



## **Sewer Rate Study**

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**November 2020**





# SEWER RATE STUDY

## City of Sandwich WWTF

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## Abbreviations

- 1 CIP: Capital Improvement Plan
- 2 CMAP: Chicago Metropolitan Agency for Planning
- 3 CMOM: Capacity, Management, Operations and Maintenance
- 4 DAF: Design Average Flow
- 5 DIP: Ductile Iron Pipe
- 6 DMF: Design Maximum Flow
- 7 FY: Fiscal Year
- 8 GPD: Gallons per Day
- 9 GPCD: Gallons per Capita per Day
- 10 IEPA: Illinois Environmental Protection Agency
- 11 I/I: Infiltration and Inflow
- 12 MGD: Millions of Gallons per Day
- 13 NPDES: National Pollutant Discharge Elimination System
- 14 O&M: Operations and Maintenance
- 15 P: Phosphorus
- 16 PE: Population Equivalents
- 17 PHF: Peak Hourly Flow
- 18 PVC: Polyvinyl Chloride
- 19 RCP: Reinforced Concrete Pipe
- 20 SRF: State Revolving Fund
- 21 USEPA: United States Environmental Protection Agency
- 22 VCP: Vitrified Clay Pipe
- 23 WWTF: Wastewater Treatment Facility



## Background

The City of Sandwich is approximately 60 miles west of Chicago. The City's current corporate limits lie within portions of DeKalb, Kendall, and LaSalle counties in the state of Illinois. The City's 2020 population was estimated to be 7,421 in approximately 2,724<sup>1</sup> households. The community has a diverse economy based on business, industry, and farming. The total land area within the City's current corporate limits is approximately 4.75 sq miles of which 4.73 sq miles is land and 0.02 sq miles is covered by water.<sup>2</sup>

The City has experienced moderate growth for the past several decades. During this timeframe, the City's Sewer System was expanded to accommodate this growth. Currently serving approximately 7,500 residents, and a moderate commercial/industrial base, the City of Sandwich must continually invest in their existing aging infrastructure to preserve their thriving community and allow for opportunities of future growth. The City subsequently contracted with Engineering Enterprises, Inc. to review their historical capital improvement plan, identify any deficiencies in their current planning, prepare a revised capital improvement plan based on their findings, and identify a sewer rate structure to support the proposed capital improvement plan for the sanitary system.

An inventory of the sanitary collection systems was first conducted. Exhibit A provides a general overview of the collection system, which is divided into 13 subbasins. Each of these subbasins is tributary to the City's WWTF via a network of gravity mains and various lift stations and associated force mains. Exhibit A identifies each of the subbasins, as well as pipe diameters, lift station and force main locations, and the WWTF location. The City's sanitary sewer system consists of a network of gravity sewer and force mains ranging in size from 6" to 36" in diameter. Older mains were often constructed of Vitrified Clay Pipe (VCP), but modern sanitary sewers often use polyvinyl chloride (PVC) pipe or occasionally reinforced concrete pipe (RCP). Force mains may be constructed of either PVC or ductile iron pipe (DIP).

The City operates one wastewater treatment facility (WWTF) with a design average flow (DAF) of 1.50 MGD and design maximum flow (DMF) of 3.75 MGD. Additionally, there is an excess flow treatment train at the WWTF for flows greater than 3.75 MGD, up to a maximum of 6.10 MGD combined flow. The current WWTF treatment train consists of screening, two (2) oxidation ditches, secondary clarification, and ultraviolet disinfection. The biosolids treatment train consists of aerobic digestion, biosolids thickening/dewatering, and biosolids storage and sludge drying beds. The WWTF is located at 1120 East Church Street on the west bank of Harvey Creek. Exhibit B displays an aerial view of the current WWTF.

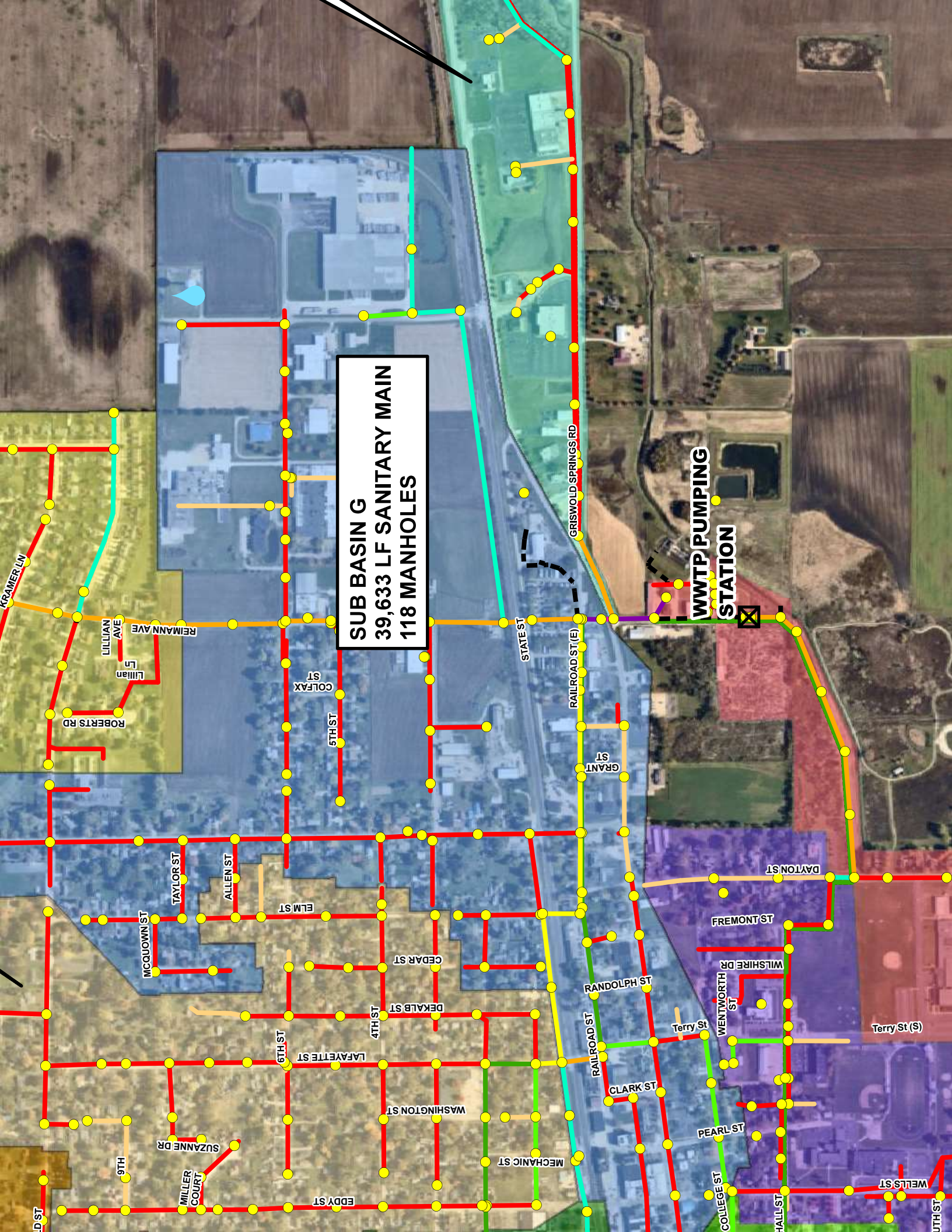
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<sup>1</sup> <http://worldpopulationreview.com/us-cities/sandwich-il-population/>

<sup>2</sup> [https://en.wikipedia.org/wiki/Sandwich,\\_Illinois](https://en.wikipedia.org/wiki/Sandwich,_Illinois)

**SUB BASIN G**  
**39,633 LF SANITARY MAIN**  
**118 MANHOLES**

**WWTP PUMPING STATION**



# City of Sandwich, IL



BIOSOLIDS DEWATERING BUILDING

LAB/ADMINISTRATION BUILDING

PRELIMINARY TREATMENT & INFLUENT PUMPING BUILDING

BIOSOLIDS STORAGE BUILDING

SLUDGE THICKENING & DEWATERING BUILDING, RAS/WAS PUMPING STATION

AEROBIC DIGESTER BUILDING & PROCESS RETURN PUMP STATION

AEROBIC DIGESTERS (3 TANKS)

MIXED LIQUOR SPLITTER BOX

OXIDATION DITCHES 1 & 2

FINAL CLARIFIERS 1&2

FINAL CLARIFIER 3

UV DISINFECTION & EFFLUENT FLOW STRUCTURE





After inventorying the various utilities, multiple meetings were held with City staff to review any known, but unfunded, projects. Maintenance schedules and associated costs were prepared for the water and wastewater facilities which are included later in this report. As the utilities age, it is critical to consistently replace sewer main as well as maintain the existing wastewater facility on a regular basis. Furthermore, this Sewer Rate Study was also performed as part of a larger “NPDES Permit Planning Documents” project, which included the “Phosphorus Discharge Optimization Plan”, “Phosphorus Removal Feasibility Study”, and “Capacity, Management, Operations, and Maintenance (CMOM)” Plans – all required as Special Conditions in the City’s NPDES Permit for the WWTF. This allowed for some continuity in the analyses and related recommended/required improvements to the sanitary collection system and WWTF. These recommended/required improvements and related costs are included in this Sewer Rate Study.

### **Capital Improvement Plan (CIP) and Revenue Study Basic Components**

Capital improvements are necessary to repair and improve the aging sanitary collection system and WWTF components. Although the CIP is a key component in developing a recommended rate structure, the rate structure requires consideration of several additional elements, including operations, maintenance, interdepartmental transfers, and any current debt obligations. As part of this study, current and required expenditures were identified and a long (20 year) range plan was developed for the CIP. The recommended plan is based on staff input, needs assessment and industry best management practices for utilities.

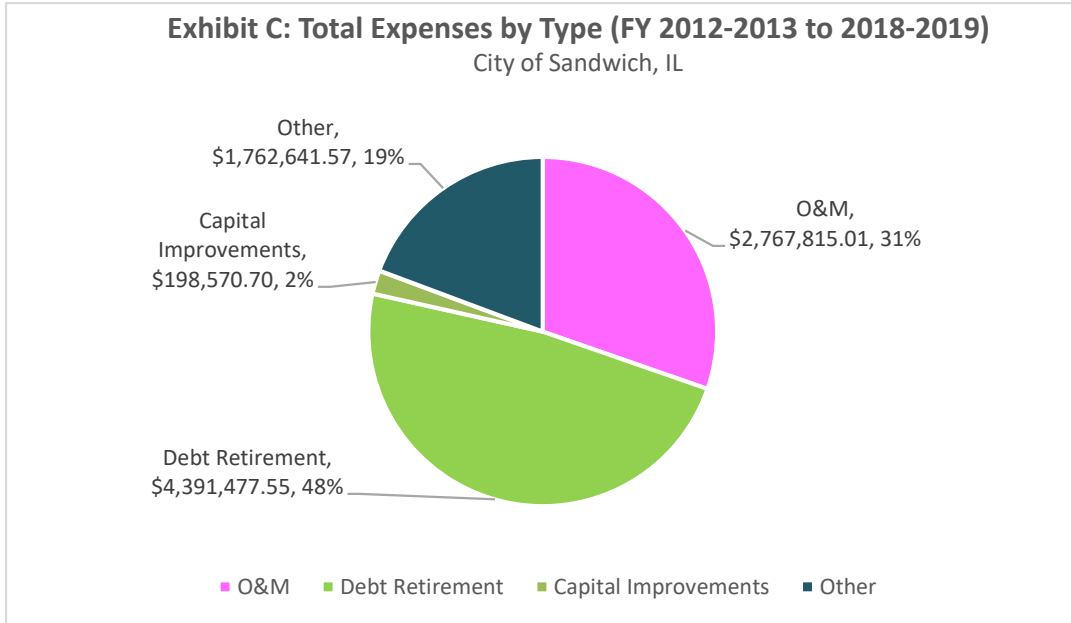
### **Historical Expenses**

The sanitary system operating expenses generally include Operations and Maintenance (O&M), Debt Retirement, Capital Improvements and Other Non-Operating Expenses. The projected operating expenses were based off historical information – primarily yearly NPDES Fiscal Reports submitted by the City to the IEPA. Non-operating expenses generally include CIP projects. The City has not historically created a formal CIP, so many expenses that would typically be characterized as Capital Improvements have been characterized as O&M expenditures.

The City does have existing Debt Service, in the form of a low interest loan from the IEPA for previous WWTF Improvements. This Debt Service is scheduled to be retired in March 2023.

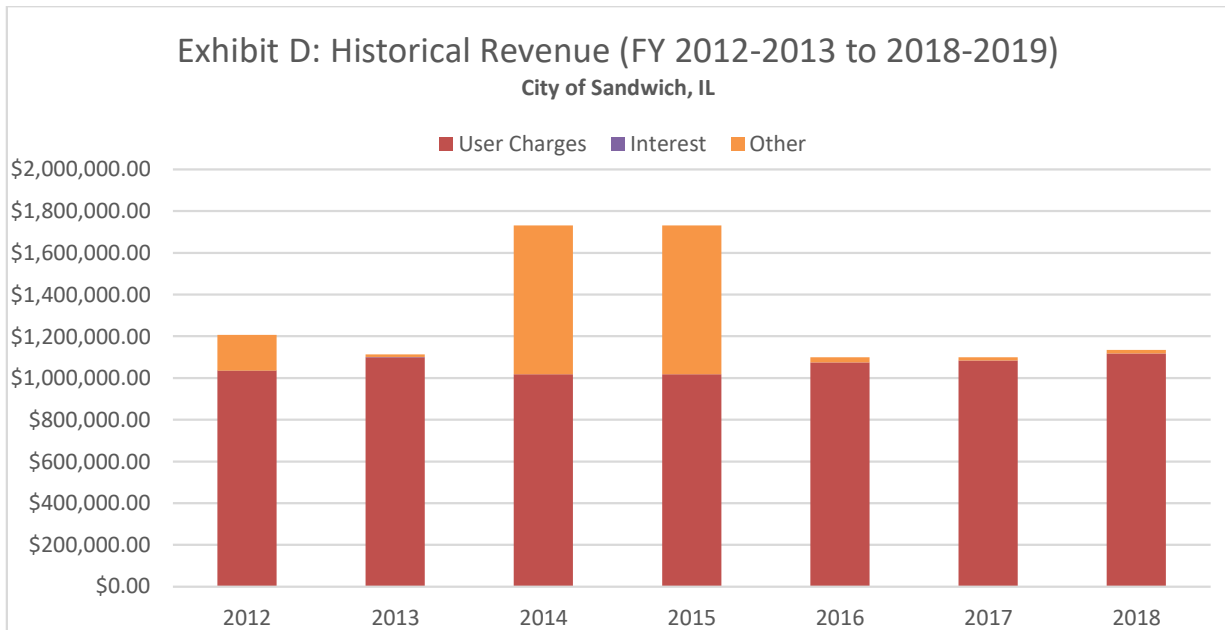
Exhibit C below summarizes the total expenses by type for FY 2012-2013 to 2018-2019. Additional related information for historical expenses can be found in Appendices B and C.





### Historical Revenue

Revenue sources for the City's sewer systems are generally comprised of Charges for Service (Sewer Rate Per 1,000 Gallons), Interest and Miscellaneous Revenues (i.e. Quarterly/Billing Administrative Fees, Connection Fees, and Late Charges/Fines). Exhibit D below provides a historical summary of the revenues from FY 2012-2013 through 2018-2019 by type, and this data was obtained from the yearly NPDES Fiscal Reports submitted by the City to the IEPA. Additional related information for historical revenues can be found in Appendices B and C.





Under the City's current ordinance for charges for service, the City of Sandwich's FY 2020-2021 Sewer Rate Per 1,000 Gallons is \$7.06 – based upon billed water use. There is a Sewer Use Fee per billing cycle of \$5.00 and billing frequency is quarterly. The ordinance includes an indefinite 2% rate escalator per year.

In addition to the Sewer Rate charges and Sewer Use Fees, revenue is created by sewer fees related to new connections. This includes the following schedule of charges:

- Connection Fee (\$3,000 for 3/4" Water Service)
- Sanitary Infrastructure Fee (\$900 for 3/4" Water Service)
- Sanitary Reserve - Plant Fee (\$500 for 3/4" Water Service)
- Sanitary Reserve - Pipe Fee (\$850 for 3/4" Water Service)

Charges for sewer services are primarily dependent on the number of residents and their associated water use per capita along with the amount of commercial/industrial water use. Therefore, to create reasonable revenue projections, a review of the historical and projected population and water use is required, and this analysis is included below.

### **Population Analysis**

In regard to population, the City of Sandwich has approximately 7,421 residents as of 2020. Moderate growth is anticipated within the City's corporate limits. When projecting population to determine future needs for wastewater facilities, it is recommended to provide population projections that are reasonable but erring on the side of caution in overestimating the population as opposed to underestimating the population. The intent in preparing population projections in this manner is to ensure adequate facilities are constructed in a timely manner and development would not be inhibited by a lack of adequate facilities. However, with sewer rate analysis, if the population projections are greater than what actually occurs, then revenues may not be adequate to properly operate and maintain the wastewater facilities. Therefore, when projecting population associated with rate studies, it is recommended to once again provide reasonable projections, but erring on the side of caution in underestimating the population as opposed to overestimating the population.

CMAP was consulted regarding the City's population forecast. However, only the Kendall portion of the forecast is considered part of CMAP's official ON TO 2050 forecast. Projections for the DeKalb portion of Sandwich are based on county-level forecasts provided by the consultant who developed the regional ON TO 2050 forecast for CMAP. Projections for "external" (non-CMAP) counties were not subject to the policy considerations of ON TO 2050, and the local disaggregation of the county totals was not handled in nearly as detailed a manner.

CMAP utilizes 26.65% increase in population from the year 2020 to 2030 and 16.23% increase from 2030 to 2040 and 19.74% increase from year 2040 to 2050. These increases are very large and seems to be unachievable in the upcoming years. Hence, a minimum annual percentage increase of 0.30% was calculated based on historical growth rate between 1970-2019. Also, a "Modified Projected Population" was calculated, using the minimum annual percentage increase, as well as a known development at Deerpath Woods (2,634



P.E.) building out by 2040, per feedback from City staff. Table 1 shows the Minimum Projected Population, Modified Projected Population, and CMAP population projections from 2020 to 2050.

**Table 1: Projected Population (2020-2050)**

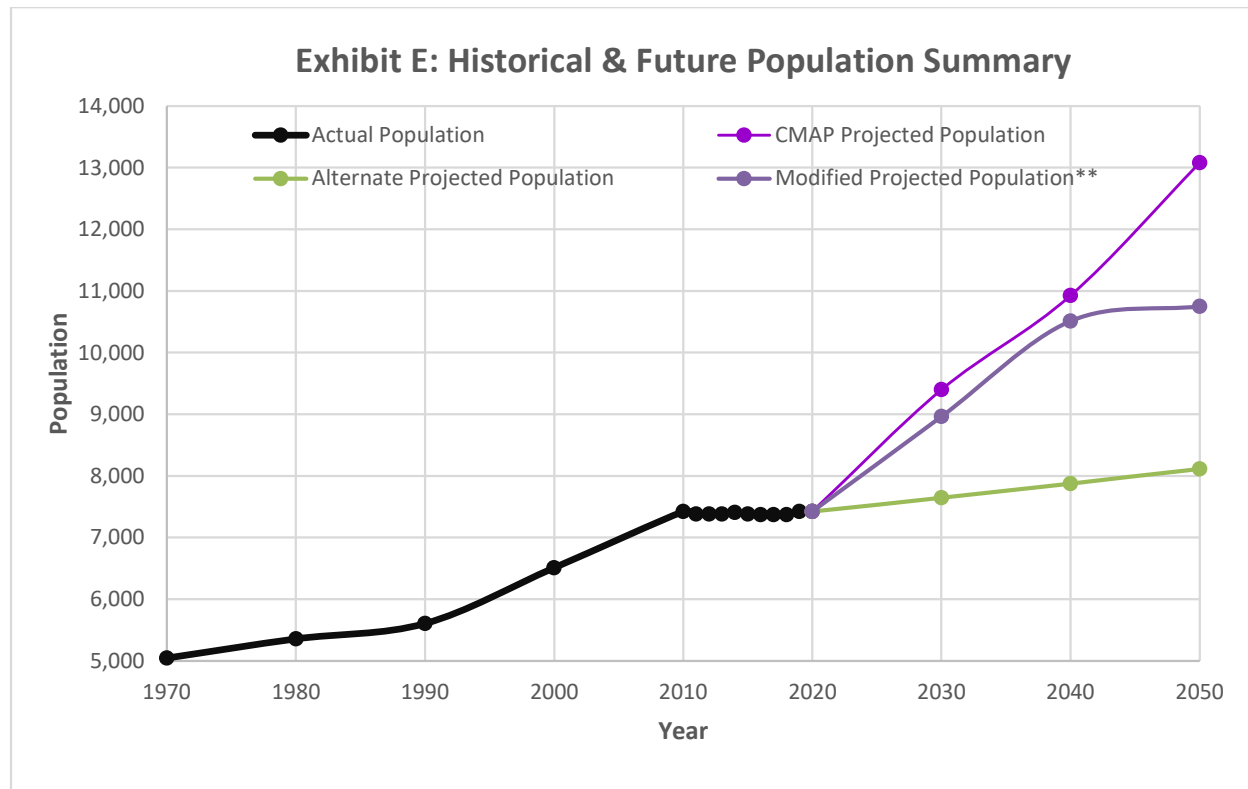
City of Sandwich, IL

Year	Minimum Projected Population*	Annual Minimum % Population Increase	Modified Projected Population**	Annual Modified % Increase	CMAP Projected Population	Annual CMAP % Increase
2020	7,421	-	7,421	-	7,421	-
2030	7,646	0.30	8,963	20.78	9,399	26.65
2040	7,877	0.30	10,511	17.28	10,924	16.23
2050	8,116	0.30	10,750	2.27	13,080	19.74

\*Based on Historical Average Annual % Increase 1970-2019

\*\*Based on Historical Average Annual % Increase 1970-2019 and Deerpath Woods (2,634 PE) Building Out by 2040

Exhibit E illustrates the historical population trends of the City along with the Minimum Projected Population, Modified Projected Population, and CMAP population projections to 2050. The Modified Projected Population projection will be used as a basis for this Sewer Rate Study.





## Wastewater Flow Analysis

This report will focus on an overview of the historical and projected wastewater flows as pertaining to CIP items and revenues/expenditures. There is a considerable amount of analysis related to flows in the sanitary sewer system and at the WWTF in the CMOM (September 2020) and Phosphorus Discharge Optimization Plan (September 2020), and it is recommended to refer to those reports for more details.

Table 2 below summarizes WWTF flow projections based upon a handful of variables. This analysis utilized historic WWTF flows and the population projections noted in the section above to determine projected WWTF flows from 2020 to 2050. A more detailed table is included in Appendix D.

**Table 2: Projected Wastewater Flows**  
City of Sandwich, IL

Year	Total WWTF Influent Flow (Gal)	Average Daily WWTF Influent Flow (GPD)	WWTF Influent Flow per Capita (GPCD)
<b>FUTURE PROJECTIONS USING CMAP POPULATION ESTIMATES AND HISTORICAL USAGE</b>			
2020	224,932,989	615,833	83
2030	284,886,829	779,978	83
2040	331,110,088	906,530	83
2050	396,459,169	1,085,446	83
<b>FUTURE PROJECTIONS USING CMAP POPULATION ESTIMATES AND 100 GPCD</b>			
2020	271,052,025	742,100	100
2030	343,298,475	939,900	100
2040	398,999,100	1,092,400	100
2050	477,747,000	1,308,000	100
<b>FUTURE PROJECTIONS USING MODIFIED POPULATION ESTIMATES &amp; HISTORICAL USAGE</b>			
2020	224,932,989	615,833	83
2030	231,752,814	634,505	83
<b>2040<sup>1</sup></b>	<b>238,754,501</b>	<b>653,674</b>	<b>83</b>
2050	245,998,671	673,508	83
<b>FUTURE PROJECTIONS USING MODIFIED POPULATION ESTIMATES AND 100 GPCD</b>			
2020	271,052,025	742,100	100
2030	279,270,150	764,600	100
2040	287,707,425	787,700	100
2050	296,436,900	811,600	100

### Notes

1. Future Revenues/Expenditures for the Sewer Rate Study Based Upon 2040 Future Projection Using Modified Population Estimates and Historical Usage



100 Gallons per Capita per Day (GPCD) has been an industry standard for water and wastewater flows, and this is a conservative estimate. Historical analysis of the City's wastewater flows indicates that 83 GPCD is a reasonable estimate for future flows. Table 2 shows WWTF flow projections to 2050 based upon both 100 GPCD and 83 GPCD. The table also shows the projections related to CMAP and Modified Projected Population, as explained in the previous section of this report. It is recommended to utilize the Modified Projected Population and Historical Usage (83 GPCD) for this analysis. Furthermore, while the flow analysis in Table 2 projects to 2050, the sewer rate analysis only projects to 2040. Therefore, the values utilized as a basis for future revenues and expenditures for this study are the 2040 Future Projections Using Modified Population Estimates and Historical Usage.

The rated Daily/Design Average Flow for the WWTF is 1.50 MGD. Per the discussion above and Table 2, the projected WWTF flow in 2040 is 0.654 MGD. This is significantly below the rated capacity of the WWTF. Additionally, the worst-case scenario in Table 2 utilizes the CMAP population projections and 100 GPCD, which projects to 1.092 MGD in 2040. Pending control of I/I in the collection system, expansion of the WWTF capacity is not anticipated in this planning period.

WWTF capacity planning is not the only important aspect related to sanitary flows. Sewer Fund revenues are driven by flows, particularly the billed water usage that is used as the basis for sewer user charges. As such, historical billed water usage and related projections into the future are essential to consider when evaluating future sewer rates.

Table No. 3 and Exhibit F summarizes the historical pumped and billed water usage from 2016-2019, as well as other relevant metrics. The data indicates an average historical billed water usage of approximately 65 GPCD, which is what will be used as the basis for current billed water usage in subsequent analysis. Furthermore, there is a trend of decreasing billed water usage, which is common in the industry as low-flow water fixtures are more frequently utilized and water conservation has become more prevalent. Therefore, future water rate analyses incorporate a 1% reduction per year in billed water usage per capita, as these trends are expected to continue. Finally, it is worth mentioning the significant amounts of Infiltration and Inflow (I/I) shown (see previous section), as well as the significant amount of estimated water loss. Water loss is generally defined as water that is pumped but not billed. A Water Audit in accordance with American Water Works Association (AWWA) Standards is highly recommended to further understand the root of the water loss and potentially determine methods for water loss reduction.



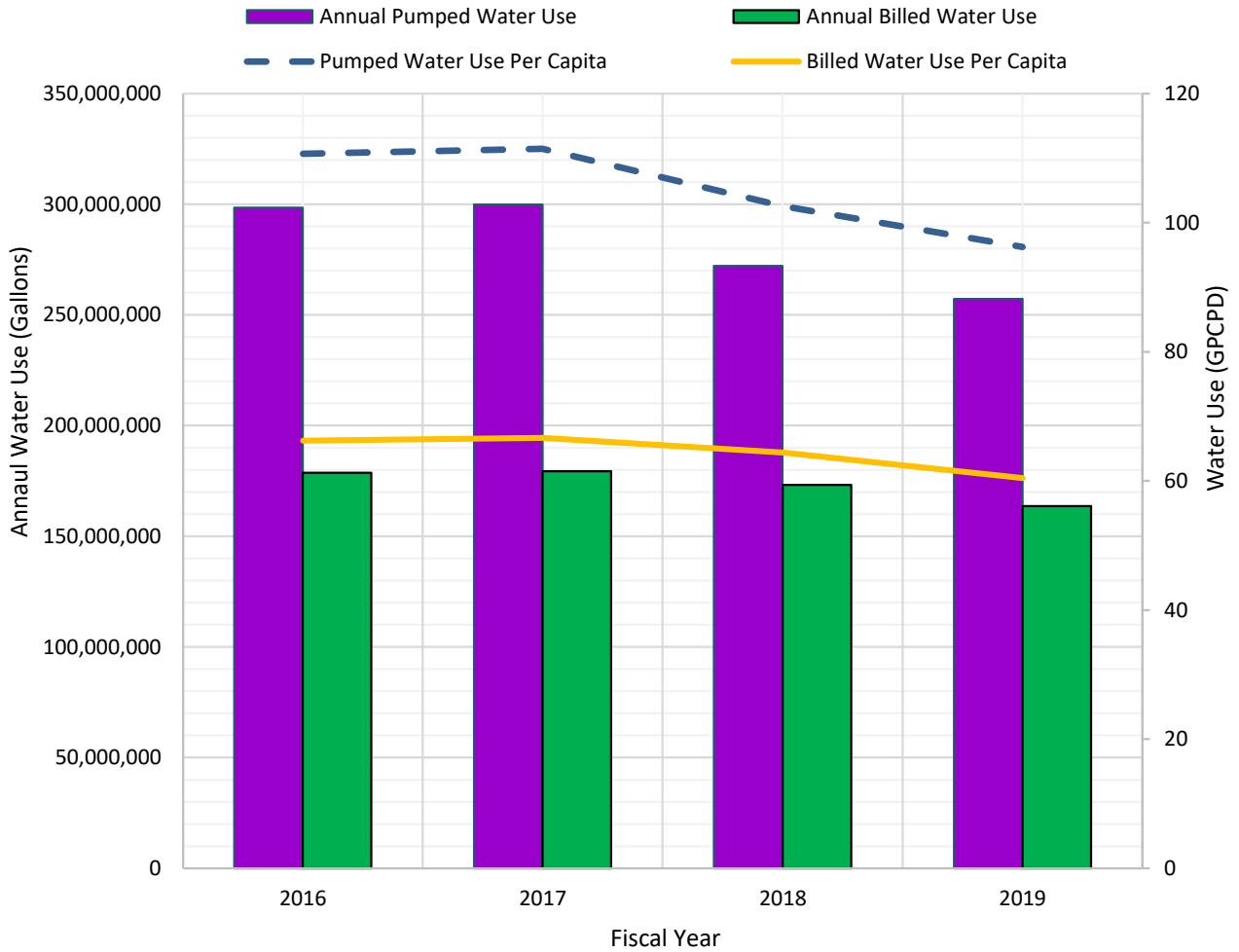
**Table No. 3: Historical Pumped and Billed Water Use (2016 - 2019)**

City of Sandwich, IL

Year	Pumped Water (GPD)	Non-Irrigation Billed Water (GPD)	WWTF Influent Flow (GPD)	Water Consumers	WWTF Influent Flow (GPCD)	Pumped Water (GPCD)	Billed Water (GPCD)	I/I (GPCD)	Water Loss - Approx
2016	815,414	488,072	537,236	7,370	72.89	111	66.2	44	40.14%
2017	821,345	491,593	607,355	7,371	82.40	111	66.7	45	40.15%
2018	755,815	474,440	544,448	7,370	73.87	103	64.4	38	37.23%
2019	714,350	448,455	762,688	7,421	102.77	96	60.4	36	37.22%
<b>Average</b>	<b>776,731</b>	<b>475,640</b>	<b>612,932</b>	<b>7,383</b>	<b>82.99</b>	<b>105</b>	<b>64.4</b>	<b>41</b>	<b>38.69%</b>

**Exhibit F: Historical Pump and Billed Water Use (2016 - 2019)**

City of Sandwich, IL





## Sanitary System CIP

While WWTF expansion is not expected in this planning period, there are numerous capital improvement items that have been identified by City staff for inclusion into this study. Some of these capital improvement items were identified during the Phosphorus Removal Feasibility Study (PRFS) and CMOM reports. Significant projects identified in the PRFS are improvements to the WWTF to meet pending a future Total Phosphorus effluent limit of 1.0 mg/L by end of March 2023 and a 0.5 mg/L limit by 2030. The CMOM report confirmed that an investment in reducing infiltration and inflow (I/I) in the sanitary collection system is highly recommended to help prevent sewer backups and disruptions to WWTF operations as a result of precipitation events. Other significant capital improvements identified by City staff include modifications to the Excess Flow Treatment System at the WWTF and modifications to various lift stations. A complete list of the CIP items is included in Appendix E. This table includes the projected cost per year for each CIP item to the year 2040. In addition to its use for this study, the intent is for the City to be able to use this table as a foundation for future capital improvement planning and related budgeting efforts. It can be expanded to include additional details for each item and should be updated each year and needs and cost estimates change.

## Sanitary System O&M

In addition to capital improvement items, routine and planned operations and maintenance (O&M) costs are important to identify and include in the sewer rate study. Maintenance schedules and associated costs were prepared for the sanitary components which are included in Appendix F. Many of the utilities are old (i.e. greater than 15 years old), particularly in the sanitary collection system. Hence, it is critical to consistently replace sewer main as well as maintain the existing wastewater facilities on a regular basis. This maintenance schedule allows for proactive planning which eases the impact on staff and the utility systems by allowing for scheduled shutdowns in lieu of unpredicted disruptions in service. In addition, planned projects are budgeted and emergency funds do not have to be sought out as with operating in a reactive mode. To illustrate, projects such as lift station maintenance are recommended to be rehabilitated before a component within the station fails and creates an emergency situation.

There are separate tables in Appendix F for O&M items/costs related to the WWTF, lift stations, and general expenses that are debited from the City's sewer fund. WWTF and lift station O&M items in the respective tables were identified through coordination between EEI and the City, and related costs to 2040 include an estimated inflation of 3% per year. The table for general expenses includes personnel salaries and benefits, utilities (electric/gas/phone/etc.), outside services, and includes debt service costs. These items and costs were mainly obtained from the prior City Budget (FY 2018-2019) and projected to 2040. Similar to the CIP table, the intent is for the City to be able to use the O&M tables to assist with future budgeting.

The projected cumulative sanitary system costs to 2040 are included in the table in Appendix G. This table is used as the basis for evaluating the City's sewer rates in the subsequent sections.



## Additional User Rate Considerations

Currently, the revenue from the sewer rate structure is intended to payoff existing debt, O&M costs, and many future CIP items. When generating different revenue models, consideration was given to the amount of capital improvement projects that could be financed through financing (bonds or loans) versus continuing with the “pay as you go”, particularly the wastewater facilities modifications projects.

Most capital projects have a design life from 20 to 100 years, and by using the “pay as you go” model, only the current paying customers will be burdened by the cost of a project which ultimately benefits multiple generations of customers. By financing, the cost of these longer-term improvements can be spread out to allow the future customers to also pay their fair portion of the improvements from which they will benefit.

In addition, the longer-term project (i.e. 20 to 100-year life expectancy) costs are often associated with larger value projects that do not necessarily occur on an annual basis. Therefore, by financing such improvements, the costs can be amortized over a period of time which smooths out the annual costs of the Sewer Capital Funds by minimizing the large surpluses or deficits year to year.

Financing improvements also allows the City to minimize rate increases while catching up on deferred capital and maintenance projects, but it must be balanced with the threshold of the City and other existing debts. When used appropriately, the City utility customers can benefit from the use of financing.

Financing of some larger long-term improvements appeared to be necessary in order to even out the revenues and expenses year over year. Financing was only anticipated to fund very large sewer system improvement projects, e.g. the WWTF Modifications for phosphorus removal and the US-34 Sanitary Sewer Replacement project. It is anticipated that planning for the WWTF Modifications (1.0 mg/L Total P Limit) will start in FY 2020-2021 with construction completion in FY 2022-2023. WWTF Modifications (0.5 mg/L Total P Limit) must be complete by 2030. There has been discussion amongst City Staff and Council Members to complete the 0.5 mg/L Total P Limit modifications at the same time as the 1.0 mg/L Total P Limit modifications. Advantages associated with this path include a high likelihood of lower capital construction costs (minimizing impacts of inflation) as well as increased efficiency in completing work at the same time. The timing of the US-34 Sanitary Sewer Replacement project is undetermined, but assuming to start in FY 2023-2024 and be completed in FY 2025-2026 for the purposes of this analysis.

The Expenditures analysis in Appendix G assumes the financing for the noted projects (“New Debt Service Projects”) will be accomplished via a State Revolving Fund (SRF) loan administered through IEPA. Rates for these loans are generally one-half of the current municipal bond rates. However, there are additional planning and financial documents that must be completed for this financing. Therefore, it is only recommended to finance large projects (multi-million dollar) through the IEPA SRF, which include the projects noted above. It should also be noted that the current (FY 2020-2021) IEPA SRF wastewater loan interest rate is 1.35%. This is





particularly low due to the current financial circumstances, so the analysis in Appendix G assumes a more typical interest rate of 2.5% through 2025.

### Rate Options Considered

After collecting and developing the historical and projected revenues and expenses, several rate structures/models were prepared. When reviewing rate structures, long-term (20 years) projections were analyzed. As discussed previously, by reviewing the long-term projects, the City can typically provide a smoother rate increase throughout the course of time by planning for the larger projects in advance.

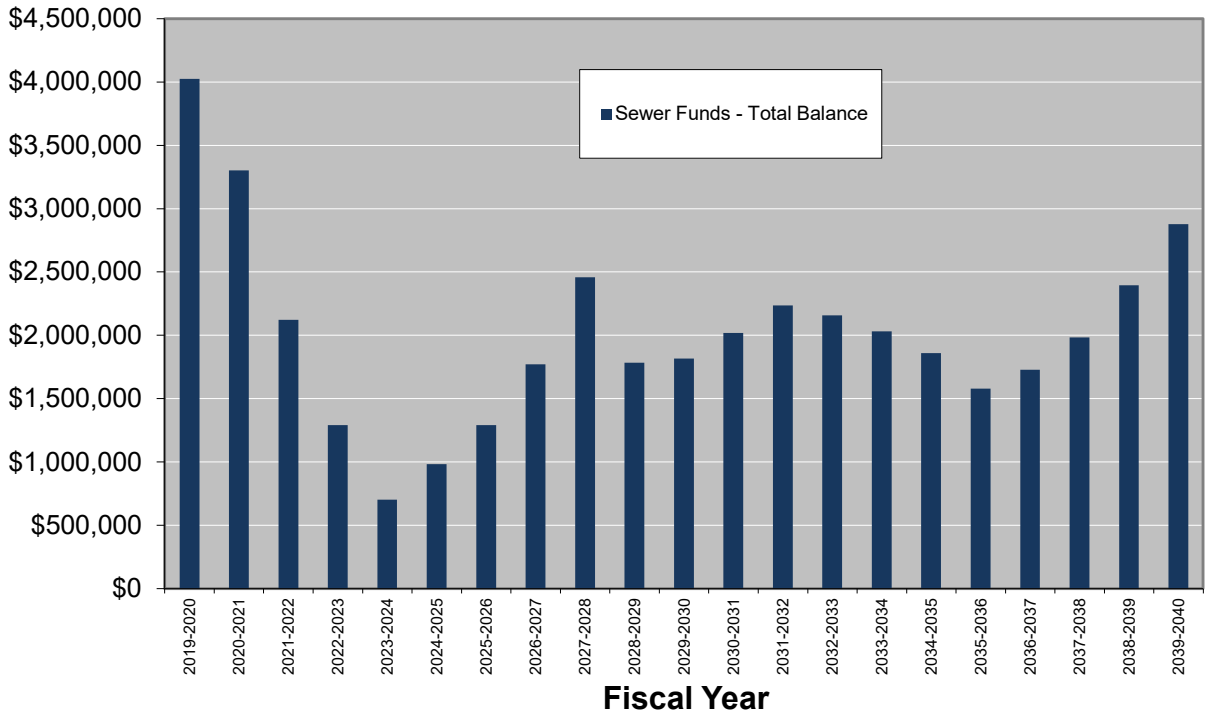
Various rate structures were reviewed with staff, and the following six (6) scenarios for three (3) rate options were then retained for further review. The major variables considered in the six scenarios include: (1) amount of annual sewer rate increase (0%, 2.5% & 3.5%), (2) utilization of IEPA SRF Loan for Financing Debt Service for Large Projects, and (3) Population Growth projections:

- Option A-1 – No Rate Increase (On Top of the Current 2.0% Annual Increase per Year by Ordinance); Use IEPA SRF Loans for Financing Debt Service for Large Projects; Modified Population Growth (~2.66% Increase for 2020-2030 and 1.62% Increase for 2030-2040)
- Option A-2 – No Rate Increase (On Top of the Current 2.0% Annual Increase per Year by Ordinance); No Loans for Financing Large Projects; Modified Population Growth (~2.66% Increase for 2020-2030 and 1.62% Increase for 2030-2040)
- Option A-3 – No Rate Increase (On Top of the Current 2.0% Annual Increase per Year by Ordinance); Use IEPA SRF Loans for Financing Debt Service for Large Projects; Minimum Population Growth
- Option B-1 – 2.5% Rate Increase; Use IEPA SRF Loans for Financing Debt Service; Modified Population Growth (~2.66% Increase for 2020-2030 and 1.62% Increase for 2030-2040)
- Option B-2 – 2.5% Rate Increase; Use IEPA SRF Loans for Financing Debt Service for Large Projects; Minimum Population Growth
- Option C-1 – 3.5% Rate Increase; Use IEPA SRF Loans for Financing Debt Service for Large Projects; Minimum Population Growth

These rate structures were developed with the goal of evaluating options, while preserving the Cash Balance Reserve. The Cash Balance Reserve varies by both the amount of debt anticipated as well as the annual operating costs, and the reserve is therefore different in each year and rate option. Exhibits G, H, I, J, K, and L illustrate the actual Cash (solid blue bar graph) balance. The detailed calculations and assumptions for each of the rate options are provided in Appendix H of this report.



**Exhibit G: Option A-1: Sewer Fund Balance Summary (No Rate Increase - Loans for Debt Service)**



**Exhibit H: Option A-2: Sewer Fund Balance Summary (No Rate Increase - No Loans for Debt Service)**

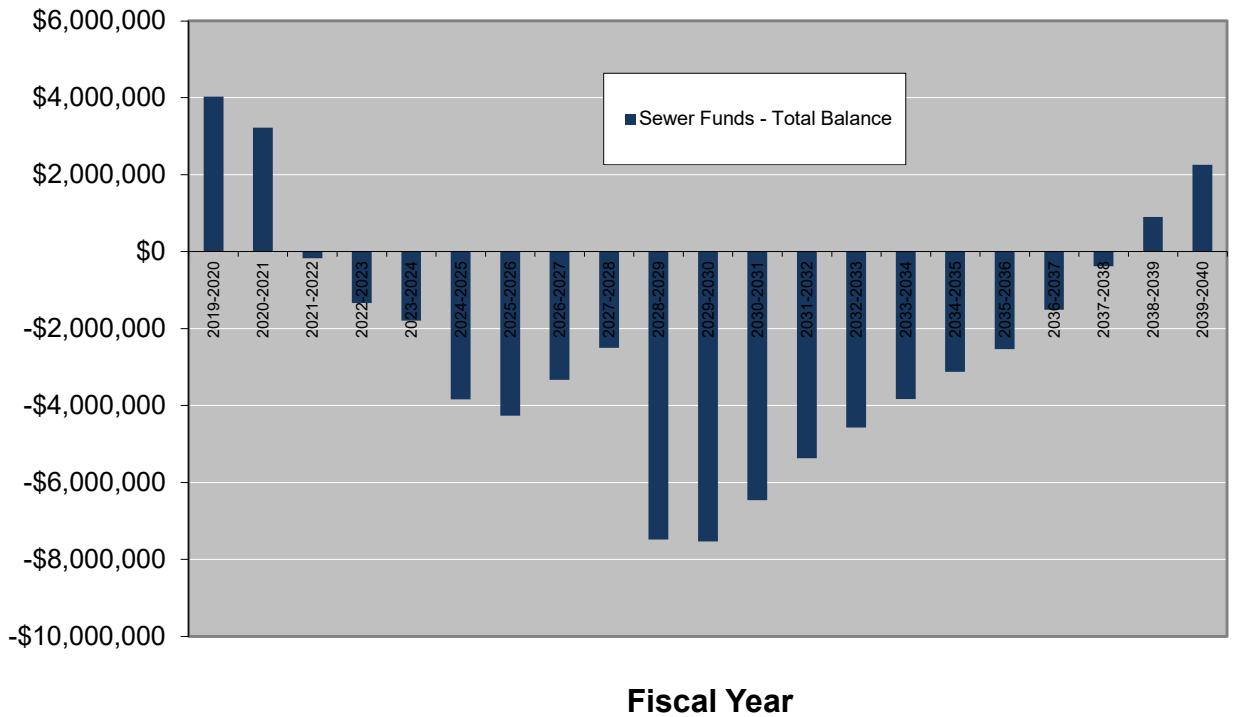




Exhibit I: Option A-3: Sewer Fund Balance Summary (Min. Population Growth - No Rate Increase - Loans for Debt Service)

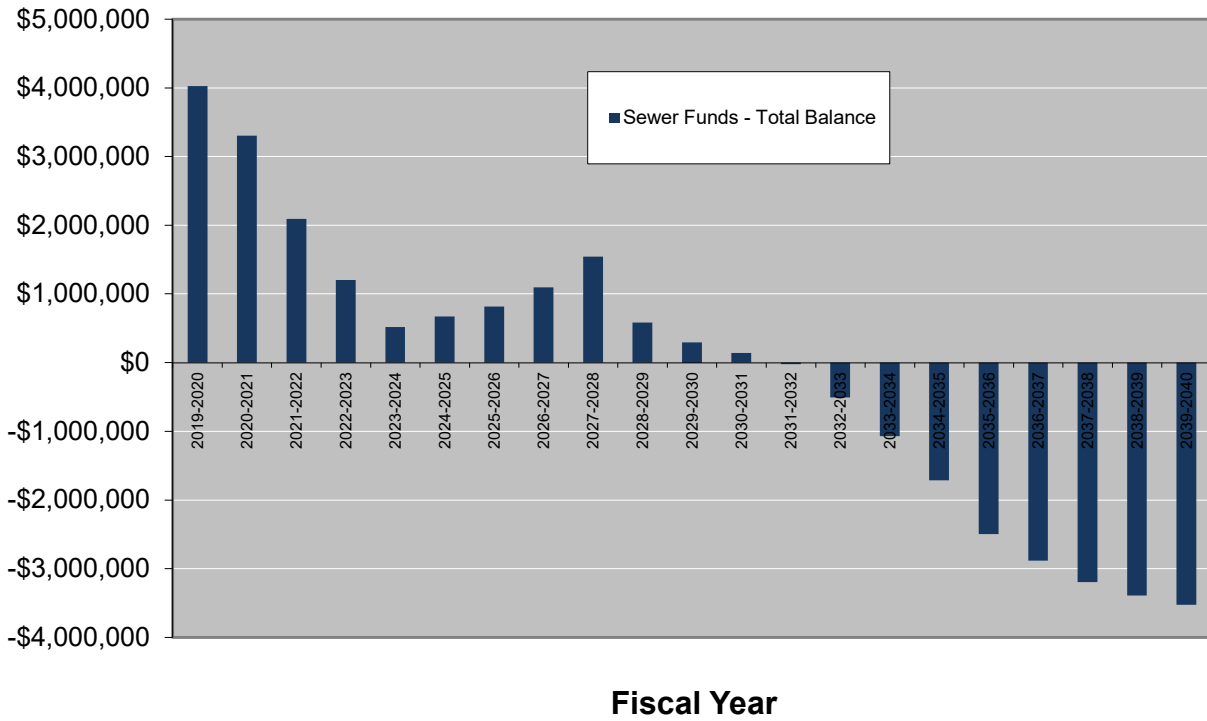
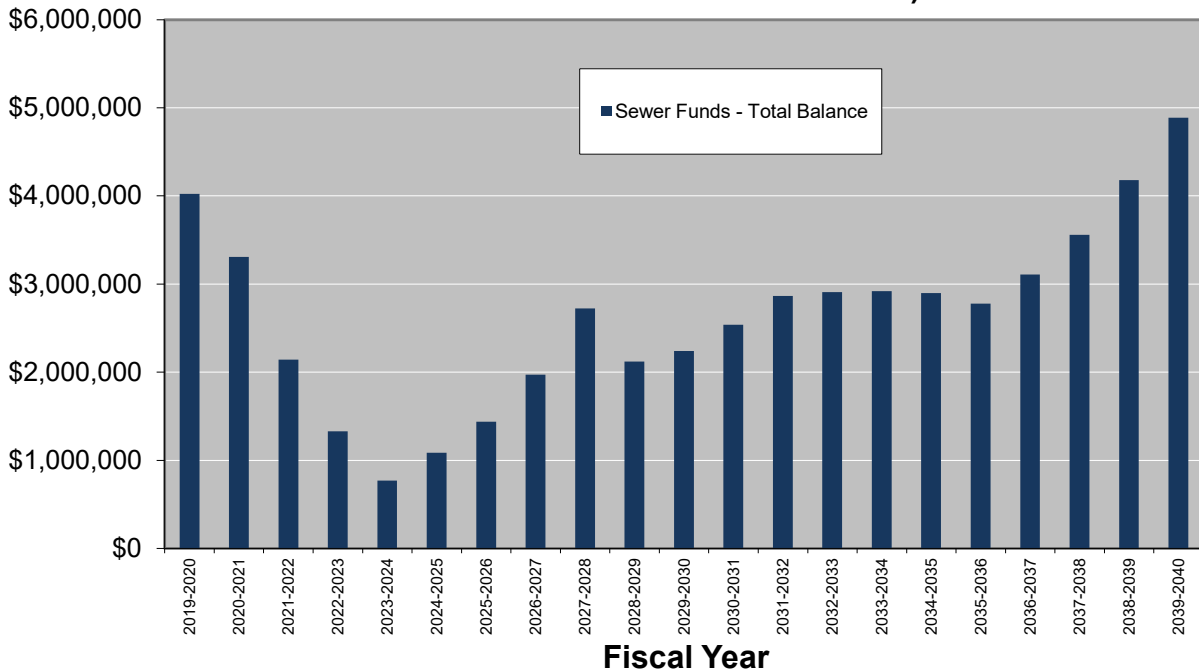
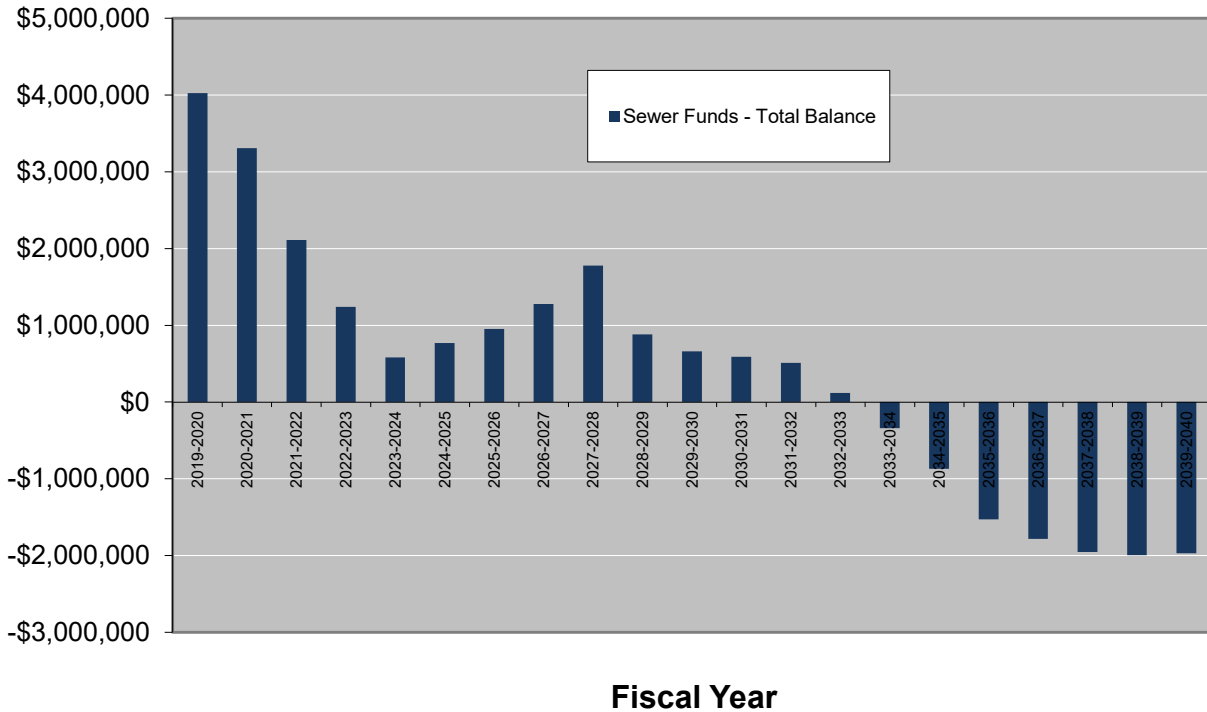


Exhibit J: Option B-1: Sewer Fund Balance Summary (2.50% Rate Increase - Loans for Debt Service)

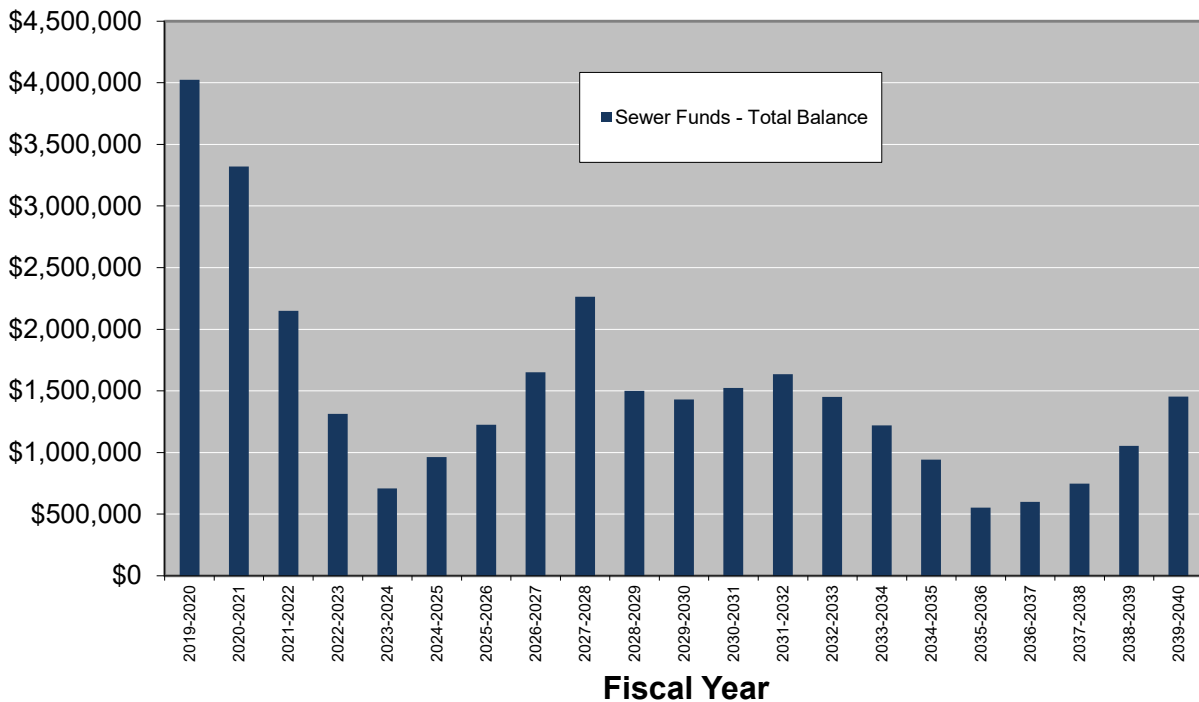




**Exhibit K: Option B-2: Sewer Fund Balance Summary (Min. Population Growth - 2.50% Rate Increase - Loans for Debt Service)**



**Exhibit L: Option C-1: Sewer Fund Balance Summary (Min. Population Growth - 3.50% Rate Increase - Loans for Debt Service)**





The Cash Balance Reserve for the Sewer Fund was a very healthy \$4,024,550 as of April 30, 2019. The City currently does not have a Cash Reserves Policy, and it is recommended that City Staff/Council review Cash Reserve Policy options and determine whether to formalize a policy. Cash Reserve Policy options from other communities include:

- A minimum of 30% of Annual Operating Costs plus 1 Year of Debt Service Payments
- A minimum of 25% of Operating Expenses (3 Months), plus \$250,000 for Capital Expenditures, plus \$1,000,000 for Annual Cash Flow
- A minimum Operating Reserve of 10% for the following year plus 3 months of following year interest and principal payments

For the purposes of this analysis, the minimum Cash Balance Reserve threshold is \$500,000. Therefore, Options A-2, A-3, and B-2 are not viable and are not recommended. Analysis of Option A-2 indicates that it is not advisable for the City to pay for the planned large CIP projects without the use of financing (e.g. IEPA SRF loan). Option A-3 shows that if the City population growth continues at 0.3%, the current 2% annual sewer rate increase will not adequately fund the planned projects over the next 20 years. Option B-2 shows the same as Option A-3, except that even an immediate annual sewer rate increase of 2.5% will not adequately fund the planned projects. If the City population growth continues at 0.3%, Option C-1 shows that an immediate annual sewer rate increase of 3.5% would be required to maintain a Cash Balance Reserve greater than \$500,000 for the 20-year planning period.

If a larger population increase is realized (~2.66% Increase for 2020-2030 and 1.62% Increase for 2030-2040), Option A-1 shows that no additional sewer rate increase (above the current 2% increase per year) would be required in order to maintain a minimum Cash Balance Reserve of \$500,000. Option B-1 further exemplifies this point by showing the improved Cash Balance Reserves if increasing the annual sewer rate increase to 2.5%.

One scenario that was not included in this analysis, but is worth mentioning, is the scenario where the City decides to proceed with the 0.5 mg/L Total P Removal WWTF Modifications simultaneously with the 1.0 mg/L Total P Removal WWTF Modifications. Given the fact that these improvements would be happening within the next few years (complete by 2023), a significant amount of debt service would be realized very soon and prior to payoff of the existing debt service. Given the other significant CIP and O&M expenses identified over the next few years, it is unlikely that a reasonable additional annual rate increase would allow the City to maintain a minimum Cash Balance Reserve of \$500,000. Rather, the City would have to consider either delaying some of the other identified near-term CIP and O&M expenses and/or incur debt service to pay for some of these items, possibly by including items in an IEPA SRF loan for the WWTF Modifications. Further analysis of this scenario is recommended if the City pursues simultaneous WWTF Modifications.



### Rate Comparison

Prior to making a recommendation on a rate option, it is important to understand the impact of the rate increase on the City residents and businesses both immediately, and at the end of the anticipated rate increases.

Based on the average monthly residential bill of 16,200 gallons per billing cycle (quarter), the projected monthly billings for all six (6) rate options are presented for Fiscal Years 2020-40 within the 20-year planning period in Table No. 4 below:

**Table 4: Projected Average Sewer Bill for Rate Options (2020-2040)**

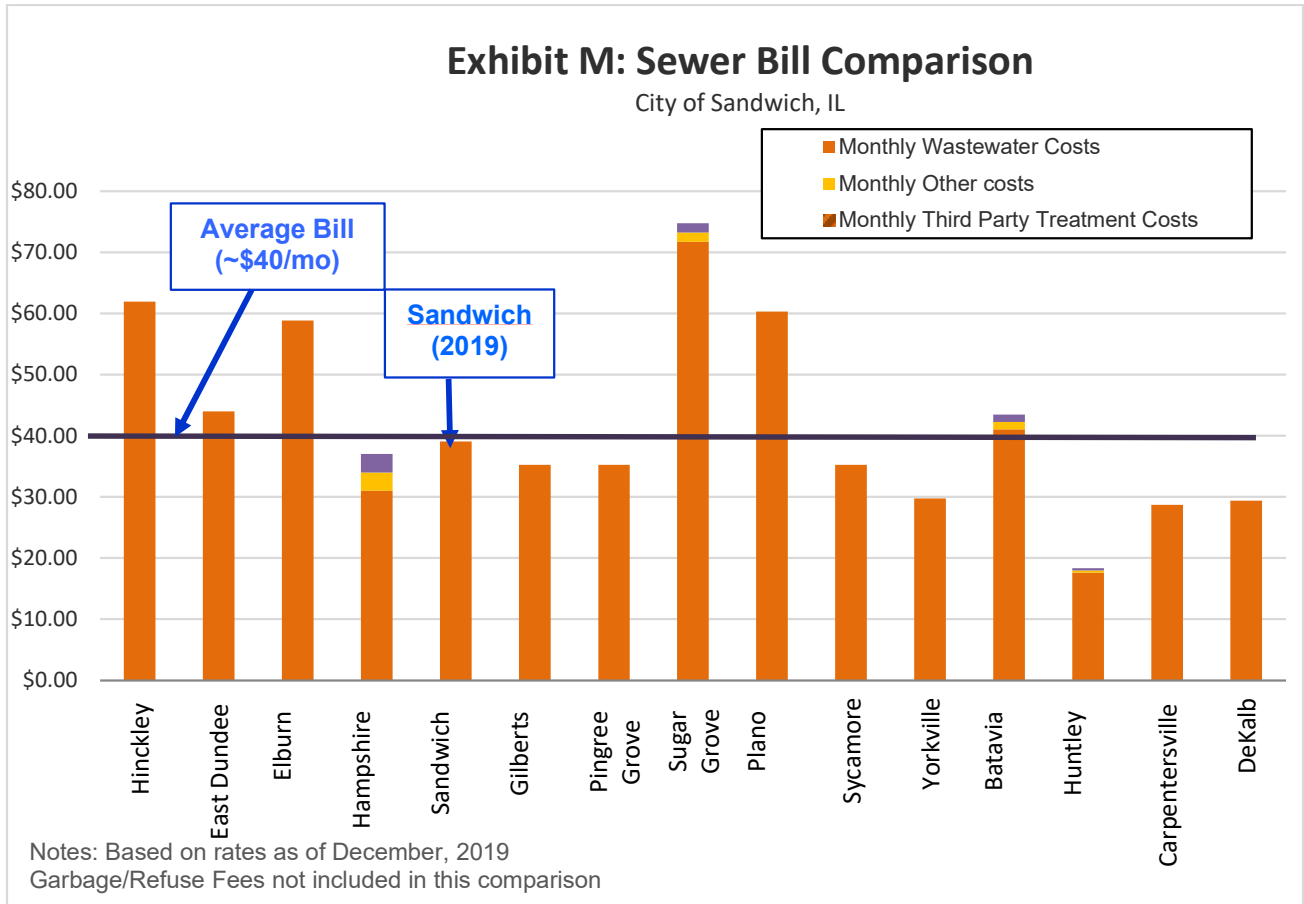
City of Sandwich, IL

FY	Option No.		
	A-1, A-2 & A-3 2.0% Increase	B-1 & B-2 2.5% Increase	C-1 3.5% Increase
2020-2021	\$119.37	\$119.37	\$119.37
2021-2022	\$121.66	\$121.66	\$123.38
2022-2023	\$123.99	\$125.16	\$127.52
2023-2024	\$126.37	\$128.17	\$131.81
2024-2025	\$128.80	\$131.25	\$136.24
2025-2026	\$131.28	\$134.40	\$140.84
2026-2027	\$133.80	\$137.64	\$145.59
2027-2028	\$136.38	\$140.95	\$150.51
2028-2029	\$139.01	\$144.35	\$155.61
2029-2030	\$141.69	\$147.83	\$160.88
2030-2031	\$144.42	\$151.41	\$166.33
2031-2032	\$147.21	\$155.07	\$171.98
2032-2033	\$150.05	\$158.82	\$177.82
2033-2034	\$152.95	\$162.66	\$183.87
2034-2035	\$155.91	\$166.60	\$190.13
2035-2036	\$158.93	\$170.64	\$196.61
2036-2037	\$162.01	\$174.79	\$203.32
2037-2038	\$165.15	\$179.03	\$210.26
2038-2039	\$168.35	\$183.38	\$217.44
2039-2040	\$171.62	\$187.84	\$224.88

FY 2020-2021: \$7.06/1,000Gal, Plus \$5.00 Flat Fee Per Quarterly Bill

Average: 16,200 Gallons Per Quarter

In addition to understanding the impact on the City residents, a comparison of sewer bills with other local municipalities is often completed as well. Please refer to Exhibit M for this municipality comparison.



Not every community has quarterly billing cycles, so the comparison is based on an average monthly bill of 5,400 gallons per month. The City’s average monthly sewer billing cost at the time of this analysis (FY 2019-2020) is slightly lower than the average of the 15 communities included in this comparison.

### Recommendations

Based on the information presented above, there are a handful of recommendations for the City Staff and Council to consider further, including:

- Review Cash Reserve Policy Options and Determine Whether to Formalize a Policy
- Continually Review Annual and Projected Revenues and Related Factors, Such as Population Growth and Additional Sewer Services
- Further Clarify and Update Future CIP and O&M Expenditures – Items, Costs, and Timeframes
- Evaluate whether to accelerate the timeline for the WWTF Modifications to meet the future 0.5 mg/L Total Phosphorus limit (required by 2030)
- Evaluate Financing Options for Major CIP Items (i.e. IEPA SRF Loan)
- Continue to Evaluate Sewer Rates and Related Fees Based Upon the Factors Noted Above. This Will Guide If/When to Proceed with a Proposed Rate Change and any Related Variables



# *Appendix A*

## *WWTF NPDES Permit*





# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

BRUCE RAUNER, GOVERNOR

ALEC MESSINA, DIRECTOR

217/782-0610

October 1, 2018

City of Sandwich  
144 East Railroad Street  
Sandwich, Illinois 60548

Re: City of Sandwich STP  
NPDES Permit No. IL0030970  
Bureau ID: W0374850002  
Final Permit

**RECEIVED**  
OCT 03 2018  
BY: \_\_\_\_\_

Gentlemen:

Attached is the final NPDES Permit for your discharge. The Permit as issued covers discharge limitations, monitoring, and reporting requirements. Failure to meet any portion of the Permit could result in civil and/or criminal penalties. The Illinois Environmental Protection Agency is ready and willing to assist you in interpreting any of the conditions of the Permit as they relate specifically to your discharge.

Special Condition 24 has been modified after public notice pursuant to USEPA comments.

Pursuant to the Final NPDES Electronic Reporting Rule, all permittees must report DMRs electronically unless a waiver has been granted by the Agency. The Agency utilizes NetDMR, a web based application, which allows the submittal of electronic Discharge Monitoring Reports instead of paper Discharge Monitoring Reports (DMRs). More information regarding NetDMR can be found on the Agency website, <http://epa.state.il.us/water/net-dmr/index.html>. If your facility has received a waiver from the NetDMR program, a supply of preprinted paper DMR Forms will be sent to your facility. Additional information and instructions will accompany the preprinted DMRs. Please see the attachment regarding the electronic reporting rule.

The attached Permit is effective as of the date indicated on the first page of the Permit. Until the effective date of any re-issued Permit, the limitations and conditions of the previously-issued Permit remain in full effect. You have the right to appeal any condition of the Permit to the Illinois Pollution Control Board within a 35 day period following the issuance date.

Should you have questions concerning the Permit, please contact Kaushal Desai at 217/782-0610.

Sincerely,

Amy L. Dragovich, P.E.  
Manager, Permit Section  
Division of Water Pollution Control

ALD:KKD:17060701.bah  
Attachment: Final Permit

cc: Records  
Compliance Assurance Section  
Rockford Region  
Billing  
Strand Associates

4302 N. Main St., Rockford, IL 61103 (815) 987-7760  
9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000  
595 S. State, Elgin, IL 60123 (847) 608-3131  
2125 S. First St., Champaign, IL 61820 (217) 278-5800

2009 Mall St., Collinsville, IL 62234 (618) 346-5120  
412 SW Washington St., Suite D, Peoria, IL 61602 (309) 671-3022  
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200  
100 W. Randolph, Suite 10-300, Chicago, IL 60601

NPDES Permit No. IL0030970

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

Post Office Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Reissued (NPDES) Permit

Expiration Date: September 30, 2023

Issue Date: October 1, 2018  
Effective Date: October 1, 2018

Name and Address of Permittee:

City of Sandwich  
144 East Railroad Street  
Sandwich, Illinois 60548

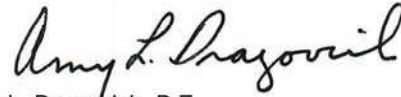
Facility Name and Address:

City of Sandwich STP  
1120 East Church Street  
Sandwich, Illinois 60548  
(DeKalb County)

Receiving Waters: Harvey Creek tributary to the Little Rock Creek

In compliance with the provisions of the Illinois Environmental Protection Act, Title 35 of the Ill. Adm. Code, Subtitle C, Chapter I, and the Clean Water Act (CWA), the above-named Permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the Effluent Limitations, Monitoring, and Reporting requirements; Special Conditions and Attachment H Standard Conditions attached herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the Permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.



Amy L. Dragovich, P.E.  
Manager, Permit Section  
Division of Water Pollution Control

ALD:KKD:17060701.bah

NPDES Permit No. IL0030970

Effluent Limitations, Monitoring, and Reporting

FINAL

Discharge Number(s) and Name(s): 003 STP Outfall

Load limits computed based on a design average flow (DAF) of 1.5 MGD (design maximum flow (DMF) of 3.75 MGD).

From the effective date of this Permit until the expiration date, the effluent of the above discharge(s) shall be monitored and limited at all times as follows:

<u>Parameter</u>	<u>LOAD LIMITS lbs/day</u>			<u>CONCENTRATION LIMITS mg/L</u>			<u>Sample Frequency</u>	<u>Sample Type</u>	
	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>			
Flow (MGD)							Continuous		
CBOD <sub>5</sub> **,* <sup>****</sup>	125(313)		250(626)	10		20	2 Days/Week	Composite	
Suspended Solids****	150(375)		300(751)	12		24	2 Days/Week	Composite	
pH	Shall be in the range of 6 to 9 Standard Units							2 Days/Week	Grab
Fecal Coliform***	Daily Maximum shall not exceed 400 per 100 mL (May through October)							2 Days/Week	Grab
Chlorine Residual***						0.05	***	Grab	
Ammonia Nitrogen:									
April-May/Sept.-Oct.	11 (28)		38 (94)	0.9		3.0	2 Days/Week	Composite	
June-August	11 (28)	35 (88)	38 (94)	0.9	2.8	3.0	2 Days/Week	Composite	
Nov.-Feb.	18 (44)		41 (103)	1.4		3.3	2 Days/Week	Composite	
March	18 (44)		43 (106)	1.4		3.4	2 Days/Week	Composite	
	<u>Annual Average</u>			<u>Annual Average</u>					
Total Phosphorus (as P)*****	13 (31)			1.0			2 Days/Week	Composite	
Total Nitrogen	Monitor Only							1 Day/Month	Composite
Dissolved Phosphorus	Monitor only							1 Day/Month	Composite
Nitrate/Nitrite	Monitor only							1 Day/Month	Composite
Total Kjeldahl Nitrogen (TKN)	Monitor only							1 Day/Month	Composite
Alkalinity	Monitor only							1 Day/Month	Grab
Temperature	Monitor only							1 Day/Month	Grab
				<u>Monthly Average not less than</u>	<u>Weekly Average not less than</u>	<u>Daily Minimum</u>			
Dissolved Oxygen									
March-July				N.A.	6.0	5.0	2 Days/Week	Grab	
August-February				5.5	4.0	3.5	2 Days/Week	Grab	

(Continued)

NPDES Permit No. IL0030970

Effluent Limitations, Monitoring, and Reporting

FINAL

Discharge Number(s) and Name(s): 003 STP Outfall (Continued)

\*Load limits based on design maximum flow shall apply only when flow exceeds design average flow.

\*\*Carbonaceous BOD<sub>5</sub> (CBOD<sub>5</sub>) testing shall be in accordance with 40 CFR 136.

\*\*\*See Special Condition 10.

\*\*\*\*BOD<sub>5</sub> and Suspended Solids (85% removal required): In accordance with 40 CFR 133, the 30-day average percent removal shall not be less than 85 percent. The percent removal need not be reported to the IEPA on DMRs but influent and effluent data must be available, as required elsewhere in this Permit, for IEPA inspection and review. For measuring compliance with this requirement, 5 mg/L shall be added to the effluent CBOD<sub>5</sub> concentration to determine the effluent BOD<sub>5</sub> concentration. Percent removal is a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

\*\*\*\*\* See Special Condition 21.

The Annual Average, 12 month rolling average (calculated monthly), phosphorus limit shall be computed monthly. The Annual Average shall be calculated by adding the sum of the total phosphorus monitoring values from the previous 12 months of data expressed in milligrams/liter and divided by the number of samples collected. The Annual Average value for total phosphorus shall be reported on the DMR.

Flow shall be reported on the Discharge Monitoring Report (DMR) as monthly average and daily maximum.

Fecal Coliform shall be reported on the DMR as a daily maximum value.

pH shall be reported on the DMR as minimum and maximum value.

Chlorine Residual shall be reported on DMR as daily maximum value.

Dissolved oxygen shall be reported on the DMR as a minimum value.

Total Phosphorus shall be reported on the DMR as a monthly average and a daily maximum value.

NPDES Permit No. IL0030970

Effluent Limitations, Monitoring, and Reporting

FINAL

Discharge Number(s) and Name(s): 002 STP Excess Flow Outfall\* (Flow in excess of 2,604 gpm)

From the effective date of this Permit until the expiration date, the effluent of the above discharge(s) shall be monitored and limited at all time as follows:

Parameter	CONCENTRATION LIMITS (mg/L)		Sample Frequency	Sample Type
	Monthly Average	Weekly Average		
Total Flow (MG)			Daily When A01 is Discharging	Continuous
BOD <sub>5</sub> **	30	45	Daily When A01 is Discharging	Grab
Suspended Solids**	30	45	Daily When A01 is Discharging	Grab
Fecal Coliform	Daily Maximum shall not exceed 400 per 100 ml		Daily When A01 is Discharging	Grab
pH	Shall be in the range of 6 to 9 Standard Units		Daily When A01 is Discharging	Grab
Chlorine Residual	0.75		Daily When A01 is Discharging	Grab
Ammonia Nitrogen(as N)***	Monitor only		Daily When A01 is Discharging	Grab
Total Phosphorus (as P)	Monitor only		Daily When A01 is Discharging	Grab
Dissolved Oxygen	Monitor only		Daily When A01 is Discharging	Grab

\*An explanation shall be provided in the comment section of the DMR should these facilities be used when the main treatment facility is not receiving Design Maximum Flow (DMF). The explanation shall identify the reasons the main facility is at a diminished treatment capacity. Additionally, the Permittee shall comply with the provisions of Special Condition 7.

\*\*BOD<sub>5</sub> and Suspended Solids (85% removal required): In accordance with 40 CFR 133, the 30-day average percent removal shall not be less than 85 percent. The percent removal need not be reported to the IEPA on DMRs but influent and effluent data must be available, as required elsewhere in this Permit, for IEPA inspection and review. For measuring compliance with this requirement, 5 mg/L shall be added to the effluent CBOD<sub>5</sub> concentration to determine the effluent BOD<sub>5</sub> concentration. Percent removal is a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30-day average values of the raw wastewater influent concentrations to the facility and the 30-day average values of the effluent pollutant concentrations for a given time period.

\*\*\* See Special Condition 23.

Total flow in million gallons shall be reported on the Discharge Monitoring Report (DMR) in the quantity maximum column. The main treatment facility flows at the time that 002 excess flow facilities are first utilized shall be reported in the comment section of the DMR in gallons per minute (gpm).

Report the number of days of discharge in the comments section of the DMR.

Chlorine Residual shall be reported on the DMR as monthly average value.

Fecal Coliform shall be reported on the DMR as a daily maximum value.

pH shall be reported on the DMR as a minimum and a maximum value.

BOD<sub>5</sub> and Suspended Solids shall be reported on the DMR as a monthly and weekly average concentration.

Ammonia Nitrogen shall be reported on the DMR as a maximum value.

Dissolved Oxygen (DO) shall be reported on the DMR as a minimum value.

Total Phosphorus shall be reported on the DMR as a monthly average and a daily maximum value.

NPDES Permit No. IL0030970

Influent Monitoring, and Reporting

The influent to the plant shall be monitored as follows:

<u>Parameter</u>	<u>Sample Frequency</u>	<u>Sample Type</u>
Flow (MGD)	Continuous	
BOD <sub>5</sub>	2 Days/Week And daily when 002 is discharging	Composite
Suspended Solids	2 Days/Week And daily when 002 is discharging	Composite

Influent samples shall be taken at a point representative of the influent.

Flow (MGD) shall be reported on the Discharge Monitoring Report (DMR) as monthly average and daily maximum.

BOD<sub>5</sub> and Suspended Solids shall be reported on the DMR as a monthly average concentration.

Special Conditions

SPECIAL CONDITION 1. This Permit may be modified to include different final effluent limitations or requirements which are consistent with applicable laws and regulations. The IEPA will public notice the permit modification.

SPECIAL CONDITION 2. The use or operation of this facility shall be by or under the supervision of a Certified Class 1 operator.

SPECIAL CONDITION 3. The IEPA may request in writing submittal of operational information in a specified form and at a required frequency at any time during the effective period of this Permit.

SPECIAL CONDITION 4. The IEPA may request more frequent monitoring by permit modification pursuant to 40 CFR § 122.63 and Without Public Notice.

SPECIAL CONDITION 5. The effluent, alone or in combination with other sources, shall not cause a violation of any applicable water quality standard outlined in 35 Ill. Adm. Code 302 and 303.

SPECIAL CONDITION 6. The Permittee shall record monitoring results on Discharge Monitoring Report (DMR) electronic forms using one such form for each outfall each month.

In the event that an outfall does not discharge during a monthly reporting period, the DMR Form shall be submitted with no discharge indicated.

The Permittee is required to submit electronic DMRs (NetDMRs) instead of mailing paper DMRs to the IEPA unless a waiver has been granted by the Agency. More information, including registration information for the NetDMR program, can be obtained on the IEPA website, <http://www.epa.state.il.us/water/net-dmr/index.html>.

The completed Discharge Monitoring Report forms shall be submitted to IEPA no later than the 25th day of the following month, unless otherwise specified by the permitting authority.

Permittees that have been granted a waiver shall mail Discharge Monitoring Reports with an original signature to the IEPA at the following address:

Illinois Environmental Protection Agency  
 Division of Water Pollution Control  
 Attention: Compliance Assurance Section, Mail Code # 19  
 1021 North Grand Avenue East  
 Post Office Box 19276  
 Springfield, Illinois 62794-9276

SPECIAL CONDITION 7. The provisions of 40 CFR Section 122.41(m) & (n) are incorporated herein by reference.

SPECIAL CONDITION 8. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 9. Consistent with permit modification procedures in 40 CFR 122.62 and 63, this Permit may be modified to include requirements for the Permittee on a continuing basis to evaluate and detail its efforts to effectively control sources of infiltration and inflow into the sewer system and to submit reports to the IEPA if necessary.

SPECIAL CONDITION 10. Fecal Coliform limits for Discharge Number 003 are effective May thru October. Sampling of Fecal Coliform is only required during this time period.

For Discharge No. 003, any use of chlorine to control slime growths, odors or as an operational control, etc. shall not exceed the limit of 0.05 mg/L (daily maximum) total residual chlorine in the effluent. Sampling is required on a daily grab basis during the chlorination process. Reporting shall be submitted on the DMR's on a monthly basis.

SPECIAL CONDITION 11. The Permittee shall conduct semi-annual monitoring of the effluent and report concentrations (in mg/l) of the following listed parameters. Monitoring shall begin three (3) months from the effective date of this permit. The sample shall be a 24-hour effluent composite except as otherwise specifically provided below and the results shall be submitted on Discharge Monitoring Report Forms to IEPA unless otherwise specified by the IEPA. The parameters to be sampled and the minimum reporting limits to be attained are as follows:

<u>STORET</u> <u>CODE</u>	<u>PARAMETER</u>	<u>Minimum</u> <u>reporting limit</u>
01002	Arsenic	0.05 mg/L
01007	Barium	0.5 mg/L
01027	Cadmium	0.001 mg/L

## NPDES Permit No. IL0030970

Special Conditions

01032	Chromium (hexavalent) (grab)	0.01 mg/L
01034	Chromium (total)	0.05 mg/L
01042	Copper	0.005 mg/L
00720	Cyanide (total) (grab)***	5.0 ug/L
00722	Cyanide (grab) (available**** or amenable to chlorination)***	5.0 ug/L
00951	Fluoride	0.1 mg/L
01045	Iron (total)	0.5 mg/L
01046	Iron (Dissolved)	0.5 mg/L
01051	Lead	0.05 mg/L
01055	Manganese	0.5 mg/L
71900	Mercury (grab)**	1.0 ng/L*
01067	Nickel	0.005 mg/L
00556	Oil (hexane soluble or equivalent) (Grab Sample only)	5.0 mg/L
32730	Phenols (grab)	0.005 mg/L
01147	Selenium	0.005 mg/L
01077	Silver (total)	0.003 mg/L
01092	Zinc	0.025 mg/L

Minimum Reporting Limits are defined as – (1) The minimum value below which data are documented as non-detects. (2) Three to ten times the method detection limit. (3) The minimum value of the calibration range.

All sample containers, preservative, holding times, analyses, method detection limit determinations and quality assurance/quality control requirements shall be in accordance with 40 CFR 136.

Unless otherwise indicated, concentrations refer to the total amount of the constituent present in all phases, whether solid, suspended or dissolved, elemental or combined, including all oxidation states.

\*1.0 ng/L = 1 part per trillion.

\*\*Utilize USEPA Method 1631E and the digestion procedure described in Section 11.1.1.2 of 1631E.

\*\*\*Analysis for cyanide (available or amenable to chlorination) is only required if cyanide (total) is detected at or above the minimum reporting limit.

\*\*\*\*US EPA Method OIA-1677.

The Permittee shall provide a report briefly describing the permittee's pretreatment activities and an updated listing of the Permittee's significant industrial users. The list should specify which categorical pretreatment standards, if any, are applicable to each Industrial User. Permittees who operate multiple plants may provide a single report. Such report shall be submitted within six (6) months of the effective date of this Permit to the following addresses:

U.S. Environmental Protection Agency  
Region 5  
77 West Jackson Blvd.  
Chicago, Illinois 60604  
Attention: Water Assurance Branch Enforcement and Compliance

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Attention: Compliance assurance Section, Mail Code #19  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

**SPECIAL CONDITION 12.** During January of each year the Permittee shall submit annual fiscal data regarding sewerage system operations to the Illinois Environmental Protection Agency/Division of Water Pollution Control/Compliance Assurance Section. The Permittee may use any fiscal year period provided the period ends within twelve (12) months of the submission date.

Submission shall be on forms provided by IEPA titled "Fiscal Report Form For NPDES Permittees".

**SPECIAL CONDITION 13.** The Permittee shall conduct biomonitoring of the effluent from Discharge Number(s) 003.

Biomonitoring

A. Acute Toxicity - Standard definitive acute toxicity tests shall be run on at least two trophic levels of aquatic species (fish, invertebrate) representative of the aquatic community of the receiving stream. Testing must be consistent with Methods for



Special Conditions

Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (Fifth Ed.) EPA/821-R-02-012. Unless substitute tests are pre-approved; the following tests are required:

1. Fish - 96 hour static LC<sub>50</sub> Bioassay using fathead minnows (*Pimephales promelas*).
  2. Invertebrate 48-hour static LC<sub>50</sub> Bioassay using *Ceriodaphnia*.
- B. Testing Frequency - The above tests shall be conducted using 24-hour composite samples unless otherwise authorized by the IEPA. Samples must be collected in the 18th, 15th, 12th, and 9th month prior to the expiration date of this Permit.
- C. Reporting - Results shall be reported according to EPA/821-R-02-012, Section 12, Report Preparation, and shall be submitted to IEPA, Bureau of Water, Compliance Assurance Section within one week of receipt from the laboratory. Reports are due to the IEPA no later than the 16th, 13th, 10th, and 7th month prior to the expiration date of this Permit.
- D. Toxicity - Should a bioassay result in toxicity to >20% of organisms test in the 100% effluent treatment, the IEPA may require, upon notification, six (6) additional rounds of monthly testing on the affected organism(s) to be initiated within 30 days of the toxic bioassay. Results shall be submitted to IEPA within (1) week of becoming available to the Permittee. Should any of the additional bioassays result in toxicity to  $\geq$ 50% of organisms tested in the 100% effluent treatments, the Permittee shall immediately notify IEPA in writing of the test results.
- E. Toxicity Reduction Evaluation and Identification - Should the biomonitoring program identify toxicity and result in notification by IEPA, the permittee shall develop a plan for toxicity reduction evaluation and identification. This plan shall be developed and implemented in accordance with Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833B-99/002, and shall include an evaluation to determine which chemicals have a potential for being discharged in the plant wastewater, a monitoring program to determine their presence or absence and to identify other compounds which are not being removed by treatment, and other measures as appropriate. The Permittee shall submit to the IEPA its plan within ninety (90) days following notification by the IEPA. The Permittee shall implement the plan within ninety (90) days of notification date of the permittee above or other such date as is received by letter from IEPA.

The IEPA may modify this Permit during its term to incorporate additional requirements or limitations based on the results of the biomonitoring. In addition, after review of the monitoring results and toxicity reduction evaluation, the IEPA may modify this Permit to include numerical limitations for specific toxic pollutants and additional whole effluent toxicity monitoring to confirm the results of the evaluation. Modifications under this condition shall follow public notice and opportunity for hearing.

**SPECIAL CONDITION 14.** The Permittee shall work towards the goals of achieving no discharges from sanitary sewer overflows or basement back-ups and ensuring that overflows or back-ups, when they do occur do not cause or contribute to violations of applicable standards or cause impairment in any adjacent receiving water. Overflows from sanitary sewers are expressly prohibited by this permit and by Ill. Adm. Code 306.304. As part of the process to ultimately achieve compliance through the elimination of and mitigating the adverse impacts of any such overflows if they do occur, the Permittee shall (A) identify and report to IEPA all SSOs that do occur, and (B) develop, implement and submit to the IEPA a Capacity, Management, Operations, and Maintenance (CMOM) plan which includes an Asset Management strategy within twenty-four (24) months of the effective date of this Permit or review and revise any existing plan accordingly. The Permittee shall modify the Plan to incorporate any comments that it receives from IEPA and shall implement the modified plan as soon as possible. The Permittee should work as appropriate, in consultation with affected authorities at the local, county, and/or state level to develop the plan components involving third party notification of overflow events. The Permittee may be required to construct additional sewage transport and/or treatment facilities in future permits or other enforceable documents should the implemented CMOM plan indicate that the Permittee's facilities are not capable of conveying and treating the flow for which they are designed.

The CMOM plan shall include the following elements:

A. Measures and Activities:

1. A complete map and system inventory for the collection system owned and operated by the Permittee;
2. Organizational structure; budgeting; training of personnel; legal authorities; schedules for maintenance, sewer system cleaning, and preventative rehabilitation; checklists, and mechanisms to ensure that preventative maintenance is performed on equipment owned and operated by the Permittee;
3. Documentation of unplanned maintenance;
4. An assessment of the capacity of the collection and treatment system owned and operated by the Permittee at critical junctions and immediately upstream of locations where overflows and backups occur or are likely to occur; use flow monitoring and/or sewer hydraulic modeling, as necessary;
5. Identification and prioritization of structural deficiencies in the system owned and operated by the Permittee. Include preventative maintenance programs to prevent and/or eliminate collection system blockages from roots or grease, and prevent corrosion or negative effects of hydrogen sulfide which may be generated within collection system;

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6. Operational control, including documented system control procedures, scheduled inspections and testing, list of scheduled frequency of cleaning (and televising as necessary) of sewers;
  7. The Permittee shall develop and implement an Asset Management strategy to ensure the long-term sustainability of the collection system. Asset Management shall be used to assist the Permittee in making decisions on when it is most appropriate to repair, replace or rehabilitate particular assets and develop long-term funding strategies; and
  8. Asset Management shall include but is not limited to the following elements:
    - a. Asset Inventory and State of the Asset;
    - b. Level of Service;
    - c. Critical Asset Identification;
    - d. Life Cycle Cost; and
    - e. Long-Term Funding Strategy.
- B. Design and Performance Provisions:
1. Monitor the effectiveness of CMOM;
  2. Upgrade the elements of the CMOM plan as necessary; and
  3. Maintain a summary of CMOM activities.
- C. Overflow Response Plan:
1. Know where overflows and back-ups within the facilities owned and operated by the Permittee occur;
  2. Respond to each overflow or back-up to determine additional actions such as clean up; and
  3. Locations where basement back-ups and/or sanitary sewer overflows occur shall be evaluated as soon as practicable for excessive inflow/infiltration, obstructions or other causes of overflows or back-ups as set forth in the System Evaluation Plan.
  4. Identify the root cause of the overflow or basement backup, and document to files;
  5. Identify actions or remediation efforts to reduce risk of reoccurrence of these overflows or basement backups in the future, and document to files.
- D. System Evaluation Plan:
1. Summary of existing SSO and Excessive I/I areas in the system and sources of contribution;
  2. Evaluate plans to reduce I/I and eliminate SSOs;
  3. Evaluate the effectiveness and performance in efforts to reduce excessive I/I in the collection system;
  4. Special provisions for Pump Stations and force mains and other unique system components; and
  5. Construction plans and schedules for correction.
- E. Reporting and Monitoring Requirements:
1. Program for SSO detection and reporting; and
  2. Program for tracking and reporting basement back-ups, including general public complaints.
- F. Third Party Notice Plan:
1. Describes how, under various overflow scenarios, the public, as well as other entities, would be notified of overflows within the Permittee's system that may endanger public health, safety or welfare;
  2. Identifies overflows within the Permittee's system that would be reported, giving consideration to various types of events including events with potential widespread impacts;
  3. Identifies who shall receive the notification;
  4. Identifies the specific information that would be reported including actions that will be taken to respond to the overflow;
  5. Includes a description of the lines of communication; and
  6. Includes the identities and contact information of responsible POTW officials and local, county, and/or state level officials.

For additional information concerning USEPA CMOM guidance and Asset Management please refer to the following web site addresses.  
[http://www.epa.gov/npdes/pubs/cmom\\_guide\\_for\\_collection\\_systems.pdf](http://www.epa.gov/npdes/pubs/cmom_guide_for_collection_systems.pdf) and  
[http://water.epa.gov/type/watersheds/wastewater/upload/guide\\_smallsystems\\_assetmanagement\\_bestpractices.pdf](http://water.epa.gov/type/watersheds/wastewater/upload/guide_smallsystems_assetmanagement_bestpractices.pdf)

**SPECIAL CONDITION 15.** For the duration of this Permit, the Permittee shall determine the quantity of sludge produced by the treatment facility in dry tons or gallons with average percent total solids analysis. The Permittee shall maintain adequate records of the quantities of sludge produced and have said records available for U.S. EPA and IEPA inspection. The Permittee shall submit to the IEPA, at a minimum, a semi-annual summary report of the quantities of sludge generated and disposed of, in units of dry tons or gallons (average total percent solids) by different disposal methods including but not limited to application on farmland, application on reclamation land, landfilling, public distribution, dedicated land disposal, sod farms, storage lagoons or any other specified disposal method. Said reports shall be submitted to the IEPA by January 31 and July 31 of each year reporting the preceding January thru June and July thru December

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interval of sludge disposal operations.

Duty to Mitigate. The Permittee shall take all reasonable steps to minimize any sludge use or disposal in violation of this Permit.

Sludge monitoring must be conducted according to test procedures approved under 40 CFR 136 unless otherwise specified in 40 CFR 503, unless other test procedures have been specified in this Permit.

Planned Changes. The Permittee shall give notice to the IEPA on the semi-annual report of any changes in sludge use and disposal.

The Permittee shall retain records of all sludge monitoring, and reports required by the Sludge Permit as referenced in Standard Condition 25 for a period of at least five (5) years from the date of this Permit.

If the Permittee monitors any pollutant more frequently than required by this permit or the Sludge Permit, the results of this monitoring shall be included in the reporting of data submitted to the IEPA.

The Permittee shall comply with existing federal regulations governing sewage sludge use or disposal and shall comply with all existing applicable regulations in any jurisdiction in which the sewage sludge is actually used or disposed.

The Permittee shall comply with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish the standards for sewage sludge use or disposal even if the permit has not been modified to incorporate the requirement.

The Permittee shall ensure that the applicable requirements in 40 CFR Part 503 are met when the sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator.

Monitoring reports for sludge shall be reported on the form titled "Sludge Management Reports" to the following address:

Illinois Environmental Protection Agency  
Bureau of Water  
Compliance Assurance Section  
Mail Code #19  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

SPECIAL CONDITION 16. This Permit may be modified to include alternative or additional final effluent limitations pursuant to an approved Total Maximum Daily Load (TMDL) Study, an approved Implementation Plan, or an approved trading program.

SPECIAL CONDITION 17. The Permittee shall, within 2 years of the effective date of this permit, prepare and submit to the Agency a feasibility study that identifies the method, timeframe, and costs of reducing phosphorus levels in its discharge to a level consistently meeting a potential future effluent limit of 1.0 mg/L, 0.5 mg/L, and 0.1 mg/L. The study shall evaluate the construction and O & M costs of the application of these limits on a monthly, seasonal and annual average basis.

SPECIAL CONDITION 18. The Permittee shall develop and submit to the Agency a Phosphorus Discharge Optimization Plan within 24 months of the effective date of this permit. The plan shall include a schedule for the implementation of these optimization measures. Annual progress reports on the optimization of the existing treatment facilities shall be submitted to the Agency by March 31 of each year beginning 12 months from the effective date of the permit. In developing the plan, the Permittee shall evaluate a range of measures for reducing phosphorus discharges from the treatment plant, including possible source reduction measures, operational improvements, and minor facility modifications that will optimize reductions in phosphorus discharges from the wastewater treatment facility. The Permittee's evaluation shall include, but not be limited to, an evaluation of the following optimization measures:

- A. WWTF influent reduction measures.
  1. Evaluate the phosphorus reduction potential of users.
  2. Determine which sources have the greatest opportunity for reducing phosphorus (i.e., industrial, commercial, institutional, municipal and others).
    - a. Determine whether known sources (i.e., restaurant and food preparation) can adopt phosphorus minimization and water conservation plans.
    - b. Evaluate implementation of local limits on influent sources of excessive phosphorus.
- B. WWTF effluent reduction measures.
  1. Reduce phosphorus discharges by optimizing existing treatment processes.
    - a. Adjust the solids retention time for either nitrification, denitrification, or biological phosphorus removal.
    - b. Adjust aeration rates to reduce dissolved oxygen and promote simultaneous nitrification-denitrification.
    - c. Add baffles to existing units to improve microorganism conditions by creating divided anaerobic, anoxic, and aerobic zones.
    - d. Change aeration settings in plug flow basins by turning off air or mixers at the inlet side of the basin system.
    - e. Minimize impact on recycle streams by improving aeration within holding tanks.

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- f. Reconfigure flow through existing basins to enhance biological nutrient removal.
- g. Increase volatile fatty acids for biological phosphorus removal.

SPECIAL CONDITION 19. The Permittee shall participate in the Fox River Study Group (FRSG) throughout the duration of this permit cycle. The Permittee shall work with other watershed members of the FRSG to determine the most cost effective means to remove dissolved oxygen (DO) impairment and offensive condition impairments in the Fox River to the extent feasible. The Permittee shall participate in the FRSG for the completion of the following tasks set out in the 2015 Fox River Implementation Plan (either by the permittee or through the FRSG) by the schedule dates set forth below:

- A. The Permittee shall implement the recommendations of the 2015 Fox River Implementation Plan that are applicable to said Permittee during the term of this Permit.
- B. The FRSG will conduct these activities during the term of the permit:
  - 1. Work with the Army Corps of Engineers and Illinois Department of Natural Resources to restart the Fox River Habitat & Connectivity Study.
  - 2. Collect continuous dissolved oxygen data and other water quality parameters at the Algonquin Bike Bridge from May through September 2018 to update the FRSG's water quality model.
  - 3. Analyze Fox River and Major Tributary Water Quality Data and Trends, for the period 1998-2016 by December 31, 2018.
  - 4. Update the Fox River DB database with newly collected data, by July 31, 2019.
  - 5. Amend the modelling and use the modified model to reevaluate water quality improvement scenarios, by August 31, 2019.
  - 6. Amend the Implementation Plan by December 31, 2022 based on the improved modelling and which will include proposed watershed improvement projects.
- C. The Permittee shall submit an annual progress report on the activities identified in Item B above to the Agency by March 31 of each year. The Permittee may work cooperatively with the FRSG to prepare a single annual progress report that is common among FRSG permittees.
- D. In its application for renewal of this permit, the Permittee shall consider and incorporate recommended FRSG activities listed in the Implementation Plan that the Permittee will implement during the next permit term.

SPECIAL CONDITION 20. The Permittee shall monitor the wastewater effluent for Total Phosphorus, Dissolved Phosphorus, Nitrate/Nitrite, Total Kjeldahl Nitrogen (TKN), Ammonia, Total Nitrogen (calculated), Alkalinity and Temperature at least once a month beginning on the effective date of this permit. The Permittee shall monitor the wastewater influent for Total Phosphorus at least once a month. The results shall be submitted on electronic Discharge Monitoring Report Forms (NetDMRs) to IEPA unless otherwise specified by the IEPA.

SPECIAL CONDITION 21. A phosphorus limit of 1.0 mg/L (12-month rolling average, calculated monthly) shall become effective four and one-half (4 1/2) years from the effective date of this Permit.

In order for the Permittee to achieve the above limit, it will be necessary to modify existing treatment facilities to include phosphorus removal, reduce phosphorus sources or explore other ways to prevent discharges that exceed the limit. The Permittee must implement the following compliance measures consistent with the schedule below:

- |  |  |
|--|--|
| A. Progress Report on Phosphorus Removal Feasibility Report  | 6 months from the effective date of this Permit  |
| B. Progress Report on Phosphorus Removal Feasibility Report and Phosphorus Discharge Optimization Plan | 12 months from the effective date of this Permit |
| C. Progress Report on Phosphorus Removal Feasibility Report  | 18 Months from the effective date of this Permit |
| D. Phosphorus Removal Feasibility Report and Phosphorus Discharge Optimization Plan submitted          | 24 months from the effective date of this Permit |
| E. Progress Report on plans and specifications   | 30 months from the effective date of this Permit |
| F. Plans and Specifications submitted  | 36 months from the effective date of this Permit |
| G. Progress report on Construction   | 42 months from the effective date of this Permit |
| H. Complete Construction   | 48 months from the effective date of this Permit |
| I. Progress Report on Optimizing Treatment System  | 52 months from the effective date of this Permit |
| J. Achieve Annual Concentration and  | 54 months from the effective date of this Permit |

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## Loading Effluent Limitations for Total Phosphorus

Compliance dates may be modified based on the results of the Phosphorus Removal Feasibility Report required by Special Condition 17 of this Permit. All modifications of this Permit must be in accordance with 40 CFR 122.62 or 40 CFR 122.63.

Reporting shall be submitted on the DMR's on a monthly basis.

REPORTING

The Permittee shall submit progress reports for items A, B, C, D, E, G, H, and I of the compliance schedule indicating: a) the date the item was completed, or b) that the item was not completed, the reasons for non-completion and the anticipated completion date to the Agency Compliance Section.

SPECIAL CONDITION 22. The Permittee shall operate the facilities consistent with its design parameters for biological nutrient removal (BNR). Monitoring for Total Nitrogen is required to document the actual total nitrogen effluent concentration. The Permittee shall monitor the influent and effluent for total nitrogen once per month. The monitoring shall be a composite sample and the results reported as a monthly average and a daily maximum on the Permittee's Discharge Monitoring Forms.

SPECIAL CONDITION 23. The Agency shall consider all monitoring data submitted by the discharger in accordance with the monitoring requirements of this permit for all parameters, including but not limited to data pertaining to ammonia and dissolved oxygen for discharges from Discharge Number 002, to determine whether the discharges are at levels which cause, have the reasonable potential to cause or contribute to exceedances of water quality standards; and, if so, to develop appropriate water quality based effluent limitations. If the discharger wants the Agency to consider mixing when determining the need for and establishment of water quality based effluent limitations, the discharger shall submit a study plan on mixing to the Agency for the Agency's review and comment within two (2) months of the effective date of this Permit.

SPECIAL CONDITION 24. An effluent limit of 0.5 mg/L Total Phosphorus 12-month rolling geometric mean (calculated monthly) (hereinafter Limit) will be applicable to the Permittee beginning January 1, 2030. The Agency may modify the permit if:

- A. The Permittee demonstrates that the Limit is not technologically feasible; or
- B. The Permittee demonstrates the Limit would result in substantial and widespread economic or social impact. Substantial and widespread economic impacts must be demonstrated using applicable USEPA guidance, including but not limited to any of the following documents:
  1. Interim Economic Guidance for Water Quality Standards, March 1995, EPA-823-95-002;
  2. Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development, February 1997, EPA-832—97-004;
  3. Financial Capability Assessment Framework for Municipal Clean Water Act Requirements, November 24, 2014; or
- C. If the Implementation Plan determines that a greater phosphorus reduction is necessary and achievable before January 1, 2030, then the Permittee shall meet the phosphorus limit identified in the Implementation Plan in accordance with the schedule set out therein; or
- D. If the Limit is demonstrated not to be technologically or economically feasible by January 1, 2030, but is feasible within a longer timeline, then the Limit shall be met as soon as feasible; or
- E. If the Limit is demonstrated not to be technologically or economically achievable by the Permittee, then an effluent limit that is achievable by the Permittee must be met as soon as feasible and shall not exceed 0.6 mg/L Total Phosphorus 12-month rolling geometric mean (calculated monthly).

The Agency will modify or reissue the NPDES permit as necessary. Any permit modification or renewal will be public noticed and made available for public review and comment prior to issuance of any permit modification or renewal. No date deadline extension or effluent limitation modification will be effective until it is included in a modified or reissued NPDES permit.

**Attachment H**  
**Standard Conditions**

**Definitions**

**Act** means the Illinois Environmental Protection Act, 415 ILCS 5 as Amended.

**Agency** means the Illinois Environmental Protection Agency.

**Board** means the Illinois Pollution Control Board.

**Clean Water Act** (formerly referred to as the Federal Water Pollution Control Act) means Pub. L 92-500, as amended. 33 U.S.C. 1251 et seq.

**NPDES** (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the Clean Water Act.

**USEPA** means the United States Environmental Protection Agency.

**Daily Discharge** means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

**Maximum Daily Discharge Limitation** (daily maximum) means the highest allowable daily discharge.

**Average Monthly Discharge Limitation** (30 day average) means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

**Average Weekly Discharge Limitation** (7 day average) means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

**Best Management Practices** (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Aliquot** means a sample of specified volume used to make up a total composite sample.

**Grab Sample** means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

**24-Hour Composite Sample** means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period.

**8-Hour Composite Sample** means a combination of at least 3 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over an 8-hour period.

**Flow Proportional Composite Sample** means a combination of sample aliquots of at least 100 milliliters collected at periodic intervals such that either the time interval between each aliquot or the volume of each aliquot is proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot.

- (1) **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.
- (2) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. If the permittee submits a proper application as required by the Agency no later than 180 days prior to the expiration date, this permit shall continue in full force and effect until the final Agency decision on the application has been made.
- (3) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- (4) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- (5) **Proper operation and maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up, or auxiliary facilities, or similar systems only when necessary to achieve compliance with the conditions of the permit.
- (6) **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause by the Agency pursuant to 40 CFR 122.62 and 40 CFR 122.63. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- (7) **Property rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.
- (8) **Duty to provide information.** The permittee shall furnish to the Agency within a reasonable time, any information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Agency upon request, copies of records required to be kept by this permit.

(9) **Inspection and entry.** The permittee shall allow an authorized representative of the Agency or USEPA (including an authorized contractor acting as a representative of the Agency or USEPA), upon the presentation of credentials and other documents as may be required by law, to:

- (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- (d) Sample or monitor at reasonable times, for the purpose of assuring permit compliance, or as otherwise authorized by the Act, any substances or parameters at any location.

(10) **Monitoring and records.**

- (a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- (b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of this permit, measurement, report or application. Records related to the permittee's sewage sludge use and disposal activities shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503). This period may be extended by request of the Agency or USEPA at any time.
- (c) Records of monitoring information shall include:
  - (1) The date, exact place, and time of sampling or measurements;
  - (2) The individual(s) who performed the sampling or measurements;
  - (3) The date(s) analyses were performed;
  - (4) The individual(s) who performed the analyses;
  - (5) The analytical techniques or methods used; and
  - (6) The results of such analyses.
- (d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. Where no test procedure under 40 CFR Part 136 has been approved, the permittee must submit to the Agency a test method for approval. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to ensure accuracy of measurements.

(11) **Signatory requirement.** All applications, reports or information submitted to the Agency shall be signed and certified.

- (a) **Application.** All permit applications shall be signed as follows:
  - (1) For a corporation: by a principal executive officer of at least the level of vice president or a person or position having overall responsibility for environmental matters for the corporation;
  - (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
  - (3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
- (b) **Reports.** All reports required by permits, or other information requested by the Agency shall be signed by a person described in paragraph (a) or by a duly authorized representative of that person. A person is a duly

authorized representative only if:

- (1) The authorization is made in writing by a person described in paragraph (a); and
  - (2) The authorization specifies either an individual or a position responsible for the overall operation of the facility, from which the discharge originates, such as a plant manager, superintendent or person of equivalent responsibility; and
  - (3) The written authorization is submitted to the Agency.
- (c) **Changes of Authorization.** If an authorization under (b) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of (b) must be submitted to the Agency prior to or together with any reports, information, or applications to be signed by an authorized representative.
- (d) **Certification.** Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(12) **Reporting requirements.**

- (a) **Planned changes.** The permittee shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required when:
  - (1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source pursuant to 40 CFR 122.29 (b); or
  - (2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements pursuant to 40 CFR 122.42 (a)(1).
- (3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- (b) **Anticipated noncompliance.** The permittee shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (c) **Transfers.** This permit is not transferable to any person except after notice to the Agency.
- (d) **Compliance schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- (e) **Monitoring reports.** Monitoring results shall be reported at the intervals specified elsewhere in this permit.
  - (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR).

- (2) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
- (3) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Agency in the permit.
- (f) **Twenty-four hour reporting.** The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24-hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and time; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported within 24-hours:
- (1) Any unanticipated bypass which exceeds any effluent limitation in the permit.
  - (2) Any upset which exceeds any effluent limitation in the permit.
  - (3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Agency in the permit or any pollutant which may endanger health or the environment.  
The Agency may waive the written report on a case-by-case basis if the oral report has been received within 24-hours.
- (g) **Other noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs (12) (d), (e), or (f), at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (12) (f).
- (h) **Other information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Agency, it shall promptly submit such facts or information.
- (13) **Bypass.**
- (a) Definitions.
    - (1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
    - (2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
  - (b) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (13)(c) and (13)(d).
  - (c) Notice.
    - (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
    - (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph (12)(f) (24-hour notice).
  - (d) Prohibition of bypass.
    - (1) Bypass is prohibited, and the Agency may take enforcement action against a permittee for bypass, unless:
      - (i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
      - (ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
      - (iii) The permittee submitted notices as required under paragraph (13)(c).
    - (2) The Agency may approve an anticipated bypass, after considering its adverse effects, if the Agency determines that it will meet the three conditions listed above in paragraph (13)(d)(1).
- (14) **Upset.**
- (a) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
  - (b) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (14)(c) are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
  - (c) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
    - (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
    - (2) The permitted facility was at the time being properly operated; and
    - (3) The permittee submitted notice of the upset as required in paragraph (12)(f)(2) (24-hour notice).
    - (4) The permittee complied with any remedial measures required under paragraph (4).
  - (d) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.
- (15) **Transfer of permits.** Permits may be transferred by modification or automatic transfer as described below:
- (a) Transfers by modification. Except as provided in paragraph (b), a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued pursuant to 40 CFR 122.62 (b) (2), or a minor modification made pursuant to 40 CFR 122.63 (d), to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act.



- (b) Automatic transfers. As an alternative to transfers under paragraph (a), any NPDES permit may be automatically transferred to a new permittee if:
- (1) The current permittee notifies the Agency at least 30 days in advance of the proposed transfer date;
  - (2) The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage and liability between the existing and new permittees; and
  - (3) The Agency does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement.
- (16) All manufacturing, commercial, mining, and silvicultural dischargers must notify the Agency as soon as they know or have reason to believe:
- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant identified under Section 307 of the Clean Water Act which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
    - (1) One hundred micrograms per liter (100 ug/l);
    - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6 dinitrophenol; and one milligram per liter (1 mg/l) for antimony.
    - (3) Five (5) times the maximum concentration value reported for that pollutant in the NPDES permit application; or
    - (4) The level established by the Agency in this permit.
  - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the NPDES permit application.
- (17) All Publicly Owned Treatment Works (POTWs) must provide adequate notice to the Agency of the following:
- (a) Any new introduction of pollutants into that POTW from an indirect discharge which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and
  - (b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
  - (c) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
- (18) If the permit is issued to a publicly owned or publicly regulated treatment works, the permittee shall require any industrial user of such treatment works to comply with federal requirements concerning:
- (a) User charges pursuant to Section 204 (b) of the Clean Water Act, and applicable regulations appearing in 40 CFR 35;
  - (b) Toxic pollutant effluent standards and pretreatment standards pursuant to Section 307 of the Clean Water Act; and
  - (c) Inspection, monitoring and entry pursuant to Section 308 of the Clean Water Act.
- (19) If an applicable standard or limitation is promulgated under Section 301(b)(2)(C) and (D), 304(b)(2), or 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in the permit, or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked, and reissued to conform to that effluent standard or limitation.
- (20) Any authorization to construct issued to the permittee pursuant to 35 Ill. Adm. Code 309.154 is hereby incorporated by reference as a condition of this permit.
- (21) The permittee shall not make any false statement, representation or certification in any application, record, report, plan or other document submitted to the Agency or the USEPA, or required to be maintained under this permit.
- (22) The Clean Water Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act is subject to a civil penalty not to exceed \$25,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Additional penalties for violating these sections of the Clean Water Act are identified in 40 CFR 122.41 (a)(2) and (3).
- (23) The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both.
- (24) The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (25) Collected screening, slurries, sludges, and other solids shall be disposed of in such a manner as to prevent entry of those wastes (or runoff from the wastes) into waters of the State. The proper authorization for such disposal shall be obtained from the Agency and is incorporated as part hereof by reference.
- (26) In case of conflict between these standard conditions and any other condition(s) included in this permit, the other condition(s) shall govern.
- (27) The permittee shall comply with, in addition to the requirements of the permit, all applicable provisions of 35 Ill. Adm. Code, Subtitle C, Subtitle D, Subtitle E, and all applicable orders of the Board or any court with jurisdiction.
- (28) The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit is held invalid, the remaining provisions of this permit shall continue in full force and effect.



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## Final NPDES Electronic Reporting Rule

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On 24 September 2015, Administrator Gina McCarthy signed the final National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule for publication in the Federal Register. The publication of this rule is the latest step in an extensive multi-year outreach effort with EPA's state, tribal and territorial partners. This rule will replace most paper-based Clean Water Act (CWA) NPDES permitting and compliance monitoring reporting requirements with electronic reporting.

### Purpose of the Final Rule

This final rule is designed to save authorized state, tribe, or territorial NPDES programs considerable resources, make reporting easier for NPDES-regulated entities, streamline permit renewals, ensure full exchange of basic NPDES permit data between states and EPA, improve environmental decision-making, and better protect human health and the environment.

This final rule requires that NPDES regulated entities electronically submit the following permit and compliance monitoring information instead of using paper reports:

- Discharge Monitoring Reports (DMRs);
- Notices of Intent to discharge in compliance with a general permit; and
- Program reports.

Authorized NPDES programs will also electronically submit NPDES program data to EPA to ensure that there is consistent and complete reporting nationwide, and to expedite the collection and processing of the data, thereby making it more accurate and timely. Importantly, while the rule changes the method by which information is provided (i.e., electronic rather than paper-based), it does not increase the amount of information required from NPDES regulated entities facilities under existing regulations.

### Overview of Benefits

EPA anticipates that the final rule will save significant resources for states, tribes, and territories as well as EPA and NPDES permittees, while resulting in a more complete, accurate, and nationally-consistent set of data about the NPDES program. With full implementation (5 years after the effective date), the anticipated savings are:

- Authorized State NPDES programs: \$22.6 million annually,
- NPDES regulated entities: \$0.5 million annually, and
- EPA: \$1.2 million annually.

As an example demonstrating the benefits of electronic reporting is the State of Ohio's electronic reporting program for Discharge Monitoring Reports, which has a 99.9 percent adoption rate. This program has increased data quality and improved environmental protection, while also saving significant time and resources (e.g., Ohio was able to shift resources from five full-time staff to less than one to support the DMR program). The benefits of this final rule should allow NPDES-authorized programs in states, tribes, and territories to shift precious resources from data management activities to those more targeted to solving water quality issues.

Separate from this rulemaking, to promote transparency and accountability, EPA intends to make this more complete set of data available to the public, providing communities and citizens with information on facility and government performance. This can serve to elevate the importance of permitting and compliance information and environmental performance within regulated entities, providing opportunities for them to quickly address any potential environmental problems.

The final rule will also lighten the reporting burden currently placed on the states. Upon successful implementation, the final rule would provide states with regulatory relief from reporting associated with the Quarterly Non-Compliance Report, the Annual Non-Compliance Report, the Semi-Annual Statistical Summary Report, and the biosolids information required to be submitted to EPA annually by states.

## **Implementation**

EPA will phase in the requirements of the rule over a five year period following the effective date of the final rule.

### Phase 1 – One year after effective date of final rule

In Phase 1, EPA will begin to electronically receive information from authorized states, tribes, and territories regarding inspections, violation determinations, and enforcement actions. EPA, states, tribes, and territories will electronically receive Discharge Monitoring Report (DMR) information from NPDES permittees – the largest volume of data for the NPDES program. Also included in Phase 1 are the Sewage Sludge/Biosolids Annual Program Reports for the 42 states where EPA implements the Federal Biosolids Program.

Additionally, one year after the effective date of the final rule, authorized NPDES programs will submit an implementation plan for meeting the Phase 2 data requirements for EPA to review.

### Phase 2—Five years after effective date of final rule

For Phase 2, EPA and authorized state NPDES programs have five years to begin electronically collecting, managing, and sharing the remaining set of NPDES program information. This information includes: general permit reports (e.g. Notice of Intent to be covered (NOI); Notice of Termination (NOT); No Exposure Certification (NOE); Low Erosivity Waiver and Other Waivers from Stormwater Controls (LEW)); Sewage Sludge/Biosolids Annual Program Report (where the state is

the authorized NPDES biosolids program); and all other remaining NPDES program reports. These program reports include:

- Sewage Sludge/Biosolids Annual Program Reports [40 CFR 503] (for the 8 states that implement the Federal Biosolids Program)
- Concentrated Animal Feeding Operation (CAFO) Annual Program Reports [40 CFR 122.42(e)(4)]
- Municipal Separate Storm Sewer System (MS4) Program Reports [40 CFR 122.34(g)(3) and 122.42(c)]
- Pretreatment Program Reports [40 CFR 403.12(i)]
- Significant Industrial User Compliance Reports in Municipalities Without Approved Pretreatment Programs [40 CFR 403.12(e) and (h)]
- Sewer Overflow/Bypass Event Reports [40 CFR 122.41(l)(4), (l)(6) and (7), (m)(3)]
- CWA Section 316(b) Annual Reports [40 CFR 125 Subpart J]

#### **How the final rule addresses comments**

In response to concerns about implementation raised during the comment periods, the final rule provides authorized NPDES programs more flexibility to implement the final rule by providing them up to three additional years to electronically collect, manage, and share their data. Authorized NPDES Programs will also have more flexibility in how they can grant electronic reporting waivers.

#### **Further Information**

For additional information, please contact Messrs. John Dombrowski, Director, Enforcement Targeting and Data Division (202-566-0742) or Carey A. Johnston (202-566-1014), Office of Compliance (mail code 2222A), Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, DC, 20460; e-mail addresses: [dombrowski.john@epa.gov](mailto:dombrowski.john@epa.gov) or [johnston.carey@epa.gov](mailto:johnston.carey@epa.gov).

#### **Useful Final Rule Link:**

Email sign up for outreach events

<https://public.govdelivery.com/accounts/USAEPAOECA/subscriber/new?>



## ***Appendix B***

# ***Historical Revenues and Expenditures – Sewer Fund***

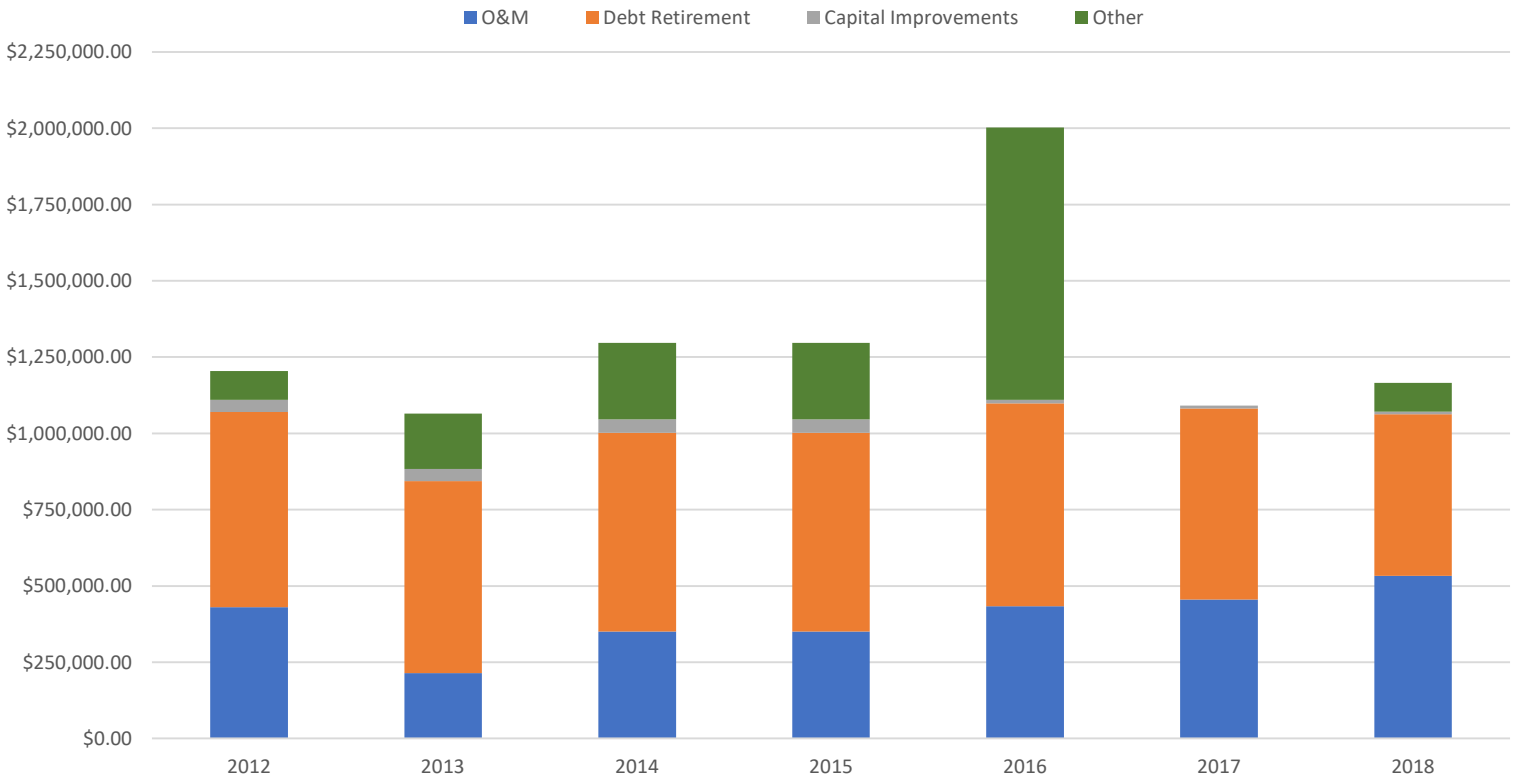
Interest	\$400.00	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other	\$171,229.00	\$12,790.00	\$713,981.04	\$713,981.04	\$24,567.55	\$15,857.00	\$15,9	\$15,9
<b>Total Annual Revenue</b>	<b>\$1,206,729.00</b>	<b>\$1,113,790.00</b>	<b>\$1,732,056.72</b>	<b>\$1,732,056.72</b>	<b>\$1,098,928.99</b>	<b>\$1,099,212.00</b>	<b>\$1,134</b>	<b>\$1,134</b>
<b>Net Difference</b>	<b>\$2,922.00</b>	<b>\$48,912.00</b>	<b>\$435,593.84</b>	<b>\$435,593.84</b>	<b>-\$903,290.08</b>	<b>\$8,108.00</b>	<b>-\$31,</b>	<b>-\$31,</b>

Revenue and expenditures are obtained from yearly NPDES reports sent by the City

G:\Public\Sandwich\2019\SA1905 NPDES Permit Planning Documents\Eng\Sewer Rate Study\[Appendix B - Historical Revenues and Expenditures - Sewer Fund.xlsx

### Appendix B: Historical Expenditures (FY 2012-2013 to 2018-2019)

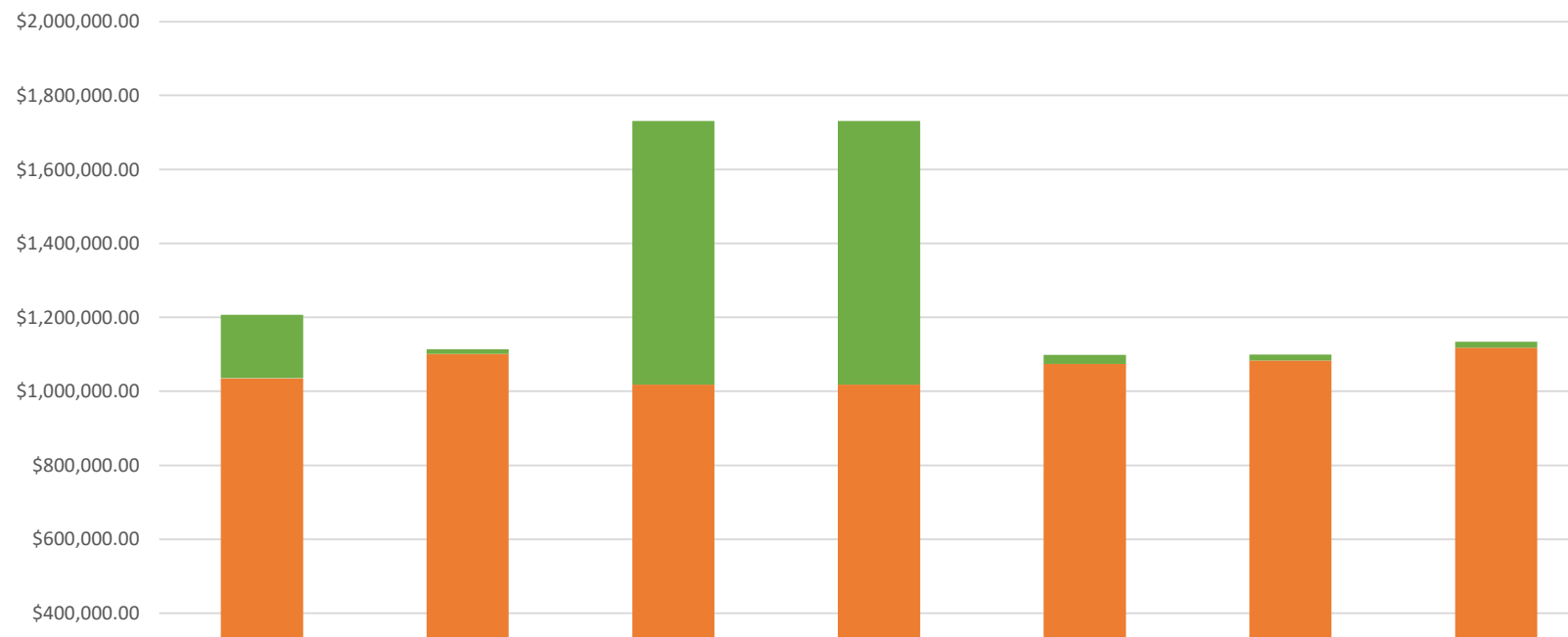
City of Sandwich, IL



### Appendix B: Historical Revenue (FY 2012-2013 to 2018-2019)

City of Sandwich, IL

User Charges Interest Other





## ***Appendix C***

### ***2019 Sewer Fund Budget (Spreadsheet Format)***

EXPENDITURE

300.0040.98.7125	\$0.00	Two years ago, there was a depreciation expense of \$55
300.0040.98.7225	\$0.00	
300.0000.50.5010	\$145,000.00	contracted class 1 wastewater operator, operators, billing works
300.0000.50.5012	\$61,000.00	This component covers the wages of Street Department sewer repairs, and similar sewer projects
300.0000.50.5015	\$0.00	
300.0000.50.5020	\$7,000.00	saturdays, 1 hour per Saturday at \$45/hr. This is for school remaining time (59 hours) is for call outs. Call outs include station alarms.
300.0000.50.5025	\$4,500.00	1 hour per sundat at \$60/hr and 2 hour per holiday at \$60/hr
300.0000.50.5030	\$1,710.00	holiday overtime work. The remaining time (9 hours) is for
300.0000.50.5032	\$2,900.00	
300.0000.50.5040	\$22,000.00	
300.0000.50.5042	\$12,300.00	
300.0000.50.5045	\$0.00	
300.0000.50.5050	\$0.00	Other types of benefits that could qualify under this line include account fees, anniversary awards, etc.
300.0000.50.5055	\$0.00	
300.0000.50.5070	\$0.00	
300.0000.50.5100	\$3,000.00	This will cover wastewater related training seminars and
300.0000.50.5105	\$0.00	This line item will cover the City's requirement to participate in addition, the wastewater operators can join organization Association
300.0000.50.5110	\$0.00	
300.0000.50.5200	\$65,000.00	This line item can cover drug and alcohol screenings, a

ipment

Station

ation



g Station

on

1

1

Commercial – Heat

7-786-6471)

m Dialer (815-786-8499)

Station (815-786-4445) Service cancelled July 2, 2019

Station (PumpView by Xylem @ \$500.00 annually)

ation (815-786-7657)

g Station (815-786-9101)

on (815-786-1446)

n (~~815-786-2928~~) Service cancelled

n (~~815-786-2984~~) Service cancelled

7-786-2823)

8.00

for dried grease (Groot Industries, Inc.)

\$4,200.00

300.0000,60.5205

\$5,500.00

300.0000,60.5210

\$960.00

300.0000,60.5215

\$2,000.00

300.0000,60.5220

\$600.00

300.0000,60.5300

\$7,000.00

300.0000,60.5305

\$1,500.00

300.0000,60.5310

\$3,700.00

300.0000,60.5315

This line item covers basic office supplies like printer ink

This will cover operating and cleaning supplies not covered by other items. This would be daily consumables like garbage bags, batteries, etc. Based on a clothing allowance of \$600.00 per employee

300.00000.65.5325		\$3,000.00	This will be used for safety items such as disposable lab protection, safety vests/uniform etc.
300.00000.65.5330		\$800.00	
300.00000.65.5340		\$5,500.00	This will cover repair and replacement parts and wear it
300.00000.65.5350		\$14,000.00	vacuum tubing parts are wear items that are subject to
300.00000.65.5355		\$3,600.00	jetter hose
	Chlorination)	\$500.00	
	Dechlorination)	\$500.00	
		\$3,500.00	
	filters	\$453.00	
	filters	\$150.00	
	tests per week =54 total test days x 3 per day = 162	\$70.00	
		\$240.00	
		\$75.00	
	filters	\$80.00	
	minimum	\$270.00	
		\$275.00	
	per week	\$280.00	
		\$300.00	
		\$75.00	

Access Flow Event

le

\$41.79/pack

pipettes, graduated cylinders, sample bottles etc.

\$1,000.00

There should be a line item for street repair costs for a gravel, concrete or asphalt for street pavements, sidewalk grass seed are all restoration costs that could be needed

300.0000.65.5360

This covers repairs and maintenance that may be needed for treatment process. My preference is to leave this funding for equipment vs. using contingency. This will also cover grass seed and fasteners. Some of this was paid for out of operating

300.0000.65.5375

\$15,000.00

This line item includes.

ment

flow meter calibration - \$425.00 (annual)

fasteners

flow meter calibration - \$425.00 (annual)

flow meter calibration - \$425.00 (annual)

flow meter calibration - \$425.00 (annual)

)

oxygen analyzer (1)

flow pumps (4)

flow pumps (2)

sludge pumps (2)

equipment

cleaning (2)

300 (5 years)

3,000 (5 years)





This line item covers the land application of biosolids. T  
to the field where they will be land applied by a contract

\$15,000.00  
\$125.00

300.0000,70.5583  
300.0000,70.5610

This line item appears to be offset by 300,0000.00,0100  
collecting for credit card processing fees is the same ra  
The City should consider raising the processing fees an

\$600.00  
\$0.00

300.0000,75.5615  
300.0000,75.5630

2017 Taxes \$14.88  
2017 Taxes \$178.50

19-35-251-003  
19-36-227-012

Does this line item get balanced by a reduction in the re  
entry? There was a charge to this line item for \$1,921.  
been adjusted by this amount.

\$0.00

300.0000,75.5690

The IEPA Permits currently being paid from this line item  
are required expenses.

\$18,500.00  
\$17,500.00  
\$500.00  
\$2,500.00  
\$0.00  
\$0.00  
\$0.00

300.0000,75.5695  
  
300.0000,80.5730  
300.0000,85.5830  
300.0000,90.6800

The net debt service schedule for the \$4,880,000 General Refunding Bonds (ARS), Series 2013 Dated Date 10/15/2013

300.0000.95.xxxx

Budget	Date	Principal	Interest
2013/2014	3/15/2014	\$ -	\$ -
2014/2015	9/15/2014	\$ 500,000	\$ -
	3/15/2015	\$ -	\$ -
2015/2016	9/15/2015	\$ 510,000	\$ -
	3/15/2016	\$ -	\$ -
2016/2017	9/15/2016	\$ 520,000	\$ -
	3/15/2017	\$ -	\$ -
2017/2018	9/15/2017	\$ 530,000	\$ -
	3/15/2018	\$ -	\$ -
2018/2019	9/15/2018	\$ 545,000	\$ -
	3/15/2019	\$ -	\$ -
2019/2020	9/15/2019	\$ 560,000	\$ -
	3/15/2020	\$ -	\$ -
2020/2021	9/15/2020	\$ 575,000	\$ -
	3/15/2021	\$ -	\$ -
2021/2022	9/15/2021	\$ 595,000	\$ -
	3/15/2022	\$ -	\$ -
2022/2023	9/15/2022	\$ 545,000	\$ -
<b>Total</b>		<b>\$ 4,880,000</b>	<b>\$ -</b>

300.0000.95.6900 \$545,000.00

This line item will cover the yearly principal payment due on September 15, 2019 in an amount of \$560,000.

300.0000.95.6910 \$80,763.00  
 300.0000.95.6920 \$0.00  
 300.0000.95.6930 \$0.00

This line item will cover the biannual interest payments due on September 15, 2019 in an amount of \$28,575.00. (See above.)

300.0040.98.7100 \$0.00  
 300.0000.00.7125  
 300.0000.00.7225  
 300.0000.97.700

There is an expenditure from this line item for the Neopost January 2019. (An additional amount was charged to Neopost folding machine should be an expense for equipment.)

REVENUE

300.0000,05.4130  
300.0000,00.0100  
300.0000,10.4200

The expense for Credit Card Service Charge seems to instead of 300,0000,30,4690.

No federal grants have been applied for or received for

300.0000,10.4400  
300.0000,15.4405

The estimated sewer revenues for 2018/2019 were \$1, fees that would typically be captured in 300,0000,15,44 Subtracting the sewer user fees of approximately \$50,0 estimate gives a 2019/2020 estimated sewer revenue o

\$1,100,000,00  
\$54,180,00

300.0000,20.4645  
300.0000,20.4650  
300.0000,25.4675

Out of the \$10,00 charged to a user when the utility bill receives \$7,00. Consideration should be given to increase \$11,700 for the collected late charges through February 1,671 user instances have been late out of a possible 9 months. Over 18% of user instances do not pay within quarters \* 2,709 users \*(10 months/12 months) = 9,030 budget amount for this line item was \$210,545.31.

I assume that this line item is for fines relating to Section have been identified

I believe that there should be some interest component

300.0000,30.4690  
300.0000,30.4695  
300.0000,35.4850  
300.0000,40.4900  
300.0000,45.4990  
300.0000,98.4923

Revenue from the credit card processing appears to go line item. There is also an expense Credit Card Service believe that the rate that the City is collecting for credit charged by the payment processor. The City should consider generating a bit of income





## ***Appendix D***

# *Historic and Projected Wastewater Flows*

**APPENDIX D: HISTORIC AND PROJECTED WASTEWATER FLOWS**  
**SEWER RATE STUDY**  
**CITY OF SANDWICH, IL**

Month	Total Pumped Water Usage (Gal)	Average Daily Pumped Water Usage (GPD)	Approximate Total Billed Water Usage (Gal)	Approximate Average Billed Water Usage (GPD) <sup>1</sup>	Non-Irrigation Billed Water Usage (GPD) <sup>2</sup>	Non-Irrigation Billed Water Usage (GPCD) <sup>3</sup>	Total WWTF Influent Flow (Gal)	Average Daily WWTF Influent Flow (GPD)	WWTF Influent Flow per Capita (GPCD) <sup>3</sup>	Precipitation (in)
Jan 2016	25,221,000	813,581	15,310,133	493,875	493,875	67	18,394,000	593,355	81	0.70
Feb 2016	22,874,000	788,759	13,885,412	478,807	478,807	65	15,023,000	518,034	70	1.00
Mar 2016	23,637,000	762,484	14,348,583	462,858	462,858	63	16,658,000	537,355	73	3.90
Apr 2016	25,886,000	862,867	15,713,814	523,794	523,794	71	15,323,000	510,767	69	2.10
May 2016	25,342,000	817,484	15,383,585	496,245	465,478	63	19,117,000	616,677	84	8.00
Jun 2016	25,700,000	856,667	15,600,905	520,030	487,788	66	16,945,000	564,833	77	5.40
Jul 2016	25,720,000	829,677	15,613,046	503,647	472,421	64	19,123,000	616,871	84	7.20
Aug 2016	27,613,000	890,742	16,762,171	540,715	507,191	69	16,969,000	547,387	74	5.70
Sep 2016	24,397,000	813,233	14,809,933	493,664	463,057	63	16,057,000	535,233	73	2.90
Oct 2016	24,911,000	803,581	15,121,951	487,805	487,805	66	14,748,000	475,742	65	4.10
Nov 2016	22,610,000	753,667	13,725,154	457,505	457,505	62	14,306,000	476,867	65	3.00
Dec 2016	24,559,000	792,226	14,908,273	480,912	480,912	65	14,065,000	453,710	62	0.50
Jan 2017	24,947,000	804,742	15,564,091	502,067	502,067	68	16,368,000	528,000	72	2.90
Feb 2017	22,602,000	807,214	14,101,078	503,610	503,610	68	13,092,000	467,571	63	0.70
Mar 2017	24,984,000	805,935	15,587,175	502,812	502,812	68	17,328,000	558,968	76	6.10
Apr 2017	24,112,000	803,733	15,043,146	501,438	501,438	68	24,780,000	826,000	112	7.10
May 2017	26,078,000	841,226	16,269,707	524,829	492,290	67	25,236,000	814,065	110	5.50
Jun 2017	26,339,000	877,967	16,432,541	547,751	513,791	70	15,198,000	506,600	69	4.40
Jul 2017	26,267,000	847,323	16,387,621	528,633	495,858	67	24,336,000	785,032	107	11.80
Aug 2017	26,743,000	862,677	16,684,591	538,213	504,843	68	15,711,000	506,806	69	1.65
Sep 2017	26,212,000	873,733	16,353,308	545,110	511,313	69	13,673,000	455,767	62	0.48
Oct 2017	25,326,000	816,968	15,800,544	509,695	509,695	69	27,247,000	878,935	119	13.31
Nov 2017	22,841,000	761,367	14,250,187	475,006	475,006	64	15,570,000	519,000	70	2.29
Dec 2017	23,351,000	753,258	14,568,369	469,947	469,947	64	13,687,000	441,516	60	0.72
Jan 2018	25,468,000	821,548	17,182,164	554,263	554,263	75	15,048,000	485,419	66	1.04
Feb 2018	23,284,000	831,571	15,708,713	561,025	561,025	76	22,372,000	799,000	108	4.86
Mar 2018	25,269,000	815,129	17,047,907	549,932	549,932	75	18,886,000	609,226	83	2.18
Apr 2018	23,378,000	779,267	15,772,130	525,738	525,738	71	15,133,000	504,433	68	1.27
May 2018	23,820,000	794,000	16,070,329	535,678	502,466	68	16,729,000	557,633	76	5.12
June 2018	23,330,000	777,667	15,739,747	524,658	492,129	67	20,390,000	679,667	92	9.89
Jul 2018	23,758,000	791,933	16,028,500	534,283	501,158	68	15,401,000	513,367	70	2.38
Aug 2018	23,305,000	776,833	15,722,881	524,096	491,602	67	14,570,000	485,667	66	4.09
Sep 2018	21,648,000	721,600	14,604,974	486,832	456,649	62	14,078,000	469,267	64	2.12
Oct 2018	20,927,000	697,567	14,118,546	470,618	470,618	64	14,574,000	485,800	66	5.49
Nov 2018	18,465,000	615,500	12,457,541	415,251	415,251	56	13,001,000	433,367	59	1.61
Dec 2018	19,415,000	647,167	13,098,465	436,615	436,615	59	15,316,000	510,533	69	1.87
Jan 2019	20,456,000	681,867	12,993,531	433,118	433,118	58	13,612,000	453,733	61	2.96
Feb 2019	18,504,000	616,800	11,753,632	391,788	391,788	53	16,071,000	535,700	72	3.15
Mar 2019	20,631,000	687,700	13,104,690	436,823	436,823	59	16,885,000	562,833	76	2.51
Apr 2019	20,956,000	698,533	13,311,128	443,704	443,704	60	18,704,000	623,467	84	3.75
May 2019	21,707,000	723,567	13,788,159	459,605	431,110	58	48,973,000	1,632,433	220	14.00
June 2019	22,123,000	737,433	14,052,400	468,413	439,372	59	30,701,000	1,023,367	138	4.17
July 2019	23,938,000	797,933	15,205,277	506,843	475,418	64	24,432,000	788,129	106	5.82
Aug 2019	24,016,000	800,533	15,254,822	508,494	476,967	64	16,271,000	524,871	71	4.02
Sep 2019	21,623,000	720,767	13,734,802	457,827	429,441	58	25,498,000	849,933	115	10.54
Oct 2019	21,592,000	719,733	13,715,111	457,170	428,826	58	25,880,000	834,839	112	4.95
Nov 2019	20,471,000	682,367	13,003,059	433,435	406,562	55	22,119,000	737,300	99	1.72
Dec 2019	21,149,000	704,967	13,433,720	447,791	420,028	57	18,155,000	585,645	79	2.24
<b>FUTURE PROJECTIONS USING CMAP POPULATION ESTIMATES AND HISTORICAL USAGE</b>										
2020			180,129,548	493,168	480,345	65	224,932,989	615,833	83	
2030			228,141,439	624,617	608,377	65	284,886,829	779,978	83	
2040			265,157,685	725,962	707,087	65	331,110,088	906,530	83	
2050			317,490,161	869,241	846,640	65	396,459,169	1,085,446	83	
<b>FUTURE PROJECTIONS USING CMAP POPULATION ESTIMATES AND 100 GPCD</b>										
2020			278,287,500	761,910	742,100	100	271,052,025	742,100	100	
2030			352,462,500	964,990	939,900	100	343,298,475	939,900	100	
2040			409,650,000	1,121,561	1,092,400	100	398,999,100	1,092,400	100	
2050			490,500,000	1,342,916	1,308,000	100	477,747,000	1,308,000	100	
<b>FUTURE PROJECTIONS USING REVISED POPULATION ESTIMATES AND HISTORICAL USAGE</b>										
2020			180,129,548	493,168	480,345	65	224,932,989	615,833	83	
2030			185,590,961	508,120	494,909	65	231,752,814	634,505	83	
2040			191,198,012	523,472	509,861	65	238,754,501	653,674	83	
2050			196,999,247	539,355	525,331	65	245,998,671	673,508	83	
<b>FUTURE PROJECTIONS USING REVISED POPULATION ESTIMATES AND 100 GPCD</b>										
2020			278,287,500	761,910	742,100	100	271,052,025	742,100	100	
2030			286,725,000	785,010	764,600	100	279,270,150	764,600	100	
2040			295,387,500	808,727	787,700	100	287,707,425	787,700	100	
2050			304,350,000	833,265	811,600	100	296,436,900	811,600	100	

^Avg. Annual Irrigation is approx. 2.6% of total annual billed water use

**Notes**

- Irrigation estimated as 6.2% of Billed Water Usage during irrigation months (assumed from May-September)
- Population estimated at 7,421 in 2016, 2017, and 2018 based on feedback provided by CMAP.
- Precipitation data from Jan 2016 - Dec 2019 is taken from CoCoRaHS.



## ***Appendix E***

### ***Projected CIP Items – Sanitary System***





## *Appendix F*

### *Projected Operation and Maintenance Items*



## ***Appendix F.1***

### ***Projected Operation and Maintenance Items – WWTF***

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
2003	\$2,000	\$2,130	\$2,190	\$2,260	\$2,320	\$2,390	\$2,460	\$2,540	\$2,610	\$2,690	\$2,770	\$2,860	\$2,940	\$3,030	\$3,120	\$3,210	\$3,310
2003	\$750	\$800	\$820	\$850	\$870	\$900	\$930	\$960	\$980	\$1,010	\$1,040	\$1,070	\$1,110	\$1,140	\$1,170	\$1,210	\$1,240
2003	\$2,500	\$2,660	\$2,740	\$2,820	\$2,900	\$2,990	\$3,080	\$3,170	\$3,270	\$3,360	\$3,470	\$3,570	\$3,680	\$3,790	\$3,900	\$4,020	\$4,140
2003	\$0	\$0	\$65,000	\$66,950	\$68,959	\$71,027	\$73,158	\$75,353	\$77,613	\$79,942	\$82,340	\$84,811	\$87,360	\$89,989	\$92,698	\$95,487	\$98,356
2003	\$3,000	\$3,190	\$3,280	\$3,380	\$3,480	\$3,590	\$3,690	\$3,810	\$3,920	\$4,040	\$4,160	\$4,280	\$4,410	\$4,540	\$4,680	\$4,820	\$4,960
2003	\$10,250	\$10,910	\$76,220	\$78,520	\$80,849	\$83,287	\$85,778	\$88,373	\$91,003	\$93,732	\$104,210	\$107,340	\$110,561	\$113,875	\$117,286	\$120,805	\$124,425
2003	\$450	\$480	\$500	\$510	\$530	\$540	\$560	\$580	\$590	\$610	\$630	\$650	\$670	\$690	\$710	\$730	\$750
2003	\$350	\$360	\$390	\$400	\$410	\$420	\$440	\$450	\$460	\$480	\$490	\$500	\$520	\$530	\$550	\$570	\$580
2003	\$400	\$430	\$440	\$460	\$470	\$480	\$500	\$510	\$530	\$540	\$560	\$570	\$590	\$610	\$630	\$650	\$670
2003	\$250	\$270	\$280	\$290	\$300	\$300	\$320	\$330	\$340	\$350	\$360	\$370	\$380	\$390	\$410	\$420	\$440
2003	\$250	\$270	\$280	\$290	\$290	\$300	\$310	\$320	\$330	\$340	\$350	\$360	\$370	\$380	\$390	\$410	\$420
2003	\$1,700	\$1,830	\$1,890	\$1,950	\$1,990	\$2,040	\$2,120	\$2,180	\$2,240	\$2,310	\$2,380	\$2,450	\$2,520	\$2,590	\$2,670	\$2,770	\$2,840
2003	\$800	\$850	\$880	\$910	\$930	\$960	\$990	\$1,020	\$1,050	\$1,080	\$1,110	\$1,150	\$1,180	\$1,220	\$1,260	\$1,290	\$1,330
2003	\$200	\$220	\$220	\$230	\$240	\$240	\$250	\$260	\$270	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$340
2003	\$425	\$460	\$470	\$480	\$500	\$510	\$530	\$540	\$560	\$580	\$590	\$610	\$630	\$650	\$670	\$690	\$710
2003	\$425	\$460	\$470	\$480	\$500	\$510	\$530	\$540	\$560	\$580	\$590	\$610	\$630	\$650	\$670	\$690	\$710
2003	\$500	\$540	\$550	\$570	\$580	\$600	\$620	\$640	\$660	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
2003	\$600	\$640	\$660	\$680	\$700	\$720	\$740	\$770	\$790	\$810	\$840	\$860	\$890	\$910	\$940	\$970	\$1,000
2003	\$650	\$690	\$720	\$740	\$760	\$780	\$800	\$830	\$850	\$880	\$900	\$930	\$960	\$990	\$1,020	\$1,050	\$1,080
2003	\$250	\$270	\$280	\$290	\$290	\$300	\$310	\$320	\$330	\$340	\$350	\$360	\$370	\$380	\$390	\$410	\$420
2003	\$450	\$480	\$500	\$510	\$530	\$540	\$560	\$580	\$590	\$610	\$630	\$650	\$670	\$690	\$710	\$730	\$750
2003	\$4,300	\$4,610	\$4,750	\$4,890	\$5,030	\$5,160	\$5,330	\$5,500	\$5,660	\$5,830	\$5,990	\$6,180	\$6,370	\$6,560	\$6,740	\$6,970	\$7,170
2003	\$700	\$750	\$770	\$790	\$820	\$840	\$870	\$890	\$920	\$950	\$970	\$1,000	\$1,030	\$1,060	\$1,100	\$1,130	\$1,160
2003	\$500	\$540	\$550	\$570	\$580	\$600	\$620	\$640	\$660	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
2003	\$250	\$270	\$280	\$290	\$290	\$300	\$310	\$320	\$330	\$340	\$350	\$360	\$370	\$380	\$390	\$410	\$420
2003	\$1,450	\$1,560	\$1,600	\$1,650	\$1,690	\$1,740	\$1,800	\$1,850	\$1,910	\$1,970	\$2,020	\$2,080	\$2,140	\$2,200	\$2,270	\$2,350	\$2,410
2000	\$2,500	\$2,660	\$2,740	\$2,820	\$2,900	\$2,990	\$3,080	\$3,170	\$3,270	\$3,360	\$3,470	\$3,570	\$3,680	\$3,790	\$3,900	\$4,020	\$4,140
2000	\$600	\$640	\$660	\$680	\$700	\$720	\$740	\$770	\$790	\$810	\$840	\$860	\$890	\$910	\$940	\$970	\$1,000
2000	\$650	\$690	\$720	\$760	\$760	\$780	\$800	\$830	\$850	\$880	\$900	\$930	\$960	\$990	\$1,020	\$1,050	\$1,080
2000	\$500	\$540	\$550	\$570	\$580	\$600	\$620	\$640	\$660	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
2000	\$200	\$200	\$230	\$240	\$240	\$260	\$260	\$280	\$270	\$290	\$280	\$290	\$300	\$310	\$320	\$330	\$340
2000	\$200	\$220	\$220	\$230	\$240	\$240	\$250	\$260	\$270	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$340
2000	\$10,000	\$10,610	\$10,930	\$11,260	\$11,600	\$11,950	\$12,300	\$12,670	\$13,050	\$13,440	\$13,850	\$14,260	\$14,690	\$15,130	\$15,580	\$16,050	\$16,530
2000	\$200	\$220	\$240	\$240	\$240	\$260	\$260	\$270	\$270	\$280	\$280	\$290	\$300	\$310	\$320	\$330	\$340
2000	\$3,750	\$3,990	\$4,120	\$4,240	\$4,360	\$4,490	\$4,620	\$4,770	\$4,910	\$5,050	\$5,210	\$5,360	\$5,530	\$5,690	\$5,860	\$6,040	\$6,220
2000	\$200	\$220	\$220	\$230	\$240	\$240	\$250	\$260	\$270	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$340
2000	\$200	\$220	\$220	\$230	\$240	\$240	\$250	\$260	\$270	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$340
2000	\$200	\$220	\$220	\$230	\$240	\$240	\$250	\$260	\$270	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$340
2000	\$600	\$660	\$660	\$690	\$720	\$720	\$750	\$780	\$810	\$810	\$840	\$870	\$900	\$930	\$960	\$990	\$1,020
1972	\$1,200	\$1,280	\$1,320	\$1,360	\$1,400	\$1,440	\$1,480	\$1,530	\$1,570	\$1,620	\$1,670	\$1,720	\$1,770	\$1,820	\$1,870	\$1,930	\$1,990
2000	\$700	\$750	\$790	\$840	\$820	\$840	\$870	\$890	\$920	\$950	\$970	\$1,000	\$1,030	\$1,060	\$1,100	\$1,130	\$1,160
2000	\$350	\$360	\$390	\$400	\$410	\$420	\$440	\$450	\$460	\$480	\$490	\$500	\$520	\$530	\$550	\$570	\$580
2000	\$500	\$540	\$550	\$570	\$580	\$600	\$620	\$640	\$660	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
2000	\$300	\$320	\$330	\$340	\$350	\$360	\$370	\$380	\$390	\$400	\$410	\$420	\$430	\$440	\$450	\$460	\$490
2000	\$450	\$480	\$500	\$510	\$530	\$540	\$560	\$580	\$590	\$610	\$630	\$650	\$670	\$690	\$710	\$730	\$750
2000	\$3,500	\$3,750	\$3,860	\$4,000	\$4,090	\$4,200	\$4,340	\$4,480	\$4,600	\$4,750	\$4,880	\$5,020	\$5,180	\$5,320	\$5,480	\$5,660	\$5,810
2009	\$6,500	\$6,900	\$7,110	\$7,320	\$7,540	\$7,770	\$8,000	\$8,240	\$8,490	\$8,740	\$9,000	\$9,270	\$9,550	\$9,840	\$10,130	\$10,440	\$10,750
2009	\$250	\$270	\$280	\$290	\$300	\$300	\$310	\$320	\$330	\$340	\$350	\$360	\$370	\$380	\$390	\$410	\$420
2009	\$6,750	\$7,170	\$7,390	\$7,610	\$7,830	\$8,070	\$8,310	\$8,560	\$8,820	\$9,080	\$9,350	\$9,630	\$9,920	\$10,220	\$10,520	\$10,850	\$11,170







## ***Appendix F.2***

### ***Projected Operation and Maintenance Items – Lift Stations***

38		\$12,000	\$12,000	\$570	\$580	\$600	\$620	\$640	\$680	\$2,500	\$2,500	\$740	\$760	\$780	\$810	\$830
38		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
38		\$500	\$500	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
38		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
38		\$750	\$800	\$820	\$870	\$900	\$930	\$960	\$980	\$1,040	\$1,070	\$1,110	\$1,140	\$1,170	\$1,240	\$1,240
		<b>\$14,250</b>	<b>\$14,420</b>	<b>\$2,470</b>	<b>\$2,610</b>	<b>\$2,700</b>	<b>\$2,790</b>	<b>\$2,880</b>	<b>\$2,960</b>	<b>\$5,640</b>	<b>\$5,730</b>	<b>\$3,330</b>	<b>\$3,420</b>	<b>\$3,510</b>	<b>\$3,640</b>	<b>\$3,730</b>
19																
22		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
22		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
22		\$250	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$350	\$360	\$370	\$380	\$390	\$410	\$420
22		\$250	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$350	\$360	\$370	\$380	\$390	\$410	\$420
		<b>\$1,500</b>	<b>\$1,620</b>	<b>\$1,660</b>	<b>\$1,740</b>	<b>\$1,800</b>	<b>\$1,860</b>	<b>\$1,920</b>	<b>\$5,480</b>	<b>\$5,540</b>	<b>\$2,160</b>	<b>\$2,220</b>	<b>\$2,280</b>	<b>\$2,340</b>	<b>\$2,440</b>	<b>\$2,500</b>
20																
20		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
20		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
20		\$250	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$350	\$360	\$370	\$380	\$390	\$410	\$420
20		\$250	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$350	\$360	\$370	\$380	\$390	\$410	\$420
		<b>\$1,500</b>	<b>\$1,620</b>	<b>\$1,660</b>	<b>\$1,740</b>	<b>\$1,800</b>	<b>\$1,860</b>	<b>\$1,920</b>	<b>\$2,040</b>	<b>\$2,100</b>	<b>\$2,160</b>	<b>\$2,220</b>	<b>\$4,780</b>	<b>\$4,840</b>	<b>\$2,440</b>	<b>\$2,500</b>
15																
15		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
15		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
15		\$250	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$350	\$360	\$370	\$380	\$390	\$410	\$420
15		\$250	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$350	\$360	\$370	\$380	\$390	\$410	\$420
		<b>\$1,500</b>	<b>\$1,620</b>	<b>\$1,660</b>	<b>\$1,740</b>	<b>\$4,300</b>	<b>\$1,860</b>	<b>\$1,920</b>	<b>\$1,980</b>	<b>\$4,600</b>	<b>\$2,160</b>	<b>\$2,220</b>	<b>\$2,280</b>	<b>\$2,340</b>	<b>\$0</b>	<b>\$0</b>
16																
16		\$1,250	\$1,330	\$1,370	\$1,410	\$1,500	\$1,540	\$1,590	\$1,640	\$1,740	\$1,790	\$1,840	\$1,900	\$1,950	\$2,010	\$2,070
16		\$750	\$800	\$820	\$870	\$900	\$930	\$960	\$980	\$1,040	\$1,070	\$1,110	\$1,140	\$1,170	\$1,240	\$1,240
16		\$600	\$640	\$660	\$700	\$720	\$740	\$770	\$790	\$840	\$860	\$890	\$910	\$940	\$970	\$1,000
16		\$1,500	\$1,600	\$1,640	\$1,690	\$1,800	\$1,850	\$1,910	\$1,960	\$2,020	\$2,140	\$2,210	\$2,270	\$2,340	\$2,410	\$2,480
16		\$1,500	\$1,600	\$1,640	\$1,690	\$1,800	\$1,850	\$1,910	\$1,960	\$2,020	\$2,140	\$2,210	\$2,270	\$2,340	\$2,410	\$2,480
		<b>\$5,600</b>	<b>\$5,970</b>	<b>\$6,130</b>	<b>\$11,500</b>	<b>\$6,720</b>	<b>\$6,910</b>	<b>\$7,140</b>	<b>\$7,330</b>	<b>\$62,540</b>	<b>\$8,000</b>	<b>\$8,260</b>	<b>\$8,490</b>	<b>\$8,740</b>	<b>\$9,010</b>	<b>\$9,270</b>
24																
24		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
24		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
24		\$500	\$540	\$550	\$580	\$600	\$620	\$640	\$680	\$700	\$720	\$740	\$760	\$780	\$810	\$830
24		\$250	\$270	\$280	\$290	\$300	\$310	\$320	\$330	\$350	\$360	\$370	\$380	\$390	\$410	\$420
		<b>\$1,750</b>	<b>\$1,890</b>	<b>\$1,930</b>	<b>\$2,000</b>	<b>\$19,600</b>	<b>\$19,670</b>	<b>\$2,240</b>	<b>\$2,310</b>	<b>\$2,450</b>	<b>\$2,520</b>	<b>\$2,590</b>	<b>\$2,660</b>	<b>\$2,730</b>	<b>\$0</b>	<b>\$0</b>
		<b>\$26,100</b>	<b>\$27,140</b>	<b>\$15,510</b>	<b>\$33,040</b>	<b>\$36,920</b>	<b>\$34,950</b>	<b>\$18,020</b>	<b>\$22,040</b>	<b>\$79,670</b>	<b>\$22,730</b>	<b>\$20,840</b>	<b>\$23,910</b>	<b>\$24,500</b>	<b>\$17,530</b>	<b>\$18,000</b>



## ***Appendix F.3***

### ***Projected Operation and Maintenance Items – Sanitary System (General)***



	2023-2023	2023-2024	2024-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036	2036-2037	2037-2038			
\$	467,630	554,513	567,554	580,905	594,575	608,571	622,901	637,573	652,595	667,976	683,725	699,850	716,360	733,265	750,574	768,288	786,446	805,028	824,055	843,513
\$	467,630	554,513	567,554	580,905	594,575	608,571	622,901	637,573	652,595	667,976	683,725	699,850	716,360	733,265	750,574	768,288	786,446	805,028	824,055	843,513
\$	625,550	623,525	624,488	554,538	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$	1,093,180	1,178,038	1,192,042	1,135,443	594,575	608,571	622,901	637,573	652,595	667,976	683,725	699,850	716,360	733,265	750,574	768,288	786,446	805,028	824,055	843,513
\$	1,093,180	1,178,038	1,192,042	1,135,443	594,575	608,571	622,901	637,573	652,595	667,976	683,725	699,850	716,360	733,265	750,574	768,288	786,446	805,028	824,055	843,513
\$	1,093,180	1,178,038	1,192,042	1,135,443	594,575	608,571	622,901	637,573	652,595	667,976	683,725	699,850	716,360	733,265	750,574	768,288	786,446	805,028	824,055	843,513



## ***Appendix G***

### ***Projected 20-Year Budget – Sanitary System (Sewer Fund)***





# *Appendix H*

## *Rate Options – Sewer Fund*



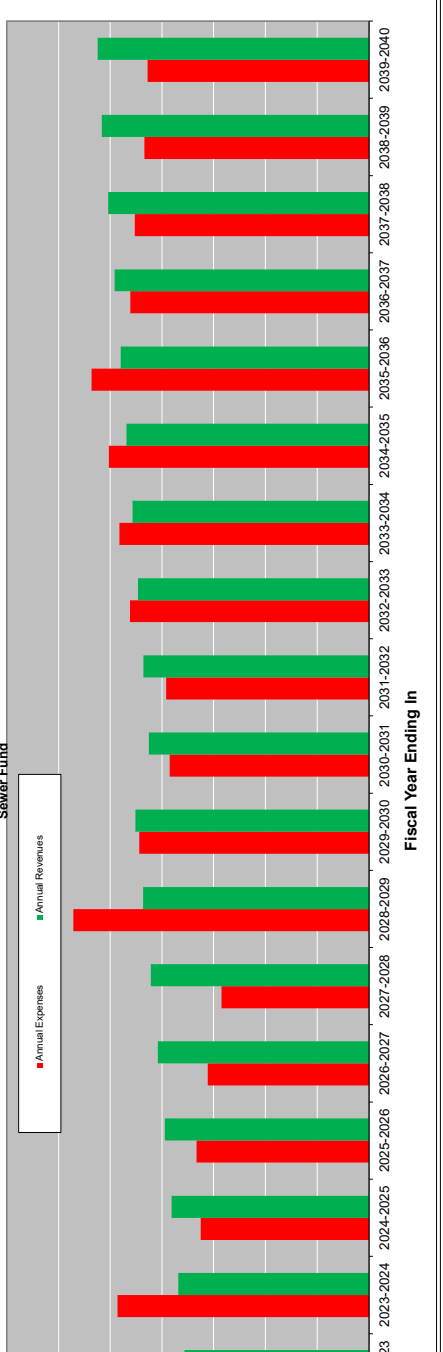


# *Appendix H.1*

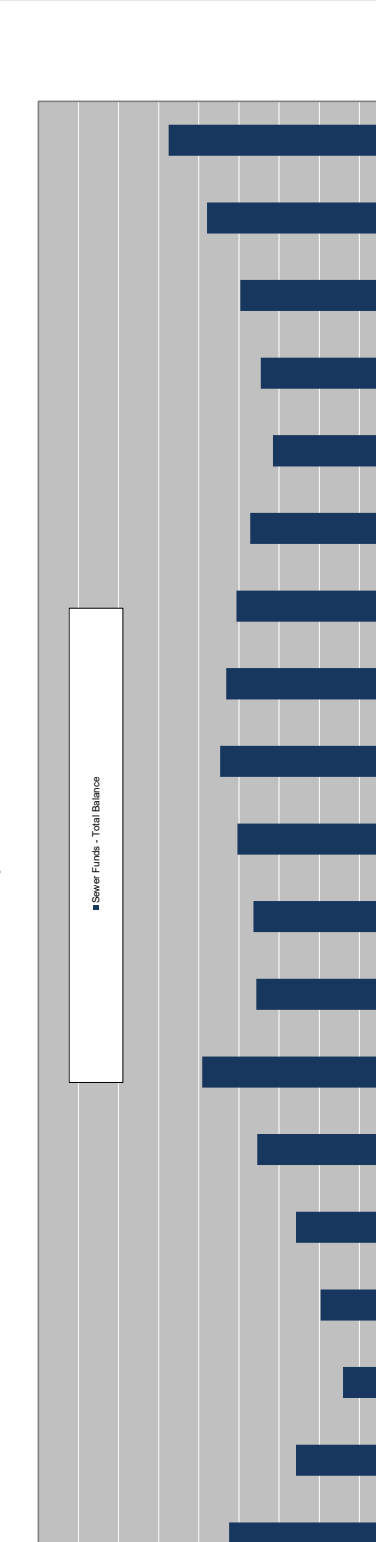
## *Option A-1*

FY	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036
	\$1,063,180	\$1,254,463	\$1,272,982	\$1,271,303	\$751,635	\$771,990	\$810,178	\$833,690	\$911,787	\$939,520	\$908,690	\$923,906	\$948,310	\$986,044			
	\$128,226	\$912,612	\$1,472,500	\$1,150,099	\$484,117	\$429,846	\$117,546	\$435,636	\$113,041	\$178,250	\$568,380	\$512,098	\$178,250	\$660,354			
	\$0	\$5,690	\$157,410	\$191,547	\$388,594	\$443,533	\$465,012	\$608,670	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106			
	\$1,221,406	\$2,072,965	\$2,902,892	\$2,612,960	\$1,624,701	\$1,664,638	\$1,422,735	\$2,865,207	\$2,220,630	\$1,925,666	\$1,980,246	\$2,309,109	\$2,410,796	\$2,519,504			
FY	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036
	7,421	7,421	7,619	7,822	8,030	8,244	8,464	8,690	8,921	9,159	9,398	9,651	9,708	9,864	10,024	10,187	10,350
	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
	65,000	63,710	64,355	62,440	61,371	61,200	60,590	59,998	59,520	59,058	58,604	57,692	57,040	56,471	55,900	55,328	54,756
	183,452	178,948	181,860	187,888	184,659	187,888	194,085	194,085	197,275	200,507	203,706	204,941	206,184	207,434	208,682	209,931	211,180
	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%
	\$6,92	\$7,06	\$7,20	\$7,34	\$7,49	\$7,64	\$7,79	\$7,95	\$8,11	\$8,27	\$8,44	\$8,60	\$8,78	\$8,95	\$9,13	\$9,31	\$9,49
	\$1,270,179.84	\$1,288,346.54	\$1,288,346.54	\$1,335,643.25	\$1,384,676.28	\$1,435,509.37	\$1,488,208.59	\$1,542,842.47	\$1,599,482.03	\$1,659,200.88	\$1,719,353.19	\$1,783,346.56	\$1,809,518.04	\$1,856,898.47	\$1,905,519.50	\$1,955,413.64	\$2,006,619.50
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2,709	2,709	2,761	2,855	2,931	3,010	3,090	3,172	3,257	3,343	3,433	3,488	3,545	3,602	3,661	3,720	3,780
	\$4,180,000	\$4,180,000	\$5,623,900	\$7,106,227	\$8,628,116	\$10,190,600	\$11,794,686	\$13,441,500	\$15,132,222	\$16,867,899	\$18,650,000	\$20,483,800	\$22,368,300	\$24,303,500	\$26,289,500	\$28,326,500	\$30,414,500
	\$ -	\$ -	\$216,684.55	\$222,356.53	\$228,282.33	\$234,366.05	\$240,611.91	\$247,024.22	\$253,607.41	\$260,366.05	\$267,304.80	\$274,427.00	\$281,732.14	\$289,221.14	\$296,894.14	\$304,651.14	\$312,492.14
	\$ -	\$ -	\$64,975.37	\$66,706.86	\$68,484.70	\$70,308.82	\$72,183.57	\$74,107.26	\$76,082.22	\$78,109.81	\$80,191.44	\$82,332.10	\$84,532.64	\$86,793.12	\$89,114.54	\$91,496.92	\$93,940.24
	\$ -	\$ -	\$36,097.43	\$37,059.42	\$38,047.05	\$39,061.01	\$40,101.98	\$41,170.26	\$42,267.80	\$43,394.34	\$44,550.80	\$45,737.17	\$46,953.44	\$48,200.62	\$49,488.74	\$50,817.82	\$52,197.86
	\$ -	\$ -	\$61,395.62	\$63,001.02	\$64,679.99	\$66,403.72	\$68,173.37	\$69,990.19	\$71,855.43	\$73,770.38	\$75,736.36	\$77,743.46	\$79,791.66	\$81,880.96	\$83,992.36	\$86,125.76	\$88,290.16
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$54,180	\$54,180	\$434,647	\$446,230	\$468,122	\$470,331	\$482,866	\$495,734	\$508,945	\$522,509	\$536,433	\$362,149	\$366,024	\$373,996	\$380,064	\$386,230	\$392,396
	\$1,324,869.84	\$1,348,783.44	\$1,722,893.40	\$1,781,873.45	\$1,842,249.51	\$1,905,840.56	\$1,971,074.11	\$2,038,576.36	\$2,108,427.22	\$2,180,709.46	\$2,254,786.63	\$2,330,884.15	\$2,417,542.52	\$2,505,883.27	\$2,595,914.11	\$2,687,645.04	\$2,781,076.16
FY	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036
	\$4,024,650	\$3,301,346	\$2,121,450	\$1,290,373	\$702,352	\$883,492	\$1,290,028	\$1,772,180	\$2,457,851	\$3,183,354	\$3,908,854	\$4,634,354	\$5,359,854	\$6,085,354	\$6,810,854	\$7,536,354	\$8,261,854
	\$4,024,650	\$3,301,346	\$2,121,450	\$1,290,373	\$702,352	\$883,492	\$1,290,028	\$1,772,180	\$2,457,851	\$3,183,354	\$3,908,854	\$4,634,354	\$5,359,854	\$6,085,354	\$6,810,854	\$7,536,354	\$8,261,854

Option A-1 (No Rate Increase - Loans for Debt Service)  
Annual Revenue and Expense Summary



Option A-1: Sewer Fund Balance Summary (No Rate Increase - Loans for Debt Service)



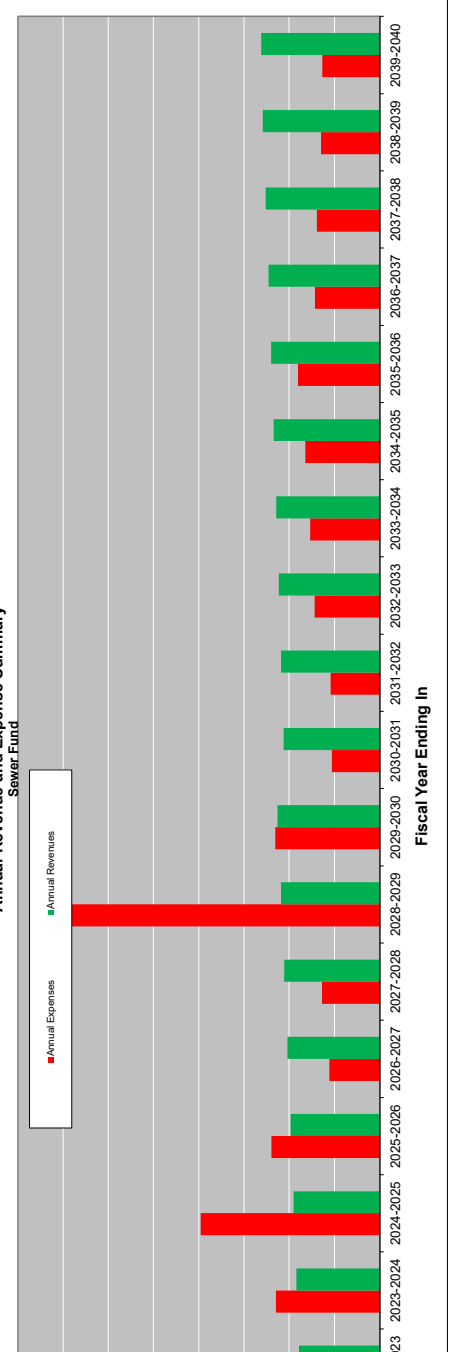


# *Appendix H.2*

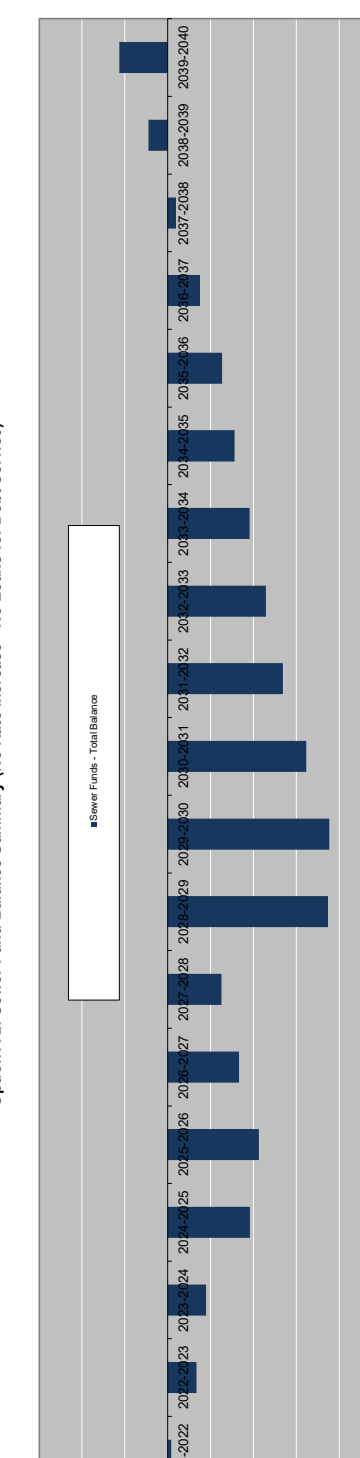
## *Option A-2*

FY	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036	2036-2037	2037-2038	2038-2039	2039-2040	
	\$1,063,180	\$1,254,463	\$1,272,982	\$1,271,303	\$751,635	\$771,990	\$791,158	\$807,891	\$810,178	\$833,690	\$911,787	\$939,520	\$958,690	\$973,006	\$984,310	\$998,044	\$998,044	\$998,044	\$998,044	\$998,044	\$998,044	
	\$128,228	\$912,812	\$1,472,500	\$1,150,099	\$1,463,788	\$484,117	\$429,846	\$305,020	\$147,546	\$1,212,847	\$435,638	\$113,041	\$178,250	\$512,098	\$568,380	\$660,354	\$660,354	\$660,354	\$660,354	\$660,354	\$660,354	
	\$0	\$88,695	\$2,365,200	\$532,170	\$80,000	\$2,700,000	\$1,188,242	\$0	\$318,548	\$5,112,769	\$936,844	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	\$1,221,406	\$2,155,970	\$5,110,682	\$2,895,573	\$2,285,424	\$3,956,107	\$2,389,247	\$1,112,912	\$1,277,272	\$7,189,305	\$2,306,086	\$1,052,560	\$1,087,139	\$1,486,004	\$1,637,690	\$1,640,388	\$1,640,388	\$1,640,388	\$1,640,388	\$1,640,388	\$1,640,388	
	7.421	7.421	7.619	7.822	8.030	8.244	8.464	8.690	8.921	9.159	9.398	9.551	9.708	9.864	10.024	10.187	10.355	10.524	10.693	10.862	11.031	
	65.00	63.71	62.04	60.44	58.91	57.38	55.85	54.32	52.79	51.26	49.73	48.20	46.67	45.14	43.61	42.08	40.55	39.02	37.49	35.96	34.43	
	183,452	178,948	178,948	181,880	184,659	187,888	190,996	194,085	197,275	200,507	203,708	206,941	210,184	213,434	216,684	219,934	223,184	226,434	229,684	232,934	236,184	
	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
	\$6.92	\$7.06	\$7.20	\$7.34	\$7.49	\$7.64	\$7.79	\$7.95	\$8.11	\$8.27	\$8.44	\$8.60	\$8.78	\$8.95	\$9.13	\$9.31	\$9.50	\$9.69	\$9.88	\$10.07	\$10.26	
	\$1,270,179.84	\$1,288,346.54	\$1,288,346.54	\$1,335,643.25	\$1,384,676.28	\$1,435,509.37	\$1,488,208.59	\$1,542,842.47	\$1,599,492.03	\$1,658,200.88	\$1,718,353.19	\$1,783,346.56	\$1,850,518.04	\$1,920,671.50	\$1,995,519.50	\$2,066,617.64	\$2,066,617.64	\$2,066,617.64	\$2,066,617.64	\$2,066,617.64	\$2,066,617.64	\$2,066,617.64
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	2,709	2,709	2,761	2,855	2,931	3,010	3,090	3,172	3,257	3,343	3,433	3,488	3,545	3,602	3,661	3,720	3,780	3,841	3,902	3,964	4,026	
	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	
	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$54,180	\$54,180	\$434,647	\$446,230	\$468,122	\$470,331	\$482,866	\$495,734	\$508,945	\$522,509	\$536,433	\$362,149	\$366,024	\$373,996	\$380,064	\$386,230	\$386,230	\$386,230	\$386,230	\$386,230	\$386,230	
	\$1,324,859.84	\$1,348,783.44	\$1,722,893.44	\$1,781,873.45	\$1,842,269.51	\$1,905,840.56	\$1,971,074.11	\$2,038,576.36	\$2,108,427.22	\$2,180,709.46	\$2,254,786.63	\$2,125,851.18	\$2,177,542.52	\$2,230,894.15	\$2,285,683.27	\$2,341,643.93	\$2,341,643.93	\$2,341,643.93	\$2,341,643.93	\$2,341,643.93	\$2,341,643.93	
	\$4,024,450	\$5,218,343	\$5,169,345	\$5,134,044	\$5,103,670	\$5,073,936	\$5,044,209	\$5,014,484	\$4,984,759	\$4,955,034	\$4,925,309	\$4,895,584	\$4,865,859	\$4,836,134	\$4,806,409	\$4,776,684	\$4,746,959	\$4,717,234	\$4,687,509	\$4,657,784	\$4,628,059	
	\$4,024,450	\$3,218,343	\$3,169,345	\$3,134,044	\$3,103,670	\$3,073,936	\$3,044,209	\$3,014,484	\$2,984,759	\$2,955,034	\$2,925,309	\$2,895,584	\$2,865,859	\$2,836,134	\$2,806,409	\$2,776,684	\$2,746,959	\$2,717,234	\$2,687,509	\$2,657,784	\$2,628,059	

### Option A-2 (No Rate Increase - No Loans for Debt Service) Annual Revenue and Expense Summary Sewer Fund



Option A-2: Sewer Fund Balance Summary (No Rate Increase - No Loans for Debt Service)





# *Appendix H.3*

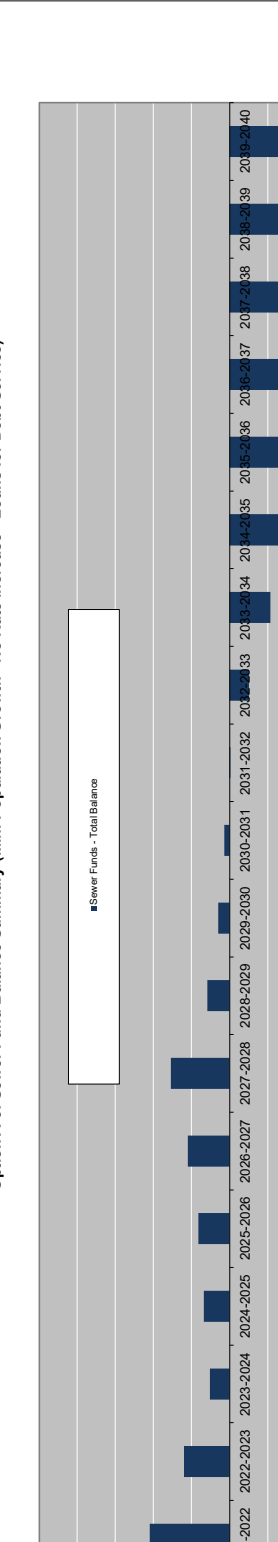
## *Option A-3*

FY	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036	2036-2037	2037-2038	2038-2039	2039-2040	
	\$1,063,180	\$1,254,463	\$1,272,982	\$1,271,303	\$751,635	\$771,980	\$791,158	\$807,891	\$810,178	\$833,690	\$911,787	\$939,520	\$968,690	\$923,906	\$948,310	\$960,044	\$986,354	\$968,380	\$973,106	\$973,106	\$973,106	\$2,519,504
	\$128,226	\$912,812	\$1,472,526	\$1,150,099	\$464,117	\$429,846	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$435,638	\$2,519,504
	\$0	\$5,690	\$157,410	\$191,547	\$388,594	\$388,594	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$443,533	\$2,519,504
	\$1,221,406	\$2,072,965	\$2,902,892	\$2,612,950	\$1,624,701	\$1,624,701	\$1,664,638	\$1,656,444	\$1,422,735	\$2,885,207	\$2,220,630	\$1,925,666	\$1,980,246	\$2,309,109	\$2,410,796	\$2,410,796	\$2,410,796	\$2,410,796	\$2,410,796	\$2,410,796	\$2,410,796	\$2,410,796
	\$7,421	\$7,421	\$7,443	\$7,466	\$7,488	\$7,510	\$7,533	\$7,556	\$7,578	\$7,601	\$7,624	\$7,647	\$7,670	\$7,693	\$7,716	\$7,739	\$7,762	\$7,785	\$7,808	\$7,831	\$7,854	\$7,877
	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
	65,000	64,350	63,700	63,050	62,400	61,750	61,100	60,450	59,800	59,150	58,500	57,850	57,200	56,550	55,900	55,250	54,600	53,950	53,300	52,650	52,000	51,350
	183,452	174,826	173,996	173,166	172,336	171,506	170,676	169,846	169,016	168,186	167,356	166,526	165,696	164,866	164,036	163,206	162,376	161,546	160,716	159,886	159,056	158,226
	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%	2,000%
	\$6,92	\$7,06	\$7,20	\$7,34	\$7,49	\$7,64	\$7,79	\$7,95	\$8,11	\$8,27	\$8,44	\$8,60	\$8,78	\$8,95	\$9,13	\$9,31	\$9,49	\$9,67	\$9,85	\$10,03	\$10,21	\$10,39
	\$1,270,179.84	\$1,295,583.44	\$1,274,816.04	\$1,274,816.04	\$1,291,171.16	\$1,307,736.11	\$1,324,513.58	\$1,341,506.30	\$1,358,717.02	\$1,376,148.54	\$1,393,803.70	\$1,411,685.37	\$1,429,796.44	\$1,448,139.87	\$1,466,718.64	\$1,485,535.76	\$1,504,599.52	\$1,523,919.52	\$1,543,495.52	\$1,563,333.52	\$1,583,433.52	\$1,603,795.52
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	2,709	2,709	2,761	2,855	2,931	3,010	3,090	3,172	3,257	3,343	3,433	3,488	3,545	3,602	3,661	3,720	3,780	3,840	3,900	3,960	4,020	
	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	
	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	
	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	\$222,356,253	
	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	\$64,975,37	
	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	\$37,059,42	
	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	\$61,395,62	
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$54,180	\$54,180	\$434,847	\$446,230	\$468,122	\$470,331	\$482,866	\$495,734	\$508,945	\$522,509	\$536,433	\$362,149	\$366,024	\$373,996	\$380,064	\$386,230	\$392,400	\$398,570	\$404,740	\$410,910	\$417,080	
	\$1,324,859.84	\$1,348,783.44	\$1,683,314.94	\$1,721,046.23	\$1,749,483.39	\$1,778,057.30	\$1,807,379.10	\$1,837,240.18	\$1,867,662.21	\$1,898,657.42	\$1,930,237.43	\$1,973,833.99	\$1,997,820.93	\$1,822,185.55	\$1,846,782.40	\$1,871,766.05	\$1,897,090.00	\$1,922,185.55	\$1,947,171.11	\$1,972,156.66	\$1,997,142.21	\$2,022,127.76
	\$4,024,450	\$3,301,346	\$2,091,771	\$1,199,867	\$518,341	\$871,708	\$914,549	\$958,721	\$1,540,271	\$583,721	\$293,428	\$141,596	\$20,828	-\$507,602	-\$1,071,815	-\$1,719,553	-\$2,469,291	-\$3,219,029	-\$3,968,767	-\$4,718,505	-\$5,468,243	-\$6,217,981
	\$4,024,450	\$3,301,346	\$2,091,771	\$1,199,867	\$518,341	\$871,708	\$914,549	\$958,721	\$1,540,271	\$583,721	\$293,428	\$141,596	\$20,828	-\$507,602	-\$1,071,815	-\$1,719,553	-\$2,469,291	-\$3,219,029	-\$3,968,767	-\$4,718,505	-\$5,468,243	-\$6,217,981

Option A-3 (Min. Population Growth - No Rate Increase - Loans for Debt Service)  
Annual Revenue and Expense Summary  
Sewer Fund



Option A-3: Sewer Fund Balance Summary (Min. Population Growth - No Rate Increase - Loans for Debt Service)



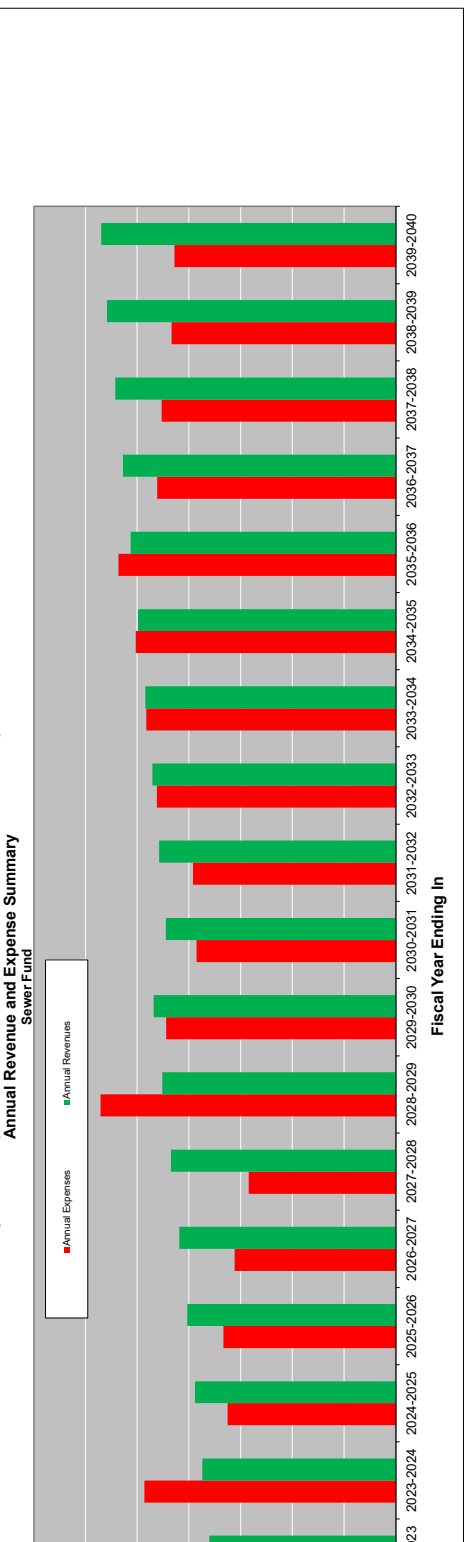


# *Appendix H.4*

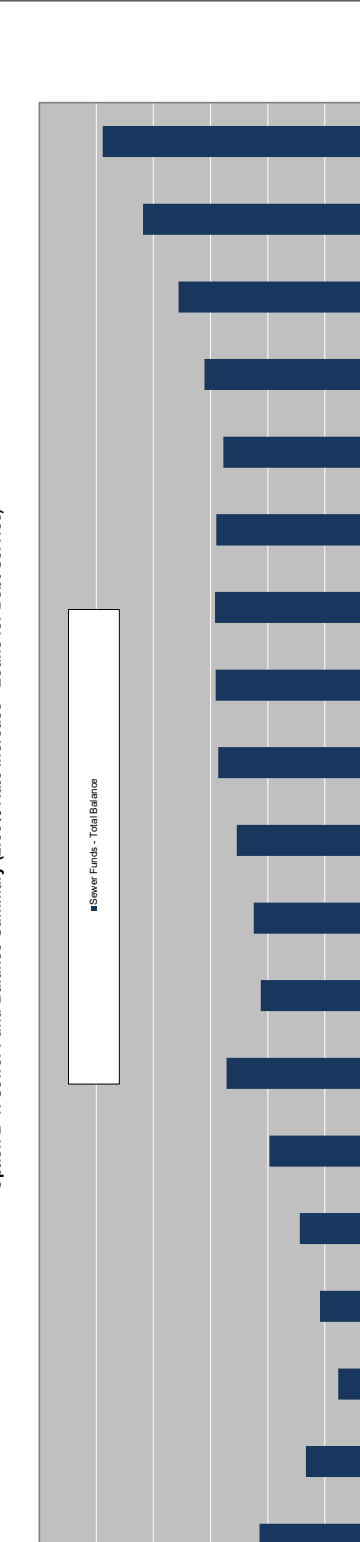
## *Option B-1*

FY	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036
	\$1,063,180	\$1,254,463	\$1,272,982	\$1,271,303	\$751,635	\$771,990	\$810,178	\$807,891	\$810,178	\$833,690	\$911,787	\$939,520	\$948,310	\$923,906	\$908,690	\$960,044	\$986,354
	\$128,226	\$912,612	\$1,472,500	\$1,150,099	\$484,117	\$429,846	\$147,546	\$305,020	\$147,546	\$1,212,847	\$435,636	\$113,041	\$178,250	\$512,098	\$178,250	\$660,354	\$810,000
	\$0	\$5,690	\$157,410	\$191,547	\$195,396	\$388,594	\$443,533	\$443,533	\$465,012	\$608,670	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106
	\$1,221,406	\$2,072,965	\$2,902,892	\$2,612,950	\$2,430,620	\$1,624,701	\$1,664,638	\$1,656,444	\$1,422,735	\$2,865,207	\$2,220,630	\$1,925,666	\$1,980,245	\$2,309,109	\$1,980,245	\$2,410,796	\$2,896,806
	7,421	7,421	7,619	7,822	8,030	8,244	8,464	8,690	8,921	9,159	9,398	9,551	9,706	9,864	10,024	10,187	10,354
	65,000	63,711	64,355	62,047	61,311	61,201	60,507	59,998	60,507	59,998	59,388	57,692	57,004	57,692	56,201	55,471	54,741
	183,452	178,948	181,860	181,860	184,659	187,888	190,996	194,085	197,275	200,507	203,706	204,941	206,184	207,434	208,682	209,931	211,180
	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%
	\$6,92	\$7,09	\$7,27	\$7,45	\$7,64	\$7,83	\$8,03	\$8,23	\$8,43	\$8,64	\$8,86	\$9,08	\$9,31	\$9,54	\$9,78	\$10,02	\$10,26
	\$1,270,179.84	\$1,301,934.34	\$1,301,008.35	\$1,355,381.51	\$1,412,027.08	\$1,471,040.06	\$1,532,519.36	\$1,596,568.08	\$1,663,293.59	\$1,732,807.76	\$1,804,468.77	\$1,860,794.03	\$1,918,877.45	\$1,978,773.91	\$2,040,539.98	\$2,104,234.05	\$2,169,919.91
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	2,709	2,709	2,761	2,855	2,931	3,010	3,090	3,172	3,257	3,343	3,433	3,488	3,545	3,602	3,661	3,720	3,780
	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000	\$4,180,000
	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000	\$54,180,000
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$54,180	\$54,180	\$434,647	\$446,230	\$468,122	\$470,331	\$482,866	\$495,734	\$508,945	\$522,509	\$536,433	\$562,149	\$586,024	\$613,996	\$646,064	\$682,230	\$722,500
	\$1,324,859.84	\$1,356,114.84	\$1,735,655.21	\$1,801,611.70	\$1,870,449.32	\$1,941,371.25	\$2,018,384.88	\$2,092,301.96	\$2,172,238.78	\$2,255,316.84	\$2,340,902.21	\$2,222,842.66	\$2,285,901.94	\$2,452,789.69	\$2,420,603.75	\$2,480,464.35	\$2,542,411.11
	\$4,024,450	\$3,307,700	\$2,140,463	\$1,329,124	\$768,454	\$1,065,124	\$1,435,971	\$1,971,829	\$2,721,332	\$2,121,441	\$2,241,613	\$2,539,090	\$2,665,746	\$2,909,407	\$2,919,215	\$2,896,175	\$2,777,777
	\$4,024,450	\$3,307,700	\$2,140,463	\$1,329,124	\$768,454	\$1,065,124	\$1,435,971	\$1,971,829	\$2,721,332	\$2,121,441	\$2,241,613	\$2,539,090	\$2,665,746	\$2,909,407	\$2,919,215	\$2,896,175	\$2,777,777

Option B-1 (2.50% Rate Increase - Loans for Debt Service)  
Annual Revenue and Expense Summary  
Sewer Fund



Option B-1: Sewer Fund Balance Summary (2.50% Rate Increase - Loans for Debt Service)







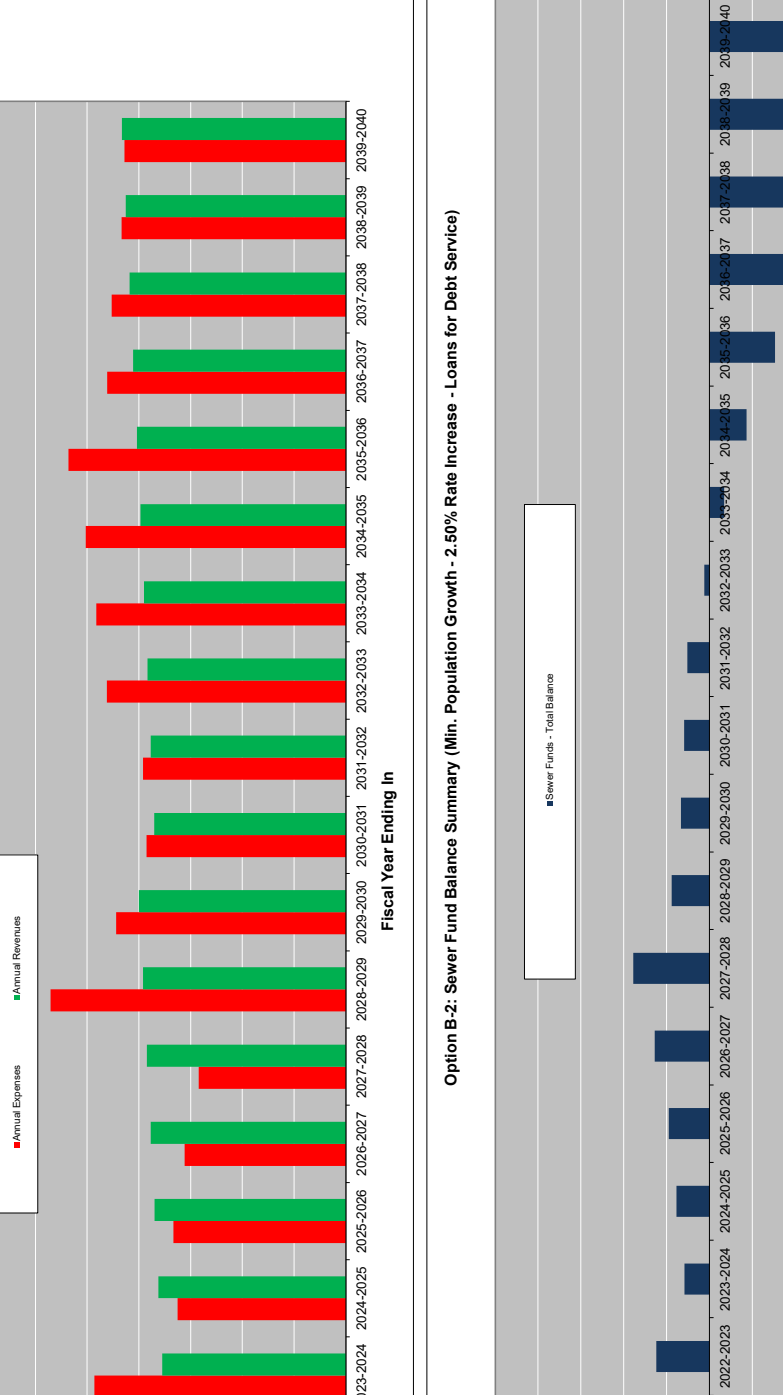
# *Appendix H.5*

## *Option B-2*

FY	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035	2035-2036	2036-2037	2037-2038	2038-2039	2039-2040
	\$1,063,180	\$1,254,463	\$1,272,982	\$1,271,303	\$751,635	\$771,980	\$791,156	\$807,881	\$810,178	\$833,680	\$911,787	\$939,520	\$968,680	\$923,906	\$948,310	\$960,044	\$966,354	\$968,380	\$973,106	\$973,106	\$973,106
	\$128,226	\$912,812	\$1,472,500	\$1,150,099	\$484,117	\$429,846	\$443,638	\$443,533	\$465,012	\$608,670	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106
	\$0	\$5,680	\$157,410	\$191,547	\$195,396	\$388,594	\$443,533	\$443,533	\$465,012	\$608,670	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106
	\$1,221,406	\$2,072,965	\$2,902,892	\$2,612,950	\$2,430,820	\$1,624,701	\$1,664,638	\$1,656,444	\$1,422,735	\$2,885,207	\$2,220,630	\$1,925,666	\$1,980,245	\$2,309,109	\$2,410,796	\$2,515,504	\$2,515,504	\$2,515,504	\$2,515,504	\$2,515,504	\$2,515,504
	\$7,421	\$7,421	\$7,443	\$7,466	\$7,488	\$7,510	\$7,533	\$7,556	\$7,578	\$7,601	\$7,624	\$7,647	\$7,670	\$7,693	\$7,716	\$7,739	\$7,762	\$7,785	\$7,808	\$7,831	\$7,854
	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
	65,000	64,355	63,711	63,067	62,423	61,779	61,135	60,491	59,847	59,203	58,559	57,915	57,271	56,627	55,983	55,339	54,695	54,051	53,407	52,763	52,119
	183,652	174,826	173,996	173,166	172,336	171,506	170,676	169,846	169,016	168,186	167,356	166,526	165,696	164,866	164,036	163,206	162,376	161,546	160,716	159,886	159,056
	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	2,50%
	\$6,92	\$7,09	\$7,27	\$7,45	\$7,64	\$7,83	\$8,03	\$8,23	\$8,43	\$8,64	\$8,86	\$9,08	\$9,31	\$9,54	\$9,78	\$10,02	\$10,27	\$10,52	\$10,77	\$11,02	\$11,27
	\$1,270,179.84	\$1,301,934.34	\$1,271,038.21	\$1,293,655.38	\$1,316,675.01	\$1,340,104.25	\$1,363,950.40	\$1,388,220.87	\$1,412,923.22	\$1,438,065.13	\$1,463,654.42	\$1,489,689.06	\$1,516,207.13	\$1,543,186.90	\$1,570,646.76	\$1,598,595.24	\$1,627,046.32	\$1,655,995.24	\$1,685,446.14	\$1,715,397.04	\$1,745,847.94
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	2,709	2,709	2,761	2,855	2,931	3,010	3,090	3,172	3,257	3,343	3,433	3,488	3,545	3,602	3,661	3,720	3,780	3,840	3,900	3,960	
	\$54,180.00	\$54,180.00	\$55,623.90	\$57,106.27	\$58,629.16	\$60,194.60	\$61,794.68	\$63,441.50	\$65,132.22	\$66,867.89	\$68,650.03	\$70,485.79	\$72,372.08	\$74,308.91	\$76,296.29	\$78,334.24	\$80,422.76	\$82,561.44	\$84,750.27	\$86,989.24	\$89,278.34
	\$-	\$-	\$216,584.55	\$222,356.53	\$228,322.33	\$234,396.05	\$240,611.91	\$247,024.22	\$253,607.41	\$260,386.05	\$267,304.80	\$274,407.00	\$281,638.00	\$289,042.00	\$296,672.00	\$304,482.00	\$312,522.00	\$320,842.00	\$329,402.00	\$338,162.00	\$347,082.00
	\$-	\$-	\$64,973.37	\$66,706.96	\$68,484.70	\$70,308.82	\$72,183.57	\$74,109.81	\$76,082.22	\$78,109.81	\$80,191.44	\$82,338.10	\$84,548.79	\$86,822.50	\$89,160.21	\$91,561.92	\$94,027.63	\$96,558.34	\$99,154.05	\$101,814.76	\$104,540.47
	\$-	\$-	\$36,097.43	\$37,059.42	\$38,047.05	\$39,061.01	\$40,101.98	\$41,170.76	\$42,267.60	\$43,394.34	\$44,550.80	\$45,737.97	\$46,955.74	\$48,205.11	\$49,486.08	\$50,797.64	\$52,140.80	\$53,515.56	\$54,922.92	\$56,362.88	\$57,835.44
	\$-	\$-	\$61,395.62	\$63,001.02	\$64,679.99	\$66,403.72	\$68,173.37	\$69,990.19	\$71,855.43	\$73,770.38	\$75,736.36	\$77,753.96	\$79,823.68	\$81,946.01	\$84,121.44	\$86,350.47	\$88,633.60	\$90,971.43	\$93,365.46	\$95,815.29	\$98,325.52
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	\$54,180	\$54,180	\$434,647	\$446,230	\$468,122	\$470,331	\$485,734	\$508,945	\$530,945	\$552,509	\$536,433	\$362,149	\$366,024	\$373,996	\$380,064	\$386,230	\$392,502	\$398,976	\$405,654	\$412,538	\$419,622
	\$1,324,859.84	\$1,356,114.34	\$1,705,885.07	\$1,729,885.58	\$1,774,797.24	\$1,810,435.44	\$1,848,815.92	\$1,889,954.76	\$1,921,868.41	\$1,956,573.71	\$2,000,087.86	\$1,851,847.86	\$1,884,231.82	\$1,917,182.58	\$1,950,710.52	\$1,984,825.53	\$2,019,531.53	\$2,054,837.53	\$2,090,743.53	\$2,127,251.53	\$2,164,365.53
	\$4,024,650	\$3,307,700	\$2,110,492	\$1,237,428	\$581,405	\$767,140	\$949,418	\$1,276,928	\$1,776,061	\$881,428	\$660,986	\$587,167	\$511,153	\$119,227	-\$540,859	-\$869,537	-\$1,190,215	-\$1,506,903	-\$1,819,591	-\$2,129,279	-\$2,436,967
	\$4,024,650	\$3,307,700	\$2,110,492	\$1,237,428	\$581,405	\$767,140	\$949,418	\$1,276,928	\$1,776,061	\$881,428	\$660,986	\$587,167	\$511,153	\$119,227	-\$540,859	-\$869,537	-\$1,190,215	-\$1,506,903	-\$1,819,591	-\$2,129,279	-\$2,436,967

### Option B-2 (Min. Population Growth - 2.50% Rate Increase - Loans for Debt Service)

Annual Revenue and Expense Summary  
Sewer Fund



Option B-2: Sewer Fund Balance Summary (Min. Population Growth - 2.50% Rate Increase - Loans for Debt Service)

■ Sewer Funds - Total Balance

Fiscal Year Ending In



# *Appendix H.6*

## *Option C-1*

FY	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034	2034-2035
	\$1,063,180	\$1,254,463	\$1,272,982	\$1,271,303	\$751,635	\$771,990	\$810,178	\$807,891	\$810,178	\$833,690	\$911,787	\$939,520	\$948,310	\$923,906	\$960,444	\$986,044
	\$128,226	\$912,612	\$1,472,500	\$1,150,099	\$484,117	\$429,846	\$147,546	\$305,020	\$147,546	\$435,636	\$435,636	\$113,041	\$178,250	\$512,098	\$660,354	\$812,472
	\$0	\$5,690	\$157,410	\$191,547	\$195,396	\$368,594	\$443,533	\$443,533	\$465,012	\$608,670	\$873,106	\$873,106	\$873,106	\$873,106	\$873,106	\$2,410,796
	\$1,221,406	\$2,072,965	\$2,902,892	\$2,612,950	\$1,624,701	\$1,624,701	\$1,664,638	\$1,656,444	\$1,422,735	\$2,885,207	\$2,220,630	\$1,925,666	\$1,980,245	\$2,309,109	\$2,819,504	\$2,886,809
	\$7421	\$7421	\$7443	\$7466	\$7488	\$7510	\$7528	\$7558	\$7578	\$7601	\$7624	\$7647	\$7671	\$7693	\$7716	\$7738
	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500	6500
	183,652	183,652	174,826	173,996	172,376	171,164	169,981	168,788	167,595	166,402	165,232	164,070	162,917	161,772	160,634	159,505
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$2,709	\$2,709	\$2,761	\$2,855	\$2,931	\$3,010	\$3,172	\$3,433	\$3,257	\$3,433	\$3,488	\$3,545	\$3,602	\$3,661	\$3,720	\$3,780
	\$54,180.00	\$54,180.00	\$55,623.90	\$57,106.27	\$58,628.16	\$60,194.60	\$61,794.68	\$63,441.50	\$65,132.22	\$66,867.89	\$68,650.03	\$70,485.79	\$72,371.02	\$74,306.81	\$76,292.44	\$78,328.51
	\$0.00	\$0.00	\$222,356.53	\$228,392.33	\$234,366.05	\$240,311.91	\$247,024.22	\$253,607.41	\$260,396.05	\$267,304.80	\$274,441.44	\$281,817.00	\$289,432.14	\$297,297.49	\$305,412.71	\$313,778.41
	\$0.00	\$0.00	\$66,706.66	\$68,484.70	\$70,308.82	\$72,183.57	\$74,107.26	\$76,082.22	\$78,109.81	\$80,191.44	\$82,338.17	\$84,540.00	\$86,797.11	\$89,108.59	\$91,475.42	\$93,897.84
	\$0.00	\$0.00	\$36,097.43	\$37,059.42	\$38,047.05	\$39,061.01	\$40,101.98	\$41,170.70	\$42,267.60	\$43,394.34	\$44,550.80	\$45,738.00	\$46,956.00	\$48,204.25	\$49,492.64	\$50,821.28
	\$0.00	\$0.00	\$61,965.62	\$63,001.02	\$64,079.99	\$65,203.72	\$66,373.37	\$67,588.00	\$68,847.63	\$70,152.26	\$71,512.99	\$72,969.82	\$74,423.85	\$75,875.08	\$77,323.51	\$78,769.24
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	\$54,180	\$54,180	\$434,647	\$446,230	\$468,122	\$470,331	\$482,866	\$495,734	\$508,945	\$522,509	\$536,433	\$550,724	\$565,380	\$580,402	\$595,792	\$611,556
	\$1,324,859.84	\$1,368,816.13	\$1,730,806.79	\$1,778,119.26	\$1,826,936.52	\$1,877,094.42	\$1,928,629.77	\$1,981,580.44	\$2,035,965.28	\$2,091,884.25	\$2,149,318.40	\$2,209,249.13	\$2,271,690.22	\$2,324,140.72	\$2,387,603.37	\$2,452,187.47

