



Water and Wastewater Asset Management Plan and Rate Study

Township of North Dundas

Final Report

June 16, 2026

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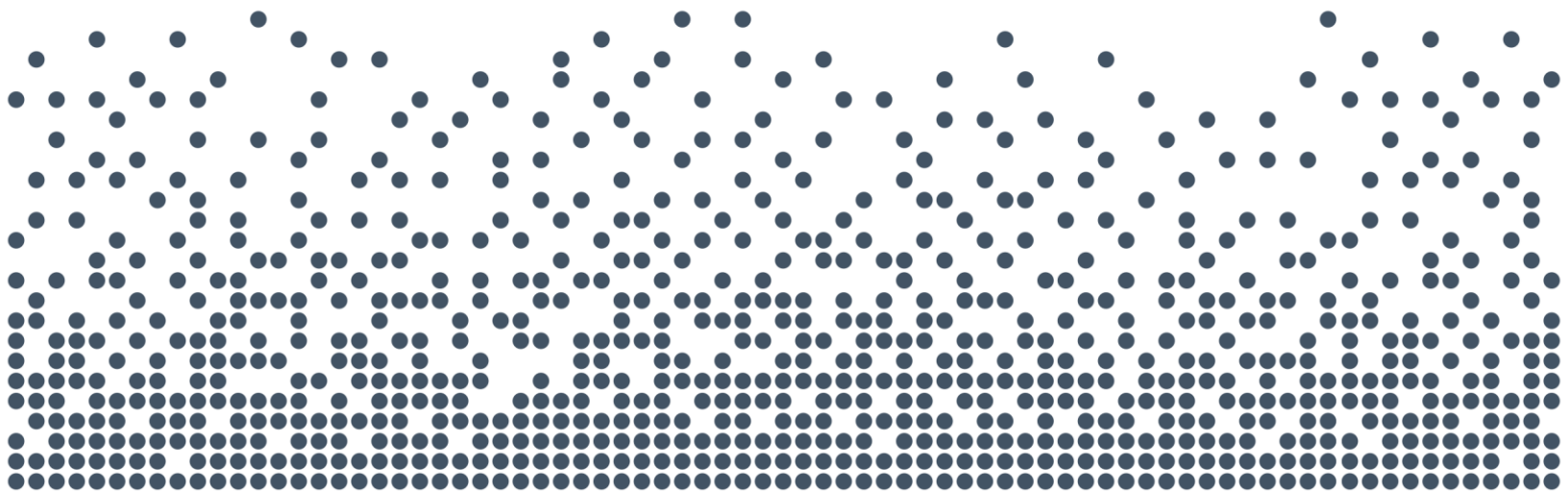
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Chapter 1

Introduction



1. Introduction

1.1 Overview

The Township of North Dundas (Township) retained Watson & Associates Economists Ltd. (Watson) to undertake the following:

- Develop a comprehensive asset management plan for water and wastewater assets; and
- Prepare a water and wastewater rate study.

To this end, this report consolidates these traditionally separate deliverables into a single, integrated document, providing a comprehensive view of long-term asset management planning decisions and their associated financial implications.

With respect to the asset management components, state of local infrastructure summaries and levels of service frameworks are presented in Section 3.1, while forecasts of capital expenditures are presented in Section 3.2. The associated financial strategy, including sources of capital financing, impacts on operating revenues and costs, and resulting implications for water and wastewater rates, are presented in Chapters 4, 5, and 6, respectively.

The sections that follow in this chapter provide further detail on the purpose and objectives of each component.

1.1.1 Asset Management Plan Overview

The primary objective of an asset management plan is to leverage the best available information to support the long-term planning, management, and stewardship of infrastructure assets. The plan also establishes a documented and structured framework for ongoing refinement and periodic updates, ensuring it remains relevant and responsive to changing conditions, demands, and priorities.

The asset management components of this report build upon prior work completed for the Township's water and wastewater assets through the 2024 Asset Management Plan



for Water and Wastewater Systems^[1] and bring the Township into compliance with the July 1, 2025 requirements of O. Reg. 588/17 for these asset classes. These components include the Township's proposed levels of service and a comprehensive financial strategy, outlined in the rate study sections of this report, designed to support the implementation of the asset management plan.

The estimated current replacement cost for the Township's water and wastewater infrastructure is approximately \$272.8 million. Water assets account for 58% of this replacement cost (i.e., \$158.4 million) while wastewater assets account for the remaining 42% (i.e., \$114.4 million).

The distribution of replacement cost by asset category is provided in Table 1-1 and is further illustrated in Figure 1-1.

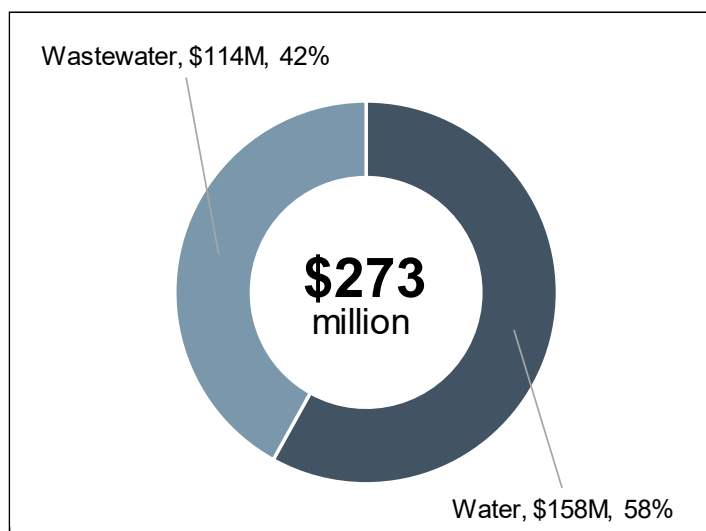
Table 1-1
Distribution of Replacement Cost by Asset Category

Asset Category	Current Replacement Cost
Water	\$158,415,000
Wastewater	\$114,376,000
Total	\$272,791,000

^[1]The Township's 2024 Asset Management Plan for Water and Wastewater Systems was prepared by the Ontario Clean Water Agency (OCWA).



Figure 1-1
Distribution of Replacement Cost by Asset Category



1.1.2 Rate Study Overview

The Township operates and maintains municipal water supply systems and wastewater collection systems that currently serve 1,915 customers as of 2025.

The Township recovers all costs related to operating, maintaining, and rehabilitating its water and wastewater systems through user fees. All customers are billed a combined annual base charge for both water and wastewater based on their meter size.

Additionally, customers are charged a consumptive rate applied to metered water consumption for both water and wastewater. The wastewater rate has historically been imposed as a percentage of the water rate. A summary of the water and wastewater rates currently in effect are provided in Table 1-2.



Table 1-2
Township of North Dundas
2026 Water and Wastewater Rates

2026 - Water Billing Rates		2026 - Wastewater Billing Rates	
Base Charge		Base Charge	
¾"	166.56	¾"	282.48
1"	233.28	1"	395.40
1 ½"	299.88	1 ½"	508.44
2"	483.12	2"	819.12
3"	1844.4	3"	3,126.96
4"	2347.44	4"	3,979.68
6"	3521.16	6"	5,969.52
Volume Charge		Volume Charge	
\$ 1.510	per m ³	\$ 2.750	per m ³

The objectives of the rate study and the steps involved in carrying out this assignment are summarized below:

- Update water and wastewater service demand assumptions based on analysis of the current customer profile, historical consumption, and recent trends;
- Estimate future consumption levels by applying revised demand assumptions to forecast growth identified in the Township's 2021 Development Charge Background Study, the United Counties of Stormont, Dundas and Glengarry's (United County) recently completed growth management strategy (GMS), and discussions with Township planning staff;
- Identify all current and future water and wastewater system capital needs to assess the immediate and longer-term implications, including the needs identified in the AMP;
- Build a capital program that blends lifecycle needs arising from the Township's capital budget, Asset Management Plan, and specific needs identified by staff;
- Identify potential methods of cost recovery with respect to the capital needs listing. These recovery methods may include other statutory authorities (e.g., *Development Charges Act, 1997*, *Municipal Act*, etc.) as an offset to recovery through the water and wastewater rates;
- Forecast annual operating costs and rate-based funding requirements;
- Develop a long-term water and wastewater rate forecast;
- Provide an impact assessment on the rate payers; and



- Present findings to staff and Council for their consideration.

1.2 Legislative Context

1.2.1 Legislative Context for Asset Management Plans

Asset management planning in Ontario has evolved significantly over the past decade.

Prior to 2009, it was common municipal practice to expense capital assets in the year of their acquisition or construction. Consequently, this meant that many municipalities did not have appropriate tracking of their capital assets, especially with respect to any changes that capital assets may have undergone (e.g., betterments, disposals, etc.). Furthermore, this also meant that many municipalities had not yet established inventories of their capital assets, both in their accounting structures and financial statements. As a result of revisions to *Section 3150 – Tangible Capital Assets* of the *Public Sector Accounting Board* (PSAB) handbook, which came into effect for the 2009 fiscal year, municipalities were forced to change this long-standing practice and capitalize their tangible capital assets over the term of the asset's expected useful service life. In order to comply with this revision, municipalities needed to establish asset inventories, if none previously existed.

In 2012, the Province launched the Municipal Infrastructure Strategy, which required municipalities and local service boards seeking provincial funding to demonstrate how any proposed project fits within a broader asset management plan. In addition, asset management plans encompassing all municipal assets needed to be prepared by the end of 2016 to meet Federal Gas Tax (now the Canada Community-Building Fund) agreement requirements. To help define the components of municipal asset management plans, the Province produced a document entitled *Building Together: Guide for Municipal Asset Management Plans*. This document outlined the information and analyses that were required to be included in municipal asset management plans under this initiative.

The Province's *Infrastructure for Jobs and Prosperity Act, 2015* (IIPA) was proclaimed on May 1, 2016. This legislation detailed principles for evidence-based and sustainable long-term infrastructure planning. The IIPA also gave the Province the authority to guide municipal asset management planning by way of regulation. In late 2017, the Province introduced O. Reg. 588/17 under the IIPA. The intent of O. Reg. 588/17 is to



establish standard content for municipal asset management plans. Specifically, the regulation requires that asset management plans be developed that define levels of service, identify the lifecycle activities that will be undertaken to achieve those levels of service, and provide a financial strategy to support the levels of service and lifecycle activities.

1.2.2 Legislative Context for Water and Wastewater

Following the Walkerton water crisis, significant regulatory changes have been implemented in Ontario. These changes resulted from the Walkerton Commission and the 93 recommendations outlined in the Walkerton Inquiry Part II report. Areas of recommendation included:

- watershed management and source protection;
- quality management;
- preventative maintenance;
- research and development;
- new performance standards;
- sustainable asset management; and
- lifecycle costing.

The following sections outline the most significant applicable regulatory areas.

1.2.2.1 Sustainable Water and Sewage Systems Act

The *Sustainable Water and Sewage Systems Act* was passed on December 13, 2002. The Act intended to introduce the requirement for municipalities to assess the "full cost" of providing their water and wastewater services. In total, there were 40 areas within the Act to which the Minister may make regulations; however, regulations were never issued. On December 31, 2012, the *Sustainable Water and Sewage Systems Act* was repealed.

1.2.2.2 Safe Drinking Water Act

The *Safe Drinking Water Act* was passed in December 2002. The *Safe Drinking Water Act* provides for 50 of the 93 Walkerton Part II recommendations. It focuses on the administrative and operational aspects of the provision of water.



The purposes of the *Safe Drinking Water Act* are to “recognize that the people of Ontario are entitled to expect their drinking water to be safe and to provide for the protection of human health and the prevention of drinking water health hazards through the control and regulation of drinking water systems and drinking water testing. 2002, c. 32, s. 1.”

The following is a summary of the key elements included in the *Safe Drinking Water Act*:

- Mandatory licensing and accreditation of testing laboratories;
- New standards for treatment, distribution quality and testing;
- Mandatory operator training and certification;
- Mandatory licensing of municipal water providers;
- Stronger enforcement and compliance provisions; and
- “Standard of care” requirements for municipalities.

This legislation affects the costs of operating a water system, including the need for higher-skilled operators, increased training costs, enhanced reporting protocols and requirements, ongoing improvements to quality standards, and the costs associated with licensing each water system.

1.2.2.3 Financial Plans Regulation

On August 16, 2007, the Ministry of Environment introduced Ontario Regulation (O. Reg.) 453/07, which requires the preparation of financial plans for water systems (and municipalities are encouraged to prepare plans for wastewater systems). The Ministry of Environment has also provided a Financial Plan Guideline to assist municipalities with preparing the plans. A summary of the key elements of the regulation is provided below:

- The financial plan will represent one of the key elements to obtain a Drinking Water Licence.
- The plan is to be completed, approved by Council Resolution, and submitted to the Ministry of Municipal Affairs and Housing as part of the application for receiving approval of a water licence.
- The financial plans shall be for a period of at least six years, but longer planning horizons are encouraged.



- As the regulation is under the *Safe Drinking Water Act*, the preparation of the plan is mandatory for water services and encouraged for wastewater services.
- The plan is considered a living document (i.e., it can be updated if there are significant changes to budgets); however, an update is required at a minimum every five years.
- The plans generally require forecasting capital, operating, and reserve fund positions, as well as providing detailed capital inventories. In addition, Public Sector Accounting Board full accrual information on the system for each year of the forecast (i.e., total non-financial assets, tangible capital asset acquisitions, tangible capital asset construction, betterments, write-downs, disposals, total liabilities, net debt, etc.).
- The financial plans must be made available to the public (at no charge) upon request and be accessible on the municipality's website. The availability of this information must also be advertised.

In general, the financial principles of this regulation align with the intent of the *Sustainable Water and Sewage Systems Act, 2002*, to encourage municipalities to achieve financial sustainability for their water services. Many of the prescriptive requirements, however, have been removed (e.g. preparation of two separate documents for provincial approval, auditor opinions, engineer certifications, etc.).

A guideline (“Towards Financially Sustainable Drinking-Water and Wastewater Systems”) has been developed to assist municipalities in understanding the Province’s direction and provides a detailed discussion on possible approaches to sustainability. The Province’s Principles of Financially Sustainable Water and Wastewater Services are provided below:

Principle #1: Ongoing public engagement and transparency can build support for, and confidence in, financial plans and the system(s) to which they relate.

Principle #2: An integrated approach to planning among water, wastewater, and storm water systems is desirable given the inherent relationship among these services.

Principle #3: Revenues collected for the provision of water and wastewater services should ultimately be used to meet the needs of those services.

Principle #4: Lifecycle planning with mid-course corrections is preferable to planning over the short term, or not planning at all.



Principle #5: An asset management plan is a key input to the development of a financial plan.

Principle #6: A sustainable level of revenue allows for reliable service that meets or exceeds environmental protection standards, while providing sufficient resources for future rehabilitation and replacement needs.

Principle #7: Ensuring users pay for the services they are provided leads to equitable outcomes and can improve conservation. In general, metering and the use of rates can help ensure users pay for services received.

Principle #8: Financial Plans are “living” documents that require continuous improvement. Comparing the accuracy of financial projections with actual results can lead to improved planning in the future.

Principle #9: Financial plans benefit from the close collaboration of various groups, including engineers, accountants, auditors, utility staff, and municipal council.

1.2.2.4 Water Opportunities Act

The *Water Opportunities Act* received Royal Assent on November 29, 2010. The Act provides for the following elements:

- Foster innovative water, wastewater, and stormwater technologies, services, and practices in the private and public sectors;
- Prepare water conservation plans to achieve water conservation targets established by the regulations; and
- Prepare sustainability plans for municipal water services, municipal wastewater services, and municipal stormwater services.

With regard to the sustainability plans:

- The Act extends from the water financial plan and requires a more detailed review of the water financial plan, and requires a full plan for wastewater and stormwater services; and
- Regulations (when issued) will provide performance targets for each service – these targets may vary based on the jurisdiction of the regulated entity or the class of entity.



The Financial Plan shall include:

- An asset management plan for the physical infrastructure;
- Financial Plan;
- For water, a water conservation plan;
- Assessment of risks that may interfere with the future delivery of the municipal service, including, if required by the regulations, the risks posed by climate change and a plan to deal with those risks; and
- Strategies for maintaining and improving municipal services, including strategies to ensure the service can satisfy future demand, consider technologies, services, and practices that promote the efficient use of water and reduce negative impacts on Ontario's water resources, and increase cooperation with other municipal service providers.

Performance indicators will be established by service that:

- May relate to the financing, operation, or maintenance of a municipal service or to any other matter in respect of which information may be required to be included in a plan; and
- May be different for different municipal service providers or for municipal services in different areas of the Province.

Regulations will prescribe:

- Timing;
- Contents of the plans;
- Portions of the plan that will require certification;
- Public consultation process; and
- Limitations, updates, refinements, etc.

1.3 Asset Management Plan Development

The development of the asset management components presented in this report was guided by asset management strategies identified through discussions with the Township's asset managers, reviews of long-term planning documents and studies, service level objectives established through engagement with staff, and detailed analyses of the Township's asset data. The key steps in the development process of this asset management plan are summarized below:



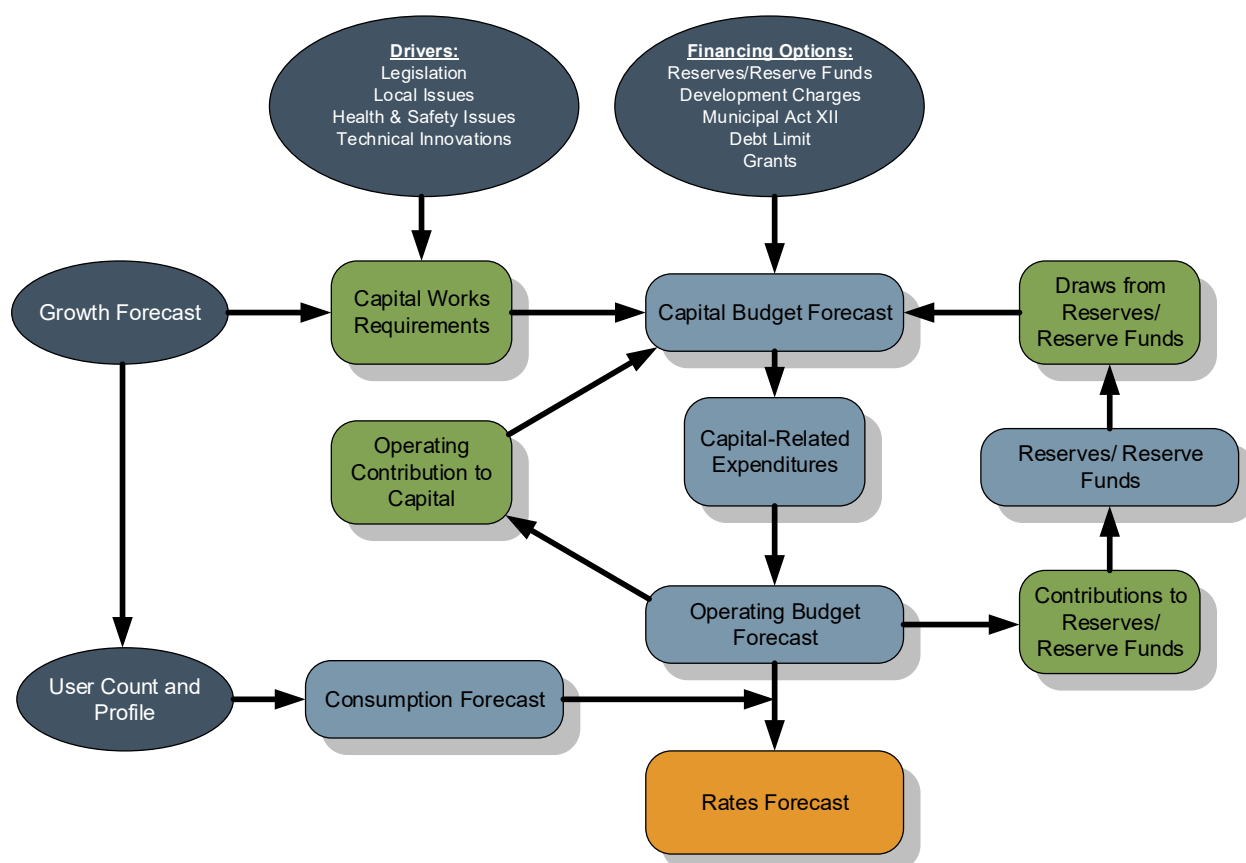
1. Update underlying asset data, including quantities, ages, condition ratings, useful service life expectations, replacement cost valuations, and lifecycle activity costs.
2. Establish targets for the levels of service the Township proposes to provide to the public over the long term through consultations with staff. As part of these consultations, changes to existing lifecycle management strategies to support the proposed levels of service were identified. This step informed the development of 10-year lifecycle expenditure forecasts that would enable the Township to achieve and sustain the proposed levels of service over the next ten years.
3. Determine the level of annual capital funding necessary to sustain the proposed levels of service over the long term.
4. Integrate the asset management analyses into the financial strategy developed as part of the rate study.
5. Document the asset management components in a formal report to inform future decision-making and to communicate the Township's long-term infrastructure planning approach to the public.

1.4 Water and Wastewater Rate Calculation Methodology

Figure 1-2 illustrates the general methodology used in determining the full cost recovery water and wastewater rate forecast.



Figure 1-2
Water and Wastewater Rate Calculation Methodology



The methodology employed generally consists of five major elements:

1.4.1 Customer Demands and Consumption Forecast

As noted in Section 1.1.2, the Township employs a rate structure consisting of an annual base charge, which varies by meter size, in addition to a consumptive rate. The consumptive rate is imposed at a constant rate based on metered water consumption.

This first step in the analysis is vital as it produces the current base revenue by source and assumptions for forecasting purposes. The annual base charge revenues are forecasted based on customer growth. The customer profile forecast is modeled based on anticipated residential development identified in the Township's 2021 Development Charges Background Study and the United County's recently completed GMS.

The water consumption forecast is prepared by applying average annual consumption estimates to the number of residential units expected to connect to the water and



wastewater systems in each year of the forecast period. Average annual consumption estimates are based on average consumption levels observed in the Township's historical billing data.

1.4.2 Capital Needs Forecast

The capital needs forecast is developed to measure program/service level adjustments, lifecycle requirements, and growth-related needs. Various sources of information were considered in developing the capital needs forecast, as discussed in further detail within Section 3.2.

Capital expenditures are forecast with inflationary adjustments based on capital cost indexes (i.e., the Statistics Canada Building Construction Price Index for non-residential buildings).

1.4.3 Capital Funding Plan

The capital funding plan considers the potential funding sources available to address the capital needs forecast. The sources of capital funding include rate-based support, reserves/reserve funds, grant funding, development charge revenues, and debt for program/service level improvements. The use of rate-based funding is measured against revenue projections and the impacts on affordability. The reserve/reserve fund sources are measured against the sustainability of these funds, relative to lifecycle demands, revenue projections, and affordability impacts. Debt financing is considered for significant capital expenditures that require funding beyond long-term lifecycle needs or to facilitate rate transition policies. Debt financing is measured against annual repayment limits to ensure a practical and sustainable funding mix.

1.4.4 Operating Budget Forecast

The operating budget forecast considers adjustments to the Township's base budget reflecting program/service level changes, operating fund impacts associated with infrastructure, and financing for capital needs. The operating expenditures are forecast with inflationary adjustments and growth in service demand, based on fixed and variable cost characteristics. The operating budget forecast ties the capital funding plan and reserve/reserve fund continuity forecast to the rate-based revenue projections. This ensures sufficient funding for both the ongoing annual operation and maintenance of the water and wastewater systems, as well as the capital cost requirements to ensure



service sustainability. Operating revenues are projected to identify the billing revenues net of anticipated operating revenues.

1.4.5 Rate Forecast and Structure

The rate forecast and structure component of the analysis considers various rate structures to recover the forecast rate-based revenue from the projected customer demands. At this stage in the analysis, the full costs of service are measured against the customer growth and consumption demands to determine full cost recovery rates. The analysis may consider alternative structures that are consistent with municipal policies/strategies, industry practices, and customer affordability. Providing context to the rate forecast, the results are quantified to measure the impacts on a range of customer types and in relation to other municipalities.



Chapter 2

Forecast Growth and Service Demands



2. Forecast Growth and Service Demands

2.1 Current Service Demands

In preparing the demand forecast for water and wastewater services, detailed billing records were analyzed. These records were used to develop a profile of existing customers. Based on analysis of this information, as of year-end 2024, the Township was providing service to approximately 1,915 water and wastewater customers. Under the Township's current rate structure, the base charge is imposed on each customer based on meter size.

2.2 Forecast Service Demands

Over the next ten years (i.e., to 2034), the number of water and wastewater billing units is anticipated to increase by 370 customers. This is based on the number of additional dwelling units and non-residential growth forecasted in the Township's Development Charges Background Study and the United County's recent GMS with adjustment to remove any growth in 2025 and 2026 based on actual permits received and anticipated development. Table 2-1 provides the detailed billing unit forecast for the 2025 to 2034 period, showing the number of billing units for water and wastewater.

Consumption records from 2024 were used to develop a forecast of water demands for the period from 2025 to 2034. Annual consumption levels were analyzed from these consumption records and utilized to calculate an annual average per billing unit. The average annual water consumption per residential billing unit was approximately 132 m³. Furthermore, average annual water consumption per non-residential billing unit was approximately 446 m³.

Applying these estimates to the forecast of new customers results in an estimated increase in total metered water consumption from approximately 0.95 million cubic meters in 2025 to 1.0 million cubic meters by 2034, and wastewater flows are forecast to increase from 394,000 cubic meters to 447,000 cubic meters. Table 2-2 presents the forecast of annual water consumption for water and wastewater customers.



Table 2-1
Township of North Dundas
Water and Wastewater Customer Forecast

Water Customer Forecast	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915
New - Non Res Growth	1	1	1	1	1	1	1	1	1	1
New - Res Growth	-	-	7	30	67	119	179	232	278	324
Total	1,916	1,916	1,923	1,946	1,983	2,035	2,095	2,148	2,194	2,240

Wastewater Customer Forecast	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915
New - Non Res Growth	1	1	1	1	1	1	1	1	1	1
New - Res Growth	-	-	7	30	67	119	179	232	278	324
Total	1,916	1,916	1,923	1,946	1,983	2,035	2,095	2,148	2,194	2,240



Table 2-2
Township of North Dundas
Water Consumption and Wastewater Flows Forecast

Water Volume Forecast (m³)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Block 1										
Existing - Residential	220,510	220,510	220,510	220,510	220,510	220,510	220,510	220,510	220,510	220,510
Existing - ICI	145,492	145,492	145,492	145,492	145,492	145,492	145,492	145,492	145,492	145,492
Existing - Parmalat/Lactalis	583,039	583,039	583,039	583,039	583,039	583,039	583,039	583,039	583,039	583,039
New	446	892	2,260	5,722	11,016	18,405	26,703	34,081	40,576	47,072
Total Water Volume Forecast (m³)	949,487	949,933	951,300	954,763	960,057	967,445	975,744	983,121	989,617	996,113

Wastewater Flows Forecast (m³)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Block 1										
Existing - Residential	220,510	220,510	220,510	220,510	220,510	220,510	220,510	220,510	220,510	220,510
Existing - ICI	145,492	145,492	145,492	145,492	145,492	145,492	145,492	145,492	145,492	145,492
Existing - Parmalat/Lactalis	27,853	27,853	27,853	27,853	27,853	27,853	27,853	27,853	27,853	27,853
New	446	892	2,260	5,722	11,016	18,405	26,703	34,081	40,576	47,072
Total Wastewater Flows Forecast (m³)	394,300	394,746	396,114	399,576	404,870	412,259	420,558	427,935	434,431	440,926



Chapter 3

Capital Infrastructure Asset Management



3. Capital Infrastructure Asset Management

3.1 State of Local Infrastructure and Levels of Service

3.1.1 Water

3.1.1.1 State of Local Infrastructure

The Township's water system provides potable water for residential and business consumption, fire suppression, and for the Township's own maintenance operations and facilities. It is supported by 61.1 km of water mains (including appurtenances such as valves and hydrants), over 2,500 water meters, two water treatment facilities, two water storage towers, and eight groundwater production wells. The Township owns all water system assets and is responsible for funding their lifecycle costs; however, the Township's water system is operated by the Ontario Clean Water Agency (OCWA).

The estimated current replacement cost of the Township's water system assets is \$158.4 million. Water mains represent the largest share of this replacement cost at \$113.1 million (71%), followed by water storage towers at \$15.5 million (10%), water treatment plants at \$15.4 million (10%), groundwater production wells at \$5.9 million (4%), valves at \$3.1 million (2%), cathodic protection systems at \$2.1 million (1%), hydrants at \$1.9 million (1%), and lastly, water meters at \$1.6 million (1%). The average age of the Township's water system assets is 32.9 years.

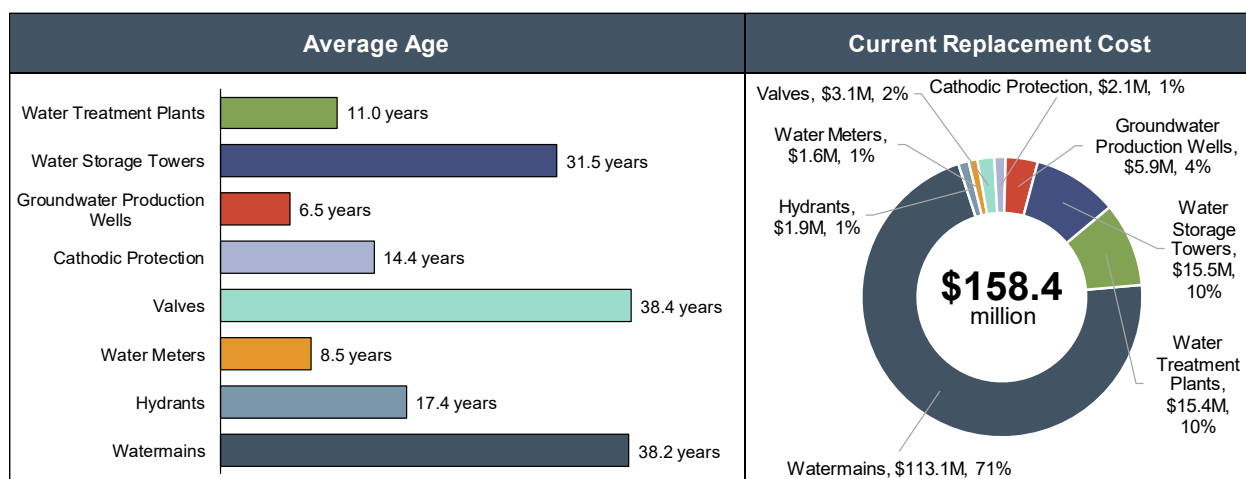
Table 3-1 summarizes the quantities, average age, and estimated current replacement cost of the Township's water system assets and this information is further illustrated in Figure 3-1. A spatial representation of the Township's water system is provided in Map 3-1 and Map 3-2 for the Winchester and Chesterville service areas, respectively.



Table 3-1
Water – Quantity, Average Age, and Replacement Cost by Asset Type

Asset Type	Quantity	Average Age ^[1]	Current Replacement Cost
Watermains	61.1 km	38.2 years	\$113,056,000
Hydrants	229	17.4 years	\$1,894,000
Water Meters	2,512	8.5 years	\$1,627,000
Valves	504	38.4 years	\$3,056,000
Cathodic Protection	12	14.4 years	\$2,073,000
Groundwater Production Wells	8	6.5 years	\$5,858,000
Water Storage Towers	2	31.5 years	\$15,500,000
Water Treatment Plants	2	11.0 years	\$15,351,000
Total		32.9 years	\$158,415,000

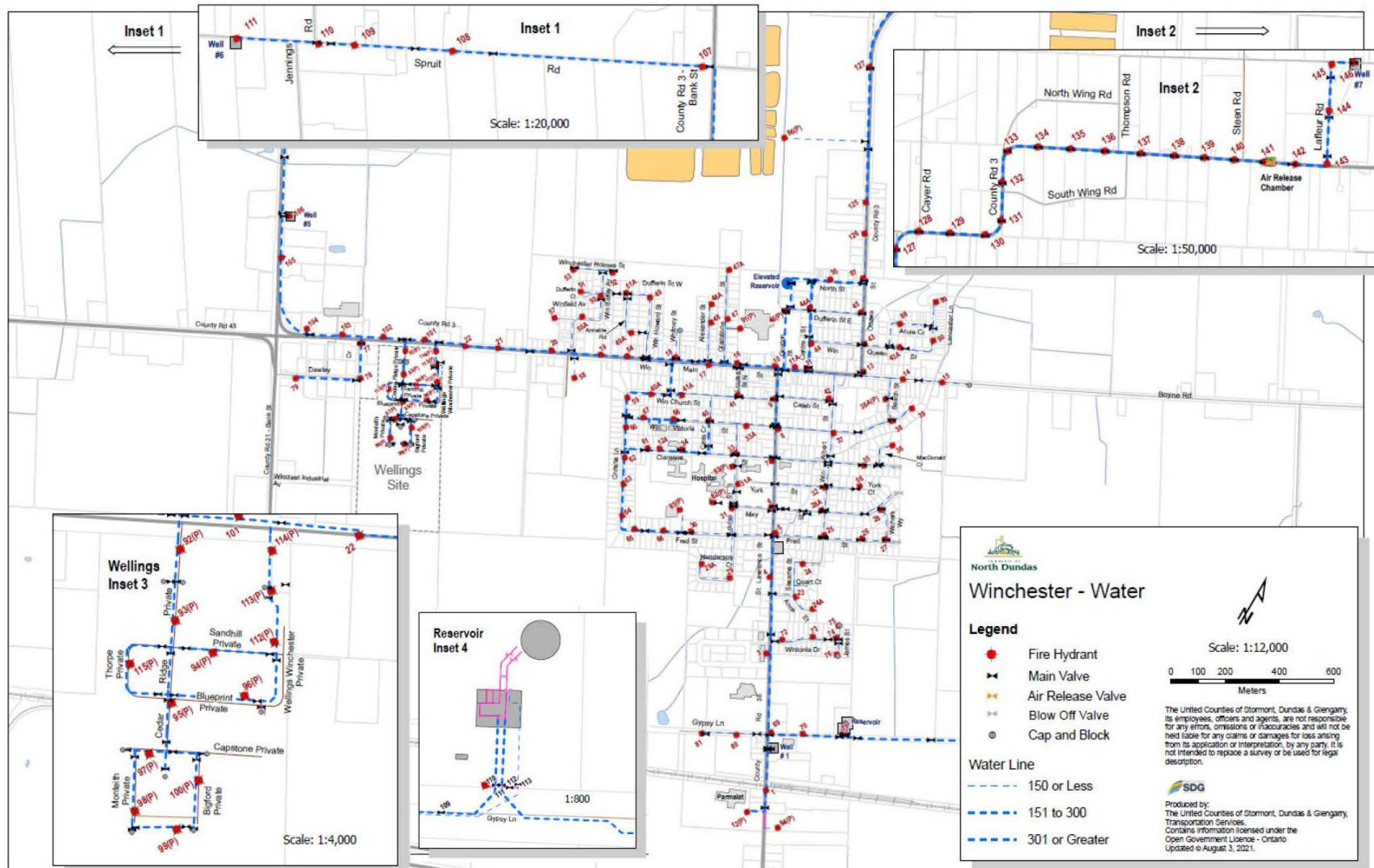
Figure 3-1
Water – Average Age and Replacement Cost by Asset Type

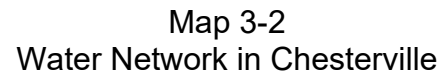


^[1] Weighted average utilizing the length of each watermain and the replacement cost of each other asset as weights.



Map 3-1
Water Network in Winchester







3.1.1.2 Condition

The condition of the Township's water mains, hydrants, water meters, valves, and cathodic protection systems has not been directly assessed through physical condition assessments. For the purposes of this asset management plan, condition ratings have been assigned to these assets based on their ages relative to their respective useful service life expectancies (i.e., based on the percentage of useful service life consumed (ULC%)). A brand-new asset would have a ULC% of 0%, indicating that none of the asset's life expectancy has been utilized. Conversely, an asset that has reached the end of its life expectancy would have a ULC% of 100%. It is possible for assets to have a ULC% greater than 100%, which occurs if the asset has exceeded its typical life expectancy but continues to be in service. This is not necessarily a cause for concern; however, it must be recognized that assets near or beyond their typical useful service life expectancy are likely to require replacement or rehabilitation in the near term, may exhibit reduced reliability, and may have increased repair and maintenance costs.

To better communicate the condition of assets, ULC% ratings have been segmented into qualitative condition states, as summarized in Table 3-2. The scale is set to show that if assets are operated within their typical service life expectancies, they would be in a 'Fair' or better condition. For assets that remain in service beyond their useful service life expectancies (i.e., ULC% > 100%), probabilities of failure are assumed to have increased to a point where these assets would be characterized as being in a "Poor" or worse condition state.

Table 3-2
Definition of Condition States based on ULC% Ranges

ULC%	Condition State
$0\% \leq \text{ULC}\% \leq 45\%$	Very Good
$45\% < \text{ULC}\% \leq 90\%$	Good
$90\% < \text{ULC}\% \leq 100\%$	Fair
$100\% < \text{ULC}\% \leq 125\%$	Poor
$125\% < \text{ULC}\%$	Very Poor

The Township's water mains, hydrants, water meters, valves, and cathodic protection systems have an average ULC% of 42.1%, indicating that they are currently in a 'Very



Good' condition state (on average). Table 3-3 summarizes the average ULC% and associated condition states of these assets by asset type.

Table 3-3
Water Mains, Hydrants, Water Meters, Valves, and Cathodic Protection Systems
Average ULC% and Condition States by Asset Type

Asset Type	Average ULC% ^[1]	Condition State
Watermains	40.2%	Very Good
Hydrants	18.3%	Very Good
Water Meters	42.6%	Very Good
Valves	76.4%	Good
Cathodic Protection	70.5%	Good
Average	42.1%	Very Good

The distribution (by replacement cost) of the Township's water mains, hydrants, water meters, valves, and cathodic protection systems by condition state and asset type is illustrated in Figure 3-2 and by ULC% rating range is illustrated in Figure 3-3.

^[1]Weighted average utilizing the length of each watermain and the replacement cost of each other asset as weights.



Figure 3-2
Water Mains, Hydrants, Water Meters, Valves, and Cathodic Protection Systems
Distribution (by replacement cost) of Assets by Condition State and Asset Type

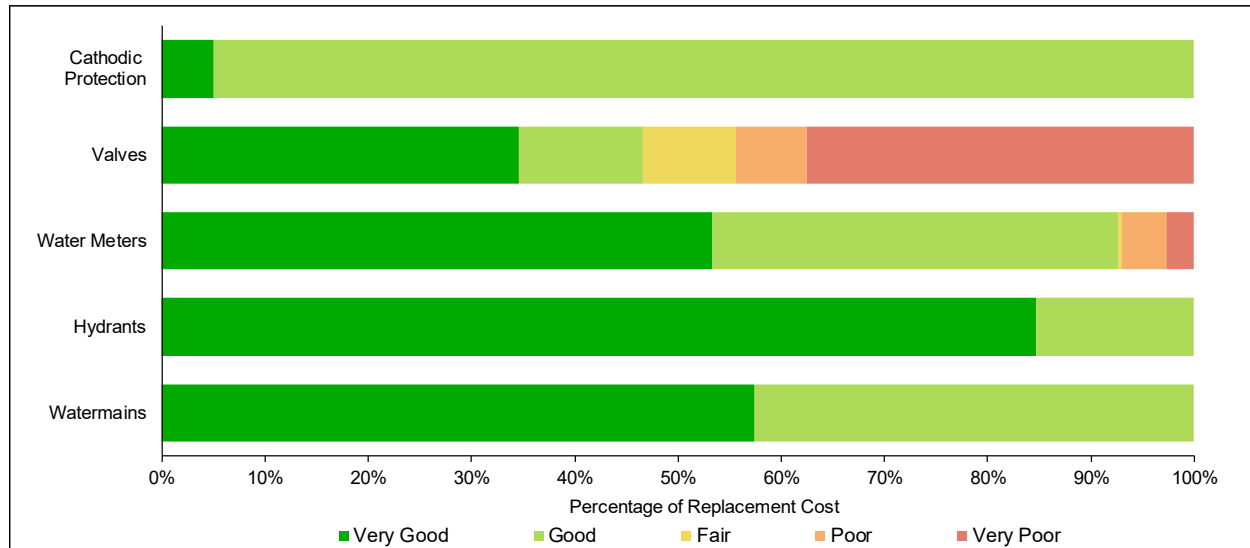
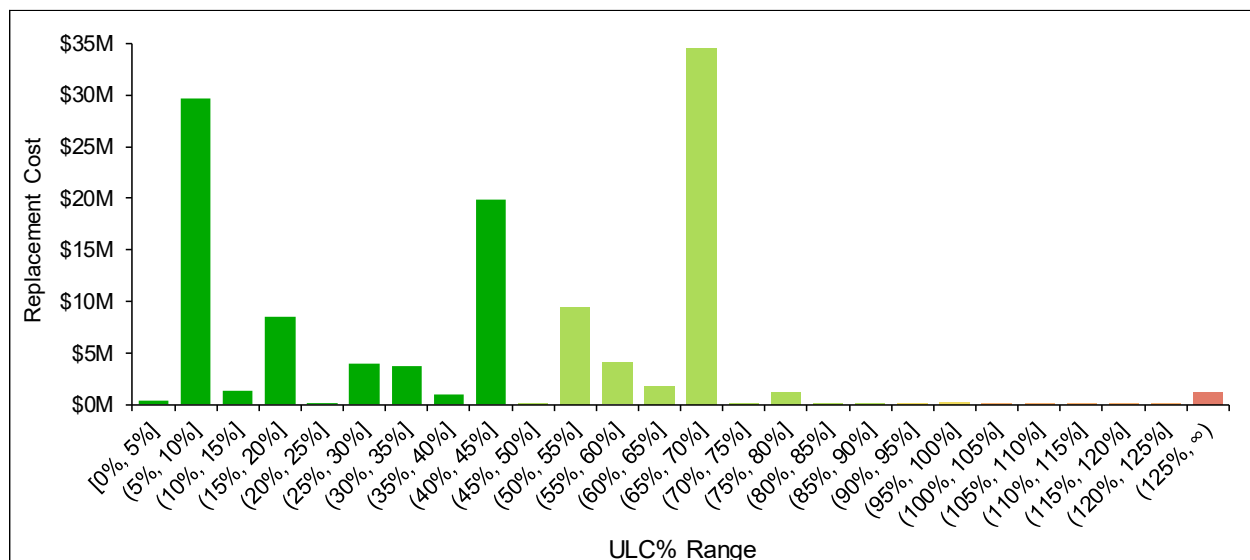


Figure 3-3
Water Mains, Hydrants, Water Meters, Valves, and Cathodic Protection Systems
Distribution (by replacement cost) of Assets by ULC% Rating Range





Based on these assessments, a condition rating is assigned to each asset utilizing a three-point scale ranging from “Good” to “Poor”. Table 3-4 defines these condition ratings with respect to asset performance.

Table 3-4
Water Treatment Plants, Water Storage Towers, and Groundwater Production Wells
Definition of Condition States with Respect to Condition Ratings

Condition State	Description ^[2]
Good	Asset performance meets or exceeds its objectives/requirements.
Fair	Asset performance is nearing the point where it will not meet its objectives/requirements.
Poor	Asset performance is not meeting its objectives/requirements.

The Township’s water treatment plants, water storage towers, and groundwater production wells have been assessed to be in an overall ‘Fair’ condition state (on average). Table 3-5 summarizes the average condition ratings of these assets by asset type.

Table 3-5
Water Treatment Plants, Water Storage Towers, and Groundwater Production Wells
Average Condition Rating and Condition States by Asset Type

Asset Type	Condition State ^[4]
Water Storage Towers	Fair
Water Treatment Plants	Fair
Groundwater Production Wells	Good
Average	Fair

^[1]Weighted average utilizing the replacement cost of facility components as weights.

^[2]Definition of condition states sourced directly from the Township’s 2024 Asset Management Plan for Water and Wastewater Systems prepared by the Ontario Clean Water Agency (OCWA).

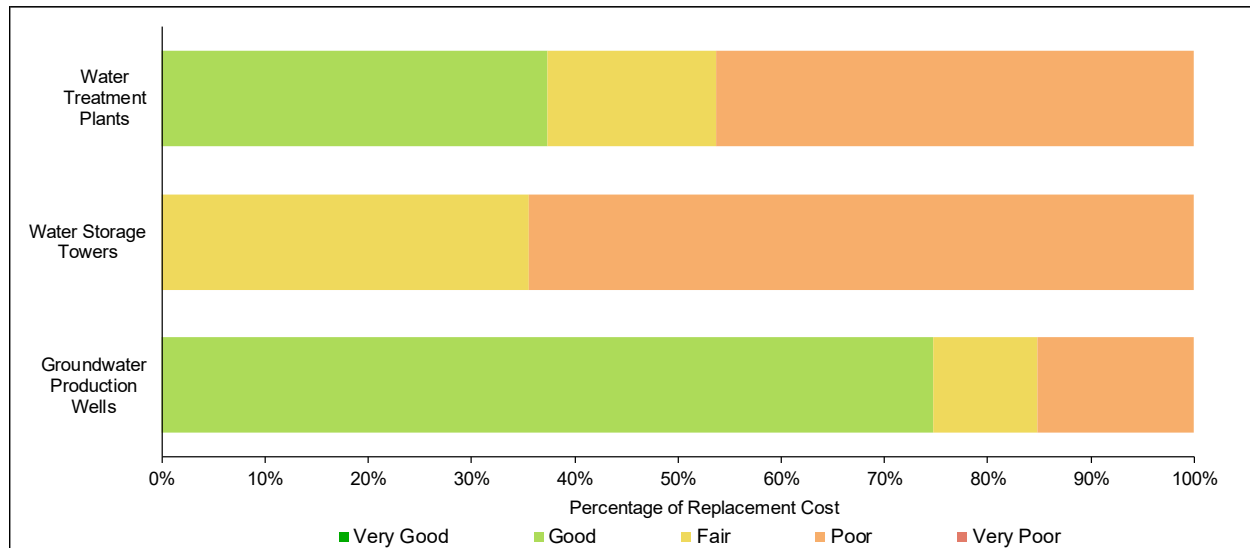
^[3]Weighted average utilizing the replacement cost of each facility asset as weights.

^[4]Weighted average utilizing the replacement cost of each facility asset as weights.



The distribution (by replacement cost) of the Township's water treatment plants, water storage towers, and groundwater production wells by condition state and asset type is illustrated in Figure 3-4.

Figure 3-4
Water Treatment Plants, Water Storage Towers, and Groundwater Production Wells
Distribution (by replacement cost) of Assets by Condition State and Asset Type



3.1.1.3 Levels of Service

The levels of service currently provided by the Township's water system are, in part, a result of the state of local infrastructure presented above. The levels of service framework presented in this subsection identifies both the levels of service that assets are currently providing as well as the proposed levels of service (i.e., target performance) that the Township is striving towards. The levels of service frameworks presented in this asset management plan were developed by identifying service aspects that would be of interest to end users (and more broadly, the general public) and in consideration of available data.

The Township's levels of service frameworks are organized in tables, which are structured as follows:

- The 'Service Attribute' column in Table 3-6 indicates the high-level attribute being addressed;

^[1]Weighted average utilizing the replacement cost of each facility asset as weights.



- The 'Community Levels of Service' column in Table 3-6 explains the Township's intent in plain language and provides additional information about the service being provided;

The 'Performance Measure' column in

- Table 3-7 describes the performance measure(s) connected to the identified service attribute;

The 'Current Performance' column in

- Table 3-7 identifies the current level of service with respect to each performance measure based on the best available data; and

The 'Target Performance' column in

- Table 3-7 identifies the proposed level of service with respect to each performance measure.

Table 3-6
Water – Community Levels of Service

Service Attribute	Community Levels of Service
Scope	The Township's water system provides potable water for residential and business consumption, fire suppression, and for the Township's own maintenance operations and facilities. The system provides fire flow to all connected properties. The scope of the Township's water distribution system is illustrated by Map 3-1 and Map 3-2. The map shows the geographical distribution of municipal water system within the Township.
Reliability	The Township manages its water system with the goal of reliably delivering clean drinking water while also minimizing service interruptions and occurrences of adverse water quality events. Boil water advisories can be triggered by adverse water quality reports from routine water testing or from ad hoc tests done after events that may have allowed contaminants into the system (e.g., watermain breaks). Service interruptions can be caused by routine municipal work, including watermain replacements, water system repairs, service connection repairs, and maintenance of water system facilities.



Table 3-7
Water – Technical Levels of Service

Service Attribute	Performance Measure	Current Performance	Target Performance
Scope	Percentage of properties connected to the Township's water system.	35.3% ^[1]	Increase ^[2]
	Percentage of properties where fire flow is available.	35.3%	Increase ^[3]
Reliability	The number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the Township's water system.	0 connection-days/connection	0 connection-days/connection
	The number of connection-days per year lost due to water main breaks compared to the total number of properties connected to the Township's water system.	0 connection-days/connection ^[4]	0 connection-days/connection
	Percentage (by length) of watermains in a 'Fair' or better condition state.	100%	Maximize
	Percentage (by replacement cost) of hydrants in a 'Fair' or better condition state.	100%	Maximize
	Percentage (by replacement cost) of water meters in a 'Fair' or better condition state.	93%	Maximize

^[1] Based on the most recent data, 1,915 properties out of a total of 5,528 properties in the Township are connected to the municipal water system.

^[2] The Township is not setting an explicit target for this performance measure. As noted in Section 2.2, the Township anticipates adding 370 water customers by 2034. Accordingly, it is expected that the percentage of properties connected to the Township's water system will increase over time.

^[3] The Township is not setting an explicit target for this performance measure. As noted in Section 2.2, the Township anticipates adding 370 water customers by 2034. Accordingly, it is expected that the percentage of properties where fire flow is available will increase over time.

^[4] The Township experienced one watermain break in 2025 which did not result in any disruption to service.



Service Attribute	Performance Measure	Current Performance	Target Performance
	Percentage (by replacement cost) of valves in a 'Fair' or better condition state.	56%	Maximize
	Percentage (by replacement cost) of cathodic protection systems in a 'Fair' or better condition state.	100%	Maximize
	Percentage (by replacement cost) of groundwater production wells in a 'Fair' or better condition state.	85%	Maximize
	Percentage (by replacement cost) of water storage towers in a 'Fair' or better condition state.	35%	Maximize
	Percentage (by replacement cost) of water treatment facility components in a 'Fair' or better condition state.	54%	Maximize

3.1.2 Wastewater

3.1.2.1 State of Local Infrastructure

The Township's wastewater system services primarily residential customers but also some light commercial and industrial customers. The system is supported by 40.1 km of wastewater mains, 465 maintenance access structures, seven wastewater pumping stations, and two wastewater treatment lagoons. Similar to the water system, while the Township owns all wastewater system assets and is responsible for funding their lifecycle requirements, the operation of the system is contracted to the Ontario Clean Water Agency (OCWA).

The estimated current replacement cost of the Township's water system assets is \$114.4 million. Wastewater mains represent the largest share of this replacement cost at \$78.3 million (68%), followed by wastewater facilities (i.e., pumping stations, lagoons, and associated infrastructure) at \$26.5 million (23%), and maintenance access structures at \$9.6 million (8%). The average age of the Township's wastewater system assets is 33.6 years.

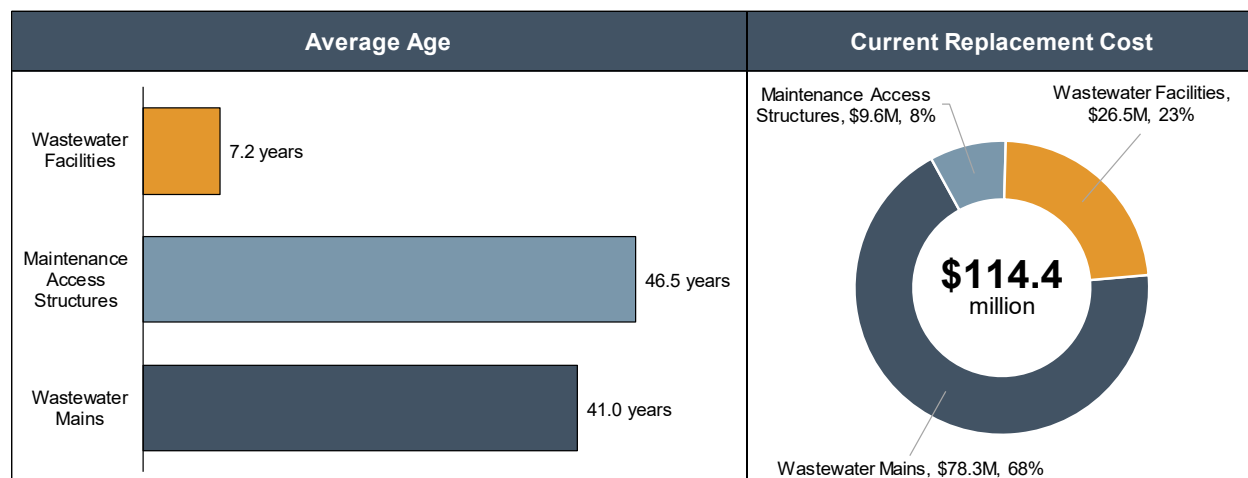


Table 3-8 summarizes the quantities, average age, and estimated current replacement cost of the Township's wastewater system assets and this information is illustrated graphically in Figure 3-5. A spatial representation of the Township's wastewater system is provided in Map 3-3 and Map 3-4 for Winchester and Chesterville areas, respectively.

Table 3-8
Wastewater – Quantity, Average Age, and Replacement Cost by Asset Type

Asset Type	Quantity	Average Age ^[1]	Current Replacement Cost
Wastewater Mains	40.1 km	41.0 years	\$78,278,000
Maintenance Access Structures	465	46.5 years	\$9,586,000
Wastewater Facilities	7 pumping stations and 2 lagoons	7.2 years	\$26,512,000
Total		33.6 years	\$114,376,000

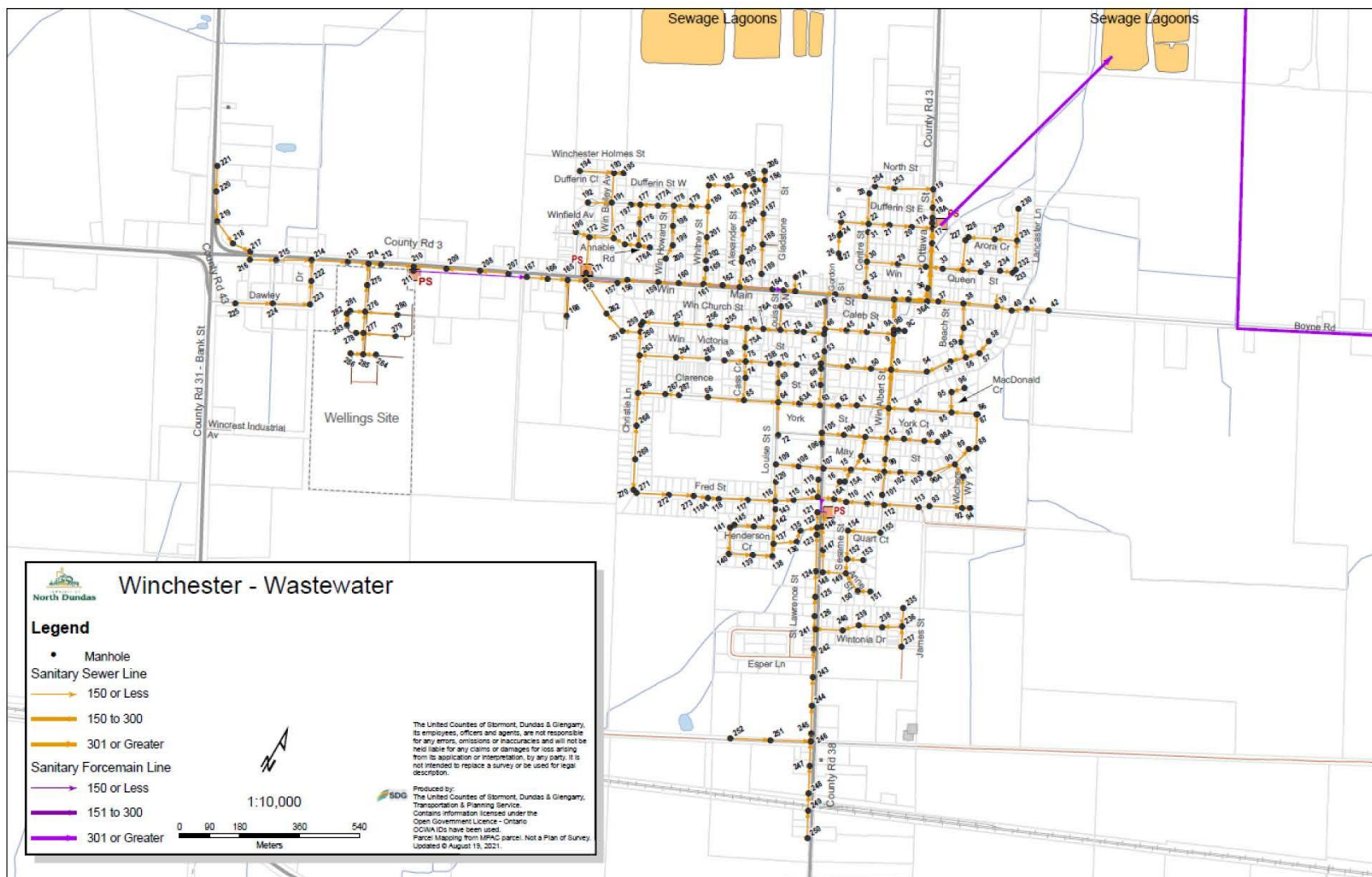
Figure 3-5
Wastewater – Average Age and Replacement Cost by Asset Type



^[1] Weighted average utilizing the length of each wastewater main and the replacement cost of each other asset as weights.

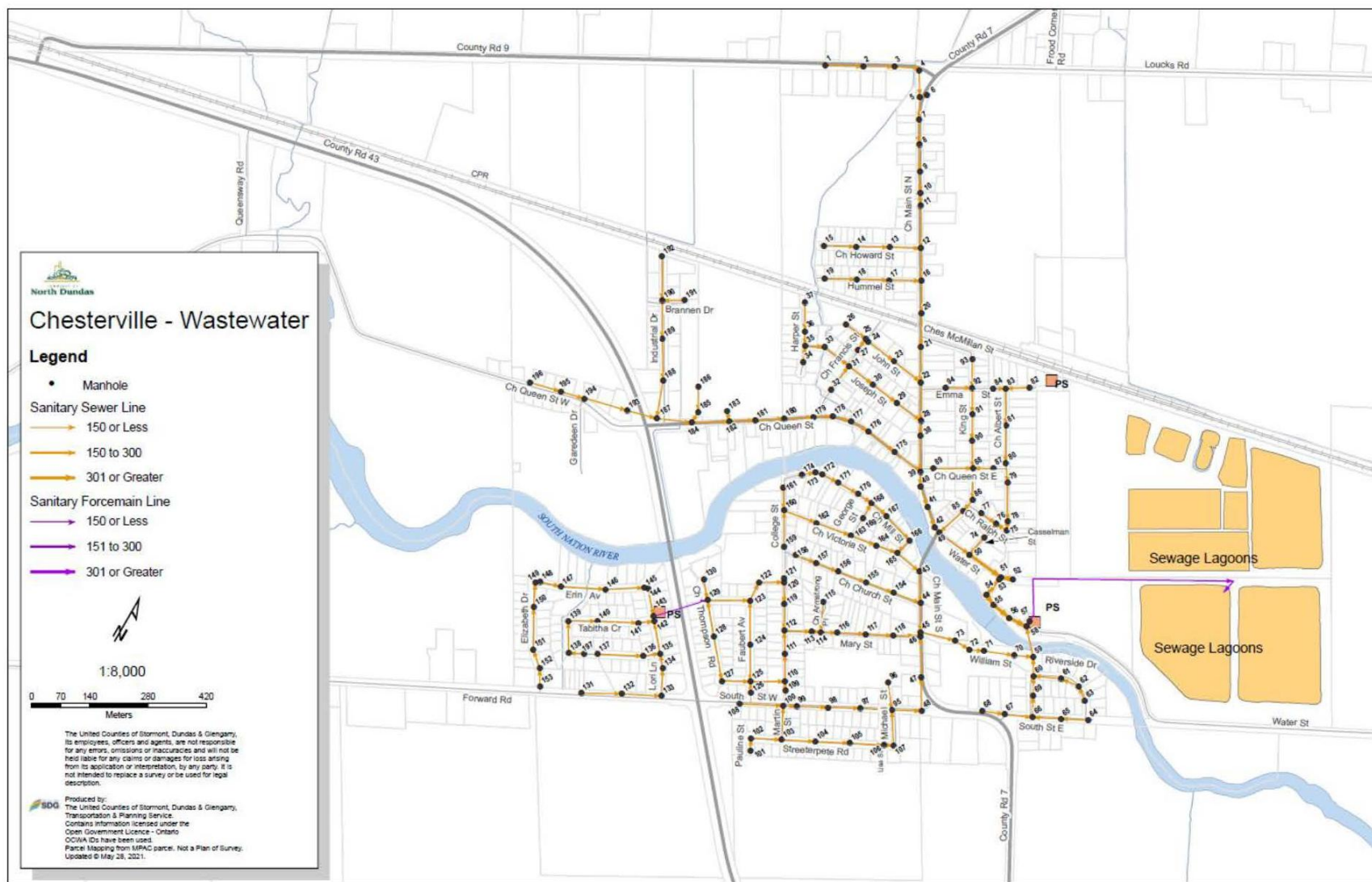


Map 3-3
Wastewater Network in Winchester





Map 3-4
Wastewater Network in Chesterville





3.1.2.2 Condition

The condition of the Township's wastewater mains and maintenance access structures has not been directly assessed through physical condition assessments. For the purposes of this asset management plan, condition ratings have been assigned to assets based on age relative to useful service life (i.e., based on the percentage of useful service life consumed (ULC%)). To better communicate the condition of these assets, ULC% ratings have been segmented into qualitative condition states as summarized previously in Table 3-2. Please refer to subsection 3.1.1.2 for further information on this condition assessment methodology.

The Township's wastewater mains and maintenance access structures have an average ULC% of 43.8%, indicating that they are currently in a 'Very Good' condition state (on average). Table 3-9 summarizes the average ULC% and associated condition states of these assets by asset type.

Table 3-9
Wastewater Mains and Maintenance Access Structures
Average ULC% and Condition States by Asset Type

Asset Type	Average ULC% ^[1]	Condition State
Wastewater Mains	43.1%	Very Good
Maintenance Access Structures	48.9%	Good
Average	43.8%	Very Good

The distribution (by replacement cost) of the Township's wastewater mains and maintenance access structures by condition state and asset type is illustrated in Figure 3-6 and by ULC% rating range is illustrated in Figure 3-7.

^[1] Weighted average utilizing the length of each wastewater main and the replacement cost of each other asset as weights.



Figure 3-6
Wastewater Mains and Maintenance Access Structures
Distribution (by replacement cost) of Assets by Condition State and Asset Type

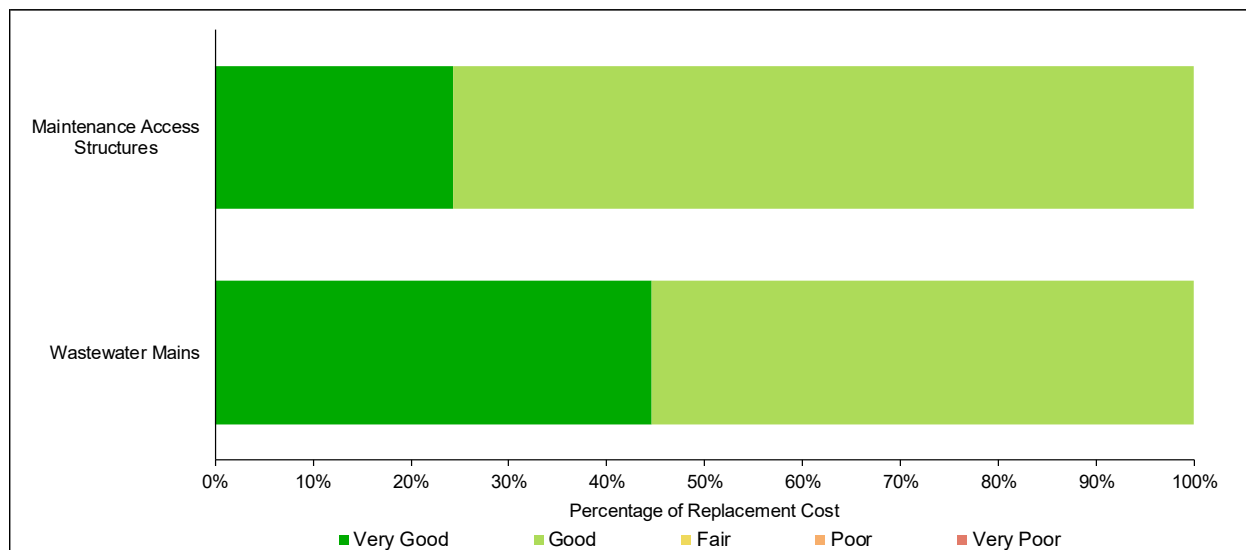
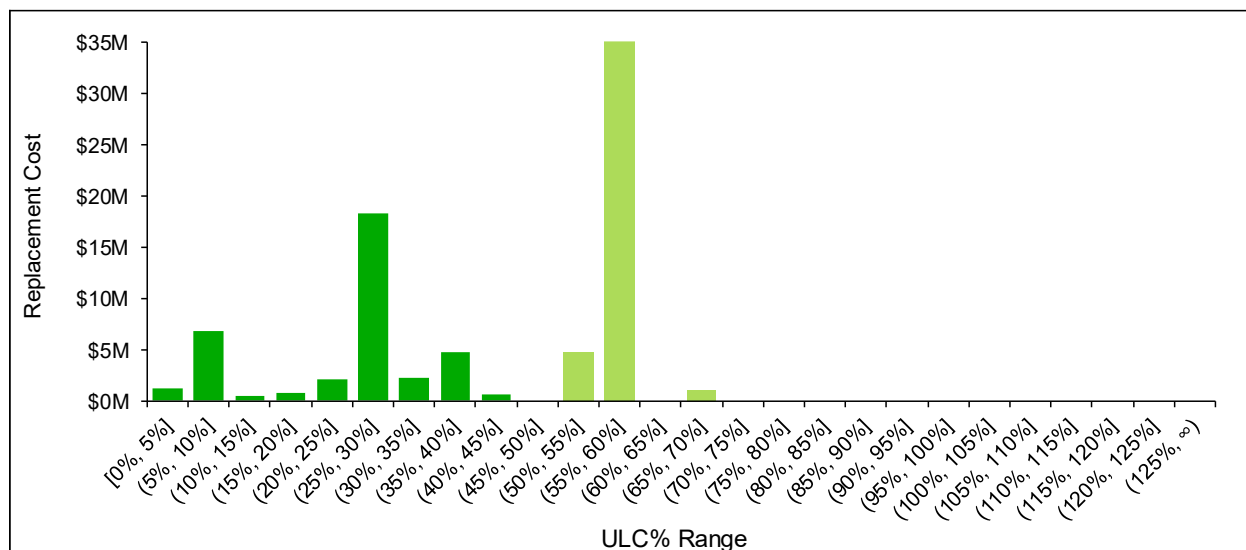


Figure 3-7
Wastewater Mains and Maintenance Access Structures
Distribution (by replacement cost) of Assets by ULC% Rating Range



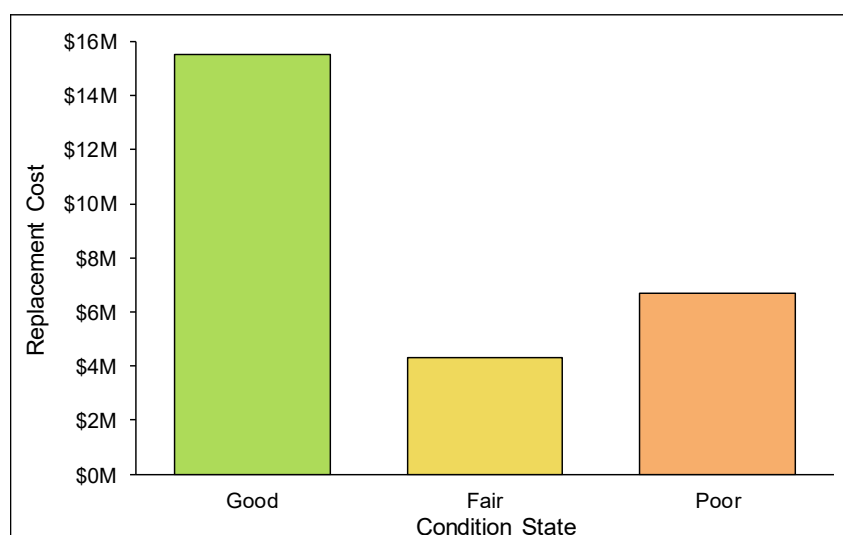
The condition of the Township's wastewater facilities (i.e., pumping stations and lagoons) is directly assessed by its operating authority (OCWA). These assessments rely on various technologies, visual observations, and professional judgement to evaluate the ability of assets to continue functioning as originally intended. Based on



these assessments, a condition rating is assigned to each asset utilizing a three-point scale ranging from “Good” to “Poor”, as defined earlier in Table 3-4.

The Township’s wastewater facilities have been assessed to be in an overall ‘Good’ condition state (on average). The distribution (by replacement cost) of the Township’s wastewater facilities by condition state is illustrated in Figure 3-8.

Figure 3-8
Wastewater Facilities
Distribution (by replacement cost) of Assets by Condition State



3.1.2.3 Levels of Service

This section presents the Township’s levels of service framework for wastewater system. Table 3-10 presents the Service Attributes and Community Levels of Service, while Table 3-11 presents the Technical Levels of Service (i.e., performance measures). Please refer to subsection 3.1.1.3 for further details on the Township’s levels of service framework.



Table 3-10
Community Levels of Service – Wastewater

Service Attribute	Community Levels of Service
Scope	The Township's wastewater collection and treatment system services primarily residential customers and some light commercial and industrial customers. The scope of the Township's wastewater distribution system is illustrated in Map 3-3 and Map 3-4. The map shows the geographical distribution of municipal wastewater system within the Township.
Reliability	The Township strives to maintain its wastewater system assets in an adequate condition to support the reliable and effective delivery of wastewater collection and treatment services, while minimizing occurrences of wastewater backups and effluent violations. The Township's wastewater collection system is separated, meaning that sanitary and stormwater flows are carried in different mains to different destinations. At times, however, infiltration or inflow of both groundwater and stormwater can enter the wastewater collection system through numerous sources such as cracks in pipes, weeping tile connections, cross connections, catch basins, etc. The Township currently has sufficient wastewater treatment capacity to address the potential minor inflow and infiltration of groundwater and stormwater into its wastewater collection network. Effluent discharge is typically defined as water pollution and can be caused by outflows from wastewater treatment facilities. Effluent discharges have documented compliance limits for criteria related to flow rates, suspended solids, Biochemical Oxygen Demand (BOD), phosphorous, ammonia, and E. coli. The Township's wastewater facilities are operated in accordance with the Environmental Compliance Approval (ECA) issued by the Ministry of Environment, Conservation and Parks.



Table 3-11
Technical Levels of Service – Wastewater

Service Attribute	Performance Measure	Current Performance	Target Performance
Scope	Percentage of properties connected to the Township's wastewater system.	35.3% ^[1]	Increase ^[2]
Reliability	The number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system.	Not Applicable ^[3]	Not Applicable ^[3]
	The number of connection-days per year lost due to wastewater backups compared to the total number of properties connected to the Township's wastewater system.	0 connection-days/connection	0 connection-days/connection
	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the Township's wastewater system.	0 occurrences /connection	0 occurrences /connection
	Percentage (by length) of wastewater mains in a 'Fair' or better condition state.	100%	Maximize
	Percentage (by replacement cost) of maintenance access structures in a 'Fair' or better condition state.	100%	Maximize
	Percentage (by replacement cost) of wastewater facilities in a 'Fair' or better condition state.	75%	Maximize

^[1] Based on the most recent data, 1,915 properties out of a total of 5,528 properties in the Township are connected to the municipal wastewater system.

^[2] The Township is not setting an explicit target for this performance measure. As noted in Section 2.2, the Township anticipates adding 370 wastewater customers by 2034. Accordingly, it is expected that the percentage of properties connected to the Township's wastewater system will increase over time.

^[3] The Township does not own and maintain any combined sewers. Its wastewater and stormwater flows are carried in separate pipes.



3.2 Lifecycle Management Strategy

The lifecycle management strategies in this asset management plan identify the activities that would need to be undertaken to achieve and sustain the proposed levels of service presented in Sections 3.1.1.3 and 3.1.2.3. Within this context, lifecycle activities are the actions undertaken to ensure assets are performing adequately and/or to extend their service lives^[1]. These actions can be carried out on a planned schedule in a prescriptive manner, or through a dynamic approach where the lifecycle activities are only performed when specified conditions are met.

In accordance with Ontario Regulation 588/17, the lifecycle activities and associated costs presented in this chapter consider the full lifecycle of assets. In general terms, an asset's lifecycle starts with its initial planning and acquisition (or construction), includes both the capital and significant operating/maintenance activities the asset is expected to undergo throughout its life, and ends with its eventual disposal. The lifecycle management strategies presented in this asset management plan have been developed with the aim of identifying the set of lifecycle activities that can be undertaken at the lowest cost to achieve and sustain target service levels.

The following subsections summarize the ten-year forecasts of lifecycle activities and associated costs that would be required for the Township to provide the proposed levels of service. It is noted that the ten-year forecasts of lifecycle expenditures presented in this chapter do not account for unforeseen circumstances that may introduce additional costs (e.g., natural disasters, etc.). There is a level of inherent uncertainty in lifecycle forecasts, reinforcing the need to review and update this asset management plan on a regular basis.

3.2.1 Lifecycle Funding Requirements

An annual lifecycle funding target represents the level of funding that would be required annually to fully finance a lifecycle management strategy over the long term. By planning to achieve this annual funding level, the Township would theoretically be able to fully fund capital works as they arise. In practice, however, capital expenditures are characterized by peaks and valleys and often fluctuate year-to-year based on the

^[1]The full lifecycle of an asset includes activities such as initial planning and maintenance which are typically addressed through master planning studies and maintenance management, respectively.



lifecycle activities being undertaken. By planning to achieve the lifecycle funding target over the long term, the periods of relatively low capital needs would allow for the building up of lifecycle reserve funds that could be drawn upon in times of relatively high capital needs.

Table 3-12 summarizes the modelling approaches that have been utilized to derive the annual lifecycle funding target for water and wastewater assets.

Table 3-12
Modelling Approaches Utilized to Determine Annual Lifecycle Funding Targets by Asset Category

Asset Category	Modelling Approach
Water Assets	<u>Water Mains, Hydrants, Water Meters, Valves, and Cathodic Protection Systems</u> : Useful life analysis (i.e., determined by dividing the current replacement cost of each asset by its expected useful service life) <u>Water Treatment Plants, Water Storage Towers, and Groundwater Production Wells</u> : Annual reinvestment rate equal to 2.1% of current replacement cost (based on recommendations provided in the <i>2016 Canadian Infrastructure Report Card</i>)
Wastewater Assets	<u>Wastewater Mains and Maintenance Access Structures</u> : Useful life analysis (i.e., determined by dividing the current replacement cost of each asset by its expected useful service life) <u>Wastewater Facilities</u> : Annual reinvestment rate equal to 2.1% of current replacement cost (based on recommendations provided in the <i>2016 Canadian Infrastructure Report Card</i>)

Table 3-13 summarizes the annual lifecycle funding targets for the Township's water and wastewater infrastructure portfolio as of today (in 2026\$) and expected by the end of the forecast period (in 2034\$). The 2034 projections reflect inflationary adjustments based on capital cost indexes (see Section 1.4.2 for more detail) and include new/expanded assets that the Township will acquire over the 10-year forecast. The additional infrastructure includes:

Water



- New Well – Lafleur Road Site (2026)
- Winchester Water Distribution Treatment and Network Upgrades (2030-2032)
- Additional Groundwater Well (2030-2034)

Wastewater

- Wastewater Treatment Plant Upgrades (2026)

Table 3-13
Annual Lifecycle Funding Targets by Asset Type

Asset Type	Annual Lifecycle Funding Target (2026\$)	Annual Lifecycle Funding Target (2034\$)
Water		
Watermains	\$1,190,000	\$1,507,456
Hydrants	\$20,000	\$25,335
Water Meters	\$81,000	\$102,608
Valves	\$61,000	\$77,273
Cathodic Protection	\$101,000	\$127,944
Wells	\$123,000	\$155,813
Water Facilities	\$648,000	\$820,867
New Infrastructure		\$756,830
Total Water	\$2,224,000	\$3,574,126
Wastewater		
Wastewater Mains	\$824,000	\$1,043,819
Maintenance Access	\$101,000	\$127,944
Wastewater Facilities	\$557,000	\$705,591
New Infrastructure		\$371,512
Total Wastewater	\$1,482,000	\$2,248,866
Total	\$3,706,000	\$5,822,992

3.2.2 Capital Expenditure Forecast

Ten-year capital forecasts were developed to address known capital needs across the water and wastewater systems as identified through the AMP for 2027 to 2034 as well as actual 2025 capital expenditures, 2026 capital budget expenditures. The forecast was also informed by the following studies:

- 2026 Ontario Clean Water Agency (OCWA) Major Maintenance Schedule
- 2024 OCWA Asset Management Plan
- 2023 Water and Wastewater Rate Study



- 2023 Water Supply System Capacity Expansion EA Phase 2
- 2020 Municipal Servicing Study

In addition to the needs in the AMP, the following works have been included in the capital forecast:

Water

- New Well – Lafleur Road Site (2026) - \$5.5 million
- Class B EA (2026) - \$169,000
- Winchester Capital Meters (2026) - \$343,000
- Winchester Water Distribution Treatment and Network Upgrades (2030-2032) - \$21.9 million
- Additional Groundwater Well (2030-2034) - \$2.0 million

Wastewater

- Wastewater Treatment Plant Upgrades (2026) - \$14.2 million
- Upgrade Main St. W and Bailey Ave SPS outlet sewers (2026 -2030) - \$200,000
- Upgrade Main St. West sewers (2030-2035) - \$195,000
- Ottawa St. SPS (2030-2035) - \$450,000

The total capital forecast, in 2026 dollars, includes approximately \$63.7 million in capital needs for water and \$29.2 million for wastewater.

The average annual value of the capital program across water and wastewater is approximately \$9.3 million in 2026 dollars. This level of expenditure is greater than the annual lifecycle funding targets identified in Section 3.2.1 after adjusting the 2034 target to 2026\$ (\$4.6 million). This suggests that the 10-year forecast of capital infrastructure needs identified in this study are greater than the longer-term capital funding requirements. As such, there will be pressure on the rate based funding sources resulting in the drawing down of existing reserve funds and the potential issuance of debt for capital funding.

The listing of water and wastewater capital needs is presented in Table 3-14 and 3-15. For rate determination purposes, the capital needs forecast has been indexed as described in Section 1.4.2. This is reflective of the average annual capital cost inflation



witnessed in the Statistics Canada Building Construction Price Index over the past 20 years.



Table 3-14
Township of North Dundas
Water Capital Budget Forecast (Uninflated \$)

Project Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
New Well – Lafleur Road, Site	-	5,612,340	-	-	-	-	-	-	-	-	5,612,340
Class B Environmental Assess	-	173,716	-	-	-	-	-	-	-	-	173,716
Winchester Capital Meters	-	353,339	-	-	-	-	-	-	-	-	353,339
Winchester Water Distribution Treatment and Network Upgrade	-	-	-	-	-	7,526,880	7,526,880	7,526,880	-	-	22,580,641
Additional Groundwater Well	-	-	-	-	-	419,860	419,860	419,860	419,860	419,860	2,099,300
AMP	-	-	-	-	-	419,860	419,860	419,860	419,860	419,860	2,099,300
Watermains	-	-	1,242,950	1,242,950	1,242,950	1,242,950	1,242,950	1,242,950	1,242,950	1,242,950	9,943,602
Hydrants	-	-	12,406	12,406	12,406	12,406	12,406	12,406	12,406	12,406	99,247
Water Meters	-	-	15,327	15,844	14,468	14,400	13,672	15,957	579,537	24,958	694,163
Valves	-	-	171,589	195,842	159,463	189,779	159,463	159,463	159,463	159,463	1,354,523
Cathodic Protection	-	-	-	-	38,546	1,253,554	132,996	-	37,309	24,283	1,486,689
Water Facilities	-	-	2,501,433	817,396	5,860,254	1,394,981	376,111	274,328	314,111	345,448	11,884,062
2026 Budget	-	-	-	-	-	-	-	-	-	-	-
Capital - Meters	-	19,671	-	-	-	-	-	-	-	-	19,671
Capital - Winchester Water Tower	-	12,000	-	-	-	-	-	-	-	-	12,000
Capital - OCWA Recommendations	-	108,000	-	-	-	-	-	-	-	-	108,000
Capital - Rate Study	-	73,750	-	-	-	-	-	-	-	-	73,750
Capital - Lactalis Flowmeter/Mainten	-	139,776	-	-	-	-	-	-	-	-	139,776
Capital - Class B Environmental Asse	-	31,000	-	-	-	-	-	-	-	-	31,000
Capital - Chesterville Water Tower	-	22,000	-	-	-	-	-	-	-	-	22,000
Capital - OCWA Recommendations	-	139,000	-	-	-	-	-	-	-	-	139,000
Capital - Servicing Study	-	65,750	-	-	-	-	-	-	-	-	65,750
2025 Actual	-	-	-	-	-	-	-	-	-	-	-
Actual	4,714,347	-	-	-	-	-	-	-	-	-	4,714,347
TOTAL	4,714,347	6,750,342	3,943,705	2,284,438	7,328,087	12,474,670	10,304,199	10,071,704	3,185,496	2,649,228	63,706,215



Table 3-145
Township of North Dundas
Wastewater Capital Budget Forecast (Uninflated \$)

Project Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Total
Specialized treatment upgrades to overcome existing operational constraints of the wastewater treatment systems to achieve the rated capacity. Opportunity to coordinate upgrades with 10 to 20 year treatment capacity upgrades	-	14,663,768	-	-	-	-	-	-	-	-	14,663,768
Option 2A – Main St. W, Bailey Ave. SPS outlet sewers: Upgrade 155 m section of sanitary sewer with 300 mm dia. sewer	-	41,200	41,200	41,200	41,200	41,200	-	-	-	-	206,000
Option 2A – Main St. W. upstream of Main St. SPS: Upgrade 200 m section of sanitary sewer with 300 mm dia. sewer Option 2A – Easement: Upgrade 51 m section of sanitary sewer with 300 mm dia. Sewer. To be confirmed in future based on field survey and actual future wastewater flows	-	-	-	-	-	33,475	33,475	33,475	33,475	33,475	167,375
Option 2A – Ottawa St. SPS, increase capacity (current ECA capacity 90 L/s) to accommodate the build-out demand scenario (127 L/s from 90 L/s). It is assumed equipment upgrades can be accommodated in the existing building footprint and forcemain.	-	-	-	-	-	77,250	77,250	77,250	77,250	77,250	386,250
AMP	-	-	413,388	413,388	413,388	413,388	413,388	413,388	413,388	413,388	3,307,106
Wastewater Mains	-	-	63,906	63,906	63,906	63,906	63,906	63,906	63,906	63,906	511,251
Maintenance Access	-	-	1,121,745	1,053,333	1,254,245	1,660,336	767,585	1,045,306	1,429,553	808,776	9,140,879
Wastewater Facilities	-	-	-	-	-	-	-	-	-	-	-
2026 Budget	-	-	-	-	-	-	-	-	-	-	-
Winchester Sewer	-	106,500	-	-	-	-	-	-	-	-	106,500
Capital - OCWA Recommendations	-	-	-	-	-	-	-	-	-	-	-
Capital-Lagoon Expansion - Included in total costs above	-	65,750	-	-	-	-	-	-	-	-	65,750
Capital - Sewer Service Study	-	-	-	-	-	-	-	-	-	-	-
Chesterville Sewer	-	56,500	-	-	-	-	-	-	-	-	56,500
Capital - OCWA Recommendations	-	65,750	-	-	-	-	-	-	-	-	65,750
Capital - Sewer Service Study	-	-	-	-	-	-	-	-	-	-	-
2025 Actual	539,150	-	-	-	-	-	-	-	-	-	539,150
Actual	-	-	-	-	-	-	-	-	-	-	-
Option 2A – Main St. W. upstream of Main St. SPS: Upgrad	539,150	14,999,468	1,640,240	1,571,827	1,772,740	2,289,555	1,355,605	1,633,326	2,017,572	1,396,796	29,216,279



Chapter 4

Capital Cost Financing Options



4. Capital Cost Financing Options

Historically, the powers that municipalities have had to raise alternative revenues to taxation to fund capital services have been restrictive. Over the past number of years, legislative reforms have been introduced. Some of these have expanded municipal powers (e.g., Bill 130 providing for natural person powers for fees and charges by-laws); while others appear to restrict them (Bill 98 in 1997 providing amendments to the *Development Charges Act*).

The most recent *Municipal Act* came into force on January 1, 2003, with significant amendments in 2006 through the *Municipal Statute Law Amendment Act*. Part XII of the Act and O. Reg. 584/06 govern a municipality's ability to impose fees and charges. This Act grants municipalities broad powers and enables them to impose fees for both operating and capital purposes. Under s. 484 of the *Municipal Act, 2001*, the *Local Improvement Act* was repealed with the in-force date of the *Municipal Act* (January 1, 2003). The municipal powers granted under the *Local Improvement Act* now fall under the jurisdiction of the *Municipal Act*.

The methods of capital cost recovery available to municipalities are provided as follows:

Recovery Methods	Section Reference
<i>Development Charges Act, 1997</i>	4.1
<i>Municipal Act, 2001</i>	
○ Fees and Charges	4.2
○ Local Improvements	
Grant Funding	4.3
Reserves/Reserve Funds	4.4
Debenture Financing	4.5



4.1 Development Charges Act, 1997

Development charges are a revenue tool used by municipalities to recover the capital costs associated with new development and redevelopment. These costs are in addition to what a developer or builder typically constructs as part of their subdivision (i.e., Local Services). Empowered by the *Development Charges Act*, as amended, municipalities may pass by-laws to impose charges to recover the capital costs associated with development and redevelopment. The rate forecast does not include development charge funding for water and wastewater services, as, in the Township's 2021 Development Charges Background Study, water and wastewater services were not included. Instead, the Township has opted to use its powers under Part XII of the *Municipal Act* to impose capital charges for the recovery of growth-related capital infrastructure.

4.2 Municipal Act

Part XII of the *Municipal Act* gives municipalities the statutory authority to recover the costs of services, including capital costs, through by-law. Municipalities have used these types of charges to recover infrastructure costs associated with extending municipal services to private service users, to recover capital improvement costs from existing developments, and to recover growth-related costs of service extensions. These by-laws are typically used where D.C.s would not be applicable (e.g., recovery from existing developments) or where existing and growth-related cost recovery would be simplified under the administration of one by-law.

The Township currently imposes charges under the municipal act for new water and wastewater connections and these revenues have been forecast based on current rates and forecast development in the Township.

4.3 Grant Funding Availability

Capital grant funding and other funding sources of \$14.2 million are included for the water program and \$2.8 million for the wastewater program, including:

- Second Water Source detailed design - \$3.5 million (2025)
- Wellfield 7 upgrades - \$161,300 (2025)



- New Well – Lafleur Road Site - \$2.1 million (2026)
- Winchester Water Distribution Treatment and Network Upgrades - \$8.5 million (2030-2032)
- Wastewater Treatment Plant Upgrades - \$2.7 million (2026)

To the extent that the Township is successful in securing additional grant funding for future infrastructure needs and the financial impacts are material, the rate forecast may be revisited.

4.4 Existing Reserves/Reserve Funds

The Township has established reserves and reserve funds for water and wastewater capital costs, as well as connection charge reserve funds. These reserves have been used in the capital funding forecast for rate-based needs. The following table summarizes the water and wastewater reserves utilized in this analysis and the December 31, 2024, closing balances, net of unfinanced capital.

Table 4-1
Township of North Dundas
Water and Wastewater Reserve/Reserve Fund Balances

Reserve	Dec. 31 2024
Water General Reserve	2,176,879
Wastewater General Reserve	2,956,905
Water CC	1,674,330
Wastewater CC	560,556

4.5 Debenture Financing

Although it is not a direct method of minimizing the overall cost to the ratepayer, debentures are used by municipalities to assist in cash-flowing large capital expenditures.

The Ministry of Municipal Affairs and Housing regulates the level of debt incurred by Ontario municipalities through its powers established under the *Municipal Act*. O. Reg. 403/02, which provides the current rules respecting municipal debt and financial obligations. Through the rules established under these regulations, a municipality's debt capacity is capped at a level where no more than 25% of the municipality's own-source

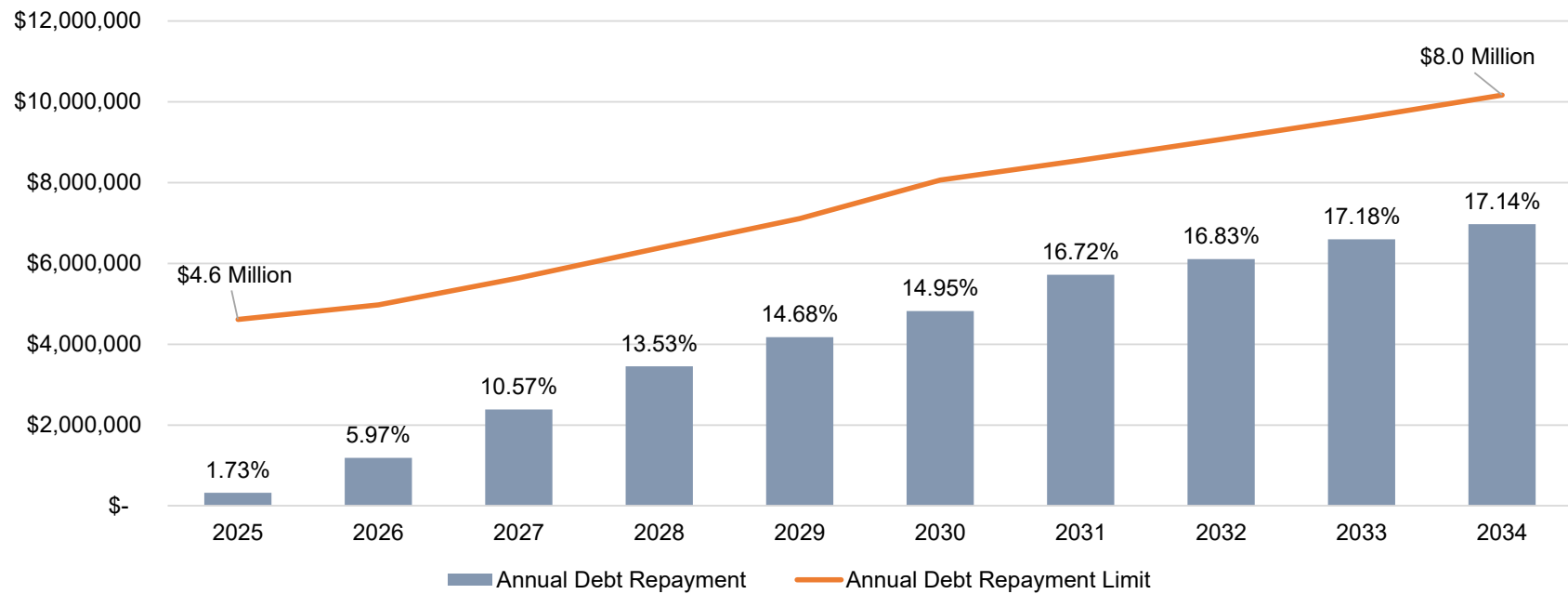


revenue may be allotted for servicing the debt (i.e., debt charges). The Township has no outstanding external debt for water and wastewater services.

The capital forecast proposes debt financing for the water and wastewater systems totalling \$56.0 million over the forecast period. An analysis of the Township's debt capacity was undertaken. With the additional debt requirements for water and wastewater services, as well as other service areas, the debt is expected to peak in 2034. At that point, the Township would utilize 69% of its total legislated debt repayment limit. Figure 4-1 presents the debt load forecast for the Township over the 10-year forecast horizon. Table 4-1 includes debt financing costs and own source revenues for tax supported services within the long-term financial plan.



Figure 4-1
Debt Servicing Costs and Annual Repayment Limit Forecast
Annual Debt Repayments and Annual Repayment Limits





4.6 Recommended Approach

The following table summarizes the capital funding sources for the capital needs forecast, for consideration by the Township.

Table 4-2
Township of North Dundas
2025 to 2034 Water and Wastewater Capital Funding Program (Inflated \$)

Funding Source	Total Funding Amount
Connection Charges	10,126,526
Reserves	16,650,114
Debt	56,063,291
Grants	16,923,879
Total	99,763,811

Table 4-3 and 4-4 provide the full 10-year capital expenditure and funding program for Water and Wastewater, respectively. In aggregate, the predominant source of funding for the capital needs will be debt (i.e., 56.1 million or 56% of the funding sources). The capital funding plan is provided in inflated dollars.



Table 4-3
Township of North Dundas
Water Service Capital Budget Forecast (Inflated \$)

Description	Budget	Forecast									Total
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
Capital Expenditures											
Growth-related Capital Expenditures	-	5,786,056	-	-	-	472,556	486,733	501,335	516,375	531,866	8,294,920
Non-growth Related Capital Expenditures	4,577,036	964,286	4,062,016	2,423,561	8,007,598	13,095,238	10,971,925	11,023,472	2,885,008	2,292,231	60,302,370
Total Capital Expenditures	4,577,036	6,750,342	4,062,016	2,423,561	8,007,598	13,567,794	11,458,658	11,524,806	3,401,383	2,824,097	68,597,291
Capital Financing											
Provincial/Federal Grants - Growth Related Share		2,050,342									2,050,342
Provincial/Federal Grants - Non-Growth Share	3,654,609					2,820,492	2,820,492	2,820,492			12,116,085
Hydro Reserve											-
Connection Charges Reserve Fund	333,762	-	1,557,805	392,009	605,663	831,774	856,726	651,681	671,226	691,353	6,591,999
Non-Growth Related Debenture Requirements	(0)	-	1,072,012	631,552	6,233,664	8,497,755	6,671,947	7,119,252	1,984,849	1,222,149	33,433,180
Committed Debt Financing		4,700,000									4,700,000
Growth Related Debenture Requirements											
Reserve/Reserve Funding	588,665	-	1,432,199	1,400,000	1,168,272	1,417,773	1,109,493	933,381	745,308	910,595	9,705,685
Total Capital Financing	4,577,036	6,750,342	4,062,016	2,423,561	8,007,598	13,567,794	11,458,658	11,524,806	3,401,383	2,824,097	68,597,291

Table 4-4
Township of North Dundas
Wastewater Service Capital Budget Forecast (Inflated \$)

Description	Budget	Forecast									Total
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
Capital Expenditures											
Growth-related Capital Expenditures	-	14,696,728	33,949	34,967	36,016	154,183	120,599	124,217	127,944	131,782	15,460,386
Non-growth Related Capital Expenditures	523,446	302,740	1,655,498	1,632,584	1,901,104	2,422,731	1,450,918	1,826,059	2,353,416	1,637,637	15,706,134
Total Capital Expenditures	523,446	14,999,468	1,689,447	1,667,552	1,937,121	2,576,915	1,571,518	1,950,276	2,481,359	1,769,419	31,166,521
Capital Financing											
Provincial/Federal Grants - Growth Related Share		2,757,452									2,757,452
Provincial/Federal Grants - Non-Growth Share											-
Connection Charges Reserve Fund	-	566,162	115,497	237,924	367,597	504,837	519,973	395,521	407,399	419,619	3,534,528
Non-Growth Related Debenture Requirements	265,252	-	573,950	1,429,628	1,569,524	1,710,797	487,993	740,299	1,016,401	48,566	7,842,409
Committed Debt Financing		10,379,037									10,379,037
Growth Related Debenture Requirements											-
Reserve/Reserve Funding	258,194	1,296,817	1,000,000	-	-	361,281	563,551	814,457	1,057,560	1,301,234	6,653,095
Total Capital Financing	523,446	14,999,468	1,689,447	1,667,552	1,937,121	2,576,915	1,571,518	1,950,276	2,481,359	1,769,419	31,166,521



Chapter 5

Operating Expenditure Forecast



5. Operating Expenditure Forecast

5.1 Operating Expenditures

The Township provided its 2025 Operating Budget, which served as the basis for the forecast of operating expenditures for water and wastewater services. The operating expenditure estimates were generally inflated at a rate of 3.0% annually, reflecting historical Consumer Price Index (CPI) rates. Additionally, the following capital projects were identified by staff as having operating cost implications:

Water

- New Well – Lafleur Road Site is anticipated to require an additional \$15,000 in annual operating costs;
- Chesterville Reservoir Expansion is anticipated to require an additional \$30,485 in annual operating costs; and
- Winchester Reservoir and Pumping Station is anticipated to require an additional \$15,000 in annual operating costs.

Wastewater

- Main St. Sewage Pumping Station (SPS) upgrade is anticipated to require an additional \$5,000 in annual operating costs;
- Specialized treatment upgrades are anticipated to require an additional \$66,555 in annual operating costs;
- Ottawa St. SPS upgrade is anticipated to require an additional \$5,000 in annual operating costs; and
- The increased lagoon treatment capacity project is anticipated to require an additional \$66,555 in annual operating costs.

The operating budget forecast typically comprises two components: operating expenditures and capital-related expenditures. The former is based on the Township's projected annual spending for ongoing operations and maintenance. In contrast, the latter is based on the capital funding plan decisions (i.e., transfers to reserve funds, debt repayment, and capital fund transfers) presented earlier.



Capital-related annual expenditures in the forecast include annual debt repayments and contributions to reserves and reserve funds to support the forecast and future needs. While operating aspects identified above generally increase with inflation and service demands over the period, capital-related aspects tend to grow more specifically in line with the increase in capital funding requirements.

As a result, operating costs for water (excluding debt gross operating expenditures for water and wastewater services are projected to increase from \$1.9 million in 2025 to \$2.6 million by 2034. Capital-related costs (i.e., debt servicing costs and contributions to reserves), net of connection charge funding, are projected to increase from \$1.25 million in 2025 to \$5.7 million by 2034 to reach full lifecycle funding levels.

5.2 Operating Revenues

The Township has operating revenue sources, including connection charges, interest, late payments, allocation applications, water meter sales, and other miscellaneous revenues, which offset some of its annual operating costs. These operating revenues are expected to be maintained over the forecast period, with a general inflation rate of 3.0% annually. These ongoing, annual operating revenues are forecast to increase from approximately \$60,600 in 2025 to \$79,100 by 2034.

Table 5-1 and 5-2 provide the operating budget forecast for the water and wastewater systems. The operating budget forecasts are presented in inflated dollars.



Table 5-1
Township of North Dundas
Water Operating Budget Forecast (Inflated \$)

Description	Budget	Forecast								
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Expenditures										
<u>Operating Costs</u>										
Water - Winchester	619,445	638,028	657,169	676,884	697,191	718,107	739,650	761,839	784,694	808,235
Water - Chesterville	462,182	476,047	490,329	505,039	520,190	535,796	551,869	568,426	585,478	603,043
Sub Total Operating	1,081,627	1,114,076	1,147,498	1,181,923	1,217,381	1,253,902	1,291,519	1,330,265	1,370,173	1,411,278
<u>Capital-Related</u>										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)		-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)		-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related		196,088	196,088	196,088	196,088	196,088	196,088	196,088	196,088	196,088
Existing Debt (Interest) - Non-Growth Related		116,123	107,829	99,534	91,240	82,945	74,651	66,356	58,062	49,767
New Non-Growth Related Debt (Principal)		(0)	235,000	260,741	276,936	428,295	640,075	816,485	1,010,691	1,089,379
New Non-Growth Related Debt (Interest)		(0)	211,030	243,359	257,040	494,158	815,784	1,055,908	1,306,867	1,344,682
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Connection Charges										
Transfer to/(from) Capital Reserve	597,678	411,860	301,594	659,292	1,143,593	1,393,094	1,084,814	908,702	720,629	885,916
Sub Total Capital Related	597,678	724,071	1,051,541	1,459,015	1,964,896	2,594,581	2,811,412	3,043,539	3,292,337	3,565,832
Total Expenditures	1,679,305	1,838,147	2,199,039	2,640,938	3,182,277	3,848,483	4,102,931	4,373,804	4,662,509	4,977,110
Revenues										
Water - Winchester	53,620	55,229	56,885	58,592	60,350	62,160	64,025	65,946	67,924	69,962
Water - Chesterville	7,000	7,210	7,426	7,649	7,879	8,115	8,358	8,609	8,867	9,133
Base Charge Revenues	279,909	341,310	410,971	498,661	608,992	749,004	861,959	988,204	1,129,087	1,289,551
Transfer from Connection Charge Reserve Fund	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	340,529	403,748	475,283	564,902	677,220	819,279	934,342	1,062,759	1,205,878	1,368,647



Table 5-2
Township of North Dundas
Wastewater Operating Budget Forecast (Inflated \$)

Description	Budget	Forecast								
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Expenditures										
<u>Operating Costs</u>										
Wastewater - Winchester	533,519	618,076	636,619	655,717	681,016	701,447	722,490	744,165	766,490	789,484
Wastewater - Chesterville	329,875	339,771	349,964	360,463	371,277	382,416	393,888	405,705	417,876	430,412
Sub Total Operating	863,394	957,847	986,583	1,016,180	1,052,293	1,083,862	1,116,378	1,149,869	1,184,365	1,219,896
<u>Capital-Related</u>										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)		-	355,090	367,844	381,203	395,198	409,857	425,212	441,297	458,145
New Growth Related Debt (Interest)		-	488,502	975,662	936,510	896,723	856,272	815,125	773,248	730,607
Existing Debt (Principal) - Non-Growth Related		310,802	310,802	310,802	310,802	310,802	310,802	310,802	310,802	310,802
Existing Debt (Interest) - Non-Growth Related		170,910	157,763	144,616	131,469	118,322	105,175	92,028	78,882	65,735
New Non-Growth Related Debt (Principal)		6,369	6,369	20,406	55,550	95,459	140,357	157,689	181,773	213,450
New Non-Growth Related Debt (Interest)		10,610	10,610	33,313	89,682	150,241	214,855	228,760	252,064	285,450
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Connection Charges										
Transfer to/(from) Capital Reserve	650,888	226,718				404,673	558,551	809,457	1,052,560	1,296,234
Sub Total Capital Related	650,888	725,409	1,329,136	1,852,642	1,905,216	2,371,419	2,595,869	2,839,073	3,090,625	3,360,422
Total Expenditures	1,514,282	1,683,256	2,315,719	2,868,823	2,957,510	3,455,281	3,712,247	3,988,942	4,274,990	4,580,319
Revenues										
Wastewater - Winchester	-	-	-	-	-	-	-	-	-	-
Wastewater - Chesterville	-	-	-	-	-	-	-	-	-	-
Base Charge Revenues	502,429	597,704	689,633	801,638	937,704	1,104,415	1,179,241	1,266,609	1,355,971	1,451,104
Transfer from Connection Charge Reserve Fund	-	-	-	-	-	-	-	-	-	-
Transfer from Operating			318,910	484,863	95,862	-	-	-	-	-
Total Operating Revenue	502,429	597,704	1,008,543	1,286,501	1,033,567	1,104,415	1,179,241	1,266,609	1,355,971	1,451,104
Wastewater Billing Recovery - Operating	1,011,854	1,085,552	1,307,176	1,582,322	1,923,943	2,350,866	2,533,006	2,722,333	2,919,019	3,129,215



Chapter 6

Forecast Water & Wastewater Rates



6. Forecast Water & Wastewater Rates

To summarize the analysis presented thus far, Chapter 3 reviewed the capital-related needs of all customers within the water and wastewater systems and addressed the lifecycle needs of the Township's infrastructure. Chapter 4 provided a review of capital financing options, of which internal sources (i.e., reserve fund transfers) and external sources (i.e., debt) will be the predominant basis for financing future capital needs. Chapter 5 established the 10-year operating expenditure forecast for the Township's water and wastewater systems. This chapter presents the calculated rates for the next 10-year period. These calculations are based on the net operating expenditures identified in Chapter 5 and the customer counts and metered water consumption identified in Chapter 2.

The calculated rate forecast is provided to address the full costs of the water and wastewater systems, including annual operating and capital expenditures from a lifecycle perspective. The rate forecast is presented in Table 6-1 below. The detailed financial forecast and rate calculations for water and wastewater services are provided in Appendix A to this report.

6.1 Forecast Water and Wastewater Rate Impacts

Table 6-2 summarizes the impacts of the calculated rates on an average residential customer. For an average residential customer using 132 m³ of water annually, the total water and wastewater bill in 2026, with current rates, would be approximately \$1,010. The proposed 2027 rates would result in a bill of \$1,198, representing a \$188 (18.6%) increase, followed by annual increases of 18.7% in 2028 to 2029 and 5.9% to 6.4% increases from 2031 to 2034.

This strategy has been used to mitigate the amount of debt financing required and to allow the Township financial flexibility to meet unexpected capital needs. The Township should consider opportunities to engage in front-end financing arrangements with benefiting landowners in appropriate situations where infrastructure is being constructed in advance of development to facilitate development moving forward. Receiving front-end financing from developers, such as pre-payment of water and wastewater connection charges, or having developers build the infrastructure on behalf of the Township and receive credits against future payments, is an effective way to offset the Township's initial capital funding obligation and mitigate debt financing costs. This would



also allow the Township to increase user rates more gradually over the forecast period as there would be less need for additional funds for capital expenditures in the near term.

As noted earlier, a significant driver of the forecast increase in expenses (both capital and operating) is related to the forecast capital needs and lifecycle costs included in the AMP. These costs are designed to fund and maintain the current level of service provided in the Township.



Table 6-1
Township of North Dundas
Water and Wastewater Rate Forecast

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Water										
Annual Base Charge										
0.60 inches	\$ 137	\$ 167	\$ 200	\$ 240	\$ 288	\$ 345	\$ 387	\$ 433	\$ 485	\$ 543
0.75 inches	\$ 137	\$ 167	\$ 200	\$ 240	\$ 288	\$ 345	\$ 387	\$ 433	\$ 485	\$ 543
1.0 inches	\$ 191	\$ 233	\$ 280	\$ 336	\$ 403	\$ 484	\$ 542	\$ 607	\$ 680	\$ 761
1.5 inches	\$ 246	\$ 300	\$ 360	\$ 432	\$ 518	\$ 622	\$ 696	\$ 780	\$ 874	\$ 978
2.0 inches	\$ 396	\$ 483	\$ 580	\$ 696	\$ 835	\$ 1,002	\$ 1,122	\$ 1,257	\$ 1,407	\$ 1,576
2.5 inches	\$ 956	\$ 1,166	\$ 1,399	\$ 1,679	\$ 2,015	\$ 2,418	\$ 2,708	\$ 3,033	\$ 3,397	\$ 3,805
3.0 inches	\$ 1,512	\$ 1,844	\$ 2,213	\$ 2,656	\$ 3,187	\$ 3,825	\$ 4,283	\$ 4,798	\$ 5,373	\$ 6,018
4.0 inches	\$ 1,925	\$ 2,347	\$ 2,817	\$ 3,380	\$ 4,056	\$ 4,868	\$ 5,452	\$ 6,106	\$ 6,839	\$ 7,659
6.0 inches	\$ 2,887	\$ 3,521	\$ 4,225	\$ 5,070	\$ 6,085	\$ 7,301	\$ 8,178	\$ 9,159	\$ 10,258	\$ 11,489
Consumptive Rate	\$ 1.41	\$ 1.51	\$ 1.81	\$ 2.17	\$ 2.61	\$ 3.13	\$ 3.25	\$ 3.37	\$ 3.49	\$ 3.62
Wastewater										
Annual Base Charge										
0.60 inches	\$ 249	\$ 282	\$ 325	\$ 374	\$ 430	\$ 494	\$ 514	\$ 540	\$ 566	\$ 595
0.75 inches	\$ 249	\$ 282	\$ 325	\$ 374	\$ 430	\$ 494	\$ 514	\$ 540	\$ 566	\$ 595
1.0 inches	\$ 348	\$ 395	\$ 455	\$ 523	\$ 601	\$ 692	\$ 719	\$ 755	\$ 793	\$ 833
1.5 inches	\$ 448	\$ 508	\$ 585	\$ 672	\$ 773	\$ 889	\$ 925	\$ 971	\$ 1,020	\$ 1,071
2.0 inches	\$ 721	\$ 819	\$ 942	\$ 1,083	\$ 1,246	\$ 1,433	\$ 1,490	\$ 1,564	\$ 1,643	\$ 1,725
2.5 inches	\$ 1,740	\$ 1,977	\$ 2,274	\$ 2,615	\$ 3,007	\$ 3,458	\$ 3,596	\$ 3,776	\$ 3,965	\$ 4,163
3.0 inches	\$ 2,752	\$ 3,127	\$ 3,596	\$ 4,135	\$ 4,756	\$ 5,469	\$ 5,688	\$ 5,972	\$ 6,271	\$ 6,584
4.0 inches	\$ 3,503	\$ 3,980	\$ 4,577	\$ 5,263	\$ 6,053	\$ 6,960	\$ 7,239	\$ 7,601	\$ 7,981	\$ 8,380
6.0 inches	\$ 5,254	\$ 5,970	\$ 6,865	\$ 7,895	\$ 9,079	\$ 10,441	\$ 10,858	\$ 11,401	\$ 11,971	\$ 12,570
Consumptive Rate	\$ 2.57	\$ 2.75	\$ 3.30	\$ 3.96	\$ 4.75	\$ 5.70	\$ 6.02	\$ 6.36	\$ 6.72	\$ 7.10



Table 6-2
Township of North Dundas
Annual Water and Wastewater Bill Impact
Average Residential Customer (132 m³ Annually)

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Water Bill:										
Forecasted Monthly Water Base Charge	\$11.38	\$13.88	\$16.66	\$19.99	\$23.98	\$28.78	\$32.24	\$36.10	\$40.44	\$45.29
Annual Base Charge Bill	\$136.60	\$166.56	\$199.87	\$239.85	\$287.82	\$345.38	\$386.82	\$433.24	\$485.23	\$543.46
Forecasted Water Volume Charge (\$/M ³)	\$1.41	\$1.51	\$1.81	\$2.17	\$2.61	\$3.13	\$3.25	\$3.37	\$3.49	\$3.62
Annual Water Volume Charge	\$185.62	\$198.79	\$238.55	\$286.25	\$343.51	\$412.21	\$427.51	\$443.38	\$459.83	\$476.90
Annual Water Bill	\$322.22	\$365.35	\$438.42	\$526.10	\$631.32	\$757.59	\$814.33	\$876.62	\$945.06	\$1,020.36
Wastewater Bill:										
Forecasted Wastewater Base Charge	\$20.72	\$23.54	\$27.07	\$31.13	\$35.80	\$41.17	\$42.82	\$44.96	\$47.21	\$49.57
Annual Base Charge Bill	\$248.61	\$282.48	\$324.85	\$373.58	\$429.62	\$494.06	\$513.82	\$539.51	\$566.49	\$594.81
Forecasted Wastewater Volume Charge (\$/M ³)	\$2.57	\$2.75	\$3.30	\$3.96	\$4.75	\$5.70	\$6.02	\$6.36	\$6.72	\$7.10
Annual Wastewater Volume Charge	\$337.83	\$362.03	\$434.44	\$521.33	\$625.59	\$750.71	\$792.91	\$837.49	\$884.57	\$934.29
Annual Wastewater Bill	\$586.45	\$644.51	\$759.29	\$894.91	\$1,055.21	\$1,244.77	\$1,306.73	\$1,377.00	\$1,451.05	\$1,529.11
Annual Water and Wastewater Bill	\$908.67	\$1,009.86	\$1,197.71	\$1,421.01	\$1,686.53	\$2,002.35	\$2,121.06	\$2,253.62	\$2,396.12	\$2,549.47
Annual Bill Increase - %										
Annual Water Bill Increase		13.4%	20.0%	20.0%	20.0%	20.0%	7.5%	7.6%	7.8%	8.0%
Annual Wastewater Bill Increase		9.9%	17.8%	17.9%	17.9%	18.0%	5.0%	5.4%	5.4%	5.4%
Total Water and Wastewater Increase		11.1%	18.6%	18.6%	18.7%	18.7%	5.9%	6.2%	6.3%	6.4%
Annual Bill Increase - \$										
Annual Water Bill Increase		\$43.12	\$73.07	\$87.68	\$105.22	\$126.26	\$56.75	\$62.29	\$68.45	\$75.30
Annual Wastewater Bill Increase		\$58.06	\$114.78	\$135.62	\$160.30	\$189.56	\$61.96	\$70.27	\$74.06	\$78.05
Total Water and Wastewater Increase		\$101.19	\$187.85	\$223.30	\$265.52	\$315.82	\$118.71	\$132.55	\$142.50	\$153.35



Chapter 7

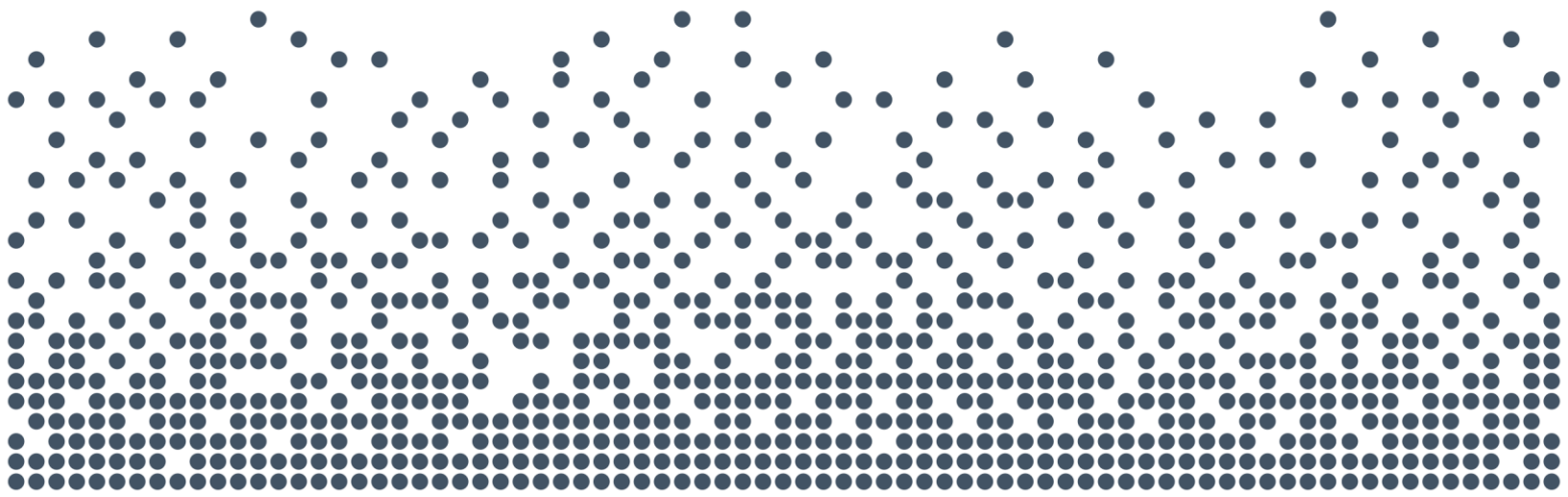
Recommendations



7. Recommendations

The following recommendations are provided for the Township's consideration:

- That the Township of North Dundas' Water and Wastewater Asset Management Plan and Rate Study be received and approved by Council based on:
 - Eliminating the current annual infrastructure funding gap by 2034;
- That consideration be made as part of the annual budgeting process to ensure sufficient capital funding is available to implement the asset management plan; and
- That Council consider the 2027 water and wastewater rates as shown in Chapter 6, and direct staff to update the rate study and rate forecast in 2029 as part of the 5-year water financial plan required for the Township's drinking water license renewal application.



Appendices



Appendix A

Water Rate Calculations



Appendix A: Water Rate Calculations

Table A-1
Capital Budget Forecast

Description	Budget	Forecast									Total
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
Capital Expenditures											
Growth-related Capital Expenditures	-	5,786,056	-	-	-	472,556	486,733	501,335	516,375	531,866	8,294,920
Non-growth Related Capital Expenditures	4,577,036	964,286	4,062,016	2,423,561	8,007,598	13,095,238	10,971,925	11,023,472	2,885,008	2,292,231	60,302,370
Total Capital Expenditures	4,577,036	6,750,342	4,062,016	2,423,561	8,007,598	13,567,794	11,458,658	11,524,806	3,401,383	2,824,097	68,597,291
Capital Financing											
Provincial/Federal Grants - Growth Related Share		2,050,342									2,050,342
Provincial/Federal Grants - Non-Growth Share	3,654,609					2,820,492	2,820,492	2,820,492			12,116,085
Hydro Reserve											
Connection Charges Reserve Fund	333,762	-	1,557,805	392,009	605,663	831,774	856,726	651,681	671,226	691,353	6,591,999
Non-Growth Related Debenture Requirements	(0)	-	1,072,012	631,552	6,233,664	8,497,755	6,671,947	7,119,252	1,984,849	1,222,149	33,433,180
Committed Debt Financing		4,700,000									4,700,000
Growth Related Debenture Requirements											-
Reserve/Reserve Funding	588,665	-	1,432,199	1,400,000	1,168,272	1,417,773	1,109,493	933,381	745,308	910,595	9,705,685
Total Capital Financing	4,577,036	6,750,342	4,062,016	2,423,561	8,007,598	13,567,794	11,458,658	11,524,806	3,401,383	2,824,097	68,597,291

Table A-2
Schedule of Non-Growth Related Debenture Repayments

Debtenture Year	Forecast										Principal (Inflated)
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
2025		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
2026			-	-	-	-	-	-	-	-	-
2027				68,622	68,622	68,622	68,622	68,622	68,622	68,622	1,072,012
2028					40,427	40,427	40,427	40,427	40,427	40,427	631,552
2029						399,029	399,029	399,029	399,029	399,029	6,233,664
2030							543,958	543,958	543,958	543,958	8,497,755
2031								427,084	427,084	427,084	6,671,947
2032									455,717	455,717	7,119,252
2033										127,054	1,984,849
2034											1,222,149
Total Annual Debt Charges	-	(0)	(0)	68,622	109,048	508,078	1,052,036	1,479,120	1,934,837	2,061,891	33,433,180

Table A-3
Reserves/Reserve Funds Continuity

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	2,176,879	2,207,752	2,645,808	1,530,355	797,544	780,594	763,474	746,183	728,719	711,081
Transfer from Operating	597,678	411,860	301,594	659,292	1,143,593	1,393,094	1,084,814	908,702	720,629	885,916
Transfer to Capital	588,665		1,432,199	1,400,000	1,168,272	1,417,773	1,109,493	933,381	745,308	910,595
Transfer to Operating										
Closing Balance	2,185,893	2,619,612	1,515,203	789,648	772,865	755,915	738,795	721,504	704,040	686,402
Interest	21,859	26,196	15,152	7,896	7,729	7,559	7,388	7,215	7,040	6,864



Table A-4
Connection Charges Reserve Fund Continuity

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	1,674,330	1,353,974	1,367,514	-	-	-	-	-	-	-
Connection Charge Proceeds	-	-	190,292	392,009	605,663	831,774	856,726	651,681	671,226	691,353
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	333,762	-	1,557,805	392,009	605,663	831,774	856,726	651,681	671,226	691,353
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	1,340,568	1,353,974	-	-	-	-	-	-	-	-
Interest	13,406	13,540	-	-	-	-	-	-	-	-

Table A-5
Operating Budget Forecast

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Expenditures										
Operating Costs										
Water - Winchester	619,445	638,028	657,169	676,884	697,191	718,107	739,650	761,839	784,694	808,235
Water - Chesterville	462,182	476,047	490,329	505,039	520,190	535,796	551,869	568,426	585,478	603,043
Sub Total Operating	1,081,627	1,114,076	1,147,498	1,181,923	1,217,381	1,253,902	1,291,519	1,330,265	1,370,173	1,411,278
Capital-Related										
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	-	196,088	196,088	196,088	196,088	196,088	196,088	196,088	196,088	196,088
Existing Debt (Interest) - Non-Growth Related	-	116,123	107,829	99,534	91,240	82,945	74,651	66,356	58,062	49,767
New Non-Growth Related Debt (Principal)	-	(0)	235,000	260,741	276,936	428,295	640,075	816,485	1,010,691	1,089,379
New Non-Growth Related Debt (Interest)	-	(0)	211,030	243,359	257,040	494,158	815,784	1,055,908	1,306,867	1,344,682
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Connection Charges	-	-	-	-	-	-	-	-	-	-
Transfer to/(from) Capital Reserve	597,678	411,860	301,594	659,292	1,143,593	1,393,094	1,084,814	908,702	720,629	885,916
Sub Total Capital Related	597,678	724,071	1,051,541	1,459,015	1,964,896	2,594,581	2,811,412	3,043,539	3,292,337	3,565,832
Total Expenditures	1,679,305	1,838,147	2,199,039	2,640,938	3,182,277	3,848,483	4,102,931	4,373,804	4,662,509	4,977,110
Revenues										
Water - Winchester	53,620	55,229	56,885	58,592	60,350	62,160	64,025	65,946	67,924	69,962
Water - Chesterville	7,000	7,210	7,426	7,649	7,879	8,115	8,358	8,609	8,867	9,133
Base Charge Revenues	279,909	341,310	410,971	498,661	608,992	749,004	861,959	988,204	1,129,087	1,289,551
Transfer from Connection Charge Reserve Fund	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	340,529	403,748	475,283	564,902	677,220	819,279	934,342	1,062,759	1,205,878	1,368,647

Table A-6
Rate Forecast

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Average Annual Increase
Total Water Rate Recovery	1,338,776	1,434,399	1,723,756	2,076,036	2,505,057	3,029,203	3,168,589	3,311,044	3,456,631	3,608,463	11.6%
Total Water Volumes	949,487	949,933	951,300	954,763	960,057	967,445	975,744	983,121	989,617	996,113	0.5%
Constant Rate	1.4100	1.5100	1.8120	2.1744	2.6093	3.1311	3.2474	3.3679	3.4929	3.6225	11.1%
Annual Percentage Change		7.1%	20.0%	20.0%	20.0%	20.0%	3.7%	3.7%	3.7%	3.7%	11.1%



Table A-7
Base Charge Forecast

Water	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	1,913	1,913	1,913	1,913	1,913	1,913	1,913	1,913	1,913	1,913
New	1	1	8	31	68	120	180	233	279	325
Total Customers	1,914	1,914	1,921	1,944	1,981	2,033	2,093	2,146	2,192	2,238
Total Annual Revenue	\$279,909	\$341,310	\$410,971	\$498,661	\$608,992	\$749,004	\$861,959	\$988,204	\$1,129,087	\$1,289,551



Appendix B

Wastewater Rate Calculations



Appendix B: Wastewater Rate Calculations

Table B-1
Capital Budget Forecast

Description	Budget	Forecast									Total
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
Capital Expenditures											
Growth-related Capital Expenditures	-	14,696,728	33,949	34,967	36,016	154,183	120,599	124,217	127,944	131,782	15,460,386
Non-growth Related Capital Expenditures	523,446	302,740	1,655,498	1,632,584	1,901,104	2,422,731	1,450,918	1,826,059	2,353,416	1,637,637	15,706,134
Total Capital Expenditures	523,446	14,999,468	1,689,447	1,667,552	1,937,121	2,576,915	1,571,518	1,950,276	2,481,359	1,769,419	31,166,521
Capital Financing											
Provincial/Federal Grants - Growth Related Share		2,757,452									2,757,452
Provincial/Federal Grants - Non-Growth Share											
Connection Charges Reserve Fund	-	566,162	115,497	237,924	367,597	504,837	519,973	395,521	407,399	419,619	3,534,528
Non-Growth Related Debenture Requirements	265,252	-	573,950	1,429,628	1,569,524	1,710,797	487,993	740,299	1,016,401	48,566	7,842,409
Committed Debt Financing		10,379,037									10,379,037
Growth Related Debenture Requirements											-
Reserve/Reserve Funding	258,194	1,296,817	1,000,000	-	-	361,281	563,551	814,457	1,057,560	1,301,234	6,653,095
Total Capital Financing	523,446	14,999,468	1,689,447	1,667,552	1,937,121	2,576,915	1,571,518	1,950,276	2,481,359	1,769,419	31,166,521

Table B-2
Schedule of Non-Growth Related Debenture Repayments

Debenture Year	Forecast										Principal (Inflated)
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
2025		16,979	16,979	16,979	16,979	16,979	16,979	16,979	16,979	16,979	265,252
2026			-	-	-	-	-	-	-	-	-
2027				36,740	36,740	36,740	36,740	36,740	36,740	36,740	573,950
2028					91,513	91,513	91,513	91,513	91,513	91,513	1,429,628
2029						100,468	100,468	100,468	100,468	100,468	1,569,524
2030							109,511	109,511	109,511	109,511	1,710,797
2031								31,237	31,237	31,237	487,993
2032									47,388	47,388	740,299
2033										65,062	1,016,401
2034											48,566
Total Annual Debt Charges	-	16,979	16,979	53,719	145,232	245,701	355,212	386,449	433,837	498,899	7,842,409

Table B-3
Reserves/Reserve Funds Continuity

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	2,956,905	3,383,095	2,336,125	1,027,387	547,949	456,608	505,000	505,000	505,000	505,000
Transfer from Operating	650,888	226,718	-	-	-	404,673	558,551	809,457	1,052,560	1,296,234
Transfer to Capital	258,194	1,296,817	1,000,000			361,281	563,551	814,457	1,057,560	1,301,234
Transfer to Operating			318,910	484,863	95,862					
Closing Balance	3,349,599	2,312,995	1,017,215	542,524	452,087	500,000	500,000	500,000	500,000	500,000
Interest	33,496	23,130	10,172	5,425	4,521	5,000	5,000	5,000	5,000	5,000



Table B-4
Connection Charges Reserve Fund Continuity

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Opening Balance	560,556	566,162	-	-	-	-	-	0	-	-
Connection Charge Proceeds	-	-	115,497	237,924	367,597	504,837	519,973	395,521	407,399	419,619
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	566,162	115,497	237,924	367,597	504,837	519,973	395,521	407,399	419,619
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	560,556	-	-	-	-	-	0	-	-	-
Interest	5,606	-	-	-	-	-	0	-	-	-

Table B-5
Operating Budget Forecast

Description	Budget 2025	2026	2027	2028	2029	Forecast				
						2030	2031	2032	2033	2034
Expenditures										
<u>Operating Costs</u>										
Wastewater - Winchester	533,519	618,076	636,619	655,717	681,016	701,447	722,490	744,165	766,490	789,484
Wastewater - Chesterville	329,875	339,771	349,964	360,463	371,277	382,416	393,888	405,705	417,876	430,412
Sub Total Operating	863,394	957,847	986,583	1,016,180	1,052,293	1,083,862	1,116,378	1,149,869	1,184,365	1,219,896
<u>Capital-Related</u>										
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Principal)	-	-	355,090	367,844	381,203	395,198	409,857	425,212	441,297	458,145
New Growth Related Debt (Interest)	-	-	488,502	975,662	936,510	896,723	856,272	815,125	773,248	730,607
Existing Debt (Principal) - Non-Growth Related	-	310,802	310,802	310,802	310,802	310,802	310,802	310,802	310,802	310,802
Existing Debt (Interest) - Non-Growth Related	-	170,910	157,763	144,616	131,469	118,322	105,175	92,028	78,882	65,735
New Non-Growth Related Debt (Principal)	-	6,369	6,369	20,406	55,550	95,459	140,357	157,689	181,773	213,450
New Non-Growth Related Debt (Interest)	-	10,610	10,610	33,313	89,682	150,241	214,855	228,760	252,064	285,450
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Connection Charges	-	-	-	-	-	-	-	-	-	-
Transfer to/(from) Capital Reserve	650,888	226,718	-	-	-	404,673	558,551	809,457	1,052,560	1,296,234
Sub Total Capital Related	650,888	725,409	1,329,136	1,852,642	1,905,216	2,371,419	2,595,869	2,839,073	3,090,625	3,360,422
Total Expenditures	1,514,282	1,683,256	2,315,719	2,868,823	2,957,510	3,455,281	3,712,247	3,988,942	4,274,990	4,580,319
Revenues										
Wastewater - Winchester	-	-	-	-	-	-	-	-	-	-
Wastewater - Chesterville	-	-	-	-	-	-	-	-	-	-
Base Charge Revenues	502,429	597,704	689,633	801,638	937,704	1,104,415	1,179,241	1,266,609	1,355,971	1,451,104
Transfer from Connection Charge Reserve Fund	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	-	-	318,910	484,863	95,862	-	-	-	-	-
Total Operating Revenue	502,429	597,704	1,008,543	1,286,501	1,033,567	1,104,415	1,179,241	1,266,609	1,355,971	1,451,104
Wastewater Billing Recovery - Operating	1,011,854	1,085,552	1,307,176	1,582,322	1,923,943	2,350,866	2,533,006	2,722,333	2,919,019	3,129,215



Table B-6
Rate Forecast

Description	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Average Annual Increase
Total Wastewater Billing Recovery	1,011,854	1,085,552	1,307,176	1,582,322	1,923,943	2,350,866	2,533,006	2,722,333	2,919,019	3,129,215	13.4%
Total Volume (m ³)	394,300	394,746	396,114	399,576	404,870	412,259	420,558	427,935	434,431	440,926	1.2%
Constant Rate	2.5662	2.7500	3.3000	3.9600	4.7520	5.7024	6.0230	6.3616	6.7192	7.0969	12.0%
Annual Percentage Change		7.2%	20.0%	20.0%	20.0%	20.0%	5.6%	5.6%	5.6%	5.6%	12.0%

Table B-7
Base Charge Forecast

Wastewater	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Existing	1,911	2,006	2,006	2,006	2,006	2,006	2,006	2,006	2,006	2,006
New	1	1	8	31	68	120	180	233	279	325
Subtotal Customers	1,912	2,007	2,014	2,037	2,074	2,126	2,186	2,239	2,285	2,331
Total Annual Revenue	\$502,429	\$597,704	\$689,633	\$801,638	\$937,704	\$1,104,415	\$1,179,241	\$1,266,609	\$1,355,971	\$1,451,104