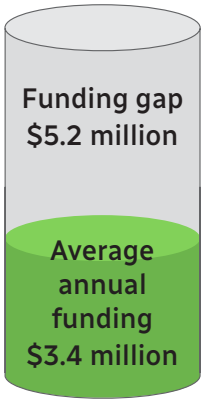
Sanitary collection

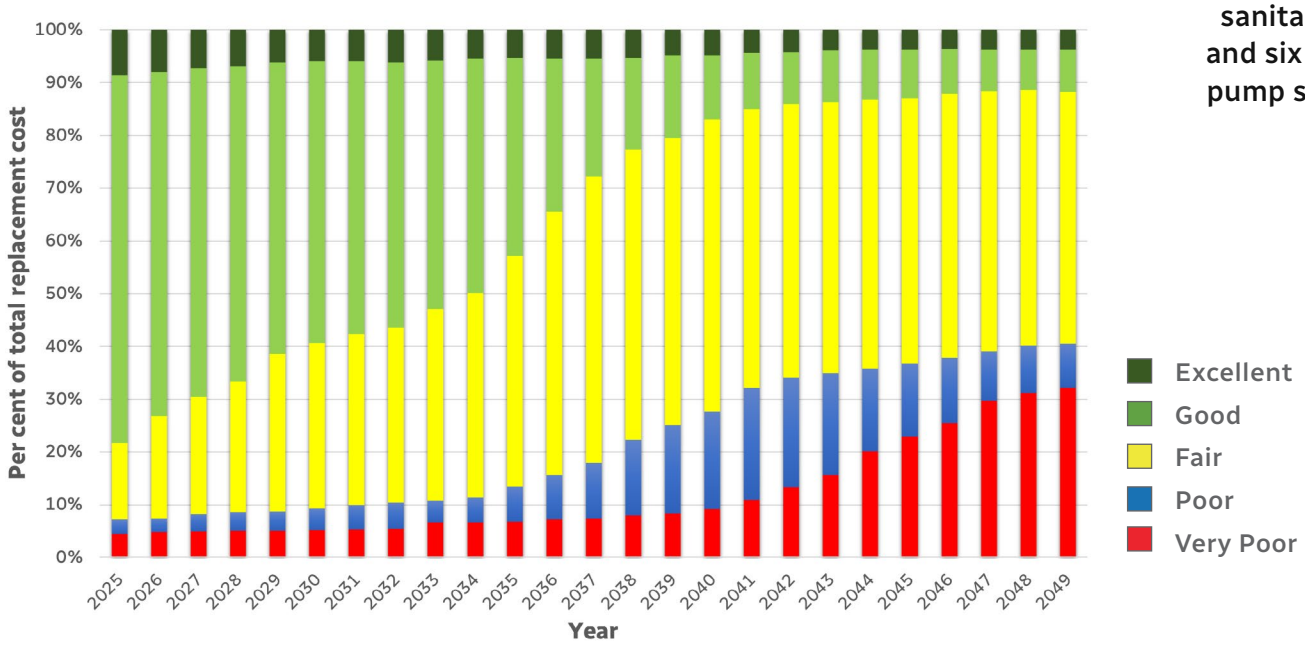
Total asset replacement value	**$929.4 million**
Current condition	**GOOD**
Projected condition in 25 years	**FAIR**
Annual funding needed to meet target performance	**$8.6 million**
Annual average funding	**$3.4 million**
Annual funding gap	**$5.2 million**
Funding source	**Sanitary user fees**
Data maturity level	**High**



Annual funding needed $8.6 million

Assets include 418.7 km of sanitary pipe and six sewage pump stations.

Projected annual performance of sanitary assets

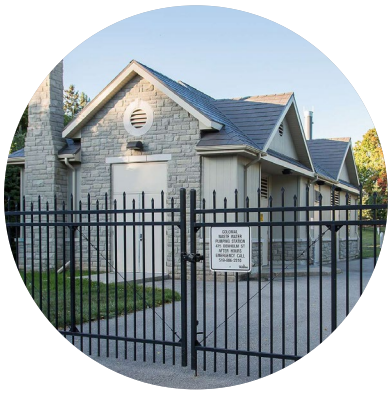


A FEATURED STORY

Protecting Our Sanitary Pump Stations and Investing on Reliability

Our sanitary pump stations are essential to keeping wastewater moving safely and efficiently throughout the city. Recent capital investments including upgraded impeller-style pumps, targeted pipe replacements, and a new remote monitoring system (SCADA) upgrade have improved system performance and provided staff with better access to real-time data. However, materials entering the system can still affect long-term reliability. For example, non-degradable wipes can clog pumps and damage equipment. Also, grease from large spills or the gradual buildup over time, can lead to blockages and backups. To help protect these critical assets and reduce maintenance costs, we encourage residents to flush only toilet paper and to place wipes and grease in the trash.

CURRENT STRATEGY



The city's sanitary collection assets are the sewers and pumping stations that carry wastewater away from our homes and businesses. The City of Waterloo is required to have sufficient maintenance and rehabilitation funding for this system to meet provincial regulations. The sanitary collection network is a user fee funded asset.

Sanitary sewers can either be rehabilitated or replaced. In Waterloo, we replace sanitary sewers that are in poor or very poor condition when other work is being done on watermains or stormwater sewers during road reconstruction. Sometimes it is possible to rehabilitate sewers, using trenchless technology without disturbing anything else, if the road and other pipes are still in good shape. The estimated service life for sanitary sewers ranges between 45 and 85 years depending on the material type (e.g. clay, PVC). Sewage pumping stations are rehabilitated on an as-needed basis, replacing or refurbishing the individual components in each facility as they reach the end of their useful life. Each component has an industry-accepted estimated service life that is combined with observations about the condition of each component during site investigations.

ASSET PERFORMANCE

Sanitary collection asset performance is evaluated using historical knowledge, age, and observed conditions. The quality and availability of our asset data (data maturity) are continuously evolving. The current data maturity level for sanitary collection assets is assessed to be high. The city is continuously working to improve asset data quality.

Over the 25-year timeline, we anticipate the percentage of our sanitary collection network with a fair or better performance profile to decrease from approximately 93% in 2025 to 59% by 2049. Based on the best available sanitary collection asset data, deterioration rates and the 2024-2026 approved capital budget and the 2027-2033 capital forecast, we estimate that sanitary collection assets have an annual infrastructure funding gap of $5.2 million.

93%

Sanitary assets with a fair or better performance

LEVELS OF SERVICE

The following tables show the levels of service established by the city for sanitary collection assets. These metrics include the technical and community level of service required as part of the Ontario Regulation 588/17. Service metrics are reported for the prior year ending on December 31.

COMMUNITY LEVELS OF SERVICE

The following table outlines the qualitative descriptions that determine the community levels of service for sanitary collection assets.

SERVICE ATTRIBUTE	QUALITATIVE DESCRIPTION	2024
Scope	Description, which may include maps, of the user groups or areas of the city that are connected to the municipal wastewater system.	The City of Waterloo is largely built out to the municipal boundary, and provides wastewater collection to most properties within the urban areas, a small portion of the rural areas are serviced by private septic systems.
Reliability	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or homes.	Stormwater may enter the sanitary sewer through multiple sources. Groundwater may enter sanitary sewers through defective pipe joints, or broken pipe in areas where the ground water table is at a high elevation. Alternately stormwater may enter sanitary sewers through inappropriate connections such as sump pumps, or roof drains. All of the aforementioned sources could lead to an increased flow to the wastewater treatment plant.
	Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described above.	The City of Waterloo has a separate system for stormwater and sanitary waste to prevent stormwater entering the wastewater system. The City of Waterloo has eight flow monitors and two rain gauges to monitor the status of the system in order to address issues Inflow and Infiltrations issues as they arise. The City of Waterloo has a CCTV program for wastewater sewer to monitor sanitary sewer internal structure condition and operational performance to identify pipe deficiencies. Additional acoustic inspection tools are being utilized to improve operational knowledge of the system and reduce backup events.

TECHNICAL LEVELS OF SERVICE

The following table outlines the quantitative metrics that determine the technical level of service for sanitary collection assets.

SERVICE ATTRIBUTE	QUANTITATIVE METRICS	2023	2024
Scope	Per cent of properties connected to the municipal wastewater system.	98.67%	98.68%
Reliability	Number of connection days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system.	0.01%	0.01%
	Number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.	0.01%	0%
Environmental Stewardship	Annual GHG emissions (tonnes CO2e)	23.01	18.98

The information presented here is based on the best available asset inventory and condition data as of March 2025, as well as funding details from the 2024-2026 approved capital budget and the 2027-2033 capital forecast.

The forecasting model allows staff to project the condition of City assets over a 25-year timeframe and therefore all funding is based on a 25-year average.