

FINAL REPORT

PREPARED BY HEMSON FOR THE TOWNSHIP OF UXBRIDGE

ASSET MANAGEMENT PLAN FOR CORE ASSETS

June 20, 2022



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EXECUTIVE SUMMARY

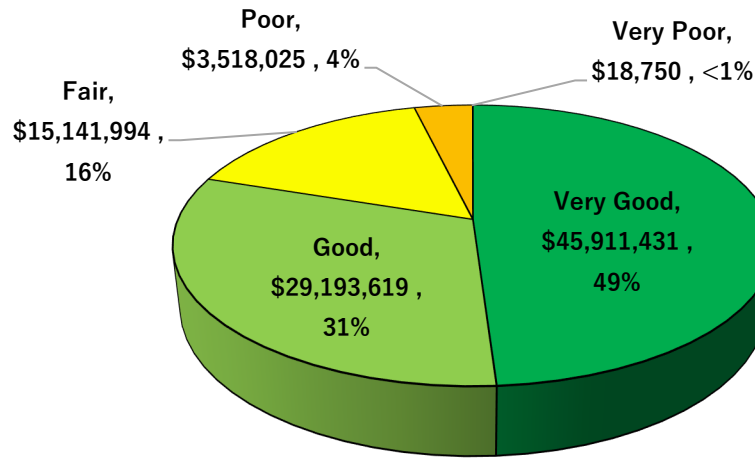
The following summarizes the findings of the Township of Uxbridge's Asset Management Plan for Core Assets (2022 Plan). The 2022 Plan follows the format set out in the *Building Together: Guide for Municipal Asset Management Plans* and it has also been developed to be consistent with the requirements of *Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17)* with consideration to the Township's Strategic Asset Management Policy. This 2022 Plan defines the current levels of service for all core assets in compliance with the asset management regulation.

The 2022 Plan incorporates the information associated to core assets noting that the financing strategy also includes the non-core asset costs based on the Township's 2017 Asset Management Plan. Sidewalks have also been included as part of this 2022 Plan. All figures are in constant 2022 dollars and should be adjusted annually to account for the effects of inflation.

A. STATE OF LOCAL INFRASTRUCTURE

- The Township's core infrastructure has an estimated total replacement value of \$455.4 million.
 - Roads represent \$361.6 million (79%), bridges/culverts represent \$49.3 million (11%), stormwater ponds and linear represent \$40.5 million (9%) and sidewalks make up the remaining \$4.0 million (1%).
- The Township's 645.9 lane km of roads are considered to be in "Good" condition overall:
 - For roads, approximately 335.7 km (52%) are considered to be in Good/Very Good condition while 175.0 km (27%) are considered to be in Poor condition. The remaining 135.2 km (21%) are considered to be in Fair condition. Note that road conditions are based on a 4-tier scale.
- For all other core asset categories (excluding roads), the Township's assets are considered to be in "Good" condition:
 - For the core assets that exclude roads, \$75.1 million (80%) of the assets are considered to be in Good/Very Good condition. At the same time, approximately \$3.5 million (4%) of infrastructure is considered to be in Poor/Very Poor condition. The remaining share of \$15.1 million (16%) is in Fair condition. Conditions are based on a 5-tier scale.

Asset Summary of Condition by Replacement Value



Note: Graph includes bridges/culverts, stormwater ponds/linear and sidewalks (excludes roads).

B. LEVEL OF SERVICE

- The Township's current levels of service have been defined based on the condition of assets and the measures required as per *O. Reg. 588/17*:
 - The Township's stormwater infrastructure is considered relatively new. A high level qualitative analysis has determined that the infrastructure overall is resilient to 5-year storms and that 100-year storms would have limited impacts to properties in the Township.
 - For bridges and culverts the average condition rating is considered Good and Very Good respectively. Only 4% of the bridges/culverts have load or dimensional restrictions.
 - For paved roads, the average PCI is 60.5 while for gravel roads the average PCI is 60.1 which results in an average condition rating of Good.
 - Sidewalks are considered to be in Fair condition on average.

C. FINANCING STRATEGY

- To better develop a complete financial analysis, the financing strategy also includes costs associated to non-core assets based on the Township's 2017 Asset Management Plan adjusted to 2022 dollars.
- The analysis indicates a spending need of about \$625.1 million for tax supported assets – this figure represents the cumulative 30-year investment needs across the service areas for the various lifecycle activities identified in this plan.

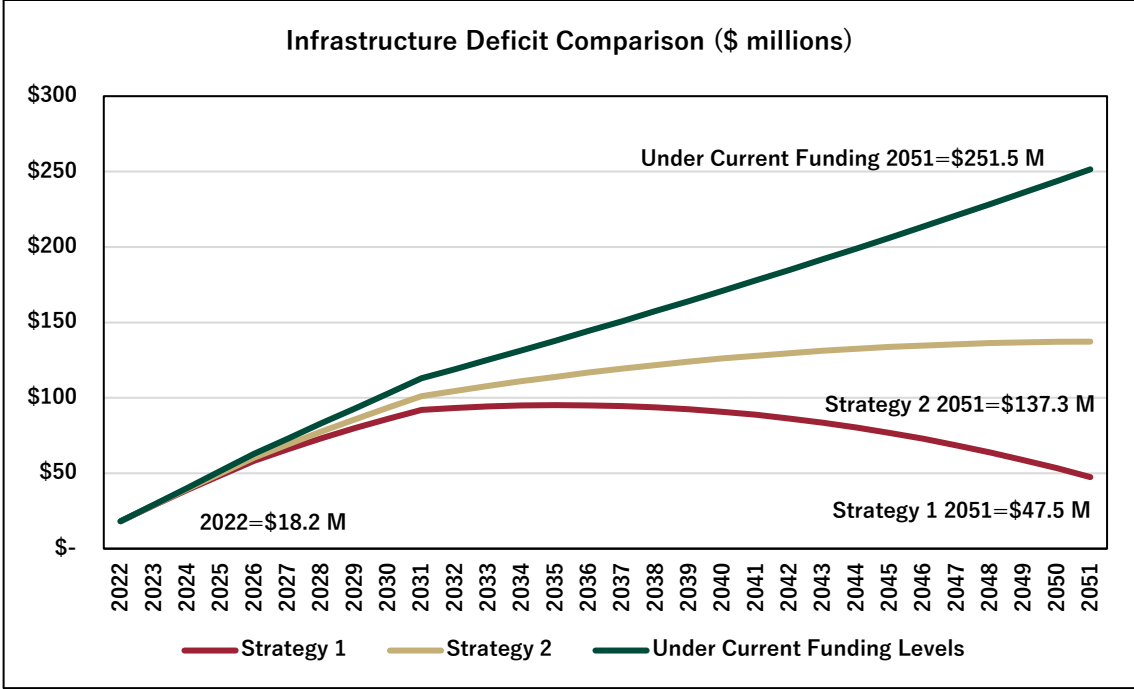
- It is unrealistic in the current fiscal context to expect the Township to fully address the infrastructure deficit in the short-medium term;
 - Two financing strategies were developed to determine what capital contributions would be required to meet asset replacement needs (Note: in any given year, actual capital expenditures may be greater or less than the noted capital contributions as reserves are assumed to accommodate variances between the contributions and actual expenditures);
 - Please note, the increases calculated would be in addition to the 2022 budgeted funding identified and should be adjusted annually to account for the effects of inflation. The Financing Strategy section of this 2022 AMP provides further details on each strategy.

Summary of Financing Strategies	
Financing Strategy	Strategy Parameters
Strategy 1 Achieving Forecasted Tax Funded Contributions Based on 10-Year Capital Plan	<ul style="list-style-type: none"> ▪ Increase annual capital contributions by approximately \$469,000 per year. For 2023, the increase would be in addition to the estimated 2022 budgeted total tax funded capital contributions of \$3.6 million ⁽¹⁾. ▪ In recent years, the Township has made a commitment to increasing tax funded capital contributions to the asset preservation reserve at about 2.0% of the tax levy, the financing strategies assume this practice would continue. ▪ The increase is based on the Township’s projected tax funded capital contributions through the 10-year capital plan. ▪ The yearly revenue requirement is equivalent to 3.1% of the Township’s estimated 2022 tax levy (\$15.4 million).

Summary of Financing Strategies	
Financing Strategy	Strategy Parameters
Strategy 2 Increase Contributions Based on 5-year Historical Budget	<ul style="list-style-type: none"> ▪ Increase annual capital contributions by approximately \$262,600 per year. For 2023, the increase would be in addition to the estimated 2022 budgeted total tax funded capital contributions of \$3.6 million ⁽¹⁾. ▪ In recent years, the Township has made a commitment to increasing tax funded capital contributions to the asset preservation reserve at about 2.0% of the tax levy, the financing strategies assume this practice would continue. ▪ The increase is based on the Township's average 5-year historical budget increases. ▪ The yearly revenue requirement is equivalent to 1.7% of the Township's estimated 2022 tax levy (\$15.4 million).

Note 1: Includes contributions to reserves (and specifically the Asset Preservation Reserve).

- Given the capital expenditure requirement to meet the asset lifecycle needs, the cumulative infrastructure deficit will increase in strategies 1 and 2 before the Township begins to reduce this amount by increasing capital contributions by more than the annual lifecycle requirement. Strategies 1 and 2 represent an approach consistent with the Township's 2017 Asset Management Plan of controlling the infrastructure deficit over the long-term.
- If current funding levels are not increased, the Township would continue to experience an increasing infrastructure deficit to 2051 and beyond, which would put the Township at the most risk of not meeting asset repair/replacement obligations over the long-term.
- The Township in recent years has made a commitment to increasing tax funded capital contributions to the asset preservation reserve at about 2.0% of the tax levy, the financing strategies assume this practice would continue.
- Detailed tables of each strategy are provided in Appendix E with the tax supported cumulative infrastructure gaps summarized in the graph below.



1. INTRODUCTION

The Township of Uxbridge's 2022 Asset Management Plan for Core Assets (2022 Plan) provides the Township with a tool to assist in capital financing decisions. The Plan covers all core assets: stormwater ponds and linear, bridges and culverts and roads. Sidewalks have also been included.

The 2022 Plan follows the format set out by the Ministry of Infrastructure through the Building Together: Guide for Municipal Asset Management Plans and it has also been developed to be consistent with the requirements of Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17) and the Township's Strategic Asset Management Policy. All figures reported in this 2022 Plan are in constant 2022 dollars and therefore should be adjusted annually to account for the effects of inflation.

An Excel based asset management financial model has been developed as part of the 2022 Plan. The model contains the Township's asset inventory and it is intended to be updated on a regular basis to inform future capital investment decisions. The model contains the information required to update the State of the Local Infrastructure Report Cards presented in Appendix B, which can be reproduced annually to help Council and the public understand the state of assets and overall funding levels. Finally, it is noted that although this plan focuses on the core assets, the financing strategy has been developed to include the costs associated to non-core assets based on the Township's 2017 Asset Management Plan adjusted to 2022 dollars.¹

A. ASSET MANAGEMENT OVERVIEW

Well-managed public infrastructure is vital to the prosperity and quality of life of communities. Given the range and scope of services provided, Ontario municipalities have a special responsibility in ensuring that infrastructure is planned, built, and maintained in a sustainable way. A detailed asset management plan is essential to carry out this responsibility. Asset management has several benefits, including:

- Township can make informed and traceable decisions;

¹ Non-core assets for the Township include: vehicles, machinery/equipment, buildings, land improvements, computer equipment and software, pumping station and heritage assets.

- Township has the opportunity to coordinate and plan accordingly by taking a risk-based approach to asset management;
- Higher customer satisfaction is possible;
- Documents a funding plan and strategy to manage infrastructure; and
- Demonstrates compliance with regulations and legislation.

Asset management is an ongoing practice in the Township of Uxbridge. Council and staff have applied sound asset management principles to maintain records on tangible capital assets, monitor asset performance, and plan for infrastructure acquisition, repair, rehabilitation, and replacement over the long-term.

The purpose of the 2022 Plan is to build on existing practices by identifying how best to manage municipal infrastructure over the planning period to 2051. A strategy for maintaining infrastructure so that existing service levels are maintained is an important element. In this respect, the 2022 Plan has been prepared to be consistent with the Township's Strategic Asset Management Policy. Ultimately, the 2022 Plan will provide Council with information that can guide sustainable infrastructure investment decisions.

B. ONTARIO'S ASSET MANAGEMENT REGULATION (O. REG. 588/17)

In 2015, the Province of Ontario established the Infrastructure for Jobs and Prosperity Act. The purpose of this Act is to establish mechanisms to encourage principled, evidence-based and strategic long-term infrastructure planning that supports job creation and training opportunities, economic growth, protection of the environment, and incorporate design excellence into infrastructure planning.

In December 2017, Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17) was passed under the Infrastructure for Jobs and Prosperity Act. The regulation requires municipalities to develop a Strategic Asset Management Policy, which will help municipalities document the relationship between their Asset Management Plan and existing policies and practices as well as provide guidance for future capital investment decisions. Township Council approved the Strategic Asset Management Policy in 2019.

The regulations also contain more specific requirements on the type of analyses municipal asset management plans should include. The aim is to provide guidance to municipalities so that asset management plans are more consistent across the Province. Furthermore, in March 2021 the Province amended the regulation to extend the regulatory timelines by one

year. Table 1 provides a summary of the key regulatory timelines as outlined by Regulation 588/17 and where the Township currently stands in the timeline.

Table 1 O. Reg. 588/17 Timeline		
Regulation Timeline	Summary of Requirement	Progress
July 1, 2019	<ul style="list-style-type: none"> ▪ Municipalities shall prepare their first strategic asset management policy. ▪ Municipalities shall review, and if necessary, update the policy every 5 years. 	<ul style="list-style-type: none"> ▪ Township Council approved the Strategic Asset Management Policy in 2019. ▪ The next review is expected in 2024, although earlier reviews are encouraged whenever a change in policy directives occurs.
July 1, 2022	<ul style="list-style-type: none"> ▪ Every Township shall prepare an asset management plan in respect of its core municipal infrastructure assets. ▪ The current levels of service must be defined for all core assets. 	<ul style="list-style-type: none"> ▪ Plan includes all non-core assets: stormwater ponds and linear, bridges and culverts and roads ▪ This 2022 Plan has incorporated the information from the 2021 State of the Infrastructure and Asset Management Plan for Roads, 2021 Bridge Appraisals, 2020 Culvert Appraisals, 2021 Stormwater Management Facility Assessment and the Township’s asset inventory ▪ Current level of service measures have been identified through this plan, with the Township expecting to develop other metrics on an ongoing basis. ▪ It is expected that service level data continue to be monitored and refined over the long-term.
July 1, 2024	<ul style="list-style-type: none"> ▪ Every Township shall prepare an asset management plan in respect of all other municipal infrastructure assets. ▪ The current levels of service must be defined for all other municipal assets 	<ul style="list-style-type: none"> ▪ This 2022 Plan has incorporated sidewalks as part of the analysis ▪ Although this plan focuses on the core assets, the financing strategy has been developed to include the costs associated to non-core assets based on the Township’s 2017 Asset Management Plan adjusted to 2022 dollars ▪ Current level of service measures will need to be identified in future updates to the AMP

Table 1 O. Reg. 588/17 Timeline		
Regulation Timeline	Summary of Requirement	Progress
July 1, 2025	<ul style="list-style-type: none"> ▪ Municipalities must establish proposed levels of service for a minimum of 10 years. ▪ A lifecycle management and financial strategy that covers a minimum of 10 years. 	<ul style="list-style-type: none"> ▪ The Township anticipates developing their asset management program to establish the proposed levels of service and a financial plan to achieve the proposed levels of service. ▪ The proposed levels of service will be established through consultation with Council and the public in a subsequent update of this 2022 Plan.

C. ASSET MANAGEMENT PLAN STRUCTURE

The 2022 Plan is developed to be consistent with the structure recommended through the *2013 Building Together: Guide for Municipal Asset Management Plans*. At the same time, it has been developed to meet the requirements of O. Reg. 588/17. Table 2 below provides a guide to the sections of the 2022 Plan.

Table 2 Guide to the 2022 Asset Management Plan	
Section	Requirement
Section 2 - State of Local Infrastructure	Summarizes the state of the Township's infrastructure with reference to infrastructure quantity and quality. Additional details are provided in Appendix B.
Section 3 - Level of Service	A summary of the current levels of service is presented as well as recommendations on additional metrics the Township can look to track in the future.
Section 4 - Asset Management Strategy	Sets out several strategies that will assist the Township in maintaining assets so that current service levels are maintained. Additional details are provided in Appendix C and D.
Section 5 - Financing Strategy	Establishes how asset management can be delivered in a financially sustainable way for both tax and utility rate supported services. Additional details are provided in Appendix E.
Section 6 – Continuous Improvements and Updates	Provides key recommendations on how to administer the 2022 Plan and keep it up to date.
Section 7 - Conclusions and Recommendations	Provides recommendations based on the analysis undertaken.

Note: Please refer to Appendix A for a list of definitions for commonly used terms throughout this 2022 Asset Management Plan.

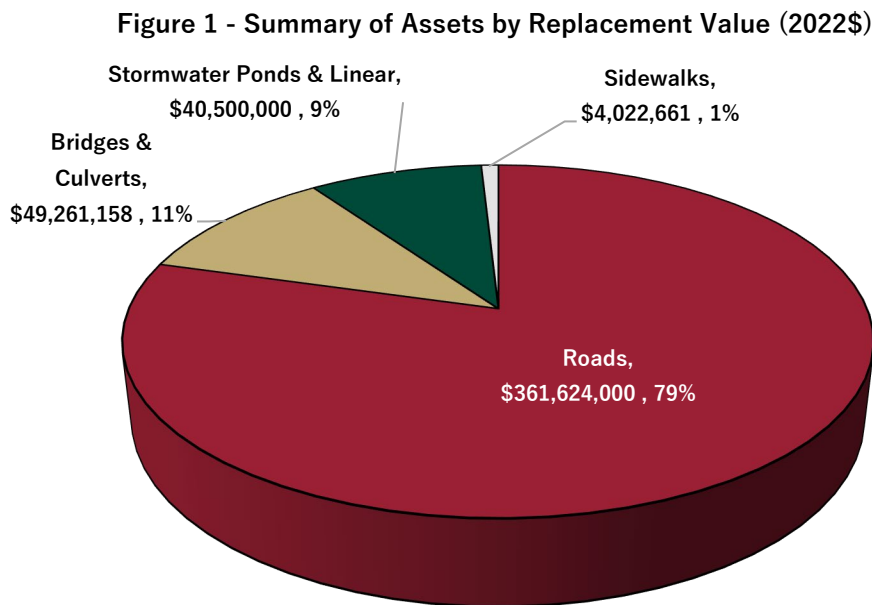
2. STATE OF LOCAL INFRASTRUCTURE

This section provides a summary of the Township’s assets with reference to asset quantity and quality. Most of the Township’s core asset conditions are based on engineering inspections and methodologies. Useful life assumptions for the assets considered under this 2022 Plan were acquired from the Township’s tangible capital asset information. Detailed technical information on the asset inventory, remaining useful life and conditions for each asset category is provided in Appendix B.

A. REPLACEMENT COST OF INFRASTRUCTURE

The replacement cost for all Township core assets considered in the 2022 Plan is estimated at \$455.4 million (all dollar figures are in 2022 dollars) with the breakdown by asset category summarized in Figure 1. The largest share of assets is for roads at \$361.6 million (79%) of the total replacement cost. The second largest asset class is bridges and culverts at \$49.3 million (11%). This is followed by stormwater ponds and linear with a replacement cost of \$40.5 million (9%). Finally, the Township’s sidewalks are valued at \$4.0 million (1%).

The replacement costs were developed based on a combination of recent benchmark/tender costs, the 2021 State of the Infrastructure and Asset Management Plan for Roads, 2021 Bridge Appraisals Report and 2020 Culvert Appraisals Report. Detailed replacement cost for each asset category is provided in Appendix B.



B. SUMMARY OF STATE OF LOCAL INFRASTRUCTURE

Table 3 provides a summary of the state of local infrastructure for all core asset categories considered in this study which is valued at \$455.4 million. The weighted remaining useful life (WRUL) and weighted average condition (WAC) for each asset category has been derived relative to the replacement value of each asset. Detailed information is provided in Appendix B. The table illustrates several key findings:

- **Weighted Remaining Useful Life:** the WRUL of the Township’s assets is approximately 39 years (excluding roads). The weighted average is largely driven by the relative age of bridges and culverts and stormwater ponds and linear infrastructure which have the highest replacement value. The 2021 Roads AMP has identified that the average remaining time until most Township roads reach the Poor state is 15 years, therefore it has been assumed this is the remaining useful life for roads.
- **Weighted Condition:** Overall, the Township’s core assets are determined to be in Good condition (excluding roads), with sidewalks considered to be in Fair conditions. Roads are considered to be in Good condition, noting that the condition of roads is weighted relative to the length of each road segment in kilometres based on the 2021 Roads AMP.

Table 3 Summary State of Local Infrastructure			
Asset Type	Replacement Cost 2022	Weighted Remaining Useful Life	Weighted Condition
Sidewalks	\$4,022,661	21	Fair
Stormwater Ponds & Linear	\$40,500,000	65	Good
Bridges & Culverts	\$49,261,158	19	Good
Total (excl Roads)	\$93,783,819	39	Good
Roads	\$361,624,000	15	Good
Total Replacement Value	\$455,407,819		

Note: Roads have been excluded from the weighted averages as the methodology used to determine remaining useful life and conditions in the 2021 Roads AMP differs from that of the other asset categories.

C. CONDITION ASSESSMENTS

Consistent with the Canadian National Infrastructure Report Card, as well as other major organization and institution reporting formats, a five-point rating scale was used to assign a condition to all assets. This methodology provides a standard and easy to understand way of reporting on the condition of assets. Table 4 summarizes the assumed parameters.

Table 4	
Condition Assessment Parameters	
Condition Rating	Definition
1	Very Good ■ Well maintained, good condition, new or recently rehabilitated asset.
2	Good ■ Good condition, few elements exhibit existing deficiencies.
3	Fair ■ Some elements exhibit significant deficiencies. Asset requires attention.
4	Poor ■ A large portion of the system exhibits significant deficiencies. Asset mostly below standard and approaching end of service life.
5	Very Poor ■ Widespread signs of deterioration, some assets may be unusable. Service is affected.

Assets were categorized in the 5-tier rating system on an asset by asset basis for the purposes of reporting in this 2022 AMP. A brief summary of the methodology is provided below, with additional details provided in Appendix B.:

- For sidewalks, the Township maintains a database on sidewalk segments with conditions based on a 100 point scale. Table 5 outlines the scale utilized in the analysis.
- Stormwater ponds and linear are assumed based on the age of the assets, noting that there is currently limited information on the stormwater linear infrastructure, however it is known to be relatively new and assumed to be in Very Good condition. Table 5 outlines the scale utilized in the analysis.
- Conditions for bridges/culverts are provided through the Bridge and Culvert Appraisal reports. The reports describe the conditions of the structures but does not provide a quantitative condition score, therefore the descriptions of conditions provided through the reports were qualitatively translated to the 5-tier scale.
- Condition assessments for the roads are based on the Township's 2021 State of the Infrastructure and Asset Management Plan for Roads (Roads AMP). It is noted that the Roads AMP uses a 4-tier scale to report on road conditions and reports based on kilometres of roads (rather than replacement value).

Table 5 Condition Rating Methodology for Sidewalks and Stormwater		
Condition Assessment	Sidewalks (out of 100)	Stormwater Ponds & Linear (% of Remaining Useful Life)
Very Good	80-100	80%-100%
Good	70-80	60%-80%
Fair	60-70	40%-60%
Poor	50-60	20%-40%
Very Poor	Less than 50	Less than 20%

Moving forward, updating and identifying asset conditions should be part of regular inventory updates. There are several methods to identify asset condition. The ideal methods are outlined as follows:

1. Condition rating systems based on engineered metrics and professional standards. For example, pavement condition index (PCI) for roads or bridge condition index (BCI) for bridges/culverts. These metrics can then be translated into a 5-tier rating system for the purposes of reporting. The Township should continually update the conditions in the asset inventory to reflect changes in conditions, asset replacement or updates to Township engineering reports.
2. Estimates based on expert staff opinion. This approach is important where there is low confidence that age and useful life represent the condition of an asset. This method has only been utilized for the linear component of stormwater infrastructure as there is limited information on the assets.
3. Estimates based on age and the remaining useful life of the asset. This has been used for any assets where the Township was not able to provide a condition assessment based on existing knowledge or inspection. It is the intention that the Township move towards a condition assessment methodology using approach 1 and 2 as needed. With this said, this methodology can be utilized for lower valued assets that have a shorter useful life as well.

3. LEVEL OF SERVICE

Asset management decisions must be made with reference to the level of service planned for by the Township. Current service levels in Uxbridge are based on a combination of internal asset management practices, community expectations, statutory requirements, and industry operation and safety standards. Typically, the level of asset investment made by the Township in any one year has been determined by funding availability. That said, the Township has in the past been responsive to repair needs to address immediate environmental or health risks. The Township has therefore done a good job in assessing and maintaining levels of service.

The community expects that services be delivered in a cost effective and efficient way. Generally, community expectations revolve around the Township's accessibility of "soft" services (e.g. recreation facilities; libraries; fire stations) within neighbourhoods. However, safety and performance are also important for core services such as roads, bridges/culverts and stormwater infrastructure.

Developing levels of service and tracking over time is essential to measuring the success of service delivery and the asset management strategy overall. This section outlines current levels of service as they relate to the requirements outlined in Ontario Regulation 588/17.

A. CURRENT LEVELS OF SERVICE

The Township has determined the current levels of service through the analysis and model developed in this 2022 Plan. The current level of service measures for each asset category are summarized in Table 6. It is noted that the information in Table 6 represents a blended approach of levels of service and performance measures which represent the best available information at this time:

- **Weighted Condition:** the condition of the Township's assets are determined to be in Good condition overall (excluding roads). The Township's sidewalks are in Fair condition, while stormwater ponds and linear infrastructure is in Good Condition. Overall, the Township's bridges and culverts are in Good and Very Good condition respectively. Roads are considered to be in Good condition overall.

It is important to note that assets in Fair condition may transition into the Poor or Very Poor category in the near future. Thus these assets may require attention in the short to medium term if proper asset maintenance and rehabilitation is not achieved. It will be

important for the Township to determine which assets in the Fair category should be prioritized to ensure that current levels of service do not decline.

Finally, it is important to note *that O. Reg. 588/17* includes a prescribed set of level of service measures. Table 6 includes these level of service measures as required in the regulation, a brief summary is provided below:

- **Stormwater Ponds and Linear:** It is assumed that the current system is resilient to 5-year and 100-year storms based on current assumptions and a high level assessment. It is assumed that only a limited number of properties would be affected by a 100-year storm and therefore it has been assumed that 100% of properties would be resilient. It is assumed that the stormwater management system is resilient to a 5-year storm based on using the age of the infrastructure as a proxy. No stormwater infrastructure is considered overdue for replacement at this time. It is noted that the Township will need to explore identifying better metrics to assess the resilience of properties and infrastructure to 100-year and 5-year storms through updates of the Stormwater Management Facility Assessment in future years.
- **Bridges and Culverts:** The Township owns 46 bridges and culverts. Of those, 2 have loading or dimensional restrictions amounting to 4% of the structures. For both bridges and culverts the average condition is rated as Good. Inspection notes from the Township's 2021 Bridge Appraisal and 2020 Culvert Appraisal reports were qualitatively translated to the 5-tier system for reporting, as an explicit bridge condition index value as not available.
- **Roads:** The Township owns and operates collector and local roads but no arterial roads. Lane kilometres as a percent of land area for collector roads is 97% and for local roads it is 59%. The average pavement condition index for paved roads is 60.5 and unpaved roads is 60.1 on 100-point scale. The condition index is based on the Township's 2021 State of Infrastructure and Asset Management Plan for Roads. It is noted that the condition index developed through this report is based on function of system adequacy and physical condition to develop the measure.

B. COSTS TO MAINTAIN CURRENT LEVELS OF SERVICE

The Township undergoes reviews of the levels of service and services it provides on an annual basis through the budget process. Therefore, the Township considers the short-term implications of any changes in the level of service with consideration to the availability of funds and impacts to residents through the tax rates. The AMP considers the longer term

costs of maintaining levels of service over a 30-year period. To do so the financing strategy considers two financing strategy scenarios which are discussed further in Section 5.

**Table 6
Township of Uxbridge
Level of Service Tracker**

Asset Category	Corporate Level of Service/Objective	Community Level of Service (as per O. Reg. 588/17)		Description of LOS Measure	Source of Information	Current LOS
Sidewalks	Providing reliable sidewalks.			Average weighted condition assessment ("Very Poor" to "Very good")	2022 AMP	Fair
				% of assets at or above "Good" or "Very Good" condition	2022 AMP	24%
				% of assets beyond their useful life	2022 AMP	15%
Stormwater Ponds & Linear	To meet reporting requirements of O. Reg. 588/17	Description, which may include maps, of the user groups or areas of the municipality that are protected from flooding, including the extent of the protection provided by the municipal stormwater management system.	Information on stormwater ponds are provided through the 2021 Stormwater Management Facility Assessment. This report includes maps and schematics of each of the Township's 25 stormwater management ponds and their location in the Township. The maps outline the drainage service area which is mostly made up of urban residential areas.	1. Percentage of properties in municipality resilient to a 100-year storm (O. Reg. 588/17).	2022 AMP. Assumed.	100%
				2. Percentage of the municipal stormwater management system resilient to a 5-year storm (O. Reg. 588/17).	2022 AMP. Based on the number of stormwater ponds overdue (all ponds have several years of UL remaining).	0%
	Providing reliable stormwater infrastructure.			Average weighted condition assessment ("Very Poor" to "Very good")	2022 AMP	Good
				% of assets at or above "Good" or "Very Good" condition	2022 AMP	78%
				% of assets beyond their useful life	2022 AMP	0%

**Table 6
Township of Uxbridge
Level of Service Tracker**

Asset Category	Corporate Level of Service/Objective	Community Level of Service (as per O. Reg. 588/17)		Description of LOS Measure	Source of Information	Current LOS
Bridges & Culverts	To meet reporting requirements of O. Reg. 588/17	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists).	The Township's bridges and culverts support a wide variety of traffic from transport truck to private vehicles as well as pedestrians and bikes depending on the type of bridge/culvert and its general location. The Township's 2021 Bridge Appraisals Report and 2020 Culvert Appraisals Report provide images and engineered conditions of all of the Township's structures. Reports are updated every 2-years as required by Provincial regulation.	Percentage of bridges in the municipality with loading or dimensional restrictions (O. Reg. 588/17).	2021 Bridge Appraisals Report and 2020 Culvert Appraisals Report.	4%
		1. Description or images of the condition of bridges and how this would affect use of the bridges.		1. For bridges in the municipality, the average bridge condition index value (O. Reg. 588/17).	2021 Bridge Appraisals Report. Descriptions qualitatively translated to 5-tier rating.	Good
		2. Description or images of the condition of culverts and how this would affect use of the culverts.		2. For structural culverts in the municipality, the average bridge condition index value (O. Reg. 588/17).	2020 Culvert Appraisals Report. Descriptions qualitatively translated to 5-tier rating.	Very Good
Roads	To meet reporting requirements of O. Reg. 588/17	Description, which may include maps, of the road network in the municipality and its level of connectivity.	Maps are included in Appendix L of 2021 the State of Infrastructure, and Asset Management Plan for Roads by 4 Roads Management Services Inc. The maps illustrate all roads differentiated by road segment and differentiates between Township owned roads and others (Provincial, Regional or private roads). The Township owns a total of 645.9 lane km of roads.	Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality (O. Reg. 588/17).		
				Arterial	From Page 17 of 2021 State of Infrastructure, and Asset Management Plan for Roads by 4 Roads Management Services Inc.	0%
				Collector	From Page 17 of 2021 State of Infrastructure, and Asset Management Plan for Roads by 4 Roads Management Services Inc.	97%
				Local	From Page 17 of 2021 State of Infrastructure, and Asset Management Plan for Roads by 4 Roads Management Services Inc.	59%
		Description or images that illustrate the different levels of road class pavement condition.	Maps are included in Appendix L of the 2021 State of Infrastructure, and Asset Management Plan for Roads by 4 Roads Management Services Inc. The report also includes a summary of all roads by type in the Township. The Township owns about 100.7 lane km of gravel roads, 429.0 lane km of HCB roads and 116.2 lane km of LCB roads.	1. For paved roads in the municipality, the average pavement condition index value (O. Reg. 588/17).	From Page 17 of 2021 State of Infrastructure, and Asset Management Plan for Roads by 4 Roads Management Services Inc.	60.50
		2. For unpaved roads in the municipality, the average surface condition (O. Reg. 588/17).	From Page 17 of 2021 State of Infrastructure, and Asset Management Plan for Roads by 4 Roads Management Services Inc.	60.10		

4. ASSET MANAGEMENT STRATEGY

This section sets out an action plan that will assist the Township in maintaining assets so that current service levels are maintained. The asset management strategy relates to a set of actions that, taken together, has the lowest total cost to maintain assets in a state of good repair as defined in the Building Together: Guide for Municipal Asset Management Plans. The asset management strategy includes current practices and potential future practices related to non-infrastructure solutions, maintenance activities, renewal/rehabilitation, disposal, and expansion activities. The final component of this section includes a risk analysis, which can be used to assist Township staff and Council measure and manage risks to assets to maintain current levels of service.

A. OVERVIEW OF FULL LIFE-CYCLE COST MODEL

As part of the Asset Management Plan, the Township, along with Hemson, have identified the total full life cycle costs of assets that corresponds to the requirements of the regulation, noting that this analysis is done at the corporate-wide level. This would entail a cost estimation throughout the assets life including planning, design, construction, acquisition, operation, maintenance, renewal (and disposal). In addition, the analysis also takes into consideration the inclusion of expansion related infrastructure into the lifecycle management strategy. This approach ensures that the additional lifecycle costs associated with newly constructed/acquired assets are accounted for in the long-term forecast. A “lifecycle management approach” in asset management planning not only includes estimating future lifecycle costs, but also embeds the process of monitoring how the asset performs over its life while providing affordable services.

These lifecycle activities can be segmented into six (6) categories: non-infrastructure solutions, operations/maintenance, renewal/rehabilitation, replacement, disposal, and expansion activities. While this AMP looks to address the various cost elements, it is important to recognize that as the asset management maturity level of the Township increases, the costs associated with each lifecycle activity will strengthen and improve the expenditure outlook. Table 7 provides a description of each lifecycle category and the specific approach used to forecast expenditures in this AMP.

It is noted that although this AMP focuses on the core assets, as better information on core assets is available at this time, the financing strategy also includes a high-level financial analysis of the non-core assets based on the information from the Township’s 2017 AMP.

**Table 7
Overview of the Full Life Cycle Cost Activities and AMP Approach**

Category	Description	Core Assets: AMP Approach	Non-Core Assets: AMP Approach
Non-Infrastructure Solutions	<ul style="list-style-type: none"> Actions or policies that can lower costs or extend asset life (e.g., better integrated infrastructure planning and land use planning, demand management, insurance, process optimization, managed failures, etc.). 	<ul style="list-style-type: none"> A general provision of \$50,000 per annum is included associated to asset management related costs such as studies or staff costs to undertake AMP analysis 	
Maintenance Activities	<ul style="list-style-type: none"> Servicing assets on a regular basis in order to fully realize the original service potential. Maintenance will not extend the life of an asset or add to its value. Not performing regular maintenance may reduce an asset's useful life. 	<ul style="list-style-type: none"> Based on a review of recent budgets by service area. Annual maintenance activities of \$6.5 million per annum for tax supported assets based on 2022 budget (\$2.4 million for non-core and \$4.2 million for core) Excludes regular costs of operation and only includes identifiable asset maintenance costs from the Township budget. These figures are based on the 2022 budget and is deemed appropriate to use in the forecast moving forward as it generally represents similar costs compared to previous year's budgets. 	
Renewal/Rehabilitation Activities	<ul style="list-style-type: none"> Mostly associated to significant repairs designed to extend the useful life of an asset. These types of activities are typically done at key points in the lifecycle of an asset to ensure the asset reaches it designed useful life. 	<ul style="list-style-type: none"> For roads future renewal/rehabilitation based on recommended works from the 2021 Roads AMP for the next 10-year period. Expenditures beyond the 10-year period are based on an average of the 10-year costs identified. For bridges/culverts expenditures based on recommended works from Appraisal reports for the next 10 years. Beyond the 10-year period, costs are based on replacement of structures depending on useful life. Stormwater ponds are based on cleanout costs every 25 years (50% of replacement value) 	<ul style="list-style-type: none"> No renewal/rehabilitation activities explicitly identified. Long-term costs captures through replacement.

**Table 7
Overview of the Full Life Cycle Cost Activities and AMP Approach**

Category	Description	Core Assets: AMP Approach	Non-Core Assets: AMP Approach
Replacement Activities	<ul style="list-style-type: none"> Activities that are expected to occur once an asset has reached the end of its useful life and renewal/rehabilitation is no longer an option. 	<ul style="list-style-type: none"> Incorporates the average annual investment required to replace assets when they reach the end of their useful life (age/condition/risk based replacement schedule) Applies to sidewalks and linear stormwater. 	<ul style="list-style-type: none"> Annual provision costs from the 2017 AMP associated to long-term replacement of non-core assets have been adjusted to 2022 dollars.
Disposal Activities	<ul style="list-style-type: none"> The activities associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed. Typically, disposal costs are accounted under replacement activities. Some assets, such as landfills, may have perpetual maintenance costs. 	<ul style="list-style-type: none"> Analysis assumes any costs associated with “disposal” is included for in the replacement value and captured in the capital replacement requirements. 	
Expansion Activities	<ul style="list-style-type: none"> Planned activities required to extend or expand municipal services to accommodate the demands of growth. 	<ul style="list-style-type: none"> Assumed Township expansion activities based on Township 10-year DC funded expenditures this equates to an average additional yearly expenditure of about \$386,000 (first round capital acquisition). It is assumed that future DCs will be used to fund these expenditures. The asset management related expenses associated to future replacement and ongoing maintenance of net new infrastructure is included for in the calculation of the funding need. 	<ul style="list-style-type: none"> Assumed Township expansion activities based on 2022 DC Amendment Study which equates to an average additional yearly expenditure of about \$2.7 million (first round capital acquisition). It is assumed that future DCs will be used to fund these expenditures. The asset management related expenses associated to future replacement and ongoing maintenance of net new infrastructure is included for in the calculation of the funding need.

It should be noted that the Township undertakes all the activities described in Table 7, however, the Township's budget generally accounts for these expenditures in different categories. Specific asset management strategies based on existing practices in the Township are documented in Appendix C. It is recommended that the Township continue to track the asset management activities required to continue to maintain levels of service.

B. RISK ANALYSIS

It is important to assess the risk associated with each asset and the likelihood of asset failure. Asset failure can occur as the asset reaches its limits and can jeopardize public/environmental safety. In addition, certain assets have a greater consequence of failure than others. A risk matrix can help prioritize which assets should be repaired/replaced, even those which the Township has already identified to be in Poor or Very Poor condition. The evaluation rating is then linked to the condition assessment parameter discussed in Section 2.

Appendix D presents a risk framework which is utilized in asset categories where limited engineering information was available. The framework in Appendix D was used for sidewalks and linear stormwater. The analysis results in a rating of "Very Low" risk for these asset classes. This is mainly driven by the relative condition of the assets, as most sidewalks are considered in the Fair range and linear stormwater is considered Very Good.

Although the risk analysis was utilized in a limited manner through this AMP where engineering information was not available, it is expected that the framework will be utilized more extensively once the Township undertakes a more wholesome AMP that includes non-core assets, for which engineered information is more limited. Therefore, presenting the risk framework here sets up a starting point for future iterations of the Township's asset management plan.

It is also important to recognize the risk associated with the Township's ability to deliver the AMP while recognizing that any deviation may affect the overall ability to deliver service. Table 8 below provides a summary of the identified risks, potential impacts and mitigating actions associated with the asset management program. Moving forward, the Township may continue to update the information in Table 8 to better reflect ongoing changes to policy or practice.

Table 8 Risk Associated to the Plan		
Identified Risk	Potential Impact	Mitigating Action
Failed Infrastructure	<ul style="list-style-type: none"> ▪ Delivery of service ▪ Asset and equipment damage 	<ul style="list-style-type: none"> ▪ Repair and rehabilitate as necessary ▪ Increase investment ▪ Non-infrastructure solutions
Inadequate Funding	<ul style="list-style-type: none"> ▪ Delivery of service ▪ Increased risk of failure ▪ Shorten asset life ▪ Defer funding to future generations 	<ul style="list-style-type: none"> ▪ Reductions of service ▪ Find additional revenue sources
Regulatory Requirements	<ul style="list-style-type: none"> ▪ Non-compliance ▪ Mandatory investments ▪ Increased costs 	<ul style="list-style-type: none"> ▪ Find additional revenue sources ▪ Lobby actions
Plan is not Followed or Not Undertaking Required Lifecycle Activities	<ul style="list-style-type: none"> ▪ Shorten asset life ▪ Inefficient investments ▪ Prioritization process failure ▪ Failure to deliver service 	<ul style="list-style-type: none"> ▪ Monitor and review ▪ Create asset management internal network ▪ Implement processes ▪ Investigate alternative lifecycle management options

C. CLIMATE CHANGE INTEGRATION

The management of a municipal assets plays a fundamental role in the delivery of services, which depends on the infrastructure available to deliver the service. Corporate asset management in municipalities largely relates to the management of existing assets to keep them in a state of good repair while planning for future repair and/or replacement of their assets across all service areas. Impacts of climate change are already being experienced around the world, including Canada. It is important for municipalities to begin considering and planning for future climates to ensure the delivery of services, especially as it pertains to the maintenance of key municipal infrastructure. As per *Ontario Regulation 588/17* s3(5), municipalities must include a commitment in their asset management planning to address the vulnerabilities of climate change with respect to operations, levels of service and lifecycle management. There must also be consideration for anticipated costs, mitigation and adaptation approaches and disaster planning to meet all regulatory requirements in Ontario municipal asset management. In response to the regulatory requirements, Township of Uxbridge adopted its first Strategic Asset Management Policy and committed to integrating climate change as part of its asset management planning.

Expected climate change impacts include hotter, drier summers, warmer winters with increased precipitation, increased frequency and intensity of storms and increased intensity of extreme winds. These changes in climate will likely lead to increased risks associated with flooding, heatwaves, risk of infrastructure damage, health and safety of residents, the alteration or loss of habitats, etc.

Many of these risks are associated with municipal assets and may impact the levels of service. Climate change mitigation and adaptation planning is an important step for municipalities to take to begin managing risks associated with climate change. Therefore, the Township is taking steps towards the integration of climate change considerations into their asset management planning framework moving forward.

Table 9 provides a risk summary, for information purposes, to help further propel climate change integration with asset management, although, recognizing the full utilization would still need to be applied and understood at the staff level. In asset management terms, this table shows the “big picture” effects that climate change hazards may have on the levels of service for various assets. The specific climate change impacts on levels of service are to be developed further as part of future updates to the asset management plan and through specific master planning exercises.

Through further understanding of the anticipated extent of climate change events, climate change adaptation projects at the Township will provide additional parameters as to the likelihood and severity of events. At its most simplistic form, the Table 9 provides a range from a “rare” occurrence to “almost certain”. A rare occurrence could be correlated to falling into the tenth percentile of probability, with an almost certain occurrence falling into the ninetieth percentile of probability.

Table 9			
Framework for Climate Change Integration with Risk			
Hazards/ Risks	Likelihood	Consequence	
		Assets Affected	Possible Critical Infrastructure Failure/Service Impacts
Freezing Rain/Ice Storm	Rare to almost certain	<ul style="list-style-type: none"> All core assets 	<ul style="list-style-type: none"> Reduced road and bridge conditions or damage that may result in potential closures Potential for increased flooding Traffic delays due to poor road and bridge conditions

Table 9 Framework for Climate Change Integration with Risk			
Hazards/ Risks	Likelihood	Consequence	
		Assets Affected	Possible Critical Infrastructure Failure/Service Impacts
Extreme Temperatures – Cold Wave	Rare to almost certain	<ul style="list-style-type: none"> • Bridges and Culverts • Roads 	<ul style="list-style-type: none"> • Dangerous road conditions • Damage to structures possible
Intense Rain	Rare to almost certain	<ul style="list-style-type: none"> • Stormwater Ponds and Linear • Bridges and Culverts • Roads 	<ul style="list-style-type: none"> • Flooding of bridges and roadways leading to closures or property damage • Disruptions to service due to flooding of roads, leading to decreased levels of service
Flood – Urban	Rare to almost certain	<ul style="list-style-type: none"> • Stormwater Ponds and Linear • Bridges and Culverts • Roads 	<ul style="list-style-type: none"> • Flooding of bridges and roadways leading to closures • Disruptions to service due to flooding of roads, leading to decreased levels of service
Windstorm/ Tornado	Rare to almost certain	<ul style="list-style-type: none"> • All core assets 	<ul style="list-style-type: none"> • Dangerous road conditions due to falling debris • Damage to structures possible

Source: <https://www.assetmanagementbc.ca/wp-content/uploads/Climate-Change-and-Asset-Management.pdf>

5. FINANCING STRATEGY

The Township has continually contributed to capital for tax funded services. In order to continue to maintain levels of service, the Township will need to monitor funding levels over the next few years. This section of the 2022 Plan is intended to help the Township build on the existing asset management practices already in place. The financing strategies presented provide the Township with feasible options to increase capital funding in a sustainable manner to maintain service levels. The financing strategy presented here has incorporated the costs associated to core assets developed through this 2022 AMP as well as the costs for non-core assets from the 2017 AMP (adjusted to 2022 dollars). All figures presented in this section are expressed in constant 2022 dollars.

A. OPERATING BUDGET EXPENDITURES

The Township has historically set aside funds to maintain its capital assets in a state of good repair. This has meant that sufficient funds have typically been available to deal with immediate and critical asset repair and rehabilitation needs. Overall, the Township has aimed to increase its operational and capital budget expenditures to maintain assets and fund capital asset repair and replacement over the past few years.

It is anticipated that the Township's operating expenditures will be adjusted annually, at minimum, to account for the effects of inflation. Although, if additional asset management strategies are adopted by the Township, annual costs could exceed regular inflationary adjustments. Using the budget as the basis, the analysis used in the financing strategy assumes:

- \$4.2 million is related to core asset maintenance funded through the tax base in 2022. This amounts to approximately 0.9% of the total replacement value of the Township's core infrastructure of \$455.4 million
- \$2.4 million is related to non-core asset maintenance funded through the tax base in 2022. This amounts to approximately 2.6% of the total replacement value of the Township's non-core infrastructure of \$93.0 million²

² The replacement value of non-core assets is based on the replacement value adjusted to 2022 dollars from the Township's 2017 AMP.

Moving forward additional maintenance expenditures will be required to maintain newly acquired infrastructure associated to growth-related development. The following summarizes the assumptions:

- The Township would undertake about \$386,000 in annual growth-related core asset expansion activities which would equate to about \$3,500 in additional maintenance expenditures per year based on 0.9% of the replacement value of new core infrastructure. This results in total average maintenance related expenditures of about \$4.2 million per year over the 30-year period to 2051, including maintenance for existing assets.
- The Township would undertake an average of \$2.7 million in annual growth-related non-core asset expansion activities which would equate to about \$84,400 in additional maintenance expenditures per year based on 2.6% of the replacement value of new non-core infrastructure. This results in total average maintenance related expenditures of about \$3.4 million per year over the 30-year period to 2051, including maintenance for existing assets.

As the Township matures its asset management program, it is expected that service level adjustments and costs associated with achieving desired levels of services will be incorporated in the model. At this stage, no provisions for a level of service adjustments to account for requirements of *O. Reg. 588/17* to define and implement proposed levels of service has been included in the analysis – this will be further addressed in the next plan to coincide with the regulatory timeline as better information on defining the proposed levels of service become available.

B. CAPITAL REPLACEMENT SCHEDULE

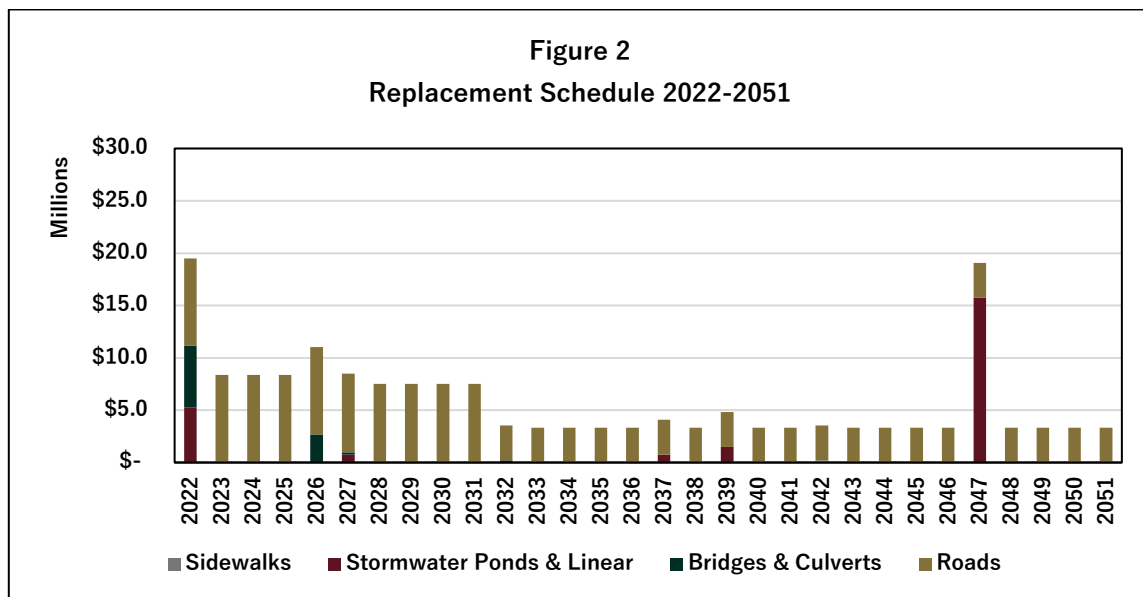
The 2022 Plan includes an estimate of the timing for repair and replacement of core assets. Figure 2 sets out the schedule of repair and replacement of existing core assets, to maintain current levels of service for the assets considered in the 2022 Plan. Over the 30-year period, to 2051, the repair and replacement program totals about \$179.1 million. The average yearly expenditure related to these assets amount to approximately \$6.0 million per year.

Some larger valued assets have been identified over the next few years to require repair or replacement, in particular some major projects include:

- **Roads:** The Township’s 2021 Roads AMP has identified about \$51.9 million in road works that are considered as “Now” needs. The needs are substantial and the

Township would be unable to undertake this work in the short-term. The “Now” needs expenditures have therefore been spread over the first 10-years of the forecast to reflect a more reasonable approach to expenditures associated to critical roads. Future year costs have also been identified, this includes \$15.8 million in the 1-5 year period and \$11.6 million in the 6-10 year period. Finally, \$5.8 million in ADEQ road works are also identified. This refers to road works that will be needed beyond the 10-year period.

- **Bridges & Culverts:** The Township’s Bridge and Culvert Appraisals have identified approximately \$9.0 million in bridge/culvert rehabilitation related work. The needs are substantial, therefore a similar approach to roads has been undertaken in that the total \$9.0 million in costs has been spread over the first 10-years of the forecast to reflect a more reasonable approach to expenditures associated to bridges/culverts. The 10-year timing was utilized to be consistent with the approach used for “Now” needs roads.
- **Stormwater Ponds and Linear:** Over the 5-year period from 2022-2026 approximately \$5.3 million in stormwater pond cleanout related costs are expected. Although it is noted, that the cleanout timing is based on the age of the ponds, therefore the Township should monitor these ponds to ensure timing of cleanouts better reflect inspections in future years. Over the long-term in 2047 cleanouts of the remaining ponds are expected totalling about \$15.7 million.
- **Sidewalks:** No replacements are expected over the short-term.



Note: Graph includes core infrastructure and sidewalks.

C. SUMMARY OF THE CUMULATIVE FULL LIFECYCLE COSTS

A key component of the financing strategy is to identify the level of expenditure required on an annual basis to pay for asset management. Costs to maintain and eventually repair or replace municipal assets need to be understood and contributions to reserves and reserve funds need to be quantified. In this section, provisions for repair and replacement are calculated for each asset based on anticipated cost of repair or replacement in constant 2022 dollars from the various sources of information presented in the previous sections. The aggregate of all individual provisions form an annual contribution to reserves for the purpose of asset repair and replacement.

Over the next thirty years, the analysis indicates a spending need of about \$625.1 million for both core and non-core assets combined. Figure 3 summarizes the cumulative 30-year investment needs across the tax supported service areas for the various lifecycle activities identified in Section 4. Of the total life cycle cost, most costs can be attributed to saving for the renewal and replacement of existing infrastructure making up about \$350.8 million (56%). About \$228.5 million (37%) of the total is related to operating and maintenance costs associated to the existing asset base and potential future infrastructure associated to expansions. The remaining \$44.4 million (7%) is related to future asset management provisions associated to future infrastructure expansion with a minor share of \$1.5 million (less than 1%) related to non-infrastructure solutions. Note that no provisions for a level of service adjustments to account for requirements of O. Reg. 588/17 to define and implement proposed levels of service has been included in the analysis – this will be further addressed in the next plan to coincide with the regulatory deadline.

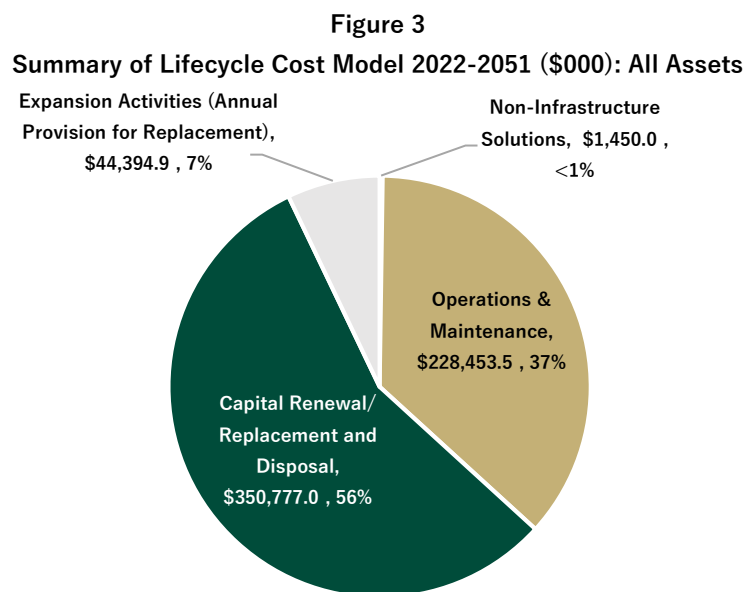
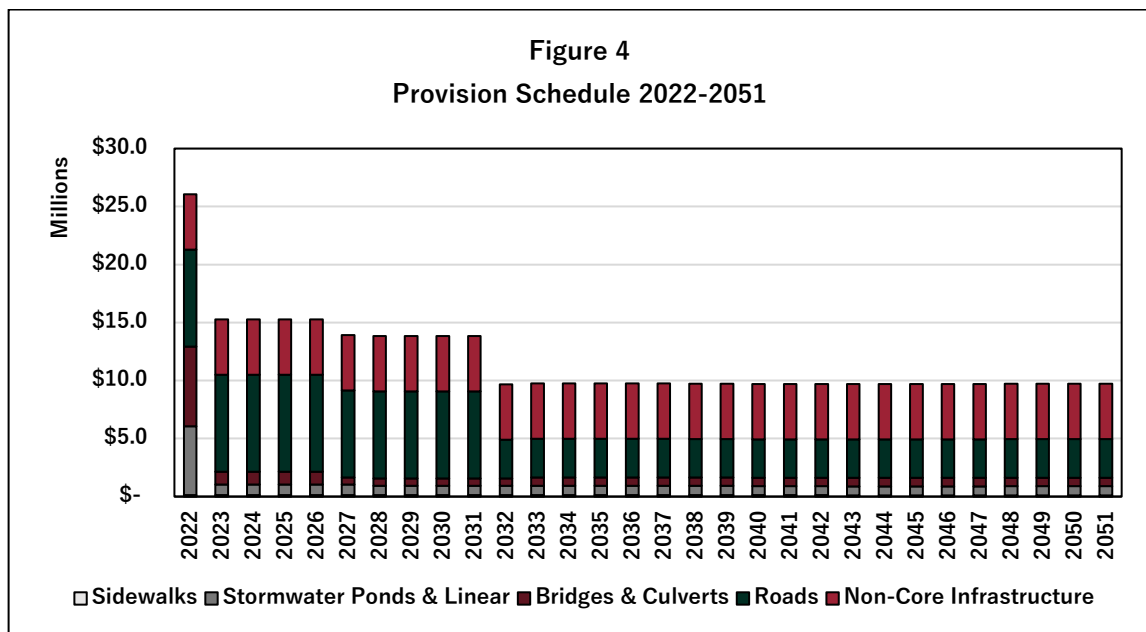


Figure 4 below provides an overview of the annual contributions related to the capital renewal and replacement requirements on an annualized basis over the planning period for the tax supported core and non-core infrastructure which totals \$350.8 million. Figure 4 shows the funds that would have to be contributed annually to reserves to maintain current levels of service for tax supported assets included in this 2022 Plan to 2051. Figure 4 demonstrates that:

- Average annual contributions over the 30-year period would have to be in the order of \$6.9 million per year for core assets and \$4.8 million for non-core assets. This would total a 30-year annual average of \$11.7 million.
- The level of investment in Township assets would need to increase from current funding levels. It should be noted that of the 2022 capital funding sources for this set of assets, tax supported revenues are the most secure form of recurring revenue for the Township as other funding sources, such as grants, could be subject to review by upper levels of government and cannot be relied upon as a secure funding source for financial planning.



Note: Graph includes core infrastructure, sidewalks and non-core costs from the 2017 AMP adjusted to 2022 dollars.

D. SUMMARY OF REVENUES

The municipal revenue sources available to address the identified full lifecycle cost requirements outlined above are limited. Generally, the type of capital project aligns to its funding source. In this regard, growth related projects receive most of their funding through

development charges in communities that impose DCs and replacement projects are predominantly funded through tax-based contributions for tax supported assets. In Uxbridge, development charges are collected on all new development to fund the costs associated to “first-round” infrastructure required to service growth. Future maintenance, repair, replacement then becomes the responsibility of the Township to fund from other sources, largely from taxation.

When assets require rehabilitation or are due for replacement, the source of funds are essentially limited to reserves or contributions from the operating budget regardless of how the initial first round capital asset was funded. Table 10 provides a summary of the revenues assumed in this analysis for tax supported assets.

Table 10	
Financing Strategy Key Assumptions	
Category	Assumptions
Operations and Maintenance	<ul style="list-style-type: none"> ▪ It is assumed that operations and maintenance costs associated to existing assets will remain at similar levels to today (no level of service increase) and will be funded from the tax base. ▪ Future operations and maintenance costs associated to expansion related assets will be funded from the tax base and are assumed to be required to maintain current levels of service.
Capital from Taxation (including transfers to reserves)	<ul style="list-style-type: none"> ▪ Existing 2022 tax supported capital funding of \$3.6 million is assumed to be the starting point and base case for increasing annual capital contributions. This is related to the contributions to reserves (from operating), including contributions to the asset preservation reserve. This amount is based on the 2022 budget.
Capital Projects Levy	<ul style="list-style-type: none"> ▪ Capital projects levy assumed to continue at the same level as the 2022 budget of about \$281,700.
Debt (funded from taxes)	<ul style="list-style-type: none"> ▪ Continued debt payments associated to the firehall and Brock St Culvert are assumed to continue to be funded in part by the capital projects levy and taxation. The debt payments amount to about \$192,400 for the firehall and \$272,000 for the Brock St Culvert. These amounts are net off the available funding.
Canada Community Building Fund (formerly Gas Tax)	<ul style="list-style-type: none"> ▪ Funding for 2022 is approximately \$671,600. Post 2022 gas tax funding is assumed based on AMO allocations to 2023 and remain constant afterwards.
Other Funding	<ul style="list-style-type: none"> ▪ Gravel royalties are expected to continue amounting to about \$325,000 per year.
Existing Reserves	<ul style="list-style-type: none"> ▪ Existing capital reserves amounting to approximately \$3.5 million have been used against the total costs.

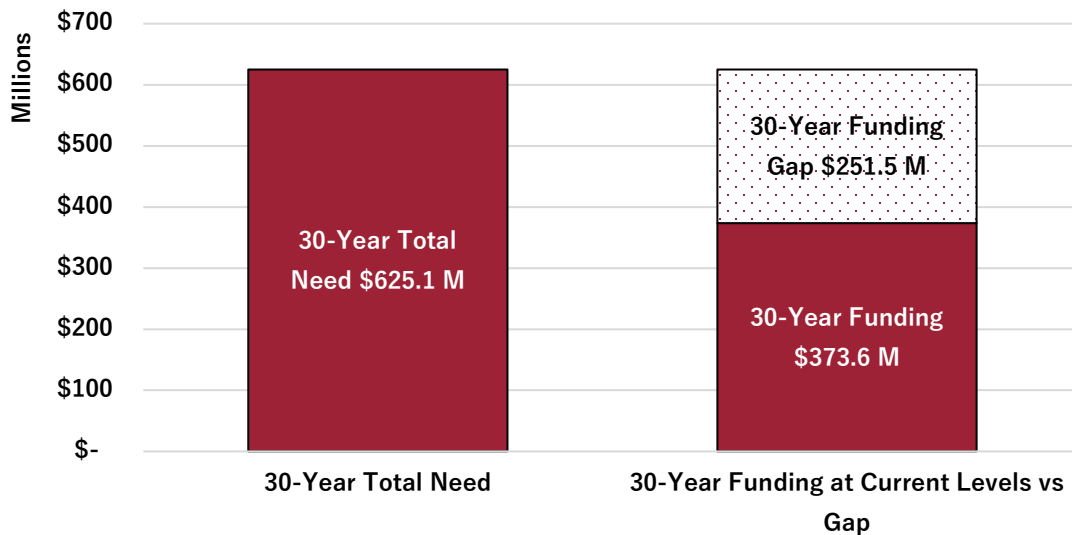
Table 10	
Financing Strategy Key Assumptions	
Category	Assumptions
Expansion Activities	<ul style="list-style-type: none"> ▪ Assumed Township expansion activities equates to an average additional yearly expenditure of about \$386,000 for core assets and \$2.7 million for non-core assets (first round capital acquisition). This amount is assumed to be funded from development charges. ▪ The asset management related expenses associated to future replacement and ongoing maintenance of net new infrastructure is included for in the calculation of the funding need and are expected to be funded through taxes.
Inflation	<ul style="list-style-type: none"> ▪ Financing strategy is expressed in constant 2022 dollars.

E. INFRASTRUCTURE DEFICIT AND FINANCING STRATEGIES

To implement sustainable asset management practices the Township needs to have an understanding of the current “infrastructure deficit” as well as the funding gaps that would arise should the required full life-cycle costs related to capital, identified in Part C: Capital Provision Schedule, be delayed.

The 30-year infrastructure deficit shown in Figure 5 represents the difference between the required lifecycle costs and the current contributions to capital for assets in this 2022 Plan (core and non-core). The graph indicates that existing funding levels are insufficient to cover projected costs over the planning period, as a result, a notional gap of \$251.5 million exists over the 30-year period. It is unrealistic to expect the Township to address the total infrastructure deficit in the short-term. Therefore, a long-term funding strategy that identifies options for addressing current and future asset expenditures is required.

Figure 5
30-Year Need vs Current Funding



If the Township were to implement a funding strategy to eliminate the infrastructure deficit by 2051, the Township would be required to increase capital contributions on an annual basis by an average of about \$578,100 for 30 years (plus annual inflation). For 2023, the increase would be in addition to the \$3.6 million tax supported capital funding, \$281,700 from the capital projects levy, \$325,000 in gravel royalties, \$671,600 in Gas Tax funds and existing tax supported reserve funds on hand (all net of debt payments). The yearly revenue requirement is equivalent to 3.8% of the Township’s estimated 2022 tax levy revenues of about \$15.4 million. A detailed table of this strategy can be found in Appendix E – Table 1.

Eliminating the infrastructure deficit by 2051 is an aggressive objective and is an initiative the Township may not want to explore at this time; a few reasons include:

- The required capital contributions (to eliminate the deficit) will necessitate an increase to property taxes beyond a reasonable measure over the short-term;
- The Township may need to decrease or limit funding of other key Township services or initiatives for capital repair and replacement activities;
- With proper inspection and maintenance, assets can remain in use past their engineered design life and are capable of performing to meet the Township’s current level of service under these circumstances. Therefore, in such instances, the asset does not necessarily need to be replaced by virtue of exceeding their design life; and,

- Prudent asset management strategies, which are currently employed by the Township can often extend the requirement of major repair or replacement of capital assets and may prolong the life of the asset.

Further to the above noted comments, two financing strategies were developed to illustrate a rational capital contribution level to meet the full lifecycle cost needs for tax supported assets as outlined in Figure 5. The financing strategies illustrate the “smoothed options” to the lifecycle requirements identified in Figure 5. Assumptions for each of the funding strategies is shown in Table 11.

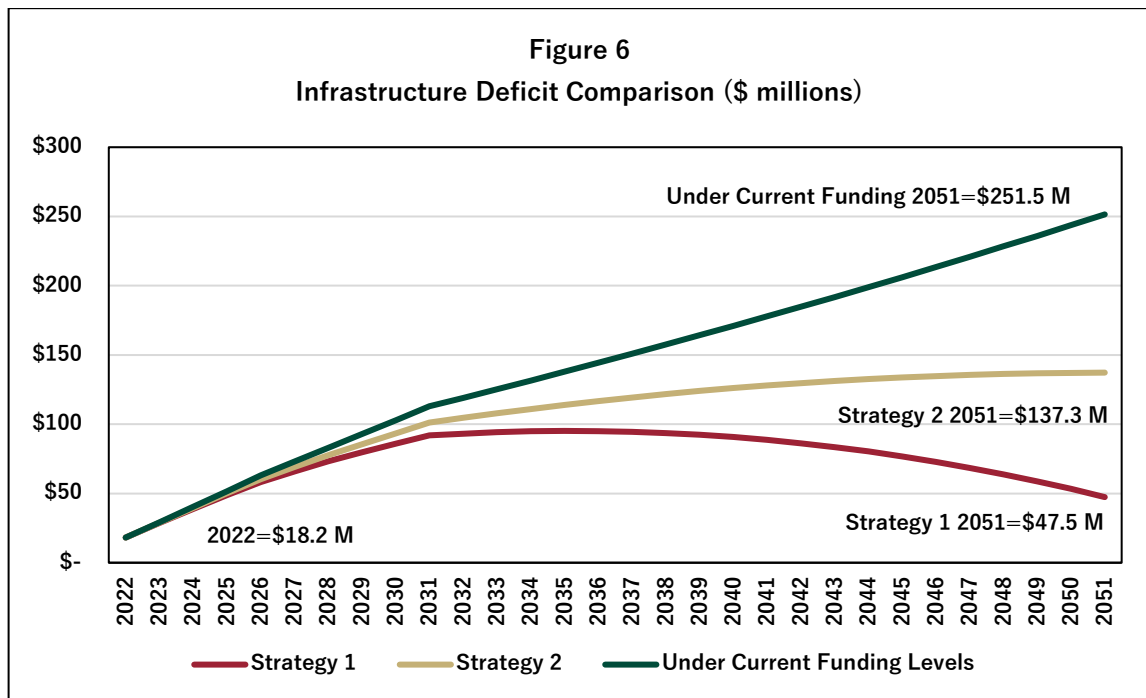
Table 11 Summary of Financing Strategies	
Financing Strategy ⁽¹⁾	Strategy Parameters
Strategy 1 Achieving Forecasted Tax Funded Contributions Based on 10-Year Capital Plan	<ul style="list-style-type: none"> ▪ Increase annual capital contributions by approximately \$469,000 per year. For 2023, the increase would be in addition to the estimated 2022 budgeted total tax funded capital contributions of \$3.6 million ⁽²⁾. ▪ In recent years, the Township has made a commitment to increasing tax funded capital contributions to the asset preservation reserve at about 2.0% of the tax levy, the financing strategies assume this practice would continue. ▪ The increase is based on the Township’s projected tax funded capital contributions through the 10-year capital plan. ▪ The yearly revenue requirement is equivalent to 3.1% of the Township’s estimated 2022 tax levy (\$15.4 million).
Strategy 2 Increase Contributions Based on 5-year Historical Budget	<ul style="list-style-type: none"> ▪ Increase annual capital contributions by approximately \$262,600 per year. For 2023, the increase would be in addition to the estimated 2022 budgeted total tax funded capital contributions of \$3.6 million ⁽²⁾. ▪ In recent years, the Township has made a commitment to increasing tax funded capital contributions to the asset preservation reserve at about 2.0% of the tax levy, the financing strategies assume this practice would continue. ▪ The increase is based on the Township’s average 5-year historical budget increases. ▪ The yearly revenue requirement is equivalent to 1.7% of the Township’s estimated 2022 tax levy (\$15.4 million).

Note 1: Key assumptions noted in Table 10 are maintained for both financing strategies.

Note 2: Includes contributions to reserves (and specifically the Asset Preservation Reserve)

Figure 6 provides a snapshot summary of the infrastructure deficit for the strategies outlined in Table 11 and if current funding levels are maintained for reference purposes. Given the capital expenditure requirement to meet the asset lifecycle needs, the cumulative infrastructure deficit will increase in strategies 1 and 2 before the Township begins to reduce this amount by increasing capital contributions by more than the annual lifecycle requirement. The infrastructure deficit will increase by the annual funding gap and decrease once the annual contributions are greater than the annual provision. If current funding levels are maintained, with no further increases, the infrastructure deficit would continue to increase to 2051 and beyond.

It is important to note that even though the in-year funding gap has been addressed within the planning horizon in strategies 1 and 2, the infrastructure deficit poses risk to the Township as it is indicative of overdue assets that have fully depreciated and may be in Very Poor condition. These assets would need to be addressed in a longer time frame and are at risk for asset failure. If current funding levels are not increased, the Township would continue to experience an increasing infrastructure deficit which would put the Township at the most risk of not meeting asset repair/replacement obligations over the long-term. With this said, the Township in recent years has made a commitment to increasing tax funded capital contributions to the asset preservation reserve at about 2.0% of the tax levy. This increase is assumed to continue in both strategies 1 and 2. Strategies 1 and 2 also continue to be generally inline with the strategies presented to Council during the 2017 AMP process.



F. COSTS TO MAINTAIN LEVELS OF SERVICE AND RELATIONSHIP WITH FINANCING STRATEGIES

As outlined in Part A total estimated budgeted asset maintenance expenditures in 2022 were about \$6.5 million for all assets. In addition, to existing reserve balances of \$3.5 million, the Township will have funds available in 2022 amounting to \$4.4 million associated to capital (net of debt payments). This amount is made up of the following:

- \$3.6 million in tax levy capital funding (including contributions to reserves and specifically the Asset Replacement Reserve);
- \$281,700 from the capital projects levy;
- \$671,600 in gas tax funding;
- \$325,000 in gravel royalties; and
- Net of \$464,400 in debt payments.

Both the capital maintenance requirements (from operating) and the capital spending provision identified are attributed to maintaining the service level associated with maintaining all assets owned by the Township.

Overall, this funding allocation is required to ensure the Township delivers the existing levels of service identified in Section 3 of the Asset Management Plan for both core and non-core infrastructure assets which represent the lifecycle activities identified in Appendix C. Overall, it is recommended that the Township continues to monitor levels of service on an annual basis in the context of budget expenditures. In this manner, the Township can identify any significant changes in levels of service and identify if funding levels are appropriate to address any asset pressures.

Furthermore, the financing strategies represent sustainable options at maintaining the current levels of service from a long-term perspective. In summary, the following conclusions can be made:

- Strategy 1 would ultimately result in a service level increase over the long-term as assets are replaced as required based on condition and useful life. Therefore, the deficit would begin to decline over the long-term period. This strategy would represent a more optimal level of asset repair and replacement than existing trends and should be targeted with the determination of proposed levels of service moving forward.
- Strategy 2 would ensure, that over the long-term, the funding gap-stabilizes and the infrastructure deficit is controlled. Under this approach, the additional funding would allow for increased targeted investments in asset areas currently in “Fair” condition

to ensure these assets don't transition into the poor category in the next 5-10 years therefore maintaining the existing level of service.

- Also of importance, the assets in Good/Very Good condition require continued investment to ensure service levels are maintained. As these assets age, they may also transition in the Fair or lower category. Continued contributions to reserves will ensure funds are available whenever assets require works to be completed.
- The option to “do nothing” and allow the infrastructure back-log to accumulate would mean that existing funding levels would not be sufficient to manage the infrastructure in place over the long-term. Therefore, the assets in service would deteriorate with a series of assets moving into poor and very poor condition which would effectively provide a reduction in the level of service over the short and long-term periods. This “do nothing” scenario is reflected in Figure 6 as the scenario under current funding levels.

G. AVAILABLE FUNDING TOOLS

The following section discusses, at a high level, the range of tools available to the Township for funding capital expenditures.

Federal and Provincial Grants

Historically, the Township has had some success in securing grant funding from higher orders of government to assist in funding capital projects. The Township will continue to seek financial assistance from upper levels of government (where available) to fund non-growth related capital works.

The Township of Uxbridge has indicated that it expects to continue receiving Gas Tax funds (renamed now to the Canada Community Building Fund) – these funds have been incorporated into the financing strategies at current levels. The Township has indicated that other external grants, although available on an ongoing basis, are always at risk of review by upper levels of government. Therefore, grant funding is not considered a stable funding source over the long-term period. If the Township continues to receive other funding sources over the long-term, it is expected that these funds would be directed to high-priority projects in an effort to reduce the overall infrastructure deficit.

Development Charges

Development charges may be imposed to pay for increased capital costs required because of increased needs for services arising from development. The Township currently collects development charges from new development to fund infrastructure demand associated to growth. For the purposes of this AMP it has been assumed that the Township will fund new DC eligible growth-related infrastructure through development charges. DC eligible infrastructure has been assumed in the forecast based on the ongoing DC Amendment Study and 10-year capital program. It is expected that the Township will continue to maximize development charge collections through its Development Charge Study and by-law process.

Furthermore, the analysis includes the annual asset management requirements associated with any new assets acquired in addition to the net annual requirement for the Township's existing assets as identified in the previous sections.

Property Taxes

According to the 2022 budget, property taxes represent about \$15.4 million in revenues. The use of property taxes to fund municipal tax supported services is the most secure source of funding for the Township. The most common and secure avenue to generate additional funding to support increased capital asset management functions would be to increase property tax revenues.

User Fees

To the extent that user fees are being collected to fund repair and replacement of capital infrastructure, user fees should be allocated to capital reserves. The Township should look to review and ensure user fees are being utilized to the full extent as allowed under Provincial legislation. This will help alleviate funding pressures from the tax base and allow for greater flexibility to fund capital asset repair and replacement activities. Most commonly, municipalities undertake detailed user fee reviews of their building, planning and engineering fees in order to recover the full cost of providing services – the full cost recovery user fee rates generally incorporate a component for building capital replacement.

Public Private Partnerships

Public Private Partnerships (P3s) are a common tool for delivering infrastructure services throughout communities across Canada to build roads, hospitals, light rail transit, water and wastewater treatment facilities and other infrastructure. P3s can offer more effective project and lifecycle cost control and risk management than traditional procurement methods.

Although sometimes opportunities may be limited, the Township could explore P3s as a tool to carry out capital related activities if possible.

Local Improvement Charges

Municipalities, through local improvement charges, have the ability to recover the costs of capital improvements made on public or privately owned land from property owners who will benefit from improvement. The Township could use the local improvement process to undertake a capital project and recover all or part of the cost of the project.

Developer Contributions

Municipalities obtain a wide-range of assets through developer contributions; these contributions can be “in kind” direct provision of assets or funded, partially or fully, through agreement. The contributions are typically facilitated through condition of a subdivision or site plan agreement under the *Planning Act*. An important consideration in determining the level and extent of developer contributions is the Township’s “local service definitions” which, under the *Development Charges Act* and *Planning Act*, are used to establish which type, and shares, of capital expenses are considered eligible for direct development contribution or funding.

Assets funded, or provided, under developer contributions are typically “first round” assets but can, in certain circumstances, include replacement of existing assets and funding of non-DC recoverable shares. An example of replacement of an existing asset is when an existing road requires improvements or upgrades as a result of a specific development; the Township could endeavour to require the developer to undertake, or fund, the road improvements as a condition of the subdivision agreement. The municipality would benefit from the funding of the improved road, but is also an effective deferral of a capital renewal expense as the existing, and therefore depreciated asset, is also replaced or renewed.

H. FINANCING AND FINANCIAL MANAGEMENT PRACTICES

Debt (as a financing tool)

Debt financing is a viable tool available to fund capital projects. Planned debt is a responsible way to spread the costs of a project over the life of an asset. This ensures the tax payers who benefit from the asset share the cost, therefore, the burden of capital is

distributed equally between current and future tax payers. It is important to note that debt funding is subject to interest costs.

The amount of debt a municipality can carry is set by Provincial regulations to ensure municipalities continue to operate in a fiscally sound environment. The Ministry of Municipal Affairs mandates that a municipality's annual debt repayment must not exceed 25% of annual own-source revenues. The Township currently has annual debt payments of \$805,021 based on the 2022 ARL which is well below the provincial limitations. The Township will continue to only use debt strategically to finance projects which are critical or expand municipal servicing capacities and only when a confirmed repayment plan is endorsed.

The requirements of the *Municipal Act* and best practice, suggests that any potential debt should not be financed for a period longer than the average useful life of the asset. This will ensure the Township is not paying for an asset outside the design life and beyond the asset's expected use.

Reserves and Reserve Funds

Reserves are to be used to cope with high capital investment periods by saving during low capital investment periods. This practice will smooth annual expenditures and ensure the Township can complete the required annual capital works. In addition to contributions during low investment periods, many municipalities use annual surpluses, should one arise, to increase reserves. There is no prescribed amount of reserves for a municipality to have at any given time, but they should be sufficient to cover emergency work (if required). It is noted that the Township's current primary financial management tool for asset management are its capital reserves.

I. FUTURE DEMAND

The 2022 Plan reflects the assets that the Township currently owns and operates. According to 2021 Statistics Canada census data, the Township's population has increased since 2016 from about 21,200 to 21,600 or about 400 persons (1.9% increase). This said, based on the Township's 2022 Development Charges Background Study Amendment the population of the Township is expected to reach about 23,200 people by 2028. This would represent an increase of about 2,600 people (7.4%) from the 2021 census population of about 21,600.

In order to facilitate growth, the Township may be required to emplace new infrastructure to service development. Irrespective of how the first round capital is funded, when assets

require rehabilitation or are due for replacement, the source of funds is limited to reserves or contributions from operating. Capital expenditures to carry out the rehabilitation and replacement of aging infrastructure are not growth-related and are therefore not eligible for funding through development charge revenues or other developer contributions.

Despite the additional asset management requirements associated with new infrastructure, growth will have the effect of increasing the overall assessment base and additional user fee and charges revenues to help offset the capital asset provisions required to replace new infrastructure in the future. The collection of these funds is intended to be allocated to the Township's reserves for the future replacement of these assets. This said, the Township should continue to prioritize the repair and replacement of existing "Very Poor" and "Poor" conditioned infrastructure regardless.

6. CONTINUOUS IMPROVEMENTS AND UPDATES

The major premise of comprehensive corporate asset management is that an organization will seldom have perfect processes and data to manage the asset portfolio. Instead, the underlying culture of continuous improvement and reliability is its key to success. The recommended improvements and next steps will form part of the Township's evolving Asset Management program moving forward.

A. ASSET MANAGEMENT INTERNAL NETWORK

It is recommended that the Township consider forming an Asset Management Committee to focus on the activities related to the management of Township assets and to coordinate asset management practices and policies. It is recognized that the Township's annual capital budget process considers capital planning at a corporate level based on available funding and municipal priorities. The intention of the asset management committee is to consider capital planning over a longer term period and co-ordinate any initiatives that need to be taken over the longer term.

B. PLAN MONITORING

The Township will need to carefully monitor and evaluate the asset management progress and effectiveness of the Plan on or before July 1 in each year starting in 2025. This ensures that the Plan is utilized to its full extent and any gaps are identified prior to the regulatory date. Although the extent to which the regulation applies would not be applicable to the Township for several years, the Township could look to advance the review process and address the following criteria each year:

- a) The Township's progress in implementing its asset management plan and regular updates to the asset management financial Excel model;
- b) Any factors impeding the Township's ability to implement its asset management plan; and
- c) A strategy to address the factors described above in clause b).

C. DATA QUALITY AND CONFIDENCE

The Township should regularly review the confidence of existing data as well as its effectiveness integrating asset management activities into regular business processes. The

Confidence Level Rating approach identified in Table 18 below will be used to identify what specific asset categories/areas the Township can improve upon. The Confidence Level Rating is based on principles of the ISO 55000 framework and International Infrastructure Management Manual (IIMM). Current data used in the preparation of this asset management plan would be generally reliable and based on a **Level 4** recognizing that the core assets are well documented with some improvements needed for stormwater linear. The Township should undertake regular updates of the information available on assets particularly for conditions, replacement values and any other technical information important to the asset management process and assess the quality of the information based on Table 12. The data quality score is included in Appendix B complementing the State of the Local Infrastructure Reports.

Table 12 Data Quality Confidence Grading System		
Confidence Grade		Description
5	Highly Reliable	<ul style="list-style-type: none"> ▪ Data based on sound records, procedure, investigations and analysis, documented properly and recognized as the best method of assessment. ▪ <i>Dataset is complete and estimated to be accurate +/- 2%.</i>
4	Reliable Data	<ul style="list-style-type: none"> ▪ Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. ▪ <i>Dataset is complete and estimated to be accurate +/- 10%.</i>
3	Uncertain	<ul style="list-style-type: none"> ▪ Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade 4 or 5 data is available. ▪ <i>Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated +/- 25%.</i>
2	Very Uncertain	<ul style="list-style-type: none"> ▪ Data based on unconfirmed verbal reports and/or cursory inspection and analysis. ▪ <i>Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy +/- 40%.</i>
1	Unknown	<ul style="list-style-type: none"> ▪ None or very little data held

D. TIMEFRAMES FOR REVIEW AND UPDATES

This Asset Management Plan should be reviewed and updated on a regular basis. Recognizing that a full plan and related policies should only be updated at key intervals, it is important that other asset management components, such as capital budgeting, risk assessments and updates to the asset register should be integrated into staff’s regular routine. Table 14 below outlines the key timelines.

Asset Management Framework	Timeframe
Asset Management Policy	5 Years
Asset Management Plan	3-5 Years
Capital Budget	Annually
Asset Register and Data	Semi-Annually or Annually
Risk assessment (capital prioritization)	Semi-Annually or Annually
Level of Service Framework	Semi-Annually or Annually
Reporting to Council	Annually

This asset management plan has been endorsed by the executive lead of the Township and will need to be approved, through resolution, by Township Council. The Township will need to be mindful of the reporting timelines noted above relative to any potential changes to the timelines referenced by *Ontario Regulation 588/17*.

E. PUBLIC REVIEW AND COMMENT

Although the Asset Management Plan is intended to aid Township staff and Council make informed decisions regarding future capital investment needs, the plan is intended to be available to the public. Therefore, it is recommended that the Township post this plan as well as the strategic asset management policy on the website and provide a copy to anyone upon request. Note that the Township of Uxbridge will require further public consultation and input to develop the proposed levels of service required for July 1, 2025.

7. CONCLUSIONS AND RECOMMENDATIONS

The objective of this 2022 Plan is to provide the Township of Uxbridge a complementary tool to make decisions on how best to manage capital assets in a sustainable way to 2051. In this section, recommendations based on the analysis undertaken are made.

A. SUMMARY OF KEY FINDINGS

- The Township's core asset base is valued at \$455.4 million with roads making up the largest share at \$361.6 million (79%).
- For the core assets that exclude roads, \$75.1 million (80%) of the assets are considered to be in Good/Very Good condition. At the same time, approximately \$3.5 million (4%) of infrastructure is considered to be in Poor/Very Poor condition. The remaining share of \$15.1 million (16%) is in Fair condition.
- For roads, approximately 335.7 km (52%) are considered to be in Good/Very Good condition while 175.0 km (27%) are considered to be in Poor condition. The remaining 135.2 km (21%) are considered to be in Fair condition.
- The Township of Uxbridge has made some effort in recent years to address the infrastructure gap and improve the condition of assets:
 - Upper level government grant money received has typically been allocated to capital asset repair and replacement activities;
 - The Township has capital replacement reserves, and has been contributing to reserves on an annual basis, funded through the tax levy. In recent years, the Township has committed to increasing contributions to tax funded capital reserves;
 - Through its annual capital budgeting process, the Township addresses critical issues and assets in need of repair or replacement.
- The responsibility to maintain existing infrastructure is challenging, however, in addition to current capital funding, the Township should continue to increase annual capital contributions to address current and future infrastructure requirements;
 - Property taxes are the most secure form of revenue and the Township should consider increasing tax base revenues, above current practices, to fund capital works;

- Ensure user fees are being utilized to the full extent as allowed under Provincial legislation. This will help alleviate funding pressures from the tax base and allow for greater flexibility to fund capital asset repair and replacement activities.
- Explore alternative arrangements to provide services – public private partnerships or shared services if possible.
- The Township can continue to use debt as a financing tool for future capital needs as they may arise in tandem with consideration of future fiscal obligations.
- The Township should continue to seek funding from the Federal and Provincial government (when available) to undertake capital related works.

B. SUMMARY OF RECOMMENDATIONS

Based on the analysis undertaken for this 2022 Plan the following conclusions can be reached:

1. Continue to Improve Capital Development Planning Process

- The Township has developed a multi-year capital budget and forecasts for all services based on a 10-year forecast horizon. The Township should continue to update the forecast and utilize the Township’s Asset Management Model wherever information on asset works is limited or not known by staff.
- Capital budgets and forecasts should identify and evaluate each capital project in terms of the following, including but not limited to:
 - gross and net project costs;
 - risk assessment;
 - timing and phasing;
 - funding sources;
 - potential financing and debt servicing costs;
 - long-term costs, including non-infrastructure solutions, maintenance activities, renewal/rehabilitation activities, replacement activities, disposal activities and expansion activities;
 - capacity to deliver; and
 - alternative service delivery and procurement options.
- A range of quantifiable proposed level of service targets that incorporate the quantity and quality of capital assets should be explored and established for all services over the next few years, noting that the Township will need to update the AMP to include non-

core assets. Non-core assets need to be included by July 1st, 2024. Targets should be measured, reported on, and adjusted annually. This requirement will need to be in place by July 1st, 2025 as per O. Reg. 588/17.

- Repair and replacement capital works should be prioritized based on a risk assessment. For example, assets identified as Very Poor and Poor and having a significant consequence of failure should be prioritized first.
- Infrastructure assets which have been provided a Fair condition rating should be targeted for maintenance to ensure they continue to perform at current levels of service.
- The Township should, where possible, coordinate the construction of new infrastructure with infrastructure repairs and replacement to achieve cost efficiencies.

2. Ensure Asset Inventories Are Updated Regularly

- Sound asset management decisions are only possible if information in the asset registry is accurate. The Township should regularly update the registry to account for asset purchases, upgrades, and replacements, as well as asset condition ratings and information on useful life.
- The Township should continue to refine the condition assessments for all assets considered under this 2022 Plan and continue to update the information provided through the various engineering reports; and
 - The Township should update this Asset Management Plan at a minimum every 5 years.

3. Optimize the Use of Existing Assets

- The Township should implement a range of engineering and non-engineering approaches to extend the useful life of current assets, taking the lifecycle actions presented in Appendix C.
- The Township should explore opportunities to dispose under utilized infrastructure/facilities which may not warrant repair/replacement; and
- Coordinate assets into specific hubs to create operating and capital repair/maintenance efficiencies where possible.

APPENDIX A

DEFINITIONS

APPENDIX A – DEFINITIONS

This appendix contains definitions for commonly used terms throughout the Township's Asset Management Plan.

- 1. Annual Provision** - Given the timing and cost to replace an asset in the future, the amount of savings required year-over-year to replace that asset on schedule. This is also referred to as the annual requirement.
- 2. Condition Assessment** - A description of the state of an asset based on engineered or staff inspections on a 5-tier scale (very poor, poor, fair, good, and very good).
- 3. Cumulative Infrastructure Deficit** - The difference between available funding and the cost of works required based on the replacement schedule added over an extended time period. This difference includes the backlog of infrastructure work which remains unfunded. In years where funding continues to be less than the need, the deficit grows. Conversely, years where funding exceeds the need, the deficit decreases.
- 4. In-Year Funding Gap** - For any given year, this is the difference between capital requirement costs and available funding.
- 5. O. Reg. 588/17** - Ontario's Asset Management regulation that came into force on January 1st, 2018.
- 6. Provision Schedule** - The required savings year-over-year needed to replace an asset based on the replacement schedule.
- 7. Replacement Cost** - The cost of an asset to replace or reconstruct that asset at current prevailing market prices. The replacement cost will typically include all costs to procure, design, build and acquire the asset.
- 8. Replacement Schedule** - The timing for replacement of an asset based on remaining useful life, condition or risk.
- 9. Useful Life** - The expected service life of an asset expressed in years.
- 10. Weighted Condition** - The average condition of an asset category weighted against the replacement costs of assets.
- 11. Weighted Remaining Useful Life** - The average remaining useful life of an asset category weighted against the replacement cost of assets.

APPENDIX B

TECHNICAL APPENDIX:

STATE OF LOCAL INFRASTRUCTURE

APPENDIX B – TECHNICAL APPENDIX: STATE OF LOCAL INFRASTRUCTURE

The appendix provides a summary of the Township's assets with reference to quality and quantity. It also provides details on the methodology used to determine replacement values and condition assessments. Hemson has prepared State of the Local Infrastructure report cards for each asset category which outline: summary of inventory, remaining useful life, asset condition, and data reliability with the methodology for each component outlined below. It is intended that these report cards be updated annually by staff and provided to Council through the annual budget process.

1. Summary of Inventory

The summary of inventory provides an overview of the Township's assets including asset components, the quantity of those components, the replacement cost in 2022 dollars, method used to determine the replacement cost and the assumed useful life of the assets. The inventory summary is developed based on the Township's engineering reports: 2021 State of the Infrastructure and Asset Management Plan, 2021 Bridge Appraisals, 2020 Culvert Appraisals, 2021 Stormwater Management Facility Assessment and the Township's asset inventory. Furthermore, an asset management financial model based in Excel was developed as part of the 2022 AMP, this model contains all detailed core asset information.

The assets included in this 2022 Plan are consistent with the asset categories included in the Township's TCA schedule. The 2022 AMP focuses on including the core assets of stormwater ponds and linear, bridges and culverts and roads as well as including the Township's sidewalks.

2. Remaining Useful Life

The remaining useful life summary provides information on the age of assets based on the year assets were acquired or emplaced and their engineered useful life. Assets are categorized by remaining useful life based on their replacement cost in 2022 dollars. Assets categorized as overdue are considered to be beyond their engineered useful life, however, the asset may still be in good operating condition and therefore age does not represent the ideal method to determine condition. Typically, assets such as sidewalks are used well beyond their engineered useful lives with proper maintenance and repairs.

3. Asset Condition

A summary of the condition of assets is presented in a pie graph based on the replacement cost of assets in constant 2022 dollars. As discussed in Section 2, conditions have been determined based on a 5-tier rating system from very poor to very good. Condition assessments are based on several sources including, the 2021 State of the Infrastructure and Asset Management Plan, 2021 Bridge Appraisals, 2020 Culvert Appraisals, the Township’s asset inventory with the balance based on the assets age where information was not available. Details on the methodology the Township uses to assess the condition of assets is summarized in Table 1B below.

Table 1B Methodology Used for Condition Assessments	
Asset Category	Methodology
Sidewalks	<ul style="list-style-type: none"> Conditions provided through the Township’s sidewalk database (out of 100)
Stormwater Ponds and Linear	<ul style="list-style-type: none"> Stormwater Ponds using an age based approach Stormwater linear based on high-level assumption assets are in Very Good condition as the assets are relatively new
Bridges & Culverts	<ul style="list-style-type: none"> Structural appraisals from the Township’s 2021 Bridge Appraisals and 2020 Culvert Appraisals report Inspection notes were qualitatively translated to the 5-tier system for reporting
Roads	<ul style="list-style-type: none"> Physical condition ratings from the Township’s 2021 State of the Infrastructure and Asset Management Plan for Roads (expressed in kilometres as per the Roads AMP) Roads AMP summarizes conditions on a 4-tier scale

4. Replacement Cost

Replacement values are used to estimate the cost of replacing an asset when it reaches the end of its engineered design life. The total replacement cost of all core assets is estimated at \$455.4 million, and the replacement values are used as the basis for this plan. Specific methods used to determine replacement costs for asset categories are outlined below.

- **Sidewalks:** Township’s asset database indicates that the replacement cost per sidewalk is set at \$300 per cubic metre.
- **Stormwater Ponds and Linear:** stormwater ponds have been assumed to have a replacement cost of \$1.5 million per pond based on a high level estimate. As the

Township does not have a full inventory of linear stormwater assets a general replacement cost provision of \$3.0 million has been assumed for the system.

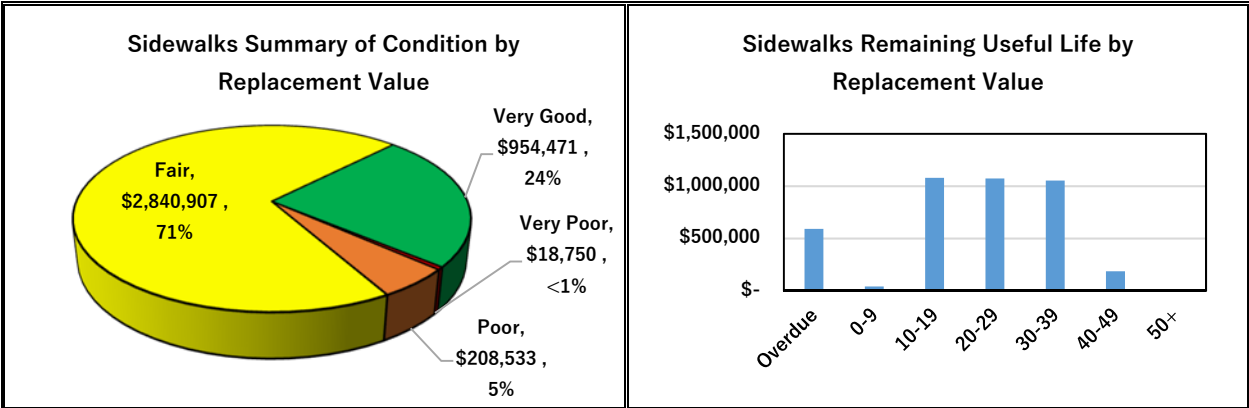
- **Bridges/Culverts:** based on the replacement values provided through the Township's 2021 Bridge Appraisals and 2020 Culvert Appraisals adjusted to 2022 dollars. Note that the Brock St culvert replacement cost has been updated to \$16.0 million based on recent construction costs.
- **Roads:** replacement costs for the Township's roads are from the Township's 2021 State of the Infrastructure and Asset Management Plan for Roads. The 2021 replacement costs were adjusted for inflation to 2022 dollars.



B.1 Sidewalks Fair

Summary of Inventory				
Location	Length (m)	Replacement Cost 2022	Replacement Cost Method	Useful Life (Years)
TOWNSHIP OF UXBRIDGE	110,938	\$3,627,048	Benchmark Costs	50
GOODWOOD	3,856	\$123,615	Benchmark Costs	50
ZEPHYR	5,588	\$220,812	Benchmark Costs	50
UDORA	1,144	\$27,426	Benchmark Costs	50
LEAKSDALE	466	\$23,760	Benchmark Costs	50
Total	121,992	\$4,022,661		

The Township maintains 121,992 metres of sidewalk assets with a total replacement value of \$4.0 million. The sidewalk assets have an assumed useful life of 50 years. The asset replacement values are based on recent benchmark costs from the Township's sidewalk database.



Overall, \$592,000(15%) of sidewalk assets are overdue by virtue of their design life, however most sidewalks have several years of remaining useful life. Overall, the Township maintains \$954,000 (24%) of sidewalk assets in Good to Very Good condition. About 227,000 (6%) sidewalk assets are in Poor or Very Poor condition. The remainder of the assets \$2.8 million (71%) are maintained in Fair condition, making up the majority of the sidewalk assets. Note that the conditions of sidewalks have been translated to the 5-tier system from the sidewalk database grading (out of 100) for reporting purposes.

Data Confidence and Reliability: Level 4 (Reliable)
 Dataset is complete and estimated to be accurate +/- 10%.

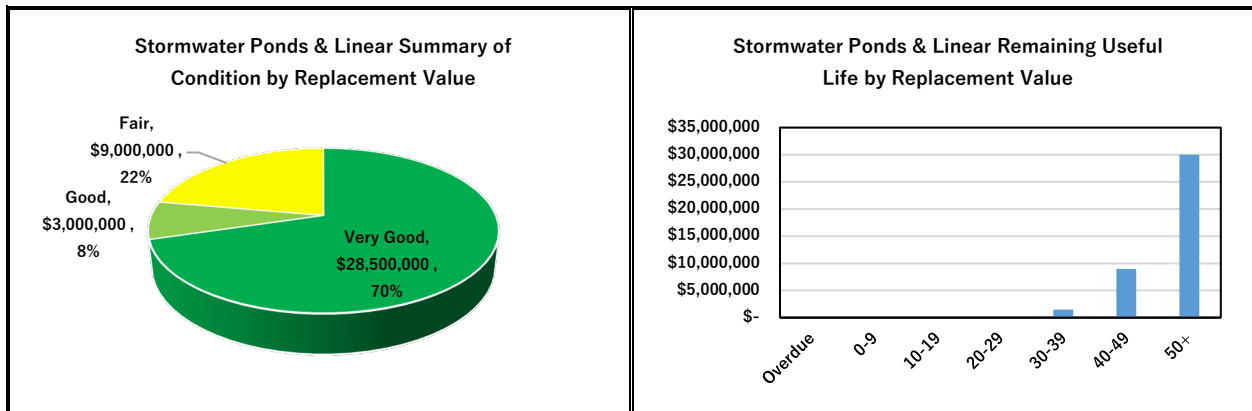


B.2 Stormwater Ponds & Linear

Good

Summary of Inventory				
Asset Type	Quantity	Replacement Cost 2022	Replacement Cost Method	Useful Life (Years)
Stormwater Ponds	25	\$37,500,000	Benchmark Costing	75
Stormwater Linear	Pooled	\$3,000,000	Provisional	75
Total		\$40,500,000		

The Township maintains 25 stormwater ponds with a total replacement value of \$37.5 million. A provisional amount of \$3.0 million is assumed for stormwater linear assets, as the extent of the infrastructure is not fully understood at this time. The stormwater assets have an assumed useful life of 75 years.



As the stormwater infrastructure is relatively new, it is assumed that none of the infrastructure is considered overdue for replacement. It is noted however, that there is currently limited information on the year of construction for the stormwater assets.

As the condition analysis for this category is based on the relative age of each asset, the conditions closely link to the remaining useful life graph. Overall, the Township maintains \$31.5 million (78%) of stormwater assets in Good to Very Good condition. The remainder of the assets \$9.0 million (22%) are maintained in Fair condition.

Data Confidence and Reliability: Level 3 (Uncertain)
 Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated +/- 25%.

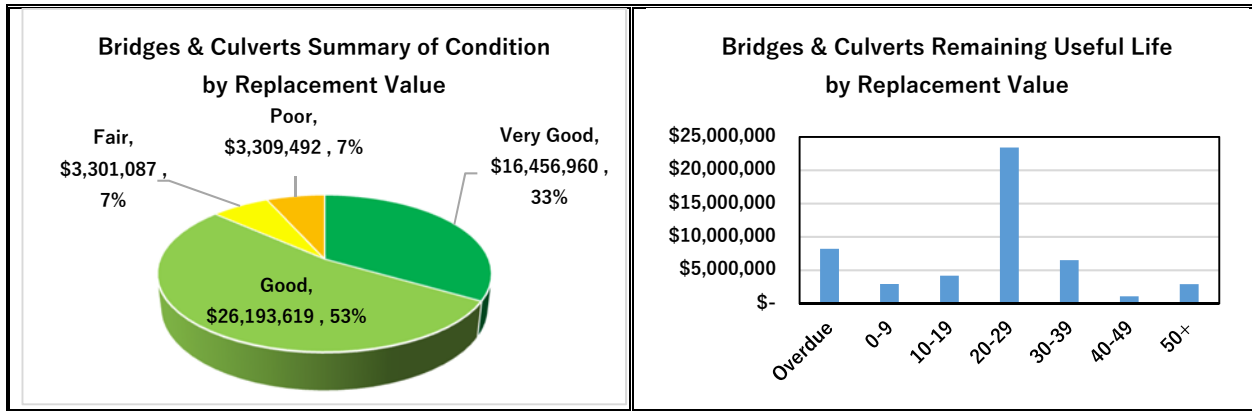


B.3 Bridges and Culverts

Good

Summary of Inventory				
Asset Type	Quantity	Replacement Cost 2022	Replacement Cost Method	Useful Life (Years)
Bridge	23	\$27,487,980	Recent Costing	75
Culvert	23	\$21,773,178	Recent Costing	40-75
Total	46	\$ 49,261,158		

The Township maintains 23 bridges and 23 culverts with a total replacement value of \$49.3 million. The bridges have an assumed useful life of 75 years and the culverts have an assumed useful life of 40 years with the exception of the Brock St Culvert which has a 75 year useful life. The asset replacement values and inventory information are based on replacement values from the Townships Bridges and Culverts Appraisal reports.

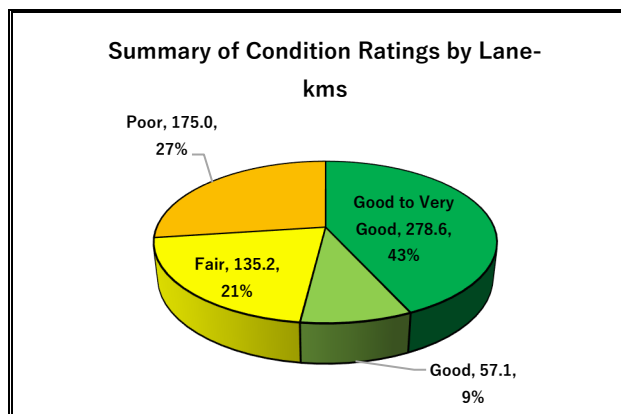


Overall, \$8.2 million (17%) of bridges and culvert assets are considered to be overdue by virtue of their design life. Although these structures are considered overdue by virtue of their age, the conditions represent a better assessment of the state of the assets. Overall, the Township maintains \$42.7 million (86%) of bridges and culverts in Good to Very Good condition. About \$3.3 million (7%) of bridges and culverts are in Poor or Very Poor condition. The remainder of the assets \$3.3 million (7%) are maintained in Fair condition. Based on the level of service measures it is noted that bridges are considered to have a Good rating while culverts have a Very Good rating resulting in the overall Good rating overall. The Very Good rating associated to culverts is largely associated to the Brock St Culvert.

Data Confidence and Reliability: Level 4 (Reliable)
 Dataset is complete and estimated to be accurate +/- 10%.

Functional Classification	Centre Line-Km	Replacement Cost 2022	Replacement Cost Method
100 (2 lane)	6.2	\$3,759,000	2021 Roads AMP
200 (2 lane)	86.3	\$58,120,000	2021 Roads AMP
300 (2 lane)	50.7	\$39,056,000	2021 Roads AMP
400 (2 lane)	57.8	\$59,998,000	2021 Roads AMP
500 (2 lane)	18.1	\$19,845,000	2021 Roads AMP
600 (2 lane)	10.5	\$14,349,000	2021 Roads AMP
700 (2 lane)	12.2	\$17,471,000	2021 Roads AMP
800 (2 lane)	3.2	\$4,683,000	2021 Roads AMP
C/R (2 lane)	0.8	\$1,666,000	2021 Roads AMP
CCI (2 lane)	0.3	\$771,000	2021 Roads AMP
L/R (1 lane)	0.1	\$70,000	2021 Roads AMP
L/R (2 lane)	77.2	\$129,554,000	2021 Roads AMP
LCI (2 lane)	5.1	\$10,882,000	2021 Roads AMP
LCI (3 lane)	0.5	\$1,400,000	2021 Roads AMP
Total	328.8	\$361,624,00	

The Township maintains 328.8 Centre line Km of roads with a replacement value of \$361.6 million. The asset replacement values have largely been derived by adjusting the replacements costs in the Township's 2021 Roads AMP for inflation to 2022 dollars. The 2021 Roads AMP is the main source of information in this report on roads in the Township.



The Township's roads are considered to be in Good condition overall. 278.6 lane km (43%) are considered to be in Good to Very Good condition while 57.1 lane km (9%) are in Good condition based on the 2021 Roads AMP. 135.2 lane km (21%) are in Fair condition, while the balance is rated in Poor condition making up 175.0 lane km (27%). In terms of average PCI, the paved roads are rated at 60.5 while the gravel roads are rated at 60.1.

Data Confidence and Reliability: Level 4 (Reliable)

Dataset is complete and estimated to be accurate +/- 10%.

APPENDIX C

ASSET MANAGEMENT STRATEGY

APPENDIX C – ASSET MANAGEMENT STRATEGY

Table 1	
Lifecycle Actions: Roads	
Areas	Lifecycle Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> ▪ Adjust service levels if necessary ▪ Regularly scheduling of repair work orders ▪ Annually provide the necessary departments with related information when new and additional equipment is acquired. ▪ Continue to conduct road inspections and maintain an up-to-date database (i.e. Inventory of roads in Uxbridge)
Maintenance Activities	<ul style="list-style-type: none"> ▪ Continued maintenance of roads in line with O. Reg. 239/02 Minimum Maintenance Standards for Municipal Highways ▪ Continue to monitor road restrictions based on Township policy ▪ Gravel roads resurfacing in line with recommendations of Roads AMP
Renewal/Rehabilitation	<ul style="list-style-type: none"> ▪ Prioritizing resurfacing, rehabilitation, and preservation projects over replacement ▪ For paved roads, crack sealing, surface treatment based on Roads AMP
Replacement	<ul style="list-style-type: none"> ▪ Road reconstruction based on condition assessments ▪ Convert the gravel roads that the 2021 State of the Infrastructure and Asset Management Plan for Roads has identified into paved roads for greater efficiency and user satisfaction (long-term objective)
Disposal	<ul style="list-style-type: none"> ▪ Dispose or sell assets that are no longer in use or are in poor condition
Expansion	<ul style="list-style-type: none"> ▪ Identify needs through regular capital planning. Ensure assumed roads are tracked through the asset management plan and roads asset management plan ▪ Undertaking growth related projects identified through Development Charges Background Study ▪ Service improvements made where possible (new technologies, environmental impacts, etc.) ▪ Investment scheduling so the Township appropriately times expansion needs

**Table 2
Planned Actions: Bridges & Culverts**

Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed • Adjust service levels if necessary • Regularly scheduling of repair work orders • Annually provide the necessary departments with related information when works are completed • Update Bridge/Culvert Appraisals every 2-years based on Provincial regulation • Continue to monitor load limits on an ongoing basis
Maintenance Activities	<ul style="list-style-type: none"> • Regular bridge deck cleaning (debris removal), scaling loose concrete and ACR steel, guide rail maintenance, repair of potholes and patches, routing and sealing of asphalt wearing surfaces, watercourse debris removal, erosion control and installing, repairing, and replacing signage
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections • Continue to implement recommendations of Bridge and Culvert Appraisal Reports
Replacement	<ul style="list-style-type: none"> • Component or structure replacement based on needs.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning • Service improvements made where possible (new technologies, environmental impacts, etc.)

Table 3	
Planned Actions: Other Asset Categories	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> ▪ Regularly scheduling of repair work orders ▪ Operating budgets should be informed by regular inspections as needed ▪ Adjust service levels if necessary ▪ Annually provide the necessary departments with related information when new and additional assets are acquired
Maintenance Activities	<ul style="list-style-type: none"> ▪ Preventative maintenance program for all Township core assets ▪ Regular inspection of all Township core assets ▪ Annual inspection, service and certification performed on all applicable assets ▪ Regular safety inspections of assets before and after use to ensure safety standards are maintained (for applicable assets such as vehicles and equipment)
Renewal/Rehabilitation	<ul style="list-style-type: none"> ▪ Regular component repairs based on inspections.
Replacement	<ul style="list-style-type: none"> ▪ Asset replacement based on inspections.
Disposal	<ul style="list-style-type: none"> ▪ Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> ▪ Identify needs through regular capital planning. ▪ Service improvements made where possible (new technologies, environmental impacts, etc.).

APPENDIX D

RISK FRAMEWORK

It is important to assess the risk associated with each asset and the likelihood of asset failure. Asset failure can occur as the asset reaches its limits and can jeopardize public/environmental safety. In addition, certain assets have a greater consequence of failure than others. The framework presented here is intended to be utilized for the asset categories presented in this AMP for which engineered reports are not available. Therefore the risk assessment has been applied for sidewalks and linear stormwater infrastructure only, as the various engineering reports for roads, stormwater ponds, bridges and culverts have already assessed the risk of the infrastructure through detailed assessments and developed prioritized works needed to address existing deficiencies.

A risk matrix can help prioritize which assets should be repaired/replaced, even those which the Township has already identified to be in Poor or Very Poor condition where detailed engineering information may not be available. The evaluation rating is then linked to the condition assessment parameter discussed in Section 2. The formula to determine asset risk is as follows:

$$(\text{Likelihood of Failure}) \times (\text{Consequence of Failure}) = (\text{Risk Rating})$$

Each of the components of the Risk Rating methodology is defined as follows:

- **Likelihood of Failure:** is directly linked to the condition of an asset. For example, an asset in Very Poor condition would have the likelihood of asset failure in the short-term be high. This type of asset may be near the end of its useful life or has deteriorated significantly. Conversely it would be considered rare for an asset to fail in the short term if it is considered to be in Good or Very Good condition. Table 1D below outlines the definition of likelihood of failure based on condition.

Table 1D Likelihood of Failure		
Condition	Likelihood of Failure	Description
Very Good	1	Rare
Good	2	Unlikely
Fair	3	Possible
Poor	4	Likely
Very Poor	5	Almost Certain

Note: Definitions are based on the MFOA Asset Management Framework.

- **Consequence of Failure:** refers to the impact on the Township if an asset were to fail. The consequence of failure is determined separately for each asset category, as the

impact differs greatly by asset type. For example, if a fire emergency vehicle was not available for service, the potential impact could be severe compared to a vehicle used for administrative purposes. Assets are assigned a consequence of failure based on an assessment of the relative importance of the asset. Table 2D below outlines the definition of consequence of failure.

Table 2D Consequence of Failure	
Consequence of Failure	Description
1 - Insignificant	No impact to operations.
2 - Minor	Minor impact to operations, all major operations can continue to function.
3 - Moderate	Moderate impact to operations some critical operations may need to stop functioning temporarily.
4 - Major	Major operations seize and some damage control necessary.
5 - Significant	All operations seize to function and major damage control is necessary.

Note: The consequence of failure is developed based on the description of assets.

- **Risk Rating:** categorizes assets based on the level of risk. The risk rating provides a guide to prioritize assets by determining which assets require attention first and which capital works can be deferred. Higher risk assets should be prioritized for attention in the short term by determining which of the lifecycle actions is required to be performed on the asset (see Appendix E). Table 3D below provides a summary of the risk matrix.

Table 3D Risk Matrix							
Evaluation Rating		Consequence of Failure					Color Code
		1	2	3	4	5	
Likelihood of Failure	1	1	2	3	4	5	Very Low Risk
	2	2	4	6	8	10	Low Risk
	3	3	6	9	12	15	Moderate Risk
	4	4	8	12	16	20	High Risk
	5	5	10	15	20	25	Very High Risk

As mentioned the risk analysis utilizing the framework from Table 3D was applied to sidewalks and linear stormwater only. The analysis results in a rating of “Very Low” risk for these asset classes. This is mainly driven by the relative condition of the assets as most sidewalks are considered in the Fair range and linear stormwater is considered Very Good.

Finally, although the risk analysis was utilized in a limited manner through this AMP where engineering information was not available, it is expected that the framework will be utilized more extensively once the Township undertakes a more wholesome AMP that includes non-core assets, for which engineered information is more limited. Therefore, presenting the risk framework here sets up a starting point for future iterations of the Township’s asset management plan.

Asset Life Extension

Using the risk assessment, a schedule for the replacement of assets has been developed on an asset by asset basis. Assets with a higher risk rating are prioritized earlier in the schedule to reflect a higher priority, while assets with lower risk ratings are moved further out into the future forecast to reflect a more “smoothed” expenditure outlook. The timing is based on a percentage of the useful life of the asset. Table 4D below provides a summary of the risk thresholds used to calculate timing of replacement needs.

Table 4D Risk Thresholds for Asset Life Extension					
Percentage of Useful Life					Color Code
100%	80%	60%	40%	20%	Very Low Risk
80%	65%	50%	30%	16%	Low Risk
60%	50%	35%	25%	10%	Moderate Risk
40%	30%	25%	15%	2%	High Risk
20%	16%	10%	2%	0%	Very High Risk

Note: Methodology is used for sidewalks and linear stormwater only.

APPENDIX E

DETAILED FINANCING STRATEGY TABLES

Table 1
Township of Uxbridge
2022 Asset Management Plan
Close Cumulative Infrastructure Deficit by 2051

Legend	1. Lifecycle Costs					2. Forecast of Revenues							3. Funding Gap Calculation			
	Non-Infrastructure Solutions	Operations & Maintenance	Capital Renewal/ Replacement and Disposal	Expansion Activities (Annual Provision for Replacement)	Total Lifecycle Costs	O&M from Taxation	Capital from Taxation (Including Transfers)	Yearly Increase in Tax Funding (\$)	Capital Projects Levy	Canada Community Building Fund CCBF (formerly Gas Tax)	Gravel Royalties	Less: Debt Payments	Existing Reserves (for Capital)	Total Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2022		\$ 6,534,775	\$ 26,046,827	\$ -	\$ 32,581,602	\$ 6,534,775	\$ 3,570,284		\$ 281,734	\$ 671,600	\$ 325,000	\$ (464,401)	\$ 3,496,973	\$ 14,415,965	\$ 18,165,637	\$ 18,165,637
2023	\$ 50,000	\$ 6,622,662	\$ 15,264,575	\$ 118,108	\$ 22,055,345	\$ 6,622,662	\$ 4,148,412	\$ 578,128	\$ 281,734	\$ 700,800	\$ 325,000	\$ (464,401)		\$ 11,614,207	\$ 10,441,138	\$ 28,606,774
2024	\$ 50,000	\$ 6,710,549	\$ 15,264,575	\$ 236,216	\$ 22,261,340	\$ 6,710,549	\$ 4,726,540	\$ 578,128	\$ 281,734	\$ 700,800	\$ 325,000	\$ (464,401)		\$ 12,280,222	\$ 9,981,118	\$ 38,587,892
2025	\$ 50,000	\$ 6,798,436	\$ 15,264,575	\$ 354,324	\$ 22,467,335	\$ 6,798,436	\$ 5,304,667	\$ 578,128	\$ 281,734	\$ 700,800	\$ 300,000	\$ (464,401)		\$ 12,921,237	\$ 9,546,098	\$ 48,133,990
2026	\$ 50,000	\$ 6,886,323	\$ 15,264,575	\$ 472,432	\$ 22,673,330	\$ 6,886,323	\$ 5,882,795	\$ 578,128	\$ 281,734	\$ 700,800	\$ 300,000	\$ (464,401)		\$ 13,587,251	\$ 9,086,078	\$ 57,220,069
2027	\$ 50,000	\$ 6,974,210	\$ 13,923,505	\$ 590,540	\$ 21,538,255	\$ 6,974,210	\$ 6,460,923	\$ 578,128	\$ 281,734	\$ 700,800	\$ 300,000	\$ (271,960)		\$ 14,445,707	\$ 7,092,548	\$ 64,312,617
2028	\$ 50,000	\$ 7,062,097	\$ 13,843,319	\$ 708,648	\$ 21,664,064	\$ 7,062,097	\$ 7,039,051	\$ 578,128	\$ 281,734	\$ 700,800	\$ 275,000	\$ (271,960)		\$ 15,086,722	\$ 6,577,342	\$ 70,889,959
2029	\$ 50,000	\$ 7,128,895	\$ 13,843,319	\$ 826,756	\$ 21,848,970	\$ 7,128,895	\$ 7,611,178	\$ 578,128	\$ 281,734	\$ 700,800	\$ 275,000			\$ 16,003,607	\$ 5,845,363	\$ 76,735,321
2030	\$ 50,000	\$ 7,195,693	\$ 13,843,319	\$ 917,267	\$ 22,006,279	\$ 7,195,693	\$ 8,195,306	\$ 578,128	\$ 281,734	\$ 700,800	\$ 275,000			\$ 16,648,533	\$ 5,357,746	\$ 82,093,067
2031	\$ 50,000	\$ 7,262,491	\$ 13,843,319	\$ 1,007,778	\$ 22,163,588	\$ 7,262,491	\$ 8,773,434	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 17,268,459	\$ 4,895,129	\$ 86,988,197
2032	\$ 50,000	\$ 7,329,289	\$ 9,670,027	\$ 1,098,289	\$ 18,147,605	\$ 7,329,289	\$ 9,351,562	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 17,913,385	\$ 234,221	\$ 87,222,417
2033	\$ 50,000	\$ 7,396,087	\$ 9,747,819	\$ 1,188,800	\$ 18,382,706	\$ 7,396,087	\$ 9,929,689	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 18,558,310	\$ (175,604)	\$ 87,046,813
2034	\$ 50,000	\$ 7,462,885	\$ 9,747,819	\$ 1,279,311	\$ 18,540,015	\$ 7,462,885	\$ 10,507,817	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 19,203,236	\$ (663,221)	\$ 86,383,592
2035	\$ 50,000	\$ 7,529,683	\$ 9,747,819	\$ 1,369,822	\$ 18,697,324	\$ 7,529,683	\$ 11,085,945	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 19,848,162	\$ (1,150,838)	\$ 85,232,754
2036	\$ 50,000	\$ 7,596,481	\$ 9,747,819	\$ 1,460,333	\$ 18,854,633	\$ 7,596,481	\$ 11,664,073	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 20,493,088	\$ (1,638,455)	\$ 83,594,299
2037	\$ 50,000	\$ 7,663,279	\$ 9,747,819	\$ 1,550,844	\$ 19,011,942	\$ 7,663,279	\$ 12,242,200	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 21,138,013	\$ (2,126,071)	\$ 81,468,228
2038	\$ 50,000	\$ 7,730,077	\$ 9,730,944	\$ 1,641,355	\$ 19,152,376	\$ 7,730,077	\$ 12,820,328	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 21,782,939	\$ (2,630,563)	\$ 78,837,665
2039	\$ 50,000	\$ 7,796,875	\$ 9,730,944	\$ 1,731,866	\$ 19,309,685	\$ 7,796,875	\$ 13,398,456	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 22,427,865	\$ (3,118,180)	\$ 75,719,485
2040	\$ 50,000	\$ 7,863,673	\$ 9,707,610	\$ 1,822,377	\$ 19,443,661	\$ 7,863,673	\$ 13,976,584	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 23,072,791	\$ (3,629,130)	\$ 72,090,355
2041	\$ 50,000	\$ 7,930,471	\$ 9,707,610	\$ 1,912,888	\$ 19,600,970	\$ 7,930,471	\$ 14,554,711	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 23,717,716	\$ (4,116,747)	\$ 67,973,608
2042	\$ 50,000	\$ 7,997,269	\$ 9,707,610	\$ 2,003,399	\$ 19,758,279	\$ 7,997,269	\$ 15,132,839	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 24,362,642	\$ (4,604,363)	\$ 63,369,245
2043	\$ 50,000	\$ 8,064,067	\$ 9,701,851	\$ 2,093,910	\$ 19,909,828	\$ 8,064,067	\$ 15,710,967	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 25,007,568	\$ (5,097,740)	\$ 58,271,505
2044	\$ 50,000	\$ 8,130,865	\$ 9,701,851	\$ 2,184,421	\$ 20,067,137	\$ 8,130,865	\$ 16,289,095	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 25,652,494	\$ (5,585,356)	\$ 52,686,148
2045	\$ 50,000	\$ 8,197,663	\$ 9,701,851	\$ 2,274,932	\$ 20,224,446	\$ 8,197,663	\$ 16,867,222	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 26,297,419	\$ (6,072,973)	\$ 46,613,175
2046	\$ 50,000	\$ 8,264,461	\$ 9,701,851	\$ 2,365,443	\$ 20,381,755	\$ 8,264,461	\$ 17,445,350	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 26,942,345	\$ (6,560,590)	\$ 40,052,585
2047	\$ 50,000	\$ 8,331,259	\$ 9,701,851	\$ 2,455,954	\$ 20,539,064	\$ 8,331,259	\$ 18,023,478	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 27,587,271	\$ (7,048,207)	\$ 33,004,379
2048	\$ 50,000	\$ 8,398,057	\$ 9,718,005	\$ 2,546,465	\$ 20,712,527	\$ 8,398,057	\$ 18,601,606	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 28,232,197	\$ (7,519,670)	\$ 25,484,709
2049	\$ 50,000	\$ 8,464,855	\$ 9,718,005	\$ 2,636,976	\$ 20,869,836	\$ 8,464,855	\$ 19,179,733	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 28,877,122	\$ (8,007,286)	\$ 17,477,423
2050	\$ 50,000	\$ 8,531,653	\$ 9,718,005	\$ 2,727,487	\$ 21,027,145	\$ 8,531,653	\$ 19,757,861	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 29,522,048	\$ (8,494,903)	\$ 8,982,520
2051	\$ 50,000	\$ 8,598,451	\$ 9,718,005	\$ 2,817,998	\$ 21,184,454	\$ 8,598,451	\$ 20,335,989	\$ 578,128	\$ 281,734	\$ 700,800	\$ 250,000			\$ 30,166,974	\$ (8,982,520)	\$ (0)
Total	\$ 1,450,000	\$ 228,453,531	\$ 350,777,019	\$ 44,394,946	\$ 625,075,496	\$ 228,453,531	\$ 358,594,095	\$ 8,452,020	\$ 20,994,800	\$ 7,950,000	\$ 3,496,973	\$ 625,075,496				

Annual Increase	\$ 578,128
2022 Total Tax Levy	\$ 15,364,935
Inc. as % of Tax Levy	3.76%



Table 2
Township of Uxbridge
2022 Asset Management Plan
Financing Strategy 1: Achieving Forecasted Tax Funded Contributions Based on 10-Year Capital Plan

Legend	1. Lifecycle Costs					2. Forecast of Revenues								3. Funding Gap Calculation		
	Non-Infrastructure Solutions	Operations & Maintenance	Capital Renewal/ Replacement and Disposal	Expansion Activities (Annual Provision for Replacement)	Total Lifecycle Costs	O&M from Taxation	Capital from Taxation (Including Transfers)	Yearly Increase in Tax Funding (\$)	Capital Projects Levy	Canada Community Building Fund CCBF (formerly Gas Tax)	Gravel Royalties	Less: Debt Payments	Existing Reserves (for Capital)	Total Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2022	\$ -	\$ 6,534,775	\$ 26,046,827	\$ -	\$ 32,581,602	\$ 6,534,775	\$ 3,570,284	\$ 469,000	\$ 281,734	\$ 671,600	\$ 325,000	\$ (464,401)	\$ 3,496,973	\$ 14,415,965	\$ 18,165,637	\$ 18,165,637
2023	\$ 50,000	\$ 6,622,662	\$ 15,264,575	\$ 118,108	\$ 22,055,345	\$ 6,622,662	\$ 4,039,284	\$ -	\$ 281,734	\$ 700,800	\$ 325,000	\$ (464,401)	\$ -	\$ 11,505,079	\$ 10,550,265	\$ 28,715,902
2024	\$ 50,000	\$ 6,710,549	\$ 15,264,575	\$ 236,216	\$ 22,261,340	\$ 6,710,549	\$ 4,508,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 325,000	\$ (464,401)	\$ -	\$ 12,061,966	\$ 10,199,373	\$ 38,915,276
2025	\$ 50,000	\$ 6,798,436	\$ 15,264,575	\$ 354,324	\$ 22,467,335	\$ 6,798,436	\$ 4,977,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 300,000	\$ (464,401)	\$ -	\$ 12,593,853	\$ 9,873,481	\$ 48,788,757
2026	\$ 50,000	\$ 6,886,323	\$ 15,264,575	\$ 472,432	\$ 22,673,330	\$ 6,886,323	\$ 5,446,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 300,000	\$ (464,401)	\$ -	\$ 13,150,740	\$ 9,522,589	\$ 58,311,346
2027	\$ 50,000	\$ 6,974,210	\$ 13,923,505	\$ 590,540	\$ 21,538,255	\$ 6,974,210	\$ 5,915,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 300,000	\$ (271,960)	\$ -	\$ 13,900,068	\$ 7,638,187	\$ 65,949,533
2028	\$ 50,000	\$ 7,062,097	\$ 13,843,319	\$ 708,648	\$ 21,664,064	\$ 7,062,097	\$ 6,384,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 275,000	\$ (271,960)	\$ -	\$ 14,431,955	\$ 7,232,109	\$ 73,181,642
2029	\$ 50,000	\$ 7,128,895	\$ 13,843,319	\$ 826,756	\$ 21,848,970	\$ 7,128,895	\$ 6,853,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 275,000	\$ -	\$ -	\$ 15,239,713	\$ 6,609,257	\$ 79,790,899
2030	\$ 50,000	\$ 7,195,693	\$ 13,843,319	\$ 917,267	\$ 22,006,279	\$ 7,195,693	\$ 7,322,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 275,000	\$ -	\$ -	\$ 15,775,511	\$ 6,230,768	\$ 86,021,667
2031	\$ 50,000	\$ 7,262,491	\$ 13,843,319	\$ 1,007,778	\$ 22,163,588	\$ 7,262,491	\$ 7,791,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 16,286,309	\$ 5,877,279	\$ 91,898,946
2032	\$ 50,000	\$ 7,329,289	\$ 9,670,027	\$ 1,098,289	\$ 18,147,605	\$ 7,329,289	\$ 8,260,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 16,822,107	\$ 1,325,498	\$ 93,224,444
2033	\$ 50,000	\$ 7,396,087	\$ 9,747,819	\$ 1,188,800	\$ 18,382,706	\$ 7,396,087	\$ 8,729,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 17,357,905	\$ 1,024,801	\$ 94,249,245
2034	\$ 50,000	\$ 7,462,885	\$ 9,747,819	\$ 1,279,311	\$ 18,540,015	\$ 7,462,885	\$ 9,198,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 17,893,703	\$ 646,312	\$ 94,895,557
2035	\$ 50,000	\$ 7,529,683	\$ 9,747,819	\$ 1,369,822	\$ 18,697,324	\$ 7,529,683	\$ 9,667,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 18,429,501	\$ 267,823	\$ 95,163,380
2036	\$ 50,000	\$ 7,596,481	\$ 9,747,819	\$ 1,460,333	\$ 18,854,633	\$ 7,596,481	\$ 10,136,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 18,965,299	\$ (110,666)	\$ 95,052,714
2037	\$ 50,000	\$ 7,663,279	\$ 9,747,819	\$ 1,550,844	\$ 19,011,942	\$ 7,663,279	\$ 10,605,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 19,501,097	\$ (489,155)	\$ 94,563,559
2038	\$ 50,000	\$ 7,730,077	\$ 9,730,944	\$ 1,641,355	\$ 19,152,376	\$ 7,730,077	\$ 11,074,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 20,036,895	\$ (884,519)	\$ 93,679,040
2039	\$ 50,000	\$ 7,796,875	\$ 9,730,944	\$ 1,731,866	\$ 19,309,685	\$ 7,796,875	\$ 11,543,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 20,572,693	\$ (1,263,008)	\$ 92,416,032
2040	\$ 50,000	\$ 7,863,673	\$ 9,707,610	\$ 1,822,377	\$ 19,443,661	\$ 7,863,673	\$ 12,012,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 21,108,491	\$ (1,664,830)	\$ 90,751,202
2041	\$ 50,000	\$ 7,930,471	\$ 9,707,610	\$ 1,912,888	\$ 19,600,970	\$ 7,930,471	\$ 12,481,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 21,644,289	\$ (2,043,319)	\$ 88,707,882
2042	\$ 50,000	\$ 7,997,269	\$ 9,707,610	\$ 2,003,399	\$ 19,758,279	\$ 7,997,269	\$ 12,950,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 22,180,087	\$ (2,421,808)	\$ 86,286,074
2043	\$ 50,000	\$ 8,064,067	\$ 9,701,851	\$ 2,093,910	\$ 19,909,828	\$ 8,064,067	\$ 13,419,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 22,715,885	\$ (2,806,057)	\$ 83,480,017
2044	\$ 50,000	\$ 8,130,865	\$ 9,701,851	\$ 2,184,421	\$ 20,067,137	\$ 8,130,865	\$ 13,888,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 23,251,683	\$ (3,184,546)	\$ 80,295,471
2045	\$ 50,000	\$ 8,197,663	\$ 9,701,851	\$ 2,274,932	\$ 20,224,446	\$ 8,197,663	\$ 14,357,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 23,787,481	\$ (3,563,035)	\$ 76,732,437
2046	\$ 50,000	\$ 8,264,461	\$ 9,701,851	\$ 2,365,443	\$ 20,381,755	\$ 8,264,461	\$ 14,826,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 24,323,279	\$ (3,941,524)	\$ 72,790,913
2047	\$ 50,000	\$ 8,331,259	\$ 9,701,851	\$ 2,455,954	\$ 20,539,064	\$ 8,331,259	\$ 15,295,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 24,859,077	\$ (4,320,013)	\$ 68,470,900
2048	\$ 50,000	\$ 8,398,057	\$ 9,718,005	\$ 2,546,465	\$ 20,712,527	\$ 8,398,057	\$ 15,764,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 25,394,875	\$ (4,682,348)	\$ 63,788,553
2049	\$ 50,000	\$ 8,464,855	\$ 9,718,005	\$ 2,636,976	\$ 20,869,836	\$ 8,464,855	\$ 16,233,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 25,930,673	\$ (5,060,837)	\$ 58,727,716
2050	\$ 50,000	\$ 8,531,653	\$ 9,718,005	\$ 2,727,487	\$ 21,027,145	\$ 8,531,653	\$ 16,702,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 26,466,471	\$ (5,439,326)	\$ 53,288,390
2051	\$ 50,000	\$ 8,598,451	\$ 9,718,005	\$ 2,817,998	\$ 21,184,454	\$ 8,598,451	\$ 17,171,284	\$ 469,000	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 27,002,269	\$ (5,817,815)	\$ 47,470,575
Total	\$ 1,450,000	\$ 228,453,531	\$ 350,777,019	\$ 44,394,946	\$ 625,075,496	\$ 228,453,531	\$ 311,123,520	\$ 469,000	\$ 8,452,020	\$ 20,994,800	\$ 7,950,000	\$ -	\$ 3,496,973	\$ 577,604,921	\$ -	\$ -

Annual Increase	\$ 469,000
2022 Total Tax Levy	\$ 15,364,935
Inc. as % of Tax Levy	3.05%

Table 3
Township of Uxbridge
2022 Asset Management Plan
Financing Strategy 2: Increase Contributions Based on 5-year Historical Budget

Legend	1. Lifecycle Costs					2. Forecast of Revenues							3. Funding Gap Calculation			
	Non-Infrastructure Solutions	Operations & Maintenance	Capital Renewal/ Replacement and Disposal	Expansion Activities (Annual Provision for Replacement)	Total Lifecycle Costs	O&M from Taxation	Capital from Taxation (Including Transfers)	Yearly Increase in Tax Funding (\$)	Capital Projects Levy	Canada Community Building Fund CCBF (formerly Gas Tax)	Gravel Royalties	Less: Debt Payments	Existing Reserves (for Capital)	Total Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2022	\$ -	\$ 6,534,775	\$ 26,046,827	\$ -	\$ 32,581,602	\$ 6,534,775	\$ 3,570,284	\$ -	\$ 281,734	\$ 671,600	\$ 325,000	\$ (464,401)	\$ 3,496,973	\$ 14,415,965	\$ 18,165,637	\$ 18,165,637
2023	\$ 50,000	\$ 6,622,662	\$ 15,264,575	\$ 118,108	\$ 22,055,345	\$ 6,622,662	\$ 3,832,886	\$ 262,602	\$ 281,734	\$ 700,800	\$ 325,000	\$ (464,401)	\$ -	\$ 11,298,681	\$ 10,756,663	\$ 28,922,300
2024	\$ 50,000	\$ 6,710,549	\$ 15,264,575	\$ 236,216	\$ 22,261,340	\$ 6,710,549	\$ 4,095,488	\$ 262,602	\$ 281,734	\$ 700,800	\$ 325,000	\$ (464,401)	\$ -	\$ 11,649,170	\$ 10,612,169	\$ 39,534,470
2025	\$ 50,000	\$ 6,798,436	\$ 15,264,575	\$ 354,324	\$ 22,467,335	\$ 6,798,436	\$ 4,358,090	\$ 262,602	\$ 281,734	\$ 700,800	\$ 300,000	\$ (464,401)	\$ -	\$ 11,974,659	\$ 10,492,675	\$ 50,027,145
2026	\$ 50,000	\$ 6,886,323	\$ 15,264,575	\$ 472,432	\$ 22,673,330	\$ 6,886,323	\$ 4,620,692	\$ 262,602	\$ 281,734	\$ 700,800	\$ 300,000	\$ (464,401)	\$ -	\$ 12,325,148	\$ 10,348,181	\$ 60,375,326
2027	\$ 50,000	\$ 6,974,210	\$ 13,923,505	\$ 590,540	\$ 21,538,255	\$ 6,974,210	\$ 4,883,294	\$ 262,602	\$ 281,734	\$ 700,800	\$ 300,000	\$ (271,960)	\$ -	\$ 12,868,078	\$ 8,670,177	\$ 69,045,503
2028	\$ 50,000	\$ 7,062,097	\$ 13,843,319	\$ 708,648	\$ 21,664,064	\$ 7,062,097	\$ 5,145,896	\$ 262,602	\$ 281,734	\$ 700,800	\$ 275,000	\$ (271,960)	\$ -	\$ 13,193,567	\$ 8,470,497	\$ 77,516,000
2029	\$ 50,000	\$ 7,128,895	\$ 13,843,319	\$ 826,756	\$ 21,848,970	\$ 7,128,895	\$ 5,408,498	\$ 262,602	\$ 281,734	\$ 700,800	\$ 275,000	\$ -	\$ -	\$ 13,794,927	\$ 8,054,043	\$ 85,570,043
2030	\$ 50,000	\$ 7,195,693	\$ 13,843,319	\$ 917,267	\$ 22,006,279	\$ 7,195,693	\$ 5,671,100	\$ 262,602	\$ 281,734	\$ 700,800	\$ 275,000	\$ -	\$ -	\$ 14,124,327	\$ 7,881,952	\$ 93,451,995
2031	\$ 50,000	\$ 7,262,491	\$ 13,843,319	\$ 1,007,778	\$ 22,163,588	\$ 7,262,491	\$ 5,933,702	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 14,428,727	\$ 7,734,861	\$ 101,186,856
2032	\$ 50,000	\$ 7,329,289	\$ 9,670,027	\$ 1,098,289	\$ 18,147,605	\$ 7,329,289	\$ 6,196,304	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 14,758,127	\$ 7,389,478	\$ 104,576,334
2033	\$ 50,000	\$ 7,396,087	\$ 9,747,819	\$ 1,188,800	\$ 18,382,706	\$ 7,396,087	\$ 6,458,906	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 15,087,527	\$ 3,295,179	\$ 107,871,513
2034	\$ 50,000	\$ 7,462,885	\$ 9,747,819	\$ 1,279,311	\$ 18,540,015	\$ 7,462,885	\$ 6,721,508	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 15,416,927	\$ 3,123,088	\$ 110,994,601
2035	\$ 50,000	\$ 7,529,683	\$ 9,747,819	\$ 1,369,822	\$ 18,697,324	\$ 7,529,683	\$ 6,984,110	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 15,746,327	\$ 2,950,997	\$ 113,945,598
2036	\$ 50,000	\$ 7,596,481	\$ 9,747,819	\$ 1,460,333	\$ 18,854,633	\$ 7,596,481	\$ 7,246,712	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 16,075,727	\$ 2,778,906	\$ 116,724,504
2037	\$ 50,000	\$ 7,663,279	\$ 9,747,819	\$ 1,550,844	\$ 19,011,942	\$ 7,663,279	\$ 7,509,314	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 16,405,127	\$ 2,606,815	\$ 119,331,319
2038	\$ 50,000	\$ 7,730,077	\$ 9,730,944	\$ 1,641,355	\$ 19,152,376	\$ 7,730,077	\$ 7,771,916	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 16,734,527	\$ 2,417,849	\$ 121,749,168
2039	\$ 50,000	\$ 7,796,875	\$ 9,730,944	\$ 1,731,866	\$ 19,309,685	\$ 7,796,875	\$ 8,034,518	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 17,063,927	\$ 2,245,758	\$ 123,994,926
2040	\$ 50,000	\$ 7,863,673	\$ 9,707,610	\$ 1,822,377	\$ 19,443,661	\$ 7,863,673	\$ 8,297,120	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 17,393,327	\$ 2,050,334	\$ 126,045,260
2041	\$ 50,000	\$ 7,930,471	\$ 9,707,610	\$ 1,912,888	\$ 19,600,970	\$ 7,930,471	\$ 8,559,722	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 17,722,727	\$ 1,878,243	\$ 127,923,502
2042	\$ 50,000	\$ 7,997,269	\$ 9,707,610	\$ 2,003,399	\$ 19,758,279	\$ 7,997,269	\$ 8,822,324	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 18,052,127	\$ 1,706,152	\$ 129,629,654
2043	\$ 50,000	\$ 8,064,067	\$ 9,701,851	\$ 2,093,910	\$ 19,909,828	\$ 8,064,067	\$ 9,084,926	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 18,381,527	\$ 1,528,301	\$ 131,157,955
2044	\$ 50,000	\$ 8,130,865	\$ 9,701,851	\$ 2,184,421	\$ 20,067,137	\$ 8,130,865	\$ 9,347,528	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 18,710,927	\$ 1,356,210	\$ 132,514,165
2045	\$ 50,000	\$ 8,197,663	\$ 9,701,851	\$ 2,274,932	\$ 20,224,446	\$ 8,197,663	\$ 9,610,130	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 19,040,327	\$ 1,184,119	\$ 133,698,285
2046	\$ 50,000	\$ 8,264,461	\$ 9,701,851	\$ 2,365,443	\$ 20,381,755	\$ 8,264,461	\$ 9,872,732	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 19,369,727	\$ 1,012,028	\$ 134,710,313
2047	\$ 50,000	\$ 8,331,259	\$ 9,701,851	\$ 2,455,954	\$ 20,539,064	\$ 8,331,259	\$ 10,135,334	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 19,699,127	\$ 839,937	\$ 135,550,250
2048	\$ 50,000	\$ 8,398,057	\$ 9,718,005	\$ 2,546,465	\$ 20,712,527	\$ 8,398,057	\$ 10,397,936	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 20,028,527	\$ 684,000	\$ 136,234,251
2049	\$ 50,000	\$ 8,464,855	\$ 9,718,005	\$ 2,636,976	\$ 20,869,836	\$ 8,464,855	\$ 10,660,538	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 20,357,927	\$ 511,909	\$ 136,746,160
2050	\$ 50,000	\$ 8,531,653	\$ 9,718,005	\$ 2,727,487	\$ 21,027,145	\$ 8,531,653	\$ 10,923,140	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 20,687,327	\$ 339,818	\$ 137,085,978
2051	\$ 50,000	\$ 8,598,451	\$ 9,718,005	\$ 2,817,998	\$ 21,184,454	\$ 8,598,451	\$ 11,185,742	\$ 262,602	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 21,016,727	\$ 167,727	\$ 137,253,705
Total	\$ 1,450,000	\$ 228,453,531	\$ 350,777,019	\$ 44,394,946	\$ 625,075,496	\$ 228,453,531	\$ 221,340,390	\$ -	\$ 8,452,020	\$ 20,994,800	\$ 7,950,000	\$ -	\$ 3,496,973	\$ 487,821,791	\$ 167,727	\$ -

Annual Increase	\$ 262,602
2022 Total Tax Levy	\$ 15,364,935
Inc. as % of Tax Levy	1.71%



Table 4
Township of Uxbridge
2022 Asset Management Plan
Scenario Under Current Funding Levels

Legend	1. Lifecycle Costs					2. Forecast of Revenues							3. Funding Gap Calculation			
	Non-Infrastructure Solutions	Operations & Maintenance	Capital Renewal/ Replacement and Disposal	Expansion Activities (Annual Provision for Replacement)	Total Lifecycle Costs	O&M from Taxation	Capital from Taxation (Including Transfers)	Yearly Increase in Tax Funding (\$)	Capital Projects Levy	Canada Community Building Fund CCBF (formerly Gas Tax)	Gravel Royalties	Less: Debt Payments	Existing Reserves (for Capital)	Total Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2022	\$ -	\$ 6,534,775	\$ 26,046,827	\$ -	\$ 32,581,602	\$ 6,534,775	\$ 3,570,284	\$ -	\$ 281,734	\$ 671,600	\$ 325,000	\$ (464,401)	\$ 3,496,973	\$ 14,415,965	\$ 18,165,637	\$ 18,165,637
2023	\$ 50,000	\$ 6,622,662	\$ 15,264,575	\$ 118,108	\$ 22,055,345	\$ 6,622,662	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 325,000	\$ (464,401)	\$ -	\$ 11,036,079	\$ 11,019,265	\$ 29,184,902
2024	\$ 50,000	\$ 6,710,549	\$ 15,264,575	\$ 236,216	\$ 22,261,340	\$ 6,710,549	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 325,000	\$ (464,401)	\$ -	\$ 11,123,966	\$ 11,137,373	\$ 40,322,276
2025	\$ 50,000	\$ 6,798,436	\$ 15,264,575	\$ 354,324	\$ 22,467,335	\$ 6,798,436	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 300,000	\$ (464,401)	\$ -	\$ 11,186,853	\$ 11,280,481	\$ 51,602,757
2026	\$ 50,000	\$ 6,886,323	\$ 15,264,575	\$ 472,432	\$ 22,673,330	\$ 6,886,323	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 300,000	\$ (464,401)	\$ -	\$ 11,274,740	\$ 11,398,589	\$ 63,001,346
2027	\$ 50,000	\$ 6,974,210	\$ 13,923,505	\$ 590,540	\$ 21,538,255	\$ 6,974,210	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 300,000	\$ (271,960)	\$ -	\$ 11,555,068	\$ 9,983,187	\$ 72,984,533
2028	\$ 50,000	\$ 7,062,097	\$ 13,843,319	\$ 708,648	\$ 21,664,064	\$ 7,062,097	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 275,000	\$ (271,960)	\$ -	\$ 11,617,955	\$ 10,046,109	\$ 83,030,642
2029	\$ 50,000	\$ 7,128,895	\$ 13,843,319	\$ 826,756	\$ 21,848,970	\$ 7,128,895	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 275,000	\$ -	\$ -	\$ 11,956,713	\$ 9,892,257	\$ 92,922,899
2030	\$ 50,000	\$ 7,195,693	\$ 13,843,319	\$ 917,267	\$ 22,006,279	\$ 7,195,693	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 275,000	\$ -	\$ -	\$ 12,023,511	\$ 9,982,768	\$ 102,905,667
2031	\$ 50,000	\$ 7,262,491	\$ 13,843,319	\$ 1,007,778	\$ 22,163,588	\$ 7,262,491	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,065,309	\$ 10,098,279	\$ 113,003,946
2032	\$ 50,000	\$ 7,329,289	\$ 9,670,027	\$ 1,098,289	\$ 18,147,605	\$ 7,329,289	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,132,107	\$ 6,015,498	\$ 119,019,444
2033	\$ 50,000	\$ 7,396,087	\$ 9,747,819	\$ 1,188,800	\$ 18,382,706	\$ 7,396,087	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,198,905	\$ 6,183,801	\$ 125,203,245
2034	\$ 50,000	\$ 7,462,885	\$ 9,747,819	\$ 1,279,311	\$ 18,540,015	\$ 7,462,885	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,265,703	\$ 6,274,312	\$ 131,477,557
2035	\$ 50,000	\$ 7,529,683	\$ 9,747,819	\$ 1,369,822	\$ 18,697,324	\$ 7,529,683	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,332,501	\$ 6,364,823	\$ 137,842,380
2036	\$ 50,000	\$ 7,596,481	\$ 9,747,819	\$ 1,460,333	\$ 18,854,633	\$ 7,596,481	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,399,299	\$ 6,455,334	\$ 144,297,714
2037	\$ 50,000	\$ 7,663,279	\$ 9,747,819	\$ 1,550,844	\$ 19,011,942	\$ 7,663,279	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,466,097	\$ 6,545,845	\$ 150,843,559
2038	\$ 50,000	\$ 7,730,077	\$ 9,730,944	\$ 1,641,355	\$ 19,152,376	\$ 7,730,077	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,532,895	\$ 6,619,481	\$ 157,463,040
2039	\$ 50,000	\$ 7,796,875	\$ 9,730,944	\$ 1,731,866	\$ 19,309,685	\$ 7,796,875	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,599,693	\$ 6,709,992	\$ 164,173,032
2040	\$ 50,000	\$ 7,863,673	\$ 9,707,610	\$ 1,822,377	\$ 19,443,661	\$ 7,863,673	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,666,491	\$ 6,777,170	\$ 170,950,202
2041	\$ 50,000	\$ 7,930,471	\$ 9,707,610	\$ 1,912,888	\$ 19,600,970	\$ 7,930,471	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,733,289	\$ 6,867,681	\$ 177,817,882
2042	\$ 50,000	\$ 7,997,269	\$ 9,707,610	\$ 2,003,399	\$ 19,758,279	\$ 7,997,269	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,800,087	\$ 6,958,192	\$ 184,776,074
2043	\$ 50,000	\$ 8,064,067	\$ 9,701,851	\$ 2,093,910	\$ 19,909,828	\$ 8,064,067	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,866,885	\$ 7,042,943	\$ 191,819,017
2044	\$ 50,000	\$ 8,130,865	\$ 9,701,851	\$ 2,184,421	\$ 20,067,137	\$ 8,130,865	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 12,933,683	\$ 7,133,454	\$ 198,952,471
2045	\$ 50,000	\$ 8,197,663	\$ 9,701,851	\$ 2,274,932	\$ 20,224,446	\$ 8,197,663	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 13,000,481	\$ 7,223,965	\$ 206,176,437
2046	\$ 50,000	\$ 8,264,461	\$ 9,701,851	\$ 2,365,443	\$ 20,381,755	\$ 8,264,461	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 13,067,279	\$ 7,314,476	\$ 213,490,913
2047	\$ 50,000	\$ 8,331,259	\$ 9,701,851	\$ 2,455,954	\$ 20,539,064	\$ 8,331,259	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 13,134,077	\$ 7,404,987	\$ 220,895,900
2048	\$ 50,000	\$ 8,398,057	\$ 9,718,005	\$ 2,546,465	\$ 20,712,527	\$ 8,398,057	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 13,200,875	\$ 7,511,652	\$ 228,407,553
2049	\$ 50,000	\$ 8,464,855	\$ 9,718,005	\$ 2,636,976	\$ 20,869,836	\$ 8,464,855	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 13,267,673	\$ 7,602,163	\$ 236,009,716
2050	\$ 50,000	\$ 8,531,653	\$ 9,718,005	\$ 2,727,487	\$ 21,027,145	\$ 8,531,653	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 13,334,471	\$ 7,692,674	\$ 243,702,390
2051	\$ 50,000	\$ 8,598,451	\$ 9,718,005	\$ 2,817,998	\$ 21,184,454	\$ 8,598,451	\$ 3,570,284	\$ -	\$ 281,734	\$ 700,800	\$ 250,000	\$ -	\$ -	\$ 13,401,269	\$ 7,783,185	\$ 251,485,575
Total	\$ 1,450,000	\$ 228,453,531	\$ 350,777,019	\$ 44,394,946	\$ 625,075,496	\$ 228,453,531	\$ 107,108,520	\$ -	\$ 8,452,020	\$ 20,994,800	\$ 7,950,000	\$ -	\$ 3,496,973	\$ 373,589,921	\$ -	\$ -

Annual Increase	\$	-
2022 Total Tax Levy	\$	15,364,935
Inc. as % of Tax Levy		0.00%