Asset Management Plan – Core Assets

Town of Bradford West Gwillimbury

Final

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List of Acronyms and Abbreviations

AADT	Full Description of Acronym
BCI	Bridge Condition Index
G/S	Gravel
HCB	High-class Bituminous
IJPA	Infrastructure for Jobs and Prosperity Act
LCB	Low-class Bituminous
MMS	Minimum Maintenance Standard
OSIM	Ontario Structure Inspection Manual
PC	Physical Condition
PSAB	Public Sector Accounting Board
SA	Structural Adequacy
ULC%	Useful Life Consumed Percentage

Report

Chapter 1
Introduction

1. Introduction

1.1 Overview

The main objective of an asset management plan is to use a municipality's best available information to develop a comprehensive long-term plan for capital assets. In addition, the plan should provide a sufficiently documented framework that will enable continuous improvement and updates of the plan, to ensure its relevancy over the long term.

The Town of Bradford West Gwillimbury (Town) retained Watson & Associates Economists Ltd. (Watson) to update the Town's 2016 Asset Management Plan. With this update, the intent is to bring the Town's asset management plan into compliance with the July 1, 2022, requirements of Ontario Regulation 588/17.

The assets included in this iteration of the asset management plan are the core municipal assets which fall into the following broad asset categories:

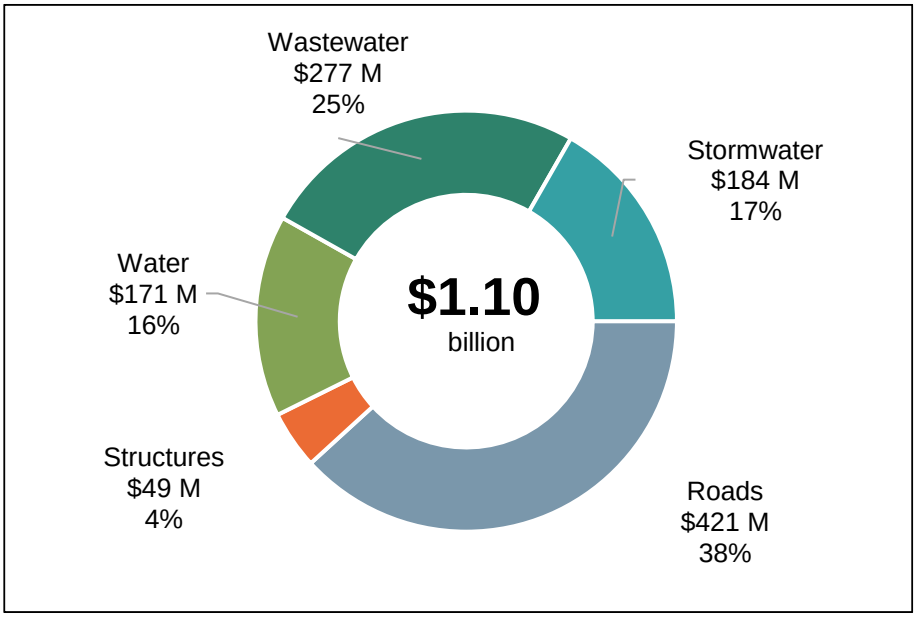
- Roads;
- Bridges and structural culverts;
- Water;
- Wastewater; and
- Stormwater

The total replacement cost of the Town's core assets is estimated to be approximately $1.10 billion. A breakdown of the total replacement cost by asset class is provided in in Table 1-1 and Figure 1-1. Roads account for more than a third of the replacement cost (37%), followed by wastewater (25%), stormwater (17%), water (16%), and lastly, bridges and culverts (5%).

Table 1-1: Asset Classes and Replacement Cost

Asset Class	Replacement Cost
Roads	$421,160,000
Bridges and Structural Culverts	$49,080,000
Water	$170,880,000
Wastewater	$276,700,000
Stormwater	184,410,000
Total	**$1,102,130,000**

Figure 1-1: Distribution of Replacement Cost by Asset Class



The Town's goals and objectives with respect to asset management are identified in its Strategic Asset Management Policy. A major theme within that policy is for the Town's physical assets to be managed in a manner that will support the sustainable provision of municipal services to residents. Through the implementation of the asset management plan, the Town's practice should evolve to be responsive to the levels of service that are being achieved. Moreover, infrastructure and other capital assets should be maintained at condition levels that provide a safe and functional environment for the Town's residents. Therefore, the asset management plan and the progress with respect to its

implementation will be evaluated based on the Town's ability to meet these goals and objectives.

1.2 Legislative Context for the Asset Management Plan

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

Before 2009, capital assets were recorded by municipalities as expenditures in the year of acquisition or construction. The long-term issue with this approach was the lack of a capital asset inventory, both in the municipality's accounting system and financial statements. As a result of revisions to section 3150 of the Public Sector Accounting Board (PSAB) handbook, effective for the 2009 fiscal year, municipalities were required to capitalize tangible capital assets, thus creating an inventory of assets.

In 2012, the Province launched the municipal Infrastructure Strategy. As part of that initiative, municipalities and local service boards seeking provincial funding were required to demonstrate how any proposed project fits within a detailed 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 agreement requirements. To help define the components of an asset management plan, the Province produced a document entitled Building Together: Guide for Municipal Asset Management Plans. This guide documented the components, information, and analysis that were required to be included in municipal asset management plans under this initiative.

The Province's *Infrastructure for Jobs and Prosperity Act, 2015* (IJPA) was proclaimed on May 1, 2016. This legislation detailed principles for evidence-based and sustainable long-term infrastructure planning. IJPA 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 IJPA. The intent of O. Reg. 588/17 is to establish standard content for municipal asset management plans. Specifically, the regulations require that asset management plans be developed that define the current levels of service, identify the lifecycle activities that would be undertaken to achieve these levels of service, and provide a financial strategy to support the levels of service and lifecycle activities.

This plan has been developed to address the July 1, 2022, requirements of O. Reg. 588/17. It utilizes the best information available to the Town at this time.

1.3 Asset Management Plan Development

This asset management plan was developed using an approach that leverages the Town's asset management principles as identified within its strategic asset management policy, capital asset database information, and staff input.

The development of the Town's asset management plan is based on the steps summarized below:

1. Compile available information pertaining to the Town's capital assets to be included in the plan, including attributes such as size, material type, useful life, age, and current replacement cost valuation. Update the current replacement cost valuation, where required, using benchmark costing data or applicable inflationary indices.

2. Define and assess current asset conditions, based on a combination of Town staff input, existing background reports and studies, and an asset age-based condition analysis.

3. Define and document current levels of service based on analysis of available data and consideration of various background reports.

4. Develop lifecycle management strategies that identify the activities required to sustain the levels of service discussed above. The outputs of these strategies are summarized in the forecast of annual capital and operating expenditures required to achieve these level of service outcomes.

5. Document the asset management plan in a formal report to inform future decision-making and to communicate planning to municipal stakeholders.

1.4 Maintaining and Integrating the Asset Management Plan

To comply with the July 1, 2024, and July 1, 2025, requirements of O. Reg. 588/17, this plan will need to be expanded to cover all assets, to have targets set for levels of service performance measures, and to include a detailed financial strategy. Further

integration into other municipal financial and planning documents would assist in ensuring the ongoing accuracy of the asset management plan, as well as the integrated financial and planning documents.

The asset management plan is a snapshot in time and is based on a number of assumptions regarding expected lifecycles and future performance of assets, lifecycle intervention costs, among others. The Town will need to establish processes for reviewing and updating these assumptions on a regular basis to keep the plan relevant.

Chapter 2
State of Local Infrastructure and Levels of Service

2. State of Local Infrastructure and Levels of Service

2.1 Introduction

This chapter provides an analysis of the Town's assets and the current service levels provided by those assets.

O. Reg. 588/17 requires that for each asset category included in the asset management plan, the following information must be identified:

- Summary of the assets;
- Replacement cost of the assets;
- Average age of the assets (it is noted that the regulation specifically requires average age to be determined by assessing the age of asset components);
- Information available on condition of assets; and
- Approach to condition assessments (based on recognized and generally accepted good engineering practices where appropriate).

Asset management plans must identify the current levels of service being provided for each asset category. For core municipal infrastructure assets, both the qualitative descriptions pertaining to community levels of service and metrics pertaining to technical levels of service are prescribed by O. Reg. 588/17.

The rest of this chapter addresses the requirements identified above, with each section focusing on an individual service.

2.2 Transportation

2.2.1 State of Local Infrastructure

The Town owns and manages a variety of assets that support the provision of Transportation Services and that contribute to the overall level of service provided by the Town. The focus for the time being has been placed on the Town's roads, bridges, and structural culverts as these are considered core assets under Ontario Regulation 588/17 and must be included in the Town's asset management plan by July 1, 2022.

The analysis for Transportation Services will be expanded in the future to include all transportation assets that contribute in various ways to the overall level of service (e.g., sidewalks, sidewalk ramps, retaining walls, guiderails, traffic signals, streetlights, signs, and off-road bike paths).

The road network consists of roads with various surface types, including high-class bituminous (HCB), low-class bituminous (LCB), and gravel (G/S). The estimated replacement cost of roads is $421 million. Table 2-1 provides a breakdown of the road network by surface type, showing lane-kilometres, average age, and replacement cost. A visual rendering of the data presented in Table 2-1 is provided in Figure 2-1. A spatial illustration of the Town's road network and its extent is provided in Map 2-1 and Map 2-2.

Table 2-1: Road Network – Summary of Length, Age, and Replacement Cost by Surface Type

Surface Type	Lane-kilometres	Average Age (years)[1]	Replacement Cost (2022$)
HCB	433.0	21.1	$330,300,000
LCB	59.8	10.2	$44,600,000
Gravel	71.1	46.3	$46,200,000
Total	**564.0**	**23.2**	**$421,100,000**

The Town has 16 vehicle bridges, 4 pedestrian bridges, 28 structural culverts (diameter ≥ 3m) and 20 non-structural culverts with an estimated combined replacement cost of $49.1 million. The average age of structures is 25.6 years. Table 2-2 shows counts, average ages, and replacement costs for structures. Figure 2-2 illustrates the data in Table 2-2 visually. Map 2-3 and Map 2-4 provide a spatial illustration of the Town's bridges and structural culverts.

[1] The age of roads was imputed from degradation curves based on the assessed condition.

Table 2-2: Structures – Summary of Count, Age, and Replacement Cost by Structure Type

Structure Type	Count	Average Age	Replacement Cost (2022$)
Vehicle Bridges	16	29.8	$19,800,000
Pedestrian Bridges	4	15.0	$1,500,000
Structural Culverts	28	16.5	$17,500,000
Non-structural Culverts	20	34.7	$10,300,000
Total	**68**	**25.6**	**$49,100,000**

Figure 2-1: Road Network Summary Information

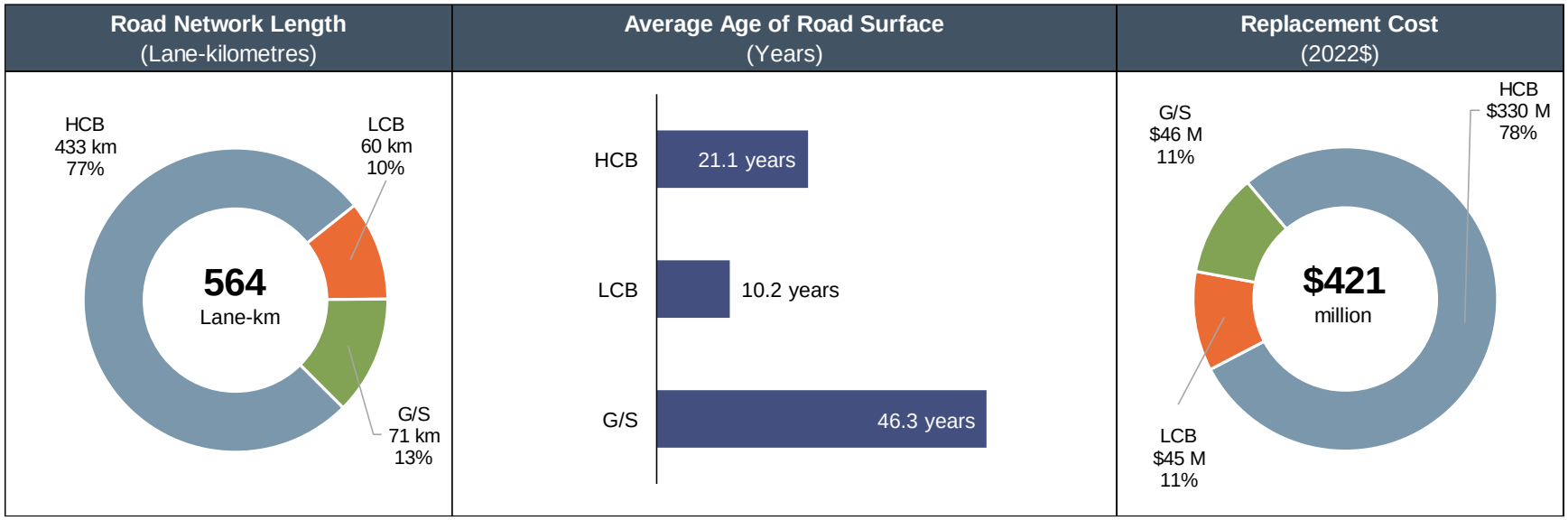
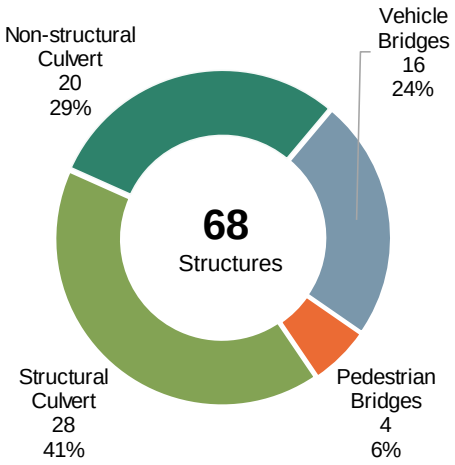
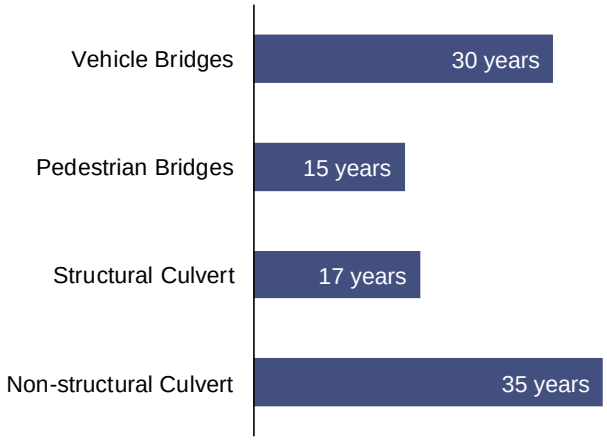
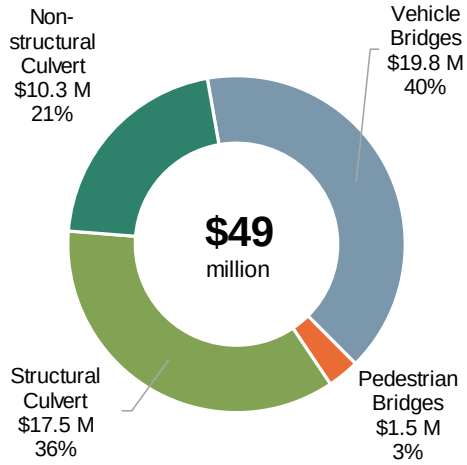
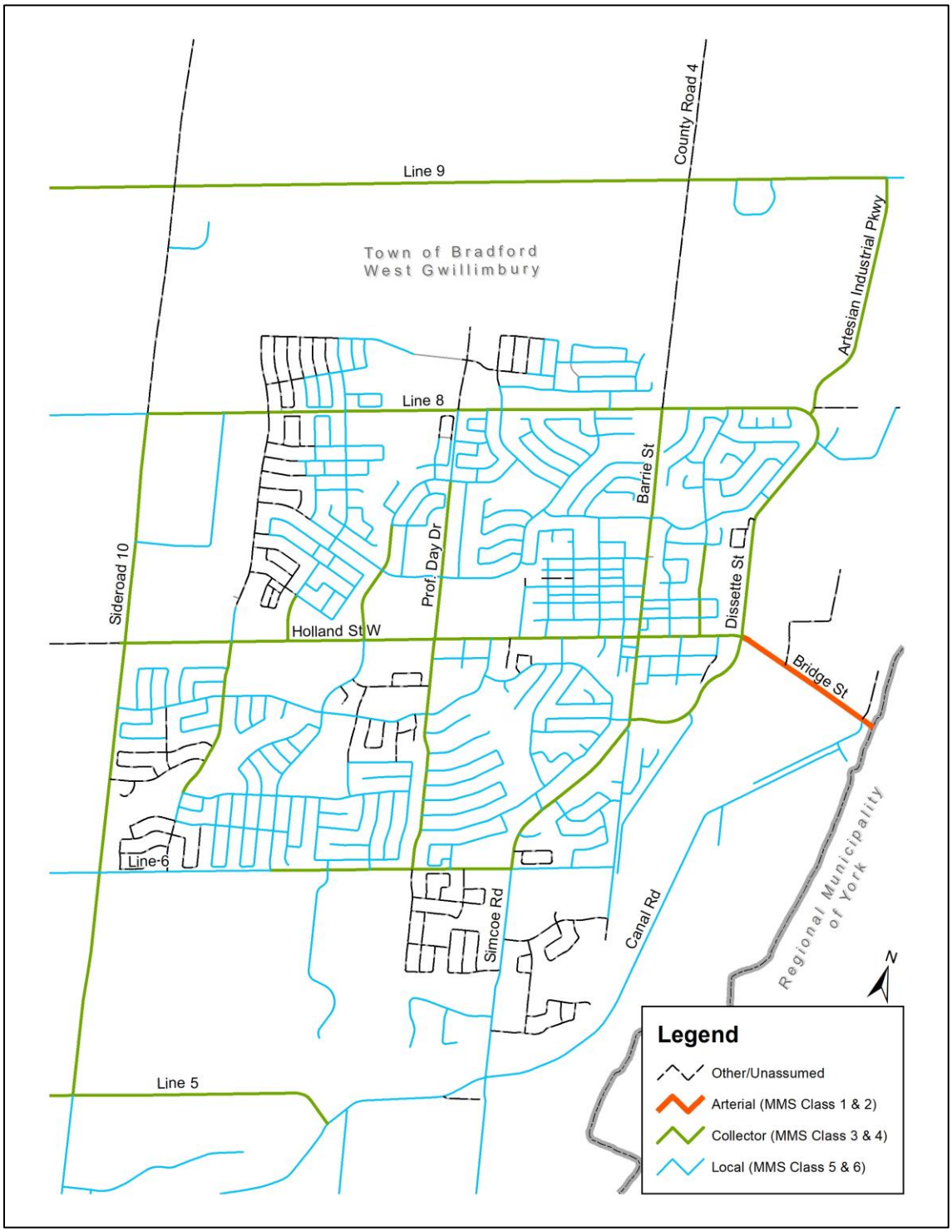


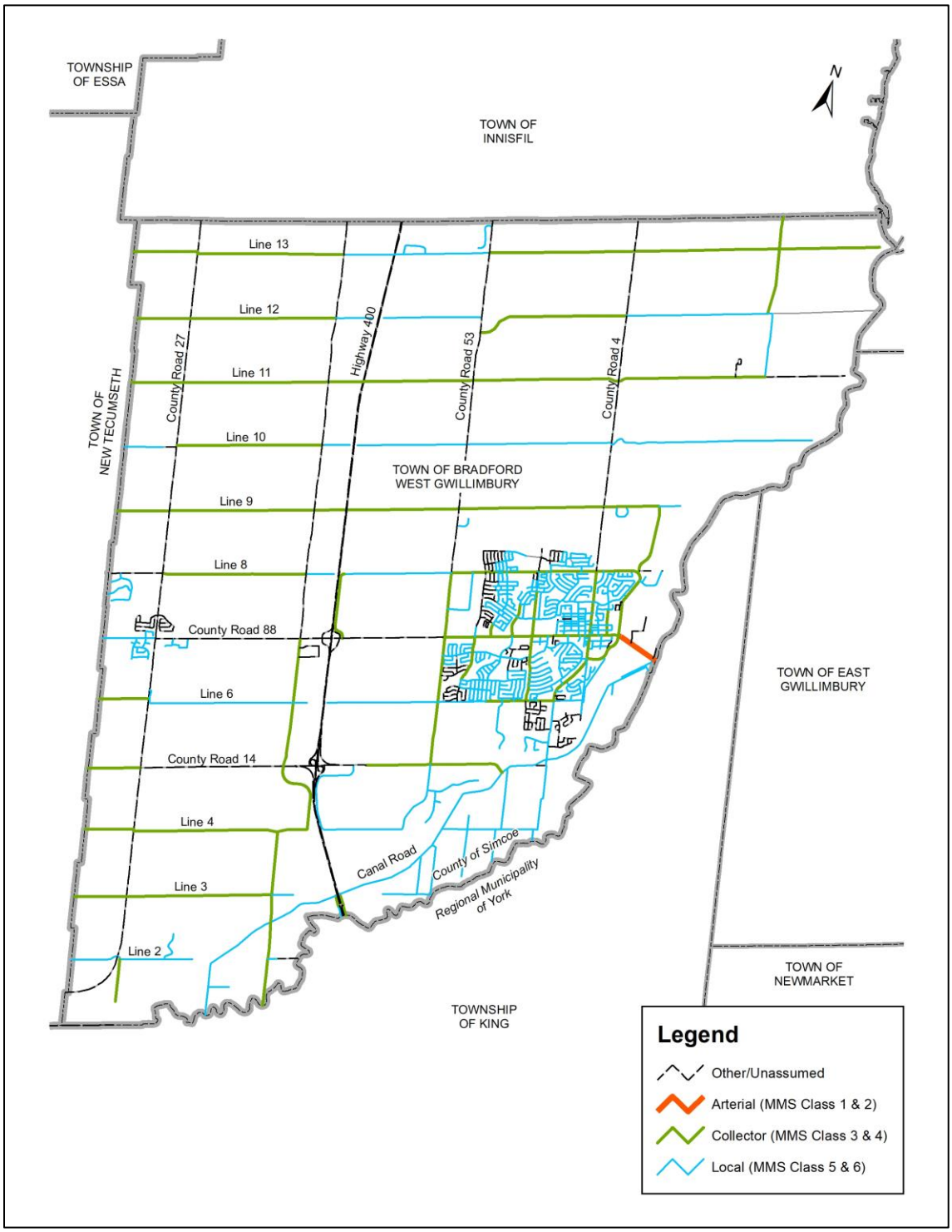
Figure 2-2: Bridge and Structural Culvert Summary Information

Number	Average Age (Years)	Replacement Cost (2022$)
		

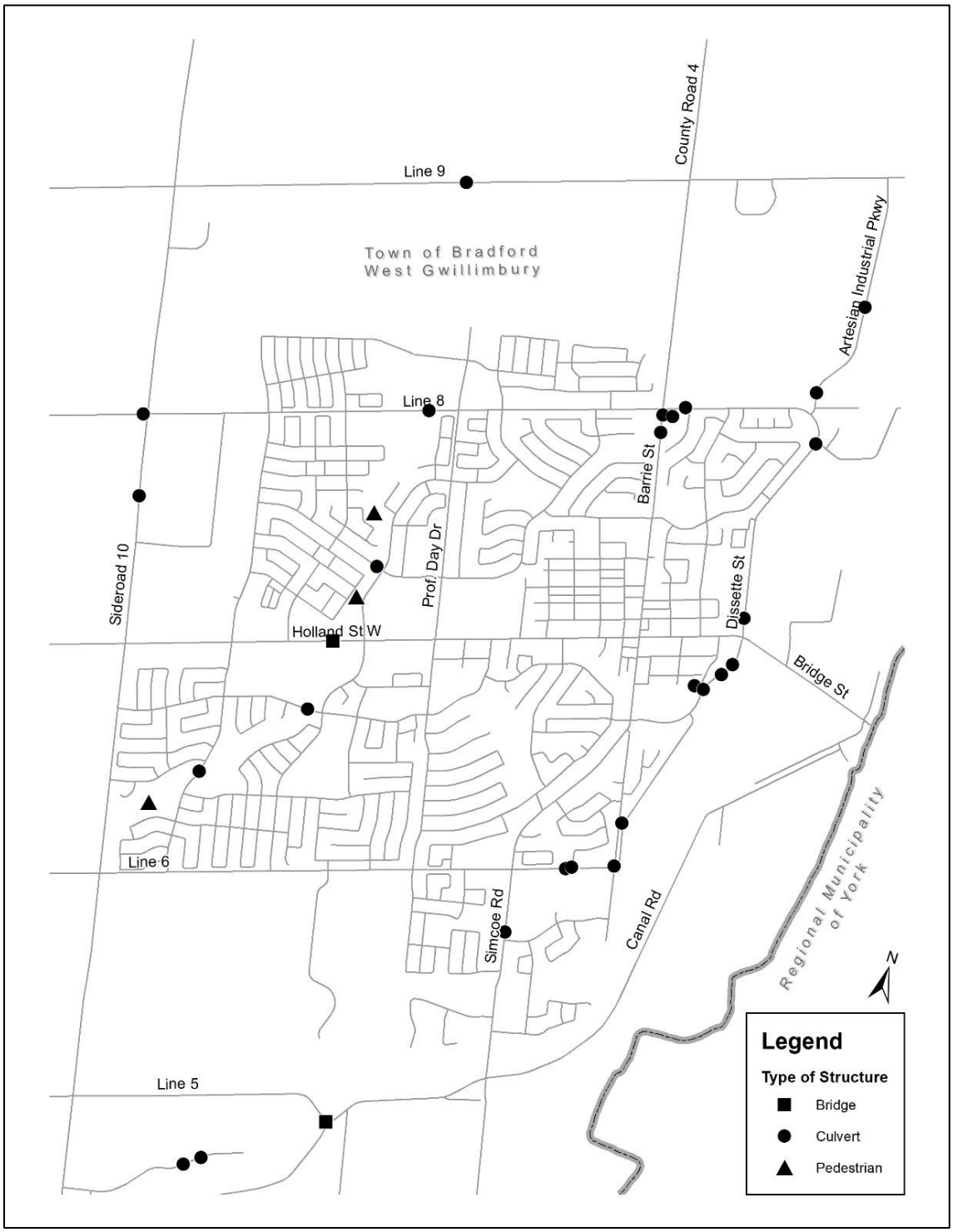
Map 2-1: Urban Roads by Road Class



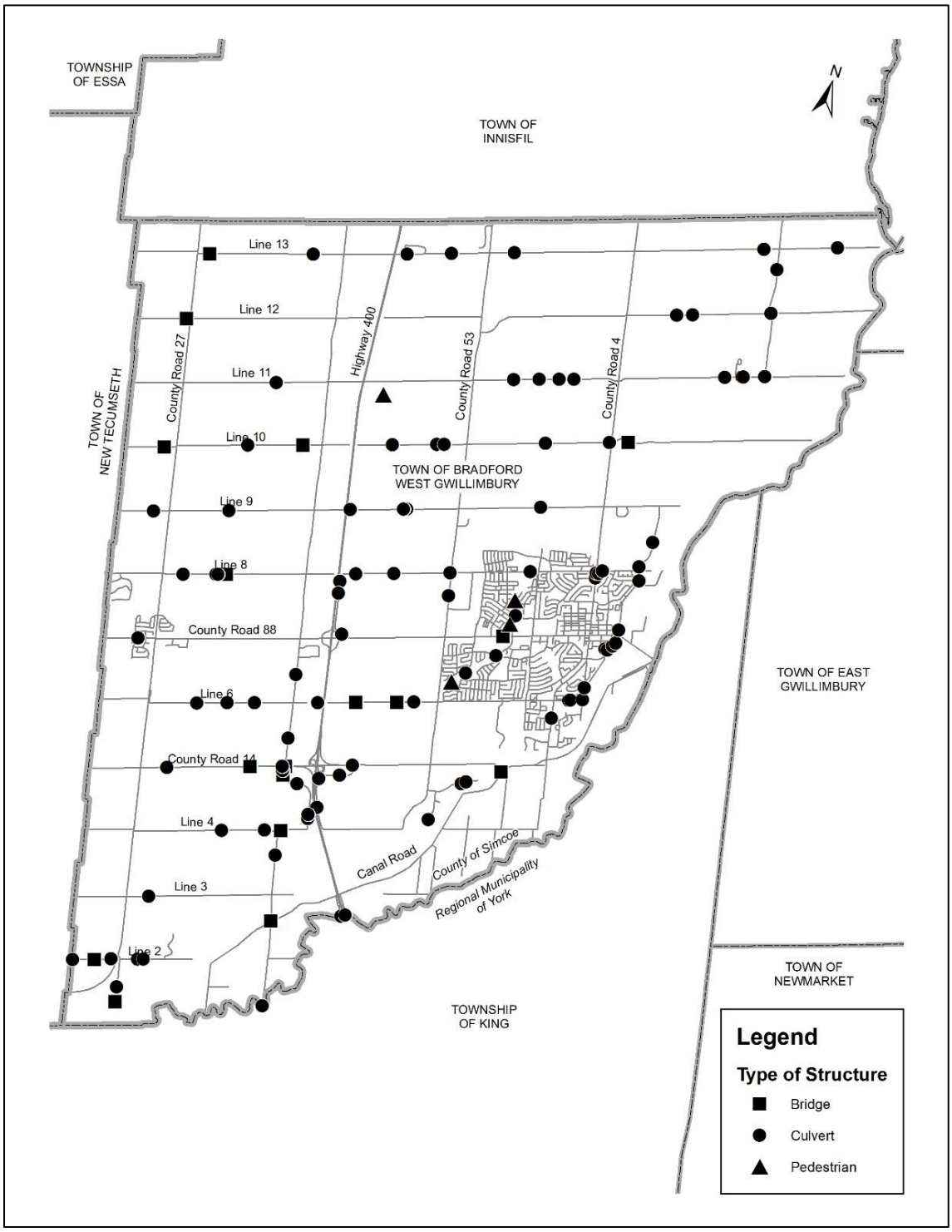
Map 2-2: Rural Roads by Road Class



Map 2-3: Urban Bridges and Structural Culverts



Map 2-4: Rural Bridges and Structural Culverts



2.2.2 Condition

The Town has the condition of its road network assessed by external consultants every three to five years. The most recent condition assessment was completed in 2020 by Stantec Consulting Inc. In this AMP, road condition is reported using the Physical Condition (PC) measure. PC is measured on a scale from 0 to 100, with 100 being an asset in as new condition and 0 being a failed asset. PC is defined to be 5 times the Structural Adequacy (SA) rating as defined in the Inventory Manual for Municipal Roads (Ontario Ministry of Transportation, 1991).

To better communicate the condition of the paved road network, the numeric condition ratings for roads have been segmented into qualitative condition states. Moreover, descriptions and photos of roads in these condition states are provided to better communicate the condition to the reader. Table 2-3 summarizes the various physical condition ratings and the condition state they represent for road assets.

Table 2-3: Road Condition States Defined with Respect to Physical Condition

PC Ranges	Condition State	Paved	Unpaved	Description[1]
95 < PC ≤ 100	**Very Good**			Surface distress < 5% of the section length
70 < PC ≤ 95	**Good**		No Photo Available	Surface distress 5% to 10% of the section length
55 < PC ≤ 70	**Fair**		No Photo Available	Surface distress 11% to 15% of the section length
35 < PC ≤ 55	**Poor**		No Photo Available	Surface distress 16% to 20% of the section length
0 ≤ PC ≤ 35	**Very Poor**			Surface distress > 20% of the section length

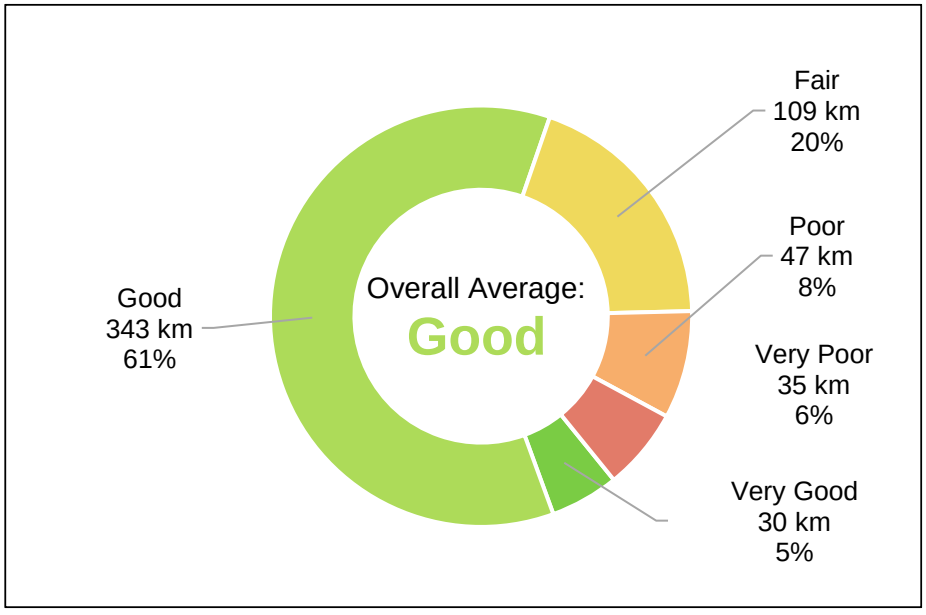
[1] Descriptions are from the "Town of Bradford West Gwillimbury – 2020 Roads Needs Study"

Table 2-4 shows the average condition of roads by surface type, weighted based on lane-kilometres. On average, all surface types are in the Good condition state. Figure 2-3 shows the overall distribution of paved roads by condition state.

Table 2-4: Road Condition Analysis – Paved Roads

Road Surface	Lane-kilometres	Physical Condition (Weighted Average)	Average Condition State
HCB	433.0	74	Good
LCB	59.8	77	Good
G/S	71.1	83	Good
Total	**564.0**	**76**	**Good**

Figure 2-3: Distribution of Road Lane-kilometres by Condition State



In accordance with O. Reg. 104/97, the Town completes biennial inspections of its bridges and structural culverts following the OSIM. The most recent inspections were completed by ART Engineering Inc. in 2021. Each bridge and structural culvert was assigned a Bridge Condition Index (BCI). The BCI is on a scale of 0 to 100, with 100 being an asset in as-new condition and 0 being a failed asset. Similar to the analysis

for roads described above, the numeric condition ratings for bridges and structural culverts have been segmented into qualitative condition states. Photographs and descriptions of these condition states are provided to better communicate the condition to the reader. Table 2-5 summarizes the BCI ratings and the condition state they represent.

Table 2-5: Examples and Descriptions of Bridge and Culvert Condition States

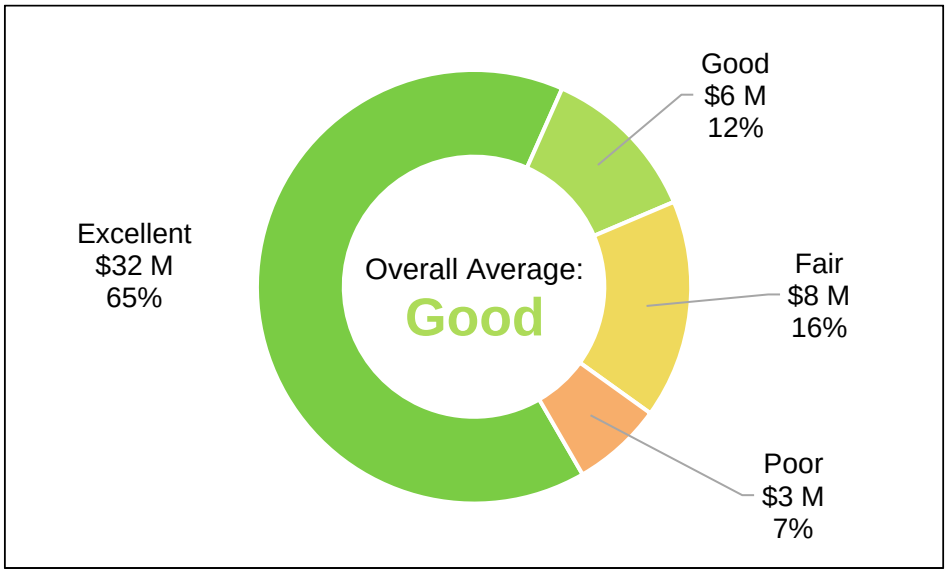
Condition State	Bridge Photos	Culvert Photos	Description
Excellent 80 ≤ BCI ≤ 100			Maintenance is not usually required within the next five years.
Good 70 ≤ BCI < 80			
Fair 60 ≤ BCI < 70			Maintenance work is usually scheduled within the next five years. This is the ideal time to schedule major bridge repairs to get the most out of bridge spending.
Poor 0 ≤ BCI < 60			Maintenance work is usually scheduled within one year. Structure may be at increased risk of requiring a loading restriction to be posted.

The average BCI ratings and corresponding condition states for bridges and culverts are summarized in Table 2-6 below. On average, vehicle bridges and structural culverts are each in the Excellent condition state. Pedestrian bridges and non-structural culverts are each in the Good condition state. Approximately 7% of bridges and culverts are currently in the Poor condition state. The overall distribution of the Town's bridges and structural culverts by condition state is presented in Figure 2-4.

Table 2-6: Bridges and Culverts Condition Analysis

Structure Type	Count	Average Condition	Average Condition State
Vehicle Bridges	16	82.0	Excellent
Pedestrian Bridges	4	78.1	Good
Structural Culverts	28	89.3	Excellent
Non-structural Culverts	20	76.6	Good
Total	**68**	**83.4**	**Excellent**

Figure 2-4: Distribution of Structure Replacement Cost by Condition State



2.2.3 Current Levels of Service

The levels of service currently provided by the Town's transportation system are, in part, a result of the state of local infrastructure identified above. The levels of service framework defines the current levels of service that will be tracked over time. In future iterations of the asset management plan, targets will be set for the technical levels of service.

There are prescribed levels of service reporting requirements under O. Reg. 588/17 for some transportation assets (i.e., roads, bridges and culverts). Table 2-7 and Table 2-8 include the prescribed technical levels of service along with additional levels of service

developed by the Town. The levels of service measures were developed through identification of service aspects that are of interest to the users of transportation assets.

The tables are structured as follows:

- The Service Attribute headings and columns indicate the high-level attribute being addressed;
- The Community Levels of Service column in Table 2-7 explains the Town's intent in plain language and provides additional information about the service being provided;
- The Performance Measure column in Table 2-8 describes the performance measure(s) connected to the identified service attribute; and
- The 2020 Performance column in Table 2-8 reports current performance for the performance measure.

Table 2-7: Community Levels of Service – Roads and Bridges & Culverts

Service Attribute	Community Levels of Service
Scope	The Town's transportation assets enable the movement of people and goods within the Town and provide connectivity to regional roads. In addition to passenger vehicles, the Town's transportation assets also support public transit, commercial truck traffic, movement of agricultural equipment, and reliable emergency vehicle access to all areas of the Town. The broader transportation network also supports other transportation modes such as walking and cycling.
	The scope of the Town's transportation network is illustrated by Map 2-1, Map 2-2, Map 2-3, and Map 2-4. The maps show the geographical distribution of municipal roads and identify locations of the Town's bridges & culverts.
Quality	The Town strives to maintain road and bridge surfaces to a level that supports comfortable passage of vehicles.
	To aid in interpreting condition states, photos of roads, bridges, and culverts in different condition states are shown in Table 2-3 and Table 2-5. A general description of how each condition state may affect the use of these assets is also provided in these tables.
Safety	The Town strives to keep water off of travel surfaces.
Efficiency	The Town endeavours to make travel times predictable.

Table 2-8: Technical Levels of Service – Roads and Bridges & Culverts

Service Attribute	Performance Measure	2020 Performance
Scope	Number of lane-kilometres of arterial roads as a proportion of square kilometres of land area of the municipality.	0.024 km/km²
	Number of lane-kilometres of collector roads as a proportion of square kilometres of land area of the Town.	1.15 km/km²
	Number of lane-kilometres of local roads as a proportion of square kilometres of land area of the Town.	1.63 km/km²
	Percentage of bridges in the Town with loading or dimensional restrictions.	5%
Quality	For paved roads in the Town, the average[1] pavement condition index[2] value.	75
	Lane-kilometres of paved roads in a condition state of Poor or worse (physical condition < 55).	54.7 lane-km
	For unpaved roads in the Town, the average surface condition.	83
	Lane-kilometres of unpaved roads in a condition state of Poor or worse (physical condition < 55).	0.48 lane-km
	For bridges in the Town, the average bridge condition index value.	81.7
	Number of bridges in the Poor condition state (BCI < 60)	1
	For structural culverts[3] in the Town, the average bridge condition index value.	89.3
	Number of structural culverts in the Poor condition state (BCI < 60)	2
Safety	Percentage of snow clearing completed within minimum maintenance regulation response requirements.	100%
	Average response time in days to repair potholes	3 days
	Number of Minimum Maintenance Standard (MMS) issues identified for sidewalks and curbs (and % addressed within MMS required timelines)	180 (58%)

Service Attribute	Performance Measure	2020 Performance
Efficiency	Number of unplanned lane or road closures that cause increased congestion per year on urban roads.	To Be Determined
	Number of unplanned lane or road closures that cause increased congestion per year on rural roads.	1

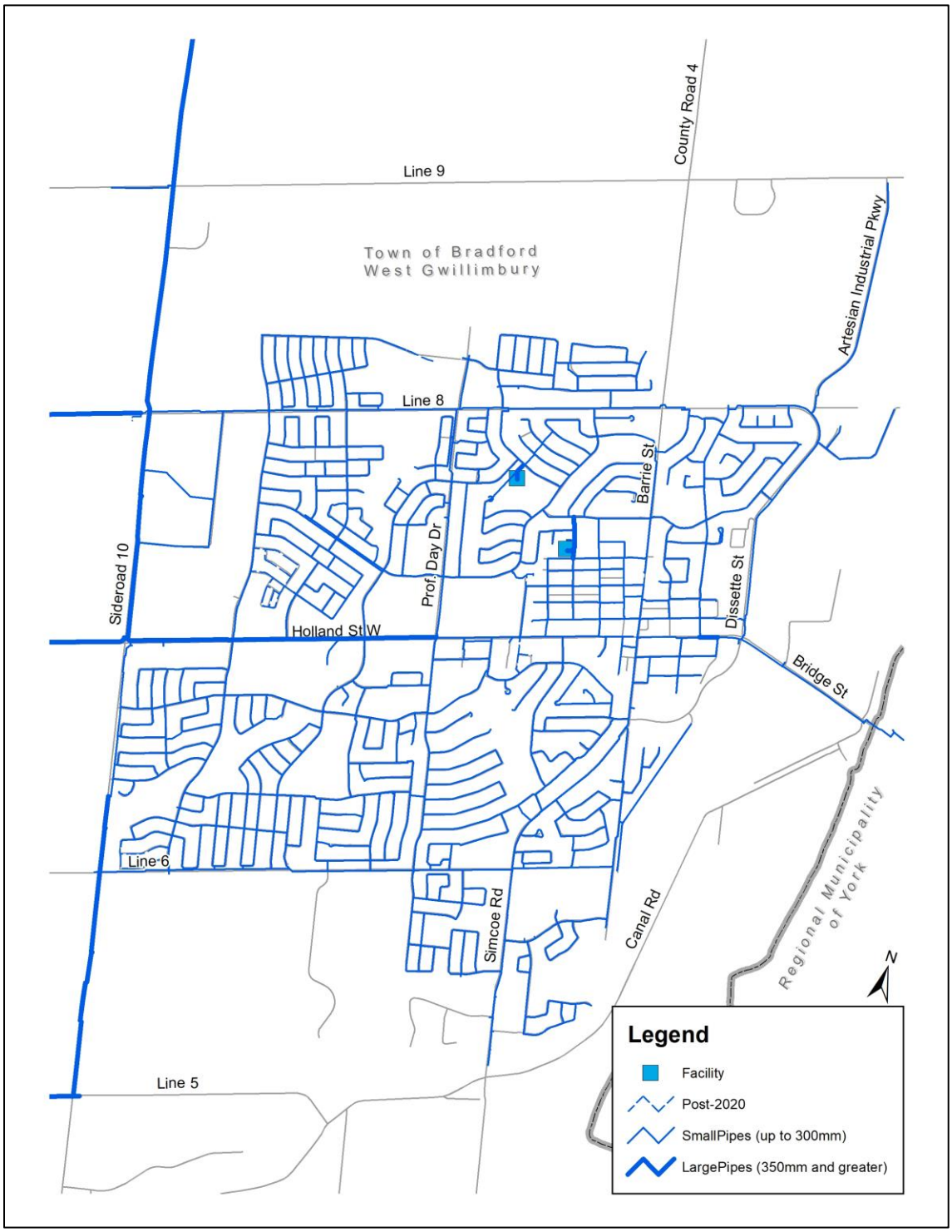
2.3 Water

2.3.1 State of Local Infrastructure

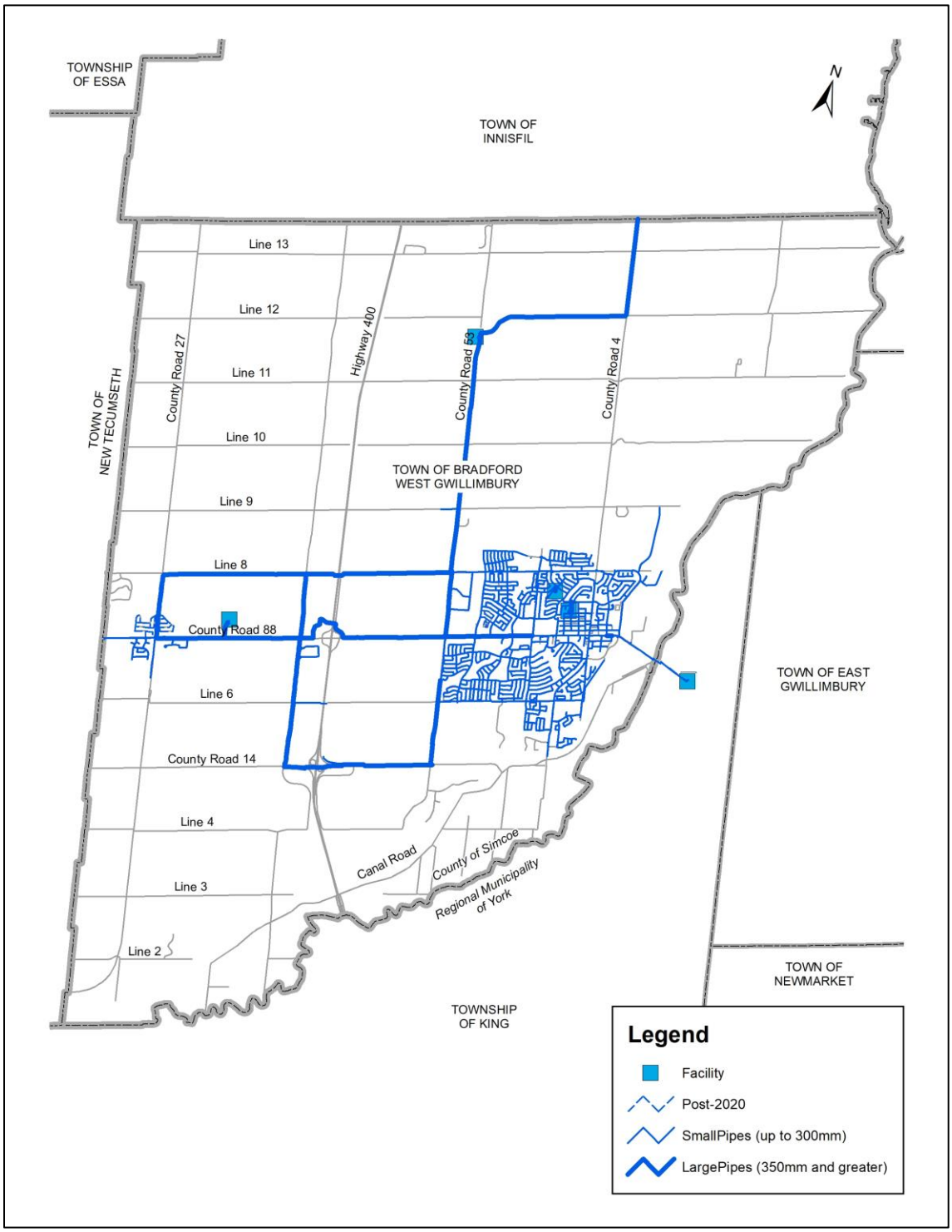
The Town's water system serves residential, business, and institutional customers in the Bradford Urban Area, Bond Head Settlement Area and Hwy 400 Employment Area as shown in Map 2-5 and Map 2-6.

[1] Weighted average, based on lane-kilometres.
[2] For compliance with O. Reg. 588/17, the physical condition measure is being reported as the pavement condition index.
[3] Structural culverts are culverts with a diameter greater than or equal to three metres.

Map 2-5: Urban Water Mains by Main Size



Map 2-6: Rural Water Mains by Main Size



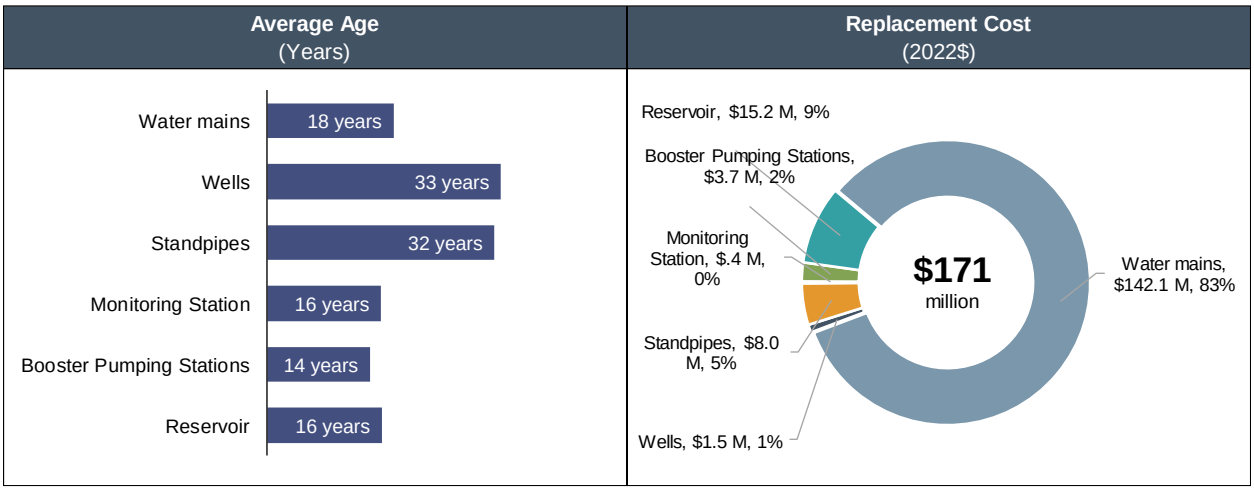
The water system uses both surface and ground water sources. The ground water is drawn from two wells owned by the Town. The Town purchases treated surface water from the Town of Innisfil that is produced at the Innisfil Lake Simcoe Water Filtration Plant. The distribution system consists of approximately 180.4 km of mains, a reservoir, two standpipes, a booster pumping station, and a monitoring station. The current replacement cost of the system is approximately $171 million. Table 2-9 provides a summary of the assets with quantity, average age, and replacement cost. A visual rendering of the data presented in Table 2-9 is provided in Figure 2-5.

Table 2-9: Water System – Summary of Quantities, Age, and Replacement Cost by Asset Type

Asset Type	Quantity	Units	Average Age (years)	Replacement Cost (2022$)
Water Mains[1]	180.4	Metres	18	$142,080,000
Wells	2	Number	33	$1,530,000
Standpipes	2	Number	32	$8,030,000
Monitoring Station	1	Number	16	$380,000
Booster Pumping Station	1	Number	14	$3,650,000
Reservoir	1	Number	16	$15,210,000
Total			**18**	**$170,880,000**

[1] Includes appurtenances such as hydrants and valves.

Figure 2-5: Water System Summary Information



2.3.2 Condition

The condition of the Town's water mains has not been directly assessed through a physical condition assessment. For the purposes of this asset management plan, water main age has been used as a proxy for the condition state. The measure used is the Useful Life Consumption Percentage (ULC%) based on each water main's age and the average life expectancy for the water main, based on industry best practices and discussions with the Town's staff. A brand-new water main would have a ULC% of 0%, indicating that zero percent of the water main's life expectancy has been utilized. On the other hand, a water main that has reached its life expectancy would have a ULC% of 100%. It is possible for water mains to have a ULC% greater than 100%, which occurs if a water main 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 water mains that are near or beyond their typical life expectancy are expected to require replacement in the near term.

To better communicate the condition of the network, the ULC% ratings have been segmented into qualitative condition states as summarized in Table 2-10. The scale is designed such that if water mains are replaced around the expected useful life, they would have a rating of Fair at time of replacement.[1] The rating of Fair extends to 140% of expected useful life. Beyond 140% of useful life, the probability of failure is assumed

[1] Scale is based on guidance in the International Infrastructure Management Manual (Institute of Public Works Engineering Australasia, 2015).

to have increased to a point where performance would be characterized as Poor and eventually Very Poor.

Table 2-10: Water Main Condition States Defined with Respect to ULC%

ULC%	Condition State
0% ≤ ULC% ≤ 45%	**Very Good**
45% < ULC% ≤ 90%	**Good**
90% < ULC% ≤ 140%	**Fair**
140% < ULC% ≤ 200%	**Poor**
200% < ULC%	**Very Poor**

The average ULC% for water mains is 20%. This translates to an average condition state of Very Good.

The condition of the Town's water facilities was assessed by GM BluePlan in 2021. Condition was assessed by completing visual reviews of readily available and visible assets. Condition was assessed on a 5-point scale, documented in the Town's 2021 Water Supply and Transmission System SOGR Report. The descriptions are reproduced in Table 2-11.

Table 2-11: Condition Rating Descriptions[1]

Score	Category	Physical Condition Rating	Description of Performance
1	Very Good	New or recently rehabilitated infrastructure.	No performance concerns observed; asset generally performs effectively and efficiently; asset performance in accordance with manufacturer specifications or design capacity.
2	Good	Infrastructure is in the early stage of its useful life. Acceptable condition with some deterioration. May require some minor maintenance.	None/few performance concerns observed, but service provided by asset meets intended use; asset performance has moderately deteriorated from manufacturer specifications or design capacity.

[1] Source: page 13 of the Town's 2021 Water Supply and Transmission System SOGR Report

Score	Category	Physical Condition Rating	Description of Performance
3	Fair	Infrastructure in the mid-stage of useful life. Signs of deterioration. May require immediate maintenance.	Some performance concerns observed, but service provided by asset generally meets intended use; asset performance has moderately deteriorated from manufacturer specifications or design capacity.
4	Poor	Infrastructure in later stage of useful life. Signs of significant deterioration. May require on-going monitoring and major maintenance or rehabilitation.	Significant performance concerns observed; asset does not provide its intended use; asset performance has significantly deteriorated from manufacturer specifications or design capacity.
5	Very Poor	Infrastructure end-stage of useful life. Signs of major deterioration. Condition may be critical. May require extensive monitoring, rehabilitation and/or replacement.	Major performance concerns observed; asset does not provide its intended use; asset performance has significantly deteriorated from manufacturer specifications or design capacity.

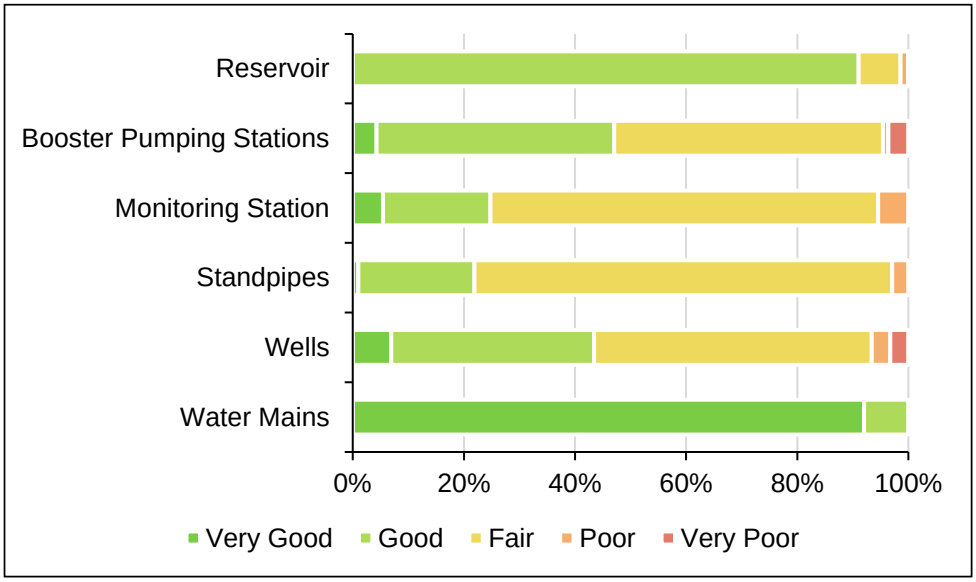
On average, the Town's water facilities are in the Good condition state. Table 2-12 shows the average condition rating of each asset class and the corresponding condition state.

Table 2-12: Water Facilities Condition

Asset Class	Number	Replacement Cost	Average Condition	Condition State
Wells	2	$1,530,000	2.60	Fair
Standpipes	2	$8,030,000	2.80	Fair
Monitoring Station	1	$380,000	2.75	Fair
Booster Pumping Station	1	$3,650,000	2.57	Fair
Reservoir	1	$15,210,000	2.10	Good
Total	**37**	**$28,800,000**	**2.39**	**Good**

While the water system asset classes are on average in the Very Good, Good, or Fair condition states, a small percentage of components were assessed as being in the Poor and Very Poor condition states. Figure 2-6 shows the distribution of replacement costs of the water system assets by condition state for water distribution and facilities.

Figure 2-6: Distribution of Replacement Costs of Water Assets by Condition State



2.3.3 Current Levels of Service

The levels of service currently provided by the Town's water system are, in part, a result of the state of local infrastructure identified above. The levels of service framework defines the current levels of service that will be tracked over time. In future iterations of the asset management plan, targets will be set for the technical levels of service.

Table 2-13 and Table 2-14 present the current levels of service for the water system. They include the requirements mandated by O. Reg. 588/17 and additional performance measures of interest to the Town.

Table 2-13: Community Levels of Service – Water Assets

Service Attribute	Community Levels of Service
Scope	The water system provides potable water to the Bradford Urban Area, Bond Head Settlement Area and Hwy 400 Employment Area. Potable water is provided for residential and business consumption, as well as for recreational uses and maintenance operations.
	The water system provides fire flows in the Bradford Urban Area, Bond Head Settlement Area and Hwy 400 Employment Area for fire protection.
	The scope of the Town's water system is illustrated by Map 2-5 and Map 2-6. The map shows the geographical distribution of municipal water mains and facilities within the service area.
Reliability	The water system is managed with the goal of providing a safe and reliable water supply, minimizing service interruptions and occurrences of adverse water quality events (measured by occurrences of boil water advisories).
Quality	The water system supplies potable water with acceptable odor, taste, and appearance.
Capacity	The Town balances customer water demands with environmental and system capacity constraints.
Responsive-ness	The Town is responsive to issues identified by water customers.
Cost	The Town strives to deliver service at an affordable cost to customers.
Efficiency	The Town strives to minimize water loss in the distribution system.

Table 2-14: Technical Levels of Service – Water

Service Attribute	Performance Measure	2020 Performance
Scope	Percentage of properties connected to the municipal water system.	79.6%
	Percentage of properties where fire flow is available.	85.5%
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 municipal water system.	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 municipal water system.	0.58 connection-days / connection
Quality	Number of water colour complaints (per connection).	13 (0.0012)
	Number of water taste and odour complaints (per connection).	11 (0.0010)
	Number of water pressure complaints (per connection).	1 (0.0001)
	Percentage of water mains swabbed	0%
	Percentage of water mains flushed	100%
Capacity	Number of days with level zero[1] water use restrictions	122
	Number of days with level one water use restrictions	42
	Number of days with level two water use restrictions	0

[1] Water use restriction levels defined in By-law 2014-17 Lawn Watering By-law.

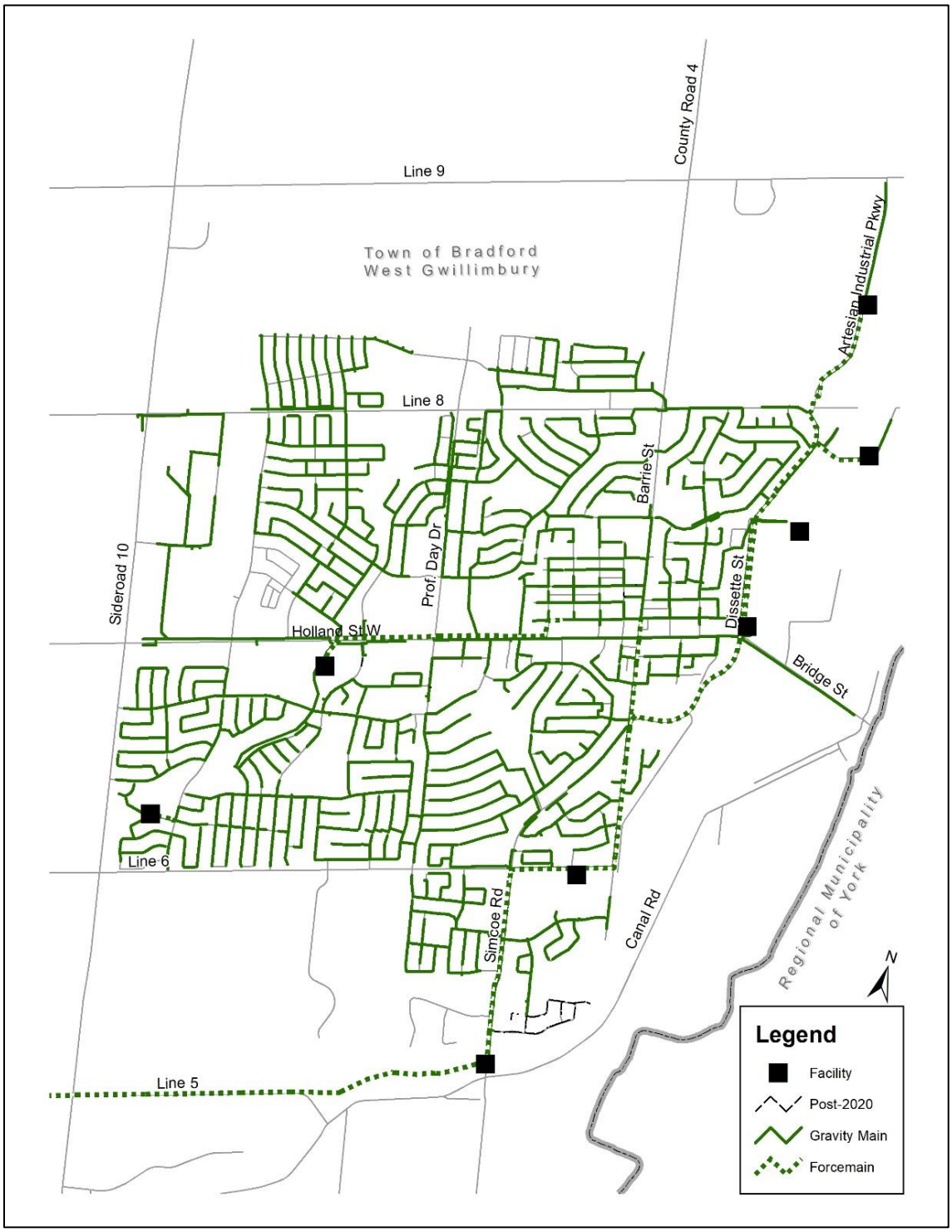
Service Attribute	Performance Measure	2020 Performance
Responsive-ness	Average time in hours to fix minor main break (number of minor breaks).	Not Applicable (0 breaks)
	Average time in hours to fix major main break (number of major breaks).	14 hours (1 break)
	Average time in days to initial response to customer complaints.	1
	Average time in days to complete corrective measures resulting from customer complaints where issue can be addressed within a one-month timeframe.	2
Costs	Operating cost per megalitre of water produced.	To be determined
	Operating cost per megalitre of water delivered to customers.	To be determined
Efficiency	Water loss as a percentage of total water distributed	9.3%

2.4 Wastewater

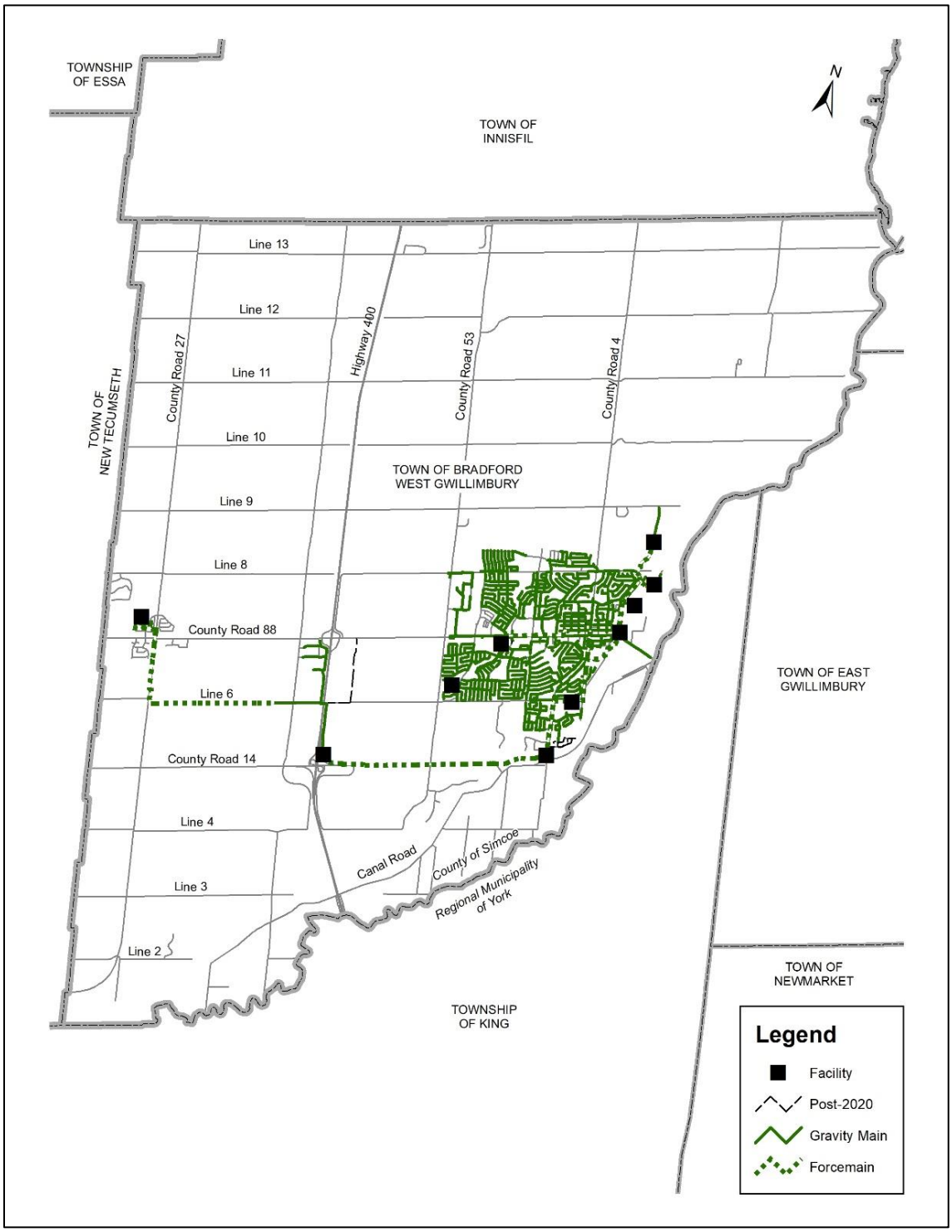
2.4.1 State of Local Infrastructure

The Town's wastewater system serves residential, business, and institutional customers in the Bradford Urban Area, Bond Head Settlement Area and Hwy 400 Employment Area as shown in Map 2-7 and Map 2-8.

Map 2-7: Urban Wastewater Mains and Facilities



Map 2-8: Rural Wastewater Mains and Facilities

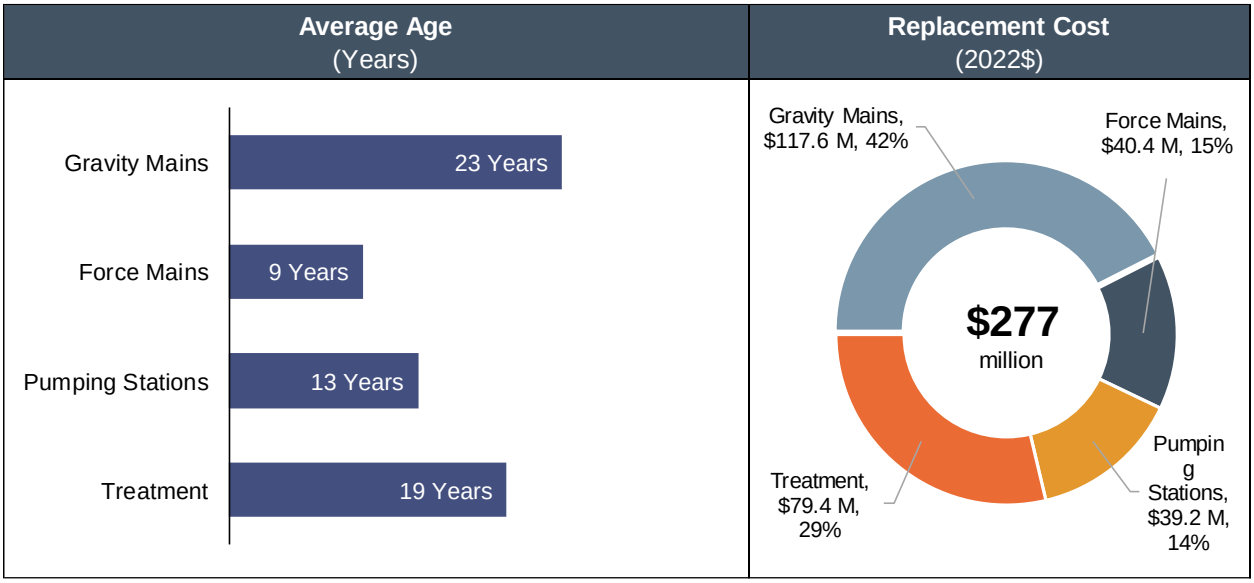


The wastewater collection system consists of 125.4 km of gravity mains, 35.7 km of force mains, and eight pumping stations. The water pollution control plant provides tertiary treatment of wastewater, discharging into the West Holland River. The current replacement cost of the system is approximately $276.7 million. Table 2-9 provides a summary of the assets with quantity, average age, and replacement cost. A visual rendering of the data presented in Table 2-15 is provided in Figure 2-7.

Table 2-15: Wastewater System – Summary of Quantities, Age, and Replacement Cost by Asset Type

Asset Type	Quantity	Units	Average Age (years)	Replacement Cost (2021$)
Gravity Mains	125.4	Kilometres	23	$117,640,000
Force mains	35.7	Kilometres	9	$40,400,000
Pumping Stations	8	Count	13	$39,240,000
Water Pollution Control Plant	1	Count	19	$79,420,000
Total			**18**	**$276,700,000**

Figure 2-7: Wastewater System Summary Information



2.4.2 Condition

The condition of the Town's wastewater mains and pumping stations has not been directly assessed through a physical condition assessment. The approach of using ULC% as a proxy for condition described in section 2.3.2 for water mains will be used for these wastewater assets. The details for the qualitative condition states are shown in Table 2-10 in section 2.3.2. Table 2-16 shows the average ULC% of each asset class and the associated condition state. The average ULC% is 27% for gravity mains, 10% for force mains, and 43% for pumping stations. The ULC% translates to an average condition state of Very Good in all three cases.

Table 2-16: Wastewater Mains, and Pumping Stations Condition Analysis

Asset Class	Quantity	Units	Average ULC%	Average Condition State
Gravity Main	125.4	Kilometres	27%	Very Good
Force Main	35.7	Kilometres	10%	Very Good
Pumping Stations	8	Number	43%	Very Good
Total			**27%**	**Very Good**

The condition of the Town's water pollution control plant was assessed by Ainley & Associates Limited in 2020. Condition was assessed primarily based on a visual inspection of various plant components. Condition was assessed on a 5-point scale, documented in the Town's 2020 Wastewater SOGR Report. The descriptions are reproduced in Table 2-17.

Table 2-17: Water Pollution Control Plant Condition Rating System

Score	Condition	Soundness (Physical Condition)	Performance / Functionality	Maintenance Requirements / Risk of Failure	Age
1	Very Good	Sound	Operating as intended. Operable & well maintained. Asset expected to perform adequately with routine maintenance.	Limited deterioration on systems. To perform adequately with routine maintenance for at least another 80% of the life cycle.	New – 90% estimated useful life remaining
2	Good	Sound	Operating as intended, shows minor wear that has minimal impact on performance.	Acceptable minor work (if any) required. Minimum short-term failure risk.	Mid-Range of Expected Life – 70% estimated useful life remaining
3	Fair	Signs of deterioration. Functionally sound but showing wear.	Operational performance lower than intended.	Exceeding acceptable levels. Renewal or major component replacement expected within next 5yrs. Moderate short-term failure risk.	Later Stage of Expected Life – 50% estimated useful life remaining
4	Poor	Signs of deterioration evident.	Operational performance much lower than intended.	Significantly above normal levels. Substantial work required; asset barely serviceable. High risk of short-term failure	Approaching End of Expected Life – 20% estimated useful life remaining
5	Critical	Unsound. Asset failed or failure is imminent.	Not performing as intended. Significant health and safety hazard.	Costs unacceptable & rehabilitation not cost effective. Excessive maintenance required and no further service life expectancy.	Past End of Life – less than 10% estimated useful life remaining

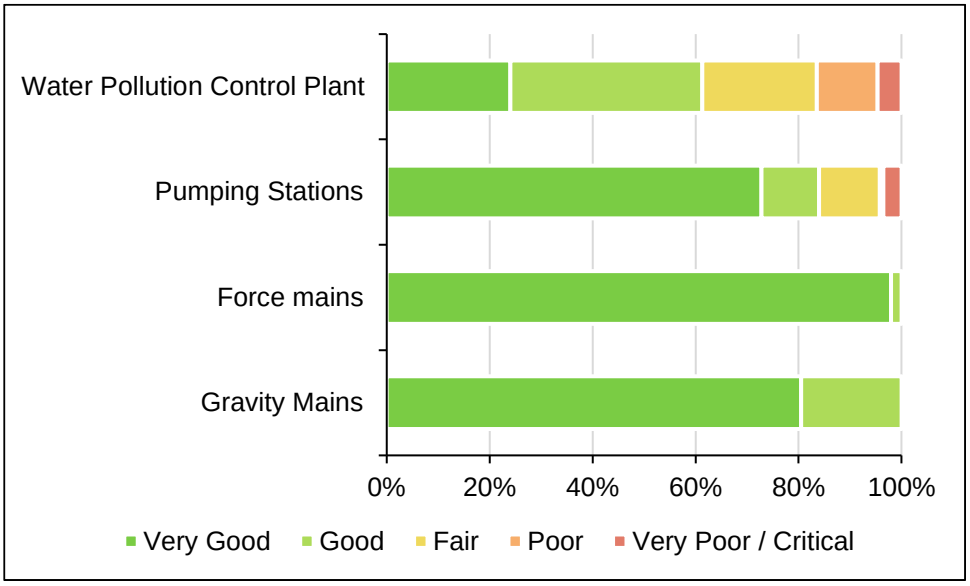
On average, the Town's Water Pollution Control Plant is in the Good condition state. Table 2-18 shows the average condition of each process level in the Wastewater Pollution Control Plant numerically and the associated condition state.

Table 2-18: Water Pollution Control Plant Condition by Process Level

Process Level	Replacement Cost	Average Condition Score	Average Condition State
Site Works, Yard Piping, Ducts, and Conduits	$11,820,000	2.32	Good
Raw Sewage Pumping Station (Raw Sewage Building)	$3,090,000	1.74	Good
Septage Receiving Station	$200,000	1.31	Very Good
Headworks	$7,290,000	1.9	Good
Secondary Treatment System - Plant B	$8,430,000	3.46	Fair
Secondary Treatment System - Plant C	$3,560,000	3.93	Poor
Secondary Treatment System - Plant D	$15,780,000	1.86	Good
Chemical Phosphorus Removal System	$2,470,000	3.23	Fair
Tertiary Filter and Disinfection System Building (1997)	$4,880,000	2.62	Fair
Tertiary Filter and Disinfection System Building (2008)	$4,650,000	1.82	Good
Sludge Management System	$17,240,000	2.24	Good
Total	**$79,420,000**	**2.36**	**Good**

The weighted average condition state for all wastewater assets is Good. Figure 2-8 shows the distribution of asset replacement cost by condition state for wastewater collection and facilities. Ninety-five percent of asset replacement cost is associated with assets that are in the Very Good, Good, or Fair condition states. Of the remaining 5% of asset replacement cost, 3% is associated with assets in the Poor condition state and 2% is associated with assets in the Critical condition state.

Figure 2-8: Distribution of Replacement Costs of Wastewater Assets by Condition State



Of the 14.7 million of replacement cost associated with components in Poor and Critical condition states, $13.1 million is associated with components of the water pollution control plant. The remaining $1.6 million of replacement cost associated with assets in Poor and very Poor Condition States is related to pumping stations.

2.4.3 Current Levels of Service

The levels of service currently provided by the Town's wastewater system are, in part, a result of the state of local infrastructure identified above. The levels of service framework defines the current levels of service that will be tracked over time. In future iterations of the asset management plan, targets will be set for the technical levels of service.

Table 2-19 and Table 2-20 present the current levels of service for the wastewater system. They include the requirements mandated by O. Reg. 588/17 and additional performance measures of interest to the Town.

Table 2-19: Community Levels of Service – Wastewater

Service Attribute	Community Levels of Service
Scope	The Wastewater system serves residential, business, and institutional customers in the Bradford Urban Area, Bond Head Settlement Area and Hwy 400 Employment Area.
	The scope of the Town's wastewater system is illustrated by Map 2-7 and Map 2-8. The maps show the geographical distribution of municipal wastewater mains within the service areas.
Reliability	The wastewater system is managed with the goal of providing reliable wastewater services. For example, the Town seeks to minimize wastewater backups.
	The Town's wastewater and stormwater collection systems are nominally separate, meaning that sanitary and stormwater flows are carried in different pipes with different destinations, however stormwater inflows and infiltrates into the sanitary system from numerous sources.
	The Town's Wastewater Treatment Plant discharges effluent into the West Holland River. Municipal staff put forth all efforts to operate the plant at maximum removal efficiencies and within the rated capacity of the facility. The final effluent design objectives are identified in the facility's Environmental Compliance Approval (9725-8W4QSG).
Quality	The Town ensures that new infrastructure is installed correctly and functioning as intended. As an example, the Town inspects wastewater mains in subdivisions using CCTV to identify potential issues prior to assuming the assets.
	The Town minimizes odours from the wastewater system by maintaining assets properly and designing systems to minimize odours.
Capacity	The capacity of the wastewater system meets the needs of users. The Town monitors usage and plans for future needs to ensure that development will not be limited by the capacity of the wastewater system.
Stakeholder Engagement	The Town engages the public to ensure that the wastewater system is not misused. For example, the Town supports the "I don't flush" campaign that educates users about things that should not be disposed of through the wastewater system.

Table 2-20: Technical Levels of Service – Wastewater

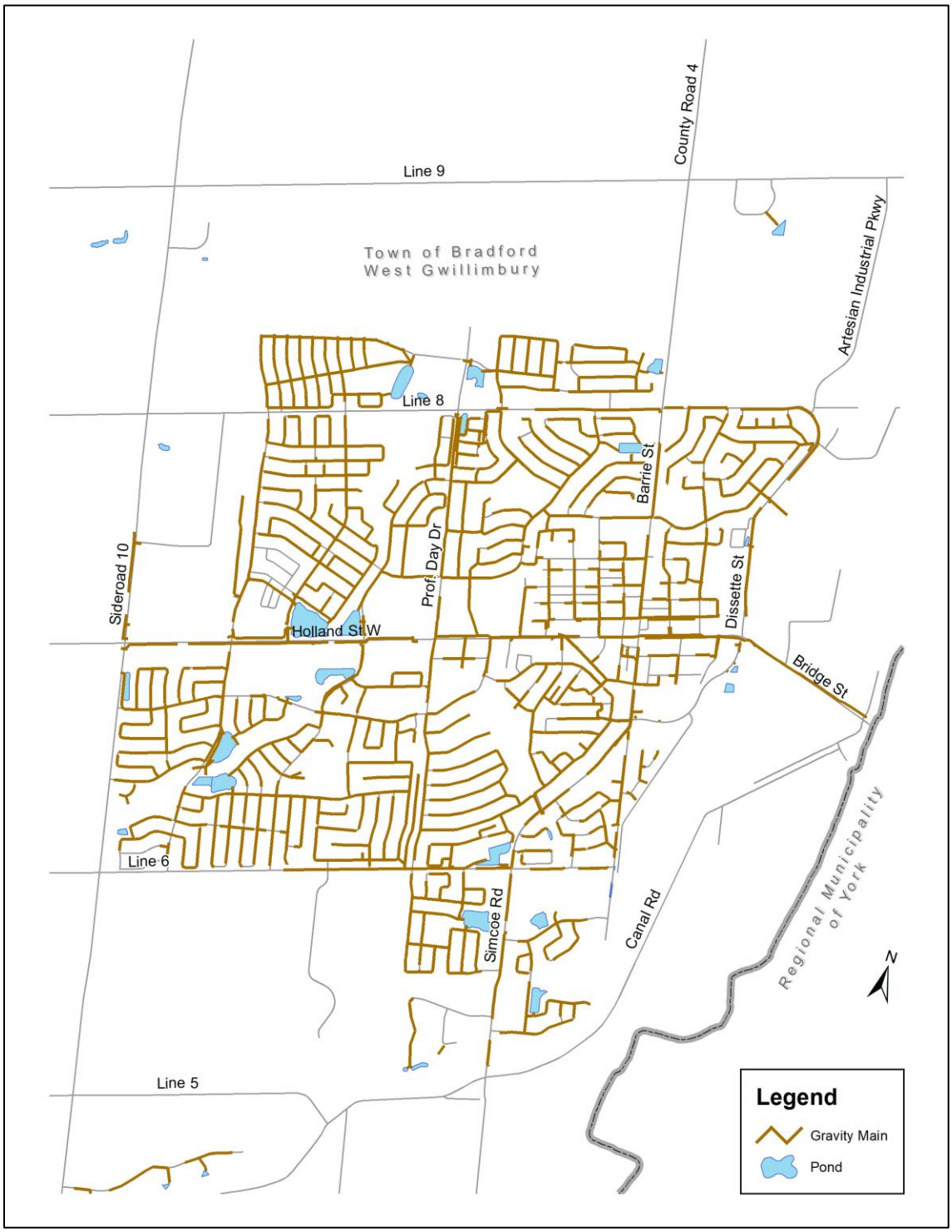
Service Attribute	Performance Measure	2020 Performance
Scope	Percentage of properties connected to the municipal wastewater system	77.5%
	Percentage of properties connected or with the potential to connect to the municipal wastewater system	To Be Determined
Reliability	The number of connection-days lost per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system	0.00019 connection-days / connection
	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	0
Quality	Number of odour complaints that result in corrective action (per connection)	2 (0.0002)
	Total number of odour complaints (per connection)	4 (0.0004)
Capacity	Average daily flow as a percentage of rated capacity	56%
Stakeholder Engagement	Date of last public outreach initiative	August 17, 2019

2.5 Stormwater

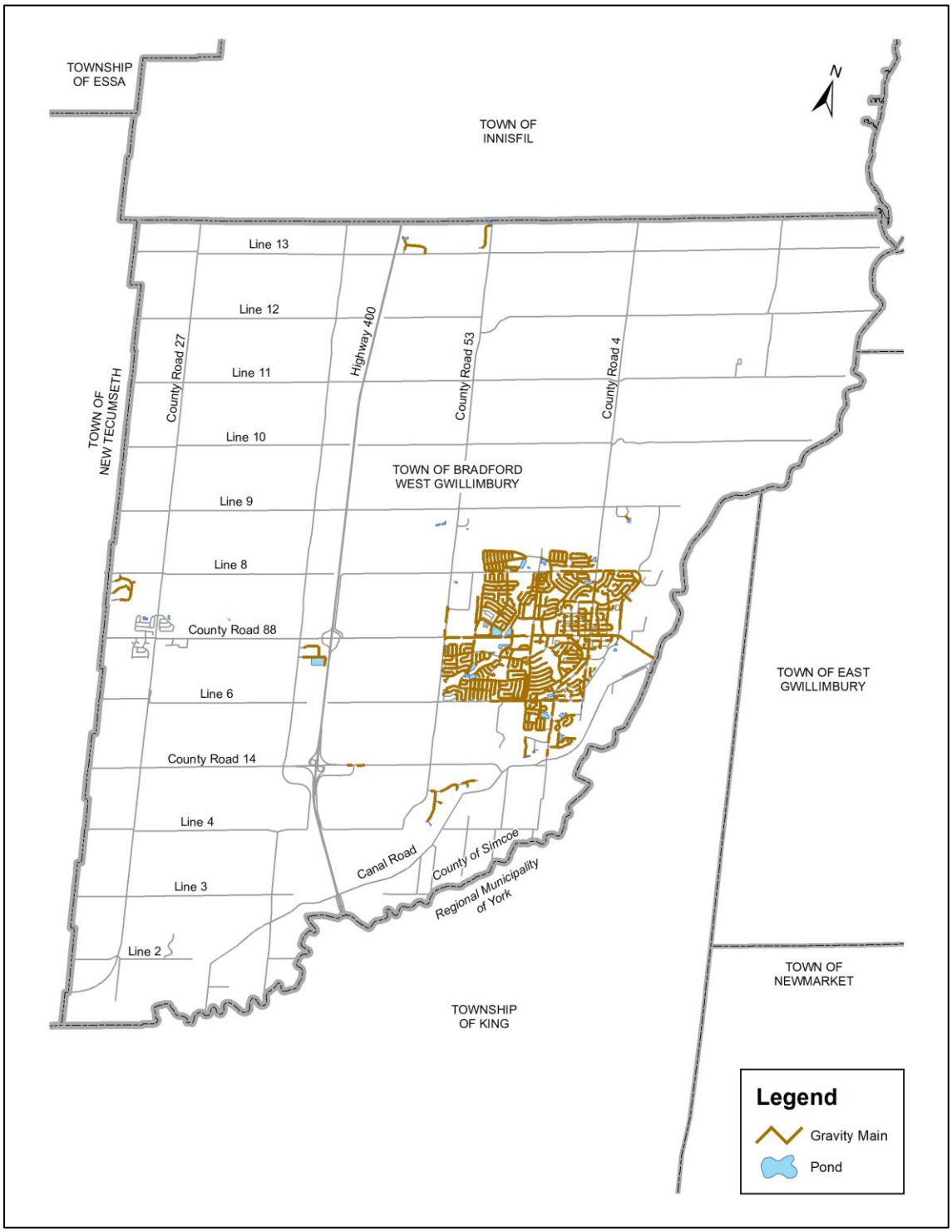
2.5.1 State of Local Infrastructure

The stormwater management system serves the Bradford Urban Area, Bond Head Settlement Area, specific sites in the Hwy 400 Employment Area and some developments in rural areas zoned Estate Residential as shown in Map 2-9 and Map 2-10.

Map 2-9: Urban Stormwater Mains and Ponds



Map 2-10: Rural Stormwater Mains and Ponds



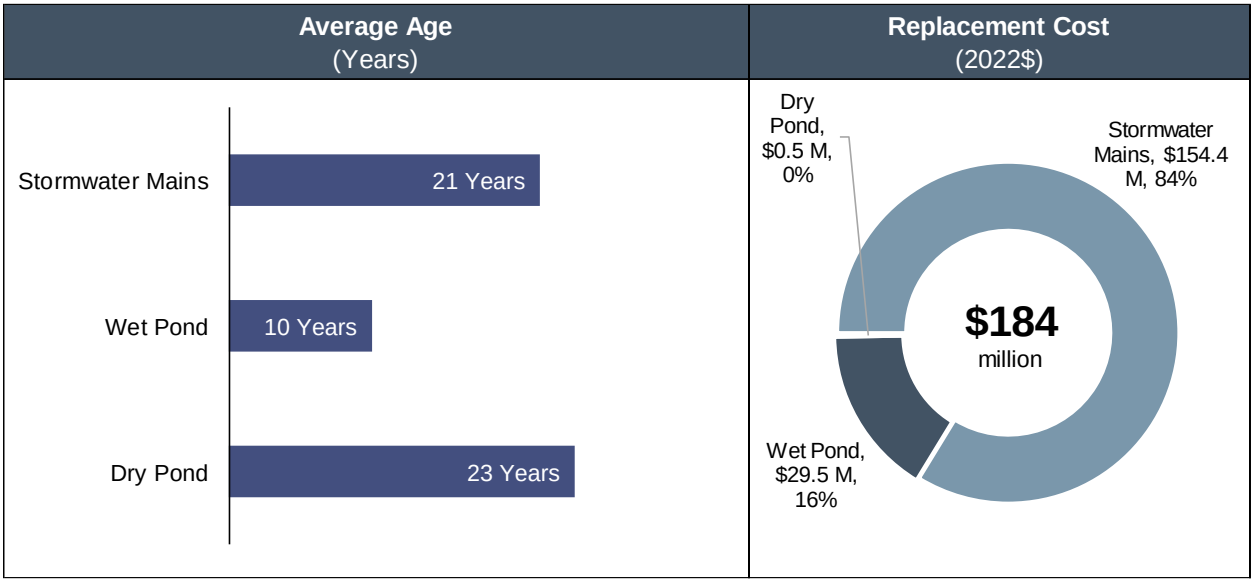
The stormwater collection system consists of 135.3 km of mains. The volume and quality of stormwater discharge back to the environment is managed through 26 wet ponds and 3 dry ponds. The current replacement cost of the stormwater system is approximately $184.4 million. Table 2-21 provides a summary of the assets with quantity, average age where available, and replacement cost. Figure 2-9 illustrates the data in Table 2-21 visually. There are some additional lower cost stormwater assets that have not been included in this AMP because data was incomplete. Examples of these assets include bioswales, oil grit separators, and storage tanks.

Table 2-21: Stormwater System – Summary of Quantities, Age, and Replacement Cost by Asset Type

Asset Type	Quantity	Units	Average Age (years)	Replacement Cost (2022$)
Stormwater mains	135.3	Kilometres	21	$154,380,000
Wet Ponds	26	Number	10[1]	$29,540,000
Dry Pond	3	Number	23	$480,000
Total			**19**	**$184,410,000**

[1] Age data is missing for three wet ponds. The average age is based on the 23 of 26 ponds where age data is available.

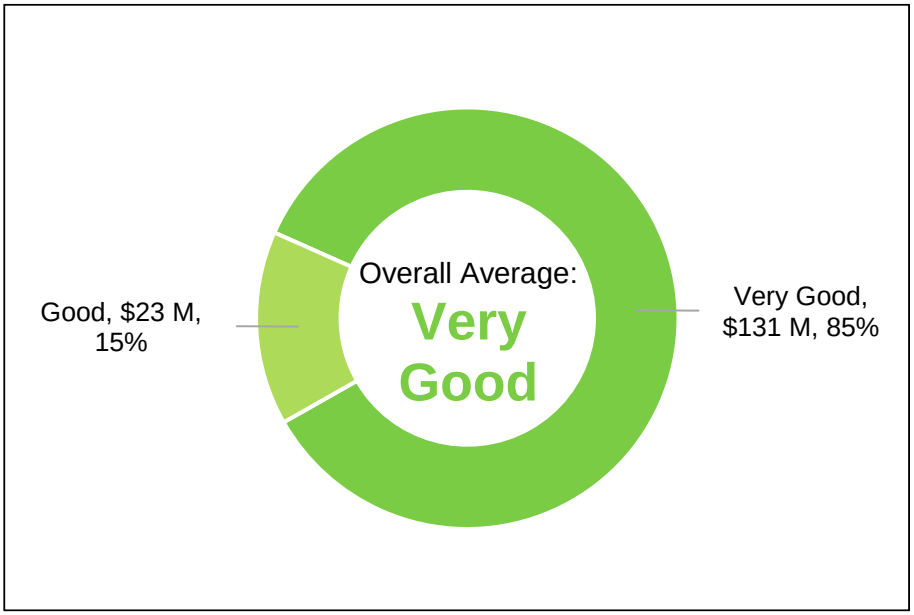
Figure 2-9: Stormwater System Summary Information



2.5.2 Condition

While some sections of stormwater mains have been inspected to identify deficiencies, the data has not been compiled systematically for reporting condition ratings. For the purposes of this asset management plan, the condition of stormwater mains has been estimated by calculating the Useful Life Consumption Percentage (ULC%), as described in section 2.3.2 for water mains. The details for the qualitative condition states related to the ULC% values are shown in Table 2-10 in section 2.3.2. The average ULC% for stormwater mains is 23%. Figure 2-10 shows the distribution of stormwater main replacement cost by condition state.

Figure 2-10: Distribution of Stormwater Main Replacement Cost by Condition State



The condition of stormwater ponds is not reported in this AMP because it has not been assessed and cannot be estimated based on age. Age can only be used to estimate condition if an asset has an expected useful life. Stormwater ponds do not have expected useful lives defined for them because they can be maintained indefinitely.

2.5.3 Current Levels of Service

The levels of service currently provided by the Town's stormwater system are, in part, a result of the state of local infrastructure identified above. The levels of service framework defines the current levels of service that will be tracked over time. In future iterations of the asset management plan, targets will be set for the technical levels of service.

Table 2-22 and Table 2-23 present the current levels of service for the stormwater system. They include the requirements mandated by O. Reg. 588/17 and additional performance measures of interest to the Town.

Table 2-22: Community Levels of Service – Stormwater Assets

Service Attribute	Community Levels of Service
Scope	The stormwater management system serves the Bradford Urban Area, Bond Head Settlement Area, specific sites in the Hwy 400 Employment Area and various rural estate residential developments.
	The scope of the Town's stormwater system is illustrated by Map 2-9 and Map 2-10. The map shows the geographical distribution of municipal stormwater mains and ponds.
Reliability	The Town seeks to ensure the reliable operation of its stormwater management system through regular monitoring and maintenance of its stormwater infrastructure.
Stakeholder Engagement	The Town keeps the public informed about stormwater services and responds to concerns raised.

Table 2-23: Technical Levels of Service – Stormwater

Service Attribute	Performance Measure	2020 Performance
Scope	Percentage of properties in the Town resilient to a 100-year storm.	17%
	Percentage of the municipal stormwater management system resilient to a 5-year storm.	81%
Reliability	Percentage of stormwater mains inspected over past 5 years.	10%
	Percentage of stormwater mains inspected at least once since installation.	10 to 15%
	Frequency of stormwater main flushing.	2 year cycle
	Dollar value of backlog of deferred stormwater main repairs identified during annual inspections (per household).	To Be Determined
	Dollar value of deferred stormwater pond repairs identified during annual inspections.	To Be Determined
Stakeholder Engagement	Date of last public outreach initiative.	August 17, 2019

2.6 Population and Employment Growth

According to the 2021 census, the Town's 2021 population was 42,880. Employment data from the 2021 census are not yet available, however the Town had estimated employment of 10,392 in 2018. By 2031, the Town's population is anticipated to reach 50,500 and employment to reach 18,000, based on the approved County of Simcoe Official Plan.

This growth in population is expected to result in incremental service demands that may impact the current level of service. These growth-related needs related to Water, Wastewater, and Roads services are summarized in the Town's 2018 Development Charges Background Study and are funded through development charges imposed on new development. Utilizing development charges helps ensure that the effects of future population and employment growth do not increase the cost of maintaining levels of service for existing tax and rate payers.

The estimated capital expenditures related to the lifecycle activities required to maintain the current levels of service considering the projected increases in demand caused by growth are included in the 10-year capital forecasts presented in the next chapter of this report.

Chapter 3
Lifecycle Management Strategies

3. Lifecycle Management Strategies

3.1 Introduction

This chapter details the lifecycle management strategies required to maintain current levels of service. A lifecycle management strategy identifies the recommended lifecycle activities required to achieve the levels of service discussed Chapter 2. Within the context of this asset management plan, lifecycle activities are the specified actions that can be performed on an asset in order to ensure it is performing at an appropriate level, and/or to extend its service life.[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 carried out when specified conditions are met.

O. Reg. 588/17 requires that all potential lifecycle activity options be presented, with the aim of analyzing these options in search of identifying the set of lifecycle activities that can be undertaken at the lowest cost to maintain current levels of service or to provide proposed levels of service. Asset management plans must include a ten-year capital plan that forecasts the lifecycle activities resulting from the lifecycle management strategy.

What follows are the lifecycle management strategies for all assets contained within this asset management plan, with each section focusing on an individual asset class.

3.2 Transportation

3.2.1 Average Annual Lifecycle Costs

3.2.1.1 Roads

To estimate long-run needs, the lifecycle models in the Town's asset management software were used to calculate average annual lifecycle costs over complete lifecycles of each road class. The lifecycle models varied depending on surface type, traffic volume and roadside environment (urban, semi-urban, and rural). The total average

[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.

annual lifecycle cost for roads is estimated to be $7,835,000. The average annual lifecycle cost is expected to grow over time as the road network is expanded over time to address growth needs.

3.2.1.2 Structures

A high-level approach has been taken to estimating long-run average annual replacement costs for bridges and structural culverts. Bridges are assumed to have a lifespan of 75 years if they have rehabilitation projects performed over their lifespan to address deteriorating elements. The timing and scope of rehabilitation projects will depend on the type of bridge and other factors. To estimate long-run costs, it has been assumed that the total cost of these rehabilitations over a bridge's lifespan typically corresponds to 50% of the bridge's replacement cost. Combining these assumptions yields an average annual lifecycle cost for bridges of 2% of replacement cost. Culverts are assumed to have a shorter lifespan of 50 years that can be achieved without requiring rehabilitation projects. This assumption for culverts also translates to an average annual lifecycle cost of 2% of replacement cost.

The total replacement cost of structures is $49.1 million, as identified in Table 2-2 in subsection 2.2.1. The average annual lifecycle cost, based on 2% of replacement cost, is $982,000. The average annual lifecycle cost is expected to grow over time as additional structures are built and existing structures are replaced with higher capacity structures over time to address growth needs.

3.2.2 Ten-year Capital and Major Operating Plan

The Town maintains a 10-year capital plan that is expected to be enable the Town to maintain the current levels of service for transportation assets. The cost of regravelling is the only major operating cost that has been identified. Figure 3-1 shows total capital and major operating expenditures for transportation assets over the next 10 years. The expenditure data shown in Figure 3-1 is presented in tabular form in Table 3-1.

Figure 3-1: Ten-year Capital and Major Operating Plan – Transportation (2022$)

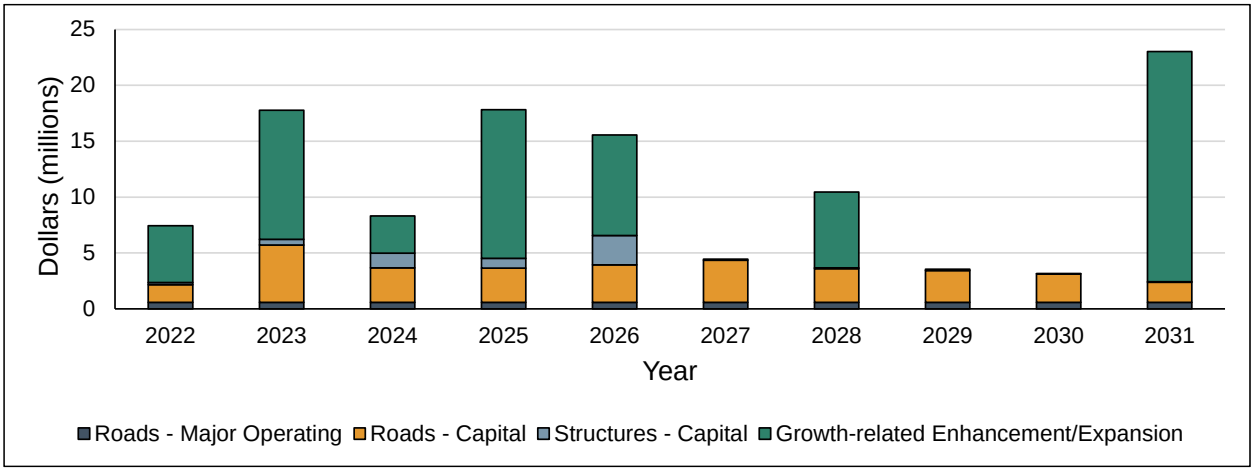


Table 3-1: Ten-year Capital and Major Operating Expenditure Forecast – Transportation (2022$)

Category	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Rehabilitation and replacement of existing assets										
Roads - Major Operating	$589,000	$589,000	$589,000	$589,000	$589,000	$589,000	$589,000	$589,000	$589,000	$589,000
Roads - Capital	$1,573,089	$5,115,144	$3,082,101	$3,064,237	$3,360,876	$3,766,851	$3,008,925	$2,850,832	$2,549,999	$1,790,542
Structures - Capital	$199,250	$531,058	$1,326,091	$861,571	$2,611,598	$96,700	$86,777	$101,449	$17,463	$59,298
New asset to address pressures created by growth										
Roads and Structures	$5,072,150	$11,546,800	$3,313,250	$13,313,250	$8,990,720	$0	$6,762,550	$0	$0	$20,578,700
Total	**$7,433,489**	**$17,782,002**	**$8,310,442**	**$17,828,058**	**$15,552,194**	**$4,452,551**	**$10,447,252**	**$3,541,281**	**$3,156,463**	**$23,017,541**

3.3 Water

3.3.1 Average Annual Lifecycle Costs

All water assets have simple lifecycles with no rehabilitation investments required. Components are simply replaced at the end of their useful lives. The average annual lifecycle cost is estimated for each asset component by dividing its replacement cost by its Expected Useful Life (EUL). The total average annual lifecycle cost is calculated by summing all the average annual lifecycle costs of all components. The total average annual lifecycle cost for water assets is $2.19 million. The average annual lifecycle cost is expected to grow over time as the system is expanded to serve additional customers.

3.3.2 Ten-year Capital Plan

The Town maintains a 10-year capital plan that is expected to enable the Town to maintain the current levels of service of water assets. Figure 3-2 shows total capital expenditures for water assets over the next 10 years. The dotted orange line shows the average annual lifecycle cost of $2.19 million per year. The dotted gray line shows the average of the expenditures planned for the next 10 years, $0.73 million per year. The average of the planned expenditures is 33% of the average annual lifecycle cost. The expenditure data shown in Figure 3-2 is presented in tabular form in Table 3-2.

Figure 3-2: Ten-year Capital Plan – Water (2022$)

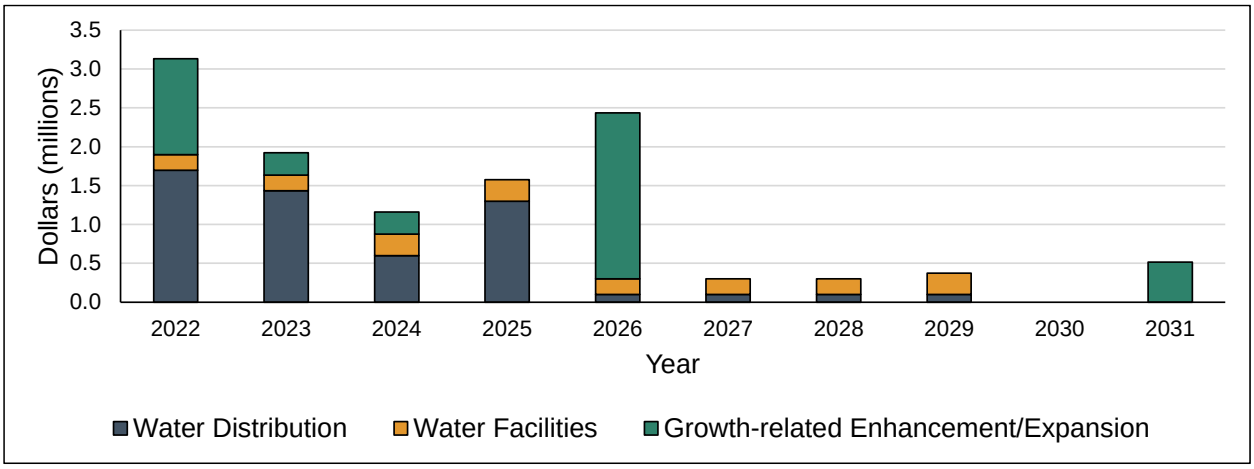


Table 3-2: Ten-year Capital and Major Operating Expenditure Forecast – Water (2022$)

Category	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Rehabilitation and replacement of existing assets										
Water Distribution	$1,698,300	$1,435,000	$600,000	$1,300,000	$100,000	$100,000	$100,000	$100,000	$0	$0
Water Facilities	$200,000	$200,000	$275,000	$275,000	$200,000	$200,000	$200,000	$275,000	$0	$0
New asset to address pressures created by growth										
Growth	$1,233,074	$285,714	$285,714	$0	$2,135,000	$0	$0	$0	$0	$517,000
Total	**$3,131,374**	**$1,920,714**	**$1,160,714**	**$1,575,000**	**$2,435,000**	**$300,000**	**$300,000**	**$375,000**	**$0**	**$517,000**

3.4 Wastewater

3.4.1 Average Annual Lifecycle Costs – Wastewater

All wastewater assets have simple lifecycles with no rehabilitation investments required. Components are simply replaced at the end of their useful lives. The average annual lifecycle cost is estimated for each asset component by dividing its replacement cost by its Expected Useful Life (EUL). The total average annual lifecycle cost is calculated by summing all the component level average annual lifecycle costs. The total average annual lifecycle cost for wastewater assets is $5.16 million. The average annual lifecycle cost is expected to grow over time as the system is expanded to serve additional customers.

3.4.2 Ten-year Capital Plan for Wastewater Assets

The Town maintains a 10-year capital plan that is expected to be able to maintain the current levels of service of wastewater assets. Figure 3-3 shows capital expenditures for wastewater assets over the next 10 years. The dotted orange line shows the average annual lifecycle cost of $5.16 million per year. The dotted gray line shows the average of the expenditures planned for the next 10 years, $0.24 million per year. The average of the planned expenditures is 5% of the average annual lifecycle cost. The expenditure data shown in Figure 3-3 is presented in tabular form in Table 3-3.

Figure 3-3: Ten-year Capital Plan – Wastewater (2022$)

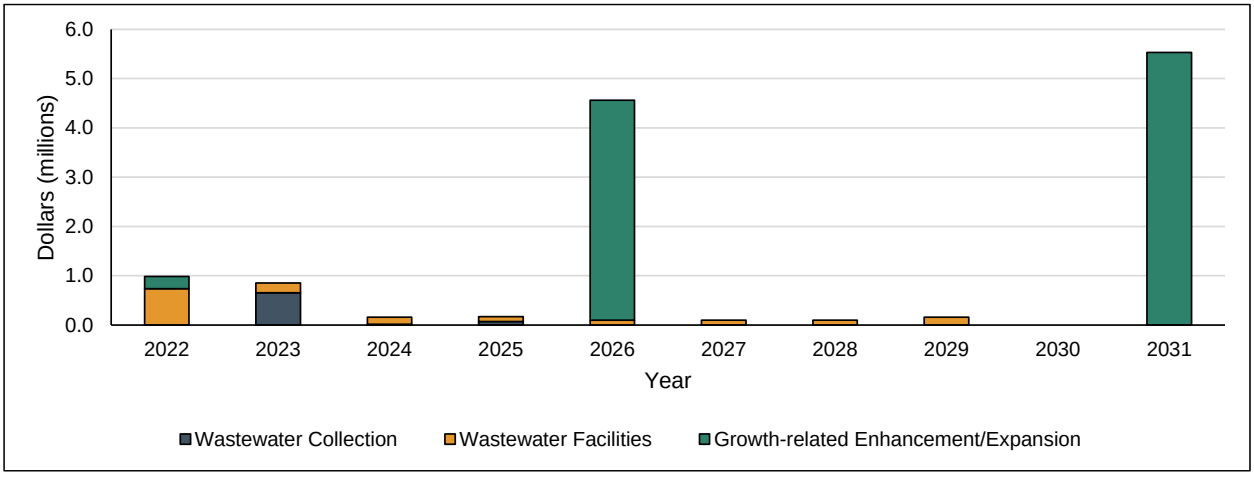


Table 3-3: Ten-year Capital and Major Operating Expenditure Forecast – Wastewater (2022$)

Category	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Rehabilitation and replacement of existing assets										
Rehabilitation and replacement of existing assets	$0	$654,350	$16,850	$70,200	$0	$0	$0	$0	$0	$0
Wastewater Facilities	$735,000	$200,000	$140,000	$100,000	$100,000	$100,000	$100,000	$160,000	$0	$0
New asset to address pressures created by growth										
Growth	$249,623	$0	$0	$0	$4,459,600	$0	$0	$0	$0	$5,531,723
Total	**$984,623**	**$854,350**	**$156,850**	**$170,200**	**$4,559,600**	**$100,000**	**$100,000**	**$160,000**	**$0**	**$5,531,723**

3.5 Stormwater

3.5.1 Average Annual Lifecycle Costs

Stormwater collection assets have simple lifecycles with no rehabilitation investments required. Components are simply replaced at the end of their useful lives. The average annual lifecycle cost is estimated for each asset component by dividing its replacement cost by its Expected Useful Life (EUL). The total average annual lifecycle cost is calculated by summing all the component level average annual lifecycle costs. The total average annual lifecycle cost for stormwater collection assets is $1.72 million. Stormwater ponds are maintained indefinitely through routine maintenance and removal of accumulated sediment. The estimated average annual cost of sediment removal, the only capital cost for stormwater ponds, is $0.42 million per year. The total average annual lifecycle cost for stormwater assets is $2.14 million. The average annual lifecycle cost is expected to grow over time as the system is expanded to serve new areas.

3.5.2 Ten-year Capital Plan

The Town maintains a 10-year capital plan that is expected to be able to maintain the current levels of service of stormwater assets. Figure 3-4 shows capital expenditures for stormwater assets over the next 10 years. The dotted orange line shows the average annual lifecycle cost of $2.14 million per year. The dotted gray line shows the average of the expenditures planned for the next 10 years, $0.47 million per year. The average of the planned expenditures is 22% of the average annual lifecycle cost. The expenditure data shown in Figure 3-4 is presented in tabular form in Table 3-4.

Figure 3-4: Ten-year Capital Plan – Stormwater (2022$)

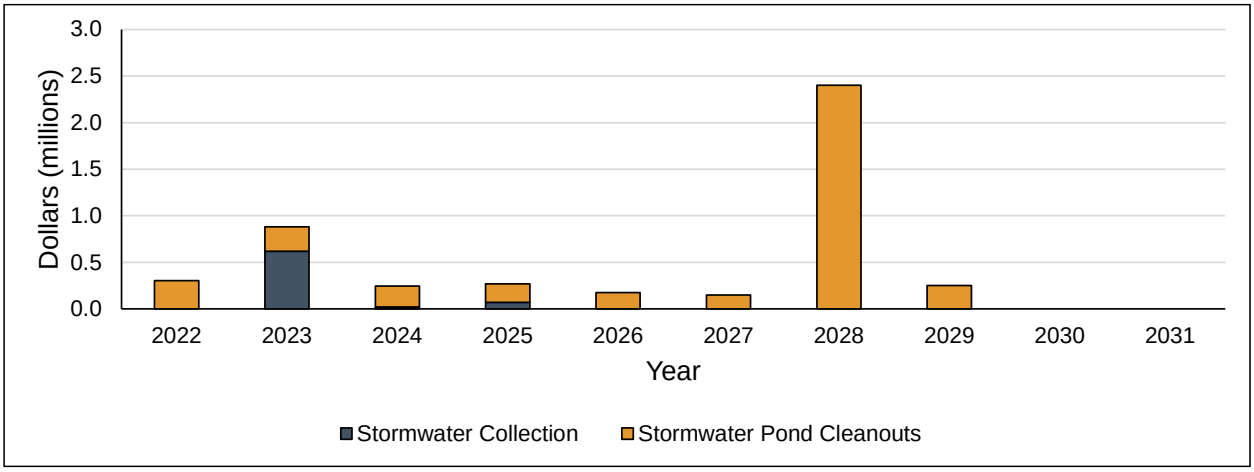


Table 3-4: Ten-year Capital and Major Operating Plan – Stormwater (2022$)

Category	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Rehabilitation and replacement of existing assets										
Stormwater Collection	$0	$620,000	$20,000	$70,000	$0	$0	$0	$0	$0	$0
Stormwater Pond Cleanouts	$305,000	$260,000	$225,000	$200,000	$175,000	$150,000	$2,400,000	$250,000	$0	$0
Total	**$305,000**	**$880,000**	**$245,000**	**$270,000**	**$175,000**	**$150,000**	**$2,400,000**	**$250,000**	**$0**	**$0**

Chapter 4
Summary

4. Summary

This asset management plan has been developed to address the July 1, 2022 requirements of O. Reg. 588/17. The plan provides summary information for the Town's core infrastructure assets (including replacement cost valuation and condition), identifies current levels of service, and includes a 10-year forecast of lifecycle activities and associated costs that would be required for the Town to maintain current levels of service. The plan is based on the best information available to the Town at this time. The Town is actively working on further expanding the asset management plan to include all Town assets, to have targets set for levels of service performance measures, and to include a detailed financial strategy. The ongoing expansion of the AMP will ensure the Town's compliance with the July 1, 2024 and July 1, 2025 requirements of O. Reg. 588/17.

Beyond regulatory compliance, the Town should continue working on integrating asset management planning with other municipal financial and planning documents. Furthermore, the Town will need to establish processes for reviewing and updating assumptions underlying the asset management plan on a regular basis to keep the plan relevant and reliable.