

11/7/2016



Water Department Budget

As Proposed for 2017 by Jeffrey Stonehill, Borough Manager



The Borough of Chambersburg

Water Department Budget

As Proposed for 2017

Background and History

A good source of water has always been essential to the well being and survival of communities throughout civilization. It is no wonder that the original Colonel Benjamin Chambers Fort was built over the Falling Spring to provide a good source of water for the use of the inhabitants as well for fire protection. The Chambersburg Water Company was organized around 1818. A waterwheel was employed to pump water from the Falling Spring to a reservoir sited on the current Chambersburg Hospital land. Water then flowed to customers through hollowed pine logs which were joined “end to end”. It is estimated that the cost of this undertaking was approximately \$40,000.

The water system was improved and expanded in 1871 with the development of the Borough’s first utility enterprise, the Birkinbine Reservoir, which consisted of a 300,000 brick reservoir near the intersection of Reservoir and Franklin Streets (Reservoir Hill). A steam engine powered pumping station along the Conococheague Creek lifted the water from the creek into the reservoir. Over six miles of cast iron pipe was installed to transport the water to the reservoir, and then distribute it to the North Main Street area, as well as to the center of town. From these mains, smaller pipes distributed water to the populace. The water was taken from the creek with little regard to the fact that raw sewerage was being piped into the creek about a mile above the pumping station.



Dull Hill Reservoir in Guilford under Construction

In January of 1891, the C. B. Gish flour mill, at what is now called “Siloam”, was purchased. It consisted of a mill dam and the impounding area above it. An additional land purchase gave rise to the possibility of a 2 million gallon reservoir. Initially, it was expected that the mill’s wheel would force water to the new reservoir known as Horst Reservoir. The experiment was less than successful and steam driven pumps were implemented. In 1905, a Worthington steam driven pump was successfully installed with the plant producing about 1.5 million gallons per day in 1907. Unfortunately, the water from the Conococheague Creek flowed through miles of pastures and fields making it a less than an agreeable source of water. In 2005, the Siloam Dam was breached and the stream’s banks restored.



The Second Siloam Dam

In 1909, the Burgess, Mr. A.W. Zacharias, prompted the locals to work on the “water situation of the Borough”. By 1910, Town Council decided to look to the east of the Borough and develop the town’s main water source, the Conococheague Creek, in the valley above Caledonia Park, east of town in the South Mountain. This system would eventually provide the Borough with pure water from a gravity fed water system eliminating the costs of pumping water. To obtain the State Department of Health’s approval, the Borough agreed to install the first sanitary sewer system along with a sewerage treatment plant. The Borough issued a \$150,000 bond package in 1910 to construct the stream intake facilities, a 2 million gallon reservoir east of town, and a fourteen inch pipeline into town terminating at South Sixth Street.



The Original Water Intake in Caledonia Still in Use

The first water from the new source arrived on July 3, 1911 and was of sufficient purity that no chemical treatment was necessary for many years. Water hardness was measured at four parts per million, as contrasted with sixteen units per million from the same stream collected at the Siloam Dam. The elevation at the center of Chambersburg was about 975 feet below that of the intake dam providing water pressure of fifty to eighty pounds per square inch throughout the town. In later years, chlorine was utilized to treat the water for microorganisms and fluoride compounds were added to help protect the residents' teeth. In the early 1930's, a reinforced concrete dam was constructed across the Birch Run creating a storage capacity of 3.9 million gallons.



The Old Birch Run Reservoir in Caledonia State Park

In the late 1960's, the Borough decided to enlarge its water storage reserve and improve other facilities. A new dam called the Long Pine Run Dam was constructed upstream from the Birch Run Dam creating a lake with a surface of 150 acres and storing 1.8 billion gallons of water. Additionally, a new water treatment plant, with a daily flow capacity of six million gallons, was constructed. Also, a three million gallon "ground based steel water storage tank" was built at the former Birkenbine open reservoir site on Reservoir Hill. In 1967 and 1969, bond issues were floated for a total of \$8,325,000 to cover the \$7,410,850 cost of these projects as well as other items. Up until that time, that was the largest utility project ever initiated by the Borough of Chambersburg. Since that time the Borough has initiated many projects that have enhanced the quality of service to the customers of the Borough's water department. The Birch Run Dam was removed in 2004 but many parts of the original system are still in use.

The water quality of the Long Pine Run Dam and its protected watershed is amazing. While providing high quality water to its diverse customer base, the Borough's Water Department has consistently kept its rates (cost per unit) at one of the lowest levels in the region.



Long Pine Run Reservoir

Water Department Services

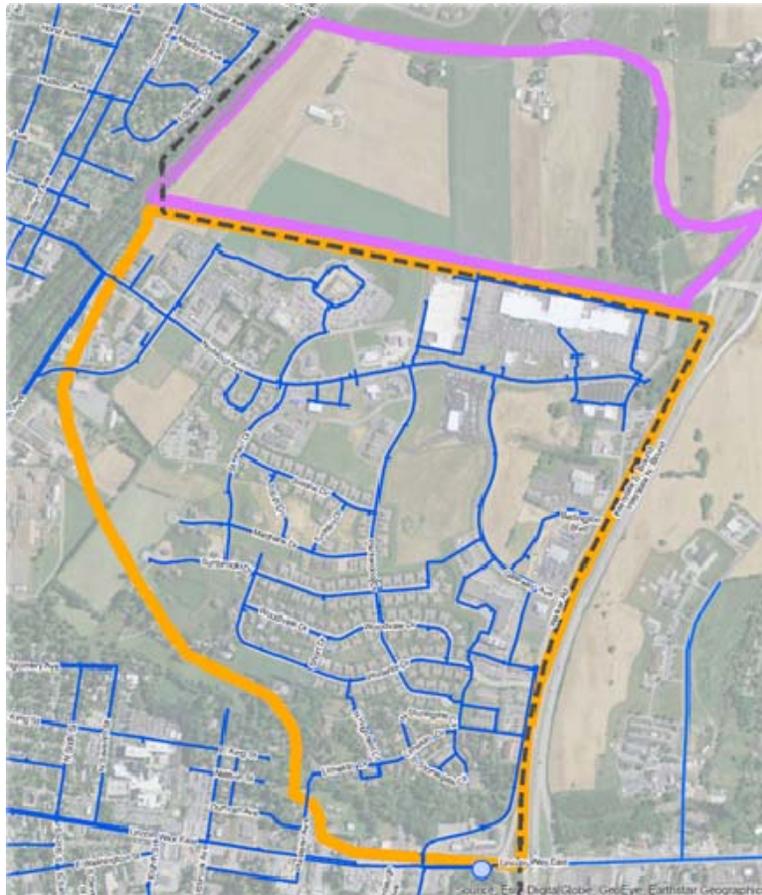
- Water supply, treatment, transmission, and distribution.
 - Treated 1.380 billion gallons of water in 2015.
- Operation and maintenance of the water production and distribution facilities.
 - 8 water main breaks repaired in 2015. The national average – 33 breaks.
 - 17 total water distribution repairs in 2015
 - 22% unaccounted water lost in the system in 2015.
- Operation of the water treatment plant laboratory.
 - Perform regulatory and control testing for the Water Treatment Plant and distribution system.
 - Perform testing for area water authorities.
- Water supply for fire protection.
 - Added 7 fire hydrants in 2015.
- Plumbing inspection and meter replacements.
 - In-house plumbing inspection is performed by Pennsylvania Municipal Code Alliance. However, exterior inspections as well as other types of in-house inspection services, such as sewer system inspections, are performed by Borough personnel.
 - Performed 105 inspections in 2015; performed 131 inspections in the first 8 months of 2016.
 - Inspected 3 water/sewer main extension projects in 2015.
 - Replaced 119 water meters in 2015.



**Julio D. Lecuona Water Treatment Plant
Greene Township
6.0 Million Gallons Per Day Capacity**

Current On-going Capital Projects

- 2016 Street Repair Project: \$175,000 per year dedicated to fixing pipes before streets are paved
- Grand Point Water District Pressure Improvements: \$660,000
 - The project supports future development in Greene Township.
 - Improves pressure between Lincoln Way and Norland Ave.
 - Creates a working pressure 40 psi minimum within the district.



Grand Point Water District (Pink)

- Borough Hall Utility Addition:
 - Design development phase completed 2015: \$156,000
 - Design and contract document phase completed in 2016: \$240,000
 - Addition bid opening: November 2, 2016

Water Meter Radio-Read

In 2017, the Water Department will continue to expand the use of Radio-Read water meters. Currently, there are 264 units installed; most of which are located east of I-81 and in the Norland Avenue area.

Water Distribution System

- 95 miles of pipe length
- 669 fire hydrants
- 2102 water valves

Water Transmission Lines

- 31 miles of pipe length
- From the raw water intake to town
- Includes raw and treated water

Storage Facilities

- Water Plant Clearwell – 2 MG
- Dull Hill Reservoir – 2 MG
- Nitterhouse Elevated Tank – 2 MG
- Birkinbine Tank – 3 MG

- 9 MG total storage
- 2 days storage capacity

Water Meter Customers

- Domestic – 7,828
- Commercial – 842
- Industrial – 19
- Municipal – 1

- Total – 8,690



Birkinbine Tank was Re-Painted in October 2015

City Hall Utility Addition

In July and September 2013, the Borough of Chambersburg Water Department took ownership of the properties adjacent to Borough Hall, 220 E Queen Street and 216 E Queen Street respectively. The acquisitions were for the purposes of planning for a potential Utility Departments' addition to Borough Hall.

In 2014, SGS Architects Engineers, Inc. of Carlisle Pennsylvania, performed a Needs Analysis where they evaluated City Hall and the Police Annex for future office space needs of the Borough. That Needs Analysis was presented in December 2014. The conclusion of the Needs Analysis was that the Borough utility departments, and more importantly the utility support departments, were clearly out of space in City Hall.

In 2015, a Building Committee of Town Council was formed who met and talked about City Hall and other potential sites or concepts for utility department office space needs. At the conclusion of that discussion, it was recommended by Staff that Town Council proceed with the design of a Utility Departments Addition to City Hall for the Queen Street side of this building. Any talk of renovating this old building would be placed on the back burner while a modern addition was placed on the east side of the existing building and interconnected.

In the summer of 2015, the lot on the east of City Hall was cleared of the homes and their foundations.

SGS Architects Engineers, Inc. of Carlisle, PA presented a project scope to develop a design for the efficient usage of this adjacent property. On June 8, 2015, Town Council approved undertaking the design stage to evaluate the utility departments of the Borough in terms of public access, safety, office needs, technology, parking, etc. The SGS team met and worked with the Building Committee of Town Council to insure that their vision for the addition was being met.

On November 23, 2015, the SGS team presented their recommended vision for a Utility Departments Addition for City Hall. Deliverables for the project included the full design of the addition, layout and construction cost estimate of \$9.25 million.

On February 8, 2016 Council authorized staff to enter into phase 2 of the existing Professional Services Agreement with SGS Architects Engineers for the purpose of developing engineering, blueprints, and bid specifications for the Utility Departments' Addition to City Hall.

The bids for the project were opened by SGS on Wednesday, November 2, 2016. There were five bidders and the bids will be evaluated for compliance and awarded in early 2017. It is anticipated that total construction cost of the project will be \$9.125 million, including furnishings and a security system, which were not included in the construction bids.

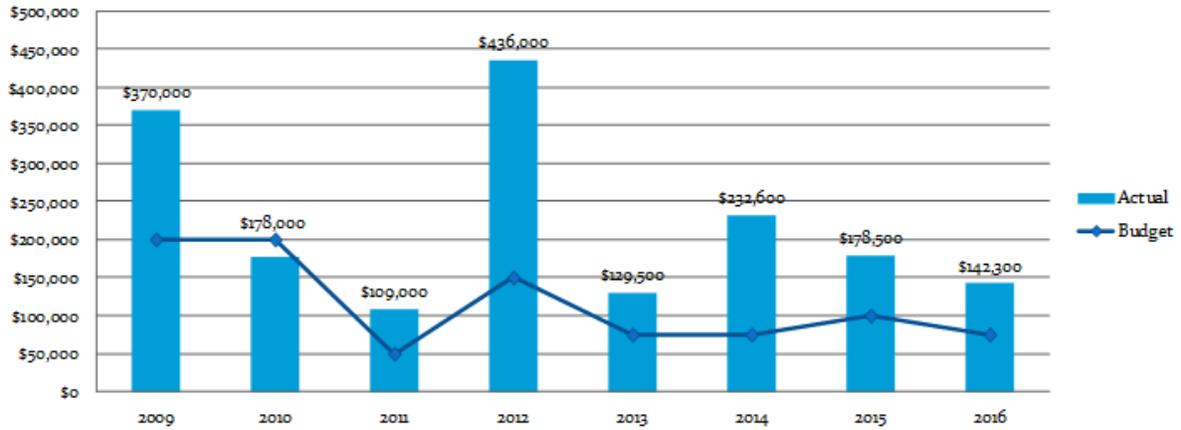


Recommended 2017 Capital Projects

- 2017 Street Repair Project: \$175,000 per year dedicated to fixing pipes before streets are paved
- Grand Point Water District pressure improvements: \$660,000
 - Creation of a separate pressure zone to support infrastructure grown in the area north of Norland Avenue.
- Nitterhouse Tank mixing equipment: \$30,000
- Distribution system leak detection loggers and flow meters: \$50,000
- Water meter replacements/Radio-Read installation: \$50,000
 - Continued replacement of aging water meters with 20-year guarantee units.
 - Addition of more Radio-Read units that can be read via secure radio frequency.
- WTP second clearwell: \$200,000
 - Design phase of a multi-year project
- Replacement of three WTP SCADA computers: \$20,000
- Long Pine Run Dam tower improvements: \$30,000
 - Includes the addition of lighting, measurement, and communication equipment
- City Hall Utility Departments' Addition
 - Construction to begin in March 2017

New Water Connections

Water Capital Charges



- Projects: 31 (2015)
27 (2016)



A Major Water Main Break Closes in Lincoln Way in May 2016



Water Department

The Chambersburg Water Department provides high quality drinking water, fire protection flow, and public sewer service for Borough customers, including the Bear Valley Authority, through cost effective operation and maintenance of our infrastructure while meeting the ever-changing challenges of continual growth and environmental protection.

Department Head: Lance Anderson, PE

	2015 Actual	2016 Budget	2017 Budget
Revenue	\$3,085,348	\$3,126,465	\$2,947,808
Expenses	\$2,801,726	\$3,126,465	\$2,947,808
Excess (Deficit)	\$283,622 Surplus	- Balanced -	- Balanced -

The Chambersburg Water Department is in a strong operating position. The Department is currently debt free and has not raised their retail water rates since 2001 (fifteen years). The average water bill remains one of the lowest in Franklin County and the fiscal condition of the fund is stable.

Previous water rate increases – 1991 & 2001

- Average Borough monthly residential rate: \$15.00
- Average GHD Survey monthly residential rate: \$32.00 (35 participants)

In 2016, the Water Department has reserves of over \$4,600,000 in capital funds for future capital projects. In addition, the Water Department also has reserves of \$3,000,000 in operational funds. In 2017, no additional water rate increase is needed, but increased operational costs will likely necessitate an increase by 2018.

The system is mostly exempt from Pennsylvania Public Utilities Commission regulations (except our Guilford Township customers), although staff's efforts on a cooperative initiative with the Guilford Water Authority have failed to improve that situation.

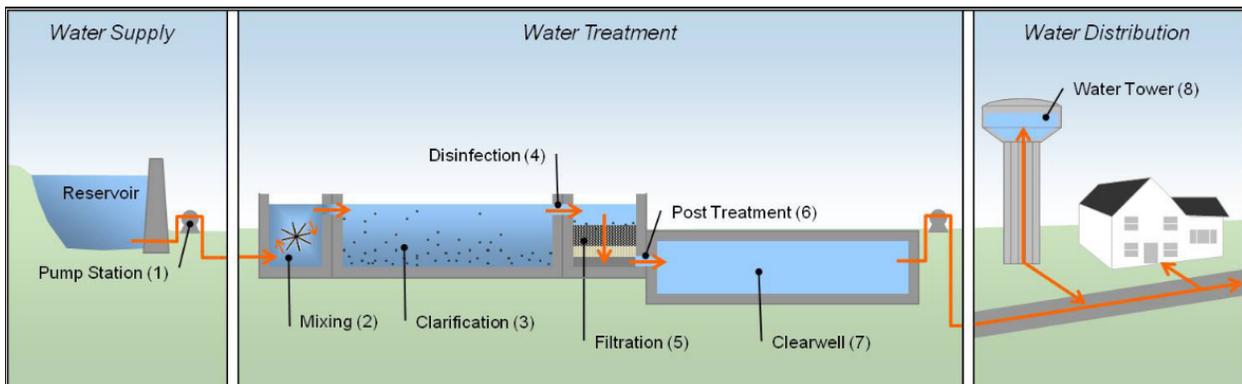
Currently, staff is working on a cooperative initiative with Greene Township to serve the area north of Norland Avenue in Greene Township. This area would ultimately be served through the Borough's Authority.

We maintain an excellent relationship with the Bear Valley Joint Municipal Authority, our largest water customer.

There are a number of pressing issues facing the water system. Specifically, the Julio D. Lecuona Water Treatment Plant is occasionally plagued by shut-downs due to turbidity and color issues with the raw water coming into the plant. This so-called Iced Tea issue still needs to be addressed. However, in 2013 the Borough switched consulting engineers and our team has continued to review the entire water system and improved the overall operation of the Water Treatment Plant. Second, the Borough continues to make significant maintenance upgrades at the Long Pine Reservoir, the Raw Water Intake, the Water Treatment Plant Filters, and throughout the distribution system. This process will continue into 2017 with the design phase for the addition of a second two million gallon clearwell at the Water Treatment Plan.

Major items for 2017:

- Staff is recommending no water retail rate change, no increase again in 2017.
- The proposed budget includes \$1,040,000 in capital improvements to the Water Department infrastructure; including:
 - Long Pine Spillway Study to determine adequate capacity (continuation from 2016)
 - Grand Point Water District pressure improvements (continuation from 2016)
 - Nitterhouse Tank mixing improvements
 - Distribution system leak detection loggers and flow meters
 - 2 million gallon clearwell design
 - Replacement of three WTP SCADA computers
 - Long Pine Run Dam tower improvements



Nitterhouse Tank

Largest Customers (in units sold)

Customer	Units Used	Net Amount	Daily Avg. (Gallons)
Bear Valley Authority	4,766,152	\$875,100.15	976,735
Ventura Foods LLC	699,701	\$73,803.04	143,391
Chambersburg Hospital	470,151	\$65,248.89	96,349
Knouse Foods Co-op Inc	388,058	\$39,603.09	79,525
Menno Haven Inc	241,540	\$29,364.36	49,499
Menno Haven Penn Hall	105,900	\$27,376.63	21,702
Crider's Water Service	66,048	\$22,456.32	13,535
TB Woods Inc	175,950	\$19,907.64	36,058
Barclay Village	71,960	\$15,922.94	14,747
Chambersburg High School	43,062	\$12,103.56	8,825
Chambersburg Cold Storage	46,373	\$10,611.84	9,503
Wilson College	39,283	\$10,543.72	8,050

Payment In Lieu Of Gross Receipts Taxes (PILOT)

In years past, the Borough Water Department made a tax-like contribution to the General Government operations of the Borough. The Water Department paid \$72,000 per year through 2013 but in anticipation of a possible change in State law that would prohibit water utilities from making payments for general government operations, we ceased this practice.



Iced Tea – Discolored Water in the Birch Run

11/7/2016



Sewer Department Budget

As Proposed for 2017 by Jeffrey Stonehill, Borough Manager



The Borough of Chambersburg

Sewer Department Budget

As Proposed for 2017

Background and History:

In 1910-1911, the Borough of Chambersburg decided to obtain its water supply from the State Forest at Caledonia. It was necessary to obtain a permit from the Pennsylvania State Health Department. When the State Health Department issued a permit for the right to the water of Birch Run, it also provided that, for this right, the Borough of Chambersburg was to install “a Sanitary Sewerage System with a proper Disposal Plant of a capacity sufficient to take care of the town for twenty years to come.”

The same Bond Issue, providing funds for the construction of the water supply line between Caledonia and Chambersburg, provided also for sufficient bonds in the amount of \$65,000 to put in a Sanitary Sewerage System in Chambersburg (Note: The Treasurer’s office is the proud possessor of bond number 25, in the amount of \$500, an “Improvement Bond of 1910” Series A which carried a 4 ½% interest rate. This note matured in 1915. The current Borough’s logo is adapted from a depiction of City Hall found on that bond.). This system was constructed and put into service August 1, 1912, and portions of this initial system are still in service today.

From the time of the initial construction, continuous improvements have been made with major improvements being made in 1939, 1959, 1978, and 1997 to the treatment facility. Following is a list of major facility milestones:

- 1938 Upgrade: Upgrades were completed in October 1939 at a cost of \$217,715.41 (45% was funded through a grant). Plant capacity was rated at 2 mgd.
- 1948: A WWTP laboratory was established and the plant processes have been monitored for efficient operation ever since. The current laboratory facility is accredited by the PA DEP.
- 1957 Upgrade: Upgrades were completed in 1959 at a cost of \$990,330.13.
- 1978 Upgrade: The J. Hase Mowrey Regional Wastewater Treatment Facility was dedicated on November 16, 1980. The facility was upgraded to a capacity of 5.2 mgd at a cost of \$9.045M (75% was funded through a grant)
- 1997 Upgrade: Upgrades were completed in July 1999 at a cost of \$18.5M. Plant capacity was rated at 6.8 mgd with a maximum capacity of 17.0 mgd.
- 2012-2017 Upgrade: project is nearing completion.

Additionally, the treatment plant has evolved into a regional facility providing sewage treatment for our Municipal partners in Greene, Guilford, and Hamilton Townships. Hamilton Township initially provided connections in 1972. Through an expansion of the conveyance system in the 1970’s, the remaining townships ultimately connected to the system in 1980.

The Current Sanitary Sewer System

- 85 miles of pipe length
- 2,262 manholes
- 4 interceptors (Falling Spring, East Conococheague, West Conococheague, and South End)
- 4 Borough owned and maintained sewer meter stations (7 township owned and maintained)
- 4 Borough pump stations (Pennsylvania Ave. SPS, Hollywell Ave. SPS, Chambers 5 SPS, Progress Village SPS)

J. Hase Mowrey Regional Wastewater Treatment Facility

2012:



2015



2012 – 2017 Treatment Plant Upgrades

The Largest Public Works Project in the History of the Borough of Chambersburg

Chambersburg's 6.8 mgd, J. Hase Mowrey Regional Wastewater Treatment Plant serves Chambersburg, Greene Township, Guilford Township, Hamilton Township and indirectly part of Letterkenny Township. In addition to the Commonwealth's 2008 Chesapeake Bay Tributary Strategy, which forced a cap on the amount of nitrogen and phosphorus discharged from the facility, Chambersburg is also facing the demand of building additional capacity (a 60% increase) to meet projected twenty-year build out in the service region, as required by DEP's Act 537 Plan Study. These two mandates initially resulted in proposed facility renovations with an estimated price tag of over \$50 million.

The existing treatment facilities at the Chambersburg plant are not able to meet the pending nutrient discharge limits. Therefore, upgrades to the facility will be required to meet the nitrogen and phosphorus caps. In addition to meeting these caps, an expansion from 6.8 mgd to 11.28 mgd is needed to accommodate the anticipated growth within the service area. The facilities must be able to convey a total influent peak flow of 33.5 mgd based upon analysis of the Borough's collection and conveyance system. The extensive scope includes upgrades to all facets of the treatment process with an emphasis on being cost effective, energy efficient, and environmentally sensitive. Key project components include:

- A new headworks and influent pump station will replace the existing deficient facilities. The new facility is sized for 33.5 mgd of influent flow, and all internal conveyance infrastructures must be capable of passing flows that are associated with this peak as well.
- An improved biological treatment process will provide nutrient (nitrogen and phosphorus) removal in order to meet discharge limits that have been established by the PA DEP. Compliance with these limits were required beginning in October 2012. In order to meet these requirements during the construction period, the Borough will purchase nutrient credits on the open market from other treatment facilities on an interim basis through 2016.
- A new biosolids treatment process resulting in an improved final product quality which can be utilized for beneficial reuse in land application. Land application of biosolids has become one of the most cost-efficient biosolids management strategies available to treatment facilities.
- An expanded UV disinfection system will be sized to meet a peak flow of 33.5 mgd. The new UV system was installed in spring 2012.

The upgrades are now estimated to cost \$40 million. Construction began in 2012 and is expected to be complete in June 2017. This will make the project the largest public works project in Chambersburg's history. Initially, prior to design, projected costs were estimated to over \$50 million with a reduced scope of construction. Costs are shared with the Municipal Partners as defined in the Intermunicipal Agreement which was executed on September 13, 2010. While running a little behind and slightly over budget, the project is still in good shape.

Chambersburg's J. Hase Mowrey Regional Wastewater Treatment Plant has been a symbol of intermunicipal cooperation for 40 years. The current upgrades will allow the facility to support the Chambersburg area for decades to come.



New Influent Pump Station (Headworks)



New Headworks In Operation 2016



New Biosolids Treatment Facilities In 2016



New Tanks in 2016

Sewer Department Services

- Regional wastewater conveyance and treatment.
 - Treated 2,295,000,000 gallons of sewage in 2015.
 - Average daily wastewater treatment plant flow: 6.29 MGD.
 - 6.68% decrease from 2014.
- Sewer customers
 - Residential 7,686
 - Commercial 802
 - Industrial 25
 - Municipal 3
- Operation and maintenance of the collection and treatment facilities.
 - 401 wastewater maintenance repairs in 2015.
 - 12,820 feet of mains televised in 2015 with 724 defects found.
- Operation of the sewer treatment plant laboratory.
 - Perform regulatory and control testing for the WWTP.
- Sewer Inspections
 - Performed 105 inspections in 2015; 131 inspections during the first 8 months of 2016.

Capital Investments

- WWTP Upgrades: \$39,852,500 (2012-2017)
 - Capacity Expansion to 11.28 MGD
 - Nutrient removal to meet Chesapeake Bay Tributary Strategy
- Collection/Conveyance Act 537 Plan: \$2,940,000 construction (2013-2017)
 - Includes upgrades to the Plant approach interceptor (completed in 2016) and East Conococheague Interceptor. The projects eliminate capacity restrictions and sources of inflow (rainwater) and infiltration (groundwater).
 - Continued investigation of inflow and infiltration (I&I) throughout the sewer system
- Chambers-5 Pump Station: \$160,000 (2016-2017)
 - Received \$265,814 PennWorks Grant in November 2013
 - \$54,000 local matching funds required
 - Upgrades that are required to support demand from new and established industries in the Chambers-5 Business Park.
- Contribution to street overlay projects on streets disturbed by sewer work: \$175,000



Collection/Conveyance Act 537 Plan

- Pennsylvania Department of Environmental Protection approved the plan in September 2012
- Plan includes upgrades to the conveyance system and continued investigation to remove sources of inflow and infiltration (I&I)
- DEP lifted our Consent Order and Agreement on August 13, 2014, thereby freeing resources of the Borough to concentrate on development and system improvements
- The Plant Approach Interceptor Project was completed in 2016 at a construction cost of \$940,000.
- The East Conococheague Interceptor Project is scheduled to be bid in 2017, and has an estimated construction cost of \$2,000,000.
- Overall project schedule: 2013 - 2017

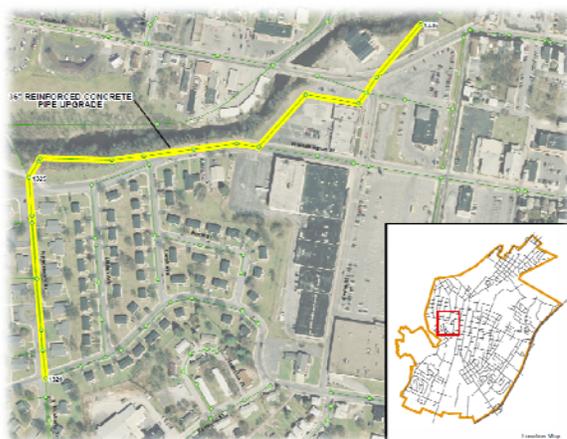
Plant Approach Interceptor Project

- Project cost: \$940,000; Borough share: \$321,000.
- Current status: Completed in February 2016.
- Included the installation of 1,240 linear feet of 48" interceptor.



East Conococheague Interceptor Project

- Estimated cost: \$2,000,000; Borough share: 54%
- Current Status: Project to be design complete and awaiting permits
- Bidding planned for early 2017 with 2017 construction
- Includes the installation of 2,600 linear feet of 36" interceptor.



The Sewer Department operates the Wastewater Treatment Plant under a National Pollutant Discharge Elimination System (NPDES) Permit. The Permit is issued by Pennsylvania Department of Environmental Protection on behalf of the United States Environmental Protection Agency. The current permit expired in 2013 and due to the DEP - EPA impasse in recent years, a new permit was on hold. This hold has been released and in 2017, the WWTP will be operating under a new NPDES permit. This permit contains expanded regulatory testing requirements beyond the staffing levels currently available at the plant and plant laboratory. The Sewer Department budget for 2017 includes the addition of a Laboratory Technician/Operator position to meet these new regulatory requirements.

Laboratory functions, as required by the NPDES permit, will be increasing for sewer, water, and storm sewer functions over the next few years.

The NPDES Permit System

*National Pollution Discharge Elimination System

Point Source Pollution is regulated by NPDES permits.

Point source polluters cannot **discharge pollution** into the **navigable waters of the US** without obtaining a permit that requires them to use **economically feasible control technologies** to reduce & treat their effluents.

*These are:

technology-based standards



Sewer Department



The Chambersburg Sewer Department is committed to its fundamental objective of providing the highest quality municipal wastewater service for its residential, commercial and industrial users at a reasonable price; and to meet that objective, the Sewer Department will adhere to the following principles:

- Providing effective collection and treatment of wastewater which complies with all state and federal regulations
- Working with the regional community to plan for future capacity to ensure the long-term success, public health and environmental quality of the area
- Providing prompt and effective customer service
- Staffing the organization with qualified professionals
- Striving for excellence with each employee participating as a team member to continually improve the performance of the organization

Department Head: Lance Anderson, PE

	2015 Actual	2016 Budget	2017 Budget
Revenue	\$5,615,423	\$5,629,400	\$5,629,400
Expenses	\$5,135,522	\$5,629,400	\$5,629,400
Excess (Deficit)	\$479,901 Surplus	- Balanced -	- Balanced -

In 2017, the Chambersburg Sewer Department is proposing to maintain a path of strong operating margins. Having raised rates in 2009, 2010, and 2012, the average sewer bill remains one of the lowest in Franklin County and the fiscal condition of the fund is stable. As of 2016, the Sewer Operating Fund has reserves of \$3,900,000 and the Borough is equipped for our capital obligations going forward.

As of now, no additional rate increase is contemplated.

The cause of the last increase, 16% in December 2012, was the capital expenses related to the Treatment Plant Upgrade Project. Also, the 2011 Second Consent Order and Agreement with PA DEP has now been fully satisfied and was lifted in 2014. However, the Borough has permanently accepted the challenge to continue to investigate and determine sources of inflow (rainwater) and infiltration (groundwater) entering into the sewer system. These expenses also contributed to that rate increase.

In 2013, the Borough's J. Hase Mowrey Regional Wastewater Treatment Facility project was bid out for construction. Sealed Bids were received by the Borough on Tuesday, May 14, 2013, at which time they were publically opened and read. There were nine (9) bid submissions. Michael F. Ronca & Sons, Inc. ("Ronca") of Bethlehem, Pennsylvania was the low bidder at \$ 30,761,000. With necessary change orders and technical and administrative expenses, the overall project is now at \$39,852,500. This project has had a significant economic impact on the Chambersburg economy:

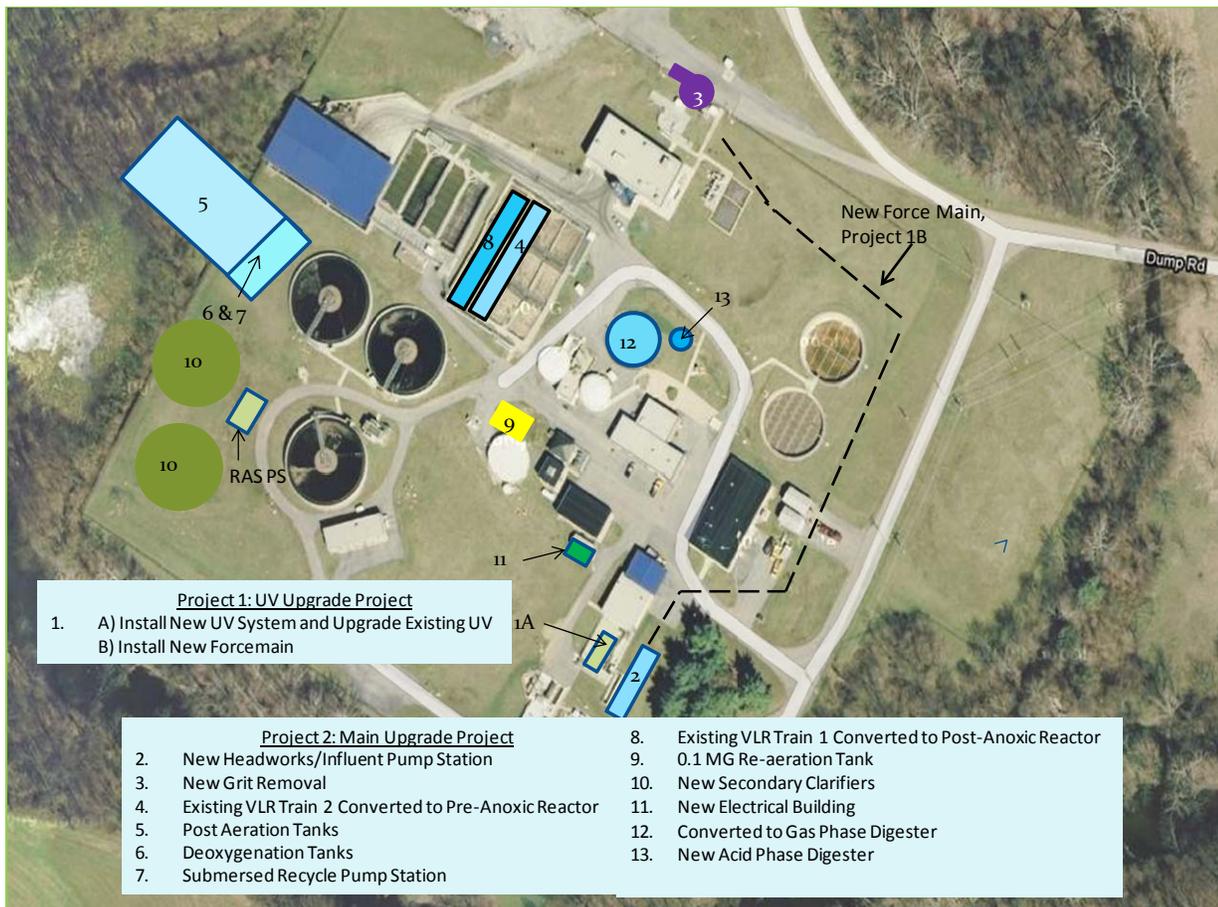
- Project superintendent and pipe foreman both reside within 15 miles of the WWTP.
- Contractor workforce is primarily be from Franklin, Adams, and Cumberland Counties.

- Approximately 17,700 tons of aggregates were supplied locally for an approximate value of **\$195,000**.
- Approximately 10,800 cubic yards of concrete were supplied locally for an approximate value of **\$1.3 million**.
- Land clearing was performed by a local contractor at an approximate value of **\$13,500**.
- Erosion and Sediment controls are being performed by a local contractor at an approximate value of **\$35,000**.
- Off road diesel fuel continues to be purchased locally for the project.

Current Status

- Approximately \$3,00,000 remain to be expended on the project in 2017.
- Facility piping modifications are complete.
- Chemical feed systems are complete with Alum feed for phosphorus removal currently operational.
- Influent screening and influent pump station are complete and currently operational.
- Final clarifiers and RAS pump station are complete and currently operational.
- Post aeration and re-aeration facilities are complete with the re-aeration facility currently operational.
- VLR modifications are currently in progress.

Project Scope





New Re-Aeration, Clarifiers, and RAS Pumping Station in Operation 2016



VLR Modifications in Progress 2016

WWTP Construction Cost Estimates

	As of 9/12/2016
UV Project (complete)	\$1,003,000
Force Main Project (complete)	\$435,000
VFD Project (complete)	\$68,000
Headworks/Influent Pump Station Main Project (Process Upgrades)	\$30,717,500
Change Orders	\$3,519,000
Technical/Administrative Expenses	\$6,110,000*
Associated H ₂ O Grants	(\$2,000,000)
Total	\$39,852,500

*Engineering costs include design, construction management, and construction inspection services under current contracts with AECOM and ARRO.

Summary of Overall Cost Reduction

Items	Previous (Prior to 2010)	Today	Change in Cost	Cost Reduction Percent
WWTP Expansion	\$39,144,800	\$39,852,500	\$12,840,988	24.4%
CPI Adjustment (2% a year for 3 years)	\$2,348,688			
New Headworks	\$10,000,000			
UV System Upgrade	\$1,200,000			
Nutrient Credits	* \$2,724,000	\$734,635	\$1,989,365	73.0%
Interceptors	\$27,507,600	\$2,940,000	\$24,567,000	89.3%
TOTAL	\$82,925,088	\$43,527,135	\$39,397,953	47.5%

Note: All above based upon estimated costs

* At \$5 per Nitrogen credit and \$9 per Phosphorus credit for 3 years

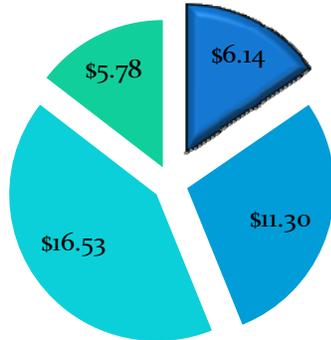
It is currently estimated that the total construction cost for the project will be \$39,852,500 with Chambersburg responsible for 15.4% or \$6,137,285.

Wastewater Treatment Plant Project

- \$39,852,500 capital cost estimate to date; \$6,140,000 Borough share
- Reduction from \$50 - \$55 million estimate prior to 2010.
- Financed through a portion of an \$8 million line of credit with F&M Trust.

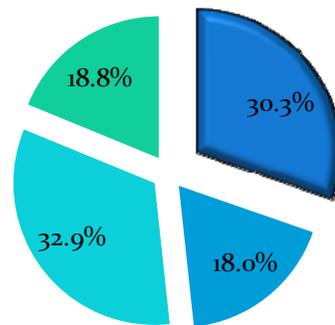
Construction Costs
(In Millions of \$)

■ Chambersburg ■ Hamilton
■ Greene ■ Guilford



Approximate O&M Costs

■ Chambersburg ■ Hamilton
■ Greene ■ Guilford



The Treatment Plant's current design capacity of 6.8 MGD (an annual average flow (AAF) capacity) is allocated among the Borough and the three contributing Townships as follows:

- Borough of Chambersburg 40.14% or 2.73 mgd AAF
- Greene Township 27.06% or 1.84 mgd AAF
- Guilford Township 21.62% or 1.47 mgd AAF
- Hamilton Township 11.18% or 0.76 mgd AAF

After the Project is completed, the sewer capacity allocations of 11.28 MGD based on annual average flow will be adjusted as follows and subject to the provisions of the Intermunicipal Agreement:

- Borough of Chambersburg 30.32% or 3.42 mgd AAF
- Greene Township 32.89% or 3.71 mgd AAF
- Guilford Township 18.79% or 2.12 mgd AAF
- Hamilton Township 18.00% or 2.03 mgd AAF

Sewer Rates

Staff is proposing no rate increase; the last rate increase was in December 2012; the average residential sewer bill is \$29.50 per month. The existing rates are sufficient to provide for the operation and maintenance of the system and capital investment for projects already underway or conceived.

It is likely that future capital improvements may require future rate increases.

This will be welcome news to the largest of our industrial customers:

Industrial Pre Treatment Customers (in ADD order)

	Avg Daily Discharge
Knouse Foods	77,200 gallons
Ventura Foods	76,400 gallons
IESI Blue Ridge Landfill	28,600 gallons
Martin's Famous Pastry Shoppe	19,200 gallons
Edge Rubber	12,000 gallons (currently no discharge)
Nursery Supplies	2,500 gallons
B Wise Trailers	2,200 gallons
Wipro Enterprises	<1,000 gallons (currently no discharge)

