

# ASSET MANAGEMENT PLAN

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HEMSON Consulting Ltd.

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November 2019

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## **EXECUTIVE SUMMARY**

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The following summarizes the findings of the Township of Limerick's Asset Management Plan (2019 Plan). The results of the 2019 Roads Asset Management Plan, 2015 Road Needs Study and the 2014 Asset Management Plan have been incorporated into the State of the Local Infrastructure and Financing Strategy summary pages to provide a complete overview. Infrastructure in Limerick for which Hastings County is responsible for is not included (e.g. county roads). All figures are in constant 2019 dollars and should be adjusted annually to account for the effects of inflation.

The 2019 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.

### **A. STATE OF THE LOCAL INFRASTRUCTURE**

- The Township's infrastructure has a total replacement value of \$32.9 million.
  - Roads represent \$23.5 million (72%) and buildings represent \$3.7 million (11%) of the total value; and
  - The remaining tax supported assets represent \$5.7 million.
- Overall, the Township's assets are considered to be in Fair condition.
  - Of the total, about 49% or \$11.0 million of the Township's assets are considered to be in "Good" or "Very Good" condition.
  - Conversely, nearly 32% (\$7.2 million) of infrastructure is considered to be in "Poor" to "Very Poor" condition.

### **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.
- Overall the Township's asset base is considered to be in Fair condition.

- Condition index for paved roads is 79 (out of 100) and 67 (out of 100) for gravel roads.
- Lane kilometres of roads as a proportion of Township land area is 2% for arterial roads and 31% for local roads. This reflects the rural nature of the Township.
- Condition index for bridges is 64 (out of 100) and 70 (out of 100) for culverts.

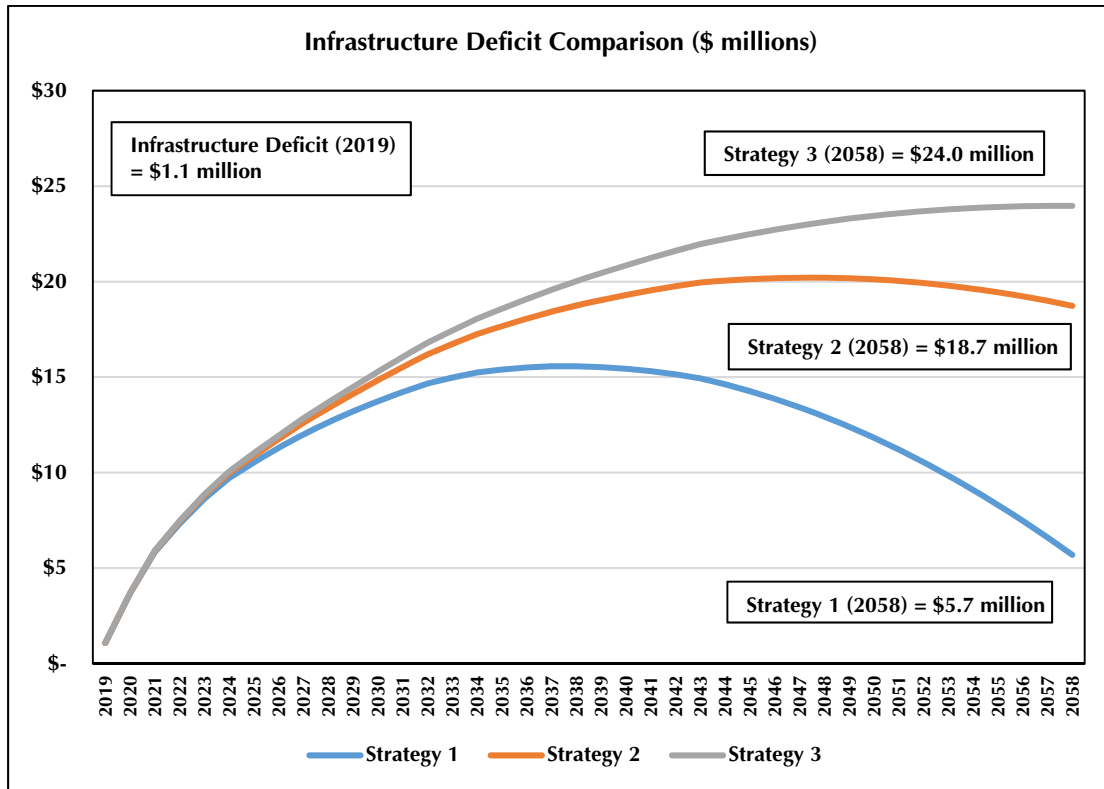
### C. FINANCING STRATEGY

- The current 2019 infrastructure deficit for all tax supported assets is calculated to be about \$1.1 million. This represents the difference between the required in-year contributions to capital and the current contributions to capital.
- It is unrealistic in the current fiscal context to expect the Township to fully address the infrastructure deficit in the short-medium term;
- Three 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).

Summary of Financing Strategies	
Financing Strategy	Strategy Parameters
<b>Strategy 1</b> Close in-year Funding Gap by 2038	<ul style="list-style-type: none"> <li>• Increase annual capital contributions by approximately \$41,900 per year.</li> <li>• For 2020, the increase would be in addition to the 2019 estimated \$213,600 tax supported capital funding.</li> <li>• The yearly revenue requirement is equivalent to 3.9% of the Township's 2019 tax levy.</li> </ul>
<b>Strategy 2</b> Close in-year Funding Gap by 2048	<ul style="list-style-type: none"> <li>• Increase annual capital contributions by approximately \$25,200 per year.</li> <li>• For 2020, the increase would be in addition to the 2019 estimated \$213,600 tax supported capital funding.</li> <li>• The yearly revenue requirement is equivalent to 2.4% of the Township's 2019 tax levy.</li> </ul>

Summary of Financing Strategies	
Financing Strategy	Strategy Parameters
<b>Strategy 3</b> <b>Close in-year Funding Gap by 2058</b>	<ul style="list-style-type: none"> <li>• Increase annual capital contributions by approximately \$18,500 per year.</li> <li>• For 2020, the increase would be in addition to the 2019 estimated \$213,600 tax supported capital funding.</li> <li>• The yearly revenue requirement is equivalent to 1.7% of the Township's 2019 tax levy.</li> </ul>

- Of the three financing strategies identified, strategy 3 poses the greatest risk to the Township as the infrastructure deficit continues to grow to 2058, and beyond. Strategies 1 and 2 demonstrate the infrastructure deficit being controlled over the planning period. Detailed tables of each strategy are provided in Appendix E are summarized in the graph below.



# I INTRODUCTION

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The Township of Limerick's 2019 Asset Management Plan (2019 Plan) provides the Township with a tool to assist in capital financing decisions. The Plan covers all Township assets of: equipment, vehicles, buildings, bridges and culverts, roads, and stormwater infrastructure. The 2019 Plan builds on analyses from the 2019 Roads Asset Management Plan, 2015 Road Needs Study and the 2014 Asset Management Plan.

The 2019 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 2019 Plan are in constant 2019 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 2019 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.

## 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;
- 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 Limerick. 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 2019 Plan is to build on existing practices by identifying how best to manage Township infrastructure over the planning period to 2058. A strategy for maintaining infrastructure so that desired service levels are achieved is an important element. In this respect, the 2019 Plan has been prepared to be consistent with the Township's Strategic Asset Management Policy. Ultimately, the 2019 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. 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.



<b>Table 1 O. Reg. 588/17 Timeline</b>		
<b>Regulation Timeline</b>	<b>Requirement</b>	<b>Progress</b>
<b>July 1, 2019</b>	<ul style="list-style-type: none"> <li>• Municipalities shall prepare their first strategic asset management policy.</li> <li>• Municipalities shall review, and if necessary, update the policy every 5 years.</li> </ul>	<ul style="list-style-type: none"> <li>• Township Council approved the Strategic Asset Management Policy in 2019.</li> <li>• The next review is expected in 2024.</li> </ul>
<b>July 1, 2021</b>	<ul style="list-style-type: none"> <li>• Every municipality shall prepare an asset management plan in respect of its core municipal infrastructure assets.</li> <li>• The current levels of service must be defined for all core assets.</li> </ul>	<ul style="list-style-type: none"> <li>• This 2019 Plan has incorporated the findings of the 2019 Roads Asset Management Plan, 2015 Road Needs Study and 2014 Asset Management Plan which identify the conditions and repair needs of roads, bridges and culverts.</li> <li>• The 2019 Plan includes assumptions on the replacement cost of stormwater infrastructure. The Township intends to develop a detailed asset inventory for stormwater in the future.</li> <li>• Current level of service measures have been identified through this plan, with the Township expecting to develop other metrics on an ongoing basis.</li> </ul>
<b>July 1, 2023</b>	<ul style="list-style-type: none"> <li>• Every municipality shall prepare an asset management plan in respect of all other municipal infrastructure assets.</li> <li>• The current levels of service must be defined for all other municipal assets</li> </ul>	<ul style="list-style-type: none"> <li>• This 2019 Plan has incorporated all non-core assets. This was informed through the 2014 Asset Management Plan and capital asset information provided by staff.</li> <li>• Current level of service measures have been identified through this plan, with the Township expecting to develop other metrics on an ongoing basis.</li> </ul>
<b>July 1, 2024</b>	<ul style="list-style-type: none"> <li>• Municipalities must establish proposed levels of service for a minimum of 10 years.</li> <li>• A lifecycle management and financial strategy that covers a minimum of 10 years.</li> </ul>	<ul style="list-style-type: none"> <li>• The Township is expecting to develop the analysis needed to establish proposed levels of service and a financial plan to achieve the proposed levels of service.</li> <li>• The proposed levels of service will be established through consultation with Council and the public in a subsequent update of this 2019 Plan.</li> </ul>

### C. ASSET MANAGEMENT PLAN STRUCTURE

The 2019 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 2019 Plan.

<b>Table 2 Guide to the 2019 Asset Management Plan</b>	
<b>Section</b>	<b>Requirement</b>
Section II - State of the 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 III - Level of Service	A summary of the current levels of service is presented. Additional details are provided in Appendix C.
Section IV - Asset Management Strategy	Sets out several strategies that will assist the Township in maintaining assets so that current service levels are maintained. This section also includes a risk analysis of Township assets. Additional details are provided in Appendix D.
Section V - Financing Strategy	Establishes how asset management can be delivered in a financially sustainable way. Additional details are provided in Appendix E.
Section VI – Continuous Improvements and Updates	Provides key recommendations on how to administer the 2019 Plan and keep it up to date.
Section VII - Conclusions and Recommendations	Provides recommendations based on the analysis undertaken.

## **II STATE OF LOCAL INFRASTRUCTURE**

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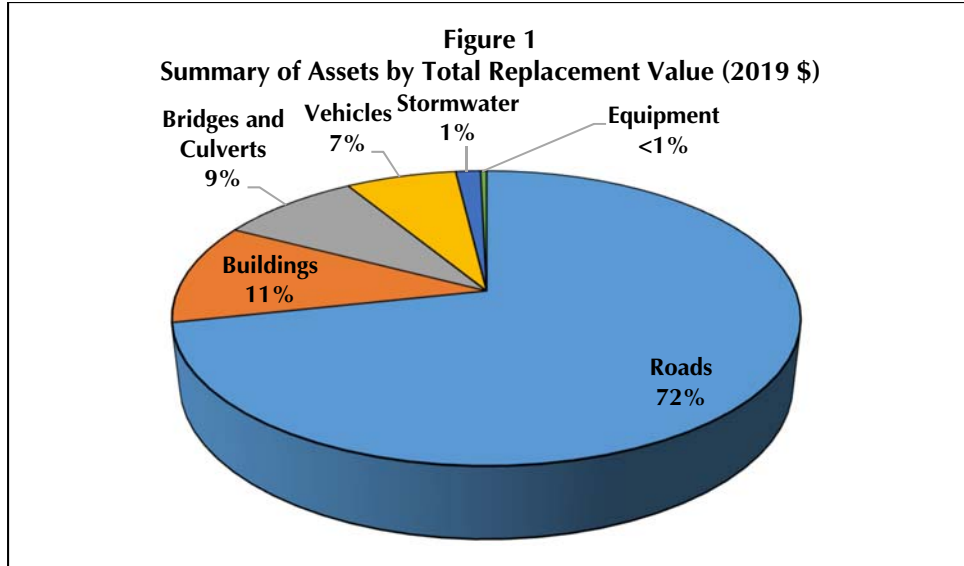
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This section provides a summary of the Township's assets with reference to asset quantity and quality. Some assets have condition assessments based on engineering inspections (roads, bridges, culverts and buildings), while the balance of assets considered are based on the useful life of the asset relative to its age as well as independent staff assessments. Useful life assumptions for the assets considered under this 2019 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 in all Township assets considered in the 2019 Plan is estimated at \$32.9 million (represented in constant 2019 dollars). The largest share is related to roads (including gravel roads) and accounts for about \$23.5 million (72%) of the total replacement cost. The next highest share is attributed to buildings at \$3.7 million (11%). This is followed by bridges and culverts at \$2.8 million (8%). The other asset categories of the Township's asset portfolio make up the remaining \$2.9 million (9%). These are made up of \$2.2 million (7%) in vehicles, \$500,000 (1%) in stormwater infrastructure and \$123,400 (less than 1%) in equipment.

The replacement costs in the asset inventory have been developed based on information outlined in the 2019 Roads Asset Management Plan, 2015 Road Needs Study, 2014 Asset Management Plan, costing information obtained from Township staff as well as information from municipalities comparable to Limerick wherever possible. Where information was not available, historical acquisition costs were inflated to current 2019 dollars at a rate of 2%. 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 asset categories considered in this study which is valued at \$22.5 million (excluding gravel roads). 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 18 years, largely driven by the age of roads, buildings and vehicles. In general, most of the Township's assets are still within their engineered design lives with the exception of some vehicles.
- Weighted Condition:** Overall, the Township's assets are determined to be in Fair condition. The overall condition is largely driven by high values of assets of roads, bridges, culverts, and buildings. Bridges, culverts and buildings are considered to be in Poor condition, however it is important to note that OSIM inspections are currently ongoing in the Township and it is expected these conditions will be updated through this process. Conversely, roads, stormwater and equipment assets are relatively new and are considered to be in Good to Very Good condition and vehicles are considered in Fair condition. Gravel roads are excluded from the WAC calculation; gravel road conditions tend to vary greatly over time and are highly dependent on weather and traffic conditions.

Asset Type	Replacement Cost (2019)	Useful Life (Years)	Remaining Useful Life (Weighted Average)	Condition (Weighted Average)	
Equipment	\$123,350	10	10	<b>Very Good</b>	5.0
Vehicles	\$2,230,000	10-15	Overdue	<b>Fair</b>	2.7
Buildings	\$3,653,760	50	9	<b>Poor</b>	2.5
Bridges and Culverts	\$2,830,722	30-50	37	<b>Poor</b>	2.4
Roads	\$13,198,024	30	19	<b>Good</b>	4.0
Stormwater	\$500,000	75	75	<b>Very Good</b>	5.0
<b>Total</b>	<b>\$22,535,856</b>		<b>18</b>	<b>Fair</b>	<b>3.5</b>

Note: Excludes gravel roads.

### C. CONDITION ASSESSMENTS

Consistent with the Canadian National Infrastructure Report Card, a five-point rating scale was used to assign a condition to all assets. Table 4 summarizes the assumed parameters.

Condition Rating	Definition
<b>Very Good</b>	<ul style="list-style-type: none"> <li>Well maintained, good condition, new or recently rehabilitated asset.</li> </ul>
<b>Good</b>	<ul style="list-style-type: none"> <li>Good condition, few elements exhibit existing deficiencies.</li> </ul>
<b>Fair</b>	<ul style="list-style-type: none"> <li>Some elements exhibit significant deficiencies. Asset requires attention.</li> </ul>
<b>Poor</b>	<ul style="list-style-type: none"> <li>A large portion of the system exhibits significant deficiencies. Asset mostly below standard and approaching end of service life.</li> </ul>
<b>Very Poor</b>	<ul style="list-style-type: none"> <li>Widespread signs of deterioration, some assets may be unusable. Service is affected.</li> </ul>

Assets were categorized in the 5-tier rating system on an asset by asset basis. Some assets have condition assessments based on engineering reports and staff assumptions, in particular for roads, bridges, culverts and buildings. For those assets, conditions were consolidated into the 5-tier system in Table 4 above. For assets where no condition assessments are available, the remaining useful life of the assets was used as a proxy for

its condition. Table 5 below provides a summary of the asset categories and the methodology used to assign a condition. Additional details on the methodology used for condition assessments in provided in Appendix B.

<b>Condition Assessment</b>	<b>Bridges and Culverts (BCI Range)</b>	<b>Roads (PCI Roads)</b>	<b>Buildings (Rating out of 100)</b>	<b>All Other Asset Categories (Remaining Useful Life)</b>
<b>Very Good</b>	80-100	80-100	80-100	80%-100%
<b>Good</b>	70-80	70-85	60-80	60%-80%
<b>Fair</b>	60-70	55-70	40-60	40%-60%
<b>Poor</b>	50-60	40-55	20-40	20%-40%
<b>Very Poor</b>	Less than 50	Less than 40	Less than 20	Less than 20%

*Note: Bridges, culverts and buildings based on 2014 AMP roads based on 2019 Roads AMP.*

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, Facility Condition Index for buildings or professional mechanic inspections for vehicles. These metrics can then be translated into a 5-tier rating system. The Township already performs detailed condition assessments of bridges and culverts through OSIM inspections and of roads through the 2019 Roads Asset Management Plan.
2. Estimates based on expert staff opinion. This approach is important where there is low confidence that age and useful life represents a particular set.
3. Estimates based on age and the remaining useful life of the asset. This has been used for all assets which the Township was not able to provide a condition assessment based on existing knowledge or site inspection. It is the intention that the Township move towards a condition assessment methodology using approach 1 and 2.

Appendix B provides details on the methodology used for condition assessments for each asset category in this 2019 Plan.

### III LEVEL OF SERVICE

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Asset management decisions must be made with reference to the level of service planned for by the Township. Current service levels in Limerick have been developed based on a combination of internal asset management practices, community expectations, statutory requirements, 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 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, fire stations) within neighbourhoods. However, safety and performance are also important for core services such as roads and culverts.

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 2019 Plan. The current level of service measures for each asset category are summarized in Table 6. The current level of service analysis is provided:

- **Weighted Condition:** Overall, the Township's assets are determined to be in Fair condition. The overall condition is largely driven by high values of assets of roads, bridges, culverts, and buildings. Bridges, culverts and buildings are considered to be in Poor condition, however it is important to note that OSIM inspections are currently ongoing in the Township and it is expected these conditions will be updated through this process. Conversely, roads, stormwater and equipment assets are relatively new and are considered to be in Good to Very Good condition and vehicles are considered in Fair condition.
- **Roads:** The Township owns and operated about 68 km of paved and gravel roads. Arterial road lane kilometres as a share of the Township's land area is 2% while local road lane kilometres as a share of the Township's land area is 31%. This reflects the nature of the Township as a largely rural community.

The average pavement condition index of paved roads is 79 (out of 100) and for unpaved roads it is 67 (out of 100). The paved roads are rated to be in good condition with the percentage of paved roads above good or very good condition at 75%.

- **Bridges and Culverts:** The Township continues to ensure that bridges and culverts continue to operate in a safe and efficient manner. The Township will continue to monitor bridges and culverts carefully to ensure that current levels of service are maintained. Currently, no bridges or culverts have loading or dimensional restrictions and the average condition index for all Township bridges is 64 (out of 100) and culverts is 70 (out of 100). The average weighted condition assessment is Poor with only 1% of the assets above good or very good condition. One important note, is that this information is based on the most recent OSIM inspection done in 2014 through the 2014 Asset Management Plan. The Township is currently undertaking condition assessments of bridges and culverts and this information will be updated accordingly.
- **Stormwater:** The Township does not currently have a detailed inventory of stormwater assets, however staff have determined the stormwater system is largely composed of smaller culverts throughout the Township. The Township will be working to develop an asset inventory to include the number and locations of minor culverts. With this said, it has been assumed the percentage of the stormwater system resilient to 5 and 100-year storms is 100%, reflective of the largely rural location of the Township. It has also been assumed many of these assets are largely in good operating condition and are rated to be in very good condition.



Table 6 Township of Limerick Level of Service Performance Tracker					
Asset Category	Strategic Level of Service (Expected Customer Demands)	Community Level of Service (as per O. Reg. 588/17)	Performance Measures	2019 LOS	
<b>Equipment</b>	Functional equipment to meet operational needs.	Includes mobile heavy machinery such as chainsaws, polesaws and stackers. Equipment largely used to meet operational needs of the Township.	Average weighted condition assessment	<b>Very Good</b>	
			Percentage of assets at or above "Good" or "Very Good" condition	100%	
<b>Vehicles</b>	Safe, reliable, and fully operational vehicles.	Includes fleet vehicles, administrative purposes as well as public works vehicles and fire trucks. Examples include snowplows, backhoes, bulldozers and pickup trucks.	Average weighted condition assessment	<b>Fair</b>	
			Percentage of assets at or above "Good" or "Very Good" condition	21%	
<b>Buildings</b>	Safe and functional public facilities.	Includes all Township owned buildings and facilities. This includes the joint roads garage/fire hall/Township office, the waste transfer site and Limerick Community Centre.	Average weighted condition assessment	<b>Poor</b>	
			Percentage of assets at or above "Good" or "Very Good" condition	1%	
<b>Roads</b>	Safe reliable roads for Township residents.	The Township maintains maps of the road network in the roads specific AMP developed by Streetscan. The Township also maintains maps of the road system, its connectivity and condition by roads segments using the Streetlogix GIS software from Streestcan.	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	2%	
			Collector	0%	
			Local	31%	
			The Township maintains maps of the road system condition by roads segments using the Streetlogix GIS software from Streestcan. The asset inventory used in the AMP also includes the PCI for each road segment.	1. For paved roads in the municipality, the average pavement condition index value (O. Reg. 588/17).	79.24
				2. For unpaved roads in the municipality, the average surface condition (O. Reg. 588/17).	66.65
				Average weighted condition assessment (paved roads)	<b>Good</b>
		Percentage of assets at or above "Good" or "Very Good" condition (paved roads)	75%		
		Winter maintenance minimum standards based on Winter Road Maintenance Policy.	Maintain Policy Standards		
<b>Bridges &amp; Culverts</b>	Safe reliable bridges and culverts.	Township bridges largely support local traffic including motor vehicles, trucks and emergency vehicles.	Percentage of bridges in the municipality with loading or dimensional restrictions (O. Reg. 588/17).	0%	
			Images and descriptions of the Township's bridges are provided through the Township's OSIM inspections last completed in 2014. These documents are provided as separate documents.	1. For bridges in the municipality, the average bridge condition index value (O. Reg. 588/17).	63.53
			Images and descriptions of the Township's culverts are provided through the Township's OSIM inspections last completed in 2014. These documents are provided as separate documents.	2. For structural culverts in the municipality, the average bridge condition index value (O. Reg. 588/17).	70.00
			Average weighted condition assessment (All bridges & culverts)	<b>Poor</b>	
			Percentage of assets at or above "Good" or "Very Good" condition (all bridges & culverts)	1%	
<b>Stormwater</b>	Stormwater system with adequate capacity.	The Township's stormwater system is largely composed of road ditches and some culverts. The Township will be working to develop an asset inventory to include the number and locations of minor culverts the Township owns.	1. Percentage of properties in municipality resilient to a 100-year storm (O. Reg. 588/17).	100%	
			2. Percentage of the municipal stormwater management system resilient to a 5-year storm (O. Reg. 588/17).	100%	
			Average weighted condition assessment	<b>Very Good</b>	
		Percentage of assets at or above "Good" or "Very Good" condition	100%		

## IV ASSET MANAGEMENT STRATEGY

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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 maintain current levels of service.

### A. A SET OF PLANNED ACTIONS

The Township employs various practices to maintain current levels of service. This set of existing actions involve activities to maintain assets in a state of good repair and to ensure that assets continue to be in service for their full life cycle, and in many cases, beyond the expected design life. Table 7 outlines the set of planned actions the Township undertakes to maintain assets. The set of existing actions and planned activities are summarized for each of the asset categories in Appendix D.

Section	Requirement
Non-infrastructure Solutions	<ul style="list-style-type: none"> <li>• 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.).</li> </ul>
Maintenance Activities	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
Renewal/Rehabilitation Activities	<ul style="list-style-type: none"> <li>• 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 its designed useful life.</li> </ul>
Replacement Activities	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

Table 7 Planned Actions	
Section	Requirement
Disposal Activities	<ul style="list-style-type: none"> <li>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.</li> </ul>
Expansion Activities	<ul style="list-style-type: none"> <li>Planned activities required to extend or expand municipal services to accommodate the demands of growth.</li> </ul>

It should be noted that the Township undertakes all the activities described above and in Appendix D; however, the Township's budget generally accounts for these expenditures in different categories. The Township can aim to categorize budget expenditures based on the categories above.

## 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 Very Poor or Poor condition. The evaluation rating is then linked to the condition assessment parameter discussed in Section II. The formula to determine asset risk is as follows:

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

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

- Probability of Failure:** is directly linked to the condition of an asset. An asset in very poor condition is considered to be almost certain to fail in the short term. 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 very good condition. Table 8 below outlines the definition of probability of failure used for the Township's assets.

Table 8 Probability of Failure		
Condition	Probability 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 has been determined separately for each asset category, as the impact to the Township 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. For the purposes of this analysis, assets were assigned a consequence of failure based on an assessment of the relative importance of the asset; although, paved roads are prioritized based on the conditions and required works in the 2019 Roads Asset Management Plan. Table 9 below outlines the definition of consequence of failure used for the Township's assets.

Table 9 Consequence of Failure		
Replacement Cost	Consequence of Failure	Description
Very High	1	Insignificant
High	2	Minor
Moderate	3	Moderate
Low	4	Major
Very Low	5	Significant

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

- Risk Rating:** categorizes assets based on the level of risk to the Township. 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 D). Table 10 below provides a summary of the risk matrix.

Table 10 Risk Matrix							
Evaluation Rating		Consequence of failure					Color Code
		1	2	3	4	5	
Probability 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

Table 11 presents the findings of the risk analysis and illustrates the Townships assets rated from low to high risk with the overall risk being high. Assets in the high risk category include vehicles, buildings, bridges and culverts. The risk of each asset and asset category has been determined with reference to the parameters outlined in Table 10 above with the exception of roads which are prioritized based on the conditions and works identified in the 2019 Roads Asset Management Plan. It is important to note, that the Township will need to continue regular maintenance activities and capital works moving forward to maintain current levels of service – this ensures assets do not further deteriorate posing greater risk to the corporation.

Table 11 Summary of Risk Assessment			
Asset Type	Replacement Cost (2019)	Risk (Weighted Average)	
Equipment	\$123,350	Very Low	3
Vehicles	\$2,230,000	High	10
Buildings	\$3,653,760	High	10
Bridges and Culverts	\$2,830,722	High	14
Roads	\$13,198,024	Risk analysis done through Streetscan recommended road works.	
Stormwater	\$500,000	Low	4
<b>Total</b>	<b>\$22,535,856</b>	<b>High</b>	<b>11</b>

*Note: Risk assessment for roads is based on the priority works identified in the 2019 Roads Asset Management Plan.*

It is important to recognize the risk associated with the Township's ability to deliver the plan while recognizing that any deviation may affect the overall ability to deliver service. Table 12 below provides a summary of the identified risks, potential impacts and mitigating actions associated with the asset management program.

<b>Table 12 Risk Associated to the Plan</b>		
<b>Identified Risk</b>	<b>Potential Impact</b>	<b>Mitigating Action</b>
<b>Failed Infrastructure</b>	<ul style="list-style-type: none"> <li>• Delivery of service</li> <li>• Asset and equipment damage</li> </ul>	<ul style="list-style-type: none"> <li>• Repair and rehabilitate as necessary</li> <li>• Increase investment</li> <li>• Non-infrastructure solutions</li> </ul>
<b>Inadequate Funding</b>	<ul style="list-style-type: none"> <li>• Delivery of service</li> <li>• Increased risk of failure</li> <li>• Shorten asset life</li> <li>• Defer funding to future generations</li> </ul>	<ul style="list-style-type: none"> <li>• Reductions of service</li> <li>• Find additional revenue sources</li> </ul>
<b>Regulatory Requirements</b>	<ul style="list-style-type: none"> <li>• Non-compliance</li> <li>• Mandatory investments</li> <li>• Increased costs</li> </ul>	<ul style="list-style-type: none"> <li>• Find additional revenue sources</li> <li>• Lobby actions</li> </ul>
<b>Plan is not followed</b>	<ul style="list-style-type: none"> <li>• Shorten asset life</li> <li>• Inefficient investments</li> <li>• Prioritization process failure</li> <li>• Failure to deliver service</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor and review</li> <li>• Create asset management network</li> <li>• Implement processes</li> </ul>

## **V FINANCING STRATEGY**

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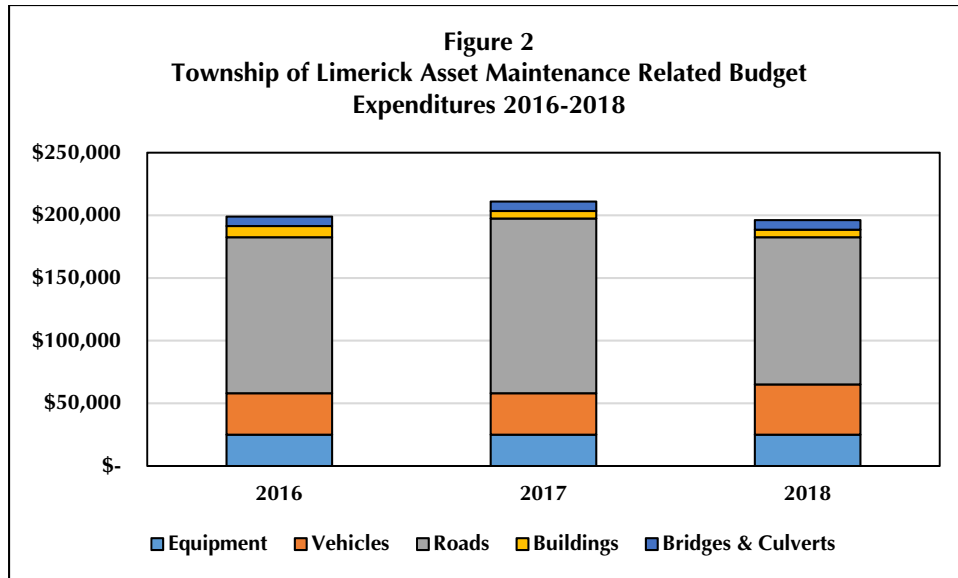
This section of the 2019 Plan is intended to provide a framework for the Township to integrate asset management with annual budgeting and long-term financial planning. The Township has traditionally followed a “pay-as-you-go” approach to financing infrastructure, whereby capital expenditures are prioritized and approved with reference to the availability of funds. The Township maintains some funding in reserves, which further enhances Council’s commitment to its strategic objective to ensure infrastructure sustainability.

### **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’s budget has stayed relatively stable over the past few years.

Figure 2 illustrates total asset maintenance related expenditures by department based on the Township’s annual budgets. Total expenditures were \$199,000 in 2016 and increased to \$211,000 in 2017. For 2018, approximately \$196,200 was budgeted for asset maintenance. The largest share of expenditures has consistently been related to roads. Roads maintenance expenditures account for about 60% of the tax-supported maintenance budget in 2018 at approximately \$117,500.

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.



Source: Township of Limerick annual budgets.

**B. CAPITAL REPLACEMENT SCHEDULE**

The 2019 Plan includes an estimate of the timing for replacement of all assets with the exception of paved roads as the capital requirements of those assets are informed by the 2019 Roads Asset Management Plan. Using the risk assessment discussed in Section IV, 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. Table 13 below provides a summary of the risk thresholds used to calculate timing of replacement needs.

Percentage of Useful Life Remaining					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

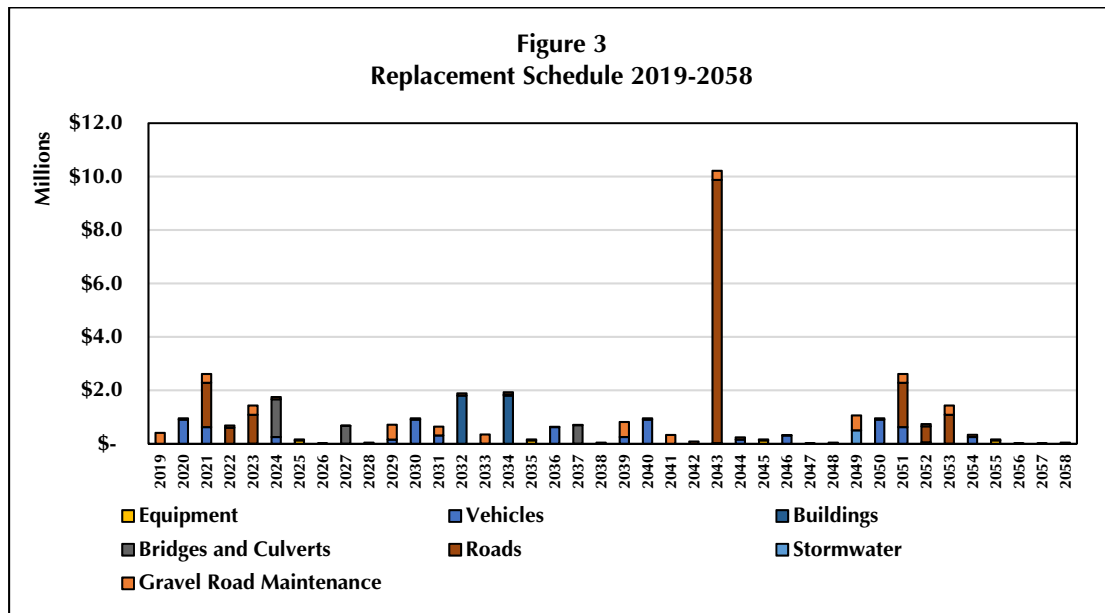
Figure 3 sets out the schedule of repair and replacement of assets to maintain current levels of service for the assets considered in the 2019 Plan. Over the 40-year period, to 2058, the tax supported repair and replacement program totals about \$37.2 million.



The average yearly replacement costs of these assets amount to approximately \$929,600.

Some larger valued assets have been identified over the next few years to require repair or replacement, in particular over the next 5 years:

- Roads:** In the period from 2021- 2023 major reconstruction works are expected on St. Ola Rd. Based on the 2019 Roads Asset Management Plan, the total amount of this work is about \$3.3 million over the 3 year period. The works on St. Ola Rd. are currently underway. In 2043, many of the paved roads are expected to require repair or rehabilitation work based largely on an assumed useful life of 30 years. Many of the roads today are in good to very good condition.
- Gravel Roads:** Typically gravel roads require resurfacing as weather and traffic wears down the roads. The Township has assumed that resurfacing for each road segment would ideally occur on a 10-year rotation. Gravel road resurfacing cost is approximately \$30,000 per km based on the 2015 Road Needs Study.
- Vehicles:** In 2020, the GMC fire truck, the GMC C7D, and the Ford tanker at \$300,000 each are due for replacement. It is important to note that although the fire vehicles indicate replacement may be required over the short-term, this is largely based on the higher risk assessed for these types of vehicles. With this said, the vehicles are in good working condition.



### C. CAPITAL PROVISION SCHEDULE

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 Township 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 its remaining useful life and the anticipated cost of replacement in current 2019 dollars. The aggregate of all individual provisions form an annual contribution to reserves for the purpose of asset repair and replacement.

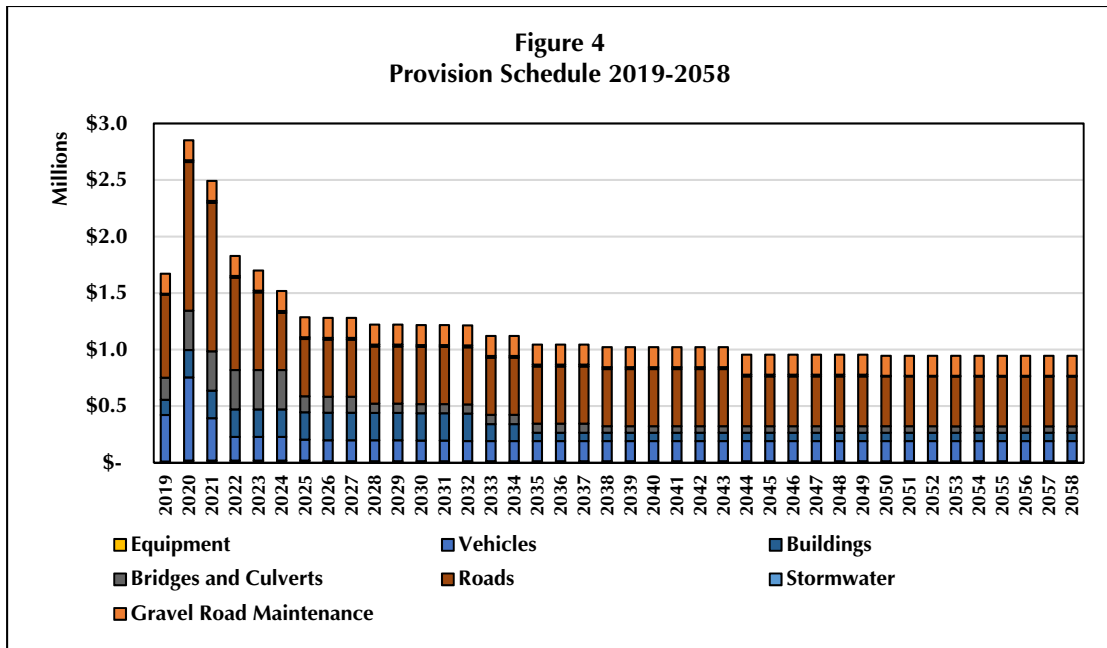
It is important to note that this provision includes cost associated to renewal/rehabilitation and replacement based on the replacement schedule in Figure 3 above and the recommended works in the 2019 Roads Asset Management Plan as well as gravel road resurfacing costs. Furthermore, available reserves have been accounted and used against the first five years of the forecast.

Road works identified in the 2019 Roads Asset Management Plan are required to ensure the roads continue to meet service standards. Typically, roads are not fully replaced and are therefore reconstructed or rehabilitated. Therefore, the provision identified incorporates the 10 year work identified in the 2019 Roads Asset Management Plan plus a long term provision for works beyond the 10 year period to 2058, based on the replacement cost of each road segment.

Figure 4 shows the funds that would have to be contributed annually to reserves to maintain current levels of service for assets included in this 2019 Plan to 2058. Figure 4 demonstrates that:

- Average annual contributions over the 40-year period would have to be in the order of \$1.2 million per year (net of existing reserve funds), with road works as the most significant portions.
- Higher capital contributions would be required in the short-term for significant infrastructure expenditures identified in 2019, which amount to \$1.7 million (including transfers to reserves). However, there will likely be measures the Township could take to mitigate this financial pressure in 2019 (and future years). These measures are more fully discussed in Part E and G of this section.
- It is estimated the Township will spend nearly \$591,000 (including gas tax, grants and reserves) in 2019 for repair/replacement of assets (based on the 2018 budget). The \$591,000 in capital spending is comprised of:

- \$213,600 in tax levy capital funding including reserve contributions and gravel road maintenance;
- \$366,800 in OMPF grant funding; and
- \$10,500 in gas tax funding.
- Investment in Township assets would need to increase by over \$602,500 to achieve the \$1.2 million average requirement in 2019. Excluding OMPF grants this amounts to an additional average funding need of \$970,000. It should be noted that of the 2019 capital funding sources, tax supported revenues are the most secure form of recurring revenue for the Township.



**D. CURRENT INFRASTRUCTURE DEFICIT**

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 annual contributions to capital, identified in Part C: Capital Provision Schedule, be delayed.

The current infrastructure deficit shown in Table 14 represents the difference between the required in-year contributions to capital and the current contributions to capital for all assets in this 2019 Plan. The total 2019 capital provision required is \$1.7 million (including infrastructure backlog) and current capital spending is \$591,000 (includes capital from tax, grants, transfer to reserves and gas tax). The current in-year infrastructure deficit is therefore \$1.1 million, which represents about 3.3% of the total

replacement value. The infrastructure deficit would continue to grow should the required annual contributions to capital, identified in Part C, be delayed.

<b>Table 14</b>	
<b>Infrastructure Deficit for Base Year 2019</b>	
<b>Calculation of Current Infrastructure Deficit</b>	
Projected 2019 Capital Provision (Net of Reserves)	\$1,671,000
Total 2019 Capital Spending (Budget)	\$591,000
Funding Gap	\$1,080,000
Cumulative Infrastructure Deficit	\$1,080,000
Cumulative Infrastructure Deficit as a Percentage of Total Replacement Value	3.3%
<i>Note: Total 2019 capital spending is derived from 2018 budget and includes in year-funding for capital from: tax levy, grants, transfer to reserves, gas tax.</i>	

## **E. FINANCING STRATEGY**

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. This analysis recognizes that the Township has not kept pace with the required contributions to perform the work set out in the calculated asset repair and replacement schedule in Part B: Capital Replacement Schedule.

If the Township were to implement a funding strategy to eliminate the infrastructure deficit by 2058, the Township would be required to increase capital contributions on an annual basis by an average of about \$49,200 for 40 years. For 2019, the increase would be in addition to the \$213,600 tax supported capital funding, \$366,800 in OMPF and \$10,500 in Gas Tax funds. The yearly revenue requirement is equivalent to 4.6% of the Township's 2019 tax levy revenues of about \$1.1 million. A detailed table of this strategy can be found in Appendix E – Table 1.

Eliminating the infrastructure deficit by 2058 is an aggressive objective and is an initiative the Township is unlikely 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;

- The Township may need to decrease or limit funding of other key Township services or initiatives in lieu for capital repair and replacement activity;
- 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 (Section IV: Asset Management Strategies) can often extend the requirement of major repair or replacement of capital assets and may prolong the life of the asset.
- Major road works underway will improve the condition of St. Ola Road, therefore requiring lower repair needs over the shorter term once the road works are completed.

Further to the above noted comments, three financing strategies were developed to illustrate a rational capital contribution level to meet asset replacement needs for tax supported assets as outlined in Figure 4. The financing strategies illustrate the “smoothed options” to the capital repair and replacement requirements identified in Part B. Assumptions for each of the three funding strategies is shown in Table 15 and each financing strategy is shown in Table 16.

Category	Assumptions
Tax Levy Support (including reserve contributions)	<ul style="list-style-type: none"> <li>• Existing 2019 tax supported capital funding of \$213,600 is assumed to be the starting point and base case for increasing annual capital contributions. This includes operating expenditures for gravel road maintenance.</li> </ul>
External Grants	<ul style="list-style-type: none"> <li>• OMPF of \$366,800 is assumed in the base year. No future grant funding is assumed in the forecast.</li> </ul>
Gas Tax Reserve Fund	<ul style="list-style-type: none"> <li>• Gas tax funding for 2019 is \$10,500. In 2020 and onwards gas tax funding is assumed based on AMO allocations to 2023 and remain constant afterwards.</li> </ul>
Inflation	<ul style="list-style-type: none"> <li>• Financing strategy is expressed in constant 2019 dollars.</li> </ul>
Existing Reserves	<ul style="list-style-type: none"> <li>• Existing reserve balances have been accounted and are used against the expenditures in 2019 for the purposes of forecast calculation.</li> </ul>

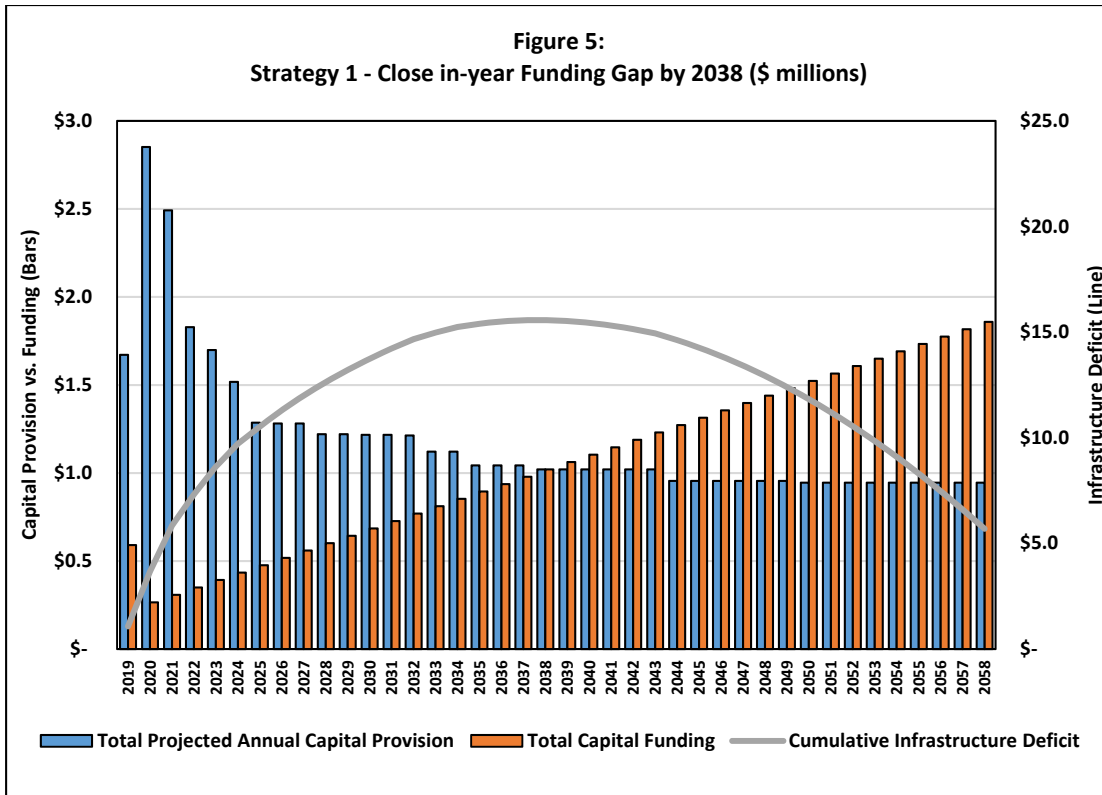
<b>Table 16</b> <b>Summary of Financing Strategies</b>	
<b>Financing Strategy</b>	<b>Strategy Parameters</b>
<b>Strategy 1</b> <b>Close in-year Funding Gap by 2038</b>	<ul style="list-style-type: none"> <li>• Increase annual capital contributions by approximately \$41,900 per year.</li> <li>• For 2020, the increase would be in addition to the 2019 estimated \$213,600 tax supported capital funding.</li> <li>• The yearly revenue requirement is equivalent to 3.9% of the Township's 2019 tax levy.</li> </ul>
<b>Strategy 2</b> <b>Close in-year Funding Gap by 2048</b>	<ul style="list-style-type: none"> <li>• Increase annual capital contributions by approximately \$25,200 per year.</li> <li>• For 2020, the increase would be in addition to the 2019 estimated \$213,600 tax supported capital funding.</li> <li>• The yearly revenue requirement is equivalent to 2.4% of the Township's 2019 tax levy.</li> </ul>
<b>Strategy 3</b> <b>Close in-year Funding Gap by 2058</b>	<ul style="list-style-type: none"> <li>• Increase annual capital contributions by approximately \$18,500 per year.</li> <li>• For 2020, the increase would be in addition to the 2019 estimated \$213,600 tax supported capital funding.</li> <li>• The yearly revenue requirement is equivalent to 1.7% of the Township's 2019 tax levy.</li> </ul>

*Note: Key assumptions noted in Table 15 are maintained for all three financing strategies.*

### **1. Financing Strategy 1 – Close in-year Funding Gap by 2038**

Given the capital expenditure requirement to meet the asset replacement needs, the cumulative infrastructure deficit will reach \$15.6 million before the Township begins to reduce this amount by increasing capital contributions by more than the annual provision requirement in 2038 (Figure 5). The infrastructure deficit will increase by the annual funding gap and decrease once the annual contributions are greater than the annual provision. This strategy represents an annual increase in capital contributions (including transfers to reserves) of about \$41,900 per year. This represents 3.9% of the Township's 2019 net tax levy budget of about \$1.1 million. A detailed table of Strategy 1 can be found in Appendix E – Table 2.

It is important to note that even though the in-year funding gap has been addressed by 2038, the infrastructure deficit poses risk to the Township. The cumulative deficit in 2038 of \$15.6 million 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.

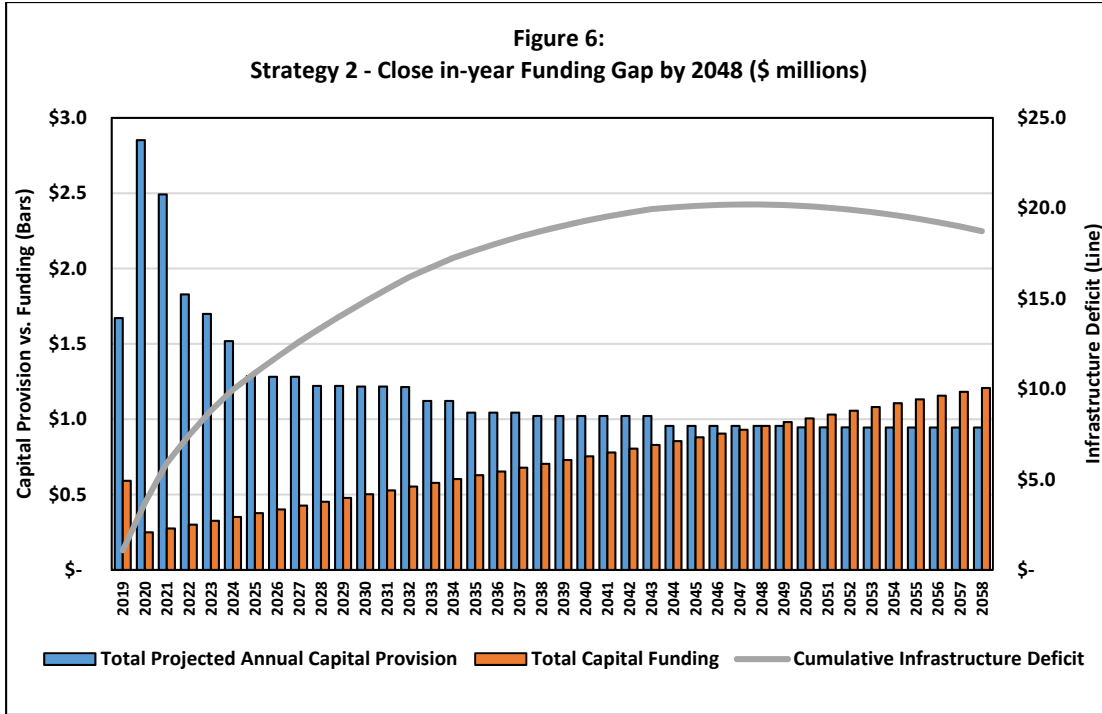


Note: The projected capital provision represents the annual requirement to repair and replace existing Township assets as scheduled, based on the condition of each asset and the remaining useful. The projected annual capital provision requirement shown is net of existing reserves (e.g. existing funds have been incorporated).

**2. Financing Strategy 2 – Close in-year Funding Gap by 2048**

Given the capital expenditure requirement to meet the asset replacement needs, the cumulative infrastructure deficit will reach \$20.2 million before the Township begins to reduce this amount by increasing capital contributions by more than the annual provision requirement in 2048 (Figure 6). The infrastructure deficit will increase by the annual funding gap and decrease once the annual contributions are greater than the annual provision. This strategy represents an annual increase in capital contributions (including transfers to reserves) of about \$25,200 per year, representing 2.4% of the Township’s 2019 net budget of \$1.1 million. A detailed table of Strategy 2 can be found in Appendix E – Table 3.

It is important to note that even though the in-year funding gap has been addressed by 2048, the infrastructure deficit poses risk to the Township. The cumulative deficit in 2048 of \$20.2 million, 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.



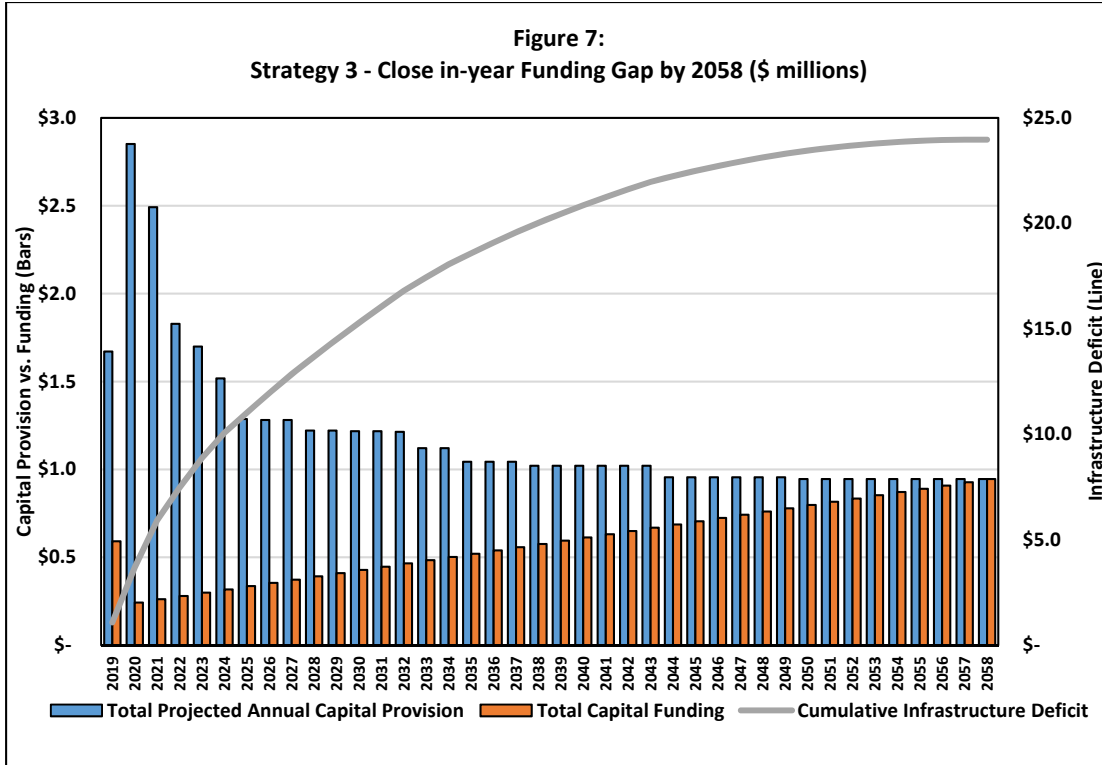
Note: The projected capital provision represents the annual requirement to repair and replace existing Township assets as scheduled, based on the condition of each asset and the remaining useful. The projected annual capital provision requirement shown is net of existing reserves (e.g. existing funds have been incorporated).

### 3. Financing Strategy 3 – Close in-year Funding Gap by 2058

Given the capital expenditure requirement to meet the asset replacement needs, the cumulative infrastructure deficit will reach \$24.0 million before the Township begins to reduce this amount by increasing capital contributions by more than the annual provision requirement in 2058 (Figure 7). The infrastructure deficit will increase by the annual funding gap and decrease once the annual contributions are greater than the annual provision. This strategy represents an annual increase in capital contributions (including transfers to reserves) of about \$18,500 per year, representing 1.7% of the Township’s 2019 net budget of \$1.1 million. A detailed table of Strategy 3 can be found in Appendix E – Table 3.

It is important to note that even though the in-year funding gap has been addressed by 2058, the infrastructure deficit poses risk to the Township. The cumulative deficit in 2058 of \$24.0 million, 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.





*Note: The projected capital provision represents the annual requirement to repair and replace existing Township assets as scheduled, based on the condition of each asset and the remaining useful. The projected annual capital provision requirement shown is net of existing reserves (e.g. existing funds have been incorporated).*

**F. CAPITAL EXPENDITURE FORECAST**

A capital expenditure forecast is outlined in Table 17. The forecast is based on the Township’s 2018 operating budget, the replacement schedule from Section B and works identified through the 2019 Roads Asset Management Plan. A provision for a level of service adjustment to account for requirements of O. Reg. 588/17 to define desired levels of service has been included in 2024 and onwards. This provision amounts to \$10,000 which is approximately 1% of the 2019 tax levy of \$1.1 million. The Township’s yearly infrastructure related capital and operating expenditures are subject to the yearly budget and are adjusted on an ongoing basis. The Township can however look to develop a 5 to 10 year capital program in the future based on the information in the 2019 Plan.

Table 17 10-Year Expenditure Forecast					
Expenditures	2020 Forecast	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast
Non-Infrastructure Solutions	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
Maintenance Activities	\$ 115,700	\$ 115,700	\$ 115,700	\$ 115,700	\$ 115,700
Renewal/Rehabilitation Activities	\$ 177,802	\$ 177,802	\$ 177,802	\$ 177,802	\$ 177,802
Replacement Activities	\$ 900,000	\$ 2,281,414	\$ 597,156	\$ 1,084,282	\$ 1,659,955
Disposal Activities	\$ -	\$ -	\$ -	\$ -	\$ -
Expansion Activities	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	<b>\$ 1,198,502</b>	<b>\$ 2,579,916</b>	<b>\$ 895,658</b>	<b>\$ 1,382,784</b>	<b>\$ 1,958,457</b>
<i>Level of Service Adjustment</i>	\$ -	\$ -	\$ -	\$ -	\$ 10,000
<b>Grand Total Lifecycle Costs</b>	<b>\$ 1,198,502</b>	<b>\$ 2,579,916</b>	<b>\$ 895,658</b>	<b>\$ 1,382,784</b>	<b>\$ 1,968,457</b>
Expenditures	2025 Forecast	2026 Forecast	2027 Forecast	2028 Forecast	2029 Forecast
Non-Infrastructure Solutions	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000
Maintenance Activities	\$ 115,700	\$ 115,700	\$ 115,700	\$ 115,700	\$ 115,700
Renewal/Rehabilitation Activities	\$ 177,802	\$ 177,802	\$ 177,802	\$ 177,802	\$ 177,802
Replacement Activities	\$ 120,400	\$ -	\$ 666,936	\$ -	\$ 150,000
Disposal Activities	\$ -	\$ -	\$ -	\$ -	\$ -
Expansion Activities	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	<b>\$ 418,902</b>	<b>\$ 298,502</b>	<b>\$ 965,438</b>	<b>\$ 298,502</b>	<b>\$ 448,502</b>
<i>Level of Service Adjustment</i>	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
<b>Grand Total Lifecycle Costs</b>	<b>\$ 428,902</b>	<b>\$ 308,502</b>	<b>\$ 975,438</b>	<b>\$ 308,502</b>	<b>\$ 458,502</b>

## 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 Limerick has indicated that it expects to continue receiving Gas Tax funds – these funds have been incorporated into the financing strategies at current levels. The Township has indicated that other external grants are at risk in future years, therefore no other future grant funding is assumed for the purposes of the financing strategy.

### **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 of Limerick does not currently levy development charges as the Township does not expect significant growth in the future.

### **Property Taxes**

According to the 2019 budget, property taxes represent about \$1.1 million in revenues. The use of property taxes to fund municipal services is the most secure source of funding for the Township. As such, the Township would likely be required to increase property tax revenue to fund additional capital expenditures.

### **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. The Township could explore P3s as a tool to carry out capital related activities.

### **Local Improvement Charges**

Through local improvement charges, municipalities 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 municipality’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 include replacement of existing assets and funding of non-DC recoverable shares in certain circumstances. 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 municipality could endeavour to require the developer to undertake, or fund, the road improvements as a condition of the subdivision agreement. The municipality benefits 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**

This section discusses, at a high level, the means by which capital revenue can be raised or secured.

### **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 to ensure the tax payers who benefit from the asset share the cost. Therefore, the burden of capital is distributed equally between the current tax payer and future tax payers.

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 Township currently has very low outstanding debt, and therefore has an annual repayment limit of \$262,700 as identified in the Township’s 2019 Annual Debt Repayment Limit. This

amounts to a net debt to own source revenue ratio of 1.6% relative to the Provincial limit of 25%. As a safe practice, 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 Township to have at any given time, but they should be sufficient to cover emergency work (if required).

As of end of year 2017, the Township had an estimated capital reserve balance of \$1.2 million. The reserve balances consider only the money the Township has on hand to carry out capital projects related to the services to which this asset management plan applies and excludes operating and rate stabilization reserves. The entire balance of capital reserves has been considered in the calculation in the 2019 infrastructure deficit.

### **I. FUTURE DEMAND**

The 2019 Plan reflects the assets that the Township currently owns and operates. The Township's 2016 census population is estimated at 350 persons as per Statistics Canada. The Township does not expect any significant growth to occur in the near future, therefore growth-related capital additions to the Township's asset portfolio are not expected. The Township should recognize that although new growth related infrastructure is not required to be built in the near future, maintaining control of the current infrastructure deficit should be prioritized in the coming years.

## **VI CONTINUOUS IMPROVEMENTS AND UPDATES**

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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 improvements and next steps will form part of the Township's evolving Asset Management program moving forward.

### **A. NET BOOK VALUE VS. REPLACEMENT VALUE**

The value of the Township's assets is presented in two different formats: 'Net Book Value' and 'Replacement Value'. These are described below.

**Net Book Value (NBV)** is consistent with the financial accounting practices defined by the Public Sector Accounting Board and is reported in the Township's financial statements. The Township of Limerick reported Net Book Value covers the full scope of the Township's Tangible Capital Assets, including land. It is noted that the same scope of assets are considered under this Plan.

The Net Book Value is the original acquisition cost less accumulated depreciation, depletion or amortization. It is reported annually in accordance with reporting standards established by the Public Sector Accounting Board (PSAB) of the Canadian Institute of Chartered Accountants. As shown on Table 18 below, the Township's 2018 Consolidated Financial Statement reported the Net Book Value of the Township's Tangible Capital Assets as of December 31, 2018 at \$4.5 million, inclusive of land. Under the financial accounting approach many assets may be fully depreciated yet remain in use across the Township. Therefore, Net Book Value is not the appropriate methodology to be employed for infrastructure renewal planning.

<b>Table 18</b>	
<b>Summary of Tangible Capital Asset Values</b>	
<b>Asset Category</b>	<b>2018 Closing NBV</b>
Land	\$129,942
Land Improvements	\$6,816
Buildings	\$133,865
Machinery and Equipment	\$269,354
Vehicles	\$255,170
Linear Assets	\$3,611,355
Construction-In-Progress	\$99,974
<b>Total</b>	<b>\$4,506,476</b>

*Source: Township of Limerick 2018 Financial Information Return.*

**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 assets is estimated at \$32.9 million.

### **Replacement Cost Valuation**

The three basic methods to estimate replacement costs needed for infrastructure renewal planning are outlined:

- **Local price indices:** This is the most accurate method. The Township has collected some recent acquisition data demonstrating similar replacement activities.
- **Published price indices:** Where local indices are not available, the Township uses published indices (e.g. Non-residential Building Construction Price Index) from similar municipalities.
- **Accounting estimates:** When assets cannot be estimated against either index, the Township uses historic cost, estimated useful life and inflationary effects to determine replacement value.

### **B. ASSET MANAGEMENT INTERNAL NETWORK**

In order to operationalize a plan, it starts with involving the necessary Township staff in the asset management process. In order to address asset management, an internal network (Asset Management Committee) can be created, in which the Public Works

and Infrastructure Manager assumes the lead role and responsibility for the maintenance of and reporting on the activity related to the management of Township assets. The Public Works and Infrastructure Manager together with the other department heads will assist in this task through the utilization of condition assessment information and service level requirements to update the long and short-term asset requirements. This information can be reviewed with the committee and presented annually for consideration during budget deliberations. The formation of a committee is consistent with the Township's Strategic Asset Management Policy.

### **C. RELATIONSHIP TO THE STRATEGIC ASSET MANAGEMENT POLICY**

The Strategic Asset Management Policy provides the Township with clear guidelines and processes to achieve asset management objectives. The Asset Management Plan (AMP) addresses the following in the Strategic Asset Management Policy:

- Alignment with Municipal Policies – The 2019 Plan is in alignment with other Township policies and strategic objectives. In particular, the 2019 Plan is expected to be used as a tool to help inform the annual budget process.
- Asset Management Responsibility – Establishment of an Asset Management Committee and update of the asset registry. The 2019 Plan includes the development of an Excel based asset management financial planning model. This model will be the primary asset registry and tool to maintain the 2019 Plan up to date. It is expected the Public Works and Infrastructure Manager will maintain this database and tool as changes occur in the Township.
- Council and Public Involvement – Key asset management updates and trends are reported to Council yearly through the annual budget process. The 2019 Plan and strategic policy is provided to the public as requested.
- Continuous Improvement – Plan monitoring, ensuring data quality and confidence, and maintaining timeframes for review and updates are Township priorities. In particular, the next iteration of this plan will need to consider proposed levels of service to meet O.Reg. 588/17 requirements to 2024.

### **D. PLAN MONITORING**

The Township will need to monitor 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. 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 and utilizing the 2019 Plan;
- b) Any factors impeding the Township's ability to implement the 2019 Plan; and
- c) A strategy to address the factors described above in b).

#### E. 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 19 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 Ministry's Guide to Municipal Asset Management Plans, Federal Gas Tax Agreement Requirements, ISO 55000, 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 3 – 4** recognizing that many of the high valued asset categories of roads, bridges, culverts and buildings are well documented, but certain gaps exist for asset categories related to stormwater where additional inventory information will be necessary.

<b>Confidence Grade</b>	<b>Description</b>
<b>5 Highly Reliable</b>	<ul style="list-style-type: none"> <li>• Data based on sound records, procedure, investigations and analysis, documented properly and recognized as the best method of assessment.</li> <li>• <i>Dataset is complete and estimated to be accurate +/- 2%.</i></li> </ul>
<b>4 Reliable Data</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• <i>Dataset is complete and estimated to be accurate +/- 10%.</i></li> </ul>
<b>3 Uncertain</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• <i>Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated +/- 25%.</i></li> </ul>

<b>Confidence Grade</b>		<b>Description</b>
<b>2</b>	<b>Very Uncertain</b>	<ul style="list-style-type: none"> <li>• Data based on unconfirmed verbal reports and/or cursory inspection and analysis.</li> <li>• <i>Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy +/- 40%.</i></li> </ul>
<b>1</b>	<b>Unknown</b>	<ul style="list-style-type: none"> <li>• None or very little data held</li> </ul>

## **F. TIMEFRAMES FOR REVIEW AND UPDATES**

This 2019 Plan should be reviewed and updated on a regular basis. Recognizing that a full Asset Management Plan and related policies should only be updated at key intervals, it is important that other asset management components such as capital budgeting exercises, risk assessments and updates to the asset register should be integrated into staff's regular routine. Table 20 below outlines the key timelines for updates and reviews.

<b>Asset Management Framework</b>	<b>Timeframe</b>
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

This asset management plan has been endorsed by the executive lead of the Township and will need to be approved, by 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*.

## **G. 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 policy on the website and provide a copy to anyone upon request.

## **VII CONCLUSIONS AND RECOMMENDATIONS**

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The objective of this 2019 Plan is to provide the Township of Limerick with the information it needs to make decisions on how best to manage capital assets in a sustainable way to 2058. In this section, a summary of the analysis and recommendations are included.

### **A. SUMMARY OF KEY FINDINGS**

- The Township’s asset base is valued at \$32.9 million, in relation to the census permanent population of about 350 persons (\$93,900 per capita).
- Overall, a high proportion (about 49% or \$11.0 million) of Township assets are considered to be in “Good” to “Very Good” condition. At the same time, approximately 32% (\$7.2 million) of infrastructure is considered to be in “Poor” to “Very Poor” condition. The remaining share of \$4.3 million (19%) is in “Fair” condition.
- The Township of Limerick 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, which is in addition to in year funding from the tax levy;
  - 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 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.
- The Township is considered to be in good fiscal standing with strong budgetary performance and low external debt - the Township currently operates well below the annual repayment limit of \$262,700 in total net debt charges. This debt capacity could allow the Township to use debt to carry out emergency asset replacements, improvements, or other strategic projects which typically provide a return on investment such as a reduction in operating costs.
- 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 research and analysis undertaken for this 2019 Plan the following conclusions can be reached:

### **1. Continue to Improve Capital Development Planning Process**

- The Township should develop a multi-year capital budget and forecasts for all services based on a 10-year forecast horizon. The capital budget can be based on the asset replacement schedule in the Township's Asset Management Model.
- 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 service level targets that incorporate the quantity and quality of capital assets should be explored and established for all services over the next few years. Targets should be measured, reported on, and adjusted annually. This requirement will need to be in place by July 1<sup>st</sup> 2024 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**

- The Township should establish an asset management internal network. The internal network can be lead by an asset management “champion.”
- Sound asset management decisions are only possible if information in the asset registry is accurate. The Township designated data champion 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 2019 Plan; and
- The Township should update this 2019 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 D.
- The Township should explore opportunities to dispose under utilized infrastructure/facilities which may not warrant repair/replacement. For example, underutilized buildings, or surplus land/parks, could be disposed and sold; 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. **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, very good).
2. **O. Reg 588/17** - Ontario's Asset Management regulation that came into force on January 1<sup>st</sup> 2018.
3. **Provision Schedule** - The required savings year-over-year needed to replace an asset based on the replacement schedule.
4. **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.
5. **Replacement Schedule** - The timing for replacement of an asset based on remaining useful life, condition or risk.
6. **Useful Life** - The expected service life of an asset expressed in years.
7. **Weighted Condition** - The average condition of an asset category weighted against the replacement costs of assets.
8. **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 THE 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. Some assets have condition assessments based on engineering inspections (roads, bridges and culverts), while the balance of assets considered are based on the useful of the asset relative to its age. Useful life assumptions for the assets considered under the 2019 Plan were acquired from the Township's tangible capital information. Three summaries are presented for each asset category: inventory summary, remaining useful life, and asset condition.

#### **Inventory Summary**

The inventory summary, provides an overview of the Township's assets including asset components, the quantity of those components, the replacement cost in 2019 dollars, method used to determine the replacement cost and the engineered useful life of the assets. The inventory summary is developed based on the Township's capital asset information. For bridges and culverts, the inventory is based on the 2014 Asset Management Plan for engineered services. For roads, the inventory is based on the 2019 Roads Asset Management Plan and the 2015 Road Needs Study.

The assets included in this 2019 Plan are consistent with the asset categories included in Schedule 51 of the Township's Financial Information Return. Inclusion of all assets of this Plan therefore meet the asset management plan requirements in the Township's Gas Tax Funding Agreement.

#### **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 2019 dollars. Assets categorized as overdue are considered to be beyond their engineered useful life; however, the asset may still be in good operating condition. Typically, assets such as buildings are used well beyond their engineered useful lives with proper maintenance and repairs. Every asset category has a remaining useful life summary with the exception of roads, as typically roads are not fully replaced, rather they are repaired or rehabilitated over time.

## Asset Condition

A summary of the condition of assets is presented in a pie graph based on the replacement cost of assets in current 2019 dollars. As discussed in Section II, conditions have been determined based on a 5-tier rating system from Very Poor to Very Good. For bridges, culverts and roads, asset conditions from the 2014 Asset Management Plan, 2015 Road Needs Study and 2019 Roads Asset Management Plan have been consolidated into the 5-tier rating system. For all other assets, the remaining useful life of the asset is used as a proxy for asset condition. Details on the methodology the Township uses to assess the condition of assets is summarized in Table 1 below.

<b>Service Category/Type</b>	<b>Methodology</b>
Equipment	<ul style="list-style-type: none"> <li>• Age based approach</li> </ul>
Vehicles	<ul style="list-style-type: none"> <li>• Age based approach</li> <li>• Some assumptions have been made by Township staff and Hemson related to fire vehicles. Fire service assets are generally in proper working condition due to more stringent regulatory and safety standards and have therefore been assessed at a better condition than their remaining useful life may suggest.</li> </ul>
Buildings	<ul style="list-style-type: none"> <li>• Condition assessments based on 2014 Asset Management Plan</li> </ul>
Bridges & Culverts	<ul style="list-style-type: none"> <li>• Engineering Assessments - 2014 Asset Management Plan (BCI)</li> </ul>
Roads	<ul style="list-style-type: none"> <li>• Paved roads - 2019 StreetScan road conditions (PCI)</li> <li>• Gravel roads - 2015 Road Needs Study (surface condition)</li> </ul>
Stormwater	<ul style="list-style-type: none"> <li>• Assumed based on staff comments. Township intends to document its stormwater infrastructure over the next few years.</li> </ul>

**EQUIPMENT**

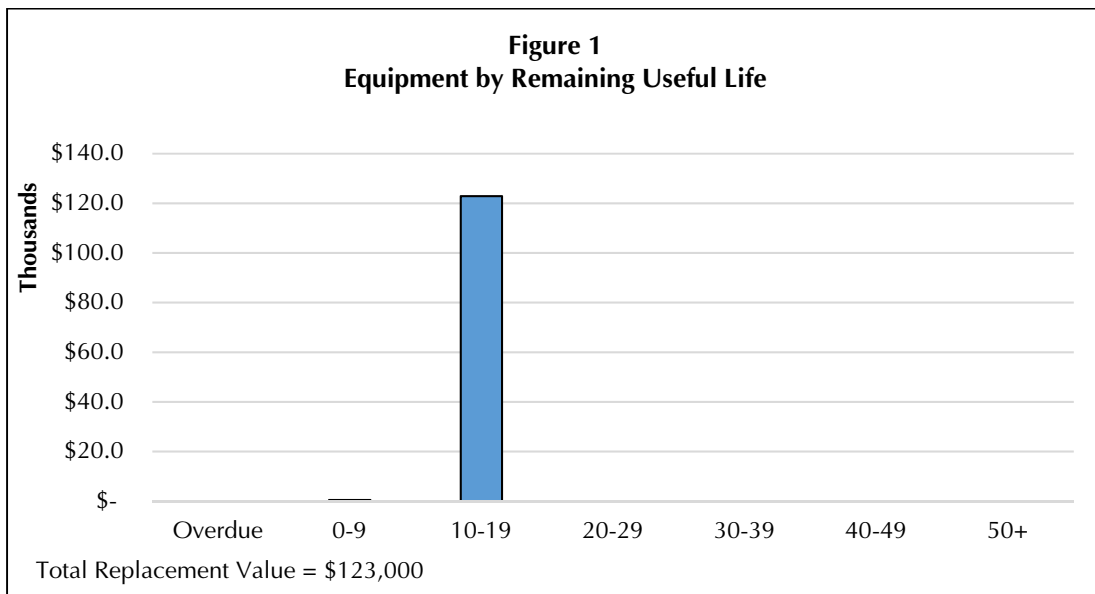
**Summary of Inventory**

The Township maintains a total of 9 pooled units of equipment with a total replacement cost of \$123,400. This category includes chainsaws, pole saw, brush/weed eater, drill/driver, grease gun, circular saw, and a 70' stacker each with an assumed engineered useful life of 10 years. The inventory replacement values have been derived based on the costs for similar equipment in other comparable municipalities. Wherever comparators were not available, values have been inflated to 2019 dollars. Table 2 summarizes the equipment inventory.

Table 2 Summary of Inventory - Equipment					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Equipment	Pooled Units	9	\$ 123,350	Recent Costing	10
<b>Total</b>		<b>9</b>	<b>\$ 123,350</b>		

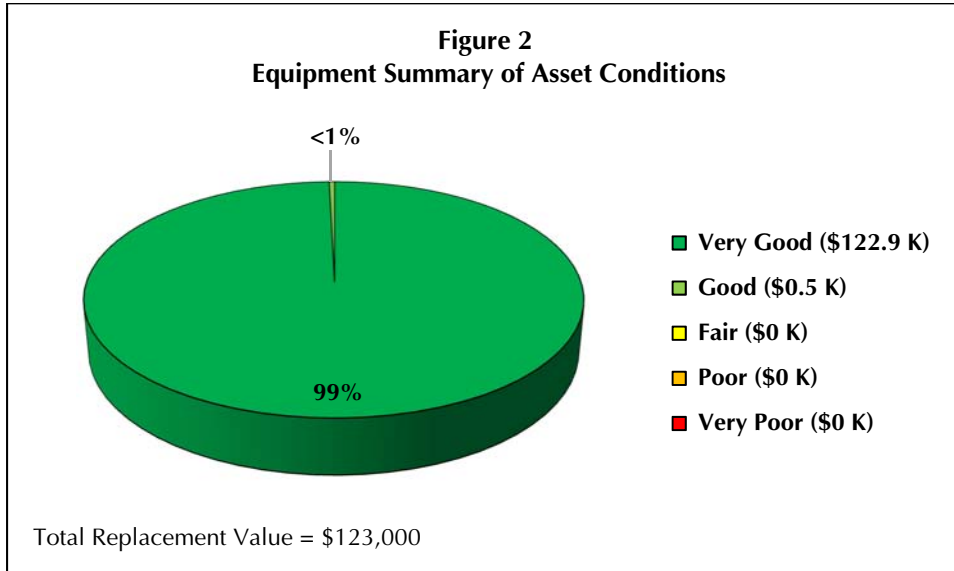
**Remaining Useful Life**

The Township’s equipment have been categorized by remaining useful life. Figure 1 shows that about \$500 (less than 1%) have 0-9 years of remaining useful life. The majority of the assets have 10-19 years of remaining useful life, which amounts to approximately \$122,900 (99%). No assets are overdue.



**Asset Condition**

The Township maintains \$123,400 (100%) of the equipment in Good to Very Good condition. Figure 2 summarizes the asset conditions.



**VEHICLES**

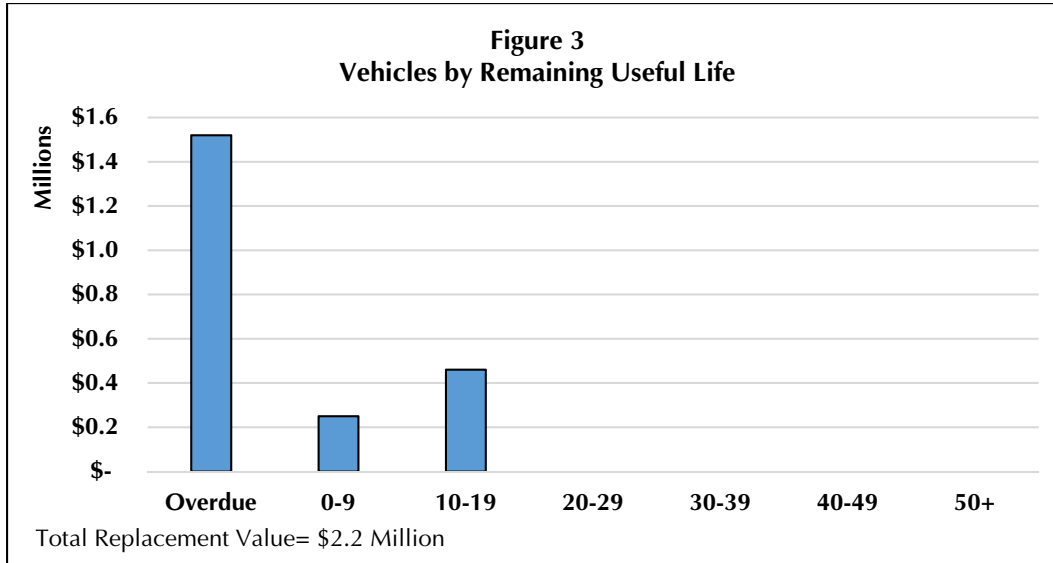
**Summary of Assets**

The Township maintains a total of 10 vehicles with a total replacement value of \$2.2 million and an assumed engineered useful life of 10-15 years. The inventory replacement costs for larger vehicles such as fire trucks and road maintenance vehicles are based on recent costing from other similar municipalities, with the remaining vehicles based on inflating historical values. Table 3 summarizes the vehicle inventory.

Table 3 Summary of Inventory - Vehicles					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Vehicles	Units	10	\$ 2,230,000	Recent Costing/Inflation	10-15
<b>Total</b>		<b>10</b>	<b>\$ 2,230,000</b>		

### Remaining Useful Life

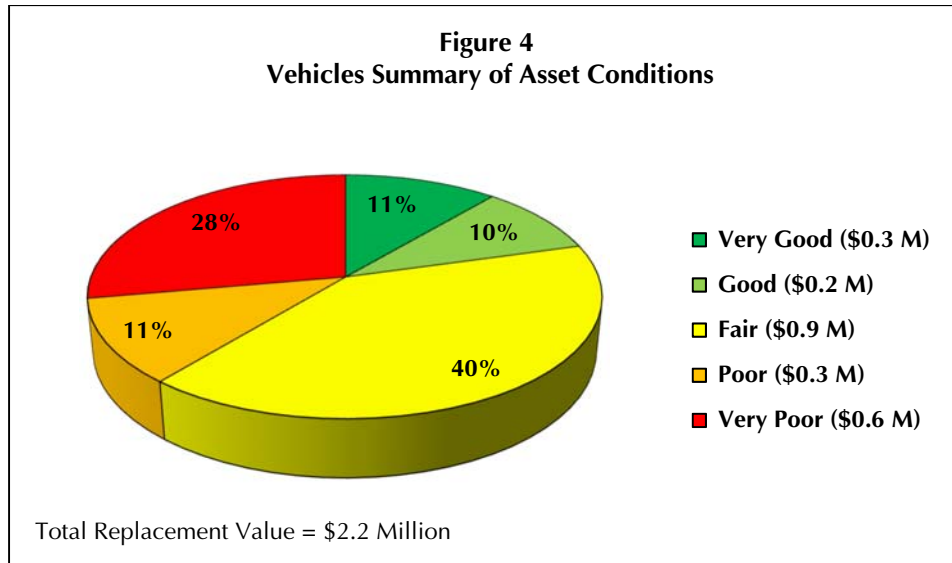
The Township's vehicles have been categorized by remaining useful life. Figure 3 shows that about \$460,000 (21%) have 10-19 years of remaining useful life. Approximately \$250,000 (11%) have a remaining useful life of 0-9 years. Finally, the majority of the assets are considered overdue, which amounts to approximately \$1.5 million (68%).



### Asset Condition

The Township maintains \$460,000 (21%) of the vehicle in Good to Very Good condition. Roughly \$250,000 (11%) are in Poor condition and \$620,000 (28%) are in Very Poor Condition. Finally, the majority of the Township's vehicles are considered to be in Fair condition, which amounts to \$900,000 (40%).

It is important to note that the conditions are largely reflective of the remaining useful life of these assets. Typically, vehicles have shorter engineered useful lives than other larger infrastructure assets; however, many vehicles are used beyond their useful lives with proper maintenance and repair. As a result, adjustments have been made for some fire vehicles. These have been assumed to be in Fair condition, as these assets are generally in proper working condition due to more stringent regulatory and safety standards. Figure 4 summarizes the conditions of motor vehicle assets by replacement cost.



**BUILDINGS**

**Summary of Inventory**

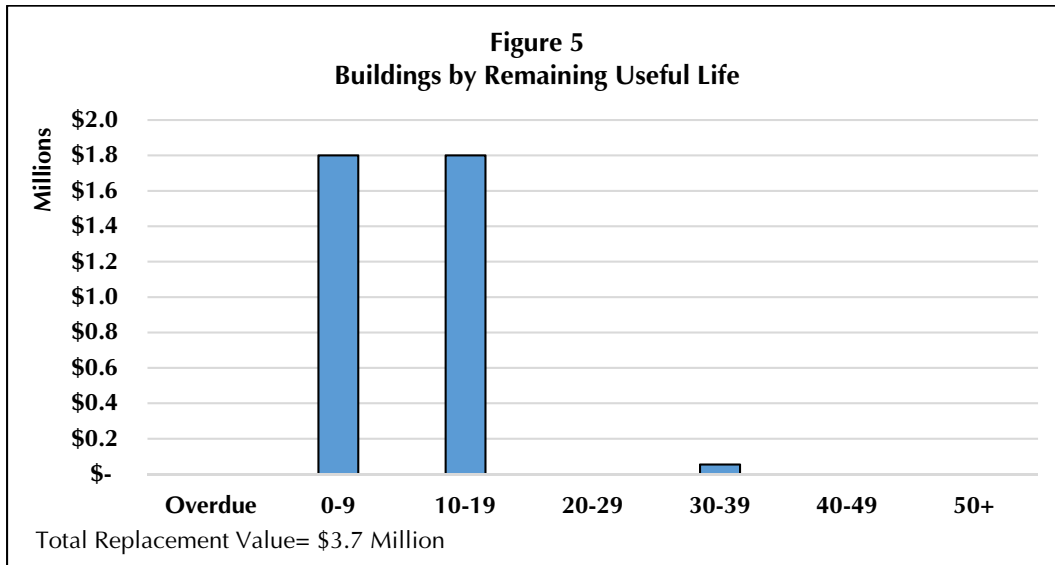
The Township maintains a total of 3 municipal buildings and structures with a total replacement cost of \$3.7 million. The replacement cost of buildings have been determined based on cost to construct similar buildings in comparable municipalities on a cost per square foot basis. The buildings in the asset inventory are maintained as pooled units and the engineered useful life of the buildings is 50 years. Table 4 summarizes the inventory.

Table 4 Summary of Inventory - Buildings					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Buildings	Pooled Components	3	\$ 3,653,760	Recent Costing	50
<b>Total</b>		<b>3</b>	<b>\$ 3,653,760</b>		

**Remaining Useful Life**

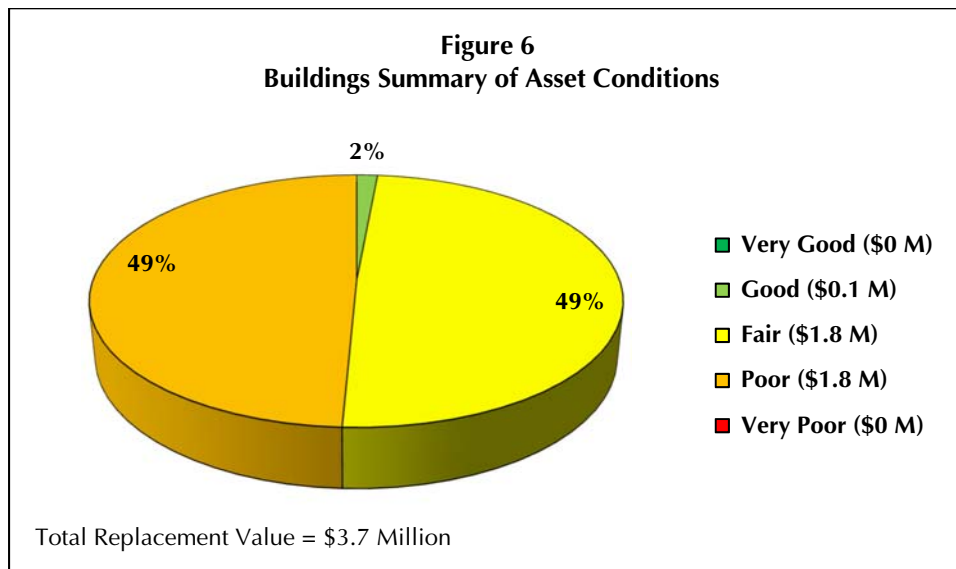
The Township’s buildings have been categorized by remaining useful life. Figure 5 shows that about \$53,800 (2%) of the Township’s buildings have a remaining useful life of 30-39 years. About \$1.8 million (49%) have 10-19 years of useful life remaining and approximately \$1.8 million (49%) have 0-9 years of remaining useful life. Special

attention should be paid to these buildings as they are expected to transition into the overdue category over the short term.



**Asset Condition**

The Township maintains \$53,800 (2%) of the buildings in Good condition and roughly \$1.8 million (49%) are in Poor condition. Finally, the majority of the Township’s buildings are considered to be in Fair condition, this amounts to \$1.8 million (49%). Figure 2 summarizes the conditions of the building assets by replacement cost.



**BRIDGES AND CULVERTS**

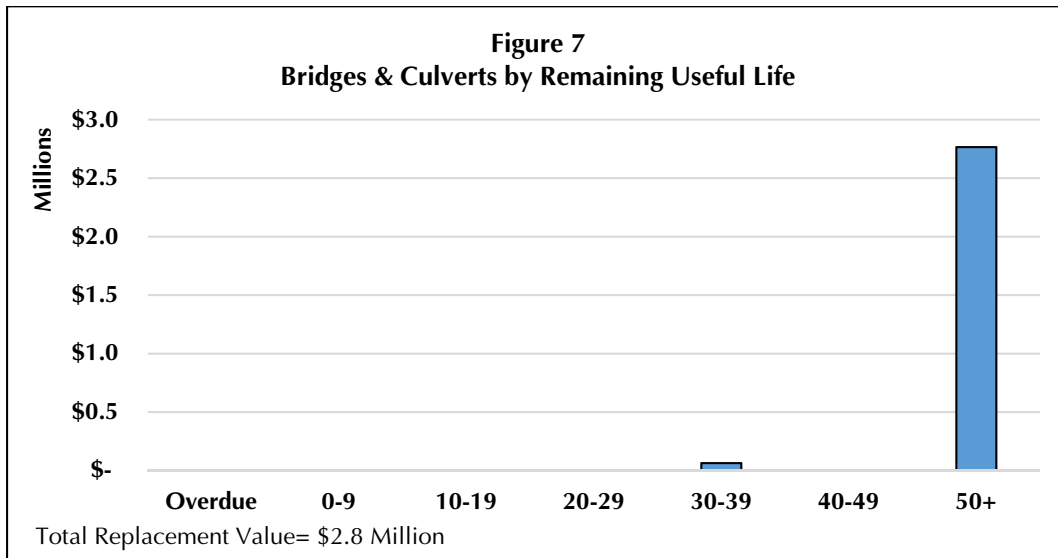
**Summary of Inventory**

There are 4 bridges and 3 culverts in the Township and the replacement cost is approximately \$2.8 million. The engineered useful life for bridges is assumed to be 50 years and culverts are assumed to be 30 years. All replacement costs are based on recent costs from the 2014 Asset Management Plan inflated to 2019 dollars. Table 5 summarizes the bridges and culverts inventory.

Table 5 Summary of Inventory - Bridges and Culverts					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Bridges and Culverts	Bridge	4	\$ 2,765,855	Inflation	50
	Culverts	3	\$ 64,867	Inflation	30
<b>Total</b>		<b>7</b>	<b>\$ 2,830,722</b>		

**Remaining Useful Life**

The Township’s culverts have been categorized by remaining useful life. Figure 7 show that the majority of culverts in the Township have a remaining useful life of 50 or more years accounting for \$2.7 million (98%) and approximately \$64,900 (2%) have a remaining useful life of 30-39 years.

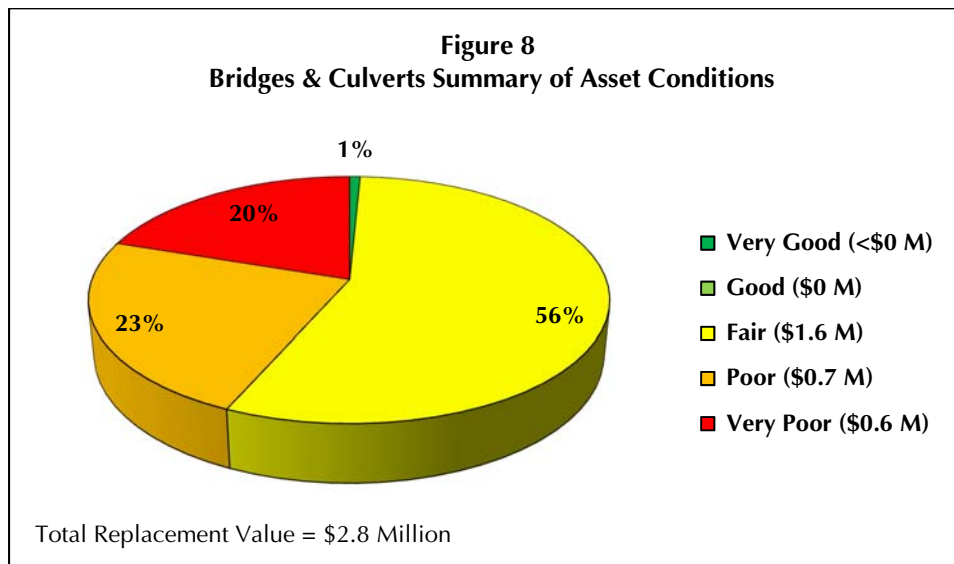




## Asset Condition

Condition assessments were incorporated for all the Township's bridges and culverts based on the 2018 OSIM Inspections Report. The condition assessments in the 2018 OSIM Inspections Report are based on a scale out of 100. This scale has been simplified into the 5-tier rating system (Very Poor to Very Good).

Approximately \$21,600 (1%) is considered to be in Good or Very Good condition. About \$1.2 million (43%) is in Poor condition or Very Poor condition and about \$1.6 million (56%) of culverts remain in Fair condition.



## ROADS

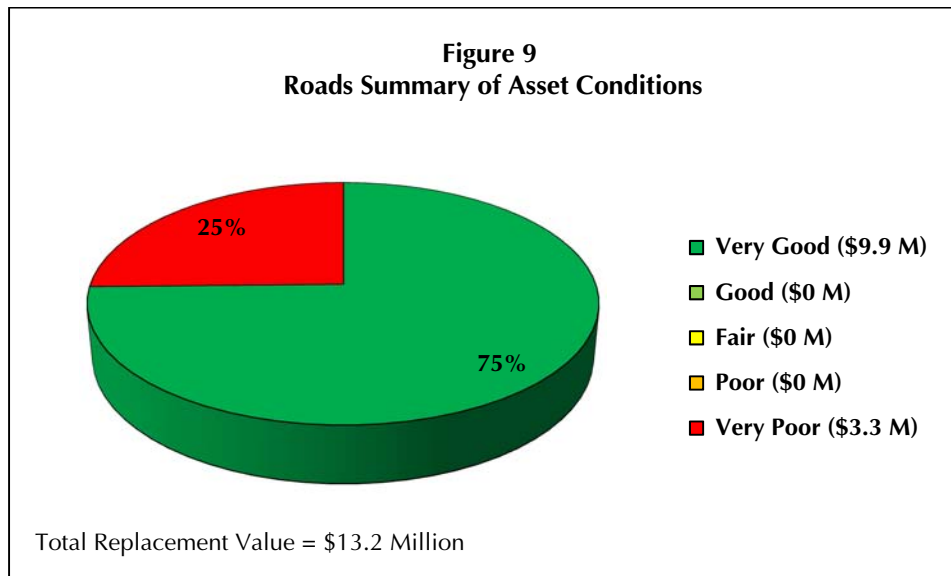
### Summary of Inventory

The roads asset inventory has been developed based on the Township's 2019 Roads Asset Management Plan and 2015 Road Needs Study. The Township owns approximately 68 km of roads with a total replacement value of approximately \$23.5 million. All the replacement costs are based on recent costs identified in the Township's 2019 Roads Asset Management Plan and 2015 Road Needs Study. Table 6 summarizes the roads inventory by road surface type.

Table 6 Summary of Inventory - Roads					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Roads	Asphalt (km)	4.1	\$ 4,329,363	Recent Costing	30
	Surface Treated (km)	12.7	\$ 8,868,661	Recent Costing	30
	Gravel (km)	51.6	\$ 10,316,000	Recent Costing	N/A
<b>Total</b>		<b>68</b>	<b>\$ 23,514,024</b>		

**Asset Condition**

Approximately \$9.9 (75%) of the Township’s roads are considered to be in Very Good condition and \$3.3 (25%) million is in Very Poor condition. The condition ratings in the 2019 Roads Asset Management Plan were summarized here, consistent with the condition rating system in that document. Gravel roads are not included in the summary, as gravel road conditions are considered to vary widely over time based on weather and traffic conditions. Figure 9 summarizes the condition of the Township’s paved roads.



**STORMWATER**

**Summary of Inventory**

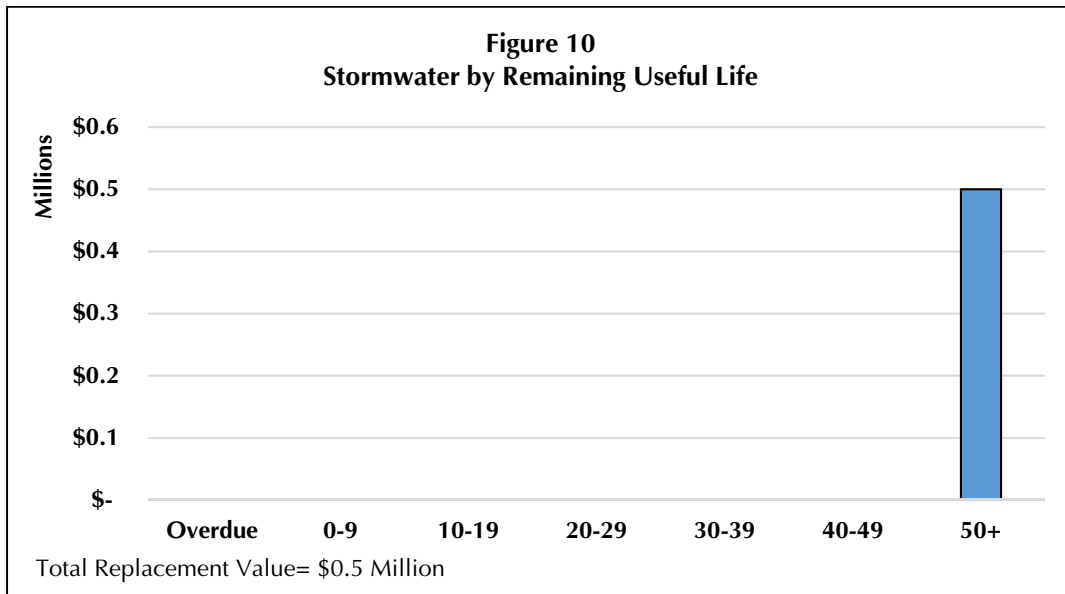
The Township owns and maintains a stormwater network valued at an estimated \$500,000. The Township has identified several pieces of stormwater infrastructure which have not been recorded as part of a detailed asset inventory. Therefore, this inventory has been included to account for potential future stormwater infrastructure

related work. The Township intends to identify and record this infrastructure in the near future. Table 4 summarizes the inventory.

Table 7 Summary of Inventory - Stormwater					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Stormwater	Pooled Units	1	\$ 500,000	Estimate	50
<b>Total</b>		<b>1</b>	<b>\$ 500,000</b>		

**Remaining Useful Life**

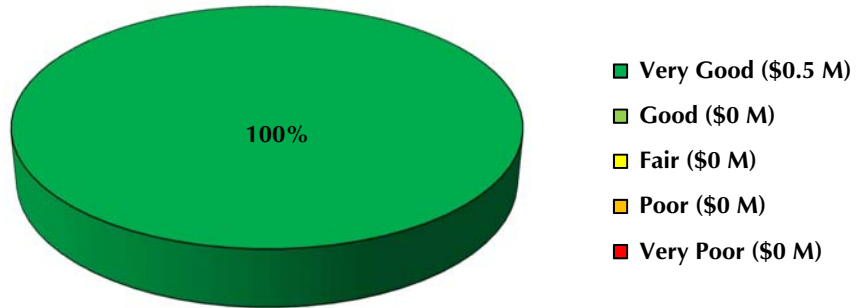
The Township’s stormwater network has not been fully documented. It has an assumed 75 year useful life based on standard engineering estimates and is likely fairly new. Figure 7 shows that the assets, approximately \$500,000 (100%), has 50 or more years of engineered useful life remaining under these assumptions.



**Asset Condition**

Much of the stormwater network has not been documented, however based on Township staff, it is likely the stormwater assets are in good to very good condition. This amounts to \$500,000 which have therefore been categorized to be in very good condition. Figure 8 summarizes the condition and value of the assets.

**Figure 11**  
**Stormwater Summary of Asset Conditions**



Total Replacement Value = \$0.5 Million

**APPENDIX C**  
***LEVEL OF SERVICE MEASURES***

## APPENDIX C

### ***LEVEL OF SERVICE MEASURES***

Moving forward it is expected that municipalities will report on various performance metrics to meet the federal gas tax funding requirements. These “project outcomes” are to be reported for projects completed between April 1<sup>st</sup>, 2014 and December 31<sup>st</sup>, 2016. Municipalities are required to report on at least one outcome per asset category to demonstrate positive benefits to communities and to show the benefits of gas tax funds as a predictable funding source. Best practice is for the Township to begin tracking these project outcomes for all assets. Table 1 shows project outcomes relevant to the assets included in the 2019 Plan.

<b>Table 1 Relevant Project Outcomes Required for Gas Tax Funding</b>	
<b>Category</b>	<b>Outcomes</b>
Local Roads and Bridges Subcategory: Roads	<ul style="list-style-type: none"> <li>• Total lane km of paved roads rated as good and above</li> <li>• Total lane km of unpaved roads rated as good and above</li> <li>• Commute time during peak hours</li> <li>• Volume of traffic/level of congestion</li> <li>• Number of residents with access to new/repaired/rehabilitated/replaced roads</li> <li>• Number of businesses with improved access to highways or neighboring municipalities</li> <li>• Number of residents with improved access to highways or neighboring municipalities</li> <li>• Storage capacity of sand/salt</li> </ul>
Local Roads and Bridges Subcategory: Bridges	<ul style="list-style-type: none"> <li>• Number of bridges where the condition of the primary component is rated as good and above</li> <li>• Number of culverts rated as good and above</li> <li>• Number of residents with access to new/repaired/improved/replaced bridges and culverts</li> <li>• Volume of traffic/level of congestion</li> </ul>
Local Roads and Bridges Subcategory: Active Transportation	<ul style="list-style-type: none"> <li>• Percentage of total streets with sidewalks</li> <li>• Number of residents with access to new/repaired/improved/replaced bike lanes, sidewalks, hiking and walking trails</li> </ul>
Sport Infrastructure	<ul style="list-style-type: none"> <li>• Number of visitors (sports tourism) to the community</li> <li>• Available ice/field time per year (hours)</li> <li>• Number of registered users per year</li> <li>• Sporting events held per year</li> </ul>
Recreational Infrastructure	<ul style="list-style-type: none"> <li>• Number of registered users per year</li> <li>• Number of residents who will benefit from the new or upgraded recreational infrastructure</li> </ul>

Table 1 Relevant Project Outcomes Required for Gas Tax Funding	
Category	Outcomes
Cultural Infrastructure	<ul style="list-style-type: none"> <li>• Number of residents benefitted from the investment</li> <li>• Number of cultural events held per year</li> <li>• Number of people participating in cultural activities in the community</li> </ul>
Tourism Infrastructure	<ul style="list-style-type: none"> <li>• Number of businesses positively affected by the investment</li> <li>• Number of visitors</li> <li>• Number of online or in-person inquiries at visitor information centre(s)</li> <li>• Number of room-nights sold in a year</li> </ul>
Disaster Mitigation Infrastructure	<ul style="list-style-type: none"> <li>• Area of properties projected to be less at-risk due to the investment</li> <li>• Emergency response costs</li> </ul>

*Source: AMO.*

For 2019, it is expected that the Township will continue to report on the assets included in this 2019 Plan to meet the asset management plan gas tax funding requirement.

**APPENDIX D**  
***ASSET MANAGEMENT STRATEGY***



## APPENDIX D

### *ASSET MANAGEMENT STRATEGY*

#### Equipment

Equipment assets are considered for all service areas. Actions related to maintaining equipment in working condition are unique to each type of equipment unit. Table 1 summarizes general actions that can be taken to ensure that Township equipment assets are maintained in a state of good repair.

<b>Table 1 Planned Actions: Equipment</b>	
<b>Areas</b>	<b>Planned Actions</b>
Non-Infrastructure Solutions	<ul style="list-style-type: none"> <li>• Regularly scheduling of repair work orders.</li> <li>• Operating budgets should be informed by regular inspections as needed.</li> <li>• Adjust service levels if necessary.</li> <li>• Annually provide the necessary departments with related information when new and additional units are acquired.</li> <li>• Provide proper training on operation and maintenance for new staff or when new equipment is acquired.</li> </ul>
Maintenance Activities	<ul style="list-style-type: none"> <li>• Preventative maintenance program for all Township equipment.</li> <li>• Regular inspection of all Township equipment. Emergency related equipment (fire) should be inspected in accordance with industry and regulatory guidelines.</li> <li>• Regular safety inspections of all equipment before and after use to ensure safety standards are maintained.</li> </ul>
Renewal/Rehabilitation	<ul style="list-style-type: none"> <li>• Regular component repairs based on inspections.</li> </ul>
Replacement	<ul style="list-style-type: none"> <li>• Equipment replacement based on inspections.</li> <li>• Equipment replacement forecast reviewed annually.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Dispose or sell assets that are no longer in use or are in poor condition.</li> </ul>
Expansion	<ul style="list-style-type: none"> <li>• Identify needs through regular capital planning.</li> <li>• Service improvements made where possible (new technologies, environmental impacts, etc.).</li> </ul>

## Vehicles

Vehicles are considered for all service areas in the Township. Actions related to maintaining vehicles are unique to each type of vehicle unit. Table 2 summarizes general actions that can be taken to ensure that Township vehicles assets are maintained in a state of good repair.

Table 2 Planned Actions: Vehicles	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> <li>• Regularly scheduling of repair work orders.</li> <li>• Operating budgets should be informed by regular inspections as needed.</li> <li>• Adjust service levels if necessary.</li> <li>• Annually provide the necessary departments with related information when new and additional units are acquired.</li> <li>• Provide proper training on operation and maintenance for new staff or when new equipment is acquired.</li> </ul>
Maintenance Activities	<ul style="list-style-type: none"> <li>• Preventative maintenance program for all Township vehicles.</li> <li>• Regular inspection of all Township vehicles. Emergency vehicles should be inspected in accordance with industry and regulatory guidelines.</li> <li>• Annual inspection, service and certification performed on all applicable vehicles in accordance with MTO requirements.</li> <li>• Regular safety inspections of all vehicles before and after use to ensure safety standards are maintained.</li> <li>• Road service vehicles require additional maintenance in particular due to winter servicing. Fire vehicles may not require major maintenance due to the lower volume of calls in any given year.</li> </ul>
Renewal/Rehabilitation	<ul style="list-style-type: none"> <li>• Regular component repairs based on inspections.</li> <li>• Mid-life component replacements are usually common for larger vehicles and can be scheduled accordingly (engine/transmission rebuilds).</li> </ul>
Replacement	<ul style="list-style-type: none"> <li>• Vehicle replacement based on inspections.</li> <li>• Vehicle replacement forecast reviewed annually.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Dispose or sell assets that are no longer in use or are in poor condition.</li> </ul>
Expansion	<ul style="list-style-type: none"> <li>• Identify needs through regular capital planning.</li> <li>• Service improvements made where possible (new technologies, environmental impacts, etc.).</li> </ul>

## Buildings

The Township owns 3 buildings that are utilized for various purposes. Usually, customized maintenance plans are required for each facility depending on their purpose. Table 3 summarizes general actions that can be employed to ensure that Township buildings are maintained in a state of good repair.

Table 3 Planned Actions: Buildings	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> <li>• Operating budgets should be informed by condition assessments and regular inspections as needed.</li> <li>• Business cases, special studies and consultation with stakeholders should be done when constructing a new facility or modifying an existing facility.</li> <li>• Review of the design and layout of buildings and properties, to minimize maintenance costs through design efficiencies over the lifecycle of buildings.</li> <li>• Adjust service levels if necessary.</li> <li>• Joint use of building facilities to provide service. The Township already has a joint Township roads, administration building and fire station. Continue this practice to achieve cost efficiencies.</li> </ul>
Maintenance Activities	<ul style="list-style-type: none"> <li>• Buildings and facilities inspected regularly in accordance with occupational health and safety regulations.</li> <li>• HVAC and heating systems inspected regularly.</li> <li>• Plumbing inspected regularly.</li> <li>• Maintain electrical systems to Electrical Safety Authority standards.</li> <li>• Fire alarms, fire extinguishers and emergency lights inspected regularly.</li> <li>• Regular maintenance outside of buildings (ie. winter cleaning, etc).</li> </ul>
Renewal/Rehabilitation	<ul style="list-style-type: none"> <li>• Regular component repairs based on inspections.</li> </ul>
Replacement	<ul style="list-style-type: none"> <li>• Component replacement based on inspections.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Selling or demolishing buildings that are no longer in use.</li> <li>• Re-use or sell land not in use.</li> </ul>
Expansion	<ul style="list-style-type: none"> <li>• Identify needs through regular capital planning.</li> <li>• Assumptions on required facility space through development agreements if necessary.</li> <li>• Service improvements made where possible (accessibility, etc.).</li> </ul>

## Bridges and Culverts

This asset category includes the Township’s bridges and culverts. Regular maintenance and inspections are required to maintain these assets in a state of good repair. Table 4 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 4 Planned Actions: Bridges and Culverts	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> <li>• Operating budgets should be informed by regular inspections as needed.</li> <li>• Adjust service levels if necessary.</li> <li>• Regularly scheduling of repair work orders.</li> <li>• Annually provide the necessary departments with related information when works are completed.</li> <li>• Update OSIM Inspections Report on a regular basis and input OSIM data into AMP model as needed.</li> </ul>
Maintenance Activities	<ul style="list-style-type: none"> <li>• Regular inspections and repairs of all bridges and culverts</li> <li>• Continue required OSIM inspections (every 2 years)</li> <li>• Continue to monitor loads and information on load limits where necessary</li> </ul>
Renewal/Rehabilitation	<ul style="list-style-type: none"> <li>• Regular component repairs based on inspections.</li> <li>• Continue to implement recommendations of OSIM Inspections Report.</li> </ul>
Replacement	<ul style="list-style-type: none"> <li>• Component replacement based on needs.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Dispose or sell assets that are no longer in use or are in poor condition.</li> </ul>
Expansion	<ul style="list-style-type: none"> <li>• Identify needs through regular capital planning.</li> <li>• Service improvements made where possible (new technologies, environmental impacts, etc.).</li> </ul>

## Roads

The roads category, includes all Township roads identified through the 2019 Roads Asset Management Plan and 2015 Road Needs Study. Regular maintenance and inspections are required to maintain safety and operational standards for roads. Table 5 summarizes general actions that can be taken to ensure that roads are maintained in a state of good repair.

Table 5 Planned Actions: Roads	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> <li>• Operating budgets should be informed by regular inspections as needed.</li> <li>• Adjust service levels if necessary.</li> <li>• Regularly scheduling of repair work orders.</li> <li>• Annually provide the necessary departments with related information when new and additional equipment is acquired.</li> <li>• StreetScan Roads Asset Management Plan – Use of ScanVan vehicles to assess the condition of roadways. Maintain database up to date.</li> <li>• Develop short and long term maintenance programs for roads.</li> <li>• Maintain accurate records of improvements made to roads in the Township.</li> </ul>
Maintenance Activities	<ul style="list-style-type: none"> <li>• Regular maintenance including, shoulder grading, roadside mowing, erosion control, roadside ditch cleanout and clearing.</li> <li>• Regular clearing of vegetation.</li> <li>• Continued maintenance of roads in line with <i>O. Reg. 239/02 Minimum Maintenance Standards for Municipal Highways</i>.</li> <li>• Maintain a level of service of 75% or more for winter road maintenance set out in the <i>Level of Service Policy</i>.</li> <li>• Regular maintenance of roads during the winter (snow clearing, sanding, winging back of snow banks, winter patrolling).</li> </ul>
Renewal/Rehabilitation	<ul style="list-style-type: none"> <li>• Resurfacing of poor conditioned paved roads.</li> <li>• Regular grading and application of gravel for gravel roads.</li> <li>• Regular component repairs based on inspections.</li> <li>• Repair methods and recommended works as outlined in the 2019 Roads Asset Management Plan (preventative maintenance, preservation, rehabilitation)</li> </ul>
Replacement	<ul style="list-style-type: none"> <li>• Road reconstruction if identified in 2019 Roads Asset Management Plan.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Dispose or sell assets that are no longer in use or are in poor condition.</li> </ul>
Expansion	<ul style="list-style-type: none"> <li>• Identify needs through regular capital planning.</li> <li>• Service improvements made where possible (new technologies, environmental impacts, etc.).</li> </ul>

Source: Township of Limerick 2019 Roads Asset Management Plan, 2015 Road Needs Study and Level of Service Policy: Winter Road Maintenance.

## Stormwater

Table 6 summarizes general actions that can be taken to ensure that stormwater assets are maintained in a state of good repair. Note that stormwater infrastructure has not been fully documented in the Township, however the Township will be developing this inventory in the future.

Table 6 Planned Actions: Stormwater	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> <li>• Regularly scheduling of repair work orders.</li> <li>• Operating budgets should be informed by regular inspections as needed.</li> <li>• Adjust service levels if necessary.</li> <li>• Map and identify stormwater infrastructure owned by the Township.</li> </ul>
Maintenance Activities	<ul style="list-style-type: none"> <li>• Preventative maintenance program for components of the stormwater system.</li> <li>• Regular safety inspections.</li> </ul>
Renewal/Rehabilitation	<ul style="list-style-type: none"> <li>• Regular component repairs based on inspections.</li> </ul>
Replacement	<ul style="list-style-type: none"> <li>• Component replacement based on inspections.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Dispose or sell assets that are no longer in use or are in poor condition.</li> </ul>
Expansion	<ul style="list-style-type: none"> <li>• Identify needs through regular capital planning.</li> <li>• Service improvements made where possible (new technologies, environmental impacts, etc.).</li> </ul>

**APPENDIX E**  
***DETAILED FINANCING STRATEGY TABLES***

**Table 1**  
**Township of Limerick**  
**2019 Asset Management Plan**  
**Close Cumulative Infrastructure Deficit by 2058 (Tax Funded Services)**

Legend			1	2	3	4		5	6	7	8
Year	Projected Annual Capital Provision	Gravel Road Maintenance Provision	Total Projected Annual Capital Provision	Capital from Taxation (Incl. Gravel Maintenance)	Yearly Increase in Tax Funding (\$)	Yearly Increase in Tax Funding (%)	OMPF	Gas Tax	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2016											
2017											
2018											
2019	\$ 1,494,106	\$ 177,002	\$ 1,671,108	\$ 213,615			\$ 366,800	\$ 10,496	\$ 590,911	\$ 1,080,196	\$ 1,080,196
2020	\$ 2,675,030	\$ 177,002	\$ 2,852,032	\$ 262,808	\$ 49,192	23.0%		\$ 10,496	\$ 273,304	\$ 2,578,728	\$ 3,658,924
2021	\$ 2,315,030	\$ 177,002	\$ 2,492,032	\$ 312,000	\$ 49,192	18.7%		\$ 10,973	\$ 322,973	\$ 2,169,059	\$ 5,827,983
2022	\$ 1,651,272	\$ 177,002	\$ 1,828,274	\$ 361,193	\$ 49,192	15.8%		\$ 10,973	\$ 372,166	\$ 1,456,109	\$ 7,284,092
2023	\$ 1,521,888	\$ 177,002	\$ 1,698,890	\$ 410,385	\$ 49,192	13.6%		\$ 11,450	\$ 421,835	\$ 1,277,056	\$ 8,561,147
2024	\$ 1,341,204	\$ 177,002	\$ 1,518,207	\$ 459,577	\$ 49,192	12.0%		\$ 11,450	\$ 471,027	\$ 1,047,179	\$ 9,608,327
2025	\$ 1,109,411	\$ 177,002	\$ 1,286,413	\$ 508,770	\$ 49,192	10.7%		\$ 11,450	\$ 520,220	\$ 766,194	\$ 10,374,520
2026	\$ 1,104,251	\$ 177,002	\$ 1,281,253	\$ 557,962	\$ 49,192	9.7%		\$ 11,450	\$ 569,412	\$ 711,841	\$ 11,086,362
2027	\$ 1,104,251	\$ 177,002	\$ 1,281,253	\$ 607,154	\$ 49,192	8.8%		\$ 11,450	\$ 618,604	\$ 662,649	\$ 11,749,011
2028	\$ 1,043,686	\$ 177,002	\$ 1,220,688	\$ 656,347	\$ 49,192	8.1%		\$ 11,450	\$ 667,797	\$ 552,891	\$ 12,301,902
2029	\$ 1,043,686	\$ 177,002	\$ 1,220,688	\$ 705,539	\$ 49,192	7.5%		\$ 11,450	\$ 716,989	\$ 503,699	\$ 12,805,601
2030	\$ 1,040,049	\$ 177,002	\$ 1,217,052	\$ 754,732	\$ 49,192	7.0%		\$ 11,450	\$ 766,182	\$ 450,870	\$ 13,256,471
2031	\$ 1,040,049	\$ 177,002	\$ 1,217,052	\$ 803,924	\$ 49,192	6.5%		\$ 11,450	\$ 815,374	\$ 401,678	\$ 13,658,149
2032	\$ 1,036,870	\$ 177,002	\$ 1,213,872	\$ 853,116	\$ 49,192	6.1%		\$ 11,450	\$ 864,566	\$ 349,306	\$ 14,007,455
2033	\$ 944,299	\$ 177,002	\$ 1,121,301	\$ 902,309	\$ 49,192	5.8%		\$ 11,450	\$ 913,759	\$ 207,542	\$ 14,214,997
2034	\$ 944,299	\$ 177,002	\$ 1,121,301	\$ 951,501	\$ 49,192	5.5%		\$ 11,450	\$ 962,951	\$ 158,350	\$ 14,373,347
2035	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 1,000,693	\$ 49,192	5.2%		\$ 11,450	\$ 1,012,143	\$ 31,396	\$ 14,404,743
2036	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 1,049,886	\$ 49,192	4.9%		\$ 11,450	\$ 1,061,336	\$ (17,796)	\$ 14,386,946
2037	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 1,099,078	\$ 49,192	4.7%		\$ 11,450	\$ 1,110,528	\$ (66,989)	\$ 14,319,958
2038	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,148,271	\$ 49,192	4.5%		\$ 11,450	\$ 1,159,721	\$ (138,745)	\$ 14,181,213
2039	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,197,463	\$ 49,192	4.3%		\$ 11,450	\$ 1,208,913	\$ (187,937)	\$ 13,993,276
2040	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,246,655	\$ 49,192	4.1%		\$ 11,450	\$ 1,258,105	\$ (237,129)	\$ 13,756,147
2041	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,295,848	\$ 49,192	3.9%		\$ 11,450	\$ 1,307,298	\$ (286,322)	\$ 13,469,825
2042	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,345,040	\$ 49,192	3.8%		\$ 11,450	\$ 1,356,490	\$ (335,514)	\$ 13,134,311
2043	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,394,232	\$ 49,192	3.7%		\$ 11,450	\$ 1,405,682	\$ (384,707)	\$ 12,749,604
2044	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,443,425	\$ 49,192	3.5%		\$ 11,450	\$ 1,454,875	\$ (499,747)	\$ 12,249,857
2045	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,492,617	\$ 49,192	3.4%		\$ 11,450	\$ 1,504,067	\$ (548,940)	\$ 11,700,918
2046	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,541,810	\$ 49,192	3.3%		\$ 11,450	\$ 1,553,260	\$ (598,132)	\$ 11,102,786
2047	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,591,002	\$ 49,192	3.2%		\$ 11,450	\$ 1,602,452	\$ (647,324)	\$ 10,455,461
2048	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,640,194	\$ 49,192	3.1%		\$ 11,450	\$ 1,651,644	\$ (696,517)	\$ 9,758,945
2049	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,689,387	\$ 49,192	3.0%		\$ 11,450	\$ 1,700,837	\$ (745,709)	\$ 9,013,236
2050	\$ 768,663	\$ 177,002	\$ 945,665	\$ 1,738,579	\$ 49,192	2.9%		\$ 11,450	\$ 1,750,029	\$ (804,364)	\$ 8,208,872
2051	\$ 768,663	\$ 177,002	\$ 945,665	\$ 1,787,771	\$ 49,192	2.8%		\$ 11,450	\$ 1,799,221	\$ (853,556)	\$ 7,355,316
2052	\$ 768,663	\$ 177,002	\$ 945,665	\$ 1,836,964	\$ 49,192	2.8%		\$ 11,450	\$ 1,848,414	\$ (902,749)	\$ 6,452,567
2053	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,886,156	\$ 49,192	2.7%		\$ 11,450	\$ 1,897,606	\$ (952,447)	\$ 5,500,120
2054	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,935,349	\$ 49,192	2.6%		\$ 11,450	\$ 1,946,799	\$ (1,001,639)	\$ 4,498,481
2055	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,984,541	\$ 49,192	2.5%		\$ 11,450	\$ 1,995,991	\$ (1,050,832)	\$ 3,447,649
2056	\$ 768,157	\$ 177,002	\$ 945,159	\$ 2,033,733	\$ 49,192	2.5%		\$ 11,450	\$ 2,045,183	\$ (1,100,024)	\$ 2,347,625
2057	\$ 768,157	\$ 177,002	\$ 945,159	\$ 2,082,926	\$ 49,192	2.4%		\$ 11,450	\$ 2,094,376	\$ (1,149,216)	\$ 1,198,409
2058	\$ 768,157	\$ 177,002	\$ 945,159	\$ 2,132,118	\$ 49,192	2.4%		\$ 11,450	\$ 2,143,568	\$ (1,198,409)	\$ 0

**40-Year Infrastructure Deficit**

Total Tax Funding	\$ 46,914,668
2019 Total Tax Levy	\$ 1,071,852
Inc. as % of Tax Levy	4.59%



**Table 2**  
**Township of Limerick**  
**2019 Asset Management Plan**  
**Financing Strategy 1: Close In-Year Funding Gap by 2038 (Tax Funded Services)**

Legend			1	2	3	4		5	6	7	8
Year	Projected Annual Capital Provision	Gravel Road Maintenance Provision	Total Projected Annual Capital Provision	Capital from Taxation (Incl. Gravel Maintenance)	Yearly Increase in Tax Funding (\$)	Yearly Increase in Tax Funding (%)	OMPF	Gas Tax	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2016											
2017											
2018											
2019	\$ 1,494,106	\$ 177,002	\$ 1,671,108	\$ 213,615			\$ 366,800	\$ 10,496	\$ 590,911	\$ 1,080,196	\$ 1,080,196
2020	\$ 2,675,030	\$ 177,002	\$ 2,852,032	\$ 255,505	\$ 41,890	19.6%	\$ -	\$ 10,496	\$ 266,001	\$ 2,586,030	\$ 3,666,227
2021	\$ 2,315,030	\$ 177,002	\$ 2,492,032	\$ 297,395	\$ 41,890	16.4%	\$ -	\$ 10,973	\$ 308,368	\$ 2,183,663	\$ 5,849,890
2022	\$ 1,651,272	\$ 177,002	\$ 1,828,274	\$ 339,285	\$ 41,890	14.1%	\$ -	\$ 10,973	\$ 350,258	\$ 1,478,016	\$ 7,327,906
2023	\$ 1,521,888	\$ 177,002	\$ 1,698,890	\$ 381,175	\$ 41,890	12.3%	\$ -	\$ 11,450	\$ 392,625	\$ 1,306,265	\$ 8,634,171
2024	\$ 1,341,204	\$ 177,002	\$ 1,518,207	\$ 423,066	\$ 41,890	11.0%	\$ -	\$ 11,450	\$ 434,516	\$ 1,083,691	\$ 9,717,862
2025	\$ 1,109,411	\$ 177,002	\$ 1,286,413	\$ 464,956	\$ 41,890	9.9%	\$ -	\$ 11,450	\$ 476,406	\$ 810,008	\$ 10,527,870
2026	\$ 1,104,251	\$ 177,002	\$ 1,281,253	\$ 506,846	\$ 41,890	9.0%	\$ -	\$ 11,450	\$ 518,296	\$ 762,958	\$ 11,290,828
2027	\$ 1,104,251	\$ 177,002	\$ 1,281,253	\$ 548,736	\$ 41,890	8.3%	\$ -	\$ 11,450	\$ 560,186	\$ 721,068	\$ 12,011,895
2028	\$ 1,043,686	\$ 177,002	\$ 1,220,688	\$ 590,626	\$ 41,890	7.6%	\$ -	\$ 11,450	\$ 602,076	\$ 618,612	\$ 12,630,508
2029	\$ 1,043,686	\$ 177,002	\$ 1,220,688	\$ 632,516	\$ 41,890	7.1%	\$ -	\$ 11,450	\$ 643,966	\$ 576,722	\$ 13,207,230
2030	\$ 1,040,049	\$ 177,002	\$ 1,217,052	\$ 674,406	\$ 41,890	6.6%	\$ -	\$ 11,450	\$ 685,856	\$ 531,196	\$ 13,738,426
2031	\$ 1,040,049	\$ 177,002	\$ 1,217,052	\$ 716,296	\$ 41,890	6.2%	\$ -	\$ 11,450	\$ 727,746	\$ 489,306	\$ 14,227,732
2032	\$ 1,036,870	\$ 177,002	\$ 1,213,872	\$ 758,186	\$ 41,890	5.8%	\$ -	\$ 11,450	\$ 769,636	\$ 444,236	\$ 14,671,969
2033	\$ 944,299	\$ 177,002	\$ 1,121,301	\$ 800,076	\$ 41,890	5.5%	\$ -	\$ 11,450	\$ 811,526	\$ 309,775	\$ 14,981,744
2034	\$ 944,299	\$ 177,002	\$ 1,121,301	\$ 841,966	\$ 41,890	5.2%	\$ -	\$ 11,450	\$ 853,416	\$ 267,885	\$ 15,249,629
2035	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 883,856	\$ 41,890	5.0%	\$ -	\$ 11,450	\$ 895,306	\$ 148,234	\$ 15,397,862
2036	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 925,746	\$ 41,890	4.7%	\$ -	\$ 11,450	\$ 937,196	\$ 106,344	\$ 15,504,206
2037	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 967,636	\$ 41,890	4.5%	\$ -	\$ 11,450	\$ 979,086	\$ 64,454	\$ 15,568,659
2038	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,009,526	\$ 41,890	4.3%	\$ -	\$ 11,450	\$ 1,020,976	\$ -	\$ 15,568,659
2039	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,051,416	\$ 41,890	4.1%	\$ -	\$ 11,450	\$ 1,062,866	\$ (41,890)	\$ 15,526,769
2040	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,093,306	\$ 41,890	4.0%	\$ -	\$ 11,450	\$ 1,104,756	\$ (83,780)	\$ 15,442,989
2041	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,135,196	\$ 41,890	3.8%	\$ -	\$ 11,450	\$ 1,146,646	\$ (125,670)	\$ 15,317,319
2042	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,177,086	\$ 41,890	3.7%	\$ -	\$ 11,450	\$ 1,188,536	\$ (167,560)	\$ 15,149,759
2043	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 1,218,976	\$ 41,890	3.6%	\$ -	\$ 11,450	\$ 1,230,426	\$ (209,450)	\$ 14,940,309
2044	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,260,866	\$ 41,890	3.4%	\$ -	\$ 11,450	\$ 1,272,316	\$ (317,188)	\$ 14,623,121
2045	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,302,756	\$ 41,890	3.3%	\$ -	\$ 11,450	\$ 1,314,206	\$ (359,078)	\$ 14,264,042
2046	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,344,646	\$ 41,890	3.2%	\$ -	\$ 11,450	\$ 1,356,096	\$ (400,969)	\$ 13,863,074
2047	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,386,536	\$ 41,890	3.1%	\$ -	\$ 11,450	\$ 1,397,986	\$ (442,859)	\$ 13,420,215
2048	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,428,426	\$ 41,890	3.0%	\$ -	\$ 11,450	\$ 1,439,876	\$ (484,749)	\$ 12,935,466
2049	\$ 778,125	\$ 177,002	\$ 955,128	\$ 1,470,316	\$ 41,890	2.9%	\$ -	\$ 11,450	\$ 1,481,766	\$ (526,639)	\$ 12,408,828
2050	\$ 768,663	\$ 177,002	\$ 945,665	\$ 1,512,206	\$ 41,890	2.8%	\$ -	\$ 11,450	\$ 1,523,656	\$ (577,991)	\$ 11,830,837
2051	\$ 768,663	\$ 177,002	\$ 945,665	\$ 1,554,096	\$ 41,890	2.8%	\$ -	\$ 11,450	\$ 1,565,546	\$ (619,881)	\$ 11,210,956
2052	\$ 768,663	\$ 177,002	\$ 945,665	\$ 1,595,986	\$ 41,890	2.7%	\$ -	\$ 11,450	\$ 1,607,436	\$ (661,771)	\$ 10,549,185
2053	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,637,876	\$ 41,890	2.6%	\$ -	\$ 11,450	\$ 1,649,326	\$ (704,167)	\$ 9,845,018
2054	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,679,766	\$ 41,890	2.6%	\$ -	\$ 11,450	\$ 1,691,216	\$ (746,057)	\$ 9,098,961
2055	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,721,656	\$ 41,890	2.5%	\$ -	\$ 11,450	\$ 1,733,106	\$ (787,947)	\$ 8,311,014
2056	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,763,546	\$ 41,890	2.4%	\$ -	\$ 11,450	\$ 1,774,996	\$ (829,837)	\$ 7,481,177
2057	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,805,436	\$ 41,890	2.4%	\$ -	\$ 11,450	\$ 1,816,886	\$ (871,727)	\$ 6,609,449
2058	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,847,326	\$ 41,890	2.3%	\$ -	\$ 11,450	\$ 1,858,776	\$ (913,617)	\$ 5,695,832

**40-Year Infrastructure Deficit**

Total Tax Funding	\$	41,218,836
2019 Total Tax Levy	\$	1,071,852
Inc. as % of Tax Levy		3.91%

**Table 3**  
**Township of Limerick**  
**2019 Asset Management Plan**  
**Financing Strategy 2: Close In-Year Funding Gap by 2048 (Tax Funded Services)**

Legend			1	2	3	4		5	6	7	8
Year	Projected Annual Capital Provision	Gravel Road Maintenance Provision	Total Projected Annual Capital Provision	Capital from Taxation (Incl. Gravel Maintenance)	Yearly Increase in Tax Funding (\$)	Yearly Increase in Tax Funding (%)	OMPF	Gas Tax	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2016											
2017											
2018											
2019	\$ 1,494,106	\$ 177,002	\$ 1,671,108	\$ 213,615			\$ 366,800	\$ 10,496	\$ 590,911	\$ 1,080,196	\$ 1,080,196
2020	\$ 2,675,030	\$ 177,002	\$ 2,852,032	\$ 238,790	\$ 25,175	11.8%	\$ -	\$ 10,496	\$ 249,286	\$ 2,602,746	\$ 3,682,942
2021	\$ 2,315,030	\$ 177,002	\$ 2,492,032	\$ 263,964	\$ 25,175	10.5%	\$ -	\$ 10,973	\$ 274,937	\$ 2,217,094	\$ 5,900,037
2022	\$ 1,651,272	\$ 177,002	\$ 1,828,274	\$ 289,139	\$ 25,175	9.5%	\$ -	\$ 10,973	\$ 300,112	\$ 1,528,162	\$ 7,428,199
2023	\$ 1,521,888	\$ 177,002	\$ 1,698,890	\$ 314,314	\$ 25,175	8.7%	\$ -	\$ 11,450	\$ 325,764	\$ 1,373,127	\$ 8,801,325
2024	\$ 1,341,204	\$ 177,002	\$ 1,518,207	\$ 339,488	\$ 25,175	8.0%	\$ -	\$ 11,450	\$ 350,938	\$ 1,167,269	\$ 9,968,594
2025	\$ 1,109,411	\$ 177,002	\$ 1,286,413	\$ 364,663	\$ 25,175	7.4%	\$ -	\$ 11,450	\$ 376,113	\$ 910,301	\$ 10,878,895
2026	\$ 1,104,251	\$ 177,002	\$ 1,281,253	\$ 389,837	\$ 25,175	6.9%	\$ -	\$ 11,450	\$ 401,287	\$ 879,966	\$ 11,758,861
2027	\$ 1,104,251	\$ 177,002	\$ 1,281,253	\$ 415,012	\$ 25,175	6.5%	\$ -	\$ 11,450	\$ 426,462	\$ 854,791	\$ 12,613,652
2028	\$ 1,043,686	\$ 177,002	\$ 1,220,688	\$ 440,186	\$ 25,175	6.1%	\$ -	\$ 11,450	\$ 451,636	\$ 769,052	\$ 13,382,704
2029	\$ 1,043,686	\$ 177,002	\$ 1,220,688	\$ 465,361	\$ 25,175	5.7%	\$ -	\$ 11,450	\$ 476,811	\$ 743,877	\$ 14,126,581
2030	\$ 1,040,049	\$ 177,002	\$ 1,217,052	\$ 490,536	\$ 25,175	5.4%	\$ -	\$ 11,450	\$ 501,986	\$ 715,066	\$ 14,841,647
2031	\$ 1,040,049	\$ 177,002	\$ 1,217,052	\$ 515,710	\$ 25,175	5.1%	\$ -	\$ 11,450	\$ 527,160	\$ 689,892	\$ 15,531,539
2032	\$ 1,036,870	\$ 177,002	\$ 1,213,872	\$ 540,885	\$ 25,175	4.9%	\$ -	\$ 11,450	\$ 552,335	\$ 661,538	\$ 16,193,076
2033	\$ 944,299	\$ 177,002	\$ 1,121,301	\$ 566,059	\$ 25,175	4.7%	\$ -	\$ 11,450	\$ 577,509	\$ 543,792	\$ 16,736,868
2034	\$ 944,299	\$ 177,002	\$ 1,121,301	\$ 591,234	\$ 25,175	4.4%	\$ -	\$ 11,450	\$ 602,684	\$ 518,617	\$ 17,255,485
2035	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 616,408	\$ 25,175	4.3%	\$ -	\$ 11,450	\$ 627,858	\$ 415,681	\$ 17,671,166
2036	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 641,583	\$ 25,175	4.1%	\$ -	\$ 11,450	\$ 653,033	\$ 390,507	\$ 18,061,672
2037	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 666,757	\$ 25,175	3.9%	\$ -	\$ 11,450	\$ 678,207	\$ 365,332	\$ 18,427,004
2038	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 691,932	\$ 25,175	3.8%	\$ -	\$ 11,450	\$ 703,382	\$ 317,594	\$ 18,744,598
2039	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 717,107	\$ 25,175	3.6%	\$ -	\$ 11,450	\$ 728,557	\$ 292,419	\$ 19,037,018
2040	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 742,281	\$ 25,175	3.5%	\$ -	\$ 11,450	\$ 753,731	\$ 267,245	\$ 19,304,262
2041	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 767,456	\$ 25,175	3.4%	\$ -	\$ 11,450	\$ 778,906	\$ 242,070	\$ 19,546,333
2042	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 792,630	\$ 25,175	3.3%	\$ -	\$ 11,450	\$ 804,080	\$ 216,896	\$ 19,763,228
2043	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 817,805	\$ 25,175	3.2%	\$ -	\$ 11,450	\$ 829,255	\$ 191,721	\$ 19,954,949
2044	\$ 778,125	\$ 177,002	\$ 955,128	\$ 842,979	\$ 25,175	3.1%	\$ -	\$ 11,450	\$ 854,429	\$ 100,698	\$ 20,055,647
2045	\$ 778,125	\$ 177,002	\$ 955,128	\$ 868,154	\$ 25,175	3.0%	\$ -	\$ 11,450	\$ 879,604	\$ 75,524	\$ 20,131,171
2046	\$ 778,125	\$ 177,002	\$ 955,128	\$ 893,328	\$ 25,175	2.9%	\$ -	\$ 11,450	\$ 904,778	\$ 50,349	\$ 20,181,520
2047	\$ 778,125	\$ 177,002	\$ 955,128	\$ 918,503	\$ 25,175	2.8%	\$ -	\$ 11,450	\$ 929,953	\$ 25,175	\$ 20,206,695
2048	\$ 778,125	\$ 177,002	\$ 955,128	\$ 943,678	\$ 25,175	2.7%	\$ -	\$ 11,450	\$ 955,128	\$ -	\$ 20,206,695
2049	\$ 778,125	\$ 177,002	\$ 955,128	\$ 968,852	\$ 25,175	2.7%	\$ -	\$ 11,450	\$ 980,302	\$ (25,175)	\$ 20,181,520
2050	\$ 768,663	\$ 177,002	\$ 945,665	\$ 994,027	\$ 25,175	2.6%	\$ -	\$ 11,450	\$ 1,005,477	\$ (59,811)	\$ 20,121,709
2051	\$ 768,663	\$ 177,002	\$ 945,665	\$ 1,019,201	\$ 25,175	2.5%	\$ -	\$ 11,450	\$ 1,030,651	\$ (84,986)	\$ 20,036,723
2052	\$ 768,663	\$ 177,002	\$ 945,665	\$ 1,044,376	\$ 25,175	2.5%	\$ -	\$ 11,450	\$ 1,055,826	\$ (110,161)	\$ 19,926,562
2053	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,069,550	\$ 25,175	2.4%	\$ -	\$ 11,450	\$ 1,081,000	\$ (135,841)	\$ 19,790,721
2054	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,094,725	\$ 25,175	2.4%	\$ -	\$ 11,450	\$ 1,106,175	\$ (161,016)	\$ 19,629,705
2055	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,119,900	\$ 25,175	2.3%	\$ -	\$ 11,450	\$ 1,131,350	\$ (186,190)	\$ 19,443,515
2056	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,145,074	\$ 25,175	2.2%	\$ -	\$ 11,450	\$ 1,156,524	\$ (211,365)	\$ 19,232,150
2057	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,170,249	\$ 25,175	2.2%	\$ -	\$ 11,450	\$ 1,181,699	\$ (236,539)	\$ 18,995,611
2058	\$ 768,157	\$ 177,002	\$ 945,159	\$ 1,195,423	\$ 25,175	2.2%	\$ -	\$ 11,450	\$ 1,206,873	\$ (261,714)	\$ 18,733,897

**40-Year Infrastructure Deficit**

Total Tax Funding	\$	28,180,771
2019 Total Tax Levy	\$	1,071,852
Inc. as % of Tax Levy		2.35%

**Table 4**  
**Township of Limerick**  
**2019 Asset Management Plan**  
**Financing Strategy 3: Close In-Year Funding Gap by 2058 (Tax Funded Services)**

Legend			1	2	3	4		5	6	7	8
Year	Projected Annual Capital Provision	Gravel Road Maintenance Provision	Total Projected Annual Capital Provision	Capital from Taxation (Incl. Gravel Maintenance)	Yearly Increase in Tax Funding (\$)	Yearly Increase in Tax Funding (%)	OMPF	Gas Tax	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2016											
2017											
2018											
2019	\$ 1,494,106	\$ 177,002	\$ 1,671,108	\$ 213,615			\$ 366,800	\$ 10,496	\$ 590,911	\$ 1,080,196	\$ 1,080,196
2020	\$ 2,675,030	\$ 177,002	\$ 2,852,032	\$ 232,079	\$ 18,464	8.6%	\$ -	\$ 10,496	\$ 242,575	\$ 2,609,456	\$ 3,689,653
2021	\$ 2,315,030	\$ 177,002	\$ 2,492,032	\$ 250,543	\$ 18,464	8.0%	\$ -	\$ 10,973	\$ 261,516	\$ 2,230,516	\$ 5,920,168
2022	\$ 1,651,272	\$ 177,002	\$ 1,828,274	\$ 269,007	\$ 18,464	7.4%	\$ -	\$ 10,973	\$ 279,980	\$ 1,548,294	\$ 7,468,462
2023	\$ 1,521,888	\$ 177,002	\$ 1,698,890	\$ 287,471	\$ 18,464	6.9%	\$ -	\$ 11,450	\$ 298,921	\$ 1,399,969	\$ 8,868,432
2024	\$ 1,341,204	\$ 177,002	\$ 1,518,207	\$ 305,935	\$ 18,464	6.4%	\$ -	\$ 11,450	\$ 317,385	\$ 1,200,822	\$ 10,069,253
2025	\$ 1,109,411	\$ 177,002	\$ 1,286,413	\$ 324,399	\$ 18,464	6.0%	\$ -	\$ 11,450	\$ 335,849	\$ 950,564	\$ 11,019,818
2026	\$ 1,104,251	\$ 177,002	\$ 1,281,253	\$ 342,863	\$ 18,464	5.7%	\$ -	\$ 11,450	\$ 354,313	\$ 926,940	\$ 11,946,758
2027	\$ 1,104,251	\$ 177,002	\$ 1,281,253	\$ 361,327	\$ 18,464	5.4%	\$ -	\$ 11,450	\$ 372,777	\$ 908,476	\$ 12,855,234
2028	\$ 1,043,686	\$ 177,002	\$ 1,220,688	\$ 379,791	\$ 18,464	5.1%	\$ -	\$ 11,450	\$ 391,241	\$ 829,447	\$ 13,684,681
2029	\$ 1,043,686	\$ 177,002	\$ 1,220,688	\$ 398,255	\$ 18,464	4.9%	\$ -	\$ 11,450	\$ 409,705	\$ 810,983	\$ 14,495,665
2030	\$ 1,040,049	\$ 177,002	\$ 1,217,052	\$ 416,719	\$ 18,464	4.6%	\$ -	\$ 11,450	\$ 428,169	\$ 788,883	\$ 15,284,547
2031	\$ 1,040,049	\$ 177,002	\$ 1,217,052	\$ 435,183	\$ 18,464	4.4%	\$ -	\$ 11,450	\$ 446,633	\$ 770,419	\$ 16,054,966
2032	\$ 1,036,870	\$ 177,002	\$ 1,213,872	\$ 453,647	\$ 18,464	4.2%	\$ -	\$ 11,450	\$ 465,097	\$ 748,776	\$ 16,803,742
2033	\$ 944,299	\$ 177,002	\$ 1,121,301	\$ 472,111	\$ 18,464	4.1%	\$ -	\$ 11,450	\$ 483,561	\$ 637,740	\$ 17,441,482
2034	\$ 944,299	\$ 177,002	\$ 1,121,301	\$ 490,575	\$ 18,464	3.9%	\$ -	\$ 11,450	\$ 502,025	\$ 619,276	\$ 18,060,758
2035	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 509,039	\$ 18,464	3.8%	\$ -	\$ 11,450	\$ 520,489	\$ 523,051	\$ 18,583,809
2036	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 527,502	\$ 18,464	3.6%	\$ -	\$ 11,450	\$ 538,952	\$ 504,587	\$ 19,088,396
2037	\$ 866,537	\$ 177,002	\$ 1,043,539	\$ 545,966	\$ 18,464	3.5%	\$ -	\$ 11,450	\$ 557,416	\$ 486,123	\$ 19,574,519
2038	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 564,430	\$ 18,464	3.4%	\$ -	\$ 11,450	\$ 575,880	\$ 445,096	\$ 20,019,615
2039	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 582,894	\$ 18,464	3.3%	\$ -	\$ 11,450	\$ 594,344	\$ 426,632	\$ 20,446,246
2040	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 601,358	\$ 18,464	3.2%	\$ -	\$ 11,450	\$ 612,808	\$ 408,168	\$ 20,854,414
2041	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 619,822	\$ 18,464	3.1%	\$ -	\$ 11,450	\$ 631,272	\$ 389,704	\$ 21,244,118
2042	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 638,286	\$ 18,464	3.0%	\$ -	\$ 11,450	\$ 649,736	\$ 371,240	\$ 21,615,358
2043	\$ 843,974	\$ 177,002	\$ 1,020,976	\$ 656,750	\$ 18,464	2.9%	\$ -	\$ 11,450	\$ 668,200	\$ 352,776	\$ 21,968,133
2044	\$ 778,125	\$ 177,002	\$ 955,128	\$ 675,214	\$ 18,464	2.8%	\$ -	\$ 11,450	\$ 686,664	\$ 268,464	\$ 22,236,597
2045	\$ 778,125	\$ 177,002	\$ 955,128	\$ 693,678	\$ 18,464	2.7%	\$ -	\$ 11,450	\$ 705,128	\$ 250,000	\$ 22,486,597
2046	\$ 778,125	\$ 177,002	\$ 955,128	\$ 712,142	\$ 18,464	2.7%	\$ -	\$ 11,450	\$ 723,592	\$ 231,536	\$ 22,718,132
2047	\$ 778,125	\$ 177,002	\$ 955,128	\$ 730,606	\$ 18,464	2.6%	\$ -	\$ 11,450	\$ 742,056	\$ 213,072	\$ 22,931,204
2048	\$ 778,125	\$ 177,002	\$ 955,128	\$ 749,070	\$ 18,464	2.5%	\$ -	\$ 11,450	\$ 760,520	\$ 194,608	\$ 23,125,812
2049	\$ 778,125	\$ 177,002	\$ 955,128	\$ 767,534	\$ 18,464	2.5%	\$ -	\$ 11,450	\$ 778,984	\$ 176,144	\$ 23,301,956
2050	\$ 768,663	\$ 177,002	\$ 945,665	\$ 785,998	\$ 18,464	2.4%	\$ -	\$ 11,450	\$ 797,448	\$ 148,218	\$ 23,450,173
2051	\$ 768,663	\$ 177,002	\$ 945,665	\$ 804,462	\$ 18,464	2.3%	\$ -	\$ 11,450	\$ 815,912	\$ 129,754	\$ 23,579,927
2052	\$ 768,663	\$ 177,002	\$ 945,665	\$ 822,926	\$ 18,464	2.3%	\$ -	\$ 11,450	\$ 834,376	\$ 111,290	\$ 23,691,216
2053	\$ 768,157	\$ 177,002	\$ 945,159	\$ 841,390	\$ 18,464	2.2%	\$ -	\$ 11,450	\$ 852,840	\$ 92,320	\$ 23,783,536
2054	\$ 768,157	\$ 177,002	\$ 945,159	\$ 859,853	\$ 18,464	2.2%	\$ -	\$ 11,450	\$ 871,303	\$ 73,856	\$ 23,857,392
2055	\$ 768,157	\$ 177,002	\$ 945,159	\$ 878,317	\$ 18,464	2.1%	\$ -	\$ 11,450	\$ 889,767	\$ 55,392	\$ 23,912,784
2056	\$ 768,157	\$ 177,002	\$ 945,159	\$ 896,781	\$ 18,464	2.1%	\$ -	\$ 11,450	\$ 908,231	\$ 36,928	\$ 23,949,712
2057	\$ 768,157	\$ 177,002	\$ 945,159	\$ 915,245	\$ 18,464	2.1%	\$ -	\$ 11,450	\$ 926,695	\$ 18,464	\$ 23,968,176
2058	\$ 768,157	\$ 177,002	\$ 945,159	\$ 933,709	\$ 18,464	2.0%	\$ -	\$ 11,450	\$ 945,159	\$ (0)	\$ 23,968,176

**40-Year Infrastructure Deficit**

Total Tax Funding	\$	22,946,493
2019 Total Tax Levy	\$	1,071,852
Inc. as % of Tax Levy		1.72%