

# **DPW Sewer Enterprise**



## Town of Tewksbury FY2025-FY2029 Capital Improvements Projects/Equipment

**Project Name:** Sewer Inflow and Infiltration

**Department:** Public Works Dept. **First Year Submission** \_\_\_\_\_ **Priority:** \_\_\_\_\_

**Description of Project:** This project is an on-going annual request for rehabilitation of sewer manholes, pipe segments, and service connections that have been found to be sources of Inflow and Infiltration (I/I). Investigative tasks and projects are required by MassDEP, who has mandated the submittal of a five-year I/I reduction plan and annual reporting for all cities and towns permitted for discharge from a treatment facility. The Town submitted a 5-year plan (2018) which has been reviewed and approved by MassDEP. Initial investigations were conducted as early as 2012 and repairs made as recently as 2017. Continued investigations of 14 primary sub-basins are required to specifically identify locations of structural failures, and target repairs.

**Justification/Benefit:** Infiltration and Inflow (I/I) is extraneous water entering the wastewater collection system. Infiltration refers to groundwater that enters the collection system through physical defects such as cracks in the pipes and manholes, or deteriorated joints. Inflow refers to extraneous flow entering the system through point sources, such as roof drains and sump pumps. The extraneous flow produced from I/I sources restricts the potential for new growth by reducing the available capacity in the system and increases the cost of wastewater treatment operations. More importantly, the reduction in pipe capacity has the potential to cause Sanitary Sewer Overflows (SSOs) during periods of the year with seasonal high groundwater and rain events. By removing I/I sources, the system's total capacity is increased, helping to minimize the potential for SSOs, and allowing for additional development. Flows originating from the East Street, Burnham Road, and Andover Street sub-basins have been estimated to operate with peak infiltration at 15%, 68%, and 31% respectively, during the high groundwater season. I/I removal is also a requirement of the current discharge permit issued by EPA in September 2019.

**Impact if not Completed:** Tewksbury's sewer enterprise operates under regulations promulgated by MassDEP. Each year, Tewksbury is required to investigate its system and make repairs. The investigation for I/I sources also allows staff to review the structural condition of the infrastructure to prioritize repairs. Although this is a requirement of the Town's discharge permit, it is a beneficial program designed to ensure a long-range return of the investment made in the sewer network. By finding and eliminating extraneous flow, the increased capacity of the system is maintained over a greater number of years. Also, peak flow may surcharge sewer collection pipe capacity and contribute to residential sewer system backups, causing damage and cost to the Town.

**Timeframe:** Manhole and pipe repairs will be contracted out for FY2025. Capital appropriations currently exist for FY2025 pipe repairs.

**Replacement Frequency:** 5-25 years

**Operating Budget Impact:** Engineering Division and Sewer Division personnel time will be required to support the projects to be completed.

**Funding Source:** Sewer Enterprise Fund



## Town of Tewksbury FY2025-FY2029 Capital Improvements Projects/Equipment

Capital Funding Request						
Fiscal Year	2025	2026	2027	2028	2029	Totals
Site Acquisition	\$0	\$0	\$0	\$0	\$0	\$0
Design/Engineer	\$0	\$0	\$0	\$0	\$0	\$0
Construction	\$50,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,050,000
Equipment	\$0	\$0	\$0	\$0	\$0	\$0
Contingency	\$0	\$0	\$0	\$0	\$0	\$0
<b>Totals</b>	<b>\$50,000</b>	<b>\$250,000</b>	<b>\$250,000</b>	<b>\$250,000</b>	<b>\$250,000</b>	<b>\$1,050,000</b>

**Basis of Cost Projection:**  
Engineer's Estimate

**Submitted By:** Kevin Hardiman, Director of Public Works **Date:** 2/1/2024



# Town of Tewksbury FY2025-FY2029 Capital Improvements Projects/Equipment

**Project Name:** Sewer Pump Station Improvements

**Department:** Public Works Dept. **First Year Submission** \_\_\_\_\_ **Priority:** \_\_\_\_\_

**Description of Project:** This request is comprised of various projects to ensure reliable on-going operation of sewer pump stations. The town-wide sewer collection system utilized forty-seven (47) sewer pump stations. These stations were constructed anywhere from 1981-2009. A Sewer Pump Station Assessment was performed to understand what repairs, improvements, and upgrades are needed at each of the pump stations. Types of projects include upgrades to control panels and sensors, replacement of pumps, and installation of new equipment to improve the performance of individual stations.

**Justification/Benefit:** These repairs, improvements, and upgrades will be implemented to ensure the reliability of the pump stations.

**Impact if not Completed:** Alarms at these stations will continue to require the need for emergency response, many of which occur after regular DPW working hours. Pump failures will reduce the expected life cycle of the pumps, which would then need to be replaced. Pump Station backups could occur if emergency response lags or during periods of high flow while pumps are out of service.

**Timeframe:** Pump Station Improvements shall be completed during the FY25 budget year.  
**Replacement Frequency:** 25 years

**Operating Budget Impact:** Water & Sewer Division overtime should be reduced. Electric and Gas utility costs may increase with the additional equipment.

**Funding Source:** Sewer Enterprise Fund

Capital Funding Request						
Fiscal Year	2025	2026	2027	2028	2029	Totals
Site Acquisition	\$0	\$0	\$0	\$0	\$0	\$0
Design/Engineer	\$0	\$0	\$0	\$0	\$0	\$0
Construction	\$400,000	\$350,000	\$350,000	\$350,000	\$350,000	\$1,800,000
Equipment	\$0	\$0	\$0	\$0	\$0	\$0
Contingency	\$0	\$0	\$0	\$0	\$0	\$0
<b>Totals</b>	<b>\$400,000</b>	<b>\$350,000</b>	<b>\$350,000</b>	<b>\$350,000</b>	<b>\$350,000</b>	<b>\$1,800,000</b>

**Basis of Cost Projection:**  
Engineer's Estimate

**Submitted By:** Kevin Hardiman, Director of Public Works **Date:** 2/1/2024

**Sewer  
5-Year Capital Cost**

Budget Cost Elements	FY25	FY26	FY27	FY28	FY29	TOTAL
Site Acquisition	\$0	\$0	\$0	\$0	\$0	\$0
Design/Eng.	\$0	\$0	\$0	\$0	\$0	\$0
Construction	\$450,000	\$600,000	\$600,000	\$600,000	\$600,000	\$2,850,000
Equipment	\$0	\$0	\$0	\$0	\$0	\$0
Contingency	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL</b>	<b>\$450,000</b>	<b>\$600,000</b>	<b>\$600,000</b>	<b>\$600,000</b>	<b>\$600,000</b>	<b>\$2,850,000</b>

Fiscal Year Program	Project Name	Work Description	Comments/Location	Cost
<b>FY25</b>				
<b>Infiltration and Inflow (I/I) Control</b>				
	Pipe Repair and Replace	Dig and Replace/Slip Lining Based on FY23-24 Camera/Investigation		\$0
	Manhole Repair/ adjustment	Adjust sewer manholes based on inventory of locations winter 2023		\$50,000
<b>Pump Station Improvements</b>				
	Design and Construction	Implement improvements to Pumps Stations based on FY23 Facility Assessment Construction - Odor Mitigation at East Street Pump Station		\$250,000 \$150,000
<b>Total Cost FY25</b>				<b>\$450,000</b>
<b>FY26</b>				
<b>Infiltration and Inflow (I/I) Control</b>				
	Pipe Repair and Replace	Dig and Replace/Slip Lining Based on FY23-24 Camera/Investigation		\$200,000
	Manhole Repair/ adjustment	Adjust sewer manholes based on inventory of locations winter 2024		\$50,000
<b>Pump Station Improvements</b>				
	Design and Construction	Implement improvements to Pumps Stations based on FY23 Facility Assessment		\$350,000
<b>Total Cost FY26</b>				<b>\$600,000</b>
<b>FY27</b>				
<b>Infiltration and Inflow (I/I) Control</b>				
	Pipe Repair and Replace	Dig and Replace/Slip Lining Based on FY23-24 Camera/Investigation		\$200,000
	Manhole Repair/ adjustment	Adjust sewer manholes based on inventory of locations winter 2025		\$50,000
<b>Pump Station Improvements</b>				
	Design and Construction	Implement improvements to Pumps Stations based on FY23 Facility Assessment		\$350,000
<b>Total Cost FY27</b>				<b>\$600,000</b>
<b>FY28</b>				
<b>Infiltration and Inflow (I/I) Control</b>				
	Pipe Repair and Replace	Dig and Replace/Slip Lining Based on FY23-24 Camera/Investigation		\$200,000
	Manhole Repair/ adjustment	Adjust sewer manholes based on inventory of locations winter 2026		\$50,000
<b>Pump Station Improvements</b>				
	Design and Construction	Implement improvements to Pumps Stations based on FY23 Facility Assessment		\$350,000
<b>Total Cost FY28</b>				<b>\$600,000</b>
<b>FY29</b>				
<b>Infiltration and Inflow (I/I) Control</b>				
	Pipe Repair and Replace	Dig and Replace/Slip Lining Based on FY23-24 Camera/Investigation		\$200,000
	Manhole Repair/ adjustment	Adjust sewer manholes based on inventory of locations winter 2027		\$50,000
<b>Pump Station Improvements</b>				
	Design and Construction	Implement improvements to Pumps Stations based on FY23 Facility Assessment		\$350,000
<b>Total Cost FY29</b>				<b>\$600,000</b>

**Sewer Projects Spring of 2024-Fall of 2025**

<b>Project Type</b>	<b>Location</b>	<b>Description</b>	<b>Budget</b>
Pipe Repair and Replace	Based on FY23-24 camera/investigation	Dig and replace/repair sewer pipes	-
Manhole Repair/adjustment	Based on 2023 winter inventory	Repair/adjust sewer manholes	50,000 Sewer Enterprise
Design and Construction	Based on FY23 Facility Assessment	Implement improvements to Pump Stations	250,000 Sewer Enterprise
Design and Construction	East Street Pump Station	Design and construction of odor mitigation	150,000 Sewer Enterprise