TOWN OF MOUNT OLIVE CAPITAL IMPROVEMENTS PLAN JULY 1, 2024

The purpose of this asset inventory and assessment is to document the condition of the Town's inventoried infrastructure to assist the Town with becoming more viable and proactive in the management and financing of its wastewater system which includes treatment and collections. The Town continues to look to its CIP to guide its next projects; therefore, it is vital that the CIP remains current to the Town's highest priorities and provides accurate cost estimates. The development of this AIA will serve as a positive step towards ensuring that the Town can maintain its level of service agreement.

We are in the process of completing CDBG – I Project 20-I-3610 Sewer line rehabilitation and replacements. The project consists of removal and replacement of 9,114 Linear Feet of 8" sewer lines and thirty-one (31) manholes. The project areas will be Center Street, Smith Street, Herring Street, Hillsboro Street, Nelson Street, South Church Street and Elizabeth Street The vitrified clay gravity sewer lines were isolated in ArcGIS and a list of lines and lengths was generated. This list was divided into projects recommended for the next twenty (20) years. There is a project that solely focuses on manhole rehabilitation/replacement and this project is an ongoing project that has been given the timeline of 7 years to be complete.

Visual inspections of the Town's lift stations resulted in the discussion of any projects that could reprioritize the CIP. None of the lift stations are in need of upgrades or replacement. In 2018, five (5) lift stations were upgraded and in excellent condition.

While reducing I & I at the wastewater treatment plant was a goal of the AA, assessments of the wastewater treatment plant infrastructure was outside the scope of this project, and any improvements were not included in the CIP,

McGill updated the cost estimates for all projects based on current materials and construction costs. The updated CIP is intended to be adopted by the Town to guide its selection of sewer system improvement projects over the next two decades. The cost summary for the 20-year CIP is shown below in Table 1.

Table 1: CIP Cost Summary

Year	Old Cement [5] Project 1	Old Cement Project 2	Sewer Collection 1	Sewer Collection IA	Sewer Collection 2	Sewer Collection 3	Sewer Collection 4	Manhole Rehabilitation	Total Cost
1			$0		$0	$0	$0	$0	
2	$0	$0		$2,000,000	$0	$0	$0	$106,000	$106,000
3	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	$2,545,000	$0	$0	$0	$0	$0	$0	$106,000	$2,651 ,000
5	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	$0	$3,112,000	$0	$0	$0	$0	$0	$106,000	**$3,218,000**
8	$0	$0	$0	$0	$0	$0	$0	$106,000	$106,000
9	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	$0	$0	$1,033,550*	$0	$0	$0	$0	$106,000	$1,139,550
11	$0	$0	$0	$0	$0	$0	$0	$0	$0
12	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	$0	$0	$0	$0	$3,435,450	$0	$0	$0	$3,435,450
14	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	$0	$0	$0	$0	$0	$0	$0	$0	$0
16	$0	$0	$0	$0	$0	$3,213,600	$0	$0	$3,213,600
17	$0	$0	$0	$0	$0	$0	$0	$0	$0
18	$0	$0	$0	$0	$0	$0	$0	$0	$0
19	$0	$0	$0	$0	$0	$0	$3,318,050	$0	**$3,318,050**
20	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total									$19,187,650

*The total cost of Sewer Collection Rehabilitation/Replacement Project 1 in year 10 is the difference after Sewer Collection Rehabilitation/Replacement Project IA is separated out in year 1.

6.0 OPERATIONS AND MAINTENANCE PLAN

The purpose of an Operations and Maintenance (O&M) Program is to provide an organized and cost-effective approach to ongoing maintenance, repair and replacement activities that will maintain the sewer collection system, so it performs as intended and meets the requirements of the sewer utility's System-Wide Collection System Permit, issued under North Carolina General Statutes Article 21 of Chapter 143.

This section provides a general description of proactive O&M, that can be defined as scheduled maintenance activities (preventive maintenance), performed on a regular basis in order to achieve the highest level of system performance using available resources and minimizing failures that can result in Sewer System Overflows (SSOs)

Developing an O&M Program begins with accurate records of infrastructure inventory, asset locations and physical condition. Coupled with work records and system performance history, preventive maintenance schedules can be developed to efficiently address general system needs, from cleaning and debris removal, to site-specific maintenance work such as cutting and repair work.

The following elements provide the foundation for an effective O&M program[1]

- Maintain up-to-date sewer collection system maps and related work history and operational data.
- Develop a routine preventive O&M program and activities for staff and contractors maintaining the sewer collection system and a system to document scheduled activities
- Develop a rehabilitation and replacement plan identifying and prioritizing system deficiencies and implement short- and long-term actions to address the deficiencies
- Develop and implement training programs to build technical competence and emergency preparedness.
- Develop and provide equipment and replacement part inventories, including critical replacement parts
- Waste Water Treatment:
  Replace Blower 1 and Blower 3
  Replace influent pumps 1, 2, and 4
  Replace diffusers in basin 1 and 2
  Install stairs to digester #2
  Up grade SCADA system this will help with operation of irrigation system
  Upgrade the PLC for the plant effluent and Irrigation system
  Install trees around the farm to control drift off site
  Install new liner in the 28 day holding pond
  Replace three 6 inch RAS pumps and two 3 inch wasting pumps
  Install 2 inch ball valves on the spray heads 160 heads
  Enclose the PLC panel to protect from sun light and rain
  Install new auto bar screen
  Put drains in basin 1 and 2 for cleaning and inspections
  Install valves on RAS line
  Install By-pass lines for the sand filters
  Replace old farm tractor

Sewer System Mapping

Sewer system maps and related databases are typically managed using a Geographic Information System (GIS). These maps and datasets can be viewed through a GIS desktop program (i.e.ArcGIS), or by creating digital (typically pdf format) maps and tables to be viewed on screen, exported to other software (excel) for analysis, or printed for manual markup, editing, etc. GIS mapping is supported by a database that records sewer main size, material types, locations of manholes and lateral connections, indicates flow direction, invert and rim elevations and other attributes of system appurtenances. It can also attach images such as field inspections and Closed Circuit Televised (CCTV) videos, to specific an asset(s) or location(s) and attach performance data such as flow monitoring to sections of the collection system. GIS provides a powerful tool to build, organize and display the physical and operational attributes of the sewer collection system.

The GIS database should be updated on a regular basis. Software applications such as work order systems are available to allow field staff to update GIS data as inspection and maintenance activities are completed. Other applications can also allow staff to update and edit maps.

GIS can organize work history along with operational data, inspection records and images to provide managers, operations staff and engineers with powerful data sets to track current resource allocations and forecast short and long-term operational and capital needs. Outcomes of detailed analysis such recommended sewer main rehabilitation work versus sewer overflows can be mapped to present the relationship visually for ease of understanding.

Preventive Operation and Maintenance (O&M)

Preventive maintenance is performing routine and scheduled maintenance activities before equipment or buried infrastructure fails, for the purpose of extending useful life, reducing overall operating costs, and increasing system reliability. This proactive approach to maintenance work is more efficient and cost effective than reactive and curative operations.

Preventive maintenance activities will also help operations staff to better understand the collection system and how it works under various conditions. This knowledge is essential to setting maintenance priorities and developing the scope and timing of longterm rehabilitation and replacement projects.

Scheduled Cleaning of Sewers

EPA recommends, at a minimum, 100% of sewer mains should be cleaned every 5 years, or 20% of the system annually. The sewer utility's Collection System Operating Permit requires 10% of the gravity sewers to be cleaned annually. High pressure jetting is the most common approach using various spray nozzles for general cleaning and debris removal. Mechanical cutters are used to address root intrusion and cleaning agents can be added to help remove fats, oils and grease (FOG).

More frequent cleaning is scheduled for areas with a history of heavy debris, grease buildup and roots. CCTV inspections are also used to identify areas to clean more often, such as sections with minor defects such as offset joints and service taps protruding into the main line. Sewer sections near siphons are cleaned more frequently to ensure continuous and uninterrupted operation.

As part of the O&M Program, a master list of cleaning operations, priority locations and scheduling can be incorporated into GIS. Maps can be produced to define work areas, schedule resources, including contracted services, track progress and task completion. Updating GIS maintenance operations data (partial blockages found, debris quantity, etc.) will help managers adjust cleaning frequency and area boundaries as needed to increase program efficiency, reduce sewer blockages and avoid SSOs. Maintenance Schedule WWTP Pumps and filters

8200 SEWER TREATMENT		$0.00	
30-8200-0070	Capital Reserve	$10,000.00	$ 5,000.00
30-8200-0100	OVERTIME-SALARIES	$132,000.00	$ 176,652.00
30-8200-0200	SALARIES & WAGES	$18,000.00	$ -
30-8200-0300	SALARIES / special pay	$18,975.00	$ 15,426.00
30-8200-0500	F. I. C. A.	$19,500.00	$ 22,752.00
30-8200-0600	HEALTH INSURANCE	$20,000.00	$ 24,833.00
30-8200-0700	RETIREMENT	$0.00	
30-8200-0750	PENSION EXPENSE	$200.00	$ 200.00
30-8200-0800	LIFE INSURANCE	$10,000.00	$ -
30-8200-0801	DENTAL INSURANCE	$6,500.00	$ 7,469.00
30-8200-0900	401K	$4,000.00	$ 4,000.00
30-8200-1000	TRAINING	$10,000.00	$ 10,000.00
30-8200-1100	TELEPHONE & POSTAGE	$120,000.00	$ 125,000.00
30-8200-1300	UTILITIES	$2,000.00	$ 3,000.00
30-8200-1400	TRAVEL	$45,000.00	$ 60,000.00
30-8200-1600	MAINTENANCE & REPAIR - EQPT.	$2,000.00	$ -
30-8200-1700	MAINTENANCE & REPAIR - VEHICLE	$42,500.00	$ 43,000.00
30-8200-1900	FLEET MANAGEMENT	$0.00	
30-8200-3100	AUTOMOTIVE SUPPLIES	$20,000.00	$ 22,000.00
30-8200-3101	GAS	$0.00	
30-8200-3200	OFFICE SUPPLIES	$20,000.00	$ 35,000.00
30-8200-3300	DEPARTMENTAL SUPPLIES	$0.00	
30-8200-3301	FUEL OIL		

General Ledger Budget Report			
Town of Mount Olive			
Fiscal Year 2024 - Draft Budget			
Account #	Account Description	Budget	PROPOSED
		2023/2024	2024-2025
30-8200-3400	OTHER SUPPLIES	$5,500.00	$ 6,000.00
30-8200-3600	UNIFORMS	$2,500.00	$ 3,000.00
30-8200-4500	CONTRACTED SERVICES	$150,000.00	$ 225,000.00
30-8200-4800	RED LIZARD IT SERVICES	$15,000.00	$ 2,500.00
30-8200-5300	DUES & PERMITS	$16,000.00	$ 16,000.00
30-8200-6000	FARM SUPPLIES	$10,000.00	$ 20,000.00
	FARM UTILITIES	$25,000.00	$ -
	FARM REPAIRS	$50,000.00	$ 75,000.00
30-8200-7300	CAPITAL OUTLAY - INFASTRUCTURE	$25,000.00	$ 30,000.00
30-8200-7600	CAPITAL OUTLAY-EQUIPMENT	$20,000.00	$ 40,000.00
30-8200-8700	WWTP LAGOON LINER REPAIR	$0.00	
30-8200-8900	ADD'L WORK CONTINGENCY	$150,000.00	$ 115,000.00
SEWER TREATMENT Total		**$969,675.00**	**$ 1,086,832.00**
8210 SEWER COLLECTION			
30-8210-0100	OVERTIME-SALARIES	$10,000.00	$ 10,000.00
30-8210-0200	SALARIES AND WAGES	$148,000.00	$ 45,760.00
30-8210-0500	FICA	$12,200.00	$ 6,041.00
30-8210-0600	HEALTH INSURANCE	$20,000.00	$ 7,584.00
30-8210-0601	SUPPLEMENTAL INSURANCE		
30-8210-0700	RETIREMENT	$20,000.00	$ 9,969.00
30-8210-0750	PENSION EXPENSE		
30-8210-0800	LIFE INSURANCE	$300.00	$ 300.00
30-8210-0801	DENTAL INSURANCE	$1,100.00	$ 1,250.00
30-8210-0802	COMPANION LIFE-ACA FEES	$0.00	
30-8210-0900	401K	$6,400.00	$ 3,150.00
30-8210-1000	TRAINING	$500.00	$ 1,500.00
30-8210-1100	TELEPHONE & POSTAGE	$6,700.00	$ 7,000.00

General Ledger Budget Report			
Town of Mount Olive			
Fiscal Year 2024 - Draft Budget			
Account #	Account Description	Budget 2023/2024	PROPOSED 2024-2025
30-8210-1300	UTILITIES	$600.00	$ 1,000.00
30-8210-1400	TRAVEL	$300.00	$ 1,500.00
30-8210-1500	MAINTENANCE & REPAIR BLDG		
30-8210-1600	MAINTENANCE & REPAIR EQUIP.	$55,000.00	$ 60,000.00
30-8210-1700	MAINTENANCE & REPAIR VEHICLE	$5,000.00	$ 5,000.00
30-8210-1900	FLEET MANAGEMENT	$14,800.00	$ 15,000.00
30-8210-3100	AUTOMOTIVE SUPPLIES	$1,000.00	$ -
30-8210-3101	GAS	$24,000.00	$ 26,000.00
30-8210-3200	OFFICE SUPPLIES	$800.00	$ -
30-8210-3300	DEPARTMENTAL SUPPLIES	$35,000.00	$ 40,000.00
30-8210-3600	UNIFORMS	$300.00	$ 500.00
30-8210-4500	CONTRACTED SERVICES	$3,500.00	$ 5,000.00
30-8210-4800	RED LIZARD IT SERVICES	$8,000.00	$ 800.00
30-8210-5300	DUES & SUBSCRIPTIONS	$500.00	$ 1,213.00
30-8210-5700	MISCELLANEOUS EXPENSE	$20,000.00	$ 20,000.00
30-8210-7600	CAPITAL OUTLAY-EQUIPMENT	$50,000.00	$ 50,000.00
30-8210-7800	ADDITIONAL SALARIES FROM 10	$0.00	$ 185,072.00
SEWER COLLECTION Total		**$444,000.00**	$ **503,639.00**