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December 12, 2025

EES Case Management Unit  
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Re: DJ # 90-5-1-1-11394 – Financing and Cost Analysis Program Deliverable

EES Case Management Unit:

The Hamilton County Water & Wastewater Treatment Authority (WWTA) has completed a draft deliverable in accordance with the Consent Decree entered into by the United States District Court for the Eastern District of Tennessee (Southern Division), titled *Financing and Cost Analysis Program*.

Pursuant to the Consent Decree, the *Financing and Cost Analysis Program* outlines a process for analyzing, projecting, planning, and financing the costs for the Capacity, Management, Operations, and Maintenance (CMOM) programs and other projects required under the Consent Decree (CD). It includes a process for integration of life cycle cost analysis (LCCA) into the cost estimation as well as methods for implementing determined costs into WWTA's annual budget and the establishment of customer rates. By incorporating a comprehensive cost analysis into the budgeting process, the utility can align rates with the actual costs of service delivery, capital improvements, and compliance with the CMOM and CD.

The deliverable has been submitted for public comment to the Public Document Repository (PDR) located on the WWTA's website here: <https://wwta.hamiltontn.gov/178/Public-Document-Repository>. A physical hard copy is available in the Public Document Repository at the Chattanooga-Hamilton County Library as of **December 12, 2025**. Public comments must be submitted within 45 days of the date entered in the PDR. The public may use the form available in the PDR to provide comments or send comments directly to:

Hamilton County Water & Wastewater Treatment Authority  
RE: Consent Decree Public Comments  
c/o Natasha Long  
1250 Market Street, Suite 3050  
Chattanooga, TN 37402

*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 such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I have no personal knowledge that the information submitted is other than 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.*

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael Patrick".

Michael Patrick, P.E.  
Executive Director

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# **Financing and Cost Analysis Program Draft Submitted for Review by EPA and TDEC**

Prepared for  
**The United States Environmental Protection Agency and  
Tennessee Department of Environment and Conservation**

**Case No. 1:23-cv-00225**

Prepared by  
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## Table of Contents

Acronyms and Abbreviations .....	2
1 Introduction .....	3
1.1 Purpose.....	3
1.2 Overview .....	3
1.3 Organizational Structure .....	4
2 Cost Analysis and Projection .....	5
2.1 System Management, Operating, and Maintenance Costs.....	5
2.1.1 CMOM Programs.....	5
2.1.2 Potential Costs .....	5
2.2 Capital Improvement Costs .....	6
2.2.1 CD Capital Projects.....	7
2.3 5-Year Planning Horizon .....	8
3 Life Cycle Cost Analysis .....	10
3.1 Operations Cost Analyses .....	10
3.2 Maintenance Cost Analyses .....	11
3.3 Management Cost Analyses .....	11
4 Annual Budget and Customer Rates .....	12
4.1 Customer Rates .....	12
4.2 Debt Service .....	12
Appendix .....	13
Appendix A – Annual Timeline for Financials .....	14
Appendix B – Example Annual Budget.....	15
Appendix C – Example Customer Rates .....	16

## Acronyms and Abbreviations

AMP	Asset Management Plan
CAP	Capacity Assurance Program
CMOM	Capacity, Management, Operations, and Maintenance
EPA	United States Environmental Protection Agency
FOG	Fats Oils and Grease
GIS	Geographic Information System
I/I	Infiltration and Inflow
IMS	Information Management System
IRP	Incident Response Plan
LCCA	Life Cycle Cost Analysis
NPDES	National Pollution Discharge Elimination System
O&M	Operation and Maintenance
PSLP	Private Service Lateral Program
SORP	Sewer Overflow Response Protocol
SRF	State Revolving Fund
SSO	Sanitary Sewer Overflow
SSER	Sanitary Sewer Evaluation Rehabilitation
SSS	Sanitary Sewer System
TDEC	Tennessee Department of Environment and Conservation
WCTS	Wastewater Collection and Transmission System
WWTA	Water and Wastewater Treatment Authority
WWTP	Wastewater Treatment Plant

# 1 Introduction

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## 1.1 Purpose

The Hamilton County Water and Wastewater Treatment Authority (WWTA) entered into a Consent Decree with the United States and the State of Tennessee in the case styled *United States of America et. al. v. Hamilton County Water and Wastewater Treatment Authority, No. 1:23cv-00225* (“CD”), which became effective on July 16<sup>th</sup> 2024. The WWTA prepared this Financing and Cost Analysis Program as part of its Capacity, Management, Operations and Maintenance (CMOM) Program, and is required to submit it to the Environmental Protection Agency (“EPA”) and Tennessee Department of Environment and Conservation (“TDEC”). The Financing and Cost Analysis Program (Program) provides a detailed framework for evaluating and managing the full spectrum of costs associated with the CMOM and CD projects.

## 1.2 Overview

The Financing and Cost Analysis Program outlines a process for analyzing, projecting, planning, and financing the management, operational, maintenance, and capital costs for CMOM programs and other projects required under the CD.

It includes a process for integration of life cycle cost analysis (LCCA) into the cost estimation and methods for implementing determined costs into WWTA’s annual budget and the establishment of customer rates. By incorporating a comprehensive cost analysis into the budgeting process, the utility can align rates with the actual costs of service delivery, capital improvements, and compliance with the CMOM and CD.

Additionally, the Program outlines steps for implementation; including timelines for cost projections, planning, and financing activities.

In the following sections, we will detail the processes for:

- Analyzing and projecting management, operational, maintenance, and capital costs.
- Incorporating life cycle cost into the financial planning process.
- Establishing an annual budget and setting customer rates.

Appendix A includes WWTA’s annual timeline for budgeting and their financial process.

This structured approach ensures that the WWTA can effectively balance operational needs with capital improvement priorities while maintaining a fair and transparent rate structure for its customers.

### **1.3 Organizational Structure**

The WWTa was created on April 7, 1993, by the Hamilton County Board of Commissioners pursuant to the provisions of Tennessee Code Annotated (TCA), Section 68-221-601 and was approved under Resolution 493-27. The WWTa is governed by a board of twelve members. Five members are appointed by the Hamilton County Mayor and confirmed by the Hamilton County Commission. Each of these five members serve staggered five-year terms. The remaining seven members are appointed by each of the participating municipalities. The Executive Director is the senior manager of the WWTa and reports directly to the WWTa Board of Commissioners. The WWTa management structure consists of three (3) functional areas reporting to the Executive Director. These functional areas are Administration & Public Relations, Rehabilitation & Maintenance, and New Construction. WWTa has a total of forty-one (41) employees. In May of each year the Board votes to approve the proposed budget for the next fiscal year.

## **2 Cost Analysis and Projection**

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Comprehensive budget management is crucial for ensuring long-term sustainability, regulatory compliance, and efficient operation. The process outlined below details WWTa's methodology for analyzing, projecting, planning, and financing both the ongoing management, operation, and maintenance costs of the CMOM programs, as well as the capital improvements required the CD. The approach incorporates necessary resources, including labor and equipment, to effectively implement programs.

Having been established in 1993, WWTa employs analogous estimating techniques, drawing on more than 30 years of operational experience and detailed historical project cost data to develop accurate, comprehensive budgets for future projects.

### **2.1 System Management, Operating, and Maintenance Costs**

As part of the CD, WWTa must develop several CMOM programs. Each CMOM program has a separate due date and set of requirements with different associated costs. Costs may include overhead, labor and equipment, financial impacts of outsourcing certain activities, overtime, and the financial impacts imposed by organizational departments or agencies outside the utility.

#### **2.1.1 CMOM Programs**

The overarching goal of the CMOM programs are to ensure the long-term sustainability and operation of wastewater collection systems. This involves managing flows, operating efficiently, and maintaining the system to prevent spills and ensure compliance with regulations.

Below is a list of the CMOM Programs required in the CD:

- a. Sewer Overflow Response Plan (SORP)
- b. Incident Response Plan (IRP)
- c. Information Management System (IMS) Program
- d. Sewer System Hydraulic Model
- e. Sewer Mapping Program
- f. Gravity Sewer System Operations and Maintenance Program
- g. Corrosion Control Program
- h. Pump Station Operations and Preventative Maintenance Program
- i. Fats Oils and Grease (FOG) Control Program
- j. Capacity Assurance Program (CAP)
- k. Financing and Cost Analysis Program
- l. Legal Support Program

#### **2.1.2 Potential Costs**

A broad range of costs—both direct and indirect – must be considered relating to CMOM programs and may include some of the following:

- Personnel Costs



- Salaries and wages for staff (operators, maintenance crews, engineers, inspectors)
- Training and certification (ongoing CMOM training, safety, compliance)
- Benefits (health insurance, retirement, etc.)
- Overtime and emergency response pay
- Equipment and Materials
  - Routine maintenance tools and supplies (valves, pipes, lubricants, etc.)
  - Repair parts and replacement components
  - Vehicles and heavy equipment (including fuel, and depreciation)
  - Monitoring and inspection equipment (e.g., CCTV for sewer inspections)
- Operational Costs
  - Utilities (electricity, water, fuel)
  - Chemical costs (for odor control, treatment, etc.)
  - Data management systems (GIS, SCADA systems, software licenses)
  - Telecommunications and IT support
- Contracted Services
  - Specialty contractors for inspections, major repairs, or rehabilitation
  - Consultants or engineers for planning or design services
- Infrastructure Renewal and Replacement
  - Asset rehabilitation and replacement planning and implementation
  - Capital reserve for long-term infrastructure needs
- Compliance and Reporting
  - Regulatory compliance costs (e.g., documentation, reporting, audits)
  - Legal and permitting fees
  - Public outreach and education programs
- Contingency and Inflation
  - Contingency reserve for unexpected costs or emergencies
  - Inflation adjustment to account for cost increases over time
- Program Management and Administration
  - External audits - required yearly by the State Comptroller's office
  - Planning and coordination costs
  - Internal audits and evaluations
  - Recordkeeping and documentation systems

There may be additional items considered as WWTAs work to implement plans added cost may become known as programs are developed and utilized.

## **2.2 Capital Improvement Costs**

Capital Improvements include upgrading aging infrastructure, expanding system capacity, and addressing environmental concerns. These projects are essential for achieving compliance with the Consent Decree.

WWTA funds projects in a variety of ways including federal/state grants and loans, bonds, and cash. The current funding sources for capital projects can be found below in Figure 1.

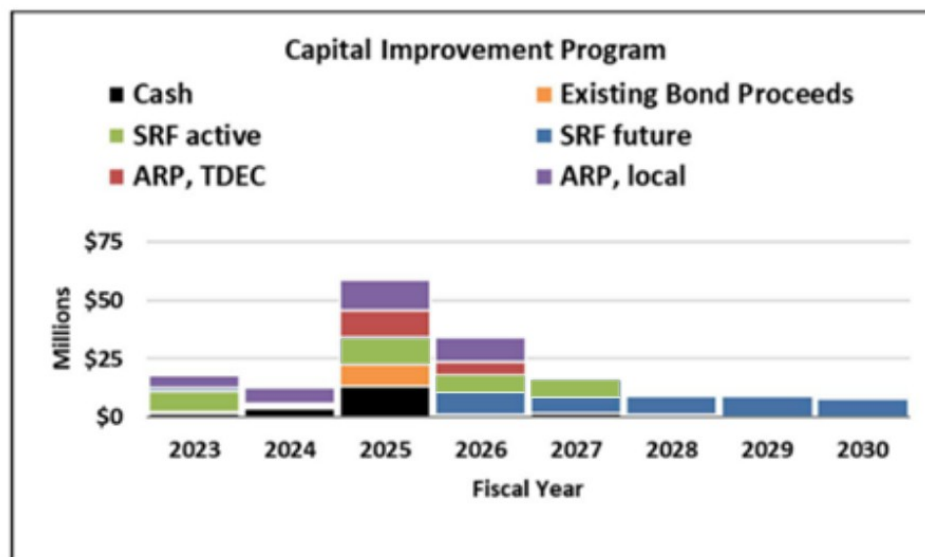


Figure 1 Capital Improvement Program Funding

### 2.2.1 CD Capital Projects

Other costs related to the CD and CD capital projects are included in WWTA's budget and planning.

Capital Projects include:

- Early Action Projects:
  - Soddy Daisy Equalization Station
  - East Ridge Sub-basins 3C and 4B Rehab
  - Lookout Mountain Sub-basins 2, 5, 6 & 9 Rehabilitation
  - Red Bank Sub-basin 5, 6 & 7 Rehabilitation
  - East Ridge Basin 10 Rehabilitation
  - East Ridge I-75 Collector Sewer Replacement
  - Roy Lane, Snow Hill, Green Gap Pump Station Upgrades
  - Lee Hwy Pump Station and Force Main
  - Short Tail Springs Pump Station and Force Main
- Signal Mountain WWTP
- Sewer Basin Groups 1-5 Rehabilitation

Other CD Items/Costs:

- Sanitary Sewer Evaluation work related to groups and projects - WCTS
  - Inspection and Assessment
  - Flow Monitoring

- CCTV Inspection
- Smoke Testing
- Etc.
- Reports and Plans
  - Sanitary Sewer Evaluation Rehabilitation (SSER) Plan
  - Quarterly, Bi-annual, Annual, 5-year Reports
  - Group Rehabilitation Plans and Reports
  - Signal Mountain WWTP Remediation Report

As WWTa progresses through these projects, costs are tracked and utilized to create even more accurate estimates and budgets.

## **2.3 5-Year Planning Horizon**

The WWTa takes a forward-looking approach to capital improvement financing, projecting its financial planning at a minimum of five years in advance creating a 5-Year Projected Cash Flow. This long-term strategy ensures financial stability, alignment with operational goals, and compliance with reserve policies and funding requirements. WWTa updates its cash flow projections annually utilizing the framework outlined below.

### **Cash Flow Planning Framework**

#### **1. Beginning Cash Balance**

The planning cycle for each fiscal year begins with an assessment of the beginning cash balance. This includes unrestricted cash and any cash that is not reserved for specific obligations.

#### **2. Cash Inflows and Outflows**

Forecasts for the year are developed by estimating all expected cash inflows and outflows:

- Cash Inflows include revenues from operations, capital contributions, interest income, and external funding sources such as grants or bond proceeds.
- Cash Outflows include operating expenses, capital expenditures, debt service obligations, and any required transfers to restricted reserves.

#### **3. Ending Cash Balance**

The net of inflows and outflows, adjusted to the beginning cash, results in the projected ending cash for the year.

#### **4. Program Costs**

Programs will be added and or modified as WWTa's needs change. The Private Service Lateral Program (PSLP) Costs are currently included.

Changes will be factored into both operating and capital expense forecasts, increasing financial flexibility for new initiatives and infrastructure investments.

## **5. Reserve Requirements**

To ensure financial resilience and maintain creditworthiness, two key reserve levels are targeted:

- Three-Month Operating Reserve: Equivalent to three months of average operating expenses, this reserve safeguards against revenue shortfalls or unexpected cost increases.
- Three-Month Credit Rating Reserve: Maintained to support the utility's credit rating and borrowing capacity, this reserve helps meet the requirements set by rating agencies and lenders.

## **6. Capital Project Funding**

Capital project funding may come several different sources based on WWTa's needs:

- Cash Reserves
- Bonds
- State Revolving Fund (SRF) Loans
- Project Deposits and Funding Reserves: Where applicable, the WWTa may set aside dedicated funds as project deposits to support cash flow until the WWTa is able to be reimbursed from TDEC SRF.
- Federal and State Grants - when grant opportunities become available.

## **7. Annual Cash Availability Summary**

After accounting for all revenues, expenditures, project-specific reserves, and mandated financial reserves, the WWTa calculates:

- Available Cash for Capital Investment, which reflects the funds left for new projects or unforeseen needs.
- Annual Net Cash Change, indicating whether cash levels are projected to increase or decrease compared to the prior year.

This comprehensive planning model allows the utility to maintain financial stability while executing a robust capital improvement program that supports long-term system reliability and service goals.

### 3 Life Cycle Cost Analysis

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Life Cycle Cost Analysis (LCCA) considers all costs associated with an asset from acquisition to disposal—including design, construction, operation, maintenance, and eventual replacement. This helps identify the true cost of ownership over time.

WWTA utilizes an Asset Management Plan (AMP) for the assessment and analysis of the Wastewater Collection and Transmission System (WCTS) infrastructure. The AMP is used to reduce risk and unexpected costs as well as budget for ongoing maintenance. It provides a framework for analyzing the condition and criticality of assets to set priorities, while planning for asset renewal, growth, and capacity expansion in a strategic manner.

WWTA will incorporate LCCA into its operations, maintenance, and management strategies by leveraging both internal historical data and benchmarking information from other utilities. Life cycle costs will be evaluated at the preliminary engineering phase of each project and reevaluated annually when WWTA is reviewing its budget and rate structure. This approach will be used to:

- **Estimate costs** and **project lifespans** of sewer system equipment and infrastructure
- **Compare alternatives** based on long-term cost-effectiveness rather than just initial capital expenses
- **Support informed decision-making** when planning upgrades, replacements, or selecting between equipment options
- **Enhance budgeting accuracy** by accounting for full lifecycle costs, including operation, maintenance, repair, and eventual replacement

By utilizing both local data and industry best practices, WWTA will make well-informed, financially responsible decisions that support the long-term sustainability and performance of its sewer system.

#### 3.1 Operations Cost Analyses

Application of LCCA on operational costs:

- **Compare operational efficiency** between equipment options (e.g., pumps with different energy demands)
- **Estimate utility consumption costs** (power, chemicals, water) over the asset's lifetime
- **Optimize staffing and scheduling** by analyzing the long-term resource demands of different operational approaches

- **Plan for automation upgrades** by comparing long-term cost savings from remote telemetry or smart sensors

### 3.2 Maintenance Cost Analyses

Application of LCCA on maintenance costs:

- **Evaluating long-term maintenance costs** of different materials or equipment brands
- **Forecasting repair frequency and costs** based on manufacturer data and historical records
- **Planning preventive vs. corrective maintenance** strategies by analyzing their long-term financial impact
- **Budgeting for spare parts** and routine service intervals.

### 3.3 Management Cost Analyses

Application of LCCA on management costs:

- **Asset management planning** by identifying the most cost-effective timing for repairs, rehab, or replacement
- **Capital improvement prioritization** based on full lifecycle costs rather than just age or condition
- **Risk-based investment decisions** by weighing potential failure costs vs. proactive management expenses
- **Long-term financial planning** (rate setting, reserves, and grant applications)

## **4 Annual Budget and Customer Rates**

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The Hamilton County WWTa operates on a July 1 to June 30 fiscal budget year and evaluates its customer rates annually as part of its budgeting process.

The WWTa Annual budget looks at: revenues, expenses, capital contributions, profit/loss and capital appropriation. The approved FY 2025 and FY 2026 budgets are available in Appendix B. These values look at and are used to modify the 5-Year projected Cashflow explained in Section 2.3.

### **4.1 Customer Rates**

User charges are evaluated and adjusted annually. Rates are based off both quantity and size of connection. The rates for Fiscal Year (FY) 2025 and FY 2026 are available below in Appendix C.

The WWTa staff recommends rate increases when additional revenue is needed to fund capital projects and ongoing operations costs or for debt service.

Approved customer rate increases take effect on October 1<sup>st</sup> of each year (Appendix A).

### **4.2 Debt Service**

The WWTa utilizes financing from multiple sources, such as Clean Water SRF Loans and Hamilton County bonds. The WWTa manages the repayment of these loans and includes these expenditures in its annual budgeting process, tracking their monthly and annual debt service.

- The annual budget and rates incorporate the costs outlined in Section 2 and Section 3. As these costs are reassessed annually the annual budget and customer rates are also.

## **Appendix**



## Appendix A – Annual Timeline for Financials

	Annual Timeline											
	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>
New Fiscal Year Budget to Take Effect												
Preliminary Evaluation of Life Cycle Cost*												
Sewer Rate Increase to Take Effect												
Annual Re-evaluation of Life Cycle Costs												
Request and Submission of Viability of Proposed Budget												
Evaluation of Existing Budget Adequacy Compared to Actual Expenses												
Approval of Resolution for Next Fiscal Year Budget by Board												

\*Initial evaluation of life cycle costs during preliminary evaluation of project dependent on specific project

## Appendix B – Example Annual Budget

WWTA Annual Budget		
	FY26	FY25
Revenues	\$38,657,828.00	\$37,009,772.00
Expenses	-\$34,149,386.00	-\$30,615,644.00
Capital Contributions	\$8,848,360.00	\$1,652,419.00
Profit/(Loss)	\$13,356,802.00	\$8,046,547.00
Capital Appropriation	\$4,508,442.00	\$6,394,128.00

## Appendix C – Example Customer Rates

WWTA Schedule of Wastewater Rates		
	<b><u>FY 25</u></b>	<b><u>FY 26</u></b>
Gallons/Month		
First 100,000 Gal	\$18.55	\$19.66
Next 650,000 Gal	\$13.77	\$14.60
Min Monthly Bill - Based on Size		
Less Than 1"	\$27.59	\$27.59
1"-2"	\$237.56	\$251.77
3"	\$531.66	\$563.48
4"	\$941.34	\$997.67
6"	\$2,205.82	\$2,337.98
8"	\$4,072.87	\$4,317.65