



**BURNSIDE**

## **Asset Management Plan for Core Assets**

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## Executive Summary

This report contains the Asset Management Plan for the County of Brant (County) core assets. The report has been organized as follows:

- Section 1: Introduction
- Section 2: State of Local Infrastructure
- Section 3: Expected Levels of Service
- Section 4: Asset Management Strategy
- Section 5: Recommendations

The “state of local infrastructure” section provides an overview of the core capital assets owned by the County. This includes detailed information on asset inventory, including asset attributes, accounting valuations, replacement costs, useful life, age, and asset condition. This information provides the foundation for other sections of the asset management plan.

Based on data provided by the County and discussions with County Staff, it is believed that the County’s core assets based on weighted average condition (with the weighting based on asset replacement cost) are as follows:

- Road assets – Good condition
- Bridge & Culvert assets – Average condition
- Storm Water assets - Good condition
- Water assets - Average condition
- Wastewater assets - Good condition

As outlined in the following summary assets table. Please note that weighted average conditions do not fully reflect the many assets that need to have capital improvement investments but provide an overall high-level perspective of all the assets found in that asset grouping/network.

Please note that Water and Wastewater core assets which are funded by system rate payers have been separated from the other tax-based core assets of Roads, Bridges, and Storm Water. Each asset class has been subset for better understanding of the core asset classes.

Looking at a weighted average of remaining life as a percentage of useful life can provide a quick estimate of how quickly the County may be looking to invest in either capital improvements or asset replacement. It is important to view the Remaining Service Life percentages not as absolutes but as triggers to seek more information about an asset type. For example, two tax supported asset types Surface Treated Roads and Bridges & Culverts show approximately 25% of their remaining service life or these assets are approaching their last ¼ of their lifecycle. Both of these asset types are reviewed regularly by professional engineers who provide maintenance and capital improvement recommendations to provide the most appropriate levels of service to the

public. So weighted averages are good high-level values that may require some additional detailed information for clarity.

Asset Type	Asset Sub-Type	Condition (weighted average)	Risk (weighted average)	Useful Life (UL) - weighted average	Remaining Service Life (RSL) weighted average	RSL as a % of URL
Roads	Asphalt Surface	Good	Low	75	50	67%
	Surface Treated	Good	Low	30	7	24%
	Gravel Surface	Good	Low	100	57	57%
	Concrete Surface	Very Good	Low	75	32	43%
	Earth	Very Poor	High	100	59	59%
	Bridges & Culverts	Average	Moderate	74	20	27%
	Bridges - Trails	Average	Moderate	61	31	51%
Storm Water	Storm Mains	Good	Moderate	97	68	71%
	Storm Service Line	Good	Low	100	74	74%
	Storm Culvert	Average	Moderate	51	25	48%
	Storm Catch Basin	Average	Moderate	80	47	58%
	Storm Catch Basin Lead	Good	Low	98	68	69%
	Storm Manholes	Good	Low	100	68	68%
	Storm Subdrain	Average	Low	100	61	61%
	Storm Dry Wells	Good	Low	94	70	75%
	Storm Ponds	Good	Low	100	74	74%
	Storm Discharge Points	Average	Moderate	79	53	67%
	Storm Oil Grit Separator	Very Good	Low	80	72	91%

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Asset Type	Condition (weighted average)	Risk (weighted average)	Useful Life (UL) - weighted average	Remaining Service Life (RSL) weighted average	RSL as a % of URL
Water Facilities & Components	Good	Moderate	43	30	70%
Water Wells	Average	Moderate	44	21	48%
Water Mains	Average	Moderate	78	45	58%
Water Valves	Average	Moderate	55	27	49%
Water Hydrants	Poor	High	50	20	40%
Water Curb Stops	Poor	Moderate	50	17	34%
Water Service	Average	Moderate	60	30	50%

Asset Type	Condition (weighted average)	Risk (weighted average)	Useful Life (UL) - weighted average	Remaining Service Life (RSL) weighted average	RSL as a % of URL
Wastewater Facilities	Average	Moderate	58	38	65%
Wastewater Equipment	Average	Moderate	28	19	68%
Wastewater Mains	Good	Moderate	100	67	67%
Wastewater Manholes	Good	Moderate	100	66	66%
Wastewater Chambers	Good	Low	100	84	84%
Wastewater Valves	Very Good	Low	100	90	90%
Wastewater Service Lines	Good	Moderate	100	68	68%

"Expected levels of service" compares the current level of service provided by the County, and the recommended levels of service that will help extend the life of the above-mentioned asset types. The County of Brant takes great care in the service levels they offer their constituents and public. This report has made a few additional Levels of Service (LOS) recommendations that can potentially extend the life of the County's capital assets and therefore reduce the total lifecycle costs of these assets.

The "asset management strategy" provides a long-term operating and capital forecast for asset related capital costs, indicating the requirements for maintaining, rehabilitating, replacing / disposing, and expanding the County's assets, while moving towards the specified expected levels of service identified above. The goal of the asset management strategy is to have the County moving towards a more sustainable asset management position over the 10-year forecast period. We have also taken into consideration the potential risk of each asset by identifying the asset consequence of failure and probability of failure. Asset risk was assessed based on the asset's age, condition, consequence of failure, and probability of failure.

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Great efforts were undertaken by County Staff and Burnside to create a complete core asset dataset. Gaps in this data have been found and estimates were made. It is recommended that County Staff review the working data spreadsheets provided. As assets are reviewed the asset inventory can be updated creating an improving dataset annually.

The County has recommended that this asset management plan for core assets not complete a corresponding Financial Strategy as the County has another consultant providing a complete County wide Financial Strategy. Data used in developing this asset management plan was delivered to the County to ensure that the Financial Strategy uses the same asset data.

Also, the County has worked diligently to create a ten-year capital plan that integrates Roads, Storm Water, Water and Wastewater asset improvements. This information was not incorporated in this project due to time constraints, however, is recommended that future asset management plans incorporate this information to help smooth out capital needs over a ten-year span.

In summary, at a very high level we have found that approximately \$22 million annually to fund long-term asset management planning needs for tax supported core infrastructure (Roads, Bridges, and Storm Water). Approximately \$6.7 million dollars for Water and \$1.5 million for Wastewater annually for rate payer assets.

Overall, this asset management plan is a tool to be used by the County for capital and financial decision making. It can be tied to various existing reports (such as budget, official plan, and strategic planning reports) to ensure the asset management plan can be updated to reflect any changes in the County of Brant's priorities.

Please note that this study only focused on the County's core assets (Water, Wastewater, Storm Water, Roads, and Bridges). The potential gap in infrastructure funding is expected to change when incorporating all of the remaining County's asset types of which Facilities, and Vehicles are the major contributors.

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## 1.0 Introduction

### 1.1 Overview

R.J. Burnside & Associates Limited (Burnside) was retained by the County of Brant (County) to prepare an asset management plan for core assets. This plan is intended to be a tool for the County to use during various decision-making processes, including the annual budget process and Provincial/Federal capital grant application processes. This plan will serve as a road map for sustainable infrastructure planning going forward.

Assets included in this asset management plan are the following:

#### **Tax Supported**

- Roads (Asphalt, Surface Treated, Gravel, Concrete, and Earth);
- Bridges/Culverts (Public Works and Trails and Parks); and
- Storm Water (Mains, Service Lines, Culverts, Catch Basins, Catch Basin Leads, Manholes, Subdrains, Dry Wells, Storm Ponds, Discharge Points, Oil Grit Separators).

#### **Rate Payer Supported**

- Water (Facilities, Wells, Mains, Valves, Hydrants, Curb Stops, Service Lines); and
- Wastewater (Facilities, Equipment, Mains, Manholes, Chamber Nodes, Valves, Service Lines).

It is recommended that this plan be updated on an annual basis to ensure that it is kept up to date. All assets listed above other than rate payer water and wastewater assets are tax supported and are discussed more thoroughly in this report.

### 1.2 Plan Objectives

The County's goals and objectives with respect to their capital assets relate to the level of service being provided to the County's residents and visitors. Services are provided at current levels of service. This asset management plan provides a few recommended service additions that will improve the asset lifecycles for these County assets. The County's infrastructure and other capital assets are anticipated to be maintained at condition levels that provide for a safe and functional environment for its residents and visitors. Therefore, the asset management plan and its implementation will be evaluated based on the County's ability to meet these goals and objectives.

### 1.3 Plan Development

The development of the County's asset management plan was based on the steps summarized below:

- Develop a complete listing of core capital assets to be included in the plan, including attributes such as useful life, age, accounting valuation and current replacement valuation. Update the replacement cost of assets to 2023 dollars, and where required, use applicable inflationary indices.
- Assess current condition of the assets, based on a combination of the following:
  - Existing reports.
  - Road Needs Study.
  - Bridge and Culvert Inspection reports.
  - Burnside desktop assessments based on reports.
  - Staff assessments.
  - Asset age analysis.
- Assess the risk of asset failure for each asset, based on determining the probability of each asset failing, as well as the consequence of the asset failing. This risk analysis is one of the components used to identify priority projects for inclusion in the asset management plan, as well as asset risk levels that require mitigation.
- Determine current levels of service, based on standard practices and discussions with County staff. Further analysis of the maintenance practices and identification of additional measures that can be applied to the assets to extend their lifecycle and potentially provide a lower asset total lifecycle cost.
- Prepare an asset management strategy (i.e., operating, and capital forecast) based on the core asset inventory, identified priorities, and level of service analysis discussed above.
- Prepare a final report, summarizing the process, strategy, and results of the asset management plan.

### 1.4 Maintaining the Asset Management Plan

The asset management plan should be updated as the capital needs and priorities of the County changes. This can be accomplished in conjunction with the County's budget process. With the delivery of this project's working spreadsheet file, the County will have the tools available to perform updates to the plan when needed.

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When updating the asset management plan, note that the state of local infrastructure, expected levels of service, and asset management strategy are integrated and impact each other. The asset management strategy illustrates the costs required to maintain expected levels of service at a sustainable level. The expected levels of service component summarizes and links each service area to specific assets contained in the state of local infrastructure section and thus determines how these assets will be used to provide expected service levels.

This report covers a forecast period of 10-years; however, it is suggested that more focus and attention be put on the first five years of the asset management plan, to ensure accurate capital planning in the short term. It is also recommended that the County start moving towards 50-year forecasts. This longer-term vision will ensure that future infrastructure investments are not lost in the shorter 10-year forecast window.

## 1.5 Plan Integration

The municipal environment is continually changing and demanding when it comes to legislation and other responsibilities. Integrating the asset management plan with the County's budget process, as well as Public Standards Accounting Board Handbook Section 3150 (tangible capital asset) requirements can make updates in all three areas more efficient.

With respect to integrating the County's budget process with asset management planning, the County requires a projection of capital and operating costs over a future period. The budget outlines total operating and capital requirements for the County, while the asset management plan focuses in on specific asset related requirements. With this link to the annual budget, the budget update process can also become an asset management plan update process.

Both asset management and PSAB 3150 require a complete and accurate asset inventory. The significant difference between the two lies in valuation approaches (PSAB 3150 requires historical cost valuation, while asset management requires future replacement cost valuation). Using a single asset inventory, as developed in the asset management spreadsheets for the County assets (delivered to the County as working documents for County Staff), containing both historic and current replacement valuation methods is an effective approach to maintaining the County's asset data.

Please note that upon initial review of County core asset data Burnside found significant differences between County Operations and Administration and County Finance core asset inventories. As the County was beginning a project to implement a new work management system Burnside recommended that the County take this opportunity to create a single asset inventory for County assets to ensure only one asset database was used across all County departments. This significantly delayed this asset management plan project for over a year, but is providing much greater value to the County. Once the

asset inventory was completed the County then re-engaged with Burnside to complete this asset management plan for core assets.

## **2.0 State of Local Infrastructure**

### **2.1 Scope and Process**

This section of the plan provides an opportunity to develop a greater understanding of the core capital assets owned by the County. The state of local infrastructure analysis includes:

- An asset inventory documenting asset types, sub-types including quantities, materials, and other similar asset attributes (where available).
- Financial accounting valuation (where available).
- Replacement cost valuation.
- Asset age distribution analysis and asset age as a proportion of expected useful life.
- Asset condition information (mostly based on report and / or staff assessment as well as the age of the asset).
- Documentation of assumptions made in creating the asset inventory.

Burnside developed a detailed asset inventory listing for the County which was used as a starting point in fulfilling the requirements for this report as well as the work the County's consultant is using to develop a long-range Financial Strategy. This inventory provides current financial accounting valuations (i.e., historical cost, accumulated amortization, and net book value), as well as attributes such as replacement cost, useful life, and age). With respect to replacement cost, the County provided various recent valuations, which were inflated in order to estimate current 2023 replacement costs. Other valuations were made using a current 2023 replacement cost and deflating the value to the year or estimated year that the asset was constructed and / or acquired.

The following data and reports were used extensively to develop the County's asset inventory during this project:

- County past capital improvement asset listings
- County reports (such as spreadsheets; documents; and notes from staff)
- County 2023 Updated Road Needs Study
- County 2021 Bridge Inspection Report
- County 2021 Bridge for Trails and Parks Inspection Report
- Recent purchase information from the County
- Many discussions with County Staff

Some adjustments to asset useful lives have been made but further analysis may reveal that the County will want to update some useful life values in the tangible capital asset financial reporting so that they better reflect the lifecycle and remaining life of the County’s assets. Burnside engineers have reviewed the useful lives of the County assets identified in this project and believe they now better reflect the conditions, maintenance practices and management of the County’s assets.

Please note that upon receiving the County’s final core asset inventory Burnside found numerous gaps and proceeded to use road and other related assets too fill these gaps so that the project could move forward. All assets that were adjusted or filled in gaps are highlighted in the delivered spreadsheets. It is recommended that the County review the spreadsheet data and ensure that the highlighted cells are confirmed and corrected where required.

**2.2 Asset Condition**

Each asset was tracked based on estimated total useful life and remaining service life. Using this data, along with staff information, and age analysis of the County’s assets assisted in identifying potential areas of focus where inspected asset condition was not available. We want to state that asset condition is always best defined via engineering best practices. Engineering based condition assessments can provide more realistic estimates of an asset’s remaining service life, which can then be used to establish asset rehabilitation and/or replacement schedules. Age related condition values can be problematic if the asset’s useful life is not appropriately defined. For example, if a useful life of an asset is defined shorter than the assets true performance, this will result in a lower/poorer age assessed condition rating. This method of condition approximation was only used when inspected conditions were not available.

A rating out of 10 was established for all assets and was based on a combination of past reported physical inspections, current inspections, staff assessment, and asset age analysis. This rating was then converted to a condition description of “Very Good” to “Very Poor” as shown in Table 2.1.

**Table 2.1: Asset Condition Format for all Assets**

Condition (value 0-10)	Condition
9 - 10	Very Good
7 - 8	Good
5 - 6	Average
3 - 4	Poor
1 - 2	Very Poor

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The condition of the assets is an important element of any lifecycle assessment process. This process also identifies maintenance and operating practices that can be applied to ensure appropriate service levels, as well as extending the life of the asset to its maximum service life.

A high-level summary of the average conditions for the County's core assets are shown in Table 2.2 to Table 2.4. The conditions listed in Table 2.2 to Table 2.4 were calculated using weighted average conditions. The weighting factor used was the asset replacement costs so that the greater the cost the greater the weighting of that asset's condition used to determine the average. Using this method provides more emphasis on the more expensive to replace assets. However please note that averages are a composition of many assets in a group. Averages can be misleading with respect to immediate needs as the new assets offset the old assets requiring urgent replacement.

**2.3 Capital Asset Overview**

The County presently owns core capital assets with a 2023 replacement value of approximately \$2.34 billion broken out in Table 2.2, Table 2.3, and Table 2.4 and summarized as follows:

- \$1,831.2 million Core tax supported assets (Roads, Bridges, Storm Water);
- \$264.3 million Water rate payers supported assets; and
- \$244.4 million Wastewater rate payers supported assets.

**Table 2.2: Tax Supported Core Asset Assessment Summary**

Asset Type	Asset Sub-Type	Historic Cost	2022 Accumulated Amortization	2022 Net Book Value	2023 Replacement Cost	Condition (weighted average)		Useful Life (weighted average)	Age (weighted average)	Remaining Life (weighted average)	Risk (weighted average)	
						Value	Text				Value	Text
Roads	Asphalt Surface	\$139,756,426	\$38,005,006	\$101,751,420	\$839,223,440	8.0	Good	75	25	50	1.2	Low
	Surface Treated	\$32,067,890	\$15,579,951	\$16,487,940	\$333,935,988	6.8	Good	30	37	7	1.3	Low
	Gravel Surface	\$14,019,454	\$3,416,814	\$10,602,640	\$110,024,757	6.9	Good	100	44	57	1.1	Low
	Concrete Surface	\$131,858	\$76,478	\$55,380	\$759,619	9.0	Very Good	75	43	32	1.0	Low
	Earth	\$15,540	\$13,292	\$2,247	\$1,294,339	1.4	Very Poor	100	41	59	2.8	High
	Bridges & Culverts	\$28,921,493	\$13,004,159	\$15,917,334	\$356,951,000	5.9	Average	74	45	20	1.7	Moderate
	Bridges - Trails	\$2,598,999	\$735,533	\$1,863,505	\$7,103,100	6.4	Average	61	33	31	2.1	Moderate
Storm Water	Storm Mains	\$27,906,643	\$7,383,040	\$20,523,603	\$77,155,077	7.0	Good	97	29	68	1.6	Moderate
	Storm Service Line	\$863,325	\$178,422	\$684,903	\$2,310,420	7.6	Good	100	26	74	1.1	Low
	Storm Culvert	\$1,062,184	\$503,291	\$558,893	\$2,719,983	4.7	Average	51	28	25	2.0	Moderate
	Storm Catch Basin	\$5,900,668	\$1,769,450	\$4,131,218	\$18,648,000	5.9	Average	80	33	47	1.7	Moderate
	Storm Catch Basin Lead	\$3,181,949	\$688,402	\$2,493,548	\$9,065,240	6.9	Good	98	31	68	1.4	Low
	Storm Manholes	\$10,622,939	\$2,256,169	\$8,366,770	\$30,980,500	6.9	Good	100	32	68	1.4	Low
	Storm Subdrain	\$1,200,658	\$243,602	\$957,056	\$3,469,502	6.1	Average	100	41	61	1.4	Low
	Storm Dry Wells	\$275,479	\$46,014	\$229,465	\$625,000	7.8	Good	94	25	70	1.2	Low
	Storm Ponds	\$5,032,209	\$1,158,666	\$3,873,543	\$34,963,000	8.0	Good	100	26	74	1.0	Low
	Storm Discharge Points	\$710,991	\$139,575	\$536,790	\$1,675,000	6.1	Average	79	25	53	1.9	Moderate
	Storm Oil Grit Separator	\$217,812	\$21,240	\$196,572	\$320,000	9.3	Very Good	80	10	72	1.3	Low
<b>Total</b>		<b>\$274,486,518</b>	<b>\$85,219,104</b>	<b>\$189,232,826</b>	<b>\$1,831,223,964</b>	<b>7.0</b>	<b>Good</b>		<b>32</b>	<b>39</b>	<b>1</b>	<b>Low</b>

**Table 2.3: Rate Payers Supported Water Assets**

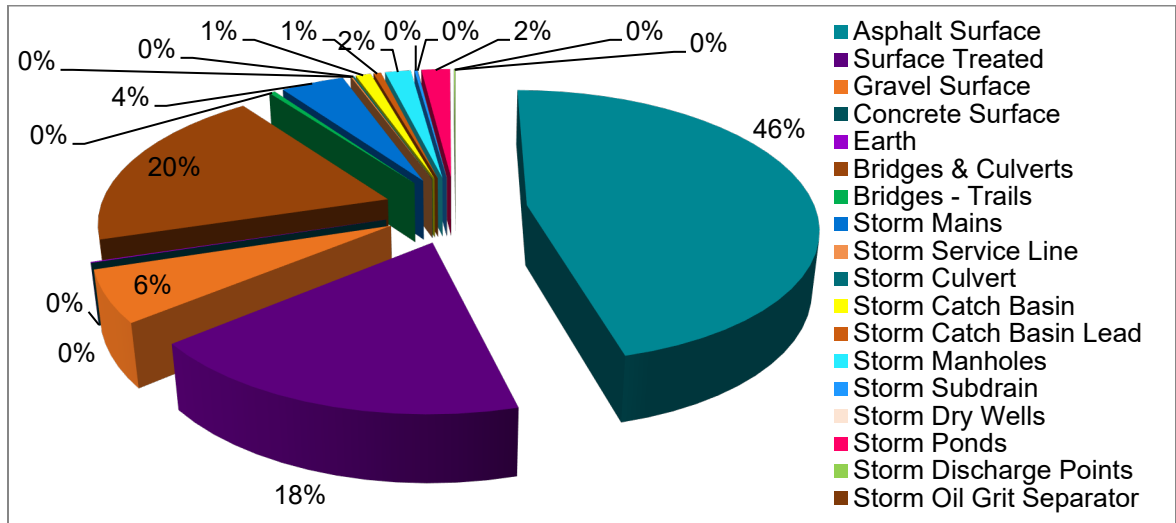
Asset Type	Historic Cost	2022 Accumulated Amortization	2022 Net Book Value	2023 Replacement Cost	Condition (weighted average)		Useful Life (weighted average)	Age (weighted average)	Remaining Life (weighted average)	Risk (weighted average)
					Value	Text				Text
Water Facilities & Components	\$56,913,618	\$16,603,723	\$40,309,895	\$77,093,729	7.0	Good	43	14	30	Moderate
Water Wells	\$11,919,536	\$5,169,473	\$6,750,063	\$23,495,000	6.0	Average	50, 40	25	21	Moderate
Water Mains	\$32,867,684	\$8,699,990	\$24,167,694	\$103,620,371	5.0	Average	100, 50	35	45	Moderate
Water Valves	\$5,948,872	\$2,268,534	\$3,680,339	\$15,292,400	5.0	Average	100, 50	29	27	Moderate
Water Hydrants	\$4,776,303	\$1,944,351	\$2,831,952	\$13,410,000	4.0	Poor	50	29	20	High
Water Curb Stops	\$3,948,942	\$2,030,111	\$1,918,831	\$12,964,000	3.0	Poor	50	35	17	Moderate
Water Service	\$6,356,624	\$2,469,840	\$3,886,784	\$18,468,801	5.0	Average	100, 50	30	30	Moderate
<b>Total</b>	<b>\$122,731,579</b>	<b>\$39,186,021</b>	<b>\$83,545,558</b>	<b>\$264,344,300</b>	<b>6.0</b>	<b>Average</b>		<b>27</b>	<b>34</b>	<b>Moderate</b>

**Table 2.4: Rate Payers Supported Wastewater Assets**

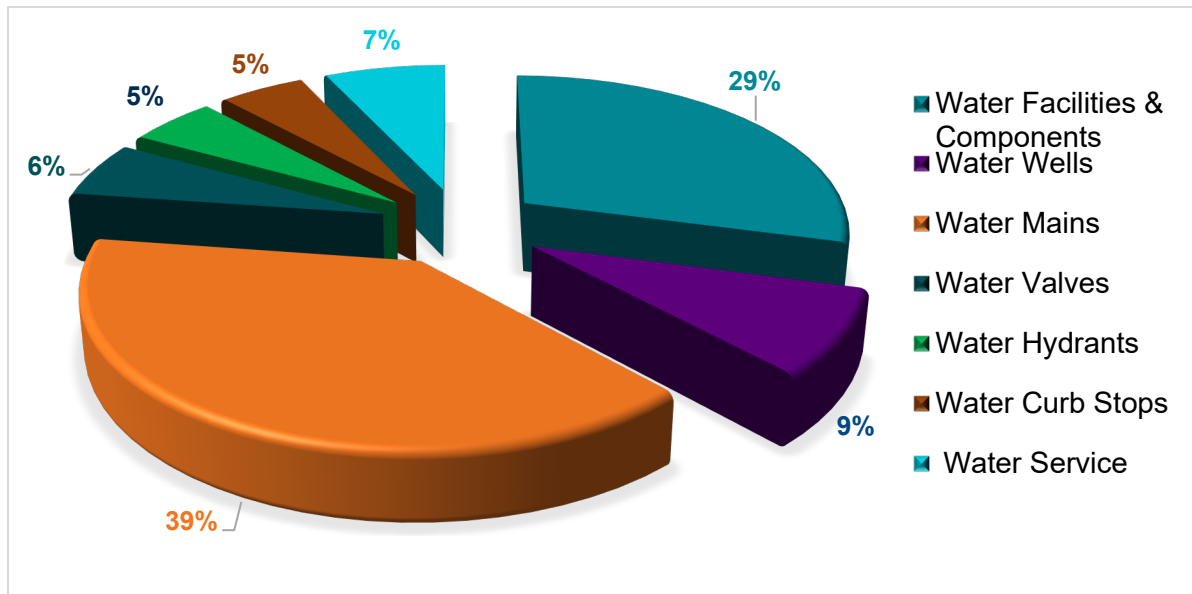
Asset Type	Historic Cost	2022 Accumulated Amortization	2022 Net Book Value	2023 Replacement Cost	Condition (weighted average)		Useful Life (weighted average)	Age (weighted average)	Remaining Life (weighted average)	Risk (weighted average)
					Value	Text				Text
Wastewater Facilities	\$21,133,542	\$9,289,930	\$11,843,612	\$33,448,093	5.2	Average	58	22	38	Moderate
Wastewater Equipment	\$759,942	\$277,069	\$482,873	\$1,099,062	5.8	Average	28	10	19	Moderate
Wastewater Mains	\$23,879,772	\$6,217,697	\$17,662,075	\$136,046,639	6.8	Good	100	33	67	Moderate
Wastewater Manholes	\$6,300,778	\$1,402,720	\$4,898,058	\$19,780,000	6.7	Good	100	32	66	Moderate
Wastewater Chambers	\$647,472	\$66,308	\$581,164	\$1,200,000	8.4	Good	100	16	84	Low
Wastewater Valves	\$899,780	\$73,963	\$825,817	\$1,410,000	9.2	Very Good	100	10	90	Low
Wastewater Service Lines	\$15,623,391	\$3,797,202	\$11,826,189	\$51,415,417	6.9	Good	100	32	68	Moderate
<b>Total</b>	<b>\$69,244,678</b>	<b>\$21,124,889</b>	<b>\$48,119,788</b>	<b>\$244,399,211</b>	<b>7.0</b>	<b>Good</b>		<b>31</b>	<b>63</b>	<b>Moderate</b>

Figure 2.1, Figure 2.2, and Figure 2.3 outline the breakdown of these totals into the County's asset categories.

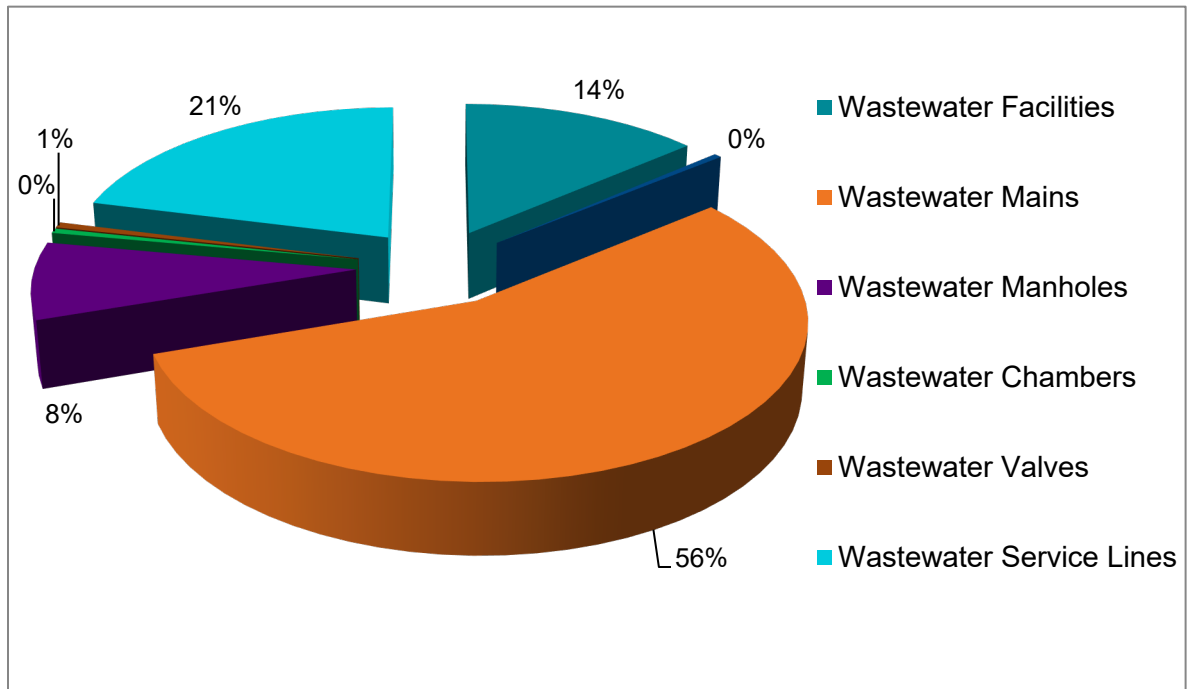
**Figure 2.1: County Core Tax Supported Assets Replacement Costs (2023)**



**Figure 2.2: County Rate Payers Supported Water Assets Replacement Costs (2023)**



**Figure 2.3: County Rate Payers Supported Wastewater Assets Replacement Costs (2023)**



The capital asset inventory was organized in a Microsoft Excel spreadsheet and delivered to the County in digital form as working documents for County Staff to continue to use and update as required. Each of the asset types were assessed for their age, condition (where available) and for data accuracy and completeness.

Figure 2.1, Figure 2.2, and Figure 2.3 outline the breakdown of these totals into the County’s asset categories.

Figure 2.1 shows the County’s financial accounting valuation summary by asset type for core assets. Since 2009, municipalities across Canada have been required under the Public Sector Accounting Board Handbook Section 3150 (PSAB 3150) to maintain asset listings complete with historical cost (i.e., the original cost to purchase or construct an asset), accumulated amortization and net book value. These values were to be reported on the County’s audited financial statements each year. Burnside has done the additional work of developing the 2023 cost for assets that were not part of the County’s Financial asset inventory and added them to the County’s asset inventory. If the County chooses to use the asset inventory developed in this project to report the PSAB 3150 values, the data / information is found in the delivered spreadsheets.

Including all the County’s assets studied in this project, the total tangible capital asset historical cost is approximately \$466.5 million or 20.0% of the total replacement cost. It is expected that historical cost totals are less than replacement cost totals, given inflationary adjustments that would occur between the original asset purchase /

construction date and 2023. Total accumulated amortization for the County’s assets is approximately \$145.5 million or 31% of the total asset historical cost. This represents the proportion of tangible capital assets that have been amortized (i.e., used up) to date from a financial valuation perspective. This also leads one to understand that the County’s core assets are mostly in the first one-third of their lifecycle.

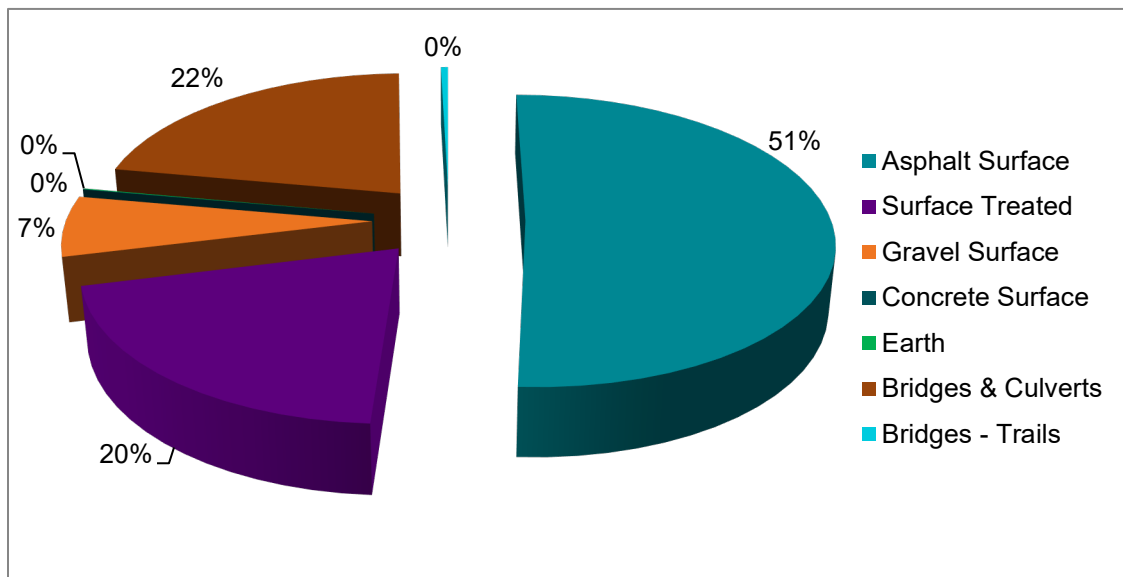
Clearly the County’s owned road assets have the greatest percentage tax supported replacement Table 2.2, Table 2.3, and Table 2.4. Within the Road assets category, the Asphalt Surface Road assets hold the greatest value with 45.8% of the total replacement cost of tax supported core assets. Bridges and Culverts have 19.5% followed by Surface Treated roads with 18.2% of total replacement cost value. These three asset classes are very important to the County’s function.

The County’s Road assets make up a key service that reflects the economic and social development of the community. The road environment or core assets found within the road right-of-way make up 90% of the tax supported assets studied in this project. The following asset types are the core assets studied in this project:

- Asphalt Surface Roads – 50.9% of the total County’s asset replacement costs.
- Surface Treated Roads – 20.2% of the total County’s asset replacement costs.
- Gravel Surface Roads – 6.7% of the total County’s asset replacement costs.
- Concrete Surface Roads – 0.05% of the total County’s asset replacement costs
- Earth Surface Roads – 0.1% of the total County’s asset replacement costs
- Bridges and Culverts – 21.6% of the County’s asset replacement costs.
- Bridges – Trails and Parks – 0.4% of the County’s asset replacement costs.

Figure 2.4 outlines the replacement cost distribution of Road Environment Assets.

**Figure 2.4: Road Environment Asset Distribution Replacement Costs (2023)**



Below we provide more detail on the asset groups in the Road Environment group of assets.

**2.3.1 Roads**

At the current replacement cost the road assets account for approximately \$1,285 million dollars or 55% of the assets studied in this project. The composition of the road surfaces is outlined in Table 2.5.

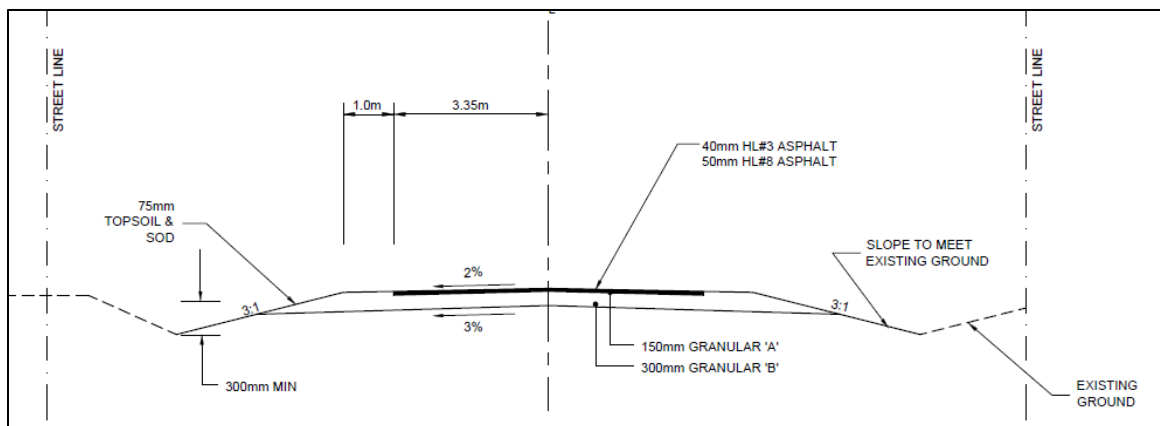
**Table 2.5: Road Tax Supported Asset Summary**

Road Surface Type	Length (km)	Replacement Cost	Road Useful Life (4Roads Report)	Road Age (weighted average)	Road Remaining Life (weighted average)	Surface Useful Life (4Roads Report)	Condition (weighted average)	Risk (weighted average)
								<b>Text</b>
Concrete - Urban	0.32	\$759,619	75	43	32.0	19	Very Good	Low
Asphalt - Urban	122.84	\$310,536,836	75	25	50.2	17	Good	Moderate
Asphalt - Semi-Urban	72.31	\$69,992,990	75	25	50.2	17	Good	Low
Asphalt - Rural	347.29	\$458,693,615	75	24	50.6	16	Good	Low
Surface Treatment - Urban	2.33	\$5,772,128	30	36	5.5	7	Very Good	Low
Surface Treatment - Semi-Urban	24.12	\$18,834,595	30	41	5.1	7	Good	Moderate
Surface Treatment - Rural	368.44	\$309,329,265	30	37	7.4	7	Good	Low
Gravel - Semi-Urban	1.91	\$911,962	100	40	59.8	3	Good	Low
Gravel - Rural	181.20	\$109,112,795	100	44	56.5	3	Good	Low
Earth - Rural	2.04	\$1,294,339	100	41	59.0	100	Very Poor	High
<b>Total</b>	<b>1,123</b>	<b>\$1,285,238,143</b>						

The County completes Road Needs Studies every two years and gets minor updates annually which is an excellent practice and assists the County in prioritizing both capital and operational maintenance programs. The next Road Needs Study will be completed in 2024 and therefore the results from the 2022/23 study are being projected out to assist in road work recommendations for development of an asset strategy for this project.

Key to all roads is the road base on which they are built. These road bases in most cases were established many years ago. Hard top (asphalt, and surface treated) road surface roads provide the longest life cycle with the best level of service when constructed on excellent road bases. Once the road base becomes soft it cannot economically support a hardtop road surface and it is best to convert it to a gravel road until funding is made available and the base has been reinforced. Figure 2.5 provides a typical road cross-section diagram. This can be applied for all surface types as asphalt (shown in figure), and without asphalt for surface treatment or gravel road surfaces.

**Figure 2.5: Typical Asphalt Road Surface Cross-Section**



The County's gravel surface roads are upgraded approximately every 3-years or as required with surface gravel replacement / top-up. In some locations additional gravel is at times required to help reinforce the gravel road base.

The 2024 Road Needs Study report will provide updates and explanations of the County's Road conditions and related deficiencies that impact longevity or operations of the roads, including road widths, drainage, surface type, alignment, and brushing maintenance where required. The road conditions from the 2023 updated road study were incorporated into this asset management plan. It is important to note that only current assumed roads were studied and listed in the asset inventory.

### 2.3.2 Bridges & Culverts

The County Operations and Administration is responsible for 156 bridges and culverts structures over the span of 3.0 m. The County Trails and Parks are responsible for 19 structures which are mostly small pedestrian structures found in the County's parks or along County trails. Both groups of structures were inspected in 2021. The inspection reports were reviewed, and information used in this asset management analysis.

Visual inspections are required to be carried out every two years in accordance with the Ministry of Transportation – Ontario Structure Inspection Manual (OSIM). The inspections are to be completed under the direction of a Professional Engineer to assess their condition and identify any material defects, performance deficiencies, maintenance needs, additional studies and / or repairs / rehabilitation work required on a structure-by-structure basis.

The County has a total of \$364 million replacement cost of bridge and culvert assets. Table 2.6 and Table 2.7 provide the distribution of the types of bridges that the County owns.

**Table 2.6: Public Works Structure Types**

Bridge & Culvert Type	Number	Replacement Cost
Bowstring Arch	1	\$2,920,000
Box Beams or Girders	8	\$38,158,000
Circular Voided Slab	2	\$4,166,000
I-beam or Girders	37	\$177,946,000
Precast Concrete Box Girder	1	\$2,345,000
Rectangular Culvert	1	\$1,333,000
Rigid Frame, Vertical Legs	19	\$33,632,000
Solid Slab	2	\$5,463,000
Spandrel Arch	2	\$5,301,000
T-Beam	5	\$11,856,000
Arch Culvert	9	\$7,280,000
CSP	2	\$1,478,000
Earth filled arch	1	\$2,155,000
Ellipse Culvert	2	\$1,228,000
Frame, Inclined Legs	1	\$708,000
Rectangular Culvert	36	\$34,042,000
Rigid Frame, Vertical Legs	17	\$16,756,000
Round Culvert	6	\$5,810,000
Solid Slab	1	\$895,000

Bridge & Culvert Type	Number	Replacement Cost
T-Beam	1	\$1,188,000
Twin CSP	2	\$2,291,000
<b>Total</b>	<b>156</b>	<b>\$356,951,000</b>

**Table 2.7: Trails and Parks Structure Types**

Bridge & Culvert Type	Number	Replacement Cost
Rigid Frame, Vertical Legs	1	\$563,000
Pedestrian Bridge (Timber Deck)	9	\$4,510,100
Cast-In-Place Conc. Rigid Frame	2	\$1,123,000
Steel I-Girder (Timber Deck)	1	\$142,000
Timber Girder	6	\$765,000
<b>Total</b>	<b>19</b>	<b>\$7,103,100</b>

Load postings may be recommended for structures based on age, condition, noted performance deficiencies or based on the findings of a structural evaluation. There are currently three structures in the County's inventory that has a load postings. See Table 2.8 for Load Posting details.

**Table 2.8: County Bridge Load Limit Posting**

Asset ID	Bridge Asset Name	Structure Type	Load Posting (tonnes)
PWD14693 / 1-0129-00	Brant Mill Bridge	T-Beam	Closed
1-FTBR-01	Lion's Park At Mechanic Street	Pedestrian Bridge (Timber Deck)	3.1
1-FTBR-02	Paris Trail Near Lion's Park	Pedestrian Bridge (Timber Deck)	5.9

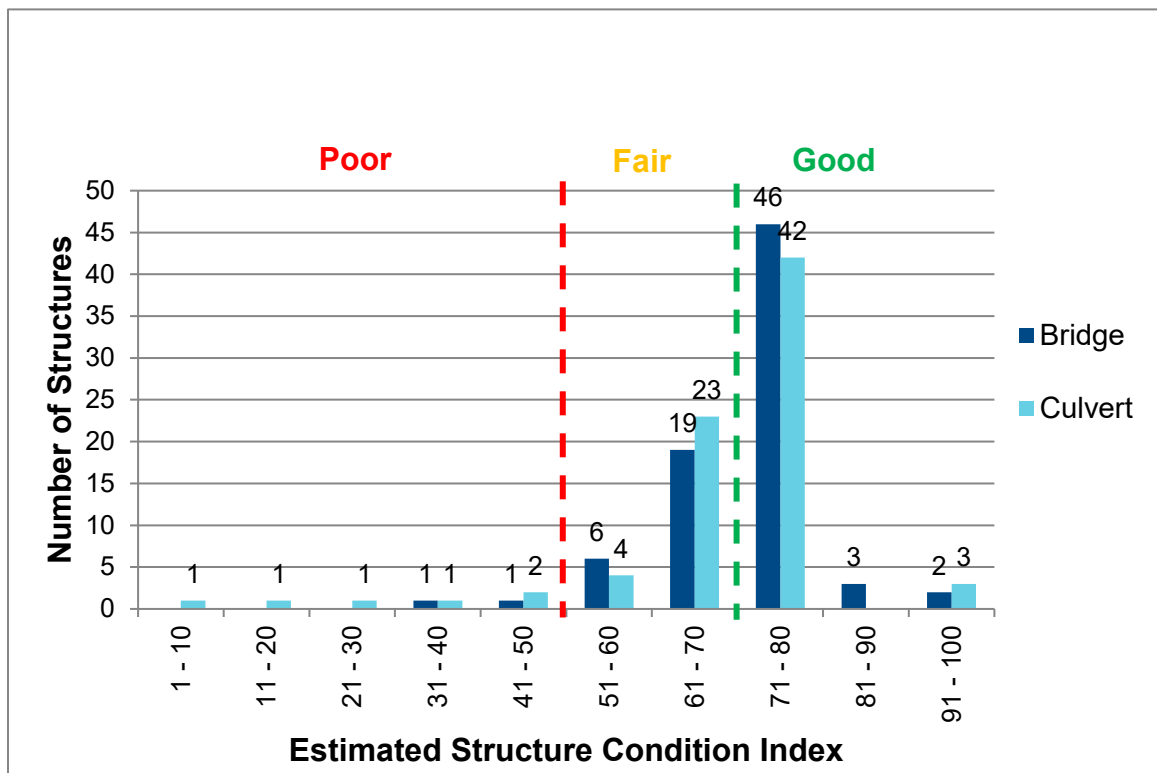
The County's structure inspection reports had bridge condition index (BCI) values calculated for the bridges. Burnside reviewed these calculations and believe that the County's consultant did not account for the transition of some individual elements of structures. This results in a higher then expected BCI. Burnside recalculated the BCI values and provided this to County Staff in the working spreadsheets. For example, each element of a structure is assigned an environment (severe, moderate, and benign) based on the level of exposure. The environment identified for the element has an impact on the condition transition.

It is recommended that the County have the engineers completing the bridge and culvert inspections use the most up to date Ministry of Transportation inspection forms and calculate appropriate BCI values for each structure.

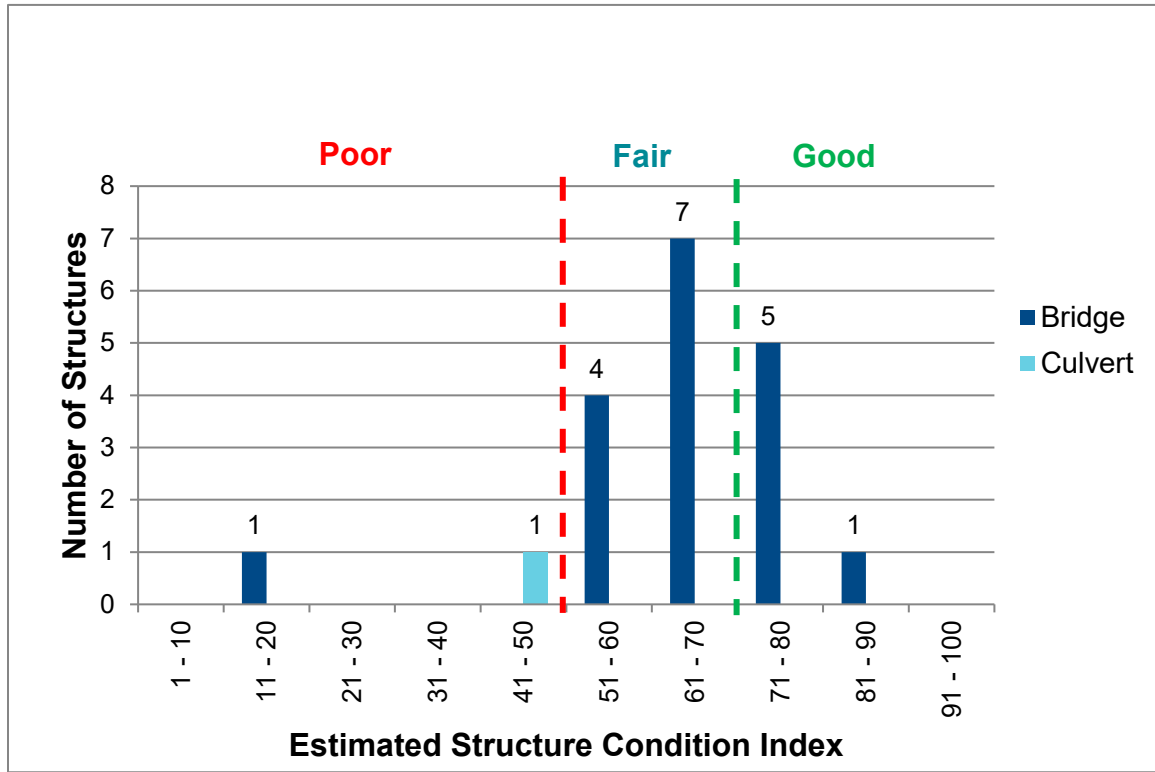
The capital works needs include any repair, rehabilitation or replacement work which would typically be completed by the County’s hired Contractor, to assist in extending the service life of a structure and increasing the Bridge Condition Index (BCI). In accordance with the OSIM reports, the capital and maintenance works required are based on a priority of 6 to 10 years, 1 to 5 years, and urgent now needs have been estimated and incorporated into the asset management strategy.

Based on the biennial inspection of each structure, the estimated Structure Condition Index Distribution graph, shown in Figure 2.6 and Figure 2.7 provide a summary of the current state of the County’s structures.

**Figure 2.6: Estimated Public Works Structure Condition Distribution**



**Figure 2.7: Estimated Trails and Parks Structure Condition Distribution**



Currently, the County’s structures weighted average based on replacement cost is with in the Fair range, or 59.2 and 64.4 BCI based on the Burnside recalculated BCI values, as illustrated in Table 2.7 above. Of interest, the Ministry of Transportation Ontario (MTO) has established a goal to have 85% of their structures in “Good” condition by the year 2021, and to maintain that condition moving forward by addressing rehabilitations and replacements as necessary. Burnside recognizes that the above goal was not established by the County. It should be noted that based on the current state of the inspected structures and Burnside recalculated BCIs the County has some serious investment needs in their structures, as only 58% fall into the good category.

Continued maintenance and completion of rehabilitative or replacement works as recommended in the 2021 OSIM Bridge Inspection Reports will help to move the structure BCI conditions in an upward direction.

**2.4 Storm Water Assets**

The County has \$181.9 million of storm water assets. The majority of the storm water asset value is made up with storm water mains total replacement cost approximately \$77.2 million or 4.2% of the County’s core tax supported assets. Table 2.8 and Table 2.9 show the distribution of the County’s storm water assets. More detailed listing of the storm water assets was provided to County Staff with the working spreadsheet of asset inventory. In general, the storm water assets are in Good condition and have a long remaining lifecycle, with Low risk of failure.

**Figure 2.8: Storm Water Assets Replacement Cost Distribution (2023)**

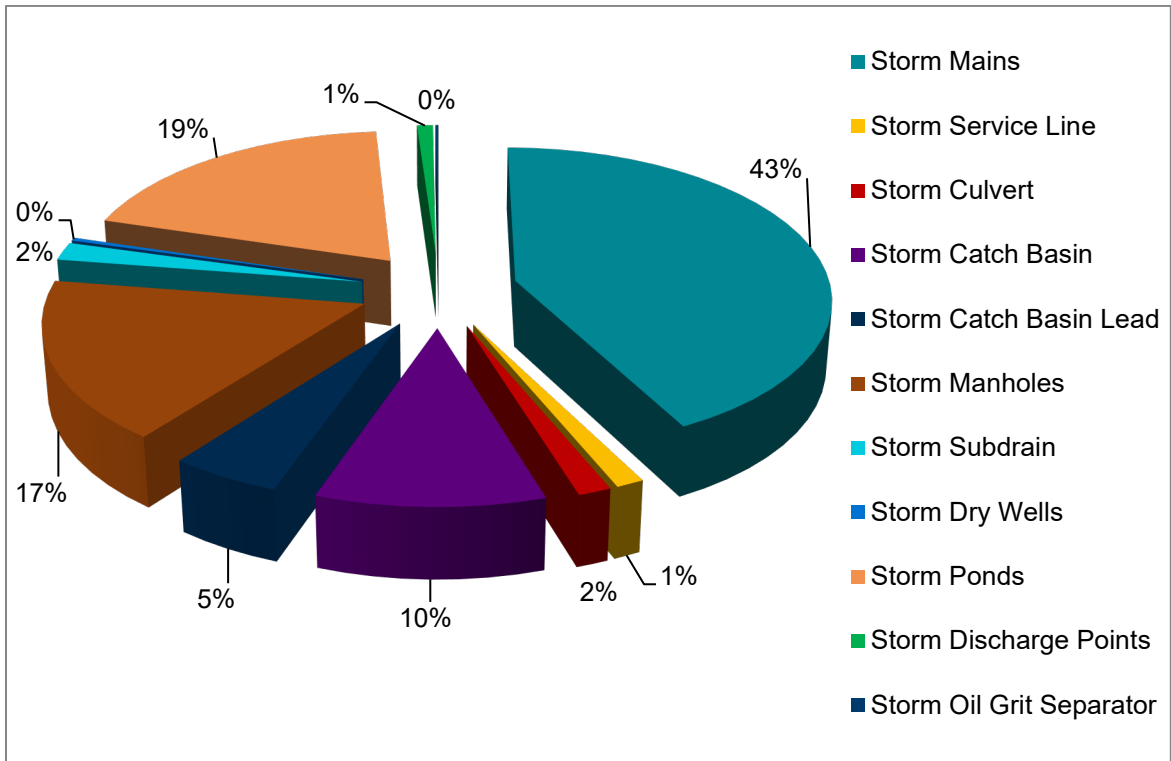


Table 2.9: Storm Water Assets

Storm Water Assets	Length (m) / Number	Replacement Cost	Condition (weighted Average)	Risk (weighted average)
			Text	Text
Storm Mains	121070.98	\$77,155,077	Good	Moderate
Storm Service Line	7567.24	\$2,310,420	Good	Low
Storm Culvert	401	\$2,719,983	Average	Moderate
Storm Catch Basin	2,989	\$18,648,000	Average	Moderate
Storm Catch Basin Lead	19765.12	\$9,065,240	Good	Low
Storm Manholes	1,699	\$30,980,500	Good	Low
Storm Subdrain	10594.74	\$3,469,502	Average	Low
Storm Dry Wells	125	\$625,000	Good	Low
Storm Ponds	35	\$34,963,000	Good	
Storm Discharge Points	306	\$1,675,000	Average	Moderate
Storm Oil Grit Separator	8	\$320,000	Very Good	Low
<b>Total</b>	<b>158,998.08 / 5,558</b>	<b>\$181,931,722</b>		

**Table 2.10: Storm Water Mains Assets**

Storm Main Assets	Status	Length (m)	Replacement Cost	Useful Life	Age (weighted average)	Remaining Life (weighted Average)	Condition (weighted Average)	Risk (weighted average)
Material							Text	Text
	Abandoned	562.64						
Asbestos Concrete	Constructed	83.68	\$37,783	100	48	52	Average	Low
Cast Iron Pipe	Constructed	1,248.42	\$711,672	50	55	2	Very Poor	Low
Clay	Constructed	398.83	\$181,625	50	48	12	Poor	Low
Concrete	Constructed	76,481.21	\$52,732,727	100	34	66	Good	Moderate
Corrugated Steel Pipe	Constructed	3,641.81	\$2,551,740	50	31	18	Poor	Moderate
High Density Polyethylene	Constructed	385.98	\$195,587	100	11	89	Very Good	Low
Perforated Corrugated Steel Pipe	Constructed	347.66	\$161,662	50	26	24	Average	Low
Plastic	Constructed	1,844.54	\$808,314	100	32	66	Good	Low
Polyethylene	Constructed	392.77	\$206,946	100	34	66	Good	Moderate
PVC	Constructed	33,156.92	\$16,497,778	100	12	88	Very Good	Low
Reinforced Concrete	Constructed	1,706.48	\$2,281,507	100	16	84	Good	Moderate
Steel	Constructed	1,382.68	\$787,735	50	38	12	Poor	Moderate
<b>Total</b>		<b>121,070.98</b>	<b>\$77,155,077</b>					

Table 2.10 provides Storm Water Mains as an example of the type of detail being provided to County Staff in the asset inventory spreadsheet. Knowing the attributes as pipe material type and length will provide insight to County Staff to prioritize CCTV inspections of these older pipes and develop a Capital replacement plan.

It is also important to note that Burnside was provided limited Storm Pond attribute information and had to make many assumptions based on the data provided. It is recommended that the County review the calculations for Replacement Costs of County Storm Ponds moving forward.

The County has started a new program to locate and inspect all County crossroad culverts. The current value of this asset type is expected to be included as part of the Road asset value, however crossroad culverts become critical during extreme weather events. This newly budgeted project will provide key information to County engineers to ensure water is appropriately moving and not building up in areas which can harm other municipal or private assets.

Another positive action that the County is taking is looking into a Storm Water Utility model for urban storm sewers. This way this very important asset type will have its own funding source for capital improvements and maintenance, like the water and wastewater systems.

#### **2.4.1 County Municipal Drains**

Municipal drainage infrastructure provides an important outlet to agricultural lands and rural settlements. The successful growth of crops depends on a suitable soil environment for germination, root anchorage, and plant growth. Lands that are subject to excess soil moisture and overland flooding require adequate outfalls for private drainage systems to achieve a successful standard of agriculture. Approximately 200 km<sup>2</sup>+ of property in the County is affected by one or more Municipal Drainage watersheds. There are approximately 276 km of municipal drains constructed under the Drainage Act and 48 km of privately managed drains (Mutual Agreement or Requisition/Award). The County has completed approximately 49 km of drain cleanouts since fall 2021. There are approximately 45 km of municipal drains scheduled to be cleaned out between July 2024 and March 2025.

In January 2021, the County take a proactive approach to municipal drain maintenance from reactive. A proactive approach to drainage includes a schedule for future maintenance of the County's drains, including proposed years to complete cleanouts and brushing, frequency of recurring maintenance, and a recommended preventative inspection rotation. This proactive approach is believed to be an excellent example to other Municipalities.

Maintaining and repairing municipal drainage infrastructure is paid for proportionately by the landowners where the municipal drain flows. The County only pays for the proportion of where these municipal drains cross County land.

Currently the County has nine drainage reports in various stages of design:

- Two in Section 4 Petition Reports – which will create new drainage systems;
- Two in Section 76 Assessment Schedule Reports;
- Four in Section 78 Improvement Reports; and
- One in a combination of Section 4 and Section 78 report.

The Section 78 Improvement reports will replace existing systems that no longer provide sufficient outlet.

More information related to Municipal drains are recommended to be added to future asset management plans.

## **2.5 Water Rate Payers Supported Assets**

The County water rate payer supported assets provide potable water to many communities across the County. These assets total \$264.3 million in 2023 replacement cost value which is 11.3% of all the County core assets. Table 2.11 provides a summary of all of the water rate payers supported assets. A more detailed review of these assets was delivered to the County Staff in the asset inventory spreadsheets. An example of two key Water asset types summary details are found in Table 2.11 for Water Facilities and Table 2.12 for Water mains.

Each Water rate payers supported asset component identified in Table 2.11 is critical to the acquiring, treatment, and distribution of potable water to the Brant County communities with sufficient quantity and pressure. As this is a Water rate payers supported asset grouping, we shall only comment on the condition of the system based on the documented age of these assets.

In general, the condition of the water assets are Average with Moderate risk of failure. The County is maintaining the appropriate water distribution levels of service. The water quality and pressure are at acceptable levels for the current number of homes being serviced. The Mount Pleasant water system was intentionally designed without Fire rated pressure; however, this is overcome with the local Fire Department having a water tanker that can be shuttled to provide fire safety.

**Table 2.11: Summary of Water Facilities Assets**

Water Facility Assets	Replacement Cost	Useful Life (weighted average)	Age (weighted average)	Remaining Life (weighted Average)	Condition (weighted Average)	Risk (weighted average)
					Text	Text
Airport Tank Facility	\$5,612,730	44	6	39	Good	Low
Airport Pumping Station	\$5,794,501	38	2	36	Very Good	Low
Baird Street Valve Building	\$296,930	25	16	12	Average	Moderate
Bethel Water Treatment Plant	\$9,774,674	35	10	25	Good	Moderate
Burford Administration Office Scada	\$164,443	4	14	0	Average	Moderate
Cainsville Meter Chamber	\$58,594	10	12	0	Average	Moderate
Cainsville Elevated Tank	\$2,208,198	13	14	0	Average	Moderate
Brant County Water Meters	\$3,010,809	20	3	17	Very Good	Low
Gilbert Pumping Station	\$15,016,337	48	23	27	Average	Moderate
Mt. Pleasant Pumping Station	\$8,766,979	46	10	36	Good	Moderate
North Paris Elevated Tank	\$3,847,802	44	7	37	Good	Low
Oak Park Elevated Tank	\$2,727,723	44	21	24	Average	Moderate
Parkhill Pumping Station	\$1,074,735	35	14	22	Good	Moderate
Sharpe Pumping Station	\$10,032,346	62	17	44	Good	Moderate
St George Bulk Fill Depot	\$196,488	21	22	4	Poor	Moderate
St. George Pumping Station	\$2,898,869	37	17	22	Average	Moderate
St. George Elevated Tank	\$2,901,946	45	28	18	Average	Moderate
Telfer Pumping Station	\$2,679,625	40	18	23	Average	Moderate
Unknown Location	\$30,000	75	1	74	Very Good	Low
<b>Total</b>	<b>\$77,093,729</b>					

**Table 2.12: Summary of Water Main Assets**

Water Main Assets	Status	Length (m)	Replacement Cost	Useful Life	Age (weighted average)	Remaining Life (weighted Average)	Condition (weighted Average)	Risk (weighted average)
Material							Text	Text
	Abandoned	6,714.21						
Asbestos Concrete	Constructed	23,377.21	\$13,857,429	100	51	49	Average	Moderate
Cast Iron Pipe	Constructed	26,162.49	\$15,352,451	50	57	3	Very Poor	High
Concrete Pressure Pipe	Constructed	1,244.14	\$1,566,455	100	27	73	Good	Moderate
Copper	Constructed	585.83	\$197,209	50	19	31	Average	Moderate
Ductile Iron	Constructed	50,078.18	\$29,851,156	50	38	13	Poor	High
High Density Polyethylene	Constructed	1,529.12	\$873,532	100	27	73	Good	Moderate
PVC	Constructed	59,155.48	\$41,781,617	100	19	81	Good	Low
Steel	Constructed	102.60	\$89,260	50	52	0	Very Poor	High
Transite	Constructed	85.30	\$51,261	50	58	0	Very Poor	High
<b>Total</b>		<b>162,320.35</b>	<b>\$103,620,371</b>					

Table 2.12 highlights some water main pipes that are approaching their end of life based on their age and identified useful life. These values may misdirect the reader as asset age was used to establish the approximate condition of these assets. For example, some cast iron pipes can outlive their 50 year identified useful life under favourable soil conditions. Without this information the project analysis is using a conservative approach. It is recommended that the County undertake water main inspections for the high-risk areas.

## 2.6 Wastewater Rate Payers Supported Assets

The County rate payers supported wastewater assets provide an environmentally acceptable safe process of returning to nature used water supplies. The wastewater system provides services for the Brant County urban communities. These assets total \$244.4 million in 2023 replacement cost value which is 13% of all the County's core assets. Table 2.4 provides a summary of all of the wastewater rate payers supported assets. Table 2.13 and Table 2.14 provide some further expanded wastewater asset information for Wastewater Facilities and Wastewater Mains. Full details of all the wastewater asset inventory were provided to County Staff for their use.

Each wastewater rate payer supported asset component identified in Table 2-4 is critical to the acquiring, treatment and returning of wastewater back to the environment. As wastewater is a rate payers supported asset grouping, we shall only comment on the condition and capacity of the system.

In general, the wastewater system is relatively new and therefore identifies as in Good condition. There are some older parts of the County's urban areas that we recommend having CCTV scans completed within the next 5 to 10 years to ensure that the wastewater gravity mains are still not beyond 2/3 of their life expectancy. This then will provide the County with the ability to install as required gravity main liners in the future and therefore extend the life of the gravity mains for an additional 30 years.

**Table 2.13: Summary of Wastewater Facility Assets**

Wastewater Facility Assets	Replacement Cost	Useful Life (weighted average)	Age (weighted average)	Remaining Life (weighted Average)	Condition (weighted Average)	Risk (weighted average)
					<b>Text</b>	<b>Text</b>
Airport Wastewater Treatment Facility	\$2,354,293	67	8	59	Good	Moderate
Biosolid Storage Facility	\$1,381,512	76	7	69	Very Good	Low
Brant 403 Business Park Sewage Pumping Station	\$1,613,108	44	10	34	Good	Moderate
Cainsville Sewage Treatment Facility	\$1,027,774	69	36	34	Average	High

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Wastewater Facility Assets	Replacement Cost	Useful Life (weighted average)	Age (weighted average)	Remaining Life (weighted Average)	Condition (weighted Average)	Risk (weighted average)
Grand River Sewage Pumping Station	\$963,187	58	22	36	Poor	High
Grandville Sewage Pumping Station	\$1,436,953	53	12	41	Good	Moderate
MacPherson Drive Sewage Pumping Station	\$1,156,888	52	25	28	Poor	High
Paris Links Sewage Pumping Station	\$472,365	47	30	18	Poor	High
Paris Sewage Treatment Facility	\$12,327,052	56	23	34	Average	High
St George Sewage Treatment Facility	\$5,439,527	47	36	16	Very Poor	High
Willow Street Sewage Pumping Station	\$5,275,435	74	17	57	Good	Moderate
<b>Total</b>	<b>\$33,448,093</b>					

As outlined above an asset displaying a High Risk in summary tables should be used as a trigger to look deeper into these assets. For example, the Grand River Sewage Pumping Station displays Poor condition and High risk. This facility has 4 important assets (generator, and three pumps) that are coming to the end of their identified useful lives. Please note that inspections of these facilities were not undertaken for this project and age-based conditions were used. Also, we understand that the generators are run monthly, and load tested annually by a contractor. Also, wastewater pumping systems are inspected regularly and maintained with sufficient redundancy.

Also, the County uses a contractor to operate and maintain the wastewater facilities, and will make recommendations to the County when equipment needs to be replaced or rehabilitated.

**Table 2.14: Summary of Wastewater Main Assets**

Wastewater Main Assets	Status	Length (m)	Replacement Cost	Useful Life	Age (weighted average)	Remaining Life (weighted Average)	Condition (weighted Average)	Risk (weighted average)
Material							Text	Text
	Abandoned	378.98						
Asbestos Concrete	Constructed	19,241.21	\$27,220,558	100	46	54	Average	Moderate
Cast Iron Pipe	Constructed	17.19	\$22,733	50	45	5	Very Poor	High
Clay	Constructed	257.10	\$303,891	50	61	1	Very Poor	High
Concrete	Constructed	15,962.65	\$32,359,330	100	47	53	Average	Moderate
Ductile Iron	Constructed	387.69	\$626,099	50	24	26	Average	Moderate
High Density Polyethylene	Constructed	2,883.68	\$4,240,817	100	11	89	Very Good	Low
Polyethylene	Constructed	432.91	\$764,877	100	38	62	Average	Moderate
PVC	Constructed	57,645.52	\$70,326,203	100	22	78	Good	Moderate
Steel	Constructed	134.12	\$182,131	50	55	3	Very Poor	High
<b>Total</b>		<b>96,962.07</b>	<b>\$136,046,639</b>					

Table 2.14, similar to Table 2.12 shows iron and steel material pipes coming to the end of their identified lifecycle and therefore due to age-based condition assessments may only be a trigger for more deeper investigation.

## **2.7 Data Accuracy and Completeness**

An important element of this asset management plan is ensuring that tools and procedures are in place to maintain accuracy and completeness of the asset data and calculations moving forward. As time passes, assets are used, maintained, improved, disposed of, and replaced.

All of these lifecycle events can trigger changes to the asset database used within the asset management plan. Therefore, tools and procedures are essential to ensure the asset data remains accurate and complete. This includes the timing of condition assessments for each asset type and what should be included within the condition assessment procedures.

As noted above the County's asset inventory had many gaps of information and approximations were made to be able to complete this project. It is recommended that the County use the asset inventory spreadsheets provided to Staff as a starting point and that the highlighted cells be verified and corrected were required.

### 3.0 Expected Levels of Service

The County has been offering and maintaining for its residents and visitors, good service levels, during challenging economic times. The Province has demanded via Ontario Regulation 588/17 that municipalities complete asset management plans on a regular basis to ensure that appropriate investments are being made in municipal infrastructure. Reviewing past records has shown that some investments were being made into maintaining and replacing the County's core infrastructure. It is important to note that the long-term objective of the County needs to be infrastructure sustainability. In general, the County is performing maintenance activities when required and has moved forward with proactive investigations of asset types requiring more detailed assessments.

#### 3.1 Scope and Process

A levels of service (LOS) analysis gives the County an opportunity to document the levels of service that are currently being provided and compare it to the levels of service that will ensure the assets achieve their full lifecycle potential. This can be done through a review of current practices and procedures, an examination of trends or issues facing the County and / or through an analysis of performance measures and targets that staff can use to measure performance.

Expected LOS can be impacted by a number of factors, including:

- Legislative requirements (e.g., minimum maintenance standards for roads, etc.).
- Strategic planning goals and objectives.
- Resident expectations.
- Visitor expectations.
- Council expectations.
- Financial or resource constraints.

The previous task of determining the state of the County's local infrastructure establishes the asset inventory and condition, as well as asset management policies and principles to guide the refinement and upkeep of asset infrastructure. The LOS analysis utilizes this information and factors in the impact of asset service level targets. It is important to document an expected LOS that is realistic to the community. It is common to strive for the highest LOS; however, these service levels usually come at a cost. It is also helpful to consider the risk associated with a certain LOS. Therefore, expected LOS should be determined in a way that balances both level of investment and associated risk to the County.

Burnside received both verbal and documented confirmation of maintenance practices that the County staff undertake. We recommend that the County continue to make use of updating Road Needs Study and the biannual bridge inspections and analysis utilizing the most up to date MTO bridge / culvert degradation models. These engineering-based inspection practices provide historic condition information as well as information related

to any changes to asset maintenance. This will also help better determine the remaining life of the municipality's assets.

This information will help not only identify the current County needs but also future requirements due to Levels of Service changes. Ensuring that appropriate levels of service are determined and recorded helps during the County's future growth.

The strategy of investing more often in smaller amounts which provides higher levels of service and better asset condition with an over all lower total cost over the lifecycle of the asset is recommended.

### **3.2 Current Levels of Service versus Expected Levels of Service**

The County's current LOS has resulted in the current state of infrastructure as discussed in the previous section of the report. The current LOS also relates to the risk assessment discussed in later report sections. Regarding the cost of this LOS, the County has established an operating and capital budget for the current year that includes the cost of providing this LOS. After many discussions with County staff, it was determined that over the 10-year project timeline a short-term investment of \$350,000 for wastewater facility improvements and future \$40,000 in additional budget at 2023 cost for Road Needs Studies was identified as additional cost to deliver identified expected levels of service for County core assets.

Table 3.1 outlines broad LOS descriptions (both current and enhanced LOS). This analysis was noted through discussions with the County's staff and engineering best practices. Based on the information provided the County is both budgeting and completing appropriate levels of service. The Levels of Service cost impact analysis was factored into the cost strategy discussed in Section 4 of this report.

**Table 3.1: Road Expected Levels of Service**

Roads Expected Strategic LOS	Current LOS	Expected LOS	Benchmark (if Applicable)	Estimated Increase in Cost from Current to Expected LOS	Cost Description
<b>Safe Roads</b>	Meet "Minimum Maintenance Standards" as defined by Ontario Regulation 239/02 and Amendments.	Meet "Minimum Maintenance Standards" as defined by Ontario Regulation 239/02 and Amendments.	Regulation Standard		County uses digital equipment to track and stay compliant with Ont. Regulation 239/02 and amendments
<b>Fix Public Identified Issues Quickly</b>	Track complaints and resolve them as per requirements	Track complaints by road segment so that history can be recorded.	Respond to Public Inquiry within 24 hours		County prioritizes issues and resolves within scheduled operations services. County uses a tracking system.
<b>Maintain Road System Network Condition for safe use</b>	Road Maintenance is completed regularly and when required	Maintain adequate road network condition index to ensure safe roads	Assess Road Conditions every 2 years with minor updates in offsetting years	\$40,000	County provides this level of service. Cost reflects Capital budget required for Road Needs Study completed every 2 years starting in 5 years time as current consultant may retire. The next Road Needs Study is expected in 2025 with a potential cost of \$95,000.
<b>Hardtop Roads are Clean and Clear</b>	Street sweeping completed annually	Maintain clean safe roads			County has two street sweeper machines and have sufficient budget to complete this level of service
<b>Follow Best Practice for Asphalt Roads</b>	Using all standard maintenance practices	Completing a regular crack seal program.		\$200,000	County has a 10-year plan with budgeted maintenance requirements to complete this level of service. County is now using funding to complete full overlays as a holding strategy on roads until time for reconstruction. Cost is for additional funding to fully implement plan
<b>Surface Treatment Roads are well maintained</b>	Using all standard maintenance practices	Meet "Minimum Maintenance Standards" as defined by Ontario Regulation 239/02 and Amendments.			County does not use slurry seal program and have not seen sufficient evidence of adding life to the road surface
<b>Gravel Roads are well maintained and Dust Inhibited</b>	Gravel roads are smoothed when required, and Calcium Chloride to reduce segregation and separation of gravel surface	Gravel roads are smoothed when required, and Calcium Chloride applied for greater stability of surface material			County provides this level of service
<b>Safe and well-maintained Roadsides</b>	County provides brushing, ditching, grass mowing, and shoulder maintenance to ensure roadsides are safe and well maintained.	Roadsides are clear of obstructions and well maintained for safe road travel.			County received a \$200,000 a year increase in budget and is now sufficient for the number of staff to complete this level of service
<b>Winter Road Maintenance</b>	Winter roads are cleared and safe based on Minimum Maintenance Standards	Roads are maintained and meet "Minimum Maintenance Standards" as defined by Ontario Regulation 239/02 and Amendments.			County provides this level of service
<b>Weather forecast information</b>	County staff check weather forecasts minimum 3 times per day in the Winter months (October 1 - April 30)	Weather forecasts are reviewed three times per day during the Winter Maintenance months.			County provides this level of service
<b>Traffic Counts are completed regularly</b>	Traffic counts are updated as required	Clear understanding of traffic counts are updated			County provides this level of service
<b>Guardrails are safe and well maintained</b>	County started a guardrail inspection program in 2023.	Meet Provincial Standards			County provides this level of service

**Table 3.2: Bridge Expected Levels of Service**

Bridge Expected Strategic LOS	Current LOS	Expected LOS	Benchmark (if Applicable)	Estimated Increase in Cost from Current to Expected LOS	Cost Description
<b>Safe Bridges</b>	Maintain good bridge condition with 1 bridge having load limit.	Maintain good condition and no load limits.	MTO bridge guides		Brant Mill Bridge is closed. Mechanic Street footbridge has a 3.1 tonne load limit. Lions Park Pedestrian footbridge has a 5.9 tonne load limit
<b>Bridges Maintained</b>	Follow Bridge Inspection Report recommendations for Bridge and Culvert maintenance.	Proactive Bridge and Culvert maintenance (based on bridge inspection report).			County provides this level of service
<b>Proper Bridge Spring Maintenance</b>	County washes and sweeps bridges every spring	Blowing out Expansion Joints & Washing of Bridges in Spring			County provides this level of service
<b>Bridge Inspections</b>	Bridge inspections (i.e. using OSIM forms) required every 2 years.	Bridge inspections (i.e. using current OSIM forms) required every 2 years.	Completed every 2 years		County provides this level of service

**Table 3.3: Storm Water Expected Levels of Service**

Storm Water Expected Strategic LOS	Current LOS	Expected LOS	Benchmark (if Applicable)	Estimated Increase in Cost from Current to Expected LOS	Cost Description
<b>Effective Storm Water Management</b>	Investigate and respond based on public complaints/concerns	Proper flows and clear system with little to no inhibitors	No storm water back-up incidents		County provides this level of service
<b>Cross Road Culverts are Appropriately Sized and Maintained</b>	Cross Road Culverts inspections is a new program implemented in 2023	Climate Change and/or Extreme Weather events do not cause adverse issues with the Municipal Road network			County is expecting to act on information identified from the new inspection program.
<b>Catch Basins are clear and well Maintained</b>	Catch Basin cleaned every two years	Annual Catch Basin cleaning			County provides sufficient level of service
<b>Storm Water Mains are clear and well Maintained</b>	County is working on a maintenance program for annual inspection of Oil Separators	Regular inspection for condition and no physical obstructions			County is working on a maintenance program for annual inspection of Oil Separators
<b>Discharge Points are clear and well Maintained</b>	County will be exploring engineering best practices moving forward for inspection of discharge points	Regular inspection for condition and no physical obstructions			County will be exploring engineering best practices moving forward for inspection of discharge points

**Table 3.4: Water Expected Levels of Service**

Water Assets Expected Strategic LOS	Current LOS	Expected LOS	Benchmark (if Applicable)	Estimated Increase in Cost from Current to Expected LOS	Cost Description
<b>Source Water is well Protected</b>	Maintaining appropriate Zoning and Planning to ensure Source Water Protection	Maintaining appropriate Zoning and Planning to ensure Source Water Protection			County provides this level of service
<b>Production Wells are well Maintained</b>	Appropriate maintenance is undertaken when required	Appropriate maintenance is undertaken when required			County is completing this LOS, via Contractor. Video inspections occur once every 5 years or sooner if required. Cost is in current operating budget
<b>Treatment Processes Meet Legislative Requirements</b>	Meet all legislative requirements.	Meet all Provincial legislative requirements.	Provincial Guidelines		County provides this level of service
<b>Well Maintained Generator</b>	Tested and well-maintained generator	Tested and well-maintained generator			Run monthly by operators, load tested yearly and inspected by contractor, Serviced yearly by contractor.
<b>Backup Power Supply</b>	All Production Wells and Pump Houses have appropriate backup power	All Production Wells and Pump Houses have appropriate backup power			All treatment plants and booster stations have backup power.
<b>Appropriate Water Storage for Distribution Network</b>	Currently there are no water storage or distribution shortages	Water Storage meets the needs of the Water Distribution Network			County currently provides this level of service
<b>Efficient Water Distribution System</b>	Water losses are tracked and within allowable limits	Water Losses are tracked and minimized			County currently provides this level of service, with annual leak detection in Paris and all other systems every 4 years or as required
<b>System Valves are exercised and well maintained</b>	System valves are turned every 5 years	System valves are exercised and well maintained			County provides this level of service
<b>Scada System Software Adjustments</b>	County receives annual upgrades of Scada software	Scada System is reviewed and well maintained to ensure appropriate water quality and quantity distribution			County provides this level of service
<b>Sufficient Water pressure for Fire Protection</b>	County has sufficient fire protection in all systems except Mt Pleasant. The fire department is setup with tanker shuttle to provide fire protection.	Water Pressure meets Fire Protection Standards of 50psi			County provides this level of service
<b>Safe Pumphouse Buildings</b>	Meet legislative requirement (Building Code, Fire Code, Health & Safety, etc.)	Meet legislative requirement (Building Code, Fire Code, Health & Safety, etc.)			County provides this level of service
<b>Heating Systems are inspected and maintained</b>	Heating systems are well maintained to ensure proper operations	Heating systems are well maintained to ensure proper operations			County provides this level of service
<b>Hydrant Inspection and Valve turning</b>	County exercise all hydrants once per year	Hydrants are inspected and valves exercised completing any required maintenance			County provides this level of service
<b>Hydrants are Flushed and Swabbed</b>	County flush and swab all hydrants once per year	Flushing Program meets Guideline Standards			County provides this level of service

**Table 3.5: Wastewater Expected Levels of Service**

Wastewater Assets Expected Strategic LOS	Current LOS	Expected LOS	Benchmark (if Applicable)	Estimated Increase in Cost from Current to Expected LOS	Cost Description
<b>Treatment Processes Meet Legislative Requirements</b>	Meet all legislative requirements.	Meet all Provincial legislative requirements.	Provincial Guidelines		County provides this level of service, using a contractor
<b>Safe Treatment Buildings</b>	Appropriate maintenance is undertaken when required	Appropriate maintenance is undertaken when required		\$300,000	Paris WPCP is currently having ESA deficiency; cost is estimated to rectify
<b>Well Maintained Generator</b>	Tested and well-maintained generator	Tested and well-maintained generator			Run monthly by operators, load tested yearly and inspected by contractor, Serviced yearly by contractor.
<b>Clean and well-Maintained Treatment Facilities</b>	County has contractor providing this service	Proactive facility maintenance.			County provides this level of service, using a contractor
<b>Well Maintained Pumps</b>	Pumps are inspected regularly and maintained with sufficient redundancy	Proactive pump maintenance.			County provides this level of service, using a contractor
<b>Efficient Collection System</b>	No significant known issues	Wastewater mains are clear of obstructions, infiltration and leaking.			County currently provides this level of service
<b>UV Disinfectant System is Well Maintained</b>	UV Lights and system parts are well maintained as per manufacturers manual	Proactive UV System maintenance			County provides this level of service, using a contractor
<b>Out Buildings are Well Maintained</b>	Tank cleanout and inspections are completed regularly	Proactive maintenance is completed			County provides this level of service, using a contractor
<b>Manholes well maintained</b>	County inspects and cleans out Manholes every 6 years	Inspection and Appropriate Maintenance of Manholes			County provides this level of service
<b>Minimize Incidents of bypass</b>	County has had 3 bypass events at St. George WPCP in 2023	Wastewater treatment facility is operating effectively and efficiently minimizing potential treatment bypass		\$50,000	County is taking corrective action to fix the issue
<b>Scada System Software Adjustments</b>	Scada system is modified to ensure appropriate treatment and water quality before release into the environment	Scada system is modified to ensure appropriate treatment and water quality before release into the environment			County provides this level of service
<b>Track Complaints</b>	County tracks and follows up on all complaints	Document and track all complaints by system segment to ensure a well-maintained system			County provides this level of service

### 3.3 County Growth

The County continues to grow, and potentially will expand with new developments over the next ten years. The new developments over the next ten years will add roads, storm water, water, and wastewater assets to the County asset inventory. Some detailed information available for this Asset Management Plan and is summarized in Tables 3-6 – 3-8.

Table 3.6 shows that the County will be assuming \$32.8 million in Storm Water assets. This is an 18% increase with respect to current constructed and assumed storm water assets.

**Table 3.6: Unassumed Storm Water Assets**

Storm Unassumed Assets	Material	Length (m)	Replacement Cost	Useful Life	Age (weighted average)	Remaining Life (weighted Average)
Storm Mains	Concrete	11,268.38	\$14,676,642	100	3	97
	PVC	6,679.60	\$3,442,442	100	4	96
Storm Service Lines	PVC	2,264.51	\$679,352	100	4	96
Storm Culverts	Concrete		\$63,819	100	13	87
	Corrugated Steel Pipe		\$117,395	50	20	30
	High Density Polyethylene		\$25,626	100	9	91
Storm Catch Basins	Catchbasin		\$2,742,000	80	5	75
	Ditch Inlet Catchbasin		\$66,000	80	7	73
	Double Catchbasin		\$841,500	80	5	76
Catch Basin Leads	Concrete	923.64	\$546,637	100	4	96
	PVC	4,900.46	\$2,165,010	100	3	97
Storm Manholes	Catchbasin Manhole		\$574,000	100	7	93
	Ditch Inlet Catchbasin Manhole		\$11,000	100	19	82
	Double Catchbasin Manhole		\$98,000	100	6	94
	Manhole		\$6,300,000	100	5	95
Storm Subdrains	Perforated Subdrain	903.28	\$270,983	100	8	92
	Reinforced Concrete	3.00	\$900	100	19	81
Storm Discharge Points	Concrete Headwall		\$175,000	100	6	92
	Inlet		\$2,500	50	13	35
	Outlet		\$25,000	50	7	41
Storm Ponds						
<b>Total</b>		<b>26,942.87</b>	<b>\$32,823,807</b>			

Table 3.7 identifies the currently unassumed County’s water asset network which totals \$19.6 million or 7% increase in water rate supported assets.

**Table 3.7: Unassumed Water Assets**

Water Unassumed Assets	Material	Length (m)	Replacement Cost	Useful Life	Age (weighted average)	Remaining Life (weighted Average)
Water Mains	Cast Iron Pipe	860.65	\$478,092	100	4	96
	Copper	72.11	\$21,632	50	5	45
	PVC	16,891.71	\$10,165,381	100	4	96
Water Valves	Hydrant Valve		\$682,000	50	4	46
	Water Valve		\$982,500	50	4	46
Hydrants	Hydrant		\$2,445,000	50	2	46
Water Curb Stops	Water Curb Stops		\$1,998,000	50	5	45
Water Service Lines	Copper	7,564.75	\$1,664,962	50	3	47
	PEX	3,155.61	\$694,621	100	1	99
	PVC	1,052.50	\$515,305	100	2	98
<b>Total</b>		<b>29,597.33</b>	<b>\$19,647,493</b>			

Table 3.8 provides a summary of currently unassumed rate payers supported wastewater assets, totalling approximately \$38.9 million or 15% increase from the County’s wastewater asset inventory.

These known unassumed assets when assumed by the County will cause for increased efforts for staff to maintain and ensure appropriate levels of service are provided to County residence and visitors.

**Table 3.8: Unassumed Wastewater Assets**

Wastewater Unassumed Assets	Material / Description	Length (m)	Replacement Cost	Useful Life	Age (weighted average)	Remaining Life (weighted Average)
Wastewater Facility	Pinehurst Sewage Pumping Station		\$1,500,000	100	1	99
Wastewater Mains	Concrete	460.58	\$721,104	100	3	97
	High Density Polyethylene	602.40	\$658,118	100	1	99
	PVC	15,020.24	\$17,288,214	100	3	97
Wastewater Manholes	Wastewater Manholes		\$3,990,000	100	4	94
Wastewater Service Lines	PVC	12,565.50	\$11,702,491	100	3	97
<b>Total</b>		<b>28,648.71</b>	<b>\$35,859,926</b>			

## 4.0 Asset Management Strategy

### 4.1 Scope and Process

The asset management strategy provides the recommended course of actions required to maintain (or move towards) a sustainable asset position while delivering the levels of service discussed in the previous section. The course of actions, when combined, form a long-term operating and capital forecast that includes:

- **Non-infrastructure solutions:** Reduce costs and / or extend expected useful life estimates.
- **Maintenance activities:** Regularly scheduled activities to maintain existing levels of service levels, or repairs needed due to unplanned events.
- **Renewal / Rehabilitation:** Significant repairs or maintenance planned to maintain the levels of service and increase the remaining life of assets.
- **Replacement / Disposal:** Complete disposal and replacement of assets when renewal or rehabilitation is no longer an option.

Priority identification becomes a critical process during the development of an asset management strategy. Priorities have been determined based on assessment of the overall risk of asset failure, which is determined by looking at both the probability of an asset failing, as well as the consequences of asset failure. The consequences of the municipality not meeting desired levels of service must also be considered in determining risk. As discussed in Section 3.0, adding enhanced levels of service results in both operating and capital budget impacts over the 10-year forecast period has to be taken into consideration, with the overall objective of reaching sustainable levels while mitigating risk.

### 4.2 Risk Assessment

The risk of an asset failing is defined by the following calculation:

**Risk of Asset Failure = Probability of Failure X Consequence of Failure**

Probability of failure has been linked to the condition assessment for each asset, assuming that an asset in “very good” condition has a “rare” probability of failure. The following table outlines the probability factor tied to each condition rating:

**Table 4.1: Probability of Failure Matrix**

Condition (value 0-10)	Condition	Probability of Failure
9 - 10	Very Good	Rare
7 - 8	Good	Unlikely
5 - 6	Average	Possible
3 - 4	Poor	Likely
1 - 2	Very Poor	Almost Certain

Consequence of failure has been determined by examining each asset type separately. Consequence refers to the impact on the municipality if a particular asset were to fail.

Types of impacts include the following:

- **Cost Impacts:** the cost of failure to the County (i.e., capital replacement, rehabilitation, fines and penalties, damages, etc.).
- **Social impacts:** potential injury or death to residents/public.
- **Environmental impacts:** the impact of the asset failure on the environment.
- **Service delivery impacts:** the impact of the asset failure on the County's ability to provide services at desired levels.

Each type of impact was reviewed and consequence of failure for each asset type was determined by using the information contained in Table 4.2 as a guide to assess the level of impact. Levels of impact were documented as ranging from "significant" to "insignificant".

**Table 4.2: Consequence of Failure Matrix**

	<b>Cost</b>	<b>Social</b>	<b>Environmental</b>	<b>Service Delivery</b>
<b>Significant</b>	Significant Cost – Difficult to Recover	Death, Serious Injury	Long-term Impact – Permanent	Major Interruptions
<b>Major</b>	Substantial Cost – Multi-year Budget Impacts	Major Injury	Long-term Impact – Fixable	Significant Interruptions
<b>Moderate</b>	Considerable Cost – Requires Revisions to Budget	Moderate Injury	Medium-term Impact – Fixable	Moderate Interruptions
<b>Minor</b>	Small/Minor Cost – within Budget Allocations	Minor Injury	Short-term/Minor Impact – Fixable	Minor Interruptions
<b>Insignificant</b>	Negligible or Insignificant Cost	No Injury	No Impact	No Interruptions

With both probability of failure and consequence of failure documented, total risk of asset failure was determined using the matrix contained in Table 4.3.

Total risk has been classified under the following categories:

- **Extreme Risk (E):** Risk beyond acceptable levels.
- **High Risk (H):** Risk slightly beyond acceptable levels.
- **Medium/Moderate Risk (M):** Risk at acceptable levels, monitoring required to ensure risk does not become high.
- **Low Risk (L):** Very little risk.

**Table 4.3: Total Risk of Asset Failure Matrix**

Probability of Failure	Consequence of Failure				
	Significant	Major	Moderate	Minor	Insignificant
Almost Certain	E	E	H	H	M
Likely	E	H	H	M	M
Possible	H	H	M	M	L
Unlikely	H	M	M	L	L
Rare	M	M	L	L	L

Risk levels can be reduced or mitigated through planned maintenance, rehabilitation and / or replacement of an asset. An objective of this asset management plan is to identify ways to reduce risk levels where they are deemed to be too high, as well as ensure assets are maintained in a way that keeps risk at acceptable levels.

### 4.3 Climate Change

Over the past decade there has been increased numbers of extreme weather events which are putting greater stress on municipal infrastructure, and pressure to ensure levels of service are maintained. Climate change poses a real risk management question which needs to be addressed within the context of municipal decision making.

Some climate change projections (Federation of Canadian Municipalities):

- Warmer summer temperatures.
- Warmer winter temperatures.
- More intense storms.
- Longer droughts.
- Increased frequency and amount of ice.
- Summers stretching longer.
- Sea level rising.

The County of Brant has witnessed some of these climate change projections already causing potential challenges with road washouts from extreme weather events, or quick winter thaw runoff. Many roads as well as crossroad culverts have not been designed for such intense high-volume rainstorms.

Identifying areas of concern will help the County to design road and storm water assets to improve resiliency to extreme weather events. This type of investment will reduce risk of failure of infrastructure and ensure appropriate levels of service are maintained for the public.

Another factor to climate change issues is the materials used in asset construction. The focus is to reduce the total carbon footprint on the construction of infrastructure assets. Investing in infrastructure with a long-term view provides both better levels of service as well as reducing the total carbon footprint.

As noted above the County is undertaking a project to inspect the crossroad culverts to determine condition and a true remaining life. This type of project will provide guidance to the County on the crossroad culverts that need to be replaced and potentially increased in size for better water flow during extreme weather events. The County is also taking proactive measures with respect to the maintenance of the municipal drains across the County. This will also help the County make good progress to becoming a more climate change resilient municipality.

#### 4.4 Long-term Forecast

For many years, lifecycle costing has been used in the field of engineering to evaluate the advantages of using alternative materials in construction or production design. The method has gained wider acceptance and use recently in the management of capital assets. By definition, lifecycle costs are **all** the costs which are incurred during the lifecycle of a capital asset, from the time it is purchased or constructed, to the time it is taken out of service for disposal/replacement.

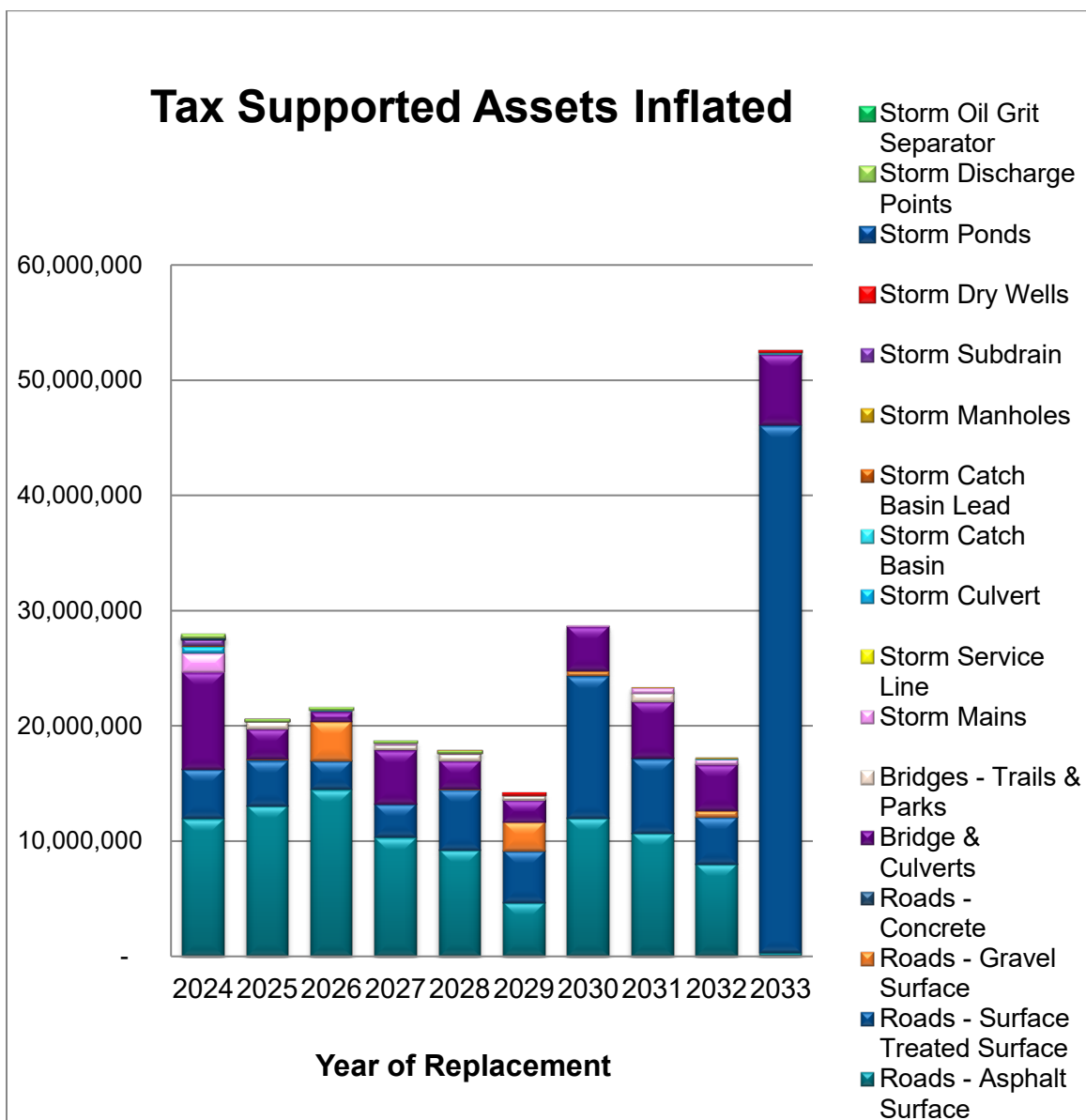
In defining the long-term forecast for the County's asset management strategy, costs incurred through an asset's lifecycle, the asset's condition, expected LOS, and risk were considered and documented. Asset replacement analysis in forecasting the County's asset replacement needs for core assets are summarized in Figure 4.1 which we are calling Asset Strategy based on expected levels of service.

The asset strategy incorporated all of the information discussed above in this report and based on the information provided by the County, past reports, staff input, and understanding of the asset's reaction in their current environment as well as the expected asset maintenance levels, and the current asset condition, which is expected to produce a reduced asset potential risk of failure. The outcome of this approach was to provide appropriate asset service levels, and the assets were expected to meet or exceed their useful life which reduces expected infrastructure deficits. In total, \$242 million in assets (inflated to appropriate year) are shown as maintenance, improvement, rehabilitation and replacement needs over the 10-year forecast. This is the recommended asset strategy for the County of Brant.

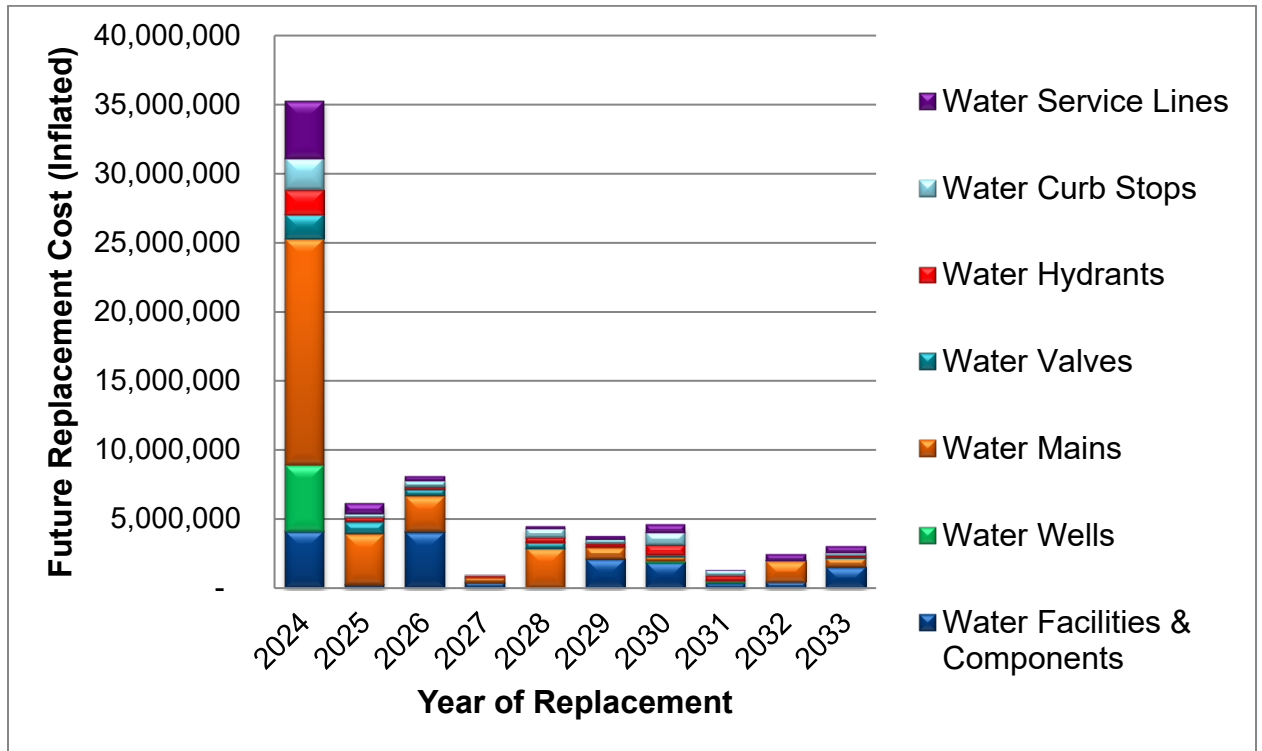
Assets like Bridges, and major culverts, are not expected to be replaced for usually 50-80 years. It needs to be stated, to ensure that these assets have reserve funding for their rehabilitation / replacement schedule in the future. A Financial Strategy completed by the County’s consultant will provide the County with an investment plan into their reserve accounts.

For the recommended asset strategy to be feasible, the expected level of service adjustments discussed in Section 3 are needed in conjunction with the current level of service amounts in order to effectively maintain and rehabilitate the assets as required.

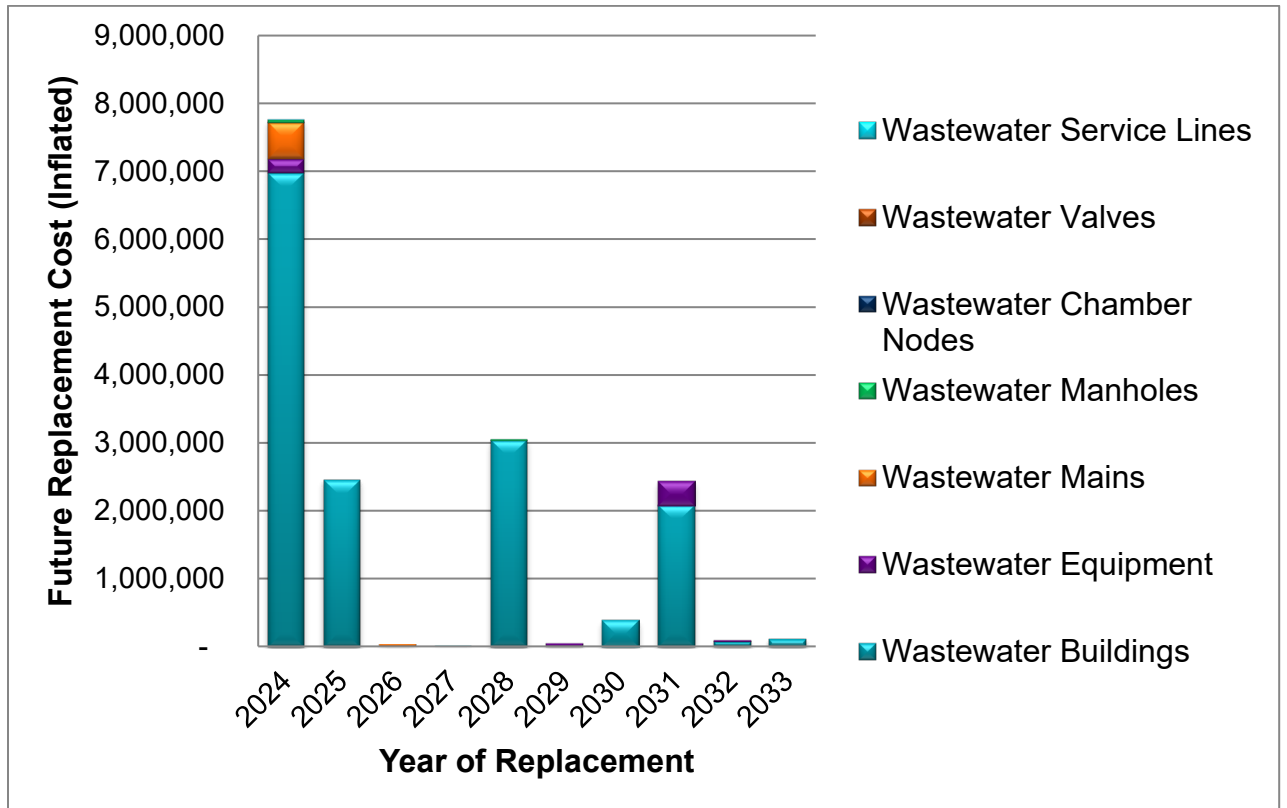
**Figure 4.1: Proposed Asset Strategy Based on Expected Levels of Service for Tax Supported Assets**



**Figure 4.2: Proposed Asset Strategy Based on Expected Levels of Service for Water Rate Payers Supported Assets**



**Figure 4.3: Proposed Asset Strategy Based on Expected Levels of Service for Wastewater Rate Payers Supported Assets**



## 5.0 Financing Strategy

As noted above the County is having a consultant provide a complete Financial Strategy which includes the data used in this asset management plan for core assets.

## 6.0 Recommendations

The following recommendations have been provided for the County of Brant's consideration:

- That this Asset Management Plan for core assets be received and approved by County Council.
- That consideration of this Asset Management Plan for core assets be given as part of the annual budgeting process to ensure sufficient capital funds are available to fund capital requirements over the 10-year period.
- The current level of funding for asset replacement and renewal at the County is not expected to sufficiently fund required capital needs or close the infrastructure funding gap. As such, it is recommended that the following be considered:
  - That the “levels of service” strategies discussed in this report be approved.
  - The County explore a Storm Water Utility as a source of revenue for urban storm systems.
  - The County uses Reserves to fund infrastructure capital needs.
  - The County uses capital reserves as the primary source of asset investment annually. Funds should flow from the operating budget to these reserves, which are then used to fund capital projects.
  - The County increase in asset management funding as will be outlined in the County's consultants Financial Strategy when delivered.
  - The County transfer annual surpluses to capital reserves.
  - The County dedicates any budget savings from the elimination of debt payments to funding asset management needs (i.e., either new debt or transfers to reserves).
  - The County updates the financing strategy every 5 years as per legislation or when there is significant change.
  - That this Asset Management Plan for core assets be updated as per the County's Asset Management Strategy Policy.
  - The County considers the capital priorities identified within this report when applying for future grants or deciding on how to utilize Gas Tax, OCIF funding, and / or other funding that becomes available.

Substantial investment in asset capital needs will be required over the 10-year forecast period and beyond. Through the recommendations provided above, proactive steps will be made to increase capital investment, as well as reduce the annual infrastructure funding gap for the County's core tax supported assets. Enhanced maintenance plans

will assist in maintaining adequate asset conditions, mitigate asset risk as well as potentially defer capital needs within the forecast period. In addition, the County of Brant is recommended to pursue all available capital grants wherever possible to further reduce the infrastructure funding gap.

Through the creation of this plan, the County has been provided with Excel spreadsheets in which amendments and revisions can be made as needed by County Staff. It is anticipated that this plan adopted by the County of Bant Council will be monitored and updated frequently as part of the budget process, with refinements and specific recommendations being provided with respect to the priority of each individual project.