Sewer lines which have been responsible for past odor problems or backups are routinely scheduled to be cleaned at various times during the year with a high pressure sewer jet/vacuum cleaner. The sewage regulators are inspected after every heavy rain and are cleaned twice a month during the summer and once every month during the winter. All new connections and sewer extensions are inspected by the Authority during construction and prior to backfilling. Records are kept by the Authority of all maintenance, inspections and repairs.

All emergency calls and repairs are handled through the Authority Manager and the equipment to handle minor emergency repairs is readily available. The Manager maintains a list of the names of local contractors for emergency repairs.

The Meadowbrook Road Plant also serves as an official United States rainfall and temperature monitoring station. Comparisons of precipitation data and flow measurements at the Meadowbrook Road Plant are used to evaluate infiltration/inflow conditions within the Franklin Township Municipal Sanitary Authority sewer system. See Appendix G.

An MP2 program was purchased from datastream Systems, Inc. And incorporated into the FTMSA's existing SCADA operating software prior to June 1, 2012 and is presently being used. This program encompass's O&M for every pump, motor, tank, etc. at the STP and Pump Stations along with special sewer line maintenance. The program also keeps a complete history of said O&M.

10. EXTRAORDINARY SEWER SYSTEM MONITORING AND REHABILITATION

10.1 FTMSA (Municipality of Murrysville) - Sewer System

The FTMSA sewer system encompasses an area of approximately 25 square miles and comprises approximately **245.0** miles of sanitary sewers, **4.6** miles of force mains (**3.01** miles of pump station force mains and **1.6** miles of individual grinder pump public force mains), approximately **6,518** manholes and **7** pump stations and **13.6** miles of sanitary sewers and approximately **287** manholes in which the sewage is treated by Plum Borough (Holiday Park Treatment Plant) or totals of **263.2** miles of sewer and **6,805** manholes.

In 2010, the Authority started a “Sewer Lateral Inspection Program” in the Municipality of Murrysville. Any home that is sold or refinanced is required to have the sewer lateral and indoor underground plumbing inspected. The inspection performed by FTMSA employee’s consists of smoke, dye and TV inspection.

2011 - The Authority continued its program of sewer system rehabilitation by performing the following work:

- The “Sewer Lateral Inspection Program” in the Municipality of Murrysville and is that any home that is sold or refinanced is required to have the sewer lateral and indoor underground plumbing inspected. The inspection performed by FTMSA employee’s consists of smoke, dye and TV inspection. 215 homes were inspected, 52 homes failed and of the 52 homes 45 were repaired and 7 are under repair.

2012 - The Authority continued its program of sewer system rehabilitation by performing the following work:

- The “Sewer Lateral Inspection Program” in the Municipality of Murrysville and is that any home that is sold or refinanced is required to have the sewer lateral and indoor underground plumbing inspected. The inspection performed by FTMSA employee’s consists of smoke, dye and TV inspection. 313 homes were inspected, 70 homes failed and of the 70 homes 63 were repaired and 7 are under repair.

Total homes inspected to date: 528

Total homes failed and repaired to date: 115

2013 - The Authority continued its program of sewer system rehabilitation by performing the following work:

- The “Sewer Lateral Inspection Program” in the Municipality of Murrysville and is that any home that is sold or refinanced is required to have the sewer lateral and indoor underground plumbing inspected. The inspection performed by FTMSA employee’s consists of smoke, dye and TV inspection. 295 homes were inspected, 89 homes failed and of the 89 homes 71 were repaired and 18 are under repair.

Total homes inspected to date: 823

Total homes failed and repaired to date: 178

- Replaced drives for Primary Clarifiers No.1 and No.2, replaced drives for Secondary Clarifiers No.1 and No.2, and Trickling Filter No.1 arm and replaced four ultraviolet tank gates.
- In 2013, the Authority started a twenty year Asset Management Plan. Asset management can be defined as managing existing infrastructure capital assets to minimize the total cost of owning them while delivering the desired service levels. It incorporates operations and maintenance (O&M) planning. It also includes the outcomes of facility planning of new and improved facilities. It is however, more comprehensive than either O&M or facilities planning because it provides an on-going process which evaluates each asset of the Authority and the status of the Authority as a whole. The outcome of an asset management effort is a regularly updated plan for the rehabilitation and replacement of each existing asset in the Authority, as well as recognition of new assets which will also need to be added. An asset management effort also identifies the money necessary to cost effectively implement the plan over time (generally twenty years or more), and an identification of additional revenues that are needed to pay for it. To pay for the Asset management Plan the Authority Board adopted a rate increase of \$3.00 per month,

effective April 1, 2013. Over the next twenty year period, \$17,969,335 of aging infrastructure at the plant and the sewer system will be replaced. This plan is shown in detail in Appendix I of this report.

2014 - The Authority continued its program of sewer system rehabilitation by performing the following work:

- The “Sewer Lateral Inspection Program” in the Municipality of Murrysville and is that any home that is sold or refinanced is required to have the sewer lateral and indoor underground plumbing inspected. The inspection performed by FTMSA employee’s consists of smoke, dye and TV inspection. During 2014, 211 homes were inspected and 60 homes failed.

Total homes inspected to date: 877

Total homes failed and repaired to date: 190

2015 - The Authority continued its program of sewer system rehabilitation by performing the following work:

- The “Sewer Lateral Inspection Program” in the Municipality of Murrysville and is that any home that is sold or refinanced is required to have the sewer lateral and indoor underground plumbing inspected. The inspection performed by FTMSA employee’s consists of smoke, dye and TV inspection. During 2015, 248 homes were inspected and 88 homes failed.

Total homes inspected to date: 1,125

Total homes failed and repaired to date: 278

- CCTV inspection and pipeline assessment was performed on the Heather Highlands drainage area by RedZone Robotics starting in November. During the same period, flow and rainfall monitoring devices were installed by Drnach Environmental.

2016 - The Authority continued its program of sewer system rehabilitation by performing the following work:

- The “Sewer Lateral Inspection Program” in the Municipality of Murrysville and is that any home that is sold or refinanced is required to have the sewer lateral and indoor underground plumbing inspected. The inspection performed by FTMSA employee’s consists of smoke, dye and TV inspection. During 2016, 280 homes were inspected and 76 homes failed.
Total homes inspected to date: 1,405
Total homes failed and repaired to date: 354
- The new force main for the Main Pump Station was put online which increased the flow an additional 3.5 MGD for a maximum of 16.0 MDG.

2017 - The Authority continued its program of sewer system rehabilitation by performing the following work:

1. Communicated with Export Borough as to their progress with CSO’s and I/I problems in their community and continue “Sewer Lateral Inspection Program”
 2. Rustic Ridge Sewer Rehabilitation.
 3. Continued to inspect and analyze the data from the Heather Highlands area CCTV inspection and flow monitoring, then make recommendations to address any problems. Authority employees performed CCTV inspection in the Sloanwood Road area of Heather Highlands. There were 3 reported manhole overflows in Forbes Trail area of Heather Highlands on June 27th, November 6th and November 17th. Additional inspections will be performed with the Authority’s new CCTV camera equipment.
 4. Lining of a section of main trunk sewer in Heather Highlands.
- The “Sewer Lateral Inspection Program” in the Municipality of Murrysville and is that any home that is sold or refinanced is required to have the sewer lateral and indoor

underground plumbing inspected. The inspection performed by FTMSA employees consists of smoke, dye and TV inspection. During 2017, 240 homes were inspected and 69 homes failed.

Total homes inspected to date: 1,645

Total homes failed and repaired to date: 423

2018 - The Authority continued its program of sewer system rehabilitation by performing the following work:

1. Communicate with Export Borough as to their progress with CSO's and I & I problems in their community and continue "Sewer Lateral Inspection Program".
 2. Continued to inspect and analyze the data from the Heather Highlands area CCTV inspection and flow monitoring, then make recommendations to address any problems. Additional inspections will be performed with the Authority's new CCTV camera equipment.
 3. Check the sanitary lines in the Sloan Pump Station area for I & I.
 4. Continue with sewer inspections in the Murrywoods Plan.
 5. Continue with the "Sewer Lateral Inspection Program".
- The "Sewer Lateral Inspection Program" in the Municipality of Murrysville and is that any home that is sold or refinanced is required to have the sewer lateral and indoor underground plumbing inspected. The inspection performed by FTMSA employee's consists of smoke, dye and TV inspection. During 2018, 126 homes were inspected and 56 homes failed.

Total homes inspected to date: 1,771

Total homes failed and repaired to date: 479

In 2019, the Authority will continue its program of sewer system rehabilitation by performing the following work:

1. Communicate with Export Borough as to their progress with CSO's and I & I problems in their community and continue "Sewer Lateral Inspection Program".

2. Continued to inspect and analyze the data from the Heather Highlands area CCTV inspection and flow monitoring, then make recommendations to address any problems. Additional inspections will be performed with the Authority's 2 new CCTV camera equipment purchased in January 2019.
3. Check the sanitary lines in the Sloan Pump Station area for I & I.
4. Complete the sewer inspections in the Murrywoods Plan.
5. Continue with the "Sewer Lateral Inspection Program".

An additional 74.2 miles of sanitary sewer and combined sewers with regulators in the communities of Penn Township, Delmont Borough, Salem Township, Export Borough and the Municipality of Monroeville are also served by the Franklin Township Municipal Sanitary Authority's Meadowbrook Road Treatment Plant. Measures taken during 2017 to reduce infiltration/inflow conditions in these sewers were as follows:

10.2 Penn Township - Sewer System

The Penn Township sewer system comprises approximately **19.9** miles of sanitary sewers, **4.1** miles of force mains (**3.37** miles of pump station force mains and **0.73** miles of individual grinder pump public force mains), approximately **496** manholes and **3** pump stations or totals of **24.0** miles of sewer.

2010 / 2018 -Preventive and corrective maintenance was performed on this sewer system and pump stations by the Authority via the intermunicipal service agreement with Penn Township.

10.3 Delmont Borough - Sewer System

The Delmont Borough sewer system comprises approximately **21.8** miles of sanitary sewers, **1.3** miles of force mains and approximately **461** manholes or totals of **23.1** miles of sewer. The following yearly reports are by Delmont's Engineer.

2010 / 2018 -Preventive and corrective maintenance was performed on this sewer system by the Authority via the intermunicipal service agreement with Delmont Borough

Additional reports from the Borough's Engineer are as follows:

- 2010 - The Cramer Pump station Overflow Tank was monitored throughout 2010. Delmont Borough is committed to monitoring and performing routine maintenance operations throughout 2011 to ensure proper and continued functioning of the tank.

FTMSA performs routine maintenance on the collection and conveyance system as needed.

There was one report of basement flooding in 2010 at 127 Herbert Lane. The Borough has started to dye test connections upstream to determine if roof leaders or other surface connections exist upstream which are surcharging the system in this area with no positive findings to date.

The Borough will continue to monitor the area during storm events. The system in the area has also been CCTV'ed and no structural defects observed.

In March 2010, the Borough adopted an Ordinance which requires dye testing for illegal connections prior to sale of property or refinancing. In 2010, 55 properties were tested with no illegal connections found.

No sanitary sewer extensions were constructed in 2010:

1. The White Oak Court Condominiums development is ongoing and consists of 16 townhouse units and 36 condominium units. Of these 52 units, taps were issued for 12 of the condominium units in 2008.
2. The Cherry Knoll development is ongoing and consists of 31 single-family residential lots of which taps were issued for five lots in 2008 and four lots in 2010. The sanitary sewer line has been dedicated to and accepted by Delmont Borough in 2009.

2011 -Cramer Pump Station Overflow Tank was monitored throughout 2011. The Borough has a long term capital improvement plan which proposed replacement of the Cramer Pump station by 2018.

- Franklin Township Municipal Sanitary Authority and Delmont Borough perform routine maintenance on the collection and conveyance system as needed.
- There was no report of any basement flooding in 2011.

- In 2011, an investigation was conducted relating to the 2010 report of basement flooding at 127 Herbert Lane. The Borough televised the sewers in the area and no deficiencies were found.
 - In March 2010, the Borough adopted an Ordinance which requires dye testing for illegal connections prior to sale of property or refinancing. In 2011, 90 properties were tested with 3 illegal connections found.
 - No sanitary sewer extensions were constructed in 2011. The following is a summary of development proposed and ongoing.
 - The White Oak Court Condominiums development is ongoing and consists of 16 townhouse units and 36 condominium units. Of these 52 units, taps were issued for 12 of the condominium units in 2008.
 - The Cherry Knoll development is ongoing and consists of 31 single-family residential lots of which taps were issued for five lots in 2008, four lots in 2010 and 1 lot in 2011. The sanitary sewer line has been dedicated to and accepted by Delmont Borough in 2009..
 - Currently no new development is planned in 2012.
- 2012 -
- The Cramer Pump Station Overflow Tank was cleaned in 2012.
 - The Borough has a long term capital improvement plan which proposes replacement of the Cramer Pump station in 2013.
 - Franklin Township Municipal Sanitary Authority and Delmont Borough perform routine maintenance on the collection and conveyance system as needed.
 - There was no report of any basement flooding in 2012.
 - In 2012, approximately 1,915 linear feet of sewer were televised on Christy Lane. There was no infiltration observed in the sewers televised however a segment of pipe had sagged. The Borough is considering replacement of this section of pipe pending confirmation of ownership of entry due to its physical location in Salem Township.

- In March 2010, the Borough adopted an Ordinance which requires dye testing for illegal connections prior to sale of properties or refinancing. In 2012, 113 properties were tested with 4 illegal connections found.
 - An illegal connection on Terrace Drive was removed by the property owner. This illegal connection was a roof downspout and contributed to prior issues of surcharging in the Aurora Drive area.
 - An illegal connection on Stotler Drive was removed by the property owner. This illegal connection contributed flow to the watershed of Herbert Lane where problems with manhole surcharging have been reported in the past.
 - An illegal connection on Abbe Place was removed by the property owner. This was a connection of a roof downspout into the sewer system.
 - An illegal connection on Freeport Street was removed by the property owner. This was a connection of a stairwell drain into the sewer system.
 - No sanitary sewer extensions were constructed in 2012. The following is a summary of development proposed and ongoing.
 - The White Oak Court Condominiums development is ongoing and consists of 16 townhouse units and 36 condominium units. Of these 52 units, taps were issued for 12 of the condominium units in 2008. There have been no new buildings constructed since 2008.
 - The Cherry Knoll development is ongoing and consists of 31 single-family residential lots of which taps were issued for five lots in 2008, four lots in 2010, 1 lot in 2011 and 3 lots in 2012. The sanitary sewer line has been dedicated to and accepted by Delmont Borough in 2009.
 - Currently, the Borough has conducted preliminary review meetings for a new Speedway Gas Station and a new building for Fletcher's Tractor Sales and Service. No formal approvals have been given to date for either development. The Borough has been told that both developments are planned for 2012.
- 2013 - No report.

- 2014 -
 - The Cramer Pump station Overflow Tank was cleaned in July 2014 as part of the Cramer Pump station Project.
 - The Borough has a long term capital improvement plan which proposes replacement of the Cramer Pump station. The construction contract was awarded to Lone Pine Construction, Inc. In 2003 with work being completed on October 2014.
 - Franklin Township Municipal Sanitary Authority and Delmont Borough perform routine maintenance on the collection and conveyance system as needed.
 - There was no report of any basement flooding in 2014.
 - In 2012, approximately 1,915 linear feet of sewer were televised on Christy Lane. There was no infiltration observed in the sewers televised however a segment of pipe had sagged. The Borough will replace this segment of sewer as part of the Cramer Pump station project. The current property owner would not permit access in 2014 to correct the sag in the sewer line.
 - In 2013, the Borough initiated a sewer system flow monitoring program. Flow meters were installed in three locations; manhole behind Borough maintenance garage, Christy Road near bridge and Valley Stream before Export Borough boundary. Meters were in Place from February through November 2013. The data was reviewed and found to contain no significant over flow events during the testing period.
 - In March 2010, the Borough adopted an Ordinance which requires dye testing for illegal connections prior to sale of property or refinancing. In 2014, 67 properties were tested with one illegal connection found. This illegal connection was corrected.
 - No sanitary sewer extensions were constructed in 2014. The following is a summary of development proposed and ongoing.
 - The White Oak Court Condominiums development is ongoing and consists of 16 townhouse units and 36 condominium units. Of these 52 units, taps were issued for 12 of the condominium units in 2008. There have been no new buildings constructed since 2008.
 - The Cherry Knoll development is ongoing and consists of 31 single-family residential lots of which taps were issued for five lots in 2008, four lots in

2010, one lot in 2011, three lots in 2012, four lots in 2013 and 1 lot in 2014. The sanitary sewer line has been dedicated to and accepted by Delmont Borough in 2009.

- Royal Building Products located on East Pittsburgh Street completed a new pump station and 2" force main in 2014. The force main connects to an existing sanitary manhole on Overly Street.
- The Borough has conducted a preliminary review meeting for a new Speedway Gas Station. A lot consolidation plan was submitted in 2013; however the status of the development project is unknown at this time.
- The Borough has conducted a preliminary review meeting for a new building for Fletcher's Tractor Sales and Service in 2012. The plans were submitted and approved in 2013. Fletcher's opened for business December 2014.

■ 2015 -

- In February 2015, Delmont took over the operation and maintenance of the Cramer Pump Station. Starting January 1, 2016, Delmont took over the maintenance of their collection system.

■ 2016 -

- Delmont continues to operate and maintain their Cramer Pump Station and collection system.

■ 2017 -

- Delmont voted to raise their rates by \$4.00 for 2018.

■ 2018 -

Negotiations with DEP for an Order to address surcharging manholes upstream of Cramer Pump Station is ongoing. The Borough has completed surveys to replace 3,500 linear feet of interceptor sewer to the Cramer Lift Station as well as 3,500 linear feet of forcemain. An equalization tank, generally in the vicinity of the Cramer Lift Station is also proposed as a second phase of the project. The Borough is pursuing funding through the Rural Utility Service (RUS) of the U. S. Department of Agriculture. Planning and permitting for the project will be initiated in 2019.

No sanitary sewer extensions were constructed in 2018. The following is a summary of development proposed and ongoing.

- o The White Oak Court Condominiums development is ongoing and consists of 16 townhouse units and 36 condominium units. Of these 52 units, taps were issued for 12 of the condominium units in 2008. There have been no new buildings constructed since 2008.
- o The Cherry Knoll development is ongoing and consists of 31 single-family residential lots of which taps were issued for five lots in 2008, four lots in 2010, one lot in 2011, three lots in 2012, four lots in 2013, one lot in 2014, no lots in 2015, three lots in 2016, three lots in 2017, and no lots in 2018. The sanitary sewer line has been dedicated to and accepted by Delmont Borough in 2009.

10.4 Salem Township - Sewer System

The Salem Township sewer system comprises approximately **17.0** miles of sanitary sewers, **2.2** miles of force mains (**2.03** miles of pump station force mains and **0.13** miles of individual grinder pump public force mains) and approximately **357** manholes and **2** pump stations or totals of **19.2** miles of sewer. The following yearly reports are by Salem's Engineer.

2010 / 2017 -Preventive and corrective maintenance is performed on this sewer system and pump stations by the Authority via the Intermunicipal Service Agreement with Salem Township.

Additional reports from the Township's Engineer are as follows:

- 2010 - The Salem Township sewer system had no major problems, other than regular maintenance.
- 2011 - No report.
- 2012 - No report.
- 2013 - No report.
- 2014 - The Salem Township sewer system had no major problems, other than regular maintenance. Odor control chemical tank is scheduled to be replaced in 2015.
- 2015 - No report.
- 2016 - Odor control chemical tank was replaced.
- 2017 - The Salem Township sewer system had no major problems, other than regular

maintenance.

- 2018 - The Salem Township sewer system had no major problems, other than regular maintenance.

10.5 Export Borough - Sewer System *

The Export Borough sewer system comprises approximately **5.0** miles of sanitary sewers and approximately **106** manholes..

Additional reports from the Borough's Engineer are as follows:

- 2010
 1. There have been no additional industrial waste dischargers into the Export system.
 2. There have been no sewer extensions constructed in 2010.
 3. There are no pump stations located in the Export system.
 4. There has been no system changes made in 2010.
 5. There were no sewer extensions in the system for 2010.
- 2011
 1. There have been no additional industrial waste dischargers into the Export system.
 2. There have been no sewer extensions constructed in 2011.
 3. There are no pump stations located in the Export system.
 4. There has been no system changes made in 2011.
 5. There were no sewer extensions in the system for 2011.
- 2012 - No report.
- 2013 - No report.
- 2014 -
 1. There have been no additional industrial waste discharges added into the Export system.
 2. There have been no sewer extensions constructed in 2014.
 3. There are no pump stations located in the Export system.
 4. There have been no system changes made in 2014.
 5. There were no sewer extensions in the system for 2014.
- 2015 -
 1. There have been no additional industrial waste discharges added into the Export system.
 2. There have been no sewer extensions constructed.
 3. There are no pump stations located in the Export system.
 4. There have been no system changes made.
- 2016 -
 1. Dura-Bond Industries, Inc. will add a maximum of 250 gallons per month of industrial waste discharges into the Export system.
 2. There have been no sewer extensions constructed.

3. There are no pump stations located in the Export system.
 4. There have been no system changes made.
- 2017 -
 1. There have been no sewer extensions constructed.
 2. There are no pump stations located in the Export system.
 3. There have been no system changes made.
 4. Export submitted their Long Term Control Plan to DEP.
 5. New sewer line were installed the entire length of Washington Avenue and all storm water separated.
 6. Inspections and camera viewing was performed on the following streets: Fillmore, Pierce, Lee, Cleveland and Dent.
 - 2018 -
 1. There have been no additional industrial waste discharges added into the Export system.
 2. There have been no sewer extensions constructed.
 3. There are no pump stations located in the Export system.

****The Authority does not maintain the Export Borough sewer system***

11. PUMP STATIONS

11.1 Maintenance

Adequate maintenance was performed on all pump stations during **2018**, and the pump stations remain in good operating condition. Normal preventive and/or extraordinary pump station maintenance or repair performed during **2018** for each pump station is as follows:

11.1.1 Municipality of Murrysville

- **Main Pump Station** - Wet well/dry side type pump station, 2 - 300 Hp variable speed pumps, 300 KW generator. The 1.84 miles of 24" DIP force main with 1 air relief and 12 cleanouts was replaced with 24" PVC in 2016. This pump station went on line in 1970.

Normal preventive maintenance and cleaning were conducted during 2018.

On July 15th, a pump motor failed due to an electrical problem and was repaired.

On July 25th, debris became lodged in the pump suction line and was cleared the next day by Authority employees.

The pump station bypassed on February 16th, September 9th & 10th due to high flows.

- **Lyons Run Pump Station** - Submersible type pump station, 2 - 42 HP variable speed pumps, 100 KW generator, 0.20 miles of DIP force main with no air reliefs or cleanouts. This pump station went on line in 1996.

Normal preventive maintenance and cleaning were conducted during 2018. No extraordinary maintenance is scheduled for 2019.

- **Bel-Aire Pump Station** - Wet well/dry side type pump station, 2 - 15 HP constant speed pumps, 30 KW generator, 0.19 miles of 4" CIP force main with no air reliefs or cleanouts. This pump station went on line in 1960.

Normal preventive maintenance and cleaning were conducted during 2018. No extraordinary maintenance is scheduled for 2019. The Authority is considering eliminating this pump station and connecting via gravity sewer.

- **Sloan School Pump Station** - Wet well/dry side type pump station, 4 - 20 HP constant speed pumps, 60 KW generator, 0.28 miles of 8" CIP force main with no air reliefs or cleanouts. This pump station went on line in 1970.

Normal preventive maintenance and cleaning were conducted during 2018. The pump station bypassed on February 16th, September 9th & 10th due to high flows.

- **Meadowbrook Road Pump Station** - Wet well/dry side type pump station, 0.20 miles of 6" CIP force main with no air reliefs and 1 cleanout. This pump station went on line in 1970.

Normal preventive maintenance and cleaning were conducted during 2018. No extraordinary maintenance is scheduled for 2019.

- **Murrysville Heights Pump Station** - Submersible type pump station, 2 - 5 HP constant speed pumps, 15 KW generator, 0.18 miles of 4" PVC force main with no air reliefs or cleanouts. This pump station went on line in 1986.

Normal preventive maintenance and cleaning were conducted during 2018. The force main suction line in the wet well to the pumps was replaced. No extraordinary maintenance is scheduled for 2019.

- **Oak Ridge Pump Station** - Submersible type pump station, 2 - 5 HP constant speed pumps, 28 KW generator, 0.12 miles of 2" SDR26 PVC force main with no air reliefs or cleanouts. This pump station went on line in 1985.

Normal preventive maintenance and cleaning were conducted during 2018. The valve pit plumbing was replaced. No extraordinary maintenance is scheduled for 2019.

11.1.2 Salem Township

- **Cloverleaf Pump Station** - Wet well/dry side type pump station, 2 - 40 HP constant speed pumps, 110 KW generator, 1.35 miles of 8" PVC force main with 1 air relief and no cleanouts. This pump station went on line in 1986.

Normal preventive maintenance and cleaning were conducted during 2018. No extraordinary maintenance is scheduled for 2019.

- **Cramer Pump Station** - Wet well/dry side type pump station, 4 - 20HP constant speed pumps, 80 KW generator, 1.29 miles of 6" CIP force main with no air reliefs and 8 cleanouts. This pump station went on line in 1986.

The pump station was replaced by Delmont Borough in 2014. Delmont has taken over the operation and maintenance of this pump station effective February 1, 2015.

- **Oakford Pump Station** - Submersible type pump station, 2 - 7.5 HP constant speed pumps, 35 KW generator, 0.68 miles of 3" SDR17 PVC force main with 5 air reliefs and 6 cleanouts. This pump station went on line in 2007.

Normal preventive maintenance and cleaning were conducted during 2018. No extraordinary maintenance is scheduled for 2019.

11.1.3 Penn Township

- **Blackthorne Estates Pump Station** - Submersible type pump station, 2 - 25 HP constant speed pumps, 100 KW generator, 0.86 miles of 6" C900 PVC force main with 1 air relief and no cleanouts. This pump station went on line in 1997.

Normal preventive maintenance and cleaning were conducted during 2018. No extraordinary maintenance is scheduled for 2019.

- **Blackthorne Estates Pump Station 2** - Submersible type pump station, 2 - 57 HP constant speed pumps, 80 kW generator, 0.54 miles of 6" C900 PVC force main with 3 air reliefs and no cleanouts. Pump flow = 250 gpm at 197 ft TDH. This pump station was accepted by the Authority in July 2018 with a few homes connecting late in the year.
- **Brookside Pump Station** - Submersible type pump station, 2 - 5 HP constant speed pumps, 15 KW generator, 0.45 miles of 2" SDR26 PVC force main with 1 air relief and 1 flush and clean assembly. This pump station went on line in 1991.

Normal preventive maintenance and cleaning were conducted during 2018. No other extraordinary maintenance is scheduled for 2019.

- **Walton Estates Pump Station** - Submersible type pump station, 2 - 50 HP constant speed pumps, 100 KW generator, 0.42 miles of 4" CL53 DIP force main with no air reliefs or cleanouts. This pump station went on line in 2001.

Normal preventive maintenance and cleaning were conducted during 2018. One pump was replaced in 2016. No extraordinary maintenance is scheduled for 2019.

11.2 Flow Data

The Franklin Township Municipal Sanitary Authority (FTMSA) sewerage system includes fourteen pumping stations. In preparation for this report, daily pump run times were recorded for each station during **2018** in order to obtain dry and wet weather flow data, with the exception of the main pump station in which a flow meter is installed. The average daily dry weather and maximum daily wet weather flows are calculated for the months indicated in the discussion of each pump station below. The pump running time was multiplied by the nameplate rating of the respective pump to obtain a total daily flow. A discussion of present and future flow conditions is also provided for each pump station. Flow conditions are summarized in Table VI.

11.2.1 Municipality of Murrysville

- **Main Pump Station**
This station serves the major portion of the Franklin Township Municipal Sanitary Authority's sewer system that is tributary to the Meadowbrook Road Plant (except for approximately 264 homes in the Meadowbrook Road Area and 100 homes in the Lyons Run Area or a total of 364 homes). In conjunction with the expansion and upgrading of the Meadowbrook Road Plant, the Main Pump Station was expanded to handle an average daily flow of approximately 10.7 MGD (7,400 GPM), actual operation has demonstrated capacity to approximately 16.0 MGD (11,110 GPM) under flooded wet well conditions due to the friction loss associated with the new 24" PVC force main pipe.

The recorded daily dry weather flow and maximum daily wet weather flow received at this station during 2018 were 2.590 MGD (July 1-31, 2018) and 16.00 MGD (September 10, 2018 with 4.82 inches of rain), respectively. There were 5 recorded overflows at this pump station in 2018. The average daily dry and wet weather flows represent the difference between the

recorded plant flow for each respective period and the estimated normal average daily flow from the Meadowbrook Road Area (0.012 MGD) and Lyons Run Area (0.022 MGD) or a total of 0.034 MGD.

The maximum increase in the average daily dry weather flow that is expected to occur at this station within the next two years is estimated to be approximately 0.056 MGD (refer to Table I). Assuming a peak flow factor of 2.5, the maximum daily wet weather flow is estimated to increase by approximately 0.140 MGD.

Within the next two (2) years, the average daily dry weather flow to be received at this station is estimated at 2.650 MGD and the maximum daily wet weather flow is estimated at 13.250 MGD.

- **Lyons Run Pump Station**

Each pump in this station has a capacity of 1000 GPM or 1.440 MGD. This station serves approximately 100 homes or 0.022 MGD. A maximum daily wet weather flow is computed by the average daily times 2.5 or 0.055 MGD. The projected two (2) year normal average daily domestic flows for this area are expected to remain relatively the same.

- **Bel-Aire Pump Station**

Each pump in this station has a capacity of 325 GPM or 0.468 MGD. Run time data collected for this station indicates an average daily dry weather flow (during July 1-31, 2018) of approximately 0.086 MGD and a maximum daily wet weather flow (during September 9- 11, 2018) of 0.389 MGD. This station serves approximately 159 homes. The projected two (2) year normal average daily domestic flows for this area are expected to remain relatively the same.

- **Sloan School Pump Station**

The capacity of each pump at this station is 315 GPM or 0.454 MGD @ a total dynamic head (TDH) of 102.5 feet. Run time data collected for this station indicates an average daily dry weather flow (during July 1-31, 2018) of approximately 0.234 MGD and a maximum daily wet weather flow (during September 9, 2018) of 0.454 MGD.

The residential development served by this pump station includes approximately 434 homes. The projected average daily dry weather flow and maximum daily wet weather flow to this station in two (2) years are estimated to be 0.248 MGD and 0.454 MGD, respectively. There were 3 known overflows at this pump station in 2018.

- **Meadowbrook Road Pump Station**

Each pump in this station has a capacity of 180 GPM or 0.259 MGD @ 50' TDH. Run time data calculated for this station indicates an average daily dry weather flow (during July 1-31, 2018) of approximately 0.012 MGD and a maximum daily wet weather flow (during September 9, 2018) of 0.040 MGD. This station serves approximately 47 homes. The projected two (2) year normal average daily domestic flows for this area are expected to remain relatively the same.

- **Murrysville Heights Pump Station**

Each pump in this station has a capacity of 80 GPM or 0.115 MGD. Run time data collected

for this station indicates an average daily dry weather flow (during July 1-31, 2018) of approximately 0.021 MGD and a maximum daily wet weather flow (during September 9-11, 2018) of approximately 0.096 MGD. This station serves approximately 44 homes. The projected two (2) year normal average daily domestic flows for this area are expected to remain relatively the same.

- **Oak Ridge Pump Station**

Each pump in this station has a capacity of 50 GPM or 0.072 MGD. Run time data collected for this station indicates an average daily dry weather flow (during July 1 - 31, 2018) of approximately 0.006 MGD and a maximum daily wet weather flow (during September 9-11, 2018) of approximately 0.058 MGD. This station serves approximately 24 homes. The projected two (2) year normal average daily domestic flows for this area are expected to remain relatively the same.

11.2.2 Salem Township

- **Cloverleaf Pump Station - Salem Township**

The capacity of each pump at this station is 335 GPM or 0.482 MGD. Run time data collected for this station indicates an average daily dry weather flow (during July 1-31, 2018) of approximately 0.122 MGD and a maximum daily wet weather flow (during September 9, 2018) of 0.402 MGD. This station serves approximately 971 customers. The average daily dry weather and maximum daily wet weather flows projected for this area over the next two (2) years are expected to be 0.126 MGD and 0.315 MGD, respectively.

- **Oakford Pump Station - Salem Township**

The capacity of each pump at this station are 70 GPM or 0.101 MGD. Run time data collected for this station indicates an average daily dry weather flow (during July 1-31, 2018) of approximately 0.003 MGD and a maximum daily wet weather flow (during September 10, 2018) of approximately 0.029 MGD. This station serves 6 customers.

The average daily dry weather and maximum daily wet weather flows projected for this area over the next two (2) years should remain relatively the same.

11.2.3 Penn Township

- **Blackthorne Estates Pump Station - Penn Township**

Each pump at this station has a capacity of 175 GPM or 0.252 MGD. Run time data collected for this station indicates an average daily dry weather flow (during August 1-30, 2018) of approximately 0.016 MGD and a maximum daily wet weather flow (during September 10-11, 2018) of approximately 0.158 MGD. This station serves 94 homes. During 2018, the existing Blackthorne Estates Phase II development will tie in approximately 8 EDUs. During 2018, the construction of a fifty lot development and pump station (Blackthorne Estates - Phase III) will be completed. The average daily dry weather and maximum daily wet weather flows projected for this area over the next two (2) years are estimated to increase to 0.023 MGD and 0.090 MGD, respectively.

- **Blackthorne Estates Pump Station 2 - Penn Township**
 Each pump at this station has a capacity of 250 GPM or 0.360 MGD. This pump station went on line in July 2018 however no homes were tied into until end of year.
- **Brookside Pump Station - Penn Township**
 Each pump at this station has a capacity of 15 GPM or 0.022 MGD. Run time data collected for this station indicates an average daily dry weather flow (July 1-31, 2018) of approximately 0.004 MGD and a maximum daily wet weather flow (during September 11, 2018) of approximately 0.012 MGD. This station serves 33 homes. During 2018 and 2019, 4 EDUs are expected to tie in from the Augusta Acres Plan. The average daily dry weather and maximum daily wet weather flows projected for this area over the next two years are estimated to increase to 0.005 MGD and 0.018 MGD, respectively.
- **Walton Estates Pump Station - Penn Township**
 Each pump at this station has a capacity of 200 GPM or 0.288 MGD. Run time data collected for this station indicates an average daily dry weather flow (during June 1-30, 2018) of approximately 0.028 MGD and a maximum daily wet weather flow (during September 10, 2018) of approximately 0.126 MGD. This station serves 250 homes. During 2018 and 2019, approximately 10 EDUs will tie into the Bushy Run Corporate Park which flows into this pump station. The average daily dry weather and maximum daily wet weather flows projected for this area over the next two years are estimated to increase to 0.030 MGD and 0.101 MGD, respectively.

11.2.4 Delmont Borough

- **Cramer Pump Station - Delmont Borough**
 The capacity of each pump at this station is 180 GPM or 0.259 MGD. As of February 1, 2015, Delmont took over the operation and maintenance of this pump station. Run time data for this station is collected and monitored by Delmont Borough. This station serves approximately 980 customers.

TABLE VI

**SUMMARY OF PRESENT
AND FUTURE PUMP STATION FLOW CONDITIONS**

<u>Pump Station</u>	<u>Rated Capacity</u>	Present	Present	<u>2-Year Projected Daily Flow</u>	
		Avg. Daily Dry Weather	Max. Daily Wet Weather	Avg. Daily Dry Weather	Max. Daily Wet Weather
	<u>(MGD)</u>	<u>(MGD)</u>	<u>(MGD)</u>	<u>(MGD)</u>	<u>(MGD)</u>
Main	10.700*	2.590	16.000	2.748	13.250
Lyons Run	1.440	0.022	0.055	0.022	0.055
Cloverleaf	0.482	0.122	0.402	0.126	0.315
Bel-Aire	0.468	0.086	0.389	0.089	0.389
Sloan School	0.454	0.234	0.454	0.248	0.454
Walton Estates	0.288	0.028	0.126	0.030	0.101
Meadowbrook Road	0.259	0.012	0.040	0.012	0.040
Blackthorne Estates	0.252	0.016	0.158	0.023	0.090
Blackthorne Estates II	0.360	0.002	0.003	0.020	0.030
Murrysville Hts.	0.115	0.021	0.096	0.021	0.096
Oakford	0.101	0.003	0.029	0.003	0.029
Oak Ridge	0.072	0.006	0.058	0.006	0.021
Brookside	0.022	0.004	0.012	0.005	0.018

* *Actual operation has demonstrated capacity to approximately 16.0 MGD.*

Respectfully submitted,

Gibson-Thomas Engineering

Senior Project Manager

APPENDIX A

**2018 OPERATIONAL SUMMARY
FOR THE MEADOWBROOK ROAD PLANT**

APPENDIX B

INDUSTRIAL WASTE REGULATIONS

APPENDIX C

**INDUSTRIAL WASTE REGULATIONS
(PRETREATMENT)**

APPENDIX D

**INDUSTRIAL WASTE
(PRETREATMENT CUSTOMERS)**

**INDUSTRIAL WASTE
(PRETREATMENT CUSTOMERS)**

The pretreatment customers are Circuits LLC, located in the Municipality of Murrysville, Dura-Bond Industries, Inc. located in Export, and Dominion Gas located in Salem Township. These facilities are regulated under Industrial Sewer Service Agreements and are required to submit a monthly lab analysis of the pretreated waste to the Authority in accordance with the Authority's Rules and Regulations.

In order to save paper, please be advised that the above three pretreatment customers have filed their required monthly lab analysis with the Authority and the Authority has reviewed said analysis and found no accedences under their agreements for 2018. All of the lab analysis reports are on file at the Authority office and if needed can be copied or reviewed by the Department of Environmental Protection.

APPENDIX E

SEWER LATERAL REGULATIONS

APPENDIX F

DEP SLUDGE PERMITS

APPENDIX F

PERMITS

The more stringent NPDES Permit for the Franklin Township Municipal Sanitary Authority Meadowbrook Road Plant was issued on June 30, 1987. As previously discussed in this report, the Authority is presently disposing of their stabilized sludge at the Y&S Landfill and or giving away per the below Class A Biosolids Permit.

Below is a summary of the status of all pertinent Authority permits:

	<u>NPDES Permit No.</u>	<u>Expiration Date</u>
Franklin Township Municipal Sanitary Authority Meadowbrook Road Sewage Treatment Plant	PA 0025674	April 30, 2019

Plant Class A Biosolids Permit Number Expiration Date

Franklin Township Municipal Sanitary Authority PAG076103

Meadowbrook Road Sewage

Treatment Plant

Coverage under this statewide permit will not expire and is automatically extended for the duration of the final renewed, reissued or amended PAG-07 General Permit.

<u>Sites solid Waste Permit No.</u>	<u>Landfill Permit ID #</u>	
Y&S Landfill	100281 (1)	-

(1) *This permit is a modification to Y&S Maintenance, Inc.'s landfill permit and as long as the landfill remains in compliance with DEP regulations, the Authority may continue to dispose of sludge at this landfill.*

APPENDIX G

PRECIPITATION HISTORY

APPENDIX H

2018 SEWER EXTENSION MAPS

APPENDIX I

ASSET MANAGEMENT PLAN