

# **USER RATE ANALYSIS**

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**CHADDS FORD SEWER AUTHORITY  
CHADDS FORD TOWNSHIP  
DELAWARE COUNTY, PENNSYLVANIA**

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## DEFINITIONS AND ABBREVIATIONS

Administrative Expenses - Costs for engineering, legal, and accounting services as well as Authority staffing and office supplies

Capital Reserve - Money set aside to pay for required repairs and upgrades to the Sewer Collection and Conveyance System

Collection Rate -  $\text{Collection Revenue} / \text{Total Operating Revenue}$

Collection Revenue - The actual amount of money collected from user rates in a given year

Consumer Price Index (CPI) - A measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. Used as a measure of inflation.

Conveyance Systems - The pump stations, transmission systems, and treatment plants required to transport and treat flow

DELCORA - Delaware County Regional Water Quality Control Authority

Effluent - The treated flow from a waste water treatment plant

Plant Operations Expenses - Costs associated with running and maintaining a treatment plant. Includes: chemicals, sludge handling, utilities, lab fees, and Operator hours

Sewer Collection System - The underground network of pipes used to transport flow from users to treatment and discharge

Tapping Fee – The amount that must be paid for each unit of capacity to connect to the public sewer system

Total Operating Expenses - A combination of the plant operation expenses, administrative expenses, and depreciation of assets

Total Operating Revenue - The sum of User Rates and other one-time fees

User Rates - The anticipated yearly revenue from quarterly user service fees

WWTP - Waste Water Treatment Plant

At the request of the Chadds Ford Township Sewer Authority, we have evaluated the current user rates.

## **INTRODUCTION**

A sanitary sewer collection system consists of all the elements required to convey and treat the flow. These elements typically include pump stations, conveyance systems, and treatment plants. Collection systems require regular maintenance, observation, and repair to assure they are in proper working condition.

A collection system is intended to be sustained by the users that utilize it. All the costs related to the maintenance and upgrades required to keep the collection system to code and in proper working condition are therefore passed down to the users. These costs are used to determine "User Rates". User rates can vary from user to user. While there are multiple reasons for these rate variations the most common are attributed to use (i.e. Industrial, Commercial, Residential) and location (from Township-A compared to Township-B). The respective collection system in which a user resides defines where the finances accrued from their rates will be used.

As discussed a collection system often needs maintenance and upgrades. Occasionally, these upgrades require significant capital. Authorities often keep a capital reserve for these instances. Some Authorities prefer to keep their capital reserves to a minimum in order to keep their user rates down. Should the capital reserve be exhausted by the cost of the needed maintenance or upgrade item, the Authority often takes out a loan or applies for a grant.

Authorities also charge tapping fees to users connecting to the system. Tapping fees help offset the cost of previously constructed and installed infrastructure by the Authority. The profit collected from tapping fees is negligible and is typically put into much needed system improvements or the capital reserve.

Money from loans and fees (such as tapping) are accrued only once and therefore has been left out of this rate analysis. Again, a collection system is intended to be sustained by the users that utilize it. User Rates are the only reliable source of continuous funding to maintain the collection system.

## **CHADDS FORD COLLECTION SYSTEM**

There are two municipally owned sewage treatment plants (WWTP's) in Chadds Ford Township, Delaware County. The Ridings WWTP is located at the intersection of Ridge Road and Ridings Boulevard. The Turners Mill WWTP is located adjacent to the Township Building at the intersection of Baltimore Pike (Route 1) and Ring Road.

There are currently no tributary municipalities that send sewage to either of the wastewater treatment facilities in the Township. However, there are three private WWTP's in the Township. The Springhill Farm WWTP (NPDES Permit No. PA0052230) serves the Springhill Farms Development and the shopping center at Wilmington-West Chester Pike (Route 202) and Ridge Road in the south east corner of the Township. The Knights Bridge WWTP

(NPDES Permit No. PA0052663) serves properties owned by the Henderson Group at the intersection of Routes 202 and Route 1. Lastly there is the Brandywine River Hotel WWTP that serves the hotel and disposes of the effluent in subsurface disposal beds.

Operation and maintenance responsibilities for the Ridings and Turners Mill WWTPs as well as the municipally owned sewage pump stations are provided on a contract basis by the Delaware County Regional Water Quality Control Authority (DELCORA). Management and administrative duties are carried out by the Board of Directors of the Chadds Ford Township Sewer Authority, the Authority Manager, and an administrative manager.

Recently the Authority acquired one privately owned pump station from the Estates at Chadds Ford. This is the only Authority owned pump stations in the Turners Mill collection system. However, there is one privately owned pump station that is maintained and operated by its owner – the Painters Crossing Pump Station.

The Ridings Collection System includes three (3) sewage pumping stations and a gravity sewer system. The pumping stations are continuously monitored and regularly inspected and maintained by DELCORA.

## ANALYSIS

Data for the User Rate analysis was collected from the 2010, 2011, and 2012\* Chadds Ford Township Sewer Authority Annual Financial Report and data provided by the Authority. A summary of values obtained from these reports are as follows:

	2010	2011	2012*
<b>Total Operating Revenue:</b>	\$604,751	\$614,743	\$622,880
<b>User Rates:</b>	\$601,520	\$611,676	\$618,289
<b>Collection Revenue:</b>	\$400,689	\$552,482	\$552,010
<b>Collection Rate:</b>	67%	90%	89%
<b>Total Operating Expenses:</b>	\$523,220	\$562,163	\$585,082

\* 2012 data from "Accrual Basis: Profit & Loss Budget vs. Actual – January through December 2012"

This data can also be seen in Graph 1 - Operating Costs vs. Income. Note that almost 100% of the Total Operating Revenue for each year is from User Rates. Using this data, the Operating Revenue and Operating Expenses were forecasted. This forecast shows that the rising Operating Expenses will eventually overtake the Operating Revenue.

The total operating expenses are made up of Plant Operation and Administrative expenses. A summary of these values for 2010, 2011, and 2012 are as follows:

	2010	2011	2012*
<b>Plant Operation:</b>	\$271,649	\$268,198	\$266,725
<b>Administrative Expenses:</b>	<u>\$129,213</u>	<u>\$157,420</u>	<u>\$167,625</u>
<b>Operating Expenses:</b>	\$400,862	\$425,618	\$434,350

\* 2012 data from "Accrual Basis: Profit & Loss Budget vs. Actual – January through December 2012"

Plant Operation includes the required chemicals, sludge handling, utility costs, lab fees, and Operator hours required to maintain and run the plant. Also included in the Plant Operation budget are costs for non-major repair items. These values may fluctuate year to year but can be expected to remain constant unless unforeseen major replacement or repairs are encountered.

Administrative Expenses include all of the executive costs incurred by the Authority. Included in this category are professional services such as engineering, legal counsel, and accounting as well as Authority staffing, supplies, and insurance. The rise in administrative expenses from 2010 to 2011 can be attributed to salary adjustments and staffing for the Authority. In general these costs will fluctuate but continue to trend upward.

### CONSUMER PRICE INDEX

The Consumer Price Index (CPI) is defined by the Bureau of Labor Statistics as "a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services." The CPI is a statistical estimate constructed using the prices of a sample of representative items whose prices are collected periodically. The annual percentage change in a CPI is used as a measure of inflation. A CPI can be used to index (i.e., adjust for the effect of inflation) the real value of wages and salaries, for regulating prices, and for deflating monetary magnitudes to show changes in real values. For the purposes of this study, the 2010 CPI index for all urban consumers was used as the baseline to determine the real values of the revenues and expenditures for 2011 and 2012. A summary of values are as follows:

	2010	2011	2012*
<b>Total Operating Revenue:</b>	\$604,751	\$614,743	\$622,880
<b>CPI Index**:</b>	227.715	233.809	236.756
<b>CPI Conversion Factor:</b>	1.00	0.974	0.962
<b>Operating Revenue in 2010 \$:</b>	\$604,751	\$598,760	\$599,211
<b>Operating Expenses:</b>	\$400,862	\$425,618	\$434,350
<b>Operating Expenses in 2010 \$:</b>	\$400,862	\$414,552	\$417,845
<b>Collection Revenue:</b>	\$400,689	\$552,482	\$552,010

\* 2012 data from "Accrual Basis: Profit & Loss Budget vs. Actual – January through December 2012"

\*\* See Attached data from the US Department of Labor Bureau of Labor Statistics

**DEPRECIATION**

Depreciation captures the loss of value in the system for the Authority's capital assets. The capital assets depreciated include the sewer lines, plant capacity, plant facilities, pumping equipment and the Turner's Mill Plant. The depreciation defines an anticipated replacement cost of the capital asset based on the original value, the years of service, and expected life span. The total operating expenses for the Authority include plant operation, administrative expenses and depreciation.

Operating expenses will continue to climb as the system begins to age and items such as utility and equipment costs increase. The Township has experienced limited growth in the area. Increased growth rates within the Township served areas have the potential to alleviate the rise in operational costs.

**RECOMMENDATION**

Based on the review of the Authority's revenues and expenditures, the current user rates are suitable to maintain the system and should not be changed.

The Authority treats the customers on a unitary rate structure for residential rates. We recommend maintaining the unitary residential rate structure.

However, if the Authority continues to experience increasing operational expenses along with the continued aging of the system and its components, further evaluation of the user rates may be necessary. It is recommended that the Authority review and evaluate revenues, expenditures, and user rates annually to determine if adjustments may be necessary.