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MEMORANDUM

To: Municipality of North Perth
From: Andrew Mirabella and Christopher Balette, Hemson Consulting Ltd
Date: June 29, 2022
Re: Review of 2019 Municipality of North Perth Asset Management Plan for consistency with O. Reg. 588/17

The following outlines a review undertaken by the Municipality of North Perth and Hemson Consulting of the Municipality's 2019 Asset Management Plan (2019 AMP). As part of the Municipality's regular review of its AMP, this document aims to undertake a detailed look at the 2019 AMP to ensure that it is consistent with the requirements of O. Reg. 588/17 while at the same time continuing to be the main tool to guide long-term asset management planning in the Municipality.

A. BACKGROUND

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

In 2018, Hemson Consulting was retained by the Municipality of North Perth to prepare a Strategic Asset Management Policy and undertake an Asset Management Plan (2019 AMP) consistent with the requirements of *Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure* (O. Reg. 588/17). In November 2019, the Plan was prepared which followed the format set out in the *Building Together: Guide for Municipal Asset Management Plans* and defined the current levels of service for all core and non-core assets in compliance with the asset management regulation.

The objectives of the 2019 AMP were to develop a guide for long-term investment decisions for tax and rate funded infrastructure as well as meet the reporting requirements of O. Reg. 588/17. Furthermore, the 2019 AMP was based on development of an Excel based financial model which was provided to staff for use. The model process also included development of a model manual and a training session for staff. Staff to date, continue to build off this model and utilize the datasets to improve their internal asset management program.

One of the key deliverables of the 2019 AMP was to develop a financing strategy to ensure that Municipal infrastructure is maintained while keeping with the principles of financial sustainability and affordability over the long-term. Three financing strategy options were developed as part of the exercise and Council adopted Strategy 2 – the intermediate funding approach - in 2019. Note that the financing strategy is discussed in more detail later in this review.

B. OBJECTIVES OF THE AMP REVIEW

Since completion of the 2019 AMP, the Municipality has continued to improve and adapt lessons learned and best practices to its asset management processes. Notwithstanding the Covid-19 pandemic, which created financial challenges for the Municipality over the past two years, there has been continued effort to improve both the asset management practices at the Municipality and continue to fund operating and capital obligations to maintain levels of service. With this in mind, the objective of this review is to determine:

1. That the 2019 AMP continues to be consistent with the requirements of O. Reg. 588/17;
2. Identify any areas for improvement in the 2019 AMP and address them through this review and identify other improvements which should be addressed in a future plan; and,
3. Provide a high level assessment of the progress the Municipality has made in implementing the 2019 AMP.

To facilitate the review, a line-by-line assessment of the 2019 AMP was developed. Appendix A of this review outlines the key details of the assessment. Appendix A includes the following elements¹:

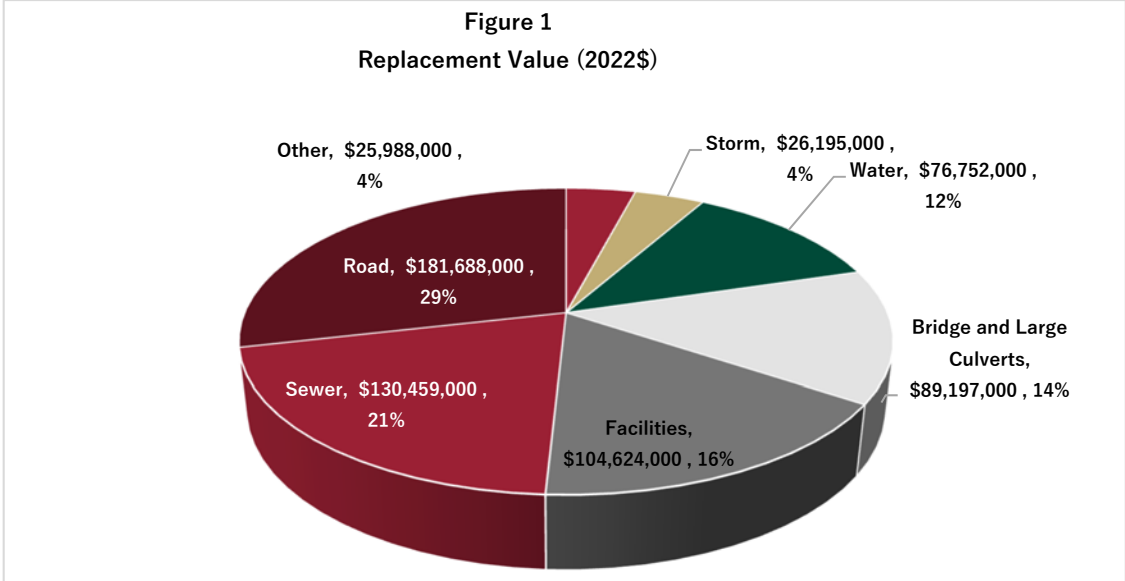
¹ Note that Appendix A Table 1 and 3 are relevant to this review as they relate to requirements of the regulation associated to reporting on current levels of service for core assets (by July 2022) and all other assets (by July 2024). Table 2 relates to reporting on proposed levels of service (by July 2025) which the Municipality will undertake in a future AMP update.

- The actual language from the O. Reg. 588/17 outlined by each section;
- A summary, in simplified terms, of the regulation requirement;
- An indication of the relevant section of the 2019 AMP that relates to the specific requirements of the regulation; and
- Action plan notes which relate to whether the particular requirement is complete, in-progress or not complete. If not complete, then an approximate timeline for completion is outlined.

C. REVIEW OF STATE OF LOCAL INFRASTRUCTURE

Section 2 of the 2019 AMP outlines a summary of the state of local infrastructure which is complemented with detailed asset report cards in Appendix B of the 2019 Plan for each asset category. Based on the review, the reporting done through the 2019 Plan meets all the requirements of O. Reg. 588/17 in that reports are included for both core and non-core assets. Furthermore, the reports outline a description of the assets in the category, their quantity (where available), replacement cost, remaining useful life (a function of age), and condition assessments and methodology used. Appendix A of this review includes the detailed assessment of the 2019 AMP with reference to the reporting of assets.

Recognizing that inflationary pressures continue to create fiscal challenges for the Municipality, a review of the replacement values was undertaken at a high-level. Based on the Statistics Canada Non-Residential Construction Price Index, the replacement value of the Municipality's assets was updated. The total value of the assets amount to approximately **\$648.0 million (\$2022)**. Of this the largest shares continue to be related to the Municipality's core services of roads, sewer, water and bridges/large culverts. Facilities make up the largest category of non-core infrastructure. Figure 1 below outlines the replacement value breakdown. Importantly, this updated replacement value should be considered to be more representative of the value of the Municipality's assets today but recognizing that as data continues to be refined, the valuations will again be adjusted in a more fulsome study update during the next AMP.



Note: Other category includes computer/IT, equipment, machine equipment, fleet, land improvements, streetlights and sidewalks.

D. REVIEW OF LEVEL OF SERVICE FOR CORE ASSETS

The Municipality’s 2019 AMP included the development of a level of service tracker to identify current levels of service. It is noted that the current levels of service were defined for the core services of roads, bridges/large culverts, water, sewer and storm as prescribed by O. Reg. 588/17. Furthermore, the Municipality included all non-core assets in the 2019 AMP and therefore developed level of service measures for those services with the best available information. It is noted that the Municipality uses a blended methodology of level of service measures and performance measures.

Based on the Municipality’s review, it has been determined that the current levels of service outlined in the 2019 AMP continue to generally represent the levels of service the Municipality currently provides and therefore no major changes to the data are proposed at this time. With this said, the Municipality is currently undertaking internal improvements of the asset data in preparation for the 2025 proposed level of service requirements of O. Reg. 588/17.

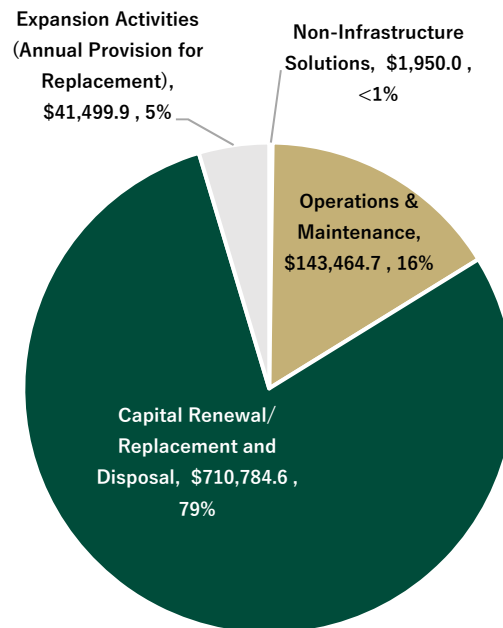
E. REVIEW OF FINANCING STRATEGY

The financing strategy lifecycle costs associated to the 2019 AMP have been updated to reflect long-term expenditures that represent more up to date costing based on the Statistics Canada Non-Residential Construction Price Index. Furthermore, the financing strategy analysis has been updated to reflect the full lifecycle costs of the Municipality’s

assets as discussed in Section 4 of the 2019 AMP. Note that no provisions for level of service adjustments to account for requirements of O. Reg. 588/17 to define and implement proposed levels of service have been included in the analysis – this will be further addressed in the next plan to coincide with the regulatory deadline.

For tax funded services, over the next forty years, the analysis indicates a spending need of about \$897.7 million. Figure 2 summarizes the cumulative 40-year investment needs across the tax supported service areas for the various lifecycle activities identified in Section 4 of the 2019 AMP. Of the total life cycle cost, most costs can be attributed to saving for the renewal and replacement of existing infrastructure making up about \$710.8 million (79%). About \$143.5 million (16%) of the total is related to operating and maintenance costs associated to the existing asset base and potential future infrastructure associated to expansions. \$41.5 million (5%) is related to future asset management provisions associated to future infrastructure expansion. The remaining \$2.0 million (less than 1%) is associated to non-infrastructure solutions.

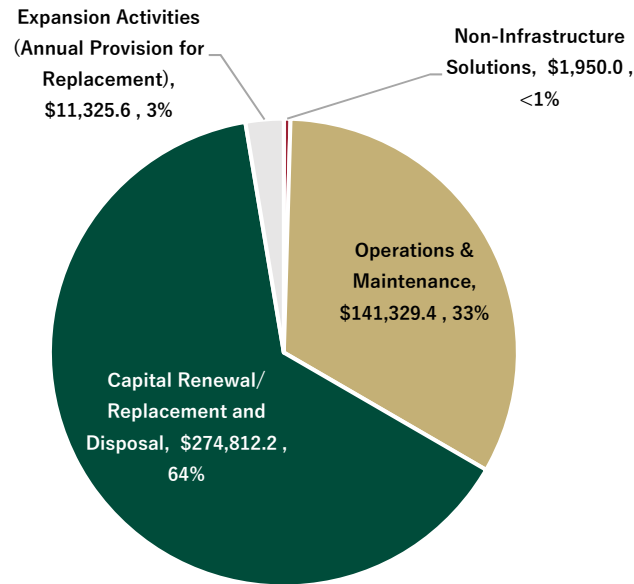
Figure 2
Summary of Lifecycle Cost Model for Tax Funded Assets 2022-2061 (\$000)



For rate funded services, over the next forty years, the analysis indicates a spending need of about \$429.4 million. Figure 3 summarizes the cumulative 40-year investment needs across the rate supported service areas for the various lifecycle activities identified in Section 4 of the 2019 AMP. Of the total life cycle cost, most costs can be attributed to saving for the renewal and replacement of existing infrastructure making up about \$274.8

million (64%). About \$141.4 million (33%) of the total is related to operating and maintenance costs associated to the existing asset base and potential future infrastructure associated to expansions. \$11.3 million (3%) is related to future asset management provisions associated to future infrastructure expansion. The remaining \$2.0 million (less than 1%) is associated to non-infrastructure solutions.

Figure 3
Summary of Lifecycle Cost Model for Rate Funded Services 2022-2061 (\$000)



F. COSTS TO MAINTAIN CURRENT LEVELS OF SERVICE

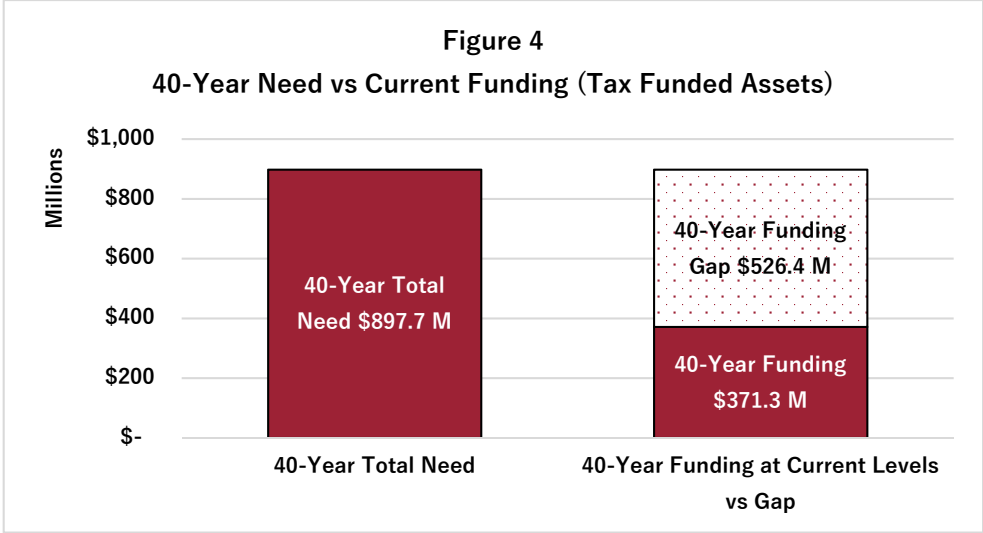
As noted in Part E, costs associated to the full lifecycle of assets have been restated to reflect 2022 dollars and the cumulative full lifecycle costs over the 40-year period. Therefore, a consistent approach has also been used to restate the level of funding currently available to undertake regular capital repair/replacement activities. With this information, a restated analysis of the cumulative 40-year infrastructure gap can be developed if current funding levels are maintained with no further increases.

The 40-year infrastructure deficit shown in Figure 4 represents the difference between the required lifecycle costs and the current contributions to capital, without further increases, for the tax funded assets. The graph indicates that existing funding levels are insufficient to cover projected costs over the planning period, as a result, a notional gap of \$526.4 million exists over the 40-year period. It is unrealistic to expect the Municipality to address the total infrastructure deficit in the short-term. Therefore, the three long-term funding

strategies that identify options for addressing current and future asset expenditures was developed as part of the 2019 AMP.

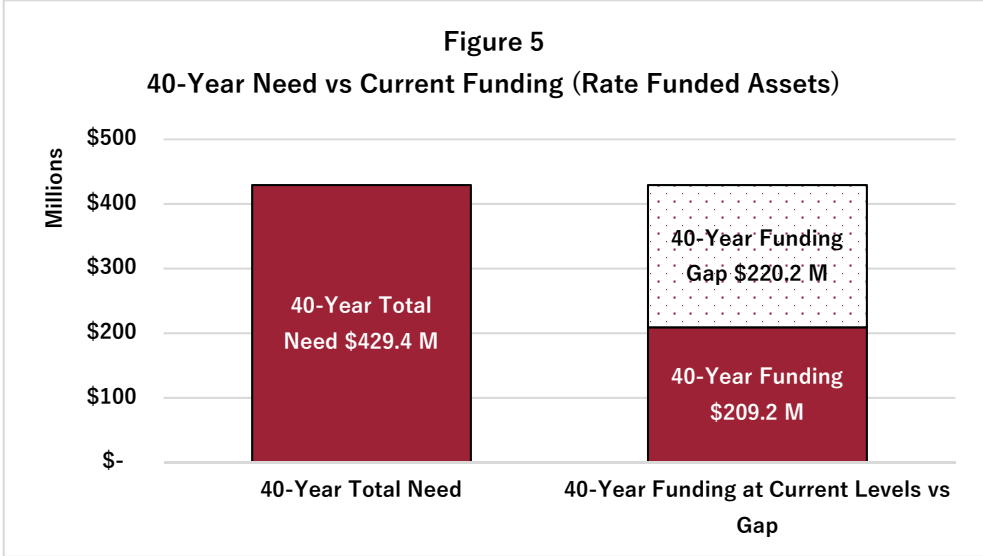
The financing strategies in the 2019 AMP represent options at maintaining the current levels of service from a long-term perspective. In summary, the following conclusions can be made:

- The Municipality opted to adopt a financing strategy in line with “Strategy 2” as outlined in the 2019 AMP which aims to control the cumulative infrastructure deficit over the long-term period. The Municipality’s continuing capital funding increases are in line with the funding needed to continue to provide the current levels of service. Strategy 2 would strive to ensure, that over the long-term, the funding gap stabilizes and the infrastructure deficit is controlled. Under this approach, the additional funding would allow for increased targeted investments in asset areas currently in Fair condition to ensure these assets don’t transition into the Poor category in the next 5 -10 years therefore maintaining the existing level of service.
 - Also of importance, the assets in Good/Very Good condition require continued investment to ensure service levels are maintained. As these assets age, they may also transition into Fair or lower category. Continued contributions to reserves will ensure funds are available whenever assets require works to be completed.
- The option to “do nothing” and allow the infrastructure back-log to accumulate by not continuing to increase funding would mean that existing funding levels would not be sufficient to manage the infrastructure in place over the long-term. Therefore, the assets in service would deteriorate with a series of assets moving into Poor and Very Poor condition which would effectively provide a reduction in the level of service over the short and long-term periods. This scenario is reflected in Figure 4.



The 40-year infrastructure deficit shown in Figure 5 represents the difference between the required lifecycle costs and the current contributions to capital, without further increases, for the rate funded assets. The graph indicates that existing funding levels, without further increases, are insufficient to cover projected costs over the planning period, as a result, a notional gap of \$220.2 million exists over the 40-year period.

The Municipality continues to maintain the principles of full cost recovery for water and sewer services to ensure that services for residents continue to meet, or exceed, safety, industry and Provincial standards. Capital funding for repair/replacement activities for water and sewer infrastructure has continued to increase over time in-line with the Municipality’s annual water and sewer rate reviews and financial plans. The Municipality expects that its annual rate increases will continue to maintain the current level of service provided.



G. CONTINUOUS IMPROVEMENT

The completion of the 2019 AMP not only provided the Municipality with the opportunity to develop a plan to develop a sustainable funding strategy for its assets, but also helped the Municipality to identify the gaps in its asset data. With this in mind, the Municipality is undertaking several key improvements. These improvements are expected to help develop the information needed to meet the 2025 requirements of O. Reg. 588/17 particularly those to develop proposed levels of service and the costs associated to meeting proposed levels of service. The Municipality recognizes that a key component of asset management is the principle of continuing to improve its practices. Some initiatives the Municipality is undertaking include:

- The Municipality has been migrating its road network information into its GIS database to have a detailed visual representation of the road assets. Furthermore, additional technical information on the roads is also been incorporated into the GIS database. The Municipality expects that the information will form the basis for a living database to have readily available information on road assets.
- The Municipality has continued its annual updates of the corporate asset inventory in Citywide. Based on information from departmental staff and other available reports, work is being done to amalgamate all the information from various sources into this centralized database.
- The Municipality expects to continue to track the current level of service on an annual basis. Furthermore, the Municipality also expects to better track the specific lifecycle activities and costs needed to maintain the current levels of service at a more granular level. This information will be necessary to help inform development of the proposed levels of service.

APPENDIX A

DETAILED REVIEW OF 2019 AMP

Appendix A - Table 1
Municipality of North Perth
Asset Management Regulation (O.Reg. 588/17) and Action Plan Summary

Section	Regulation	Summary of Regulation	Relevant Section of AMP	Action Plan	Timeline to Complete
5. Asset management plans, current level of service					
(1)	Every municipality shall prepare an asset management plan in respect of its core municipal infrastructure assets by July 1, 2022, and in respect of all of its other municipal infrastructure assets by July 1, 2024.	<i>This requirement establishes timelines for core and non-core municipal assets to be included in the asset management plan in relation to current levels of service.</i>		<ul style="list-style-type: none"> All assets are included in the 2019 AMP. Non-core assets: computer/IT, equipment, machine equipment, fleet, land improvements, facilities, Perth Meadows, streetlights, sidewalks Core assets: roads, storm, water, sewer 	Complete
(2)	A municipality's asset management plan must include the following:	<i>This section outlines reporting requirements for existing levels of service. Historical data should be at least 2 years old.</i>	Section 3 Levels of Service	<ul style="list-style-type: none"> Levels of service were developed as part of the 2019 AMP. Upon review of the level of service measures included, it has been determined that the continue to represent the current level of service in 2022 based on a high-level review of existing data. 	Complete
1.	For each asset category, the current levels of service being provided, determined in accordance with the following qualitative descriptions and technical metrics and based on data from at most the two calendar years prior to the year in which all information required under this section is included in the asset management plan:				
i.	With respect to core municipal infrastructure assets, the qualitative descriptions set out in Column 2 and the technical metrics set out in Column 3 of Table 1, 2, 3, 4 or 5, as the case may be.	<i>Include the community and technical levels of service from Table 4 in this appendix in the AMP for roads, water, wastewater and stormwater infrastructure.</i>	Section 3 Levels of Service	<ul style="list-style-type: none"> The required level of service measures associated to the core assets as per O.Reg. 588/17 for roads, bridges/culverts, storm, water and wastewater were developed as part of the 2019 AMP. 	Complete
ii.	With respect to all other municipal infrastructure assets, the qualitative descriptions and technical metrics established by the municipality.	<i>Include the qualitative and quantitative descriptors outlined by the municipality for assets such as facilities, vehicles, equipment, land improvements, etc. These will have to be defined by the municipality.</i>	Section 3 Levels of Service	<ul style="list-style-type: none"> Level of service measures for non-core assets were developed as part of the 2019 AMP. 	Complete
2.	The current performance of each asset category, determined in accordance with the performance measures established by the municipality, such as those that would measure energy usage and operating efficiency, and based on data from at most two calendar years prior to the year in which all information required under this section is included in the asset management plan.	<i>Include the performance of each asset category which is measured using data less than 2 years old as outlined by the municipality. Performance measures will vary by asset category.</i>	Section 3 Levels of Service	<ul style="list-style-type: none"> The 2019 AMP includes a blend of performance measures and level of service measures. The Municipality is currently undertaking several initiatives to improve its available asset data. This will facilitate development of additional performance measures in future years. 	Complete

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Asset Management Regulation (O.Reg. 588/17) and Action Plan Summary

Section	Regulation	Summary of Regulation	Relevant Section of AMP	Action Plan	Timeline to Complete
5. Asset management plans, current level of service				Action Items or Notes	Timeline to Complete
3.	For each asset category,				
i.	a summary of the assets in the category,	<i>A summary describing the assets in each category. For assets that are broken down into components, a summary can be developed by component.</i>	Section 2 State of Local Infrastructure	•State of the local infrastructure report cards were developed as part of the 2019 AMP. The report cards summarize the assets in each asset category in a table.	Complete
ii.	the replacement cost of the assets in the category,	<i>Include total replacement cost of all assets in each category.</i>		•State of the local infrastructure report cards were developed as part of the 2019 AMP. The report cards summarize the replacement value of assets by type/components wherever possible.	Complete
iii.	the average age of the assets in the category, determined by assessing the average age of the components of the assets,	<i>Include the weighted average age of all assets in each category weighted relative to their replacement cost.</i>		•State of the local infrastructure report cards were developed as part of the 2019 AMP. The report cards summarize the remaining useful life of the assets. Although the remaining useful life of the assets does not explicitly state the age of the assets, it is a direct function of the age. The remaining useful life is reported as this value is a key measure of condition utilized wherever engineered or staff condition assessments are not available.	Complete
iv.	the information available on the condition of the assets in the category, and	<i>Where available, include the weighted condition rating of assets in each category weighted relative to their replacement cost.</i>	Section 2 State of Local Infrastructure	•State of the local infrastructure report cards were developed as part of the 2019 AMP. The report cards summarize the condition of assets based on a 5-tier scale from Very Poor to Very Good.	Complete
v.	a description of the municipality's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate.	<i>Include the engineering methods used to assess condition rating of all assets in each category. This can include staff visual inspections, remote sensors, etc.</i>		•State of the local infrastructure report cards were developed as part of the 2019 AMP. Appendix B of the 2019 AMP outlines the methodology used to determine conditions of assets.	Complete

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Section	Regulation	Summary of Regulation	Relevant Section of AMP	Action Plan	Timeline to Complete
5. Asset management plans, current level of service					
4.	For each asset category, the lifecycle activities that would need to be undertaken to maintain the current levels of service as described in paragraph 1 for each of the 10 years following the year for which the current levels of service under paragraph 1 are determined and the costs of providing those activities based on an assessment of the following:	<i>Include all maintenance activities required to maintain current service levels for at least a 10 year period. For example, for buildings this can include frequency of inspections, maintenance schedules, maintenance procedures, etc.</i>	Section 4 Asset Management Strategy	•Appendix D of the 2019 AMP documents lifecycle activities needed to maintain current levels of service at a high level. It is noted that the Municipality expects to improve documentation of its asset management strategies on an ongoing basis. The 2019 AMP also discusses the lifecycle activities: non-infrastructure solutions, maintenance activities, renewal/rehabilitation, replacement, disposal and expansion.	Complete
i.	The full lifecycle of the assets.	<i>The activities listed should be relevant to the useful life of the asset.</i>	Section 5 Financing Strategy	•The 2019 Plan focuses on the to lifecycle costs associated to maintenance and replacement activities. This 2022 review includes an updated methodology that captures costs for all lifecycle activities.	Complete
ii.	The options for which lifecycle activities could potentially be undertaken to maintain the current levels of service.	<i>Discuss alternative options that can be undertaken to maintain current service levels and what options work best.</i>	Section 5 Financing Strategy	•Appendix D of the 2019 AMP documents lifecycle activities needed to maintain current levels of service at a high level. It is noted that the Municipality expects to improve documentation of its asset management strategies on an ongoing basis. The 2019 AMP also discusses the lifecycle activities: non-infrastructure solutions, maintenance activities, renewal/rehabilitation, replacement, disposal and expansion.	Complete
iii.	The risks associated with the options referred to in subparagraph ii.	<i>Discuss the risks involved with the options in sub-section 4.ii.Risks include discussion of consequences of not undertaking such maintenance activities.</i>	Section 4 Asset Management Strategy	•Section 4 of the 2019 AMP discusses risks associated to not implementing the key outcomes of the plan. It is expected that the Municipality will continue to update the information to provide additional details over time.	Complete
iv.	The lifecycle activities referred to in subparagraph ii that can be undertaken for the lowest cost to maintain the current levels of service.	<i>Discuss the lowest cost options that can be undertaken to maintain current service levels.</i>	Section 5 Financing Strategy	•The costs identified in the 2019 Plan associated to the 40-year planning period are based on the Municipality's budget and associated lifecycle activities identified through Appendix D. The Municipality consider's this to be the lowest cost options based on the best available information available today and the current level of service provided. This 2022 review provides additional details on the financing strategy to supplement the 2019 Plan.	Complete

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Section	Regulation	Summary of Regulation	Relevant Section of AMP	Action Plan	Timeline to Complete
5. Asset management plans, current level of service				Action Items or Notes	
5.	For municipalities with a population of less than 25,000, as reported by Statistics Canada in the most recent official census, the following:		Section 5 Financing Strategy		
i.	A description of assumptions regarding future changes in population or economic activity.	<i>This can include: population forecasts, development forecasts or economic reports.</i>		•The 2019 Plan includes a Future Demand section which discusses the Municipality's expected future development and costs associated to growth-identified through the DC study which are considered expansion activities. The costs associated to expansion have also been included in updated financing strategy discussion in this review.	Complete
ii.	How the assumptions referred to in subparagraph i relate to the information required by paragraph 4.	<i>Discussion on the relationship of growth on maintenance activities. For example as population grows, further maintenance activities are required for roads as more roads experience larger traffic volumes.</i>		•The 2019 Plan includes a Future Demand section which discusses the Municipality's expected future development and costs associated to growth-identified through the DC study which are considered expansion activities. The costs associated to expansion have also been included in updated financing strategy discussion in this review.	Complete
(3)	Every asset management plan must indicate how all background information and reports upon which the information required by paragraph 3 of subsection (2) is based will be made available to the public.	<i>Include the sources of the information and ensure that the information is available to the public.</i>	Section 6 Making Asset Management Operational	•The 2019 Plan indicates that the report and strategic asset management policy should be made available to the public. Both are available on the municipal website.	Complete

Appendix A - Table 2
Municipality of North Perth
Asset Management Regulation (O.Reg. 588/17) and Action Plan Summary

Section	Regulation	Summary of Regulation	Relevant Section of Future AMP	Action Plan	
				Action Items	Timeline to Complete
6. Asset management plans, proposed level of service					
(1)	Subject to subsection (2), by July 1, 2025, every asset management plan prepared under section 5 must include the following additional information:	<i>The regulations has additional requirements which must be included in the asset management plan by 2025.</i>		• It is expected that the 2019 Plan will be updated to include the additional information required by 2025.	To be completed by 2025
1.	For each asset category, the levels of service that the municipality proposes to provide for each of the 10 years following the year in which all information required under section 5 and this section is included in the asset management plan, determined in accordance with the following qualitative descriptions and technical metrics:	<i>This section refers to the proposed or planned level of service for a minimum of 10 years.</i>	Section 3 Levels of Service	<ul style="list-style-type: none"> • Proposed levels of service should be defined with consideration of the current levels of service determined through the 2019 AMP. It is noted the proposed levels of service are those expected to be achieved over a minimum 10-year period. • Consultation with Council and the public should occur before establishing targets. 	Q4 2024
i.	With respect to core municipal infrastructure assets, the qualitative descriptions set out in Column 2 and the technical metrics set out in Column 3 of Table 1, 2, 3, 4 or 5, as the case may be.	<i>Include the community and technical levels of service from Table 4 in this appendix in the AMP for roads, water, wastewater and stormwater infrastructure.</i>	Section 3 Levels of Service	<ul style="list-style-type: none"> • Proposed levels of service should be defined with consideration of the current core levels of service determined through the 2019 AMP. 	Q4 2024
ii.	With respect to all other municipal infrastructure assets, the qualitative descriptions and technical metrics established by the municipality.	<i>Include the qualitative and quantitative descriptors outlined by the municipality for assets such as facilities, vehicles, equipment, land improvements, etc. These will have to be defined by the municipality.</i>	Section 3 Levels of Service	<ul style="list-style-type: none"> • Proposed levels of service should be defined with consideration of the current non-core levels of service determined through the 2019 AMP. 	Q4 2024

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Asset Management Regulation (O.Reg. 588/17) and Action Plan Summary

Section	Regulation	Summary of Regulation	Relevant Section of Future AMP	Action Plan	Timeline to Complete
6. Asset management plans, proposed level of service				Action Items	
2.	An explanation of why the proposed levels of service under paragraph 1 are appropriate for the municipality, based on an assessment of the following:	<i>An explanation on how levels of service targets have been determined will need to be outlined.</i>	Section 3 Levels of Service	• Describe why the proposed levels of service are appropriate, this should include the process that was used to establish the proposed levels of service and how Council and the public was consulted.	Q4 2024
i.	The options for the proposed levels of service and the risks associated with those options to the long term sustainability of the municipality.	<i>Options to achieve the proposed levels of service and all risks associated to not meeting the targets.</i>	Section 3 Levels of Service	• Ensure that the proposed levels of service are based on measurable targets that the Town can track over time and maintain up to date. Include a discussion on the risks associated with not meeting proposed levels of service and if possible the consequence (ie. costs).	Q4 2024
ii.	How the proposed levels of service differ from the current levels of service set out under paragraph 1 of subsection 5 (2).	<i>Include a description of how proposed service levels differ from current service levels. Include quantitative and qualitative differences. Identify which service measures are new.</i>	Section 3 Levels of Service	• Compare the proposed levels of service to the current levels of service. They can be added as an additional "column" in the level of service tracker of the 2019 AMP once it is updated.	Q4 2024
iii.	Whether the proposed levels of service are achievable.	<i>Discuss whether proposed service levels are attainable. Only feasible and realistic level of service targets should be included in any plan.</i>	Section 3 Levels of Service	• Ensure that the proposed levels of service are achievable, feasible and realistic. Include a discussion in the AMP on why the proposed levels of service are achievable.	Q4 2024
iv.	The municipality's ability to afford the proposed levels of service.	<i>Discuss whether proposed service levels are affordable. This will require a cost of analysis of work required to achieve the proposed targets.</i>	Section 5 Financing Strategy	• Costs associated to meeting the proposed levels of service will need to be included as part of the financing strategy. The financing strategy in the 2019 AMP can be utilized as a basis for the analysis. The tax/rate impact of undertaking these costs can be assessed.	Q2 2025

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Section	Regulation	Summary of Regulation	Relevant Section of Future AMP	Action Plan	Timeline to Complete
6. Asset management plans, proposed level of service				Action Items	
3.	The proposed performance of each asset category for each year of the 10-year period referred to in paragraph 1, determined in accordance with the performance measures established by the municipality, such as those that would measure energy usage and operating efficiency.	<i>Include the planned performance levels established by the municipality. Performance measures will vary by asset category.</i>	Section 3 Levels of Service	<ul style="list-style-type: none"> The Municipality is currently undertaking several initiatives to improve its available asset data. This will facilitate development of additional performance measures in future years and defining proposed levels of service. 	Q4 2024
4.	A lifecycle management and financial strategy that sets out the following information with respect to the assets in each asset category for the 10-year period referred to in paragraph 1:	<i>Lifecycle cost analysis for each asset category. Should be for at least a 10 year period.</i>	Section 4 Asset Management Strategy	<ul style="list-style-type: none"> The work required for this would be related to the Asset Management Strategy and Financing Strategy sections of the AMP which are expected to be updated by July 2025. 	Q2 2025
i.	An identification of the lifecycle activities that would need to be undertaken to provide the proposed levels of service described in paragraph 1, based on an assessment of the following:	<i>Identify the lifecycle activities that need to be performed to provide proposed service levels based on:</i>		<ul style="list-style-type: none"> Section 4 of the AMP and Appendix D which outline the lifecycle activities associated to maintain current levels of service would need to be updated to reflect the lifecycle activities needs to meet proposed levels of service (if any change is warranted). 	Q2 2025
A.	The full lifecycle of the assets.	<i>The activities listed should be relevant to the useful life of the asset.</i>		<ul style="list-style-type: none"> Consistent with the full lifecycle of assets consideration needs to be made for all lifecycle activities: non-infrastructure solutions, maintenance, renewal/rehabilitation, replacement, disposal and expansion. 	Q2 2025
B.	The options for which lifecycle activities could potentially be undertaken to achieve the proposed levels of service.	<i>Discuss alternative options that can be undertaken to achieve proposed service levels and what options work best.</i>		<ul style="list-style-type: none"> Section 4 of the AMP and Appendix D which outline the lifecycle activities associated to maintain current levels of service would need to be updated to reflect the lifecycle activities needs to meet proposed levels of service (if any change is warranted). 	Q2 2025
C.	The risks associated with the options referred to in sub-paragraph B.	<i>Discuss the risks involved with the options to achieve proposed service levels. Risks include discussion of consequences of not undertaking such maintenance activities.</i>		<ul style="list-style-type: none"> A discussion on the risks associated to not meeting the objectives of the AMP. Section 4 of the 2019 AMP discusses risks associated to not implementing the key outcomes of the plan. It is expected that the Municipality will continue to update the information to provide additional details over time. 	Q2 2025
D.	The lifecycle activities referred to in sub-paragraph B that can be undertaken for the lowest cost to achieve the proposed levels of service.	<i>Discuss the lowest cost options that can be undertaken to achieve proposed service levels.</i>		<ul style="list-style-type: none"> The costs identified in the 2019 Plan associated to the 40-year planning period are based on the Municipality's budget and associated lifecycle activities identified through Appendix D. The Municipality would need to discuss why the activities are considered to be the lowest cost options available. 	Q2 2025

Appendix A - Table 2
Municipality of North Perth
Asset Management Regulation (O.Reg. 588/17) and Action Plan Summary

Section	Regulation	Summary of Regulation	Relevant Section of Future AMP	Action Plan	
				Action Items	Timeline to Complete
6. Asset management plans, proposed level of service					
ii.	An estimate of the annual costs for each of the 10 years of undertaking the lifecycle activities identified in subparagraph i, separated into capital expenditures and significant operating costs.	<i>Forecast of capital and operating costs associated to achieving the proposed levels of service. Forecast should be for at least a 10 year period.</i>	Section 5 Financing Strategy	•The financing strategy will need to be updated to reflect the full lifecycle costs associated to meeting the proposed levels of service for each lifecycle activity: non-infrastructure solutions, maintenance, renewal/rehabilitation, replacement, disposal and expansion.	Q2 2025
iii.	An identification of the annual funding projected to be available to undertake lifecycle activities and an explanation of the options examined by the municipality to maximize the funding projected to be available.	<i>Identify funding options and forecast funding for a minimum of 10 years. Funding is associated to the lifecycle cost forecast above.</i>		•The financing strategy will need to be updated to reflect the expected funding available to meet the proposed level of service.	Q2 2025
iv.	If, based on the funding projected to be available, the municipality identifies a funding shortfall for the lifecycle activities identified in subparagraph i,	<i>Conditions if a funding shortfall is identified.</i>			
A.	an identification of the lifecycle activities, whether set out in subparagraph i or otherwise, that the municipality will undertake, and	<i>Identify lifecycle activities that the municipality will undertake.</i>		•The financing strategy will need to be updated to reflect the full lifecycle costs associated to meeting the proposed levels of service for each lifecycle activity: non-infrastructure solutions, maintenance, renewal/rehabilitation, replacement, disposal and expansion.	Q2 2025
B.	if applicable, an explanation of how the municipality will manage the risks associated with not undertaking any of the lifecycle activities identified in subparagraph i.	<i>Discussion on risk management activities associated to the funding shortfall.</i>		•A discussion on the risks associated to not meeting the objectives of the AMP. Section 4 of the 2019 AMP discusses risks associated to not implementing the key outcomes of the plan. It is expected that the Municipality will continue to update the information to provide additional details over time.	Q2 2025
5.	For municipalities with a population of less than 25,000, as reported by Statistics Canada in the most recent official census, a discussion of how the assumptions regarding future changes in population and economic activity, set out in subparagraph 5 i of subsection 5 (2), informed the preparation of the lifecycle management and financial strategy referred to in paragraph 4 of this subsection.	<i>For municipalities with a population less than 25,000, explain how population and economic forecasts assumptions tie into the lifecycle management and financial strategy for the municipal asset management plan.</i>	Section 5 Financing Strategy	•The 2019 Plan includes a Future Demand section which discusses the Municipality's expected future development and costs associated to growth-identified through the DC study which are considered expansion activities. This section should be updated in the future.	Q2 2025
7.	An explanation of any other key assumptions underlying the plan that have not previously been explained.	<i>All assumptions in the AMP should be clearly laid out.</i>	Where Applicable	•Expand the documentation of assumptions in the AMP that are used to develop future updates (if applicable)	Q2 2025
(2)	With respect to an asset management plan prepared under section 5 on or before July 1, 2022, if the additional information required under this section is not included before July 1, 2024, the municipality shall, before including the additional information, update the current levels of service set out under paragraph 1 of subsection 5 (2) and the current performance measures set out under paragraph 2 of subsection 5 (2) based on data from the two most recent calendar years.	<i>If proposed level of service analysis is not included in the AMP by July 1, 2025 then the municipality will need to update the current level of service analysis with the most recent 2 years of data.</i>	Section 3 Levels of Service	•The current level of service is recommended to be updated with every update of the AMP. This said, it should be tracked on an ongoing basis to identify if there are any differences between the current level of service relative to the proposed level of service.	Q2 2025

Appendix A - Table 3
Municipality of North Perth
Asset Management Regulation (O.Reg. 588/17) and Action Plan Summary

Section	Regulation	Summary of Regulation	Relevant Section of AMF	Action Plan	Timeline to Complete
7. Update of asset management plans					
(1)	Every municipality shall review and update its asset management plan at least five years after the year in which the plan is completed under section 6 and at least every five years thereafter.	<i>The AMP should be updated every 5 years after July 1st 2024.</i>	Section 6 Making Asset Management Operational	<ul style="list-style-type: none"> The Municipality expects to update the AMP at minimum every 5-years or as needed. Although it is noted that the information utilized through the AMP should be reviewed more frequently. All future updates of the asset management plan should be consistent with O. Reg. 588/17. 	Every 5-years after 2025
(2)	The updated asset management plan must comply with the requirements set out under paragraphs 1, 2 and 3 and subparagraphs 5 i and 6 i, ii, iii, iv and v of subsection 5 (2), subsection 5 (3) and paragraphs 1 to 7 of subsection 6 (1).	<i>Any updates to the AMP should comply with the requirements of O.Reg 588/17 as well.</i>			
8. Endorsement and approval required					
	Every asset management plan prepared under section 5 or 6, or updated under section 7, must be,		Section 6 Making Asset Management Operational	<ul style="list-style-type: none"> The 2019 Plan was endorsed by the CAO and approved by Council. 	Complete
(a)	endorsed by the executive lead of the municipality; and	<i>The AMP must be endorsed by the executive lead of the municipality.</i>			
(b)	approved by a resolution passed by the municipal council.	<i>The AMP must be approved by Council.</i>			
9. Annual review of asset management planning progress					
(1)	Every municipal council shall conduct an annual review of its asset management progress on or before July 1 in each year, starting the year after the municipality's asset management plan is completed under section 6.	<i>Review the AMP annually before or on July 1st of each year starting after all requirements of O.Reg 588/17 have been met.</i>	Section 6 Making Asset Management Operational	<ul style="list-style-type: none"> Monitor asset management plan progress on an annual basis. This can be done through the AMP Report Cards. A discussion on barriers and gaps in progress on the AMP should be included. Progress on the plan can be monitored by considering the points outlined in Section 6. 	after 2025
(2)	The annual review must address,				
(a)	the municipality's progress in implementing its asset management plan;	<i>The annual review should discuss the progress made in implementing the AMP.</i>			
(b)	any factors impeding the municipality's ability to implement its asset management plan; and	<i>The annual review should discuss any factors that act as barriers, gaps or challenges in implementing the AMP.</i>			
(c)	a strategy to address the factors described in clause (b).	<i>The annual review should discuss a strategy to address any factors that act as barriers, gaps or challenges in implementing the AMP.</i>			
10. Public Availability					
	Every municipality shall post its current strategic asset management policy and asset management plan on a website that is available to the public, and shall provide a copy of the policy and plan to any person who requests it.	<i>Post the asset management policy and plan on the municipality's website so that the public can access it. Provide a copy of the asset management policy and plan to any person who requests it.</i>	Section 6 Making Asset Management Operational	<ul style="list-style-type: none"> The 2019 Plan and policy are posted on the website. 	Complete

ASSET MANAGEMENT PLAN



November 2019

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EXECUTIVE SUMMARY

The following summarizes the findings of the Municipality of North Perth's Asset Management Plan (2019 Plan). 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 Municipality's Strategic Asset Management Policy. This 2019 Plan defines the current levels of service for all core and non-core assets in compliance with the asset management regulation.

The 2019 Plan incorporates all assets that the municipality is responsible for and incorporates the results of the 2017 Roads Inspection Report and OSIM Inspections Report to provide a comprehensive overview. All figures are in constant 2019 dollars and should be adjusted annually to account for the effects of inflation.

A. STATE OF THE LOCAL INFRASTRUCTURE

- The Municipality's infrastructure has a total replacement value of \$477.6 million.
 - Roads represent \$114.1 million (23.9%) and facilities (inclusive of perth meadows) represents \$83.9 million, or 17.6%, of the total value;
 - The remaining tax supported assets represent \$113.4 million; and
Engineering infrastructure related to water and wastewater assets accounts for approximately \$166.2 million.
- Overall, the Municipality's assets are considered to be in Fair condition.
 - Of the total asset value (net of gravel roads), about 47% or \$214.3 million of the Municipality's assets are considered to be in "Good" or "Very Good" condition.
 - Conversely, about 27% (\$123.8 million) of infrastructure is considered to be in "Poor" to "Very Poor" condition.

B. LEVEL OF SERVICE

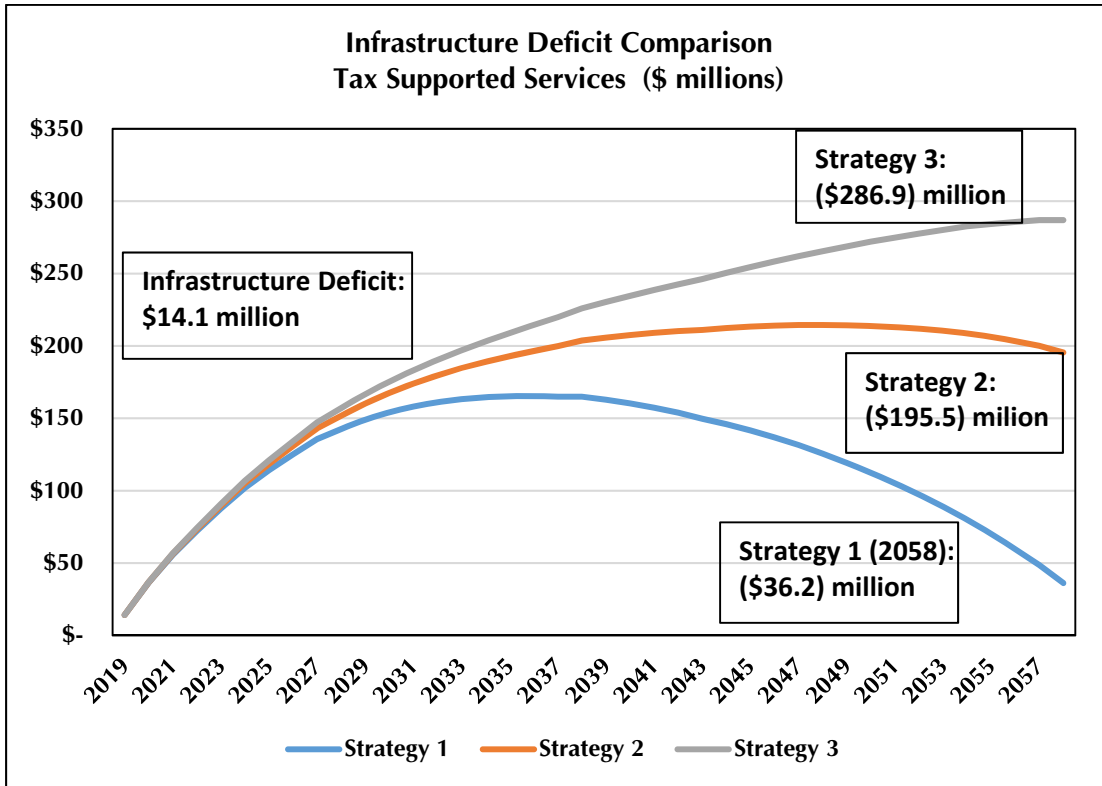
- The Municipality’s current levels of service have been defined based on the condition of assets and the measures required as per O. Reg. 588/17:
 - Overall the Municipality’s asset base is considered to be in Fair condition.
 - The Municipality’s roads, streetlights and storm infrastructure are maintained in “Good” condition.
 - The Municipality’s machine equipment are considered to be in “Poor” condition.
 - Remaining assets categories: bridges and large culverts, computer/IT, equipment, fleet, facilities, water/sewer infrastructure and sidewalks are maintained in “Fair” condition.

C. FINANCING STRATEGY

- The current 2019 infrastructure deficit for all tax supported assets is calculated to be about \$14.2 million while the infrastructure deficit for rate supported assets is estimated at \$20.0 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 Municipality 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	Tax Supported Strategy Parameters	Rate Supported Strategy Parameters
Strategy 1 Close in-year Funding Gap by 2038	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$446,600 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$4.2 million tax supported capital funding. • The yearly revenue requirement is equivalent to 3.1% of the Municipality's 2019 tax levy. 	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$173,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$1.4 million tax supported capital funding. • The yearly revenue requirement is equivalent to 4.0% of the Municipality's 2019 utility rate revenues.
Strategy 2 Close in-year Funding Gap by 2048	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$242,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$4.2 million tax supported capital funding. • The yearly revenue requirement is equivalent to 1.7% of the Municipality's 2019 tax levy. 	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$89,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$1.4 million tax supported capital funding. • The yearly revenue requirement is equivalent to 2.0% of the Municipality's 2019 utility rate revenues.
Strategy 3 Close in-year Funding Gap by 2058	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$125,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$4.2 million tax supported capital funding. • The yearly revenue requirement is equivalent to 0.9% of the Municipality's 2019 tax levy. 	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$52,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$1.4 million tax supported capital funding. • The yearly revenue requirement is equivalent to 1.2% of the Municipality's 2019 utility rate revenues.

- Of the three financing strategies identified for both tax and rate supported assets, strategy 3 poses the greatest risk to the Municipality 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, however, the tax supported cumulative infrastructure gaps are summarized in the graph below.



I INTRODUCTION

The Municipality of North Perth's 2019 Asset Management Plan (2019 Plan) provides the Municipality with a tool to assist in capital financing decisions. The Plan covers all Municipal assets: Roads, Bridges, Large culverts, Streetlights, Sidewalks, Computer/IT, Equipment, Machine equipment, Fleet, Land Improvements, Facilities and Storm, Water and Sewer infrastructure. The 2019 Plan builds on the standalone analyses prepared from the 2017 Roads Inspection Report and the OSIM Inspections Report.

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 Municipality'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 Municipality's asset inventory and it is intended to be updated on a regular basis to inform future capital investment decisions. This Model will help produce annual State of the Local Infrastructure Report Cards which are intended to be completed annually to help municipal council and the public understand the state of their assets and overall funding.

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:

- Municipality can make informed and traceable decisions;
- Municipality 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 Municipality of North Perth. 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 Municipal infrastructure over the planning period to 2058. A strategy for maintaining infrastructure so that existing service levels are maintained is an important element. In this respect, the 2019 Plan has been prepared to be consistent with the Municipality's 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. Municipality Council approved the 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 Municipality currently stands in the timeline.

Table 1 O. Reg. 588/17 Timeline		
Regulation Timeline	Requirement	Progress
July 1, 2019	<ul style="list-style-type: none"> • Municipalities shall prepare their first strategic asset management policy. • Municipalities shall review, and if necessary, update the policy every 5 years. 	<ul style="list-style-type: none"> • Municipality Council approved the Asset Management Policy in 2019. • The next legislative review is expected in 2024, although, earlier reviews are encouraged with a change in policy directives.
July 1, 2021	<ul style="list-style-type: none"> • Every municipality shall prepare an asset management plan in respect of its core municipal infrastructure assets. • The current levels of service must be defined for all core assets. 	<ul style="list-style-type: none"> • This 2019 Plan has incorporated the findings of the 2017 Roads Inspection Report and OSIM Inspections Report which identify the conditions and repair needs of roads, bridges and culverts respectively. • Current level of service measures have been identified through this plan, with the Municipality expecting to develop other metrics on an ongoing basis. • It is expected that service level data continue to be monitored and refined over the long-term.
July 1, 2023	<ul style="list-style-type: none"> • Every municipality shall prepare an asset management plan in respect of all other municipal infrastructure assets. • The current levels of service must be defined for all other municipal assets 	<ul style="list-style-type: none"> • This 2019 Plan has incorporated all non-core assets contained in the Municipality's inventory. • Current level of service measures have been identified through this plan, with the Municipality expecting to develop other metrics on an ongoing basis.
July 1, 2024	<ul style="list-style-type: none"> • Municipalities must establish proposed levels of service for a minimum of 10 years. • A lifecycle management and financial strategy that covers a minimum of 10 years. 	<ul style="list-style-type: none"> • The Municipality is expecting to develop the analysis needed to establish proposed levels of service and a financial plan to achieve the proposed levels of service. • The proposed levels of service will be established through consultation with Council and the public in a subsequent update of this 2019 Plan.

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.

Table 2 Guide to the 2019 Asset Management Plan	
Section	Requirement
Section II - State of the Local Infrastructure	Summarizes the state of the Municipality'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 as well as recommendations on additional metrics the Municipality can look to track in the future. Additional details are provided in Appendix C.
Section IV - Asset Management Strategy	Sets out several strategies that will assist the Municipality in maintaining assets so that current service levels are maintained. This section also includes a risk analysis of Municipality assets. Additional details are provided in Appendix D.
Section V - Financing Strategy	Establishes how asset management can be delivered in a financially sustainable way for both tax and utility rate supported services. Additional details are provided in Appendix E.
Section 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

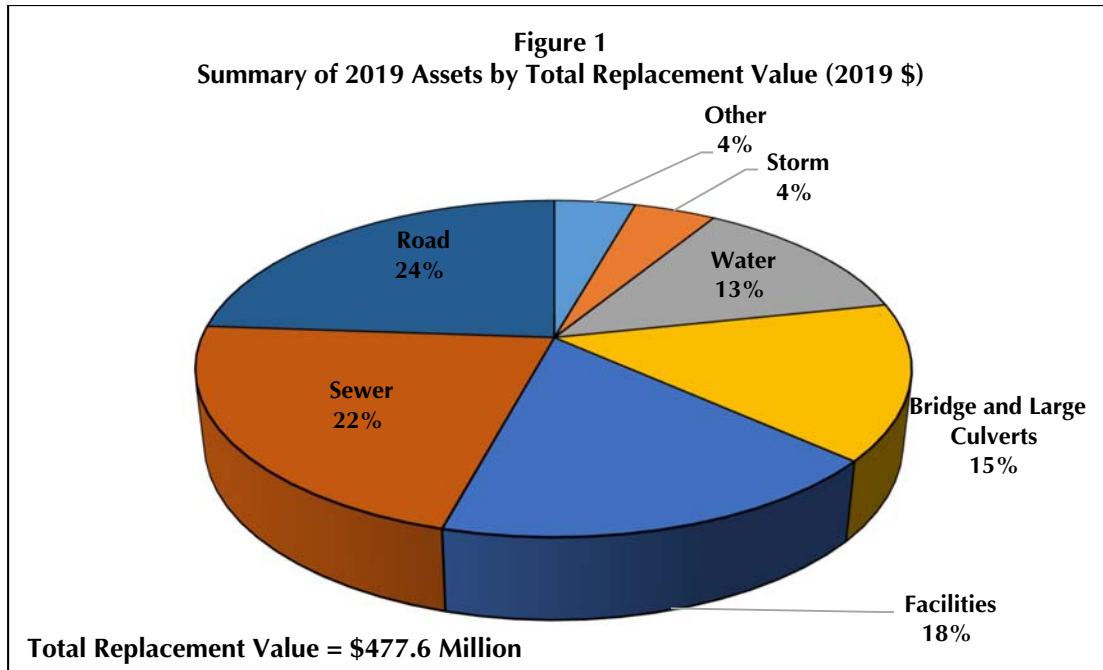
This section provides a summary of the Municipality's assets with reference to asset quantity and quality. Some assets have condition assessments based on engineering inspections (roads, bridges and culverts), while the balance of assets considered are based on the useful life of the asset relative to its age as well as independent staff assessments. Useful life assumptions for the assets considered under this 2019 Plan were acquired from the Municipality's tangible capital asset information. Detailed technical information on the asset inventory, remaining useful life and conditions for each asset category is provided in Appendix B.

A. REPLACEMENT COST OF INFRASTRUCTURE

The replacement cost for all Municipal assets considered in the 2019 Plan is estimated at \$477.6 million (represented in constant 2019 dollars). The largest share is related to roads (including gravel roads) and accounts for about \$114.1 million (23.9%) of the total replacement cost. The next highest share is attributed to sewer infrastructure at \$104.6 million (21.9%) and this is followed by facilities at \$83.9 million (17.6%).

The other asset categories of the Municipality's asset portfolio make up the remaining \$175.0 million (36.6%). These are made up of \$71.5 million (15.0%) in bridges and large culverts, \$61.6 million (12.9%) in water infrastructure, \$21.0 (4.4%) million in stormwater infrastructure, and \$20.8 million (4.4%) in other assets (vehicles, equipment, IT/Computers, etc.).

The replacement costs in the asset inventory have been developed based on information outlined in the 2017 Roads Inspection Report, OSIM Inspections Report, costing information obtained from Municipality staff as well as information from municipalities comparable to North Perth 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.



Note: Gravel roads are included in the total replacement value but excluded from the total value in relation to the assets by condition.

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 \$456.6 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 Municipality's assets is approximately 29 years, largely driven by the relatively young age of engineering assets of storm, water and sewer infrastructure. Gravel roads have been excluded from the WRUL value.
- **Weighted Condition:** Overall, the Municipality's assets are determined to be in Fair condition. Despite the overall fair rating, some asset categories such as machine equipment are considered to be in Poor condition; however, this condition is based on the relative age of the assets. Conversely, streetlights and storm assets are relatively new and are considered to be in Good condition. It is also important to note that gravel roads are excluded from WAC number; gravel road conditions are highly dependent on weather and traffic conditions.

Furthermore, the conditions are very reliant on the specific timing of when the condition assessment took place and can fluctuate quite drastically from month-to-month.

- The condition of some components of the North Perth Wastewater Treatment plant have been assessed to be in poor or very poor condition. These conditions are reflected in the weighted condition assessment in Table 3. The Municipality is currently undertaking improvement works at the treatments plant, therefore, it is expected once these works are completed the condition data will be updated to reflect the improvements at the plant.
- Some facilities have been identified to be in poor to very poor condition. In particular, the Listowel Memorial Arena, the Elma Memorial Community Centre (EMCC) and the Atwood Library have been identified in this category. The Listowel Memorial Arena is expected to be decommissioned once the expansion to the Steve Kerr Recreation Complex is completed. Grant applications have recently been prepared for works associated to the EMCC and Atwood Library. If these grants are successful it is expected improvement works at these facilities will improve the condition associated to each building.

Asset Type	Replacement Cost (2019)	Useful Life (Years)	Remaining Useful Life (Weighted Average)	Condition (Weighted Average)	
Computer/IT	\$424,218	5-10	2	Fair	3.2
Equipment	\$3,134,816	3-50	4	Fair	2.8
Machine Equipment	\$4,397,689	10-20	5	Poor	2.2
Fleet	\$4,161,518	7-25	6	Fair	3.1
Land Improvements	\$2,272,989	15-50	13	Fair	3.4
Facilities	\$83,917,857	15-100	23	Fair	3.3
Streetlights	\$647,239	20	15	Good	4.1
Sidewalks	\$5,806,062	30	15	Fair	2.9
Road	\$93,036,862	30	16	Good	4.1
Bridge and Large Culverts	\$71,544,349	30-75	28	Fair	2.9
Storm	\$21,011,026	50-75	55	Good	4.3
Water	\$61,561,821	5-100	41	Fair	3.4
Sewer	\$104,640,034	5-100	38	Fair	3.0
Total	\$ 456,556,480		29	Fair	3.4

Note: Excludes gravel roads.

C. CONDITION ASSESSMENTS

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

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

Assets were categorized in the 5-tier rating system on an asset by asset basis. In particular for roads, bridges, and culverts, engineering reports identifying asset condition was available while some condition assessments were performed by staff for other assets groups. Lastly, in the absence of engineering reports or staff level inspections, the remaining useful life of the assets was used as a proxy for its condition for all remaining asset categories. Importantly, engineering reports have been used for roads and bridges which represents nearly 40% of the municipal asset base.

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.

Condition Assessment	Bridges & Culverts (BCI Range)	Roads (PCI Roads)	All Other Asset Categories (Remaining Useful Life)
Very Good	80-100	80-100	80%-100%
Good	70-80	70-85	60%-80%
Fair	60-70	55-70	40%-60%
Poor	50-60	40-55	20%-40%
Very Poor	Less than 50	Less than 40	Less than 20%

Note: Bridge and Culvert ranges based on OSIM Inspection Report. Road ranges based on 2017 Roads Inspection Report.

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 Municipality already performs detailed condition assessments of bridges and culverts through the OSIM Inspection Report and of roads by way of a Roads Inspection Report.
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 Municipality was not able to provide a condition assessment based on existing knowledge or site inspection. It is the intention that the Municipality move towards a condition assessment methodology using approach 1 and 2.

III LEVEL OF SERVICE

Asset management decisions must be made with reference to the level of service planned for by the Municipality. Current service levels in North Perth have been developed based on a combination of internal asset management practices, community expectations, statutory requirements, and industry operation and safety standards. Typically, the level of asset investment made by the Municipality in any one year has been determined by funding availability. That said, the Municipality 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 Municipality's accessibility of "soft" services (e.g. recreation facilities; libraries; fire stations) within neighbourhoods. However, safety and performance are also important for core services such as roads, bridges and culverts, water and sewer infrastructure.

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

A. CURRENT LEVELS OF SERVICE

The Municipality 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:

- **Weighted Condition:** the condition of the Municipality's assets are determined to be in Fair condition overall. Only machine equipment is considered to be in Poor condition which can be attributed to the age of those assets. It is important to note that assets in Fair condition may transition into the Poor or Very Poor category in the near future and may require attention in short to medium term if proper asset maintenance and rehabilitation is not achieved. It will be important for the Municipality to determine which assets in the Fair category should be prioritized to ensure that current levels of service do not decline.
- **Bridge and Large Culverts:** The Municipality continues to ensure that culverts continue to operate in a safe and efficient manner. The Municipality will continue to monitor bridges and culverts carefully to ensure that current levels of service are maintained. Currently, no bridges and culverts have loading or dimensional

restrictions and the average condition index for all Municipality bridges is 69 (out of 100) and the average condition index for all Municipality culverts is 67 (out of 100).

- **Roads:** Collector road lane kilometres as a share of the Municipality's land area is 3% while local road lane kilometres as a share of the Municipality's land area is 77%. This largely reflects the nature of the Municipality as a largely rural community. The average pavement condition index of paved roads is 72 (out of 100). The Municipality has budgeted approximately \$1.2 million in 2019 for road maintenance and surface treatment (both gravel and paved roads).

Table 6
Municipality of North Perth
Level of Service Performance Tracker

Asset Category	Community Level of Service (as per O. Reg. 588/17)	Performance Measures	Current LOS
Computer/IT	Computer/IT assets include all computers and peripheral equipment required for the Municipality to achieve its operational objectives. These assets also include software necessary for municipal operations.	Average weighted condition assessment	Fair
		Percentage of assets at or above "Good" or "Very Good" condition	51%
		Number of major computer/IT hardware issues reported per year	2
Equipment	Equipment includes furniture and small mechanical and stationary equipment. Examples include furniture at facilities, park furniture like chairs and picnic tables, and small equipment like lawn maintenance equipment. Also includes fire and sports related equipment.	Average weighted condition assessment	Fair
		Percentage of assets at or above "Good" or "Very Good" condition	14%
		Number of unplanned maintenance events per year	50
		Number of inspections per year	52
Machine Equipment	Includes mobile heavy machinery such as plows, tractors, ice resurfacers, tractors and trailers.	Average weighted condition assessment	Poor
		Percentage of assets at or above "Good" or "Very Good" condition	23%
Fleet	Includes fleet vehicles used for recreation services, public works vehicles and fire trucks.	Average weighted condition assessment	Fair
		Percentage of assets at or above "Good" or "Very Good" condition	40%
		Number of unplanned maintenance events per year	100
		Number of inspections per year	66
		Proportion of total vehicle work time, vehicles are available for duty per year	100
Land Improvements	Includes equipment mostly on playgrounds and sportsfields such as fencing, lighting, splashpads, skate ramps, etc.	Average weighted condition assessment	Fair
		Percentage of assets at or above "Good" or "Very Good" condition	60%
Facilities	Includes all Municipal buildings and facilities as well as minor buildings and structures. This includes fire stations, the administration building, library, public works facilities and others.	Average weighted condition assessment	Fair
		Percentage of assets at or above "Good" or "Very Good" condition	42%
		Proportion of the population living within 20 km of a community/recreation centre	100%
		Proportion of the population living within 20 km of a fire station	100%
		Proportion of the population living within 20 km of a library	100%
Streetlights	Includes all streetlights owned and operated by the municipality. Most have been converted to energy efficient LED.	Average weighted condition assessment	Good
		Percentage of assets at or above "Good" or "Very Good" condition	100%
		Number of complaints received from residents per year	76
Sidewalks	Includes all sidewalks in the Municipality particularly in the urban areas.	Average weighted condition assessment	Fair
		Percentage of assets at or above "Good" or "Very Good" condition	25%

Table 6
Municipality of North Perth
Level of Service Performance Tracker

Asset Category	Community Level of Service (as per O. Reg. 588/17)	Performance Measures	Current LOS
Road	The Municipality owns and maintains both paved and gravel roads. Public works maintains maps of the road network and maintains the level of connectivity of each road segment through the 2017 Road Inspection Report.	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	
		Collector	3%
	The Municipality is currently working to consolidate additional information on the roads network, in particular images that illustrate the road condition of each road segment. Each road segment contains a condition rating based on the 2017 Road Inspection Report.	Local	71%
		1. For paved roads in the municipality, the average pavement condition index value (O. Reg. 588/17).	72.00
		2. For unpaved roads in the municipality, the average surface condition (O. Reg. 588/17).	N/A
		Average weighted condition assessment (All Roads)	Good
	Municipal bridges support various types of traffic including local traffic, transport trucks and farm equipment. There are some seasonal road restrictions which also apply to bridges. During the spring thaw, some North Perth roads may become too soft and unstable to withstand the weight of a fully loaded truck, regardless of the axles. In an effort to reduce damage to the roads during spring thaw, from March 1 to April 30 each year, the Municipality restricts vehicles to half loads (5 tonnes per axle) on all roads.	Percentage of assets at or above "Good" or "Very Good" condition (All Roads)	75%
		Number of complaints received from residents per year	21
		Percent of signs found missing or ineffective during annual inspections	11.30%
1. For bridges in the municipality, the average bridge condition index value (O. Reg. 588/17).		69.04	
2. For structural culverts in the municipality, the average bridge condition index value (O. Reg. 588/17).		66.92	
Bridge and Large Culverts	The Municipality maintains the condition of bridges using a BCI index based on OSIM Inspection reports in the asset inventory. BCI values are expected to be updated once new OSIM Inspection information is available.		
	The Municipality maintains the condition of culverts using a BCI index based on OSIM Inspection reports in the asset inventory. BCI values are expected to be updated once new OSIM Inspection information is available.		
	Average weighted condition assessment (All bridges & culverts)	Fair	
	Percentage of assets at or above "Good" or "Very Good" condition (all bridges & culverts)	8%	
	Number of complaints received from residents per year	0	
	Planned maintenance costs per m2 of bridge deck area per year	\$ 20.65	

**Table 6
Municipality of North Perth
Level of Service Performance Tracker**

Asset Category	Community Level of Service (as per O. Reg. 588/17)	Performance Measures	Current LOS
Storm	<p>Storm sewers collect rain and run-off from melting snow on properties to help prevent flooding and redirect this wastewater to nearby stormwater management ponds and waterways.</p> <p>A stormwater management pond is an engineered structure constructed to gather rainfall and surface water runoff. The pond temporarily stores water and then releases it at a controlled rate. A single pond can provide erosion and flooding control while enhancing water quality.</p> <p>Through a combination of landscape and structural features, stormwater management ponds allow sediment and contaminants to settle out of runoff before it is released into a natural watercourse. Stormwater ponds also hold back water in order to release it at a controlled rate during large storms. Controlling the flow of stormwater protects downstream lands from erosion and flooding.</p> <p>Stormwater ponds are also constructed to be an attractive feature with an environmental benefit. Ponds are designed to be surrounded by vegetation and to provide a habitat for birds and animals.</p> <p>Maps of the Municipal Drainage system are available at northperth.ca.</p>	1. Percentage of properties in municipality resilient to a 100-year storm (O. Reg. 588/17).	100% (Assumed for Urban Area)
		2. Percentage of the municipal stormwater management system resilient to a 5-year storm (O. Reg. 588/17).	100% (Assumed for Urban Area)
		Average weighted condition assessment	Good
		Percentage of assets at or above "Good" or "Very Good" condition	82%
		Total time roads closed due to flooding in days per year	2
Water	<p>North Perth owns, generates and maintains four water systems that serve residents in Atwood, Listowel, Gowanstown and Molesworth. The Municipality is committed to maintaining a safe supply of high quality drinking water that meets all applicable regulations and legislation.</p>	1. Percentage of properties connected to the municipal water system (O. Reg. 588/17).	63%
		2. Percentage of properties where fire flow is available (O. Reg. 588/17).	63%
	<p>The Municipality does not currently have any boil water advisories or service interruptions.</p>	1. The number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system (O. Reg. 588/17).	0
		2. The number of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system (O. Reg. 588/17).	0
	<p>Fire flow is available in the urban areas only.</p>	Average weighted condition assessment	Fair
		Percentage of assets at or above "Good" or "Very Good" condition	55%
		% unaccounted for water (water billed vs. water produced)	10%
		Total Storage capacity	Atwood 125 m3 Listowel 3270 m3 elevated tank
		Average municipal residential water consumption	18
		Percentage of water facilities with backup power	100
		Number of complaints received from residents per year	18
	Number of unplanned maintenance events per year	25	
Number of inspections per year	156/system		

Table 6
Municipality of North Perth
Level of Service Performance Tracker

Asset Category	Community Level of Service (as per O. Reg. 588/17)	Performance Measures	Current LOS
Sewer	North Perth operates a wastewater treatment facility located just outside of Listowel. Both the Atwood and Listowel collection systems are piped to the wastewater treatment facility. The Municipality is responsible for all monitoring, quality assurance, quality control, reporting, inspecting, collection and maintenance of the facility.	Percentage of properties connected to the municipal wastewater system (O. Reg. 588/17).	65%
	The Municipality maintains all reporting on wastewater system performance through annual wastewater reports. The latest copy is available at northperth.ca (2018 Annual Report for the Municipality of North Perth – Listowel Wastewater Treatment Facility). This report is update on an annual basis)	1. The number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system (O. Reg. 588/17).	0
	In addition, the Municipality maintains information on wastewater capacity and planned flow in the 2015 North Perth Wastewater Treatment Master Plan.	2. The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system (O. Reg. 588/17).	0
		3. The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system (O. Reg. 588/17).	0
		Average weighted condition assessment	Fair
	Percentage of assets at or above "Good" or "Very Good" condition	43%	
	Percentage of wastewater bypassing treatment	0	
	Wastewater billed vs. wastewater treated	109%	
	Percentage of facility sites with backup power	90%	
	Number of complaints received from residents per year	9	
Number of unplanned maintenance events per year	50		
Number of inspections per year	365 WWTP/ 156 at each pump station		

IV ASSET MANAGEMENT STRATEGY

This section sets out an action plan that will assist the Municipality 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 Municipality staff and Council measure and manage risks to maintain current levels of service.

A. A SET OF PLANNED ACTIONS

The Municipality 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 Municipality undertakes to maintain assets. The set of existing actions and planned activities are summarized for each of the asset categories in Appendix D.

Table 7 Planned Actions	
Section	Requirement
Non-infrastructure Solutions	<ul style="list-style-type: none"> Actions or policies that can lower costs or extend asset life (e.g., better integrated infrastructure planning and land use planning, demand management, insurance, process optimization, managed failures, etc.).
Maintenance Activities	<ul style="list-style-type: none"> Servicing assets on a regular basis in order to fully realize the original service potential. Maintenance will not extend the life of an asset or add to its value. Not performing regular maintenance may reduce an asset's useful life.
Renewal/Rehabilitation Activities	<ul style="list-style-type: none"> Mostly associated to significant repairs designed to extend the useful life of an asset. These types of activities are typically done at key points in the lifecycle of an asset to ensure the asset reaches its designed useful life.
Replacement Activities	<ul style="list-style-type: none"> Activities that are expected to occur once an asset has reached the end of its useful life and renewal/ rehabilitation is no longer an option.

Table 7 Planned Actions	
Section	Requirement
Disposal Activities	<ul style="list-style-type: none"> The activities associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed. Typically, disposal costs are accounted under replacement activities. Some assets, such as landfills, may have perpetual maintenance costs.
Expansion Activities	<ul style="list-style-type: none"> Planned activities required to extend or expand municipal services to accommodate the demands of growth. Expansion activities are captured in the Municipality's Development Charges Background Study.

It should be noted that the Municipality undertakes all the activities described above and in Appendix D; however, the Municipality's budget generally accounts for these expenditures in different categories. The Municipality 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 Municipality 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. For example, an asset in Very Poor condition, the probability of asset failure in the short term is increased. This type of asset may be near the end of its useful life or has deteriorated significantly. Conversely it would be considered rare for an asset to fail in the short term if it is considered to be in Good or Very Good condition. Table 8 below outlines the definition of probability of failure used for the Municipality'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 Municipality if an asset were to fail. The consequence of failure has been determined separately for each asset category, as the impact to the Municipality differs greatly by asset type. In addition, the consequence of failure has been evaluated on a range of criteria to help further evaluate the relative consequences that could be realized for each asset. 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, roads, bridges and culverts are prioritized based on the conditions and required works in the 2017 Roads Inspection Report and OSIM Inspections Report. Table 9 below outlines the definition of consequence of failure used for the Municipality's assets.

Table 9 Consequence of Failure							
Consequence of Failure	Impact	Consequence of Failure	Description	Injury	Service Interruption	Environment Damage	Reputation Damage
1	Insignificant	No impact to operations.	Insignificant	None	< 4 hours	None	None
2	Minor	Minor impact to operations, all major operations can continue to function.	Minor	First Aid	Up to 1 day	Minor	Minor Media
3	Moderate	Moderate impact to operations some critical operations may need to stop functioning temporarily.	Moderate	Medical Treatment	1 day - 1 week	Short Term	Moderate Media
4	Major	Major operations seize and some damage control necessary.	Major	Disability/ Fatality	1 week - 1 month	Long Term	High Media
5	Significant	All operations seize to function and major damage control is necessary.	Significant	Fatality	> 1 month	Irreversible	Censure/ Inquiry

- **Risk Rating:** categorizes assets based on the level of risk to the Municipality. 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 Municipality's assets rated from Low to High risk with the overall risk being Moderate. Assets in the high risk category include facilities, sewer, and water and represent assets which based on the condition and consequence should be prioritized for replacement sooner than other low risk asset categories. 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, bridges and culverts which are prioritized based on the conditions and works identified in the 2017 Road Assessment Report and OSIM Inspections Report. It is important to note, that the Municipality 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 State of Local Infrastructure			
Asset Type	Replacement Cost 2019	Risk (Weighted Average)	
Computer/IT	\$ 424,218	Moderate	8
Equipment	\$ 3,134,816	Low	6
Machine Equipment	\$ 4,397,689	High	13
Fleet	\$ 4,161,518	High	10
Land Improvements	\$ 2,272,989	Moderate	8
Facilities	\$ 83,917,857	Low	6
Streetlights	\$ 647,239	Low	6
Sidewalks	\$ 5,806,062	Low	4
Road	\$ 93,036,862	Low	4
Bridge and Large Culverts	\$ 71,544,349	High	13
Storm	\$ 21,011,026	Low	6
Water	\$ 61,561,821	Moderate	8
Sewer	\$ 104,640,034	High	10
Total	\$ 456,556,480	Moderate	8

It is important to recognize the risk associated with the Municipality'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.

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

V FINANCING STRATEGY

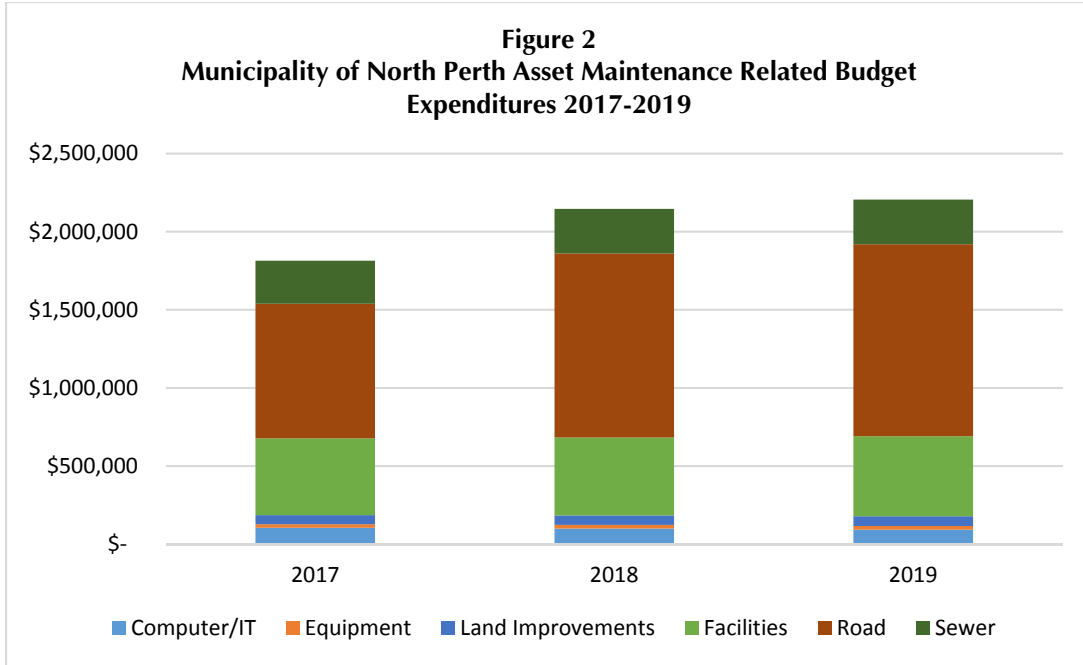
This section of the 2019 Plan is intended to provide a framework for the Municipality to integrate asset management with annual budgeting and long-term financial planning. The Municipality has traditionally followed a “pay-as-you-go” approach to financing infrastructure, whereby capital expenditures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

A. OPERATING BUDGET EXPENDITURES

The Municipality 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 Municipality has been increasing its operational and capital budget expenditures to maintain assets and fund capital asset repair and replacement over the past few years.

Figure 2 illustrates total asset maintenance related expenditures by department based on the Municipality’s annual budgets. Total expenditures were \$1.8 million in 2017 and increased to \$2.2 million in 2019 – the change can generally be attributed to the increased road expenditures over this period. The largest share of expenditures has consistently been related to roads accounting for over 55% of the maintenance budget for 2019, at approximately \$1.2 million.

It is anticipated that the Municipality’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 Municipality, annual costs could exceed regular inflationary adjustments.



Source: Municipality of North Perth annual budgets.

B. CAPITAL REPLACEMENT SCHEDULE

The 2019 Plan includes an estimate of the timing for replacement of all assets with the exception of roads, bridges and culverts as the capital requirements of those assets are informed by the 2017 Roads Inspection Report and OSIM Inspections Report. 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.

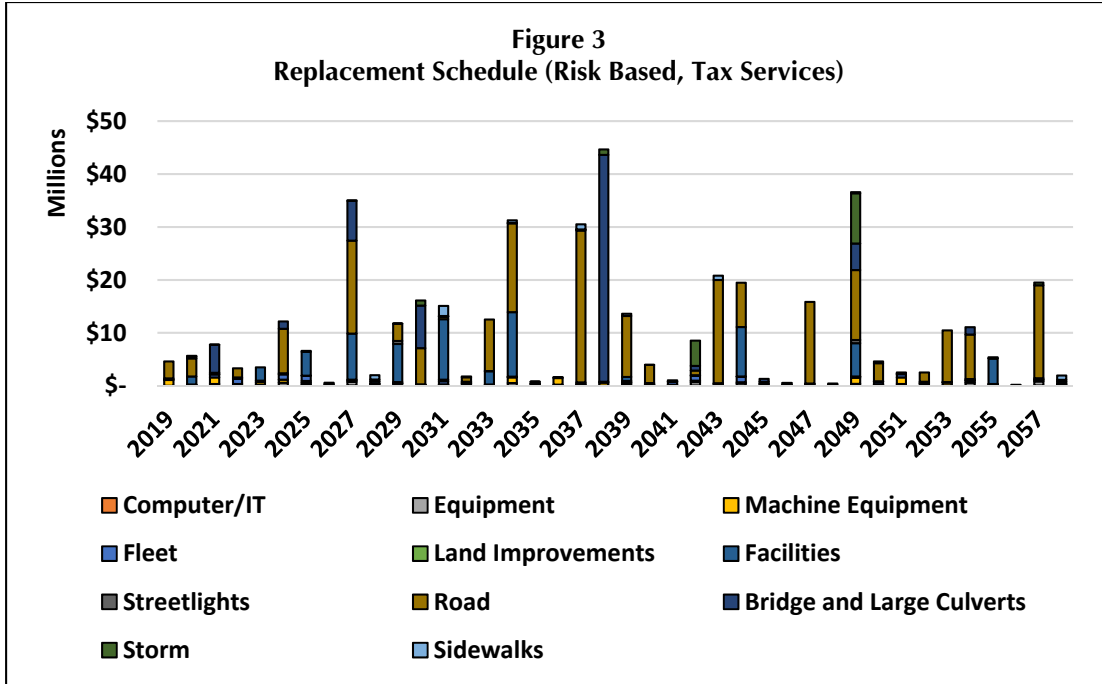
Percentage of Useful Life Remaining					Color Code
100%	80%	60%	40%	20%	Very Low Risk
80%	65%	50%	30%	16%	Low Risk
60%	50%	35%	25%	10%	Moderate Risk
40%	30%	25%	15%	2%	High Risk
20%	16%	10%	2%	0%	Very High Risk

1. Tax Supported Assets

Figure 3 sets out the schedule of repair and replacement of assets, to maintain current levels of service for the tax supported assets considered in the 2019 Plan. Over the 40-year period, to 2058, the tax supported repair and replacement program totals about \$427.7 million. The average yearly replacement costs of these assets amount to approximately \$10.7 million.

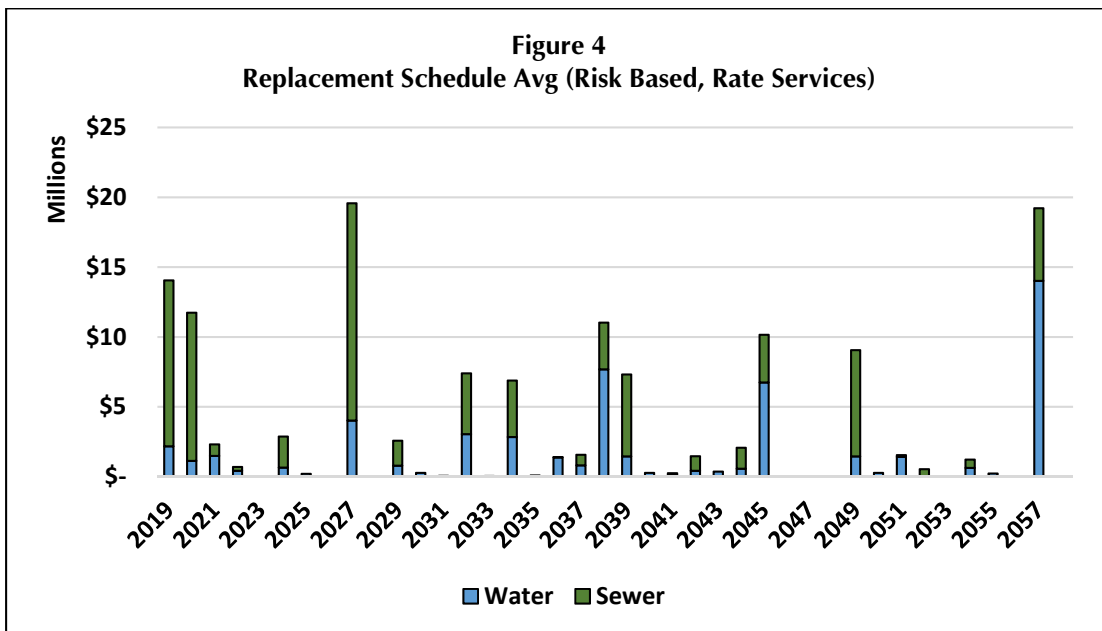
Some larger valued assets have been identified over the next few years to require repair or replacement, in particular over the next 5 years:

- **Machine Equipment:** Various machine equipment are expected to be replaced in 2021 at a cost of \$1.2 million. This includes replacement of the wheel loader, tandem dump/plow, backhoe, tandem truck, tractors, and ice resurfacers.
- **Fleet:** In 2022, the rescue pumper at \$871,000 is expected to be replaced. The triple combination pumper, freightliner fire pumpers and emergency van are expected to be replaced in 2024 totalling \$1.0 million.
- **Facilities:** By 2023, the Listowel Kinsmen Pool will require repair or rehabilitation totalling \$2.5 million.
- **Road:** Various road works are expected including rehabilitation, preventative maintenance and reclamation totalling \$8.6 over the next five years, although, more significant work is projected from 2024 to 2029 (about \$27 million).
- **Bridge and Large Culverts:** In 2021, \$3.9 million will be required to replace the bridges on Salter, Line 88, Davidson Street, and Line 81. An additional \$1.4 million is required to replace culverts on Line 71 and Road 154. In 2024, culverts on Road 152 and Line 73 will require replacement at a cost of \$1.4 million.



2. Rate Supported Assets

Figure 4 sets out the schedule of repair and replacement of assets, to maintain current levels of service for the rate supported (water and sewer) assets considered in the 2019 Plan. Over the 40-year period, to 2058, the rate supported repair and replacement program totals about \$136.7 million. The average yearly replacement costs of these assets amount to approximately \$3.4 million.



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 Municipal assets need to be understood and contributions to reserves and reserve funds need to be quantified. In this section, provisions for repair and replacement are calculated for each asset based on 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.

1. Tax Supported Assets

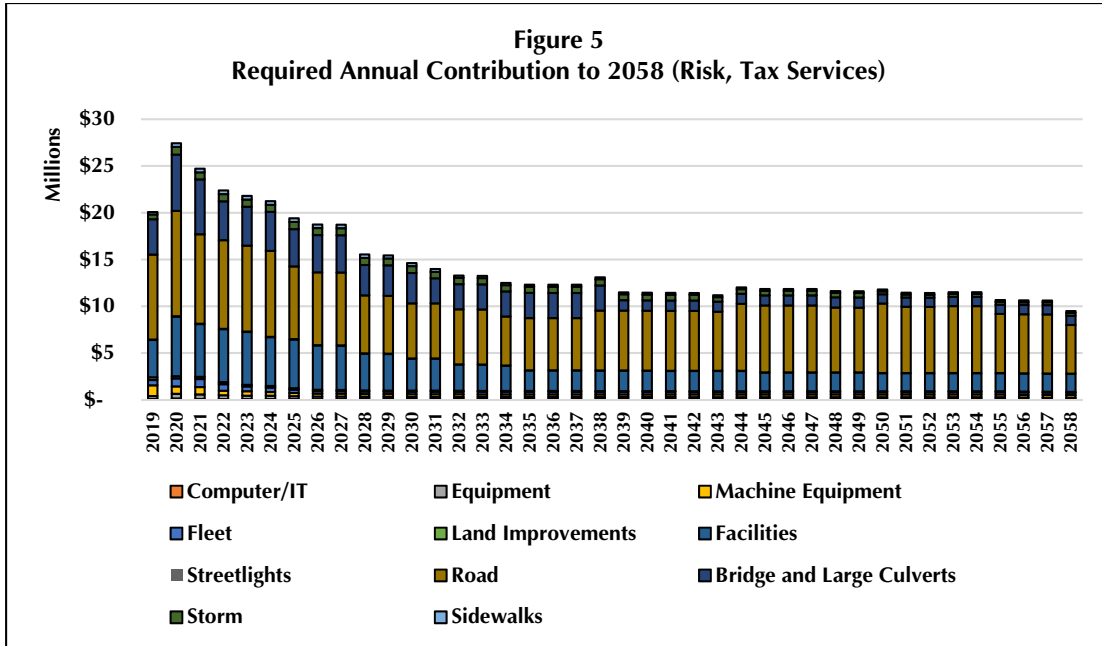
It is important to note that this provision includes cost associated to renewal/rehabilitation and replacement based on the replacement schedule in Figure 3 above and the recommended works in the 2017 Roads Inspection Report and OSIM Inspections Report. Furthermore, available tax supported capital reserves have been accounted and applied towards the 2019 infrastructure deficit.

Road works identified in the 2017 Roads Inspection Report are required to ensure the roads continue to meet service standards. Typically, roads are not fully replaced and are therefore reconstructed or rehabilitated. Hence, the provision identified incorporates the 10 year work identified in the 2017 Roads Inspection Report plus a long term provision for works beyond the 10 year period to 2058, based on the replacement cost of each road segment.

Figure 5 shows the funds that would have to be contributed annually to reserves to maintain current levels of service for tax supported assets included in this 2019 Plan to 2058. Figure 5 demonstrates that:

- Average annual contributions over the 40-year period would have to be in the order of \$14.3 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 \$20.1 million (including transfers to reserves). However, there will likely be measures the Municipality 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.
- The Municipality will spend about \$5.9 million (including grants, gas tax and reserves) in 2019 for repair/replacement of tax supported assets. The \$5.9 million in capital spending is comprised of:
 - \$4.2 million in tax levy capital funding (including reserve contributions);

- \$1.4 million from grants (OMPF); and
- \$398,000 in gas tax funding.
- Investment in municipal assets would need to increase by over \$8.3 million to achieve the \$14.3 million average requirement in 2019. It should be noted that of the 2019 capital funding sources, tax supported revenues are the most secure form of recurring revenue for the Municipality as other funding sources could be subject for review by the province.

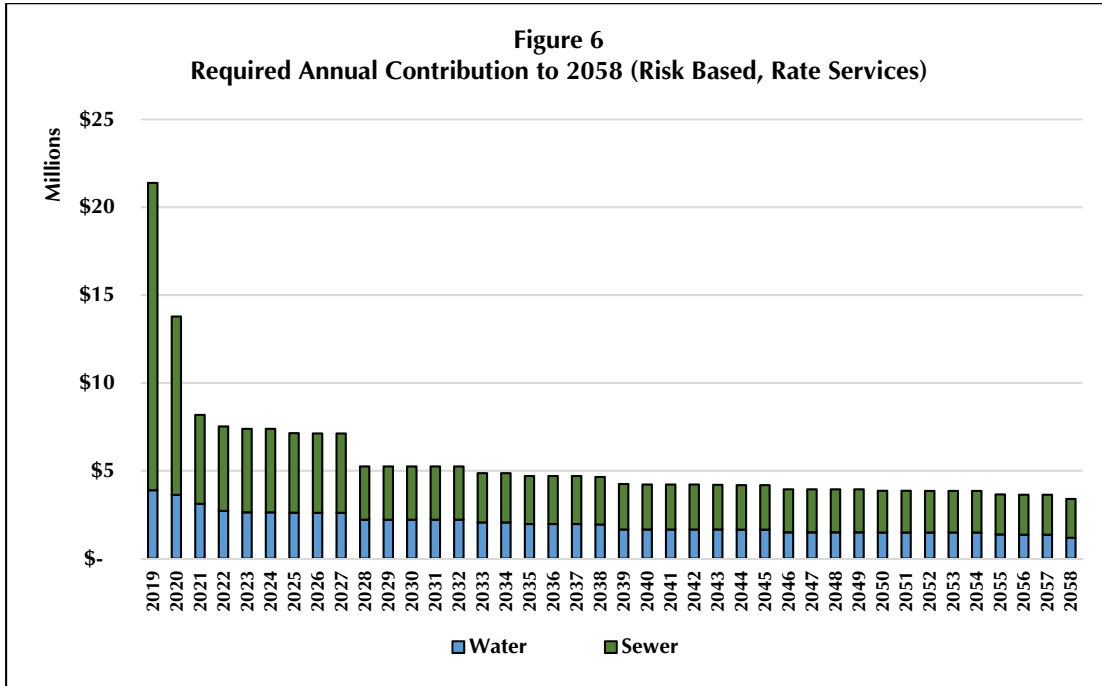


2. Rate Supported Assets

Figure 6 shows the funds that would have to be contributed annually to reserves to maintain current levels of service for rate supported assets included in this 2019 Plan to 2058. Figure 6 demonstrates that:

- Average annual contributions over the 40-year period would have to be in the order of \$5.5 million per year (net of existing reserve funds), with sewer 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 \$21.4 million (including transfers to reserves). However, there will likely be measures the Municipality 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.
- The Municipality will spend nearly \$1.4 million in 2019 for repair/replacement of rate supported assets.

- Investment in municipal assets would need to increase by approximately \$4.1 million to achieve the \$5.5 million average requirement. The municipality utility rate studies will continue to inform the level of investment required annually while considering future rate increases.



D. CURRENT INFRASTRUCTURE DEFICIT

To implement sustainable asset management practices the Municipality 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 tax and rate supported assets in this 2019 Plan. Using the tax supported services as a reference, the total 2019 capital provision required is \$20.0 million (including infrastructure backlog) and current capital spending is \$5.9 million (includes capital levy, grants, transfer to reserves and gas tax). The current in-year infrastructure deficit is therefore \$14.1 million, which represents about 4.5% of the total tax supported replacement value. The infrastructure deficit would continue to grow should the required annual contributions to capital, identified in Part C, be delayed.

Table 14 Infrastructure Deficit for Base Year 2019		
	Tax Supported	Rate Supported
Projected 2019 Capital Provision	\$20,072,000	\$21,390,000
Total 2019 Capital Spending (Budget)	\$5,925,000	\$1,356,000
Funding Gap	\$14,147,000	\$20,033,000
Cumulative Infrastructure Deficit	\$14,147,000	\$20,033,000
Cumulative Infrastructure Deficit as a Percentage of Total Replacement Value	4.5%	12.1%
<i>Note: Total 2019 capital spending is derived from 2019 budget and includes in year-funding for capital from: tax levy (or utility rates), grants, transfer to reserves, gas tax.</i>		

E. FINANCING STRATEGY

It is unrealistic to expect the Municipality 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 Municipality 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.

Tax Supported Assets

If the Municipality were to implement a funding strategy to eliminate the tax supported infrastructure deficit by 2058, the Municipality would be required to increase capital contributions on an annual basis by an average of about \$493,000 for 40 years. For 2019, the increase would be in addition to the \$4.2 million tax supported capital funding, \$1.4 million in external grants and \$398,000 in Gas Tax funds. The yearly revenue requirement is equivalent to 3.5% of the Municipality's 2019 tax levy revenues of about \$14.2 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 Municipality 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 Municipality may need to decrease or limit funding of other key Municipality 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 Municipality’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 Municipality (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.

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 5. The financing strategies illustrate the “smoothed options” to the capital repair and replacement requirements identified in Part B. Assumptions for each of the three tax supported funding strategies is shown in Table 15 and each financing strategy is shown in Table 16.

Table 15	
Financing Strategy Key Assumptions	
Category	Assumptions
Tax Levy Support (including reserve contributions)	<ul style="list-style-type: none"> • Existing 2019 tax supported capital funding of \$4.2 million is assumed to be the starting point and base case for increasing annual capital contributions.
External Grants	<ul style="list-style-type: none"> • External grants for 2019 amount to \$1.4 million. In 2020 and onwards no further external grant funding is assumed, as the Municipality could expect funding from these sources to cease. • If the Municipality continues to receive other funding sources over the long-term, it is expected that these funds would be directed to high-priority projects to reduce the overall infrastructure deficit.
Gas Tax Reserve Fund	<ul style="list-style-type: none"> • Gas tax funding for 2019 is \$398,000. Post 2019 gas tax funding is assumed based on AMO allocations to 2023 and remain constant afterwards.
Inflation	<ul style="list-style-type: none"> • Financing strategy is expressed in constant 2019 dollars.
Existing Reserves	<ul style="list-style-type: none"> • Existing reserve balances have been accounted and are used against the expenditures in 2019 for the purposes of forecast calculation.
Growth Assets	<ul style="list-style-type: none"> • The financial requirements identified in the strategies below only consider the Municipality’s existing asset base. The asset management requirements associated with new growth related assets would be in addition to those provisions identified and are summarized in Part I: Future Demand in this section.

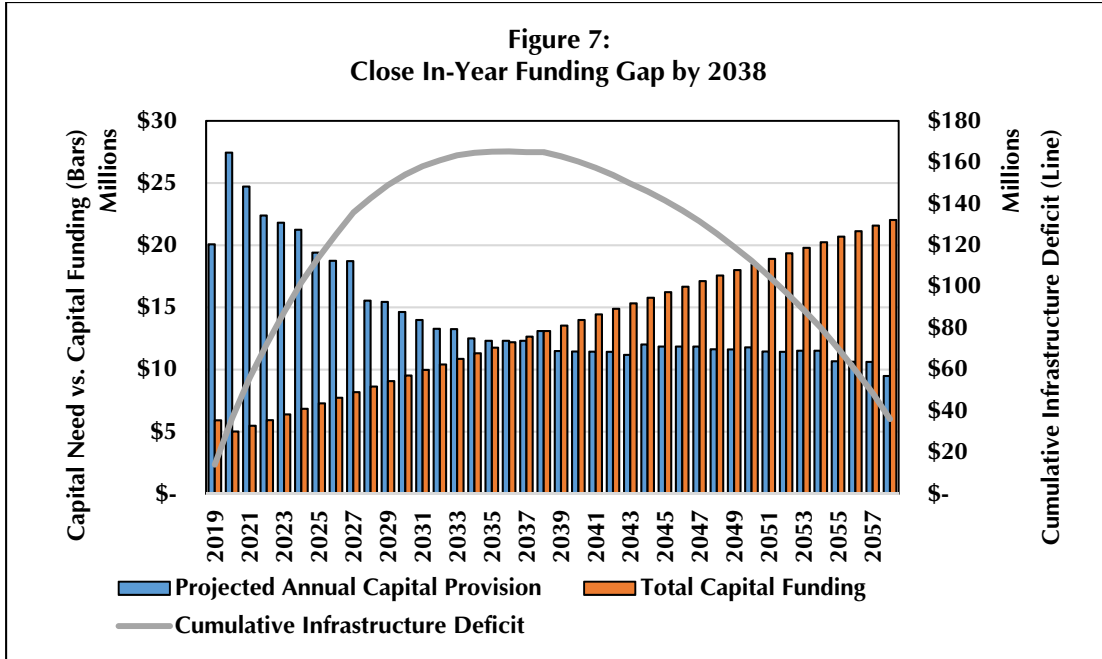
Table 16 Summary of Financing Strategies – Tax Supported Assets	
Financing Strategy	Strategy Parameters
Strategy 1 Close in-year Funding Gap by 2038	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$446,600 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$4.2 million tax supported capital funding. • The yearly revenue requirement is equivalent to 3.1% of the Municipality's 2019 tax levy.
Strategy 2 Close in-year Funding Gap by 2048	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$242,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$4.2 million tax supported capital funding. • The yearly revenue requirement is equivalent to 1.7% of the Municipality's 2019 tax levy.
Strategy 3 Close in-year Funding Gap by 2058	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$125,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$4.2 million tax supported capital funding. • The yearly revenue requirement is equivalent to 0.9% of the Municipality's 2019 tax levy.

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 \$164.9 million before the Municipality begins to reduce this amount by increasing capital contributions by more than the annual provision requirement in 2038 (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 \$446,000 per year. This represents 3.1% of the Municipality's 2019 net tax levy budget of about \$14.2 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 Municipality. The cumulative deficit in 2038 of \$164.9 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.

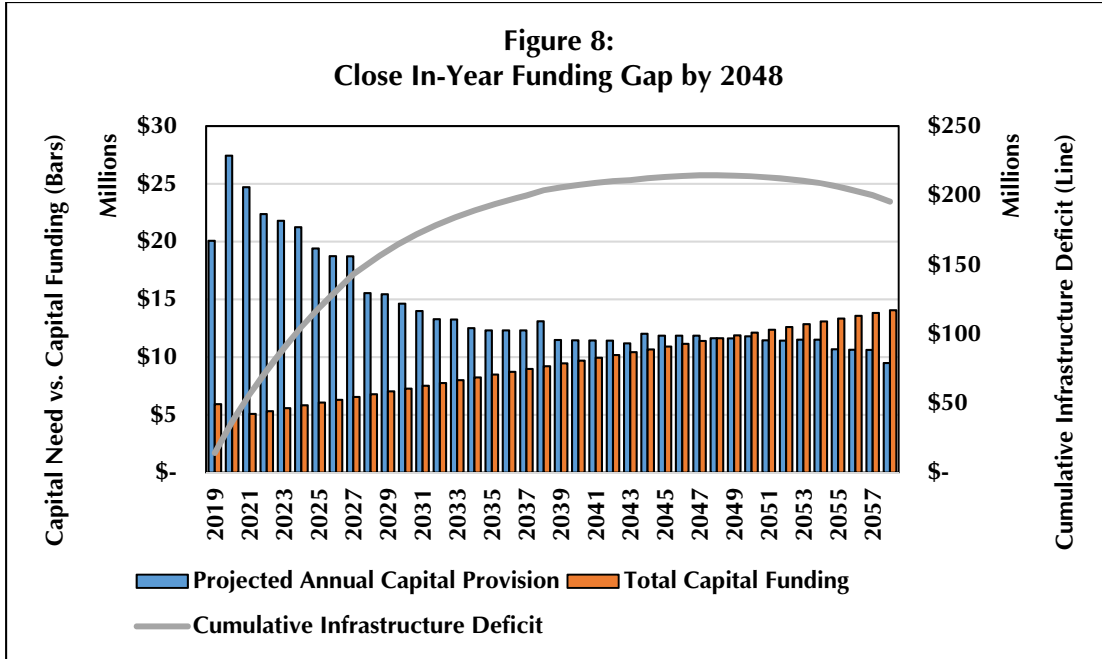


Note: The projected capital provision represents the annual requirement to repair and replace existing Municipality assets as scheduled, based on the condition of each asset and the remaining useful. The projected annual capital provision requirement shown is net of existing reserves (e.g. existing funds 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 \$214.5 million before the Municipality begins to reduce this amount by increasing capital contributions by more than the annual provision requirement in 2048 (Figure 8). 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 \$242,000 per year, representing 1.7% of the Municipality’s 2019 net budget of \$14.2 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 Municipality. The cumulative deficit in 2048 of \$214.5 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.

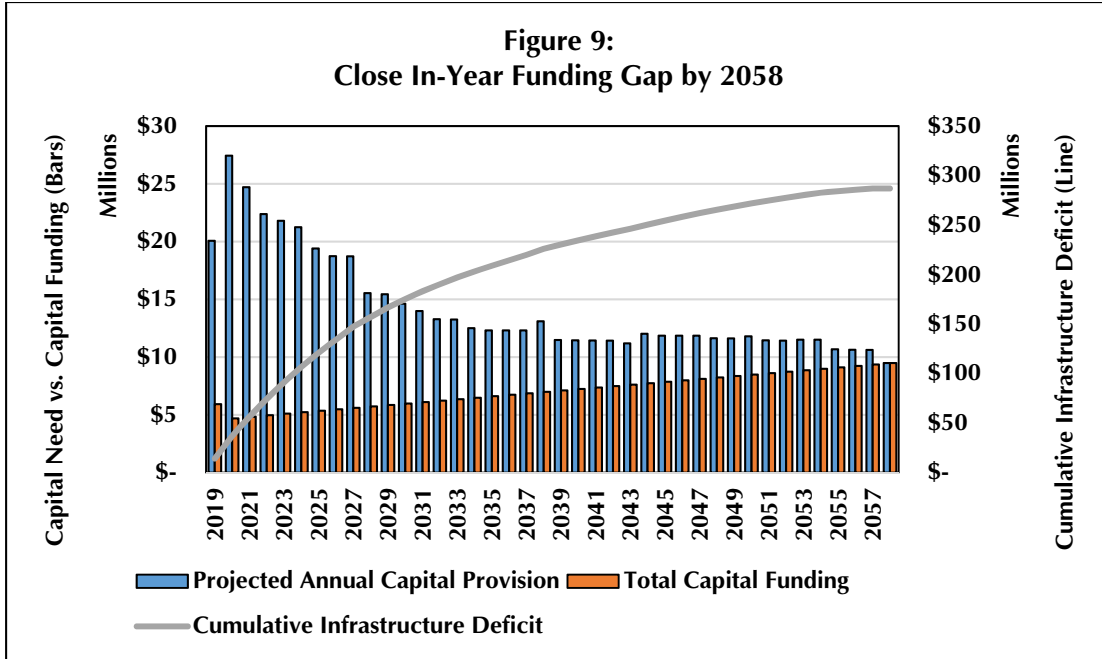


Note: The projected capital provision represents the annual requirement to repair and replace existing Municipality assets as scheduled, based on the condition of each asset and the remaining useful. The projected annual capital provision requirement shown is net of existing reserves (e.g. existing funds 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 \$286.9 million before the Municipality begins to reduce this amount by increasing capital contributions by more than the annual provision requirement in 2058 (Figure 9). 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 \$125,000 per year, representing nearly 1.0% of the Municipality’s 2019 net budget of \$14.2 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 Municipality. The cumulative deficit in 2058 of \$286.9 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 Municipality 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).

Rate Supported Assets

If the Municipality were to implement a funding strategy to eliminate the user rate supported infrastructure deficit by 2058, the Municipality would be required to increase capital contributions on an annual basis by an average of about \$213,000 for 40 years. For 2019, the increase would be in addition to the \$1.4 million user rate supported capital funding.

Similar to the tax supported assets, it may be unrealistic to expect the Municipality to address the total infrastructure deficit in the short-term for rate supported infrastructure. Therefore, a long-term funding strategy that identifies options for addressing current and future asset expenditures is required.

The financing strategies identified in Table 17 portray the “smoothed options” to the rate supported capital repair and replacement requirements identified in Part B. Assumptions for each of the three funding strategies is shown below, however, it is expected that the Municipality incorporate this information in future utility rate setting studies to balance the annual asset management requirements with affordable user rates.

Table 17	
Summary of Financing Strategies – Utility Rate Supported Assets	
Financing Strategy	Strategy Parameters
Strategy 1 Close in-year Funding Gap by 2038	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$173,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$1.4 million tax supported capital funding. • The yearly revenue requirement is equivalent to 4.0% of the Municipality's 2019 utility rate revenues.
Strategy 2 Close in-year Funding Gap by 2048	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$89,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$1.4 million tax supported capital funding. • The yearly revenue requirement is equivalent to 2.0% of the Municipality's 2019 utility rate revenues.
Strategy 3 Close in-year Funding Gap by 2058	<ul style="list-style-type: none"> • Increase annual capital contributions by approximately \$52,000 per year. • For 2020, the increase would be in addition to the 2019 budgeted \$1.4 million tax supported capital funding. • The yearly revenue requirement is equivalent to 1.2% of the Municipality's 2019 utility rate revenues.

F. CAPITAL EXPENDITURE FORECAST

A capital expenditure forecast is outlined in Table 18. The forecast is based on the Municipality's 2019 operating budget, the replacement schedule from Section B and works identified through the 2017 Roads Inspection Report and OSIM Inspections Report. 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 \$100,000 which is approximately 0.7% of the 2019 tax levy of \$14.2 million. The Municipality's yearly infrastructure related capital and operating expenditures are subject to the yearly budget and are adjusted on an ongoing basis. The Municipality can however look to develop a 5 to 10 year capital program in the future.

Table 18 10-Year Expenditure Forecast (All Services)					
Expenditures	2020 Forecast	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast
Non-Infrastructure Solutions	\$ -	\$ -	\$ -	\$ -	\$ -
Maintenance Activities	\$ 1,919,700	\$ 1,919,700	\$ 1,919,700	\$ 1,919,700	\$ 1,919,700
Renewal/Rehabilitation Activities	\$ -	\$ -	\$ -	\$ -	\$ -
Replacement Activities	\$ 17,398,684	\$ 10,057,797	\$ 4,014,815	\$ 3,477,288	\$ 15,020,374
Disposal Activities	\$ -	\$ -	\$ -	\$ -	\$ -
Expansion Activities	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 19,318,384	\$ 11,977,497	\$ 5,934,515	\$ 5,396,988	\$ 16,940,074
<i>Level of Service Adjustment</i>	\$ -	\$ -	\$ -	\$ -	\$ 100,000
Grand Total Lifecycle Costs	\$ 19,318,384	\$ 11,977,497	\$ 5,934,515	\$ 5,396,988	\$ 17,040,074
Expenditures	2025 Forecast	2026 Forecast	2027 Forecast	2028 Forecast	2029 Forecast
Non-Infrastructure Solutions	\$ -	\$ -	\$ -	\$ -	\$ -
Maintenance Activities	\$ 1,919,700	\$ 1,919,700	\$ 1,919,700	\$ 1,919,700	\$ 1,919,700
Renewal/Rehabilitation Activities	\$ -	\$ -	\$ -	\$ -	\$ -
Replacement Activities	\$ 6,808,055	\$ 582,325	\$ 54,620,748	\$ 2,010,587	\$ 14,325,289
Disposal Activities	\$ -	\$ -	\$ -	\$ -	\$ -
Expansion Activities	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 8,727,755	\$ 2,502,025	\$ 56,540,448	\$ 3,930,287	\$ 16,244,989
<i>Level of Service Adjustment</i>	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
Grand Total Lifecycle Costs	\$ 8,827,755	\$ 2,602,025	\$ 56,640,448	\$ 4,030,287	\$ 16,344,989

G. AVAILABLE FUNDING TOOLS

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

Federal and Provincial Grants

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

The Municipality of North Perth has indicated that it expects to continue receiving Gas Tax funds – these funds have been incorporated into the financing strategies at current levels. The Municipality has indicated that other external grants, such as OCIF, may potentially be at risk in future years; therefore, no other future grant funding is assumed for the purposes of the financing strategy. If the Municipality

continues to receive other funding sources over the long-term, it is expected that these funds would be directed to high-priority projects in an effort to reduce the overall infrastructure deficit.

Development Charges

Development charges may be imposed to pay for increased capital costs required because of increased needs for services arising from development. The Municipality of North Perth does levy development charges and these funds will be used to facilitate the acquisition and emplacement of new development-related assets required as a result of growth.

It is important that the Municipality consider the annual asset management requirements associated with any new assets acquired in addition to the net annual requirement for the municipality's existing assets as identified in the previous sections.

Property Taxes

According to the 2019 budget, property taxes represent about \$14.2 million in revenues. The use of property taxes to fund municipal services is the most secure source of funding for the Municipality. As such, the Municipality 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 Municipality 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 Municipality could explore P3s as a tool to carry out capital related activities.

Local Improvement Charges

Municipalities, through local improvement charges, have the ability to recover the costs of capital improvements made on public or privately owned land from property owners who will benefit from improvement. The Municipality 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, in certain circumstances, include replacement of existing assets and funding of non-DC recoverable shares. An example of replacement of an existing asset is when an existing road requires improvements or upgrades as a result of a specific development; the 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 Municipality's outstanding debt is about \$13.8 million. According to the 2019 Annual Repayment Limit, the Municipality currently has about \$1.2 million in annual debt payments, and therefore the net remaining annual repayment limit is \$5.5 million. In 2020, the Municipality expects to add \$11.1 million in debt of which a portion will be development charge funded, bringing total debt to \$24.9 million.

Under the requirements of the *Municipal Act* and best practice suggests that any potential debt should not be financed for a period longer than the average useful life of the asset. This will ensure the Municipality 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 Municipality can complete the required annual capital works. In addition to contributions during low investment periods, many municipalities use annual surpluses, should one arise, to increase reserves. There is no prescribed amount of reserves for a Municipality to have at any given time, but they should be sufficient to cover emergency work (if required).

As of January 1st 2019, the Municipality had an estimated capital reserve balance of \$11.9 million for tax supported assets. Utility rate supported reserve funds account for additional \$5.7 million while other operational and investment related reserve funds account for an additional \$8.7 million.

The reserve balances incorporated into the analysis only consider the money the Municipality 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 \$11.9 million in available tax supported capital reserves have been accounted and applied towards the 2019 infrastructure deficit.

I. FUTURE DEMAND

The 2019 Plan reflects the assets that the Municipality currently owns and operates. Over the next ten years (to 2028) the Municipality is projected to increase by approximately 1,110 households. In addition, the Municipality will also add 850 new employees that will result in approximately 66,320 square metres of additional non-residential building space. By 2041, there will be an increase of 1,670 new dwelling units and 110,100 square metres of non-residential building space. In order to facilitate this growth, the Municipality will be required to emplace new infrastructure to service development. While development charges will be used to fund the acquisition of the capital asset, when assets require rehabilitation or are due for replacement, the source of funds is limited to reserves or contributions from operating. Capital expenditures to carry out the rehabilitation and replacement of aging infrastructure are not growth-related and are therefore not eligible for funding through development charge revenues or other developer contributions.

The calculated annual asset management contribution for both the gross capital expenditures and the share related to the 2019-2028 (10-year services) and 2019-2041 (23-year services) DC recoverable portion have been identified. The year 2029 and 2042 have been included to calculate the annual contribution for the 2019-2028 and 2019-2042 periods respectively, as the expenditures in 2028 and 2041 will not trigger asset management contributions until 2029 and 2042 respectively.

By 2029, the Municipality will need to fund an additional \$379,800 per annum in order to properly fund the full life cycle costs of the new assets related to general and protection services supported under the development charges by-law (10-year services). By 2042, the annual provision amounts to \$238,000 for roads and related, \$20,000 for water services, \$93,000 for wastewater and \$26,000 for the Northeast Master Plan infrastructure. No provision is identified for stormwater services as the DC eligible is related to debt for infrastructure already emplaced.

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

VI CONTINUOUS IMPROVEMENTS AND UPDATES

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

A. NET BOOK VALUE VS. REPLACEMENT VALUE

As specified in the Ministry Guide, the value of the Municipality'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 Municipality's financial statements. The Municipality of North Perth reported Net Book Value covers the full scope of the Municipality's Tangible Capital Assets (TCA), including land. It is noted that the same scope of assets are considered under this 2019 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 Municipality's 2018 Consolidated Financial Statement reported the NBV of the Municipality's TCA as of December 31, 2018 at \$133.8 million. Under the financial accounting approach many assets may be fully depreciated yet remain in use, therefore, Net Book Value is not the appropriate methodology to be employed for infrastructure renewal planning.

Asset Category	2018 Closing NBV
Land	\$8,857,655
Land Improvements	\$1,840,761
Buildings	\$32,128,234
Machinery and Equipment	\$3,196,534
Vehicles	\$1,457,015
Linear Assets	\$74,526,214
Construction-In-Progress	\$11,796,501
Total	\$133,802,914

Source: Municipality of North Perth 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 \$477.6 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 Municipality has collected some recent acquisition data demonstrating similar replacement activities.
- **Published price indices:** Where local indices are not available, the Municipality 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 Municipality 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 Municipality staff in the asset management process. In order to address asset management, an internal network (Asset Management Committee) has been created, in which the Deputy Treasurer & Asset Management Specialist assumes the lead role and responsibility for the maintenance of and reporting on the activity related to the management of Municipal assets. The Manager of Operations 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.

In addition, the Deputy Treasurer & Asset Management Specialist is also intended to be the key liaison with the “County-Wide Asset Management Committee”. This committee shall be comprised of the key executive leads of the four member communities in Perth County and intended to act as an overarching team to coordinate asset management practices and policies within the four member municipalities of Perth.

C. PLAN MONITORING

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

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

D. DATA QUALITY AND CONFIDENCE

The Municipality 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 Municipality 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 and culverts are well documented but certain gaps exist for asset categories related to facilities and fleet where additional condition assessments are possible.

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

E. TIMEFRAMES FOR REVIEW AND UPDATES

This Asset Management 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.

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

This asset management plan has been endorsed by the executive lead of the Municipality and will need to be approved, by resolution, by Municipal Council. The Municipality 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*.

F. PUBLIC REVIEW AND COMMENT

Although the Asset Management Plan is intended to aid municipal 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 Municipality post this plan as well as the strategic policy on the website and provide a copy to anyone upon request.

The Municipality of North Perth will require further public consultation and input to develop the target levels of service required for July 1 2024.

VII CONCLUSIONS AND RECOMMENDATIONS

The objective of this 2019 Plan is to provide the Municipality of North Perth with the information it needs to make decisions on how best to manage capital assets in a sustainable way to 2058. In this section, recommendations based on the analysis undertaken are made.

A. SUMMARY OF KEY FINDINGS

- The Municipality’s asset base is valued at \$477.6 million, in relation to the census population of about 13,130 persons (\$36,400 per capita).
- Overall, a high proportion (about 47% or \$214.3 million) of the Municipality’s assets are considered to be in “Good” to “Very Good” condition. At the same time, approximately 27% (\$123.8 million) of infrastructure is considered to be in “Poor” to “Very Poor” condition. The remaining share of \$118.5 million (26%) is in “Fair” condition.
- The Municipality of North Perth 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 Municipality has capital replacement reserves, and has been contributing to reserves on an annual basis, which is in addition to in year funding from the capital tax levy;
 - Through its annual capital budgeting process, the Municipality 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 Municipality should increase annual capital contributions to address current and future infrastructure requirements;
 - Property taxes are the most secure form of revenue and the Municipality 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.
- Based on the 2019 Annual Repayment Limit, the Municipality is considered to be in good fiscal standing with strong budgetary performance and limited external debt (approximately \$1.2 million in annual debt payments) - the Municipality currently operates well below the annual repayment limit of \$6.7 million in total net debt charges. This debt capacity could allow the Municipality 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 Municipality's existing outstanding debt is about \$13.8 million, and will be adding an additional \$11.1 million in 2020.
- The Municipality 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 Municipality 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 Municipality'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 1st 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 Municipality 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 Municipality 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 Municipality 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 Municipality should continue to refine the condition assessments for all assets considered under this 2019 Plan; and
- The Municipality should update this Asset Management Plan at a minimum every 5 years.

3. Optimize the Use of Existing Assets

- The Municipality 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 Municipality should explore opportunities to dispose under utilized infrastructure/facilities which may not warrant repair/replacement. For example, underutilized facilities, 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 Municipality'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 1st 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 Municipality's assets with reference to quality and quantity. Some assets have condition assessments based on engineering inspections, 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 Municipality's tangible capital asset inventory. Three summaries are presented for each asset category: summary of inventory, remaining useful life, and asset condition.

Summary of Inventory

The summary of inventory provides and overview of the Municipality'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 Municipality's capital asset information.

The assets included in this 2019 Plan are consistent with the asset categories included in Schedule 51 of the Municipality's Financial Information Return. Inclusion of all assets of this Plan therefore meet the asset management plan requirements in the Municipality'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 facilities 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 gravel roads, as these roads are not typically replaced but are resurfaced on an ongoing basis.

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. Condition assessments are based on several sources including, staff assessments, engineered condition assessments and aged based approach. Wherever condition assessments based on staff knowledge or engineering information was not available, the remaining useful life of the asset was used as a proxy for condition. Details on the methodology the Municipality uses to assess the condition of assets is summarized in Table 1 below.

Service Category/Type	Methodology
Computer/IT	<ul style="list-style-type: none"> • Staff assessments
Equipment	<ul style="list-style-type: none"> • Staff assessments and age based approach
Machine Equipment	<ul style="list-style-type: none"> • Staff assessments and age based approach
Fleet	<ul style="list-style-type: none"> • Age based approach • Some assumptions have been made by Municipality staff and Hemson related to fire vehicles. Fire service assets are generally in proper working conditions due to more stringent regulatory and safety standards.
Land Improvements	<ul style="list-style-type: none"> • Staff assessments and age based approach
Facilities	<ul style="list-style-type: none"> • Engineered condition assessments based on 2007 facility Infrastructure review and age based approach
Streetlights	<ul style="list-style-type: none"> • Aged based approach
Sidewalks	<ul style="list-style-type: none"> • Age based approach
Roads	<ul style="list-style-type: none"> • 2017 Roads Inspection Report with some paved roads on an age based approach
Bridges and Large Culverts	<ul style="list-style-type: none"> • 2013 Condition Assessments identified in asset inventory
Storm	<ul style="list-style-type: none"> • Age based approach
Water	<ul style="list-style-type: none"> • Age based approach
Sewer	<ul style="list-style-type: none"> • Age based approach with some engineered assessments

COMPUTER/IT

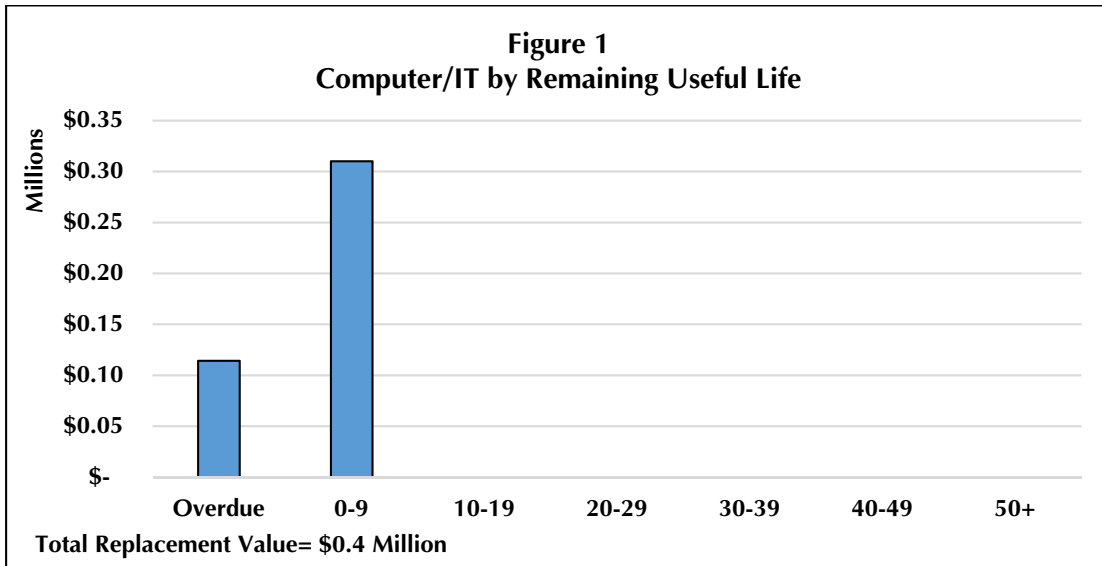
Summary of Inventory

The Municipality maintains a total of 16 units of pooled computer/IT assets with a total replacement cost of \$424,000. This category includes various computer hardware, software, and equipment each with an assumed useful life of 5 years. Replacement costs have largely been determined based on inflation.

Table 2 Summary of Inventory - Computer/IT					
Asset Type	Components	Quantity (Units)	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Computer/IT	Pooled Units	16	\$ 424,218	Inflation	5
Total		16	\$ 424,218		

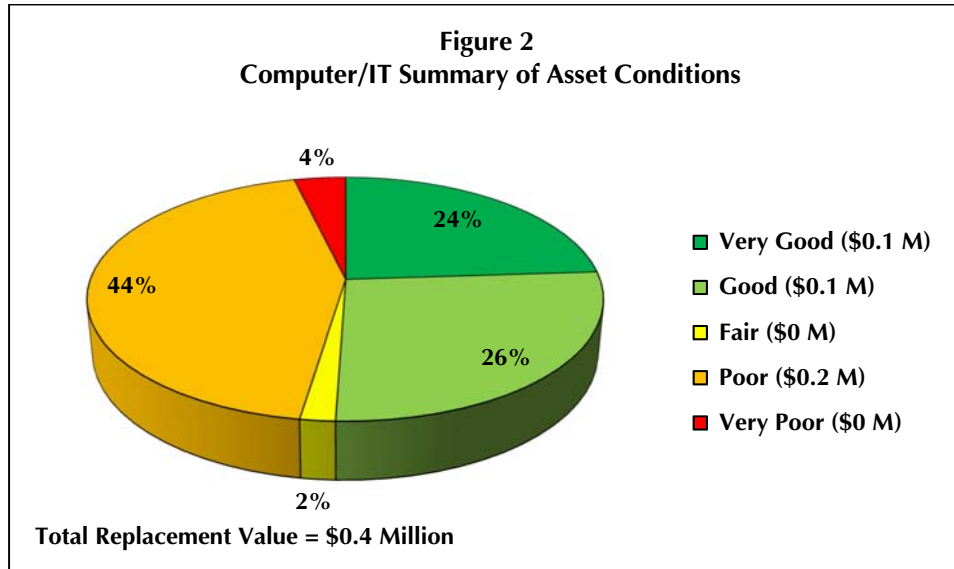
Remaining Useful Life

The Municipality’s computer/IT equipment have been categorized by remaining useful life. Figure 1 shows that about \$310,000 (73%) have 0-9 years of remaining useful life. Approximately \$114,000 (27%) of the computer/IT assets are considered overdue.



Asset Condition

The Municipality maintains \$214,000 (50%) of computer/IT assets in good to very good condition. Roughly, \$202,000 (48%) is considered to be in Poor to Very Poor condition. Lastly, about \$8,000 (2%) is considered to be in Fair condition. Figure 2 summarizes the asset conditions of computer/IT assets.



EQUIPMENT

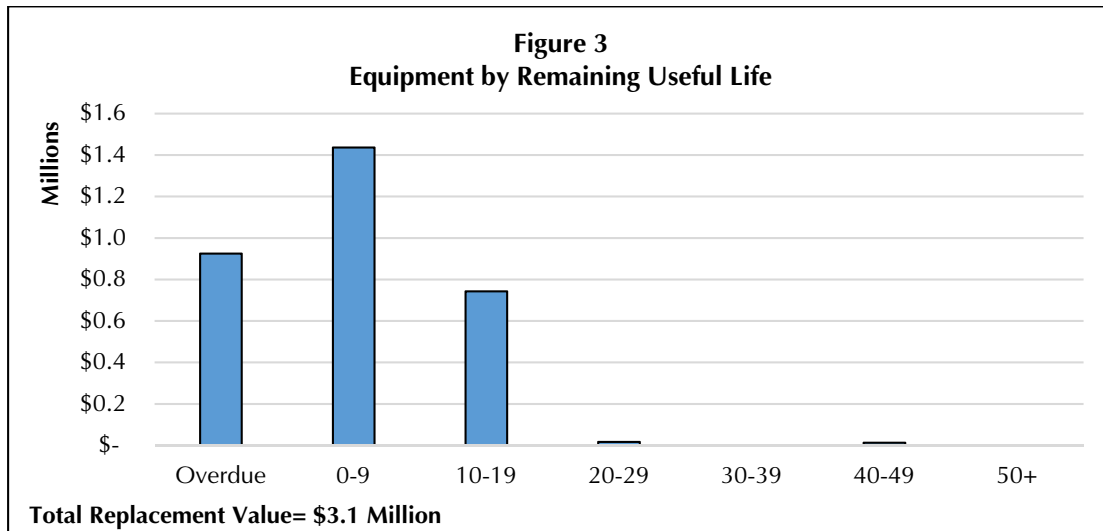
Summary of Inventory

The Municipality maintains a total of 885 pooled units of equipment with a total replacement cost of \$3.1 million. This category includes equipment (used for fire services, cleaning, kitchen, maintenance, sports equipment, etc.), furniture and picnic tables/bleachers. The equipment assets all have an assumed engineered useful life ranging between 3-20 years. The inventory replacement values have largely been derived using inflation from original acquisition cost. Table 3 summarizes the equipment inventory.

Table 3 Summary of Inventory - Equipment					
Asset Type	Components	Quantity (Units)	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Equipment	Pooled Units	885	\$ 3,134,816	Inflation	3-20
Total		885	\$ 3,134,816		

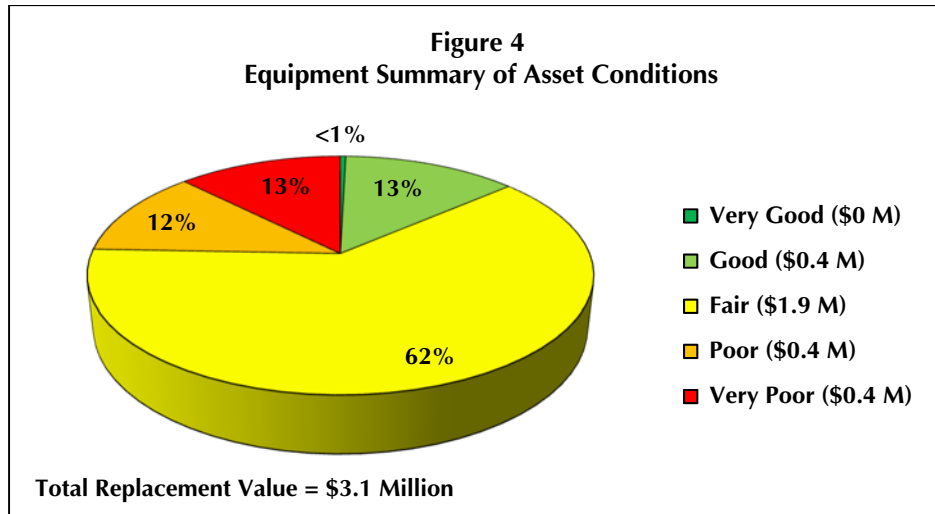
Remaining Useful Life

Figure 3 shows the Municipality's equipment categorized by remaining useful life. About \$13,000 (less than 1%) have 40-49 years of remaining useful life. Approximately \$17,000 (less than 1%) of equipment assets have 20-29 years of remaining useful life. Assets with 10-19 years of remaining useful life amount to \$743,000 (24%). The majority of the equipment assets have a remaining useful life of 0-9 years at \$1.4 million (46%). The remaining assets are considered overdue, which amounts to \$925,000 (30%).



Asset Condition

The Municipality maintains \$429,000 (14%) of the equipment in good to very Good condition. About \$765,000 (25%) are considered to be in poor to very poor condition. The remaining \$1.9 million (62%) of the assets are considered to be in Fair condition. Figure 4 summarizes the asset conditions.



MACHINE EQUIPMENT

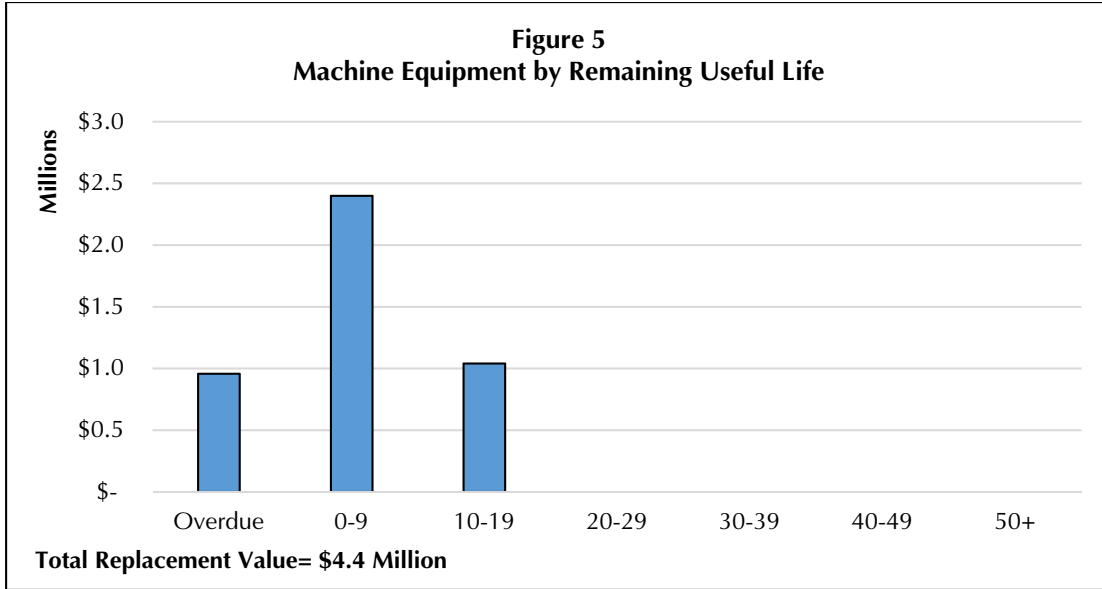
Summary of Inventory

The Municipality maintains a total of 33 units of machine equipment with a total replacement cost of \$4.4 million. This category includes items such as ice resurfacers, tractors, backhoe, plows, and sweepers each with an assumed engineered useful life of 10-20 years. The inventory replacement values have been derived based on inflation from original acquisition cost. Table 4 summarizes the machine equipment inventory.

Table 4 Summary of Inventory - Machine Equipment					
Asset Type	Components	Quantity (Units)	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Machine Equipment	Cemetery	1	\$38,840	Inflation	20
	Recreation	9	\$415,071	Inflation	10-20
	Public Works	23	\$3,943,778	Inflation	15
Total		33	\$4,397,689		

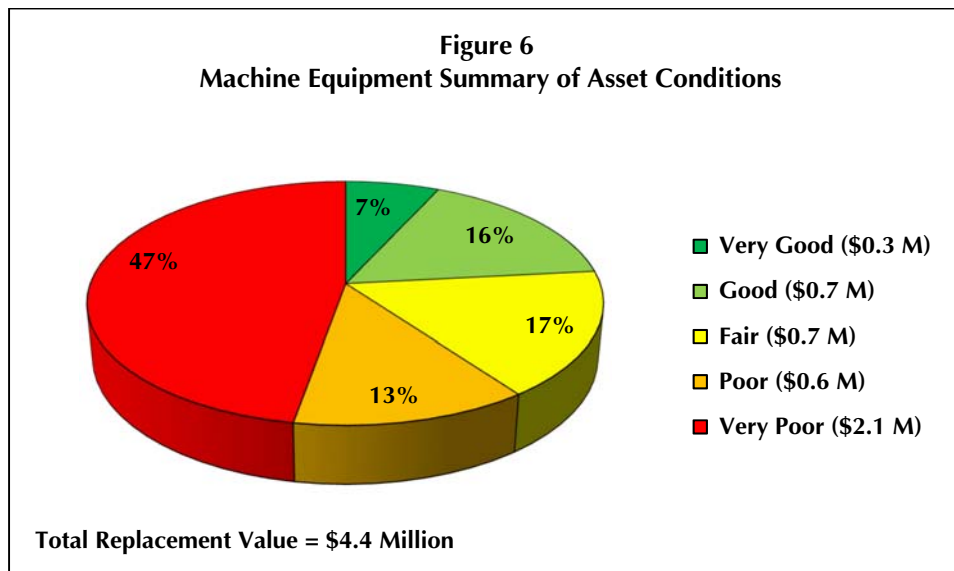
Remaining Useful Life

The Municipality's machine equipment have been categorized by remaining useful life. Figure 5 shows that about \$1.0 million (24%) have 10-19 years of remaining useful life. The majority of the assets have 0-9 years of remaining useful life, which amounts to approximately \$2.4 million (55%). Finally, \$957,000 (22%) of the assets are considered overdue and may require replacement in the short term.



Asset Condition

The Municipality maintains \$1.0 million (23%) of machine equipment in good to very good condition. The majority of the machine equipment assets are considered to be in poor to very poor condition, accounting for roughly \$2.6 million (60%). About \$733,000 (17%) are in fair condition. It is important to note that although the machine equipment may be in very poor condition based on a remaining useful life approach, the equipment continues to be in working condition. Figure 6 summarizes the asset conditions.



FLEET

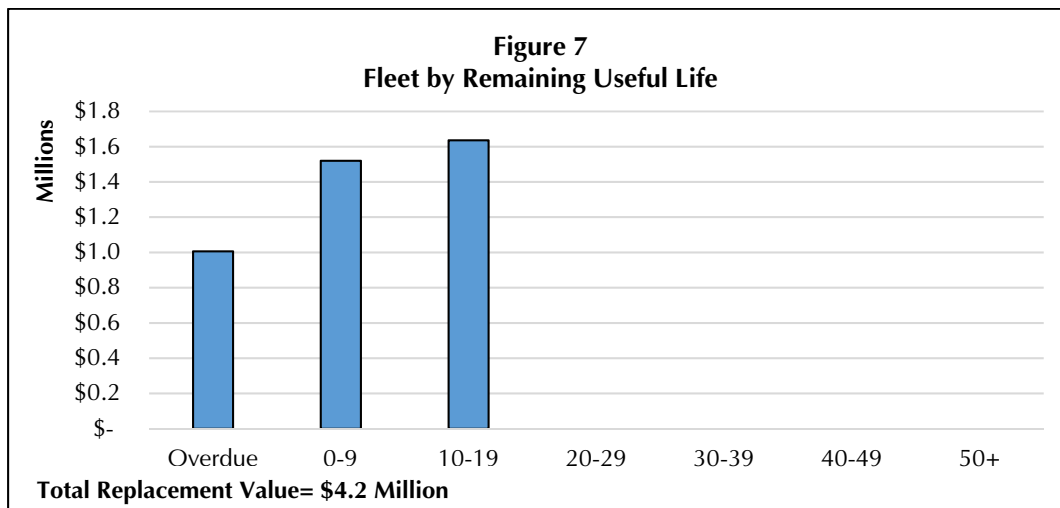
Summary of Assets

The Municipality’s fleet contains a total of 39 fleet units with a total replacement value of \$4.2 million and an assumed engineered useful life of 7-25 years. The inventory replacement costs for larger vehicles such as fire trucks are based on recent costing from other municipalities, with the remaining vehicles based on inflating historical values. Table 5 summarizes the vehicle inventory.

Table 5 Summary of Inventory - Fleet					
Asset Type	Service Area	Quantity (Units)	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Fleet	Building	4	\$152,377	Inflation/Recent Costing	7-10
	Fire	11	\$3,118,278	Inflation/Recent Costing	7-25
	Public Works	18	\$721,394	Inflation/Recent Costing	7-10
	Recreation	6	\$169,469	Inflation/Recent Costing	7-10
Total		39	\$4,161,518		

Remaining Useful Life

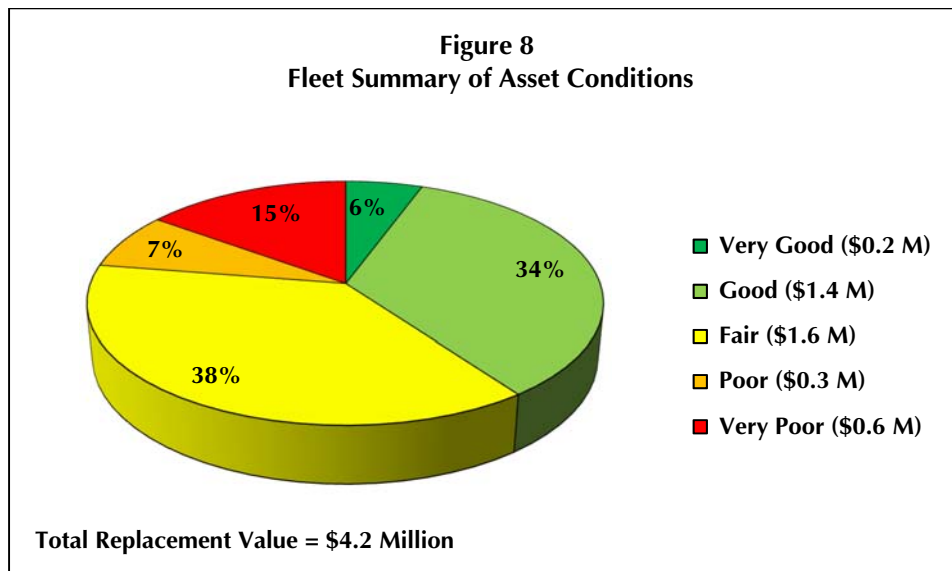
The Municipality’s fleet has been categorized by remaining useful life. Figure 7 shows that about \$1.6 million (39%) of the assets have 10-19 years of remaining useful life. Approximately \$1.5 million (37%) have 0-9 years of remaining useful life. Finally, \$1.0 million (24%) worth of the Municipality’s fleet is considered to be overdue and may require replacement in the short term.



Asset Condition

The Municipality maintains \$1.7 million (40%) of the fleet in good to very good condition. Roughly \$312,000 (7%) are in poor condition and \$623,000 (15%) are in very poor condition. Finally, the majority of the Municipality's vehicles are considered to be in fair condition, which amounts to \$1.6 million (38%).

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 and public works 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 8 summarizes the conditions of fleet assets by replacement cost.



LAND IMPROVEMENTS

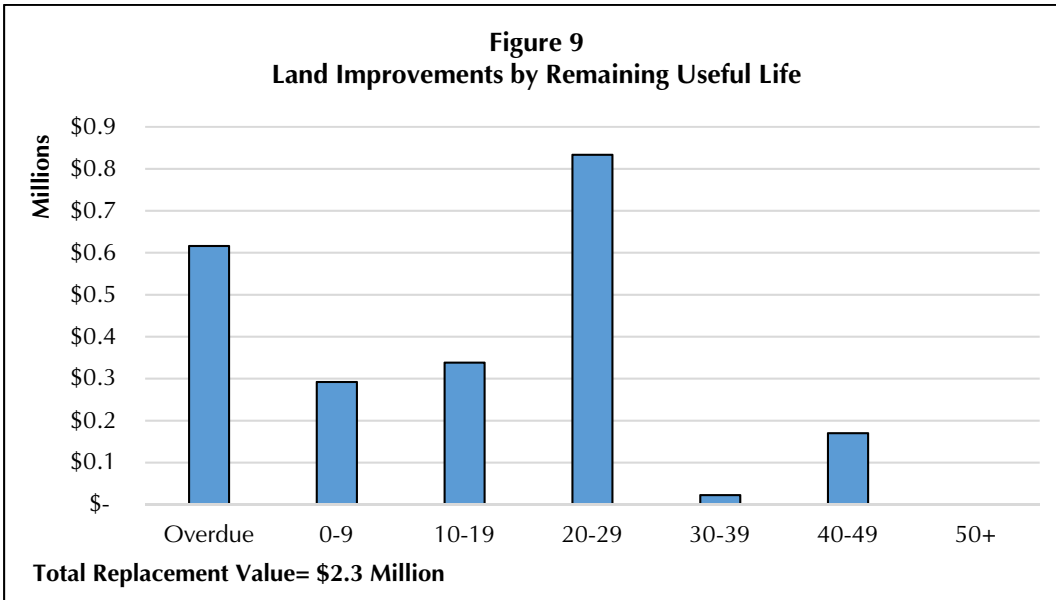
Summary of Inventory

The Municipality maintains 51 pooled units of land improvement assets with a replacement value of \$2.3 million. The assets have an assumed engineered useful life of 20-25 years and include assets for parks and recreation facilities. Table 6 summarizes the inventory.

Table 6 Summary of Inventory - Land Improvements					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Land Improvements	Pooled Units	51	\$ 2,272,989	Inflation	15-20
Total		51	\$ 2,272,989		

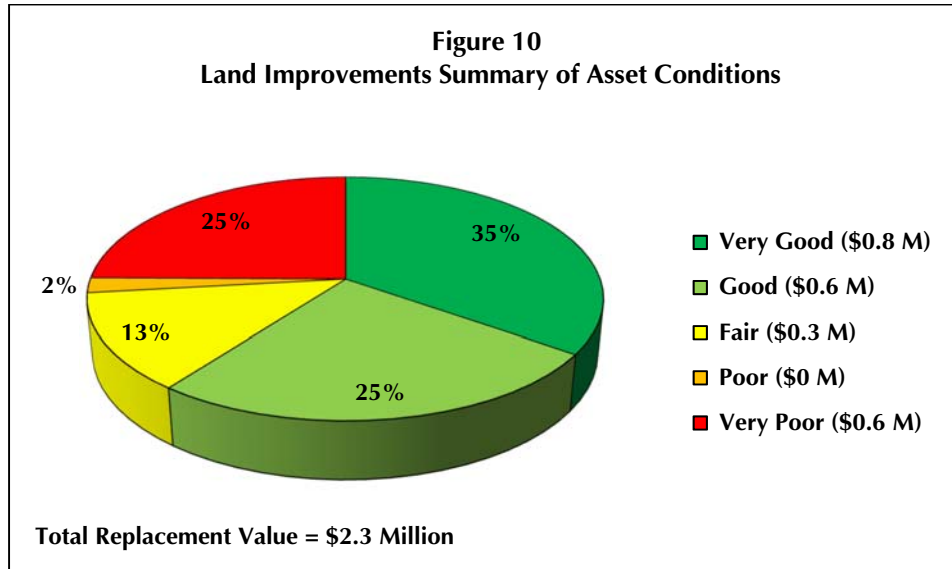
Remaining Useful Life

The Municipality’s land improvements have been categorized by remaining useful life. Figure 9 show that about \$170,000 (8%) have 40-49 years of remaining useful life. About \$23,000 (less than 1%) have 30-39 years of remaining useful life. The majority, approximately \$834,000 (37%), have a remaining useful life of 20-29 years. Roughly \$338,000 (15%) have a remaining useful life of 10-19 years. About \$292,000 (13%) have 0-9 years of remaining useful life. Finally, \$616,000 (27%) worth of the Municipality’s land improvements are considered to be overdue for replacement.



Asset Condition

The Municipality maintains \$1.4 million (60%) of land improvements in good to very good condition. Approximately \$609,000 (27%) are in poor to very poor condition. Lastly, about \$292,000 (13%) are in fair condition. Figure 10 summarizes the conditions of land improvements.



FACILITIES

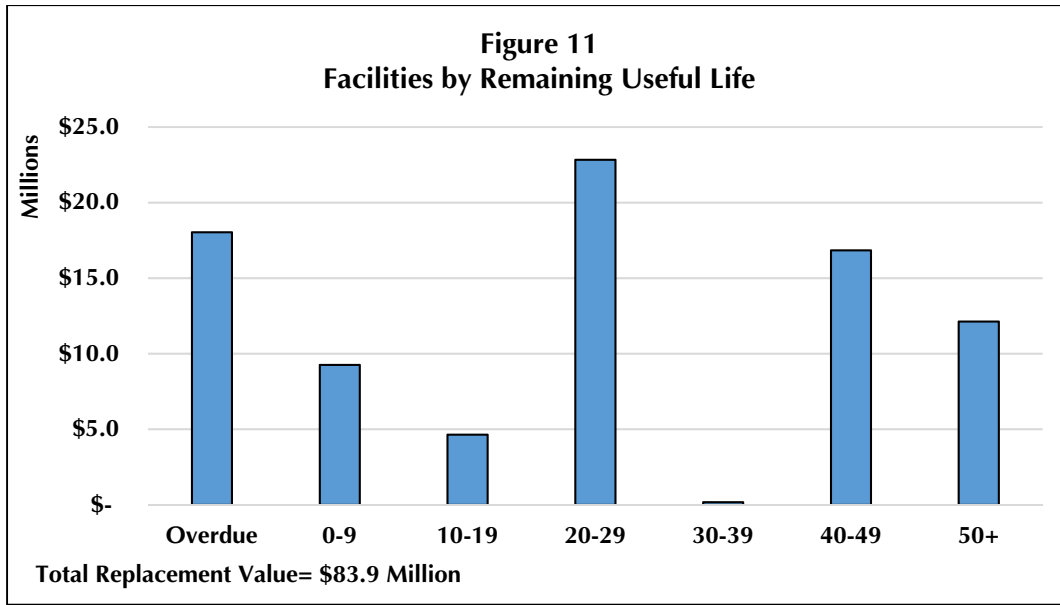
Summary of Inventory

The Municipality maintains a total of 91 pooled facilities and facility components with a total replacement cost of \$83.9 million. The replacement cost of the facilities have been determined based on the Municipality's most recent Development Charges Background Study on a cost per square foot basis. Where square footage was not available, replacement costs were determined based on inflation. The assets are maintained as pooled units for some facilities and by components for others. The engineered useful life of the facilities ranges from 15 to 100 years. Table 7 summarizes the inventory.

Table 7 Summary of Inventory - Facilities					
Asset Type	Service Area	Facilities & Components	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Facilities	Admin	5	\$5,718,254	Inflation	50-100
	Building Fixtures	13	\$292,589	Inflation/Recent Costing	20
	Cemetery	16	\$378,035	Inflation/Recent Costing	30-100
	Fire	14	\$7,651,581	Recent Costing	15-75
	Landfill	7	\$365,131	Inflation	20-100
	Library	3	\$3,947,625	Recent Costing	100
	Public Works	3	\$5,645,970	Inflation/Recent Costing	50
	Recreation	30	\$50,144,140	Inflation/Recent Costing	15-60
	Perth Meadows	5	\$9,774,532	Inflation/Recent Costing	20-50
Total		96	\$83,917,857		

Remaining Useful Life

The Municipality's facilities have been categorized by remaining useful life. Figure 11 show that about \$52.0 million (62%) of the Municipality's facilities have a remaining useful life of 20 years or more. \$4.6 million (6%) have 10-19 years or remaining useful life while \$9.3 million (11%) of the facilities have 0-9 years or remaining useful life. The remaining \$18.0 million (22%) are considered overdue for replacement. Although there are some facilities considered overdue for replacement, many are used well beyond their useful life and are in better condition than their age would predict.

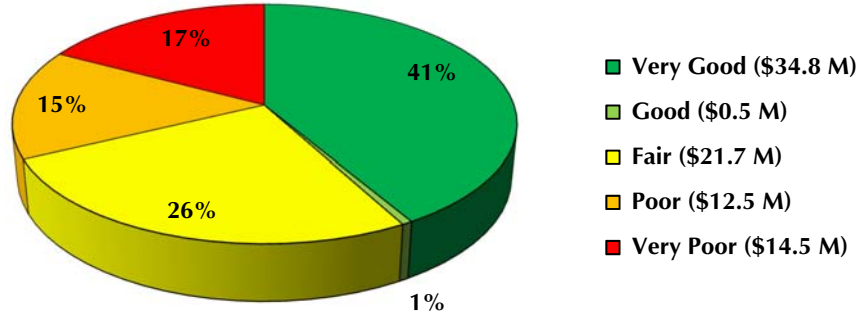


Asset Condition

The Municipality maintains \$35.3 million (42%) of the facilities in good to very good condition. Roughly \$12.5 million (15%) are in poor condition and \$14.5 million (17%) are in very poor condition. Finally, the Municipality's facilities considered to be in fair condition amount to \$21.7 million (26%). Figure 2 summarizes the conditions of the building assets by replacement cost.

The Listowel Memorial Arena, the Elma Memorial Community Centre (EMCC) and the Atwood Library have been identified to be in poor or very poor condition. The Listowel Memorial Arena is expected to be decommissioned once the expansion to the Steve Kerr Recreation Complex is completed. Grant applications have recently been prepared for works associated to the EMCC and Atwood Library. If these grants are successful it is expected improvement works at these facilities will improve the condition associated to each building.

Figure 12
Facilities Summary of Asset Conditions



Total Replacement Value = \$83.9 Million

STREETLIGHTS

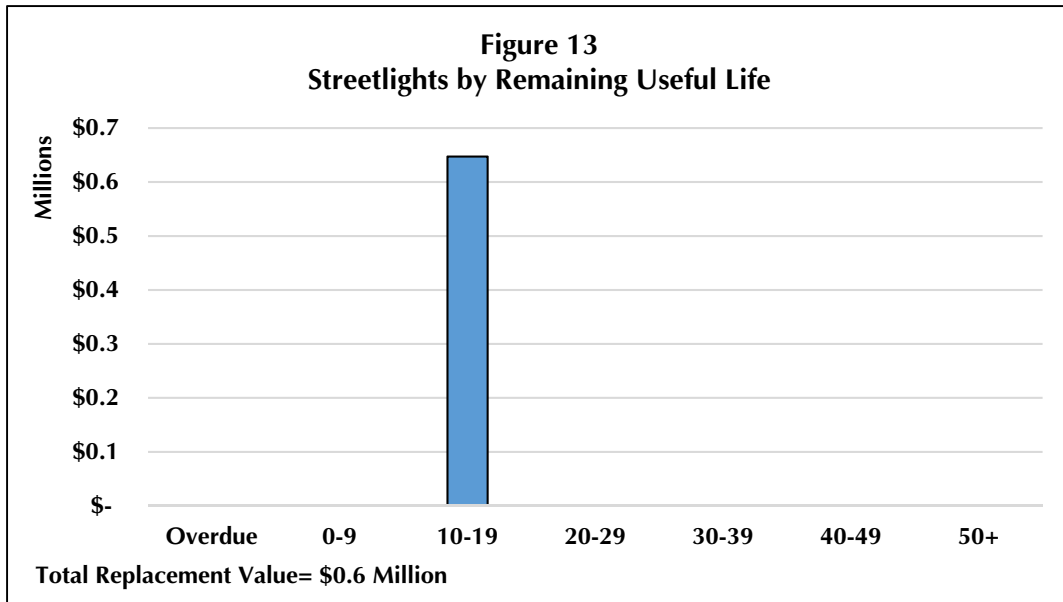
Summary of Inventory

The Municipality maintains a total of 4 pooled units of streetlights, which includes all streetlights in the Municipality, with a total replacement cost of \$647,000. The category consists of LED streetlights across North Perth and have an assumed useful life of 17-20 years. Table 9 summarizes the streetlights inventory.

Table 9 Summary of Inventory - Streetlights					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Streetlights	Pooled	4	\$ 647,239	Inflation	17-20
Total		4	\$ 647,239		

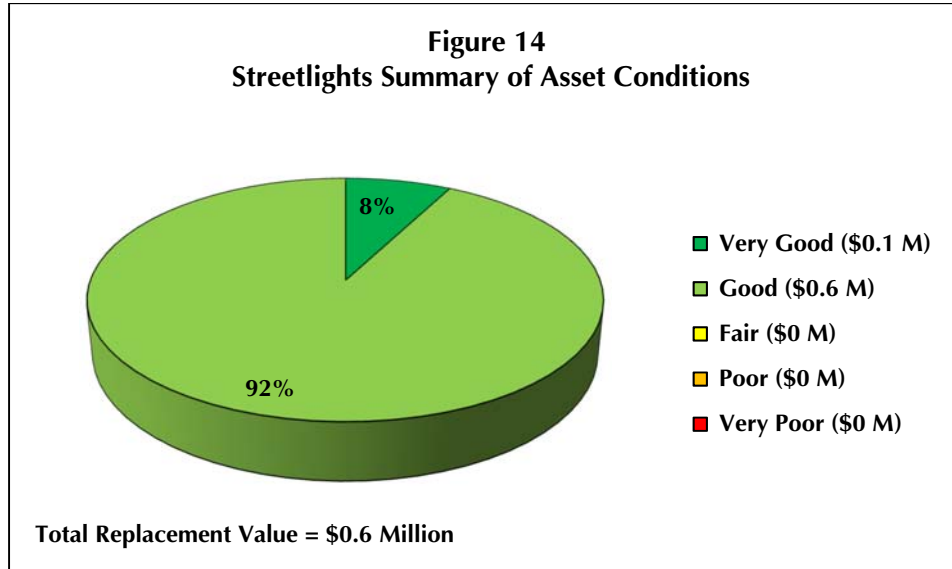
Remaining Useful Life

The Municipality’s streetlights have been categorized by remaining useful life. Figure 13 shows that about \$647,000 (100%) of the streetlights have a remaining useful life of 10-19 years, as the streetlights are relatively new and where installed over the past few years.



Asset Condition

The Municipality maintains \$597,000 (92%) of streetlights in good condition and \$50,000 (8%) in very good condition, as most of the streetlights are fairly new. Figure 14 summarizes the conditions of streetlight assets.



SIDEWALKS

Summary of Inventory

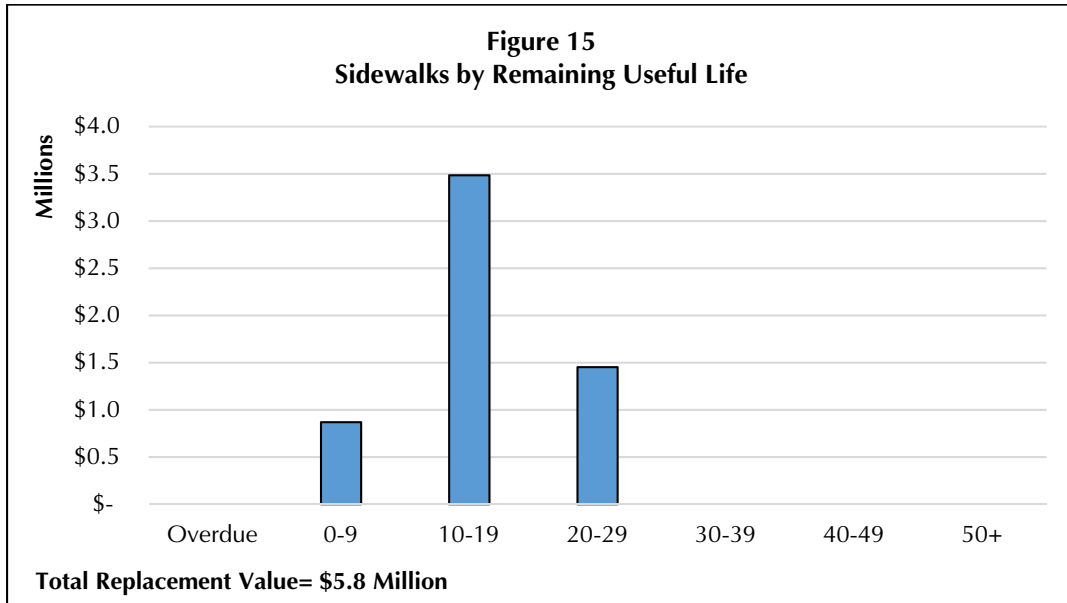
The Municipality maintains 37,600 metres of sidewalks and the replacement cost is estimated at \$5.8 million based on recent costs to construct sidewalks on an average cost per metre basis. The engineered useful life of each side walk is 30 years. Table 15 summarizes the sidewalk inventory.

Table 15 Summary of Inventory - Sidewalks					
Asset Type	Components	Quantity (m)	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Sidewalks	Sidewalk	37,591	\$ 5,806,062	Inflation/Recent Costing	30
Total		37,591	\$ 5,806,062		

Remaining Useful Life

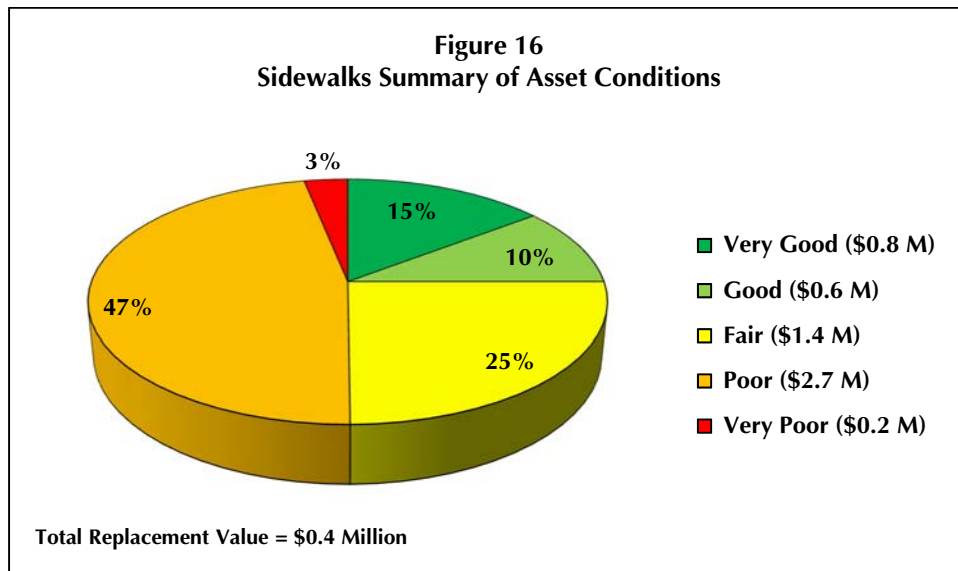
Figure 24 show that the majority of the Municipality's sidewalks, \$3.5 million (60%) have a remaining useful life of 10-19 years. About \$1.5 million (25%) have 20-29

years of useful life remaining and approximately \$870,000 (15%) have a remaining useful life of 0-9 years. No sidewalks are considered to be overdue.



Asset Condition

Figure 25 summarizes the conditions of the Municipality’s sidewalk assets. The majority of the assets, \$2.7 million (47%), are considered to be in poor condition. Approximately \$184,000 (3%) are considered to be in very poor condition. About \$1.5 million (25%) are considered to be in good to very good condition. Finally, \$1.4 (25%) million remain in fair condition.



ROADS

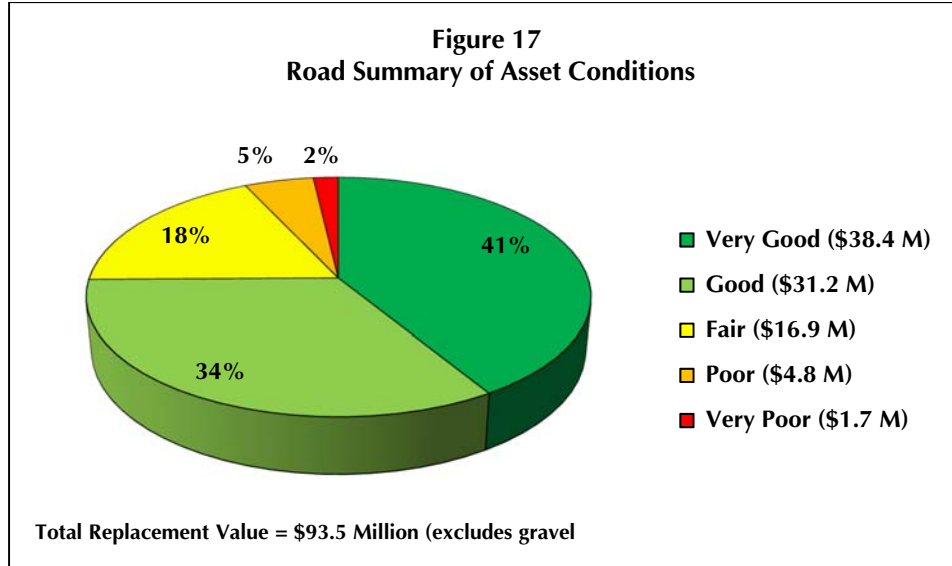
Summary of Inventory

The Municipality owns approximately 446 km of roads with a total replacement value of approximately \$114.1 million. Of this amount, 60 km of urban paved roads amount to \$74.9 million and 114 km of rural paved roads amount to \$18.1 million. The remaining 272 km is valued at \$21 million and is made up of gravel roads. All the replacement costs are based on recent costs identified to reconstruct roads in the Municipality. Table 10 summarizes the roads inventory by road surface type.

Table 10 Summary of Inventory - Road					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Road	Urban Paved	60	\$74,931,893	Recent Costing	30
	Rural Paved	114	\$18,104,969	Recent Costing	30
	Gravel	272	\$21,047,000	Recent Costing	Not Applicable
Total		446	\$114,083,862		

Asset Condition

Figure 17 summarizes the condition of the Municipality's paved roads (excludes gravel roads). Approximately \$69.6 million (75%) of the Municipality's paved roads are considered to be in good or very good condition. About \$4.8 million (5%) are in poor condition and \$1.7 million (2%) are in very poor condition. The remaining proportion, \$17.0 million (18%) are considered to be in fair condition. The condition ratings are based largely on the 2017 Roads Inspection Report with some information derived from condition assessments identified in the Municipality's asset inventory. These condition assessments have been adjusted down to reflect the deterioration of the roads since the condition assessments were last completed. 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.



BRIDGE AND LARGE CULVERTS

Summary of Inventory

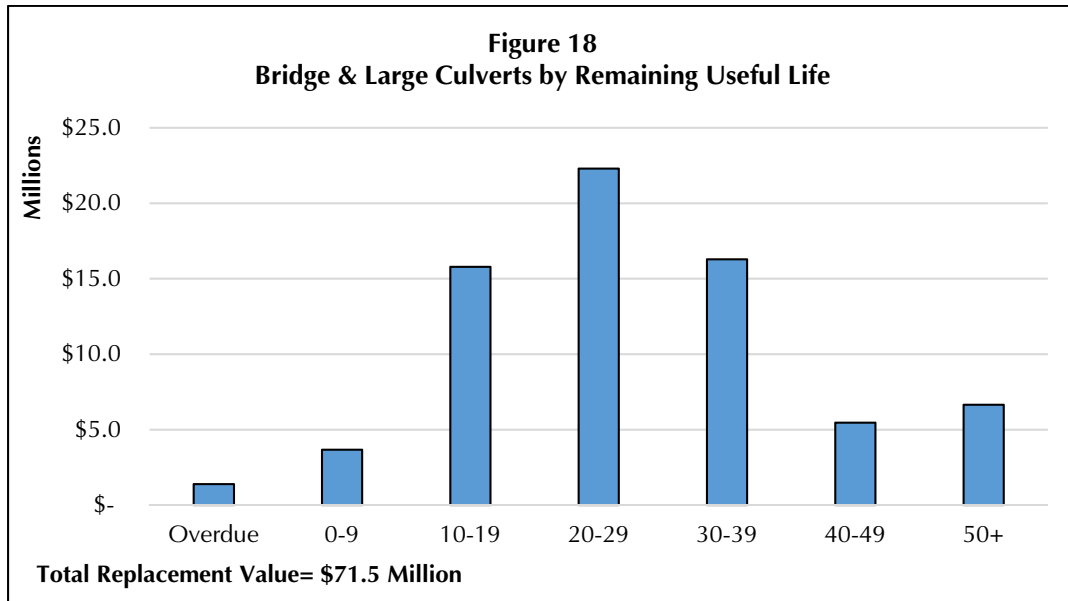
There are 49 bridges and 35 culverts in the Municipality and the replacement cost totals \$71.5 million. The engineered useful life is assumed to be 75 years for bridges and 30 to 75 years for culverts. All replacement costs are based on recent costs to construct similar structures for bridges and inflation for culverts. Table 11 summarizes the inventory.

Table 11 Summary of Inventory - Bridge and Large Culverts					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Bridge and Large Culverts	Bridge	49	\$ 50,062,271	Recent Costing	75
	Large Culvert	35	\$ 21,482,078	Inflation	30-75
Total		84	\$ 71,544,349		

Remaining Useful Life

The Municipality's bridges and culverts have been categorized by remaining useful life. Figure 18 shows that about \$50.7 million (71%) of the Municipality's bridges and culverts have a remaining useful life of 20+ years. Roughly \$15.8 million (22%) have 10-19 years of useful life remaining and about \$3.7 million (5%) have 0-9 years of remaining useful life. Special attention should be paid to these bridges and culverts as

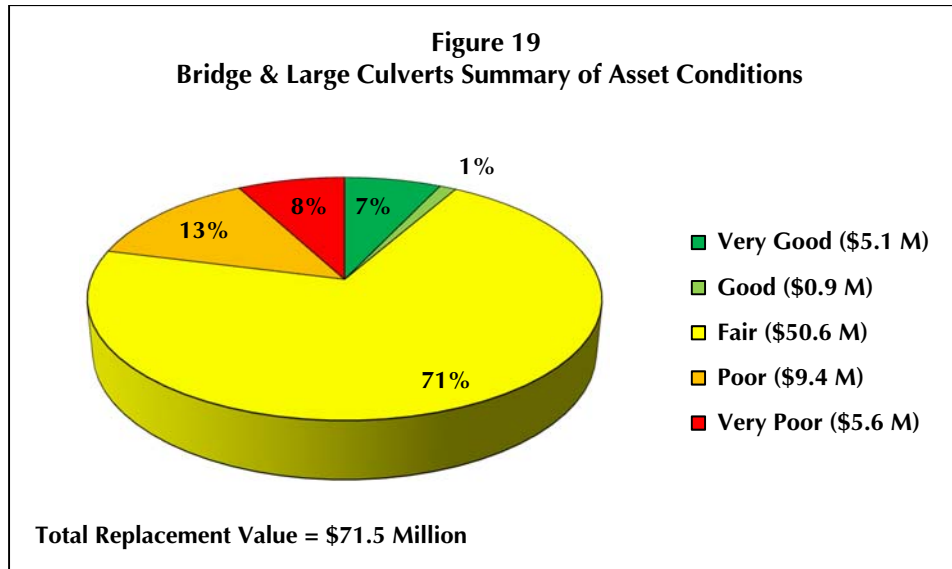
they are expected to transition into the overdue category over the short term. Lastly, bridges and culverts that are in the overdue category account for \$1.4 million (2%).



Asset Condition

Condition assessments were incorporated for all the Municipality's bridges and culverts based on condition assessments identified in the asset inventory from 2013. The condition assessments in the asset inventory are based on a BCI scale out of 100. This scale has been simplified into the 5-tier rating system (very poor to very good).

Approximately \$5.9 million (8%) are considered to be in good or very good condition. About \$9.4 million (13%) are in poor condition and \$5.6 million (8%) are in very poor condition. Finally, about \$50.6 million (71%) of bridges and culverts remain in fair condition. Figure 19 summarizes the conditions of bridges and large culverts.



STORMWATER

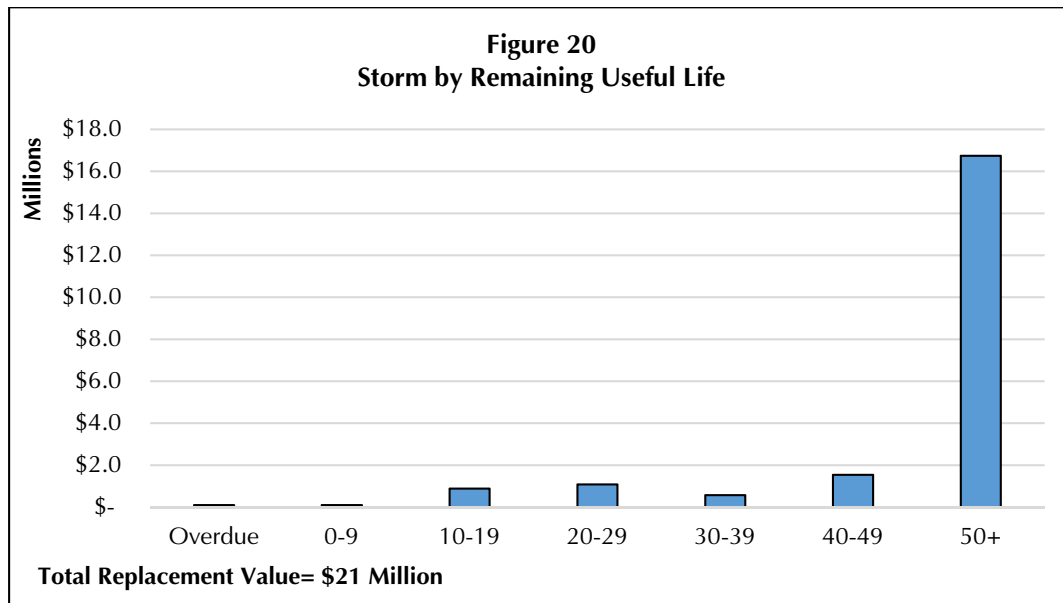
Summary of Inventory

There is a total of 3,794 stormwater components maintained by the Municipality and the replacement cost is \$21.0 million. The engineered useful life for stormwater components is assumed to be between 50-75 years. Table 12 summarizes the stormwater inventory.

Table 12 Summary of Inventory - Storm					
Asset Type	Components	Quantity (Units)	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Storm	Catchbasin	1220	\$ 2,293,488	Inflation	5-75
	Gravity Mains	1563	\$ 13,257,051	Inflation	50-75
	Inlets/Outlets	203	\$ 505,395	Inflation	75
	Laterals	266	\$ 316,535	Inflation	75
	Manholes	521	\$ 2,096,696	Inflation	60-75
	No Segment	1	\$ 8,759	Inflation	75
	Storm Manholes	15	\$ 72,642	Inflation	75
	Swim Pond	5	\$ 2,460,460	Inflation	75
Total		3794	\$ 21,011,026		

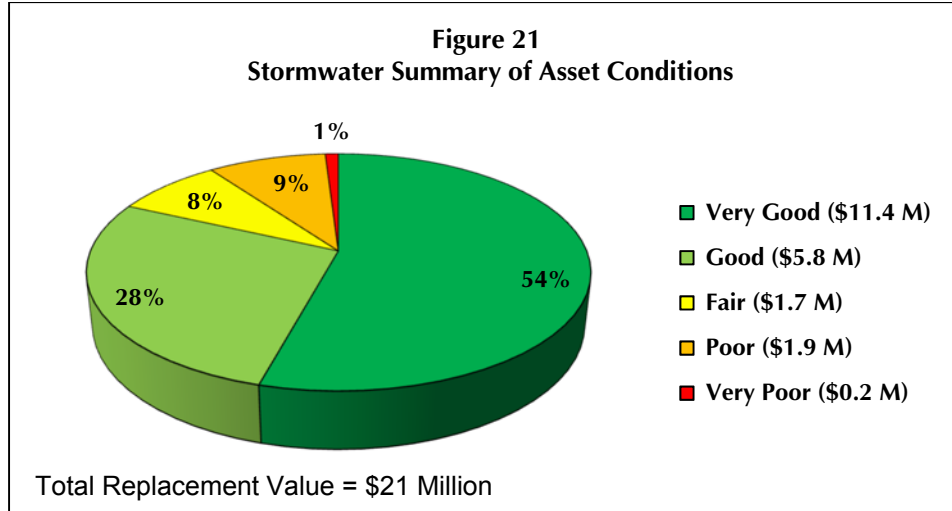
Remaining Useful Life

The majority of the Municipality's stormwater components have a remaining useful life of 50+ years and accounts for \$16.7 million (80%). About \$4.2 million (20%) have a useful life ranging from 0 to 49 years. Finally, about \$96,000 (less than 1%) of the components are considered overdue. These figures are summarized in Figure 20.



Asset Condition

Figure 21 summarizes the condition of the Municipality's stormwater assets. The majority of the assets, about \$17.2 million (82%) are considered to be in good condition to very good condition. Approximately \$1.9 million (9%) are considered to be in poor condition and \$209,000 (1%) are considered to be in very poor condition. About \$1.7 million (8%) are considered to be in fair condition.



WATER

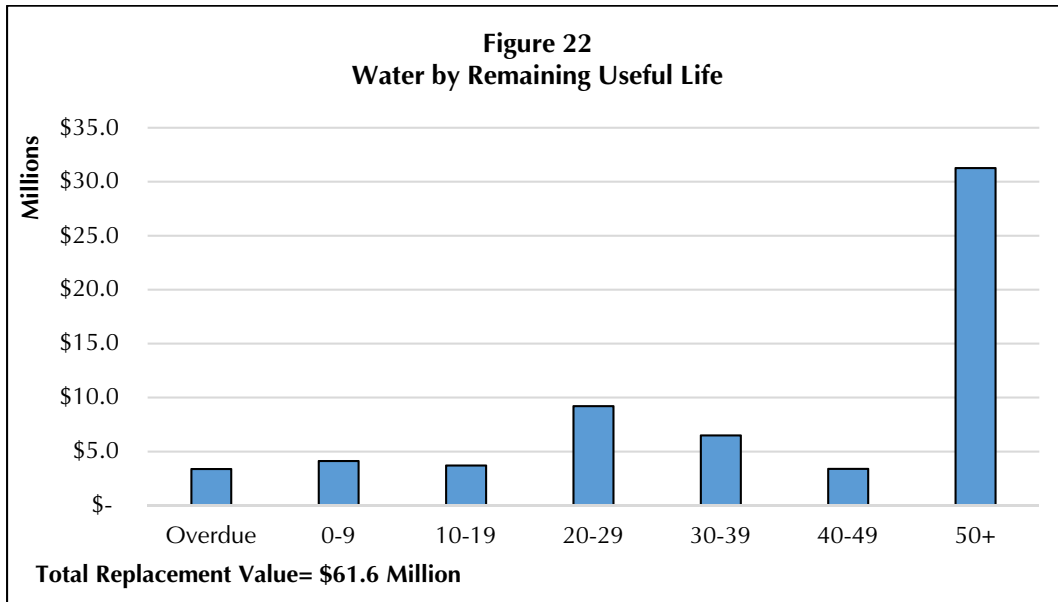
Summary of Inventory

Table 13 summarizes the water inventory. The Municipality maintains a water network with replacement cost of \$61.6 million. Replacement costs have been determined based on inflation with the exception of watermains, which have been determined based on recent engineering estimates per metre of pipe. The assumed useful life has been derived on a component by component basis ranging from 5 to 100 years.

Table 13 Summary of Inventory - Water					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Water	Wells (units)	133	\$7,483,029	Inflation	5-100
	Water Curb Stop (units)	2412	\$3,614,480	Inflation	75
	Water Hydrants (units)	322	\$1,614,257	Inflation	5-75
	Water Meters (units)	66	\$1,378,800	Inflation	4-15
	Water Tower (units)	18	\$3,921,612	Inflation	5-100
	Water Valves (units)	942	\$1,375,318	Inflation	5-75
	Watermain (m)	61,085	\$42,174,324	Recent Costing	5-75
Total			\$61,561,821		

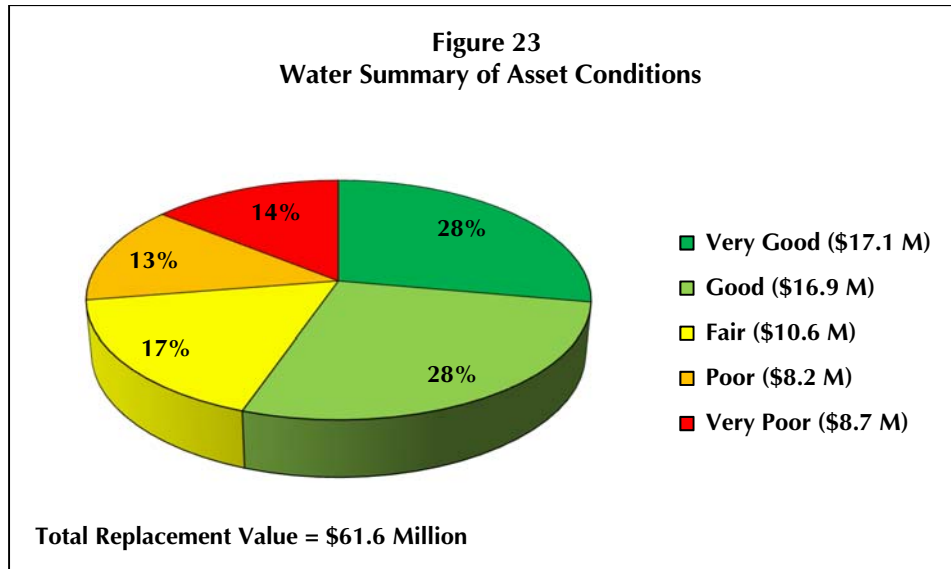
Remaining Useful Life

The Municipality's water components have been categorized by remaining useful life. Figure 22 show that about \$31.3 million (51%) of the Municipality's water components have a remaining useful life of 50+ years. Approximately \$27.0 million (44%) have 0-49 years of remaining useful life, Lastly, components that are in the overdue category account for \$3.4 million (5%).



Asset Condition

Approximately \$34.1 million (56%) of the Municipality's water components are considered to be in good to very good condition. Roughly \$17.0 million (27%) are considered to be in poor to very poor condition. Lastly, \$10.6 million (17%) remain in fair condition. Figure 23 summarizes the conditions of the assets.



SEWER

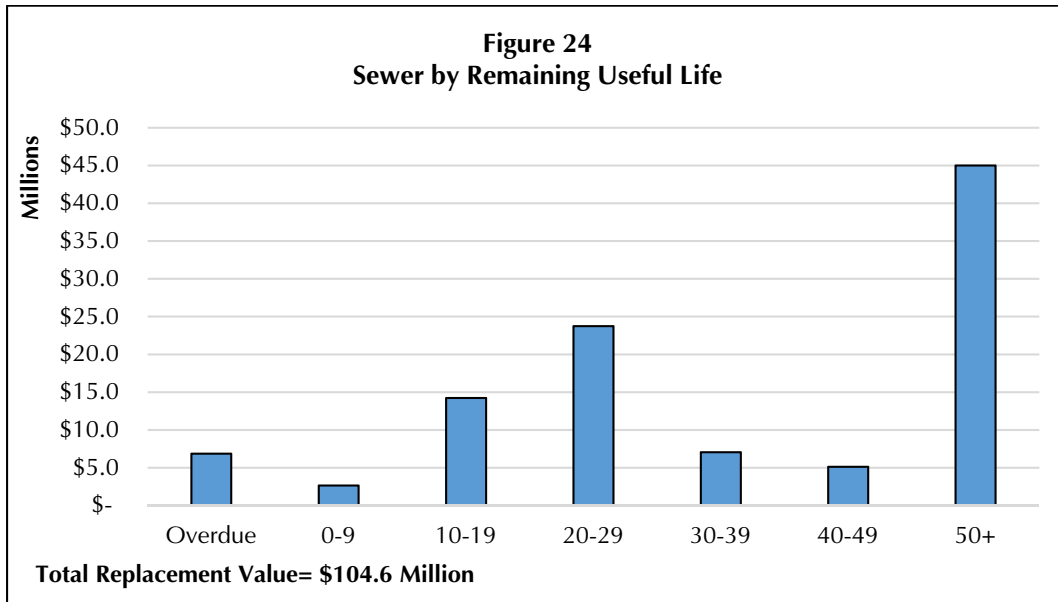
Summary of Inventory

The Municipality maintains a wastewater network with replacement cost of \$104.6 million summarized in Table 14. Replacement costs have been determined based on inflation with the exception of sewer mains and laterals which have been determined based on recent engineering estimates per metre of pipe. The assumed useful life has been derived on a component by component basis ranging from 5 to 100 years.

Table 14 Summary of Inventory - Sewer					
Asset Type	Components	Quantity	Replacement Cost 2019	Replacement Cost Method	Useful Life (Years)
Sewer	Pumping Station (units)	110	\$9,415,657	Inflation	10-100
	Service Centre (units)	12	\$1,467,701	Inflation	5-100
	Treatment Plant (units)	115	\$23,093,133	Inflation	10-100
	Receiving Station (units)	40	\$2,498,980	Inflation	5-100
	Sewer Manholes (units)	712	\$3,695,810	Inflation	75
	Sewer Main (m)	59,267	\$46,825,325	Recent Costing	50-75
	Sewer Lateral (m)	25,685	\$10,149,415	Recent Costing	75
	Pressurized Sewer Mains (m)	9,256	\$7,494,013	Recent Costing	75
Total			\$104,640,034		

Remaining Useful Life

The Municipality's sewer components have been categorized by remaining useful life. Figure 24 show that about \$45.0 million (43%) of the Municipality's sewer components have a remaining useful life of 50+ years. Approximately \$52.8 million (50%) have 0-49 years of useful life remaining. Lastly, components that are in the overdue category account for \$6.9 million (7%).

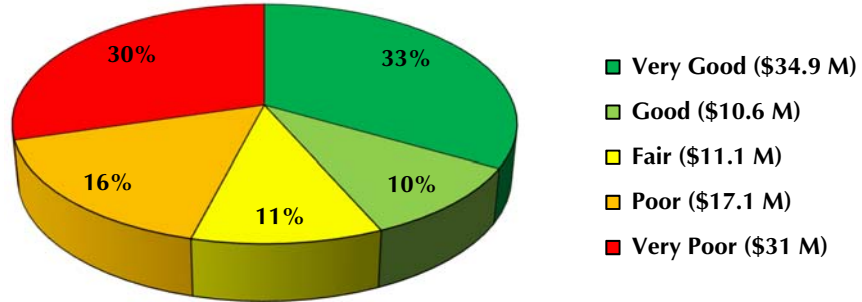


Asset Condition

Approximately \$45.4 million (43%) are considered to be in good to very good condition. About \$17.1 million (16%) are considered to be in poor condition and \$31.0 million (30%) are in very poor condition. Approximately \$11.1 million (11%) remain in fair condition. Figure 25 summarizes the conditions of the assets.

It is important to note, the condition of some components of the North Perth Wastewater Treatment plant have been assessed to be in poor or very poor condition. These conditions are reflected in Figure 25. The Municipality is currently undertaking improvement works at the treatments plant, therefore, it is expected once these works are completed the condition data will be updated to reflect the improvements at the plant.

Figure 25
Sewer Summary of Asset Conditions



Total Replacement Value = \$104.6 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 1st, 2014 and December 31st, 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 Municipality to begin tracking these project outcomes for all assets. Table 1 shows project outcomes relevant to the assets included in the 2019 Plan.

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

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

Source: AMO.

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

APPENDIX D
ASSET MANAGEMENT STRATEGY

APPENDIX D

ASSET MANAGEMENT STRATEGY

Computer/IT

Table 1 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 1 Planned Actions: Computer/IT	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Regularly scheduling of repair work orders. • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets. • Regularly review IT security issues as needed
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for all Municipality computer/IT assets. • Maintain software and hardware up to date
Renewal/ Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on assessments of computer/IT needs
Replacement	<ul style="list-style-type: none"> • Components replaced based on needs
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Service improvements made where possible (new technologies, environmental impacts, etc.).

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 2 summarizes general actions that can be taken to ensure that Municipality equipment assets are maintained in a state of good repair.

Table 2 Planned Actions: Equipment	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Regularly scheduling of repair work orders. • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary.
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for all Municipal equipment. • Regular safety inspections of all equipment before and after use to ensure safety standards are maintained. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets.
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections.
Replacement	<ul style="list-style-type: none"> • Equipment replacement based on inspections. • Equipment replacement forecast reviewed annually.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.).

Machine Equipment

Machine equipment assets are considered for all service areas including Fire, Roads and other general government vehicles. Actions related to maintaining machine equipment are unique to each type of machine equipment unit. Table 3 summarizes general actions that can be taken to ensure that machinery equipment assets are maintained in a state of good repair.

Table 3 Planned Actions: Machine Equipment	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Regularly scheduling of repair work orders. • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Annually provide the necessary departments with related information when new and additional units are acquired. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets.
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for all machine equipment. • Regular inspection of all machine equipment. Emergency related equipment (fire) should be inspected in accordance with industry and regulatory guidelines. • Regular safety inspections of all machine equipment before and after use to ensure safety standards are maintained.
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections.
Replacement	<ul style="list-style-type: none"> • Machine equipment replacement based on inspections. • Machine equipment replacement forecast reviewed annually.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.).

Fleet

Vehicles are considered for all service areas including Fire, Roads and other general government vehicles. Actions related to maintaining the fleet are unique to each type of vehicle unit. Table 4 summarizes general actions that can be taken to ensure that fleet vehicles are maintained in a state of good repair.

Table 4 Planned Actions: Fleet	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Regularly scheduling of repair work orders. • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Annually provide the necessary departments with related information when new and additional units are acquired. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets.
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for all Municipality vehicles. • Regular inspection of all Municipality vehicles. Emergency vehicles should be inspected in accordance with industry and regulatory guidelines. • Annual inspection, service and certification performed on all applicable vehicles in accordance with MTO requirements. • Regular safety inspections of all vehicles before and after use to ensure safety standards are maintained.
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections. • Mid-life component replacements are usually common for larger vehicles and can be scheduled accordingly (engine/transmission rebuilds).
Replacement	<ul style="list-style-type: none"> • Vehicle replacement based on inspections. • Vehicle replacement forecast reviewed annually.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.). In particular the recommendations in the Carbon Footprint Reduction and Compensation Strategy 2016

Land Improvements

Table 5 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 5 Planned Actions: Land Improvements	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets. • Continue to update streetscape masterplans for community core areas of Monkton, Atwood, and Listowel based on the existing plans.
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for all Municipality land improvements.
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections.
Replacement	<ul style="list-style-type: none"> • Component replacement based on inspection.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study.

Facilities

There are a variety of buildings in the Municipality that are utilized for various purposes. Usually, customized maintenance plans are required for each facility depending on their purpose. Table 6 summarizes general actions that can be employed to ensure that Municipal facilities are maintained in a state of good repair.

Table 6 Planned Actions: Facilities	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by condition assessments and regular inspections as needed. • Business cases, special studies and consultation with stakeholders should be done when constructing a new facility or modifying an existing facility. • Review of the design and layout of facilities and properties, to minimize maintenance costs through design efficiencies over the lifecycle of buildings. • Adjust service levels if necessary. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets.
Maintenance Activities	<ul style="list-style-type: none"> • Buildings and facilities inspected regularly in accordance with occupational health and safety regulations, with continued condition assessment updates based on the Facility Infrastructure Review Report • HVAC and heating systems inspected regularly. • Plumbing inspected regularly. • Maintain electrical systems to Electrical Safety Authority standards. • Fire alarms, fire extinguishers and emergency lights inspected regularly.
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections. • Facilities to be in line with Corporate Accessibility Policy & Procedures (Policy Number E-1) in particular as it related to the accessibility of Municipal facilities (Section H of Policy Number E-1 Built Environment Standard)
Replacement	<ul style="list-style-type: none"> • Component replacement based on inspections.
Disposal	<ul style="list-style-type: none"> • Selling or demolishing facilities that are no longer in use or underutilized. • Re-use or sell land not in use.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Assumptions on required facility space through development agreements if necessary. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (accessibility, etc.).

Streetlights

Table 7 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 7 Planned Actions: Streetlights	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets.
Maintenance Activities	<ul style="list-style-type: none"> • Continue to monitor reports of streetlight issues and maintain accordingly
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections.
Replacement	<ul style="list-style-type: none"> • Component replacement based on inspections.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study.

Sidewalks

Table 14 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 8 Planned Actions: Sidewalks	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Regularly scheduling of repair work orders. • Annually provide the necessary departments with related information when works are completed. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets.
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for all Municipality sidewalks. • Regular seasonal maintenance as needed to ensure safety of pedestrians, in particular based on Winter Maintenance By-law 153-2017 <ul style="list-style-type: none"> • Snow removal occurs on primary and secondary sidewalks as identified in Winter Maintenance By-law 153-2017. Secondary sidewalk maintenance occurs after primary sidewalks have been maintained. • Winter maintenance occurs from November 15 to March 31 of every year
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Sidewalk repairs should continue as needed
Replacement	<ul style="list-style-type: none"> • Components replaced based on needs.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.).

Roads

The roads category, includes all Municipal roads identified through the 2017 Roads Inspection Report. 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 9 Planned Actions: Roads	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Regularly scheduling of repair work orders. • Annually provide the necessary departments with related information when new and additional equipment is acquired. • Continue to conduct road inspections and maintain an up-to-date database. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets. • Agreements with neighbouring municipalities to provide maintenance and repairs of roads. • Regularly update the Municipality's Traffic Report which contains a Roadway Classification Review. The classification of the road determines the maintenance level required to maintain the segments of road.
Maintenance Activities	<ul style="list-style-type: none"> • Regular maintenance including, road sweeping, snow removal, roadside ditch cleanout and clearing. • Regular seasonal maintenance as needed to ensure safety of residents, in particular based on Winter Maintenance By-law 153-2017 • Continued maintenance of roads in line with <i>O. Reg. 239/02 Minimum Maintenance Standards for Municipal Highways</i>. • Continue to monitor road restrictions based on Municipal policy, in particular for load restrictions in effect from March to April of every year
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Resurfacing of poor conditioned paved roads. • Regular grading and application of gravel for gravel roads. • Regular component repairs based on inspections. • Repair methods and recommended works as outlined in the 2017 Roads Inspection Report (preventative maintenance, rehabilitation, reclamation)
Replacement	<ul style="list-style-type: none"> • Road reconstruction if identified in 2017 Roads Inspection Report.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.

Table 9 Planned Actions: Roads	
Areas	Planned Actions
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. Ensure assumed roads are tracked through the asset management plan. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.).

Bridges and Large Culverts

This asset category includes the Municipality's bridge and large culverts. Regular maintenance and inspections are required to maintain these assets in a state of good repair. Table 9 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 10 Planned Actions: Bridges and Large Culverts	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Regularly scheduling of repair work orders. • Annually provide the necessary departments with related information when works are completed. • Update OSIM Inspections Report on a regular basis and input OSIM data into AMP model as needed. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets.
Maintenance Activities	<ul style="list-style-type: none"> • Regular inspections and repairs of all culverts. • Continue required OSIM inspections (every 2 years) • Continue to monitor road restrictions based on Municipal policy, in particular for load restrictions in effect from March to April of every year • Regular seasonal maintenance as needed to ensure safety of residents, in particular based on Winter Maintenance By-law 153-2017 • Continued maintenance of roads in line with <i>O. Reg. 239/02 Minimum Maintenance Standards for Municipal Highways</i>.
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections. • Continue to implement recommendations of OSIM Inspections Report.
Replacement	<ul style="list-style-type: none"> • Component replacement based on needs.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.).

Stormwater

Table 10 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 11 Planned Actions: Stormwater	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Regularly scheduling of repair work orders. • Annually provide the necessary departments with related information when works are completed. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets.
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for components of the stormwater system. • Regular safety inspections.
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections.
Replacement	<ul style="list-style-type: none"> • Components replaced based on needs.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.).

Water

Table 12 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 12 Planned Actions: Water	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Regularly scheduling of repair work orders. • Annually provide the necessary departments with related information when works are completed. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets. • Continue to update the Municipal Waterworks Financial Plan on an ongoing basis
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for components of the water system. • Regular safety inspections. • CCTV camera inspections performed as identified and needed
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections.
Replacement	<ul style="list-style-type: none"> • Components replaced based on needs.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.).

Sewer

Table 13 summarizes general actions that can be taken to ensure that these assets are maintained in a state of good repair.

Table 13 Planned Actions: Sewer	
Areas	Planned Actions
Non-Infrastructure Solutions	<ul style="list-style-type: none"> • Operating budgets should be informed by regular inspections as needed. • Adjust service levels if necessary. • Regularly scheduling of repair work orders. • Annually provide the necessary departments with related information when works are completed. • Update policies and procedures regarding the accounting and reporting of the Municipality's tangible capital assets. • Continue to update the Municipal Wastewater Financial Plan on an ongoing basis
Maintenance Activities	<ul style="list-style-type: none"> • Preventative maintenance program for all Municipality sewer system. • CCTV camera inspections performed as identified and needed
Renewal/Rehabilitation	<ul style="list-style-type: none"> • Regular component repairs based on inspections. • Identified capital works in line with recommendations of North Perth Wastewater Treatment Master Plan 2015
Replacement	<ul style="list-style-type: none"> • Components replaced based on needs.
Disposal	<ul style="list-style-type: none"> • Dispose or sell assets that are no longer in use or are in poor condition.
Expansion	<ul style="list-style-type: none"> • Identify needs through regular capital planning. • Continue to track needs based on the growth-related capital program in the Development Charges Background Study. • Service improvements made where possible (new technologies, environmental impacts, etc.).

APPENDIX E
DETAILED FINANCING STRATEGY TABLES

Table 1
Municipality of North Perth
2019 Asset Management Plan
Close Cumulative Infrastructure Deficit by 2058 (Tax Funded Services)

Legend	1	2	3	4	5	6	7	8	9
Year	Projected Annual Capital Provision	Capital from Taxation	Yearly Increase in Tax Funding (\$)	Yearly Increase in Tax Funding (%)	Gas Tax	Other Grants	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2019	\$ 20,072,092	\$ 4,175,333			\$ 398,315	\$ 1,350,900	\$ 5,924,548	\$ 14,147,544	\$ 14,147,544
2020	\$ 27,439,578	\$ 4,668,253	\$ 492,920	11.8%	\$ 398,315	\$ -	\$ 5,066,568	\$ 22,373,010	\$ 36,520,553
2021	\$ 24,713,575	\$ 5,161,173	\$ 492,920	10.6%	\$ 416,420	\$ -	\$ 5,577,593	\$ 19,135,983	\$ 55,656,536
2022	\$ 22,383,456	\$ 5,654,092	\$ 492,920	9.6%	\$ 416,420	\$ -	\$ 6,070,512	\$ 16,312,943	\$ 71,969,480
2023	\$ 21,803,149	\$ 6,147,012	\$ 492,920	8.7%	\$ 434,525	\$ -	\$ 6,581,537	\$ 15,221,611	\$ 87,191,091
2024	\$ 21,241,964	\$ 6,639,932	\$ 492,920	8.0%	\$ 434,525	\$ -	\$ 7,074,457	\$ 14,167,507	\$ 101,358,598
2025	\$ 19,408,951	\$ 7,132,852	\$ 492,920	7.4%	\$ 434,525	\$ -	\$ 7,567,377	\$ 11,841,575	\$ 113,200,173
2026	\$ 18,744,116	\$ 7,625,771	\$ 492,920	6.9%	\$ 434,525	\$ -	\$ 8,060,296	\$ 10,683,820	\$ 123,883,992
2027	\$ 18,722,084	\$ 8,118,691	\$ 492,920	6.5%	\$ 434,525	\$ -	\$ 8,553,216	\$ 10,168,868	\$ 134,052,860
2028	\$ 15,541,823	\$ 8,611,611	\$ 492,920	6.1%	\$ 434,525	\$ -	\$ 9,046,136	\$ 6,495,687	\$ 140,548,547
2029	\$ 15,440,924	\$ 9,104,531	\$ 492,920	5.7%	\$ 434,525	\$ -	\$ 9,539,056	\$ 5,901,868	\$ 146,450,415
2030	\$ 14,623,822	\$ 9,597,450	\$ 492,920	5.4%	\$ 434,525	\$ -	\$ 10,031,975	\$ 4,591,846	\$ 151,042,261
2031	\$ 13,992,530	\$ 10,090,370	\$ 492,920	5.1%	\$ 434,525	\$ -	\$ 10,524,895	\$ 3,467,635	\$ 154,509,896
2032	\$ 13,278,153	\$ 10,583,290	\$ 492,920	4.9%	\$ 434,525	\$ -	\$ 11,017,815	\$ 2,260,338	\$ 156,770,234
2033	\$ 13,255,864	\$ 11,076,210	\$ 492,920	4.7%	\$ 434,525	\$ -	\$ 11,510,735	\$ 1,745,130	\$ 158,515,364
2034	\$ 12,501,164	\$ 11,569,130	\$ 492,920	4.5%	\$ 434,525	\$ -	\$ 12,003,655	\$ 497,509	\$ 159,012,873
2035	\$ 12,317,739	\$ 12,062,049	\$ 492,920	4.3%	\$ 434,525	\$ -	\$ 12,496,574	\$ (178,835)	\$ 158,834,038
2036	\$ 12,313,604	\$ 12,554,969	\$ 492,920	4.1%	\$ 434,525	\$ -	\$ 12,989,494	\$ (675,890)	\$ 158,158,147
2037	\$ 12,312,519	\$ 13,047,889	\$ 492,920	3.9%	\$ 434,525	\$ -	\$ 13,482,414	\$ (1,169,895)	\$ 156,988,253
2038	\$ 13,094,494	\$ 13,540,809	\$ 492,920	3.8%	\$ 434,525	\$ -	\$ 13,975,334	\$ (880,839)	\$ 156,107,413
2039	\$ 11,484,589	\$ 14,033,728	\$ 492,920	3.6%	\$ 434,525	\$ -	\$ 14,468,253	\$ (2,983,665)	\$ 153,123,749
2040	\$ 11,449,870	\$ 14,526,648	\$ 492,920	3.5%	\$ 434,525	\$ -	\$ 14,961,173	\$ (3,511,303)	\$ 149,612,445
2041	\$ 11,440,076	\$ 15,019,568	\$ 492,920	3.4%	\$ 434,525	\$ -	\$ 15,454,093	\$ (4,014,017)	\$ 145,598,428
2042	\$ 11,429,845	\$ 15,512,488	\$ 492,920	3.3%	\$ 434,525	\$ -	\$ 15,947,013	\$ (4,517,168)	\$ 141,081,261
2043	\$ 11,183,168	\$ 16,005,407	\$ 492,920	3.2%	\$ 434,525	\$ -	\$ 16,439,932	\$ (5,256,764)	\$ 135,824,496
2044	\$ 12,023,223	\$ 16,498,327	\$ 492,920	3.1%	\$ 434,525	\$ -	\$ 16,932,852	\$ (4,909,629)	\$ 130,914,867
2045	\$ 11,850,320	\$ 16,991,247	\$ 492,920	3.0%	\$ 434,525	\$ -	\$ 17,425,772	\$ (5,575,452)	\$ 125,339,415
2046	\$ 11,850,320	\$ 17,484,167	\$ 492,920	2.9%	\$ 434,525	\$ -	\$ 17,918,692	\$ (6,068,372)	\$ 119,271,043
2047	\$ 11,850,320	\$ 17,977,086	\$ 492,920	2.8%	\$ 434,525	\$ -	\$ 18,411,611	\$ (6,561,292)	\$ 112,709,752
2048	\$ 11,635,250	\$ 18,470,006	\$ 492,920	2.7%	\$ 434,525	\$ -	\$ 18,904,531	\$ (7,269,281)	\$ 105,440,471
2049	\$ 11,616,950	\$ 18,962,926	\$ 492,920	2.7%	\$ 434,525	\$ -	\$ 19,397,451	\$ (7,780,501)	\$ 97,659,969
2050	\$ 11,791,604	\$ 19,455,846	\$ 492,920	2.6%	\$ 434,525	\$ -	\$ 19,890,371	\$ (8,098,767)	\$ 89,561,203
2051	\$ 11,449,199	\$ 19,948,765	\$ 492,920	2.5%	\$ 434,525	\$ -	\$ 20,383,290	\$ (8,934,092)	\$ 80,627,111
2052	\$ 11,424,929	\$ 20,441,685	\$ 492,920	2.5%	\$ 434,525	\$ -	\$ 20,876,210	\$ (9,451,281)	\$ 71,175,830
2053	\$ 11,511,434	\$ 20,934,605	\$ 492,920	2.4%	\$ 434,525	\$ -	\$ 21,369,130	\$ (9,857,696)	\$ 61,318,134
2054	\$ 11,511,434	\$ 21,427,525	\$ 492,920	2.4%	\$ 434,525	\$ -	\$ 21,862,050	\$ (10,350,616)	\$ 50,967,518
2055	\$ 10,671,569	\$ 21,920,444	\$ 492,920	2.3%	\$ 434,525	\$ -	\$ 22,354,969	\$ (11,683,401)	\$ 39,284,117
2056	\$ 10,631,765	\$ 22,413,364	\$ 492,920	2.2%	\$ 434,525	\$ -	\$ 22,847,889	\$ (12,216,125)	\$ 27,067,993
2057	\$ 10,619,387	\$ 22,906,284	\$ 492,920	2.2%	\$ 434,525	\$ -	\$ 23,340,809	\$ (12,721,422)	\$ 14,346,571
2058	\$ 9,487,157	\$ 23,399,204	\$ 492,920	2.2%	\$ 434,525	\$ -	\$ 23,833,729	\$ (14,346,571)	\$ 0
40-Year Infrastructure Deficit								\$	0

Total Tax Funding	\$	551,490,736
2019 Total Tax Levy	\$	14,223,409
Inc. as % of Tax Levy		3.47%

Table 2
Municipality of North Perth
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	9
Year	Projected Annual Capital Provision	Capital from Taxation	Yearly Increase in Tax Funding (\$)	Yearly Increase in Tax Funding (%)	Gas Tax	Other Grants	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2019	\$ 20,072,092	\$ 4,175,333			\$ 398,315	\$ 1,350,900	\$ 5,924,548	\$ 14,147,544	\$ 14,147,544
2020	\$ 27,439,578	\$ 4,621,893	\$ 446,560	10.7%	\$ 398,315	\$ -	\$ 5,020,208	\$ 22,419,370	\$ 36,566,913
2021	\$ 24,713,575	\$ 5,068,453	\$ 446,560	9.7%	\$ 416,420	\$ -	\$ 5,484,873	\$ 19,228,703	\$ 55,795,616
2022	\$ 22,383,456	\$ 5,515,013	\$ 446,560	8.8%	\$ 416,420	\$ -	\$ 5,931,433	\$ 16,452,023	\$ 72,247,639
2023	\$ 21,803,149	\$ 5,961,572	\$ 446,560	8.1%	\$ 434,525	\$ -	\$ 6,396,097	\$ 15,407,051	\$ 87,654,691
2024	\$ 21,241,964	\$ 6,408,132	\$ 446,560	7.5%	\$ 434,525	\$ -	\$ 6,842,657	\$ 14,399,307	\$ 102,053,997
2025	\$ 19,408,951	\$ 6,854,692	\$ 446,560	7.0%	\$ 434,525	\$ -	\$ 7,289,217	\$ 12,119,735	\$ 114,173,732
2026	\$ 18,744,116	\$ 7,301,252	\$ 446,560	6.5%	\$ 434,525	\$ -	\$ 7,735,777	\$ 11,008,339	\$ 125,182,071
2027	\$ 18,722,084	\$ 7,747,811	\$ 446,560	6.1%	\$ 434,525	\$ -	\$ 8,182,336	\$ 10,539,748	\$ 135,721,819
2028	\$ 15,541,823	\$ 8,194,371	\$ 446,560	5.8%	\$ 434,525	\$ -	\$ 8,628,896	\$ 6,912,926	\$ 142,634,745
2029	\$ 15,440,924	\$ 8,640,931	\$ 446,560	5.4%	\$ 434,525	\$ -	\$ 9,075,456	\$ 6,365,468	\$ 149,000,213
2030	\$ 14,623,822	\$ 9,087,491	\$ 446,560	5.2%	\$ 434,525	\$ -	\$ 9,522,016	\$ 5,101,806	\$ 154,102,019
2031	\$ 13,992,530	\$ 9,534,051	\$ 446,560	4.9%	\$ 434,525	\$ -	\$ 9,968,576	\$ 4,023,954	\$ 158,125,973
2032	\$ 13,278,153	\$ 9,980,610	\$ 446,560	4.7%	\$ 434,525	\$ -	\$ 10,415,135	\$ 2,863,017	\$ 160,988,991
2033	\$ 13,255,864	\$ 10,427,170	\$ 446,560	4.5%	\$ 434,525	\$ -	\$ 10,861,695	\$ 2,394,169	\$ 163,383,160
2034	\$ 12,501,164	\$ 10,873,730	\$ 446,560	4.3%	\$ 434,525	\$ -	\$ 11,308,255	\$ 1,192,909	\$ 164,576,069
2035	\$ 12,317,739	\$ 11,320,290	\$ 446,560	4.1%	\$ 434,525	\$ -	\$ 11,754,815	\$ 562,924	\$ 165,138,993
2036	\$ 12,313,604	\$ 11,766,850	\$ 446,560	3.9%	\$ 434,525	\$ -	\$ 12,201,375	\$ 112,229	\$ 165,251,222
2037	\$ 12,312,519	\$ 12,213,409	\$ 446,560	3.8%	\$ 434,525	\$ -	\$ 12,647,934	\$ (335,416)	\$ 164,915,807
2038	\$ 13,094,494	\$ 12,659,969	\$ 446,560	3.7%	\$ 434,525	\$ -	\$ 13,094,494	\$ -	\$ 164,915,807
2039	\$ 11,484,589	\$ 13,106,529	\$ 446,560	3.5%	\$ 434,525	\$ -	\$ 13,541,054	\$ (2,056,465)	\$ 162,859,341
2040	\$ 11,449,870	\$ 13,553,089	\$ 446,560	3.4%	\$ 434,525	\$ -	\$ 13,987,614	\$ (2,537,744)	\$ 160,321,597
2041	\$ 11,440,076	\$ 13,999,649	\$ 446,560	3.3%	\$ 434,525	\$ -	\$ 14,434,174	\$ (2,994,098)	\$ 157,327,499
2042	\$ 11,429,845	\$ 14,446,208	\$ 446,560	3.2%	\$ 434,525	\$ -	\$ 14,880,733	\$ (3,450,888)	\$ 153,876,611
2043	\$ 11,183,168	\$ 14,892,768	\$ 446,560	3.1%	\$ 434,525	\$ -	\$ 15,327,293	\$ (4,144,125)	\$ 149,732,486
2044	\$ 12,023,223	\$ 15,339,328	\$ 446,560	3.0%	\$ 434,525	\$ -	\$ 15,773,853	\$ (3,750,630)	\$ 145,981,856
2045	\$ 11,850,320	\$ 15,785,888	\$ 446,560	2.9%	\$ 434,525	\$ -	\$ 16,220,413	\$ (4,370,093)	\$ 141,611,763
2046	\$ 11,850,320	\$ 16,232,447	\$ 446,560	2.8%	\$ 434,525	\$ -	\$ 16,666,972	\$ (4,816,653)	\$ 136,795,110
2047	\$ 11,850,320	\$ 16,679,007	\$ 446,560	2.8%	\$ 434,525	\$ -	\$ 17,113,532	\$ (5,263,212)	\$ 131,531,898
2048	\$ 11,635,250	\$ 17,125,567	\$ 446,560	2.7%	\$ 434,525	\$ -	\$ 17,560,092	\$ (5,924,842)	\$ 125,607,056
2049	\$ 11,616,950	\$ 17,572,127	\$ 446,560	2.6%	\$ 434,525	\$ -	\$ 18,006,652	\$ (6,389,702)	\$ 119,217,354
2050	\$ 11,791,604	\$ 18,018,687	\$ 446,560	2.5%	\$ 434,525	\$ -	\$ 18,453,212	\$ (6,661,608)	\$ 112,555,746
2051	\$ 11,449,199	\$ 18,465,246	\$ 446,560	2.5%	\$ 434,525	\$ -	\$ 18,899,771	\$ (7,450,573)	\$ 105,105,173
2052	\$ 11,424,929	\$ 18,911,806	\$ 446,560	2.4%	\$ 434,525	\$ -	\$ 19,346,331	\$ (7,921,402)	\$ 97,183,771
2053	\$ 11,511,434	\$ 19,358,366	\$ 446,560	2.4%	\$ 434,525	\$ -	\$ 19,792,891	\$ (8,281,457)	\$ 88,902,314
2054	\$ 11,511,434	\$ 19,804,926	\$ 446,560	2.3%	\$ 434,525	\$ -	\$ 20,239,451	\$ (8,728,017)	\$ 80,174,297
2055	\$ 10,671,569	\$ 20,251,486	\$ 446,560	2.3%	\$ 434,525	\$ -	\$ 20,686,011	\$ (10,014,442)	\$ 70,159,855
2056	\$ 10,631,765	\$ 20,698,045	\$ 446,560	2.2%	\$ 434,525	\$ -	\$ 21,132,570	\$ (10,500,806)	\$ 59,659,049
2057	\$ 10,619,387	\$ 21,144,605	\$ 446,560	2.2%	\$ 434,525	\$ -	\$ 21,579,130	\$ (10,959,743)	\$ 48,699,306
2058	\$ 9,487,157	\$ 21,591,165	\$ 446,560	2.1%	\$ 434,525	\$ -	\$ 22,025,690	\$ (12,538,533)	\$ 36,160,773
40-Year Infrastructure Deficit								\$ 36,160,773	

Total Tax Funding	\$	515,329,963
2019 Total Tax Levy	\$	14,223,409
Inc. as % of Tax Levy		3.14%

Table 3
Municipality of North Perth
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	9
Year	Projected Annual Capital Provision	Capital from Taxation	Yearly Increase in Tax Funding (\$)	Yearly Increase in Tax Funding (%)	Gas Tax	Other Grants	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2019	\$ 20,072,092	\$ 4,175,333			\$ 398,315	\$ 1,350,900	\$ 5,924,548	\$ 14,147,544	\$ 14,147,544
2020	\$ 27,439,578	\$ 4,417,588	\$ 242,255	5.8%	\$ 398,315	\$ -	\$ 4,815,903	\$ 22,623,675	\$ 36,771,218
2021	\$ 24,713,575	\$ 4,659,843	\$ 242,255	5.5%	\$ 416,420	\$ -	\$ 5,076,263	\$ 19,637,312	\$ 56,408,531
2022	\$ 22,383,456	\$ 4,902,098	\$ 242,255	5.2%	\$ 416,420	\$ -	\$ 5,318,518	\$ 17,064,938	\$ 73,473,469
2023	\$ 21,803,149	\$ 5,144,353	\$ 242,255	4.9%	\$ 434,525	\$ -	\$ 5,578,878	\$ 16,224,271	\$ 89,697,740
2024	\$ 21,241,964	\$ 5,386,608	\$ 242,255	4.7%	\$ 434,525	\$ -	\$ 5,821,133	\$ 15,420,831	\$ 105,118,571
2025	\$ 19,408,951	\$ 5,628,862	\$ 242,255	4.5%	\$ 434,525	\$ -	\$ 6,063,387	\$ 13,345,564	\$ 118,464,135
2026	\$ 18,744,116	\$ 5,871,117	\$ 242,255	4.3%	\$ 434,525	\$ -	\$ 6,305,642	\$ 12,438,474	\$ 130,902,609
2027	\$ 18,722,084	\$ 6,113,372	\$ 242,255	4.1%	\$ 434,525	\$ -	\$ 6,547,897	\$ 12,174,187	\$ 143,076,796
2028	\$ 15,541,823	\$ 6,355,627	\$ 242,255	4.0%	\$ 434,525	\$ -	\$ 6,790,152	\$ 8,751,671	\$ 151,828,466
2029	\$ 15,440,924	\$ 6,597,882	\$ 242,255	3.8%	\$ 434,525	\$ -	\$ 7,032,407	\$ 8,408,517	\$ 160,236,983
2030	\$ 14,623,822	\$ 6,840,137	\$ 242,255	3.7%	\$ 434,525	\$ -	\$ 7,274,662	\$ 7,349,160	\$ 167,586,143
2031	\$ 13,992,530	\$ 7,082,392	\$ 242,255	3.5%	\$ 434,525	\$ -	\$ 7,516,917	\$ 6,475,613	\$ 174,061,756
2032	\$ 13,278,153	\$ 7,324,647	\$ 242,255	3.4%	\$ 434,525	\$ -	\$ 7,759,172	\$ 5,518,981	\$ 179,580,737
2033	\$ 13,255,864	\$ 7,566,902	\$ 242,255	3.3%	\$ 434,525	\$ -	\$ 8,001,427	\$ 5,254,438	\$ 184,835,175
2034	\$ 12,501,164	\$ 7,809,156	\$ 242,255	3.2%	\$ 434,525	\$ -	\$ 8,243,681	\$ 4,257,482	\$ 189,092,657
2035	\$ 12,317,739	\$ 8,051,411	\$ 242,255	3.1%	\$ 434,525	\$ -	\$ 8,485,936	\$ 3,831,803	\$ 192,924,460
2036	\$ 12,313,604	\$ 8,293,666	\$ 242,255	3.0%	\$ 434,525	\$ -	\$ 8,728,191	\$ 3,585,412	\$ 196,509,873
2037	\$ 12,312,519	\$ 8,535,921	\$ 242,255	2.9%	\$ 434,525	\$ -	\$ 8,970,446	\$ 3,342,073	\$ 199,851,946
2038	\$ 13,094,494	\$ 8,778,176	\$ 242,255	2.8%	\$ 434,525	\$ -	\$ 9,212,701	\$ 3,881,793	\$ 203,733,739
2039	\$ 11,484,589	\$ 9,020,431	\$ 242,255	2.8%	\$ 434,525	\$ -	\$ 9,454,956	\$ 2,029,633	\$ 205,763,372
2040	\$ 11,449,870	\$ 9,262,686	\$ 242,255	2.7%	\$ 434,525	\$ -	\$ 9,697,211	\$ 1,752,659	\$ 207,516,031
2041	\$ 11,440,076	\$ 9,504,941	\$ 242,255	2.6%	\$ 434,525	\$ -	\$ 9,939,466	\$ 1,500,610	\$ 209,016,641
2042	\$ 11,429,845	\$ 9,747,195	\$ 242,255	2.5%	\$ 434,525	\$ -	\$ 10,181,720	\$ 1,248,124	\$ 210,264,765
2043	\$ 11,183,168	\$ 9,989,450	\$ 242,255	2.5%	\$ 434,525	\$ -	\$ 10,423,975	\$ 759,192	\$ 211,023,958
2044	\$ 12,023,223	\$ 10,231,705	\$ 242,255	2.4%	\$ 434,525	\$ -	\$ 10,666,230	\$ 1,356,993	\$ 212,380,950
2045	\$ 11,850,320	\$ 10,473,960	\$ 242,255	2.4%	\$ 434,525	\$ -	\$ 10,908,485	\$ 941,835	\$ 213,322,785
2046	\$ 11,850,320	\$ 10,716,215	\$ 242,255	2.3%	\$ 434,525	\$ -	\$ 11,150,740	\$ 699,580	\$ 214,022,365
2047	\$ 11,850,320	\$ 10,958,470	\$ 242,255	2.3%	\$ 434,525	\$ -	\$ 11,392,995	\$ 457,235	\$ 214,479,690
2048	\$ 11,635,250	\$ 11,200,725	\$ 242,255	2.2%	\$ 434,525	\$ -	\$ 11,635,250	\$ 0	\$ 214,479,690
2049	\$ 11,616,950	\$ 11,442,980	\$ 242,255	2.2%	\$ 434,525	\$ -	\$ 11,877,505	\$ (260,555)	\$ 214,219,135
2050	\$ 11,791,604	\$ 11,685,235	\$ 242,255	2.1%	\$ 434,525	\$ -	\$ 12,119,760	\$ (328,156)	\$ 213,890,979
2051	\$ 11,449,199	\$ 11,927,489	\$ 242,255	2.1%	\$ 434,525	\$ -	\$ 12,362,014	\$ (912,816)	\$ 212,978,163
2052	\$ 11,424,929	\$ 12,169,744	\$ 242,255	2.0%	\$ 434,525	\$ -	\$ 12,604,269	\$ (1,179,341)	\$ 211,798,823
2053	\$ 11,511,434	\$ 12,411,999	\$ 242,255	2.0%	\$ 434,525	\$ -	\$ 12,846,524	\$ (1,335,090)	\$ 210,463,732
2054	\$ 11,511,434	\$ 12,654,254	\$ 242,255	2.0%	\$ 434,525	\$ -	\$ 13,088,779	\$ (1,577,345)	\$ 208,886,387
2055	\$ 10,671,569	\$ 12,896,509	\$ 242,255	1.9%	\$ 434,525	\$ -	\$ 13,331,034	\$ (2,659,465)	\$ 206,226,922
2056	\$ 10,631,765	\$ 13,138,764	\$ 242,255	1.9%	\$ 434,525	\$ -	\$ 13,573,289	\$ (2,941,524)	\$ 203,285,398
2057	\$ 10,619,387	\$ 13,381,019	\$ 242,255	1.8%	\$ 434,525	\$ -	\$ 13,815,544	\$ (3,196,157)	\$ 200,089,241
2058	\$ 9,487,157	\$ 13,623,274	\$ 242,255	1.8%	\$ 434,525	\$ -	\$ 14,057,799	\$ (4,570,641)	\$ 195,518,600
40-Year Infrastructure Deficit								\$ 195,518,600	

Total Tax Funding	\$	355,972,136
2019 Total Tax Levy	\$	14,223,409
Inc. as % of Tax Levy		1.70%

Table 4
Municipality of North Perth
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	9
Year	Projected Annual Capital Provision	Capital from Taxation	Yearly Increase in Tax Funding (\$)	Yearly Increase in Tax Funding (%)	Gas Tax	Other Grants	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2019	\$ 20,072,092	\$ 4,175,333			\$ 398,315	\$ 1,350,900	\$ 5,924,548	\$ 14,147,544	\$ 14,147,544
2020	\$ 27,439,578	\$ 4,300,392	\$ 125,059	3.0%	\$ 398,315	\$ -	\$ 4,698,707	\$ 22,740,871	\$ 36,888,414
2021	\$ 24,713,575	\$ 4,425,451	\$ 125,059	2.9%	\$ 416,420	\$ -	\$ 4,841,871	\$ 19,871,704	\$ 56,760,119
2022	\$ 22,383,456	\$ 4,550,510	\$ 125,059	2.8%	\$ 416,420	\$ -	\$ 4,966,930	\$ 17,416,526	\$ 74,176,644
2023	\$ 21,803,149	\$ 4,675,569	\$ 125,059	2.7%	\$ 434,525	\$ -	\$ 5,110,094	\$ 16,693,055	\$ 90,869,699
2024	\$ 21,241,964	\$ 4,800,628	\$ 125,059	2.7%	\$ 434,525	\$ -	\$ 5,235,153	\$ 16,006,811	\$ 106,876,510
2025	\$ 19,408,951	\$ 4,925,687	\$ 125,059	2.6%	\$ 434,525	\$ -	\$ 5,360,212	\$ 14,048,740	\$ 120,925,249
2026	\$ 18,744,116	\$ 5,050,746	\$ 125,059	2.5%	\$ 434,525	\$ -	\$ 5,485,271	\$ 13,258,845	\$ 134,184,095
2027	\$ 18,722,084	\$ 5,175,805	\$ 125,059	2.5%	\$ 434,525	\$ -	\$ 5,610,330	\$ 13,111,754	\$ 147,295,849
2028	\$ 15,541,823	\$ 5,300,864	\$ 125,059	2.4%	\$ 434,525	\$ -	\$ 5,735,389	\$ 9,806,434	\$ 157,102,283
2029	\$ 15,440,924	\$ 5,425,923	\$ 125,059	2.4%	\$ 434,525	\$ -	\$ 5,860,448	\$ 9,580,476	\$ 166,682,759
2030	\$ 14,623,822	\$ 5,550,982	\$ 125,059	2.3%	\$ 434,525	\$ -	\$ 5,985,507	\$ 8,638,315	\$ 175,321,074
2031	\$ 13,992,530	\$ 5,676,041	\$ 125,059	2.3%	\$ 434,525	\$ -	\$ 6,110,566	\$ 7,881,964	\$ 183,203,038
2032	\$ 13,278,153	\$ 5,801,100	\$ 125,059	2.2%	\$ 434,525	\$ -	\$ 6,235,625	\$ 7,042,528	\$ 190,245,567
2033	\$ 13,255,864	\$ 5,926,159	\$ 125,059	2.2%	\$ 434,525	\$ -	\$ 6,360,684	\$ 6,895,181	\$ 197,140,748
2034	\$ 12,501,164	\$ 6,051,217	\$ 125,059	2.1%	\$ 434,525	\$ -	\$ 6,485,742	\$ 6,015,421	\$ 203,156,169
2035	\$ 12,317,739	\$ 6,176,276	\$ 125,059	2.1%	\$ 434,525	\$ -	\$ 6,610,801	\$ 5,706,938	\$ 208,863,107
2036	\$ 12,313,604	\$ 6,301,335	\$ 125,059	2.0%	\$ 434,525	\$ -	\$ 6,735,860	\$ 5,577,743	\$ 214,440,850
2037	\$ 12,312,519	\$ 6,426,394	\$ 125,059	2.0%	\$ 434,525	\$ -	\$ 6,860,919	\$ 5,451,600	\$ 219,892,450
2038	\$ 13,094,494	\$ 6,551,453	\$ 125,059	1.9%	\$ 434,525	\$ -	\$ 6,985,978	\$ 6,108,516	\$ 226,000,966
2039	\$ 11,484,589	\$ 6,676,512	\$ 125,059	1.9%	\$ 434,525	\$ -	\$ 7,111,037	\$ 4,373,551	\$ 230,374,517
2040	\$ 11,449,870	\$ 6,801,571	\$ 125,059	1.9%	\$ 434,525	\$ -	\$ 7,236,096	\$ 4,213,774	\$ 234,588,290
2041	\$ 11,440,076	\$ 6,926,630	\$ 125,059	1.8%	\$ 434,525	\$ -	\$ 7,361,155	\$ 4,078,920	\$ 238,667,211
2042	\$ 11,429,845	\$ 7,051,689	\$ 125,059	1.8%	\$ 434,525	\$ -	\$ 7,486,214	\$ 3,943,631	\$ 242,610,842
2043	\$ 11,183,168	\$ 7,176,748	\$ 125,059	1.8%	\$ 434,525	\$ -	\$ 7,611,273	\$ 3,571,895	\$ 246,182,737
2044	\$ 12,023,223	\$ 7,301,807	\$ 125,059	1.7%	\$ 434,525	\$ -	\$ 7,736,332	\$ 4,286,891	\$ 250,469,628
2045	\$ 11,850,320	\$ 7,426,866	\$ 125,059	1.7%	\$ 434,525	\$ -	\$ 7,861,391	\$ 3,988,929	\$ 254,458,556
2046	\$ 11,850,320	\$ 7,551,925	\$ 125,059	1.7%	\$ 434,525	\$ -	\$ 7,986,450	\$ 3,863,870	\$ 258,322,426
2047	\$ 11,850,320	\$ 7,676,984	\$ 125,059	1.7%	\$ 434,525	\$ -	\$ 8,111,509	\$ 3,738,811	\$ 262,061,237
2048	\$ 11,635,250	\$ 7,802,043	\$ 125,059	1.6%	\$ 434,525	\$ -	\$ 8,236,568	\$ 3,398,682	\$ 265,459,919
2049	\$ 11,616,950	\$ 7,927,102	\$ 125,059	1.6%	\$ 434,525	\$ -	\$ 8,361,627	\$ 3,255,323	\$ 268,715,242
2050	\$ 11,791,604	\$ 8,052,161	\$ 125,059	1.6%	\$ 434,525	\$ -	\$ 8,486,686	\$ 3,304,918	\$ 272,020,160
2051	\$ 11,449,199	\$ 8,177,220	\$ 125,059	1.6%	\$ 434,525	\$ -	\$ 8,611,745	\$ 2,837,454	\$ 274,857,614
2052	\$ 11,424,929	\$ 8,302,279	\$ 125,059	1.5%	\$ 434,525	\$ -	\$ 8,736,804	\$ 2,688,125	\$ 277,545,740
2053	\$ 11,511,434	\$ 8,427,338	\$ 125,059	1.5%	\$ 434,525	\$ -	\$ 8,861,863	\$ 2,649,571	\$ 280,195,311
2054	\$ 11,511,434	\$ 8,552,397	\$ 125,059	1.5%	\$ 434,525	\$ -	\$ 8,986,922	\$ 2,524,512	\$ 282,719,823
2055	\$ 10,671,569	\$ 8,677,455	\$ 125,059	1.5%	\$ 434,525	\$ -	\$ 9,111,980	\$ 1,559,588	\$ 284,279,411
2056	\$ 10,631,765	\$ 8,802,514	\$ 125,059	1.4%	\$ 434,525	\$ -	\$ 9,237,039	\$ 1,394,725	\$ 285,674,137
2057	\$ 10,619,387	\$ 8,927,573	\$ 125,059	1.4%	\$ 434,525	\$ -	\$ 9,362,098	\$ 1,257,289	\$ 286,931,425
2058	\$ 9,487,157	\$ 9,052,632	\$ 125,059	1.4%	\$ 434,525	\$ -	\$ 9,487,157	\$ 0	\$ 286,931,425
40-Year Infrastructure Deficit								\$ 286,931,425	

Total Tax Funding	\$ 264,559,311
2019 Total Tax Levy	\$ 14,223,409
Inc. as % of Tax Levy	0.88%

**Table 5
Municipality of North Perth
2019 Asset Management Plan
Close Cumulative Infrastructure Deficit by 2058 (Rate Funded Services)**

Legend	1	2	3	4	5	6	7	8	9
Year	Projected Annual Capital Provision	Capital from Rates	Yearly Increase in Rate Funding (\$)	Yearly Increase in Rate Funding (%)	Gas Tax	Other Grants	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2019	\$ 21,389,511	\$ 1,356,350			\$ -	\$ -	\$ 1,356,350	\$ 20,033,161	\$ 20,033,161
2020	\$ 13,784,182	\$ 1,569,389	\$ 213,039	15.7%	\$ -	\$ -	\$ 1,569,389	\$ 12,214,793	\$ 32,247,954
2021	\$ 8,178,940	\$ 1,782,428	\$ 213,039	13.6%	\$ -	\$ -	\$ 1,782,428	\$ 6,396,512	\$ 38,644,466
2022	\$ 7,521,070	\$ 1,995,467	\$ 213,039	12.0%	\$ -	\$ -	\$ 1,995,467	\$ 5,525,602	\$ 44,170,069
2023	\$ 7,385,666	\$ 2,208,506	\$ 213,039	10.7%	\$ -	\$ -	\$ 2,208,506	\$ 5,177,160	\$ 49,347,229
2024	\$ 7,385,666	\$ 2,421,545	\$ 213,039	9.6%	\$ -	\$ -	\$ 2,421,545	\$ 4,964,121	\$ 54,311,349
2025	\$ 7,134,283	\$ 2,634,584	\$ 213,039	8.8%	\$ -	\$ -	\$ 2,634,584	\$ 4,499,699	\$ 58,811,048
2026	\$ 7,123,207	\$ 2,847,623	\$ 213,039	8.1%	\$ -	\$ -	\$ 2,847,623	\$ 4,275,584	\$ 63,086,631
2027	\$ 7,123,207	\$ 3,060,662	\$ 213,039	7.5%	\$ -	\$ -	\$ 3,060,662	\$ 4,062,544	\$ 67,149,176
2028	\$ 5,244,397	\$ 3,273,701	\$ 213,039	7.0%	\$ -	\$ -	\$ 3,273,701	\$ 1,970,696	\$ 69,119,872
2029	\$ 5,244,397	\$ 3,486,740	\$ 213,039	6.5%	\$ -	\$ -	\$ 3,486,740	\$ 1,757,657	\$ 70,877,528
2030	\$ 5,243,654	\$ 3,699,780	\$ 213,039	6.1%	\$ -	\$ -	\$ 3,699,780	\$ 1,543,874	\$ 72,421,402
2031	\$ 5,243,654	\$ 3,912,819	\$ 213,039	5.8%	\$ -	\$ -	\$ 3,912,819	\$ 1,330,835	\$ 73,752,238
2032	\$ 5,239,484	\$ 4,125,858	\$ 213,039	5.4%	\$ -	\$ -	\$ 4,125,858	\$ 1,113,626	\$ 74,865,864
2033	\$ 4,863,124	\$ 4,338,897	\$ 213,039	5.2%	\$ -	\$ -	\$ 4,338,897	\$ 524,228	\$ 75,390,092
2034	\$ 4,860,779	\$ 4,551,936	\$ 213,039	4.9%	\$ -	\$ -	\$ 4,551,936	\$ 308,843	\$ 75,698,935
2035	\$ 4,694,433	\$ 4,764,975	\$ 213,039	4.7%	\$ -	\$ -	\$ 4,764,975	\$ (70,542)	\$ 75,628,393
2036	\$ 4,694,433	\$ 4,978,014	\$ 213,039	4.5%	\$ -	\$ -	\$ 4,978,014	\$ (283,581)	\$ 75,344,812
2037	\$ 4,694,433	\$ 5,191,053	\$ 213,039	4.3%	\$ -	\$ -	\$ 5,191,053	\$ (496,620)	\$ 74,848,192
2038	\$ 4,643,301	\$ 5,404,092	\$ 213,039	4.1%	\$ -	\$ -	\$ 5,404,092	\$ (760,791)	\$ 74,087,402
2039	\$ 4,238,732	\$ 5,617,131	\$ 213,039	3.9%	\$ -	\$ -	\$ 5,617,131	\$ (1,378,399)	\$ 72,709,003
2040	\$ 4,211,775	\$ 5,830,170	\$ 213,039	3.8%	\$ -	\$ -	\$ 5,830,170	\$ (1,618,395)	\$ 71,090,608
2041	\$ 4,211,741	\$ 6,043,209	\$ 213,039	3.7%	\$ -	\$ -	\$ 6,043,209	\$ (1,831,468)	\$ 69,259,140
2042	\$ 4,211,741	\$ 6,256,248	\$ 213,039	3.5%	\$ -	\$ -	\$ 6,256,248	\$ (2,044,507)	\$ 67,214,633
2043	\$ 4,190,069	\$ 6,469,287	\$ 213,039	3.4%	\$ -	\$ -	\$ 6,469,287	\$ (2,279,218)	\$ 64,935,415
2044	\$ 4,180,085	\$ 6,682,326	\$ 213,039	3.3%	\$ -	\$ -	\$ 6,682,326	\$ (2,502,241)	\$ 62,433,173
2045	\$ 4,172,507	\$ 6,895,365	\$ 213,039	3.2%	\$ -	\$ -	\$ 6,895,365	\$ (2,722,859)	\$ 59,710,315
2046	\$ 3,935,860	\$ 7,108,404	\$ 213,039	3.1%	\$ -	\$ -	\$ 7,108,404	\$ (3,172,545)	\$ 56,537,770
2047	\$ 3,935,860	\$ 7,321,443	\$ 213,039	3.0%	\$ -	\$ -	\$ 7,321,443	\$ (3,385,584)	\$ 53,152,186
2048	\$ 3,935,860	\$ 7,534,482	\$ 213,039	2.9%	\$ -	\$ -	\$ 7,534,482	\$ (3,598,623)	\$ 49,553,563
2049	\$ 3,935,860	\$ 7,747,521	\$ 213,039	2.8%	\$ -	\$ -	\$ 7,747,521	\$ (3,811,662)	\$ 45,741,901
2050	\$ 3,853,431	\$ 7,960,560	\$ 213,039	2.7%	\$ -	\$ -	\$ 7,960,560	\$ (4,107,130)	\$ 41,634,772
2051	\$ 3,853,431	\$ 8,173,600	\$ 213,039	2.7%	\$ -	\$ -	\$ 8,173,600	\$ (4,320,169)	\$ 37,314,603
2052	\$ 3,850,773	\$ 8,386,639	\$ 213,039	2.6%	\$ -	\$ -	\$ 8,386,639	\$ (4,535,865)	\$ 32,778,738
2053	\$ 3,850,773	\$ 8,599,678	\$ 213,039	2.5%	\$ -	\$ -	\$ 8,599,678	\$ (4,748,904)	\$ 28,029,833
2054	\$ 3,850,773	\$ 8,812,717	\$ 213,039	2.5%	\$ -	\$ -	\$ 8,812,717	\$ (4,961,943)	\$ 23,067,890
2055	\$ 3,651,904	\$ 9,025,756	\$ 213,039	2.4%	\$ -	\$ -	\$ 9,025,756	\$ (5,373,852)	\$ 17,694,039
2056	\$ 3,632,486	\$ 9,238,795	\$ 213,039	2.4%	\$ -	\$ -	\$ 9,238,795	\$ (5,606,309)	\$ 12,087,729
2057	\$ 3,632,486	\$ 9,451,834	\$ 213,039	2.3%	\$ -	\$ -	\$ 9,451,834	\$ (5,819,348)	\$ 6,268,381
2058	\$ 3,396,492	\$ 9,664,873	\$ 213,039	2.3%	\$ -	\$ -	\$ 9,664,873	\$ (6,268,381)	\$ 0
40-Year Infrastructure Deficit								\$	0

Total Rate Funding	\$	220,424,457
2019 Total Rate Levy	\$	4,329,000
Inc. as % of Rate Levy		4.92%

Table 6
Municipality of North Perth
2019 Asset Management Plan
Financing Strategy 1: Close In-Year Funding Gap by 2038 (Rate Funded Services)

Legend	1	2	3	4	5	6	7	8	9
Year	Projected Annual Capital Provision	Capital from Rates	Yearly Increase in Rate Funding (\$)	Yearly Increase in Rate Funding (%)	Gas Tax	Other Grants	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2019	\$ 21,389,511	\$ 1,356,350			\$ -	\$ -	\$ 1,356,350	\$ 20,033,161	\$ 20,033,161
2020	\$ 13,784,182	\$ 1,529,347	\$ 172,997	12.8%	\$ -	\$ -	\$ 1,529,347	\$ 12,254,835	\$ 32,287,996
2021	\$ 8,178,940	\$ 1,702,345	\$ 172,997	11.3%	\$ -	\$ -	\$ 1,702,345	\$ 6,476,595	\$ 38,764,591
2022	\$ 7,521,070	\$ 1,875,342	\$ 172,997	10.2%	\$ -	\$ -	\$ 1,875,342	\$ 5,645,727	\$ 44,410,319
2023	\$ 7,385,666	\$ 2,048,340	\$ 172,997	9.2%	\$ -	\$ -	\$ 2,048,340	\$ 5,337,326	\$ 49,747,645
2024	\$ 7,385,666	\$ 2,221,337	\$ 172,997	8.4%	\$ -	\$ -	\$ 2,221,337	\$ 5,164,329	\$ 54,911,974
2025	\$ 7,134,283	\$ 2,394,335	\$ 172,997	7.8%	\$ -	\$ -	\$ 2,394,335	\$ 4,739,948	\$ 59,651,922
2026	\$ 7,123,207	\$ 2,567,332	\$ 172,997	7.2%	\$ -	\$ -	\$ 2,567,332	\$ 4,555,875	\$ 64,207,797
2027	\$ 7,123,207	\$ 2,740,329	\$ 172,997	6.7%	\$ -	\$ -	\$ 2,740,329	\$ 4,382,877	\$ 68,590,674
2028	\$ 5,244,397	\$ 2,913,327	\$ 172,997	6.3%	\$ -	\$ -	\$ 2,913,327	\$ 2,331,070	\$ 70,921,745
2029	\$ 5,244,397	\$ 3,086,324	\$ 172,997	5.9%	\$ -	\$ -	\$ 3,086,324	\$ 2,158,073	\$ 73,079,817
2030	\$ 5,243,654	\$ 3,259,322	\$ 172,997	5.6%	\$ -	\$ -	\$ 3,259,322	\$ 1,984,332	\$ 75,064,150
2031	\$ 5,243,654	\$ 3,432,319	\$ 172,997	5.3%	\$ -	\$ -	\$ 3,432,319	\$ 1,811,335	\$ 76,875,484
2032	\$ 5,239,484	\$ 3,605,317	\$ 172,997	5.0%	\$ -	\$ -	\$ 3,605,317	\$ 1,634,167	\$ 78,509,652
2033	\$ 4,863,124	\$ 3,778,314	\$ 172,997	4.8%	\$ -	\$ -	\$ 3,778,314	\$ 1,084,810	\$ 79,594,462
2034	\$ 4,860,779	\$ 3,951,311	\$ 172,997	4.6%	\$ -	\$ -	\$ 3,951,311	\$ 909,467	\$ 80,503,929
2035	\$ 4,694,433	\$ 4,124,309	\$ 172,997	4.4%	\$ -	\$ -	\$ 4,124,309	\$ 570,124	\$ 81,074,054
2036	\$ 4,694,433	\$ 4,297,306	\$ 172,997	4.2%	\$ -	\$ -	\$ 4,297,306	\$ 397,127	\$ 81,471,181
2037	\$ 4,694,433	\$ 4,470,304	\$ 172,997	4.0%	\$ -	\$ -	\$ 4,470,304	\$ 224,130	\$ 81,695,310
2038	\$ 4,643,301	\$ 4,643,301	\$ 172,997	3.9%	\$ -	\$ -	\$ 4,643,301	\$ -	\$ 81,695,310
2039	\$ 4,238,732	\$ 4,816,298	\$ 172,997	3.7%	\$ -	\$ -	\$ 4,816,298	\$ (577,567)	\$ 81,117,744
2040	\$ 4,211,775	\$ 4,989,296	\$ 172,997	3.6%	\$ -	\$ -	\$ 4,989,296	\$ (777,521)	\$ 80,340,223
2041	\$ 4,211,741	\$ 5,162,293	\$ 172,997	3.5%	\$ -	\$ -	\$ 5,162,293	\$ (950,552)	\$ 79,389,671
2042	\$ 4,211,741	\$ 5,335,291	\$ 172,997	3.4%	\$ -	\$ -	\$ 5,335,291	\$ (1,123,550)	\$ 78,266,121
2043	\$ 4,190,069	\$ 5,508,288	\$ 172,997	3.2%	\$ -	\$ -	\$ 5,508,288	\$ (1,318,219)	\$ 76,947,902
2044	\$ 4,180,085	\$ 5,681,286	\$ 172,997	3.1%	\$ -	\$ -	\$ 5,681,286	\$ (1,501,201)	\$ 75,446,701
2045	\$ 4,172,507	\$ 5,854,283	\$ 172,997	3.0%	\$ -	\$ -	\$ 5,854,283	\$ (1,681,776)	\$ 73,764,925
2046	\$ 3,935,860	\$ 6,027,280	\$ 172,997	3.0%	\$ -	\$ -	\$ 6,027,280	\$ (2,091,421)	\$ 71,673,504
2047	\$ 3,935,860	\$ 6,200,278	\$ 172,997	2.9%	\$ -	\$ -	\$ 6,200,278	\$ (2,264,418)	\$ 69,409,085
2048	\$ 3,935,860	\$ 6,373,275	\$ 172,997	2.8%	\$ -	\$ -	\$ 6,373,275	\$ (2,437,416)	\$ 66,971,670
2049	\$ 3,935,860	\$ 6,546,273	\$ 172,997	2.7%	\$ -	\$ -	\$ 6,546,273	\$ (2,610,413)	\$ 64,361,256
2050	\$ 3,853,431	\$ 6,719,270	\$ 172,997	2.6%	\$ -	\$ -	\$ 6,719,270	\$ (2,865,839)	\$ 61,495,417
2051	\$ 3,853,431	\$ 6,892,268	\$ 172,997	2.6%	\$ -	\$ -	\$ 6,892,268	\$ (3,038,837)	\$ 58,456,580
2052	\$ 3,850,773	\$ 7,065,265	\$ 172,997	2.5%	\$ -	\$ -	\$ 7,065,265	\$ (3,214,492)	\$ 55,242,088
2053	\$ 3,850,773	\$ 7,238,262	\$ 172,997	2.4%	\$ -	\$ -	\$ 7,238,262	\$ (3,387,489)	\$ 51,854,599
2054	\$ 3,850,773	\$ 7,411,260	\$ 172,997	2.4%	\$ -	\$ -	\$ 7,411,260	\$ (3,560,486)	\$ 48,294,113
2055	\$ 3,651,904	\$ 7,584,257	\$ 172,997	2.3%	\$ -	\$ -	\$ 7,584,257	\$ (3,932,353)	\$ 44,361,760
2056	\$ 3,632,486	\$ 7,757,255	\$ 172,997	2.3%	\$ -	\$ -	\$ 7,757,255	\$ (4,124,769)	\$ 40,236,991
2057	\$ 3,632,486	\$ 7,930,252	\$ 172,997	2.2%	\$ -	\$ -	\$ 7,930,252	\$ (4,297,767)	\$ 35,939,224
2058	\$ 3,396,492	\$ 8,103,250	\$ 172,997	2.2%	\$ -	\$ -	\$ 8,103,250	\$ (4,706,758)	\$ 31,232,466
40-Year Infrastructure Deficit								\$ 31,232,466	

Total Rate Funding	\$	189,191,991
2019 Total Rate Levy	\$	4,329,000
Inc. as % of Rate Levy		4.00%

Table 7
Municipality of North Perth
2019 Asset Management Plan
Financing Strategy 2: Close In-Year Funding Gap by 2048 (Rate Funded Services)

Legend	1	2	3	4	5	6	7	8	9
Year	Projected Annual Capital Provision	Capital from Rates	Yearly Increase in Rate Funding (\$)	Yearly Increase in Rate Funding (%)	Gas Tax	Other Grants	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2019	\$ 21,389,511	\$ 1,356,350			\$ -	\$ -	\$ 1,356,350	\$ 20,033,161	\$ 20,033,161
2020	\$ 13,784,182	\$ 1,445,299	\$ 88,949	6.6%	\$ -	\$ -	\$ 1,445,299	\$ 12,338,883	\$ 32,372,045
2021	\$ 8,178,940	\$ 1,534,247	\$ 88,949	6.2%	\$ -	\$ -	\$ 1,534,247	\$ 6,644,693	\$ 39,016,738
2022	\$ 7,521,070	\$ 1,623,196	\$ 88,949	5.8%	\$ -	\$ -	\$ 1,623,196	\$ 5,897,874	\$ 44,914,612
2023	\$ 7,385,666	\$ 1,712,144	\$ 88,949	5.5%	\$ -	\$ -	\$ 1,712,144	\$ 5,673,521	\$ 50,588,133
2024	\$ 7,385,666	\$ 1,801,093	\$ 88,949	5.2%	\$ -	\$ -	\$ 1,801,093	\$ 5,584,573	\$ 56,172,706
2025	\$ 7,134,283	\$ 1,890,042	\$ 88,949	4.9%	\$ -	\$ -	\$ 1,890,042	\$ 5,244,241	\$ 61,416,947
2026	\$ 7,123,207	\$ 1,978,990	\$ 88,949	4.7%	\$ -	\$ -	\$ 1,978,990	\$ 5,144,217	\$ 66,561,164
2027	\$ 7,123,207	\$ 2,067,939	\$ 88,949	4.5%	\$ -	\$ -	\$ 2,067,939	\$ 5,055,268	\$ 71,616,432
2028	\$ 5,244,397	\$ 2,156,887	\$ 88,949	4.3%	\$ -	\$ -	\$ 2,156,887	\$ 3,087,510	\$ 74,703,942
2029	\$ 5,244,397	\$ 2,245,836	\$ 88,949	4.1%	\$ -	\$ -	\$ 2,245,836	\$ 2,998,561	\$ 77,702,502
2030	\$ 5,243,654	\$ 2,334,785	\$ 88,949	4.0%	\$ -	\$ -	\$ 2,334,785	\$ 2,908,869	\$ 80,611,372
2031	\$ 5,243,654	\$ 2,423,733	\$ 88,949	3.8%	\$ -	\$ -	\$ 2,423,733	\$ 2,819,211	\$ 83,431,293
2032	\$ 5,239,484	\$ 2,512,682	\$ 88,949	3.7%	\$ -	\$ -	\$ 2,512,682	\$ 2,726,802	\$ 86,158,094
2033	\$ 4,863,124	\$ 2,601,630	\$ 88,949	3.5%	\$ -	\$ -	\$ 2,601,630	\$ 2,261,494	\$ 88,419,588
2034	\$ 4,860,779	\$ 2,690,579	\$ 88,949	3.4%	\$ -	\$ -	\$ 2,690,579	\$ 2,170,200	\$ 90,589,788
2035	\$ 4,694,433	\$ 2,779,528	\$ 88,949	3.3%	\$ -	\$ -	\$ 2,779,528	\$ 1,914,905	\$ 92,504,693
2036	\$ 4,694,433	\$ 2,868,476	\$ 88,949	3.2%	\$ -	\$ -	\$ 2,868,476	\$ 1,825,957	\$ 94,330,650
2037	\$ 4,694,433	\$ 2,957,425	\$ 88,949	3.1%	\$ -	\$ -	\$ 2,957,425	\$ 1,737,008	\$ 96,067,658
2038	\$ 4,643,301	\$ 3,046,373	\$ 88,949	3.0%	\$ -	\$ -	\$ 3,046,373	\$ 1,596,928	\$ 97,664,586
2039	\$ 4,238,732	\$ 3,135,322	\$ 88,949	2.9%	\$ -	\$ -	\$ 3,135,322	\$ 1,103,410	\$ 98,767,996
2040	\$ 4,211,775	\$ 3,224,271	\$ 88,949	2.8%	\$ -	\$ -	\$ 3,224,271	\$ 987,504	\$ 99,755,500
2041	\$ 4,211,741	\$ 3,313,219	\$ 88,949	2.8%	\$ -	\$ -	\$ 3,313,219	\$ 898,522	\$ 100,654,022
2042	\$ 4,211,741	\$ 3,402,168	\$ 88,949	2.7%	\$ -	\$ -	\$ 3,402,168	\$ 809,573	\$ 101,463,596
2043	\$ 4,190,069	\$ 3,491,116	\$ 88,949	2.6%	\$ -	\$ -	\$ 3,491,116	\$ 698,953	\$ 102,162,548
2044	\$ 4,180,085	\$ 3,580,065	\$ 88,949	2.5%	\$ -	\$ -	\$ 3,580,065	\$ 600,020	\$ 102,762,568
2045	\$ 4,172,507	\$ 3,669,014	\$ 88,949	2.5%	\$ -	\$ -	\$ 3,669,014	\$ 503,493	\$ 103,266,061
2046	\$ 3,935,860	\$ 3,757,962	\$ 88,949	2.4%	\$ -	\$ -	\$ 3,757,962	\$ 177,897	\$ 103,443,958
2047	\$ 3,935,860	\$ 3,846,911	\$ 88,949	2.4%	\$ -	\$ -	\$ 3,846,911	\$ 88,949	\$ 103,532,907
2048	\$ 3,935,860	\$ 3,935,860	\$ 88,949	2.3%	\$ -	\$ -	\$ 3,935,860	\$ 0	\$ 103,532,907
2049	\$ 3,935,860	\$ 4,024,808	\$ 88,949	2.3%	\$ -	\$ -	\$ 4,024,808	\$ (88,949)	\$ 103,443,958
2050	\$ 3,853,431	\$ 4,113,757	\$ 88,949	2.2%	\$ -	\$ -	\$ 4,113,757	\$ (260,326)	\$ 103,183,632
2051	\$ 3,853,431	\$ 4,202,705	\$ 88,949	2.2%	\$ -	\$ -	\$ 4,202,705	\$ (349,275)	\$ 102,834,357
2052	\$ 3,850,773	\$ 4,291,654	\$ 88,949	2.1%	\$ -	\$ -	\$ 4,291,654	\$ (440,881)	\$ 102,393,477
2053	\$ 3,850,773	\$ 4,380,603	\$ 88,949	2.1%	\$ -	\$ -	\$ 4,380,603	\$ (529,829)	\$ 101,863,648
2054	\$ 3,850,773	\$ 4,469,551	\$ 88,949	2.0%	\$ -	\$ -	\$ 4,469,551	\$ (618,778)	\$ 101,244,870
2055	\$ 3,651,904	\$ 4,558,500	\$ 88,949	2.0%	\$ -	\$ -	\$ 4,558,500	\$ (906,596)	\$ 100,338,275
2056	\$ 3,632,486	\$ 4,647,448	\$ 88,949	2.0%	\$ -	\$ -	\$ 4,647,448	\$ (1,014,963)	\$ 99,323,312
2057	\$ 3,632,486	\$ 4,736,397	\$ 88,949	1.9%	\$ -	\$ -	\$ 4,736,397	\$ (1,103,911)	\$ 98,219,400
2058	\$ 3,396,492	\$ 4,825,346	\$ 88,949	1.9%	\$ -	\$ -	\$ 4,825,346	\$ (1,428,854)	\$ 96,790,547
40-Year Infrastructure Deficit								\$ 96,790,547	

Total Rate Funding	\$	123,633,911
2019 Total Rate Levy	\$	4,329,000
Inc. as % of Rate Levy		2.05%

Table 8
Municipality of North Perth
2019 Asset Management Plan
Financing Strategy 3: Close In-Year Funding Gap by 2058 (Rate Funded Services)

Legend	1	2	3	4	5	6	7	8	9
Year	Projected Annual Capital Provision	Capital from Rates	Yearly Increase in Rate Funding (\$)	Yearly Increase in Rate Funding (%)	Gas Tax	Other Grants	Total Capital Funding	Annual Funding Gap	Cumulative Infrastructure Deficit
2019	\$ 21,389,511	\$ 1,356,350			\$ -	\$ -	\$ 1,356,350	\$ 20,033,161	\$ 20,033,161
2020	\$ 13,784,182	\$ 1,408,661	\$ 52,311	3.9%	\$ -	\$ -	\$ 1,408,661	\$ 12,375,521	\$ 32,408,682
2021	\$ 8,178,940	\$ 1,460,973	\$ 52,311	3.7%	\$ -	\$ -	\$ 1,460,973	\$ 6,717,968	\$ 39,126,650
2022	\$ 7,521,070	\$ 1,513,284	\$ 52,311	3.6%	\$ -	\$ -	\$ 1,513,284	\$ 6,007,786	\$ 45,134,435
2023	\$ 7,385,666	\$ 1,565,595	\$ 52,311	3.5%	\$ -	\$ -	\$ 1,565,595	\$ 5,820,071	\$ 50,954,506
2024	\$ 7,385,666	\$ 1,617,907	\$ 52,311	3.3%	\$ -	\$ -	\$ 1,617,907	\$ 5,767,759	\$ 56,722,265
2025	\$ 7,134,283	\$ 1,670,218	\$ 52,311	3.2%	\$ -	\$ -	\$ 1,670,218	\$ 5,464,065	\$ 62,186,330
2026	\$ 7,123,207	\$ 1,722,529	\$ 52,311	3.1%	\$ -	\$ -	\$ 1,722,529	\$ 5,400,678	\$ 67,587,008
2027	\$ 7,123,207	\$ 1,774,841	\$ 52,311	3.0%	\$ -	\$ -	\$ 1,774,841	\$ 5,348,366	\$ 72,935,374
2028	\$ 5,244,397	\$ 1,827,152	\$ 52,311	2.9%	\$ -	\$ -	\$ 1,827,152	\$ 3,417,245	\$ 76,352,619
2029	\$ 5,244,397	\$ 1,879,463	\$ 52,311	2.9%	\$ -	\$ -	\$ 1,879,463	\$ 3,364,934	\$ 79,717,553
2030	\$ 5,243,654	\$ 1,931,775	\$ 52,311	2.8%	\$ -	\$ -	\$ 1,931,775	\$ 3,311,879	\$ 83,029,432
2031	\$ 5,243,654	\$ 1,984,086	\$ 52,311	2.7%	\$ -	\$ -	\$ 1,984,086	\$ 3,259,568	\$ 86,289,000
2032	\$ 5,239,484	\$ 2,036,397	\$ 52,311	2.6%	\$ -	\$ -	\$ 2,036,397	\$ 3,203,087	\$ 89,492,087
2033	\$ 4,863,124	\$ 2,088,709	\$ 52,311	2.6%	\$ -	\$ -	\$ 2,088,709	\$ 2,774,416	\$ 92,266,502
2034	\$ 4,860,779	\$ 2,141,020	\$ 52,311	2.5%	\$ -	\$ -	\$ 2,141,020	\$ 2,719,759	\$ 94,986,261
2035	\$ 4,694,433	\$ 2,193,331	\$ 52,311	2.4%	\$ -	\$ -	\$ 2,193,331	\$ 2,501,102	\$ 97,487,363
2036	\$ 4,694,433	\$ 2,245,643	\$ 52,311	2.4%	\$ -	\$ -	\$ 2,245,643	\$ 2,448,791	\$ 99,936,154
2037	\$ 4,694,433	\$ 2,297,954	\$ 52,311	2.3%	\$ -	\$ -	\$ 2,297,954	\$ 2,396,479	\$ 102,332,633
2038	\$ 4,643,301	\$ 2,350,265	\$ 52,311	2.3%	\$ -	\$ -	\$ 2,350,265	\$ 2,293,036	\$ 104,625,669
2039	\$ 4,238,732	\$ 2,402,577	\$ 52,311	2.2%	\$ -	\$ -	\$ 2,402,577	\$ 1,836,155	\$ 106,461,824
2040	\$ 4,211,775	\$ 2,454,888	\$ 52,311	2.2%	\$ -	\$ -	\$ 2,454,888	\$ 1,756,887	\$ 108,218,711
2041	\$ 4,211,741	\$ 2,507,199	\$ 52,311	2.1%	\$ -	\$ -	\$ 2,507,199	\$ 1,704,542	\$ 109,923,253
2042	\$ 4,211,741	\$ 2,559,511	\$ 52,311	2.1%	\$ -	\$ -	\$ 2,559,511	\$ 1,652,231	\$ 111,575,484
2043	\$ 4,190,069	\$ 2,611,822	\$ 52,311	2.0%	\$ -	\$ -	\$ 2,611,822	\$ 1,578,247	\$ 113,153,731
2044	\$ 4,180,085	\$ 2,664,133	\$ 52,311	2.0%	\$ -	\$ -	\$ 2,664,133	\$ 1,515,952	\$ 114,669,683
2045	\$ 4,172,507	\$ 2,716,444	\$ 52,311	2.0%	\$ -	\$ -	\$ 2,716,444	\$ 1,456,062	\$ 116,125,745
2046	\$ 3,935,860	\$ 2,768,756	\$ 52,311	1.9%	\$ -	\$ -	\$ 2,768,756	\$ 1,167,104	\$ 117,292,849
2047	\$ 3,935,860	\$ 2,821,067	\$ 52,311	1.9%	\$ -	\$ -	\$ 2,821,067	\$ 1,114,792	\$ 118,407,641
2048	\$ 3,935,860	\$ 2,873,378	\$ 52,311	1.9%	\$ -	\$ -	\$ 2,873,378	\$ 1,062,481	\$ 119,470,122
2049	\$ 3,935,860	\$ 2,925,690	\$ 52,311	1.8%	\$ -	\$ -	\$ 2,925,690	\$ 1,010,170	\$ 120,480,292
2050	\$ 3,853,431	\$ 2,978,001	\$ 52,311	1.8%	\$ -	\$ -	\$ 2,978,001	\$ 875,430	\$ 121,355,721
2051	\$ 3,853,431	\$ 3,030,312	\$ 52,311	1.8%	\$ -	\$ -	\$ 3,030,312	\$ 823,118	\$ 122,178,840
2052	\$ 3,850,773	\$ 3,082,624	\$ 52,311	1.7%	\$ -	\$ -	\$ 3,082,624	\$ 768,150	\$ 122,946,989
2053	\$ 3,850,773	\$ 3,134,935	\$ 52,311	1.7%	\$ -	\$ -	\$ 3,134,935	\$ 715,838	\$ 123,662,828
2054	\$ 3,850,773	\$ 3,187,246	\$ 52,311	1.7%	\$ -	\$ -	\$ 3,187,246	\$ 663,527	\$ 124,326,355
2055	\$ 3,651,904	\$ 3,239,558	\$ 52,311	1.6%	\$ -	\$ -	\$ 3,239,558	\$ 412,346	\$ 124,738,701
2056	\$ 3,632,486	\$ 3,291,869	\$ 52,311	1.6%	\$ -	\$ -	\$ 3,291,869	\$ 340,616	\$ 125,079,318
2057	\$ 3,632,486	\$ 3,344,180	\$ 52,311	1.6%	\$ -	\$ -	\$ 3,344,180	\$ 288,305	\$ 125,367,623
2058	\$ 3,396,492	\$ 3,396,492	\$ 52,311	1.6%	\$ -	\$ -	\$ 3,396,492	\$ (0)	\$ 125,367,623
40-Year Infrastructure Deficit								\$ 125,367,623	

Total Rate Funding	\$	95,056,835
2019 Total Rate Levy	\$	4,329,000
Inc. as % of Rate Levy		1.21%