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Corporation of the Town of Moosonee

Municipal Asset Management Plan

April 4, 2013

Executive Summary

The development of an asset management plan has been identified as a pre-requisite for the receipt of funding from the Province under the Municipal Infrastructure Investment Initiative ('MIII') and as such, represents an important first step in obtaining financing for necessary infrastructure investments. That said, planning for capital reinvestment is essential with or without the incentive provided under MIII, particularly given that a number of municipalities are now approach end-of-useful-life for significant components of their infrastructure.

Despite its relatively small size (660 households), infrastructure represents a major component of the Town of Moosonee's municipal operations, with the estimated replacement cost of its assets – roads, bridges, buildings, vehicles, equipment and pipes – amounting to more than $300 million. Given its high cost environment and limited sources of funding, the Town of Moosonee (the 'Town') has not undertaken necessary asset management activities in the past and as a result, is faced with an infrastructure that continues to deteriorate at an increasing rate. From a financial perspective, the Town is faced with an infrastructure deficit of $22 million (the equivalent of 13 years of taxation revenues) to fix immediate capital requirements, with an additional $9 million needed to provide sufficient funding for sustainable asset management activities.

The development of an asset management plan under the auspices of MIII has provided the Town with the opportunity to examine the required level of effort associated with maintaining its assets in a sufficient condition. The asset management plan outlines the required activities and timing of efforts throughout the life cycle of the Town's infrastructure, providing guidance on how to invest municipal funds into infrastructure maintenance and replacement. The guidance provided in the asset management plan includes:

- Replacement and rehabilitation criteria
- Rehabilitation and replacement strategies
- Life cycle consequences of inaction
- Approaches to identifying asset priorities

At the same time, the asset management plan identifies the need for the Town to secure additional funding for asset management activities, recognizing that the magnitude of the investment requirement is well beyond its capacity. These strategies include:

- Obtaining a long-term commitment for special funding provided by the Province of Ontario to the Town, which is intended to address infrastructure reinvestment requirements and address the challenges faced by the Town in raising sufficient funds for asset management activities
- Seeking additional funding through MIII, OSWAP-3 and the recently renewed Building Canada fund
- Pursuing potential changes to the calculation of the Annual Repayment Limit for municipal indebtedness, which would reflect he unique circumstances of the Town and allow it to increase its ability to use debt financing to fund asset management activities

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Asset Management Planning for the Town of Moosonee

Chapter I Introduction

Overview of the Asset Management Plan

Asset management planning defined

Asset management planning is the process of making the best possible decisions regarding the acquisition, operating, maintaining, renewing, replacing and disposing of infrastructure assets. The objective of an asset management plan is to maximize benefits, manage risk and provide satisfactory levels of service to the public in a sustainable manner. In order to be effective, an asset management plan needs to be based on a thorough understanding of the characteristics and condition of infrastructure assets, as well as the service levels expected from them. Recognizing that funding for infrastructure acquisition and maintenance is often limited, a key element of an asset management plan is the setting of strategic priorities to optimize decision-making as to when and how to proceed with investments. The ultimate success or failure of an asset management plan is dependent on the associated financing strategy, which will identify and secure the funds necessary for asset management activities and allow the Town to move from planning to execution.

The purpose of the asset management

The asset management plan outlines the Town's strategy for the acquisition and maintenance of its infrastructure, which in turn allows the Town to meet its stated objectives by supporting the delivery of services to its residents.

The Town's official plan identifies six land use designations – natural resource areas, residential, transportation & service, community core, community development and open space – each of which have associated objectives that address quality of life, public safety, economic development and tourism development. The official plan also identifies the nature of municipal services that are necessary to support the attainment of these objectives, including but not limited to:

- Water and sewer
- Landfill (solid waste)
- Roads
- Bicycle and snowmobile lanes
- Air transportation
- Sidewalks

In addition to reflecting planning activities already undertaken by the Town (e.g. official plan, financial plan for water and wastewater services), the asset management plan will also influence future planning activities, particularly the Town's annual financial budgeting process.

Scope of the Asset Management Plan

The asset management plan encompasses all of the Town's infrastructure assets, which include:

Transportation Infrastructure	Water and Wastewater Infrastructure	Other Infrastructure
• Roads • Bridges and culverts • Streetlights • Sidewalks • Airport • Public works facilities	• Treatment facilities • Lift stations • Water and wastewater mains • Fire hydrants	• Vehicles • Recreational facilities • Administrative facilities • Equipment

For the purposes of developing the asset management plan, a 10-year planning horizon was considered, although the analysis includes a discussion of required activities over the entire life cycle of the Town's infrastructure. It is expected that the Town will update its asset management plan every three years or earlier in the event of a major change in circumstances, which could include:

- New funding programs for infrastructure
- Unforeseen failure of a significant infrastructure component
- Regulatory changes that have a significant impact on infrastructure requirements
- Changes to the Town's economic or demographic profile (positive or negative), which would impact on the nature and service level of its infrastructure

Methodology

The development of the Town's asset management plan involved the following major worksteps.

- Tangible capital asset information was reviewed to develop a preliminary inventory of the Town's assets, year of acquisition, historical cost and replacement cost.
- Information concerning the physical condition of the Town's infrastructure, including engineering assessments of components of the Town's infrastructure, was reviewed.
- Asset management strategies, including required asset life cycles, rehabilitation and replacement criteria and activities, were developed for each class of infrastructure asset.
- Based on the current condition of the Town's assets and the asset management strategies, a profile of required asset management activities for the 10-year planning period was developed.
- Information concerning the Town's financial performance, including taxation levy, operating costs, reserves and reserve funds, was summarized to determine the level of financial capacity available to support asset management activities.
- A prioritization of asset management activities was undertaken to determine the optimal allocation of available financial resources towards infrastructure maintenance and other asset management activities. The prioritization considered (i) the likelihood of a failure of specific components of the Town's infrastructure; and (ii) the impact of such a failure from the perspective of public health and safety and other considerations. Those infrastructure components that had a combination of high risk of failure and high impact on the community were identified as priorities for the Town.
- A 10-year financial strategy was developed that outlined the planned asset management activities, associated costs and sources of funding.

The development of the asset management involved input from the following parties:

- Town management
- KPMG, lead consultant for the asset management preparation and financial advisors to the Town
- Exp Services Inc., engineering subcontractor to KPMG
- Ministry of Municipal Affairs and Housing

Evaluating and Improving the Asset Management Plan

The asset management plan outlined in this report represents a forecast of the Town's infrastructure-related activities under a series of assumptions that are documented within the plan. The asset management plan does not represent a formal, multi-year budget for infrastructure acquisition and maintenance activities but rather a long-term strategy intended to guide future decisions of the Town and its staff and elected officials, recognizing that the approval of operating and capital budgets is undertaken as part of the Town's overall annual budgeting process.

In order to evaluate and improve the asset management plan, the Town plans to undertake the following actions:

Action Item	Frequency
1. Comparison of anticipated deterioration of infrastructure assets to actual condition (current and future) through: • Ongoing condition assessments (e.g. bi-annual bridge inspections) • Visual inspection by Town personnel • Analysis of performance indicators	Annually
2. Adjustment of asset management plan for changes in financial resources, including new or discontinued grant programs, changes to capital component of municipal levy, etc.	Every three years
3. Comparison of actual service level indicators to planned service level indicators and identification of significant variances (positive or negative)	Annually
4. Updating of infrastructure data maintained in Municipal Data Works	Annually

Restrictions

This report is based on information and documentation that was made available to KPMG at the date of this report. KPMG has not audited nor otherwise attempted to independently verify the information provided unless otherwise indicated. Should additional information be provided to KPMG after the issuance of this report, KPMG reserves the right (but will be under no obligation) to review this information and adjust its comments accordingly.

Pursuant to the terms of our engagement, it is understood and agreed that all decisions in connection with the implementation of advice and recommendations as provided by KPMG during the course of this engagement shall be the responsibility of, and made by, the Town of Moosonee. KPMG has not and will not perform management functions or make management decisions for the Town of Moosonee.

This report includes or makes reference to future oriented financial information. Readers are cautioned that since these financial projections are based on assumptions regarding future events, actual results will vary from the information presented even if the hypotheses occur, and the variations may be material.

Comments in this report are not intended, nor should they be interpreted to be, legal advice or opinion.

KPMG has no present or contemplated interest in the Town of Moosonee nor are we an insider or associate of the Town of Moosonee or its management team. Our fees for this engagement are not contingent upon our findings or any other event. Accordingly, we believe we are independent of the Town of Moosonee and are acting objectively.

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Asset Management Planning for the Town of Moosonee

Chapter II State of Local Infrastructure

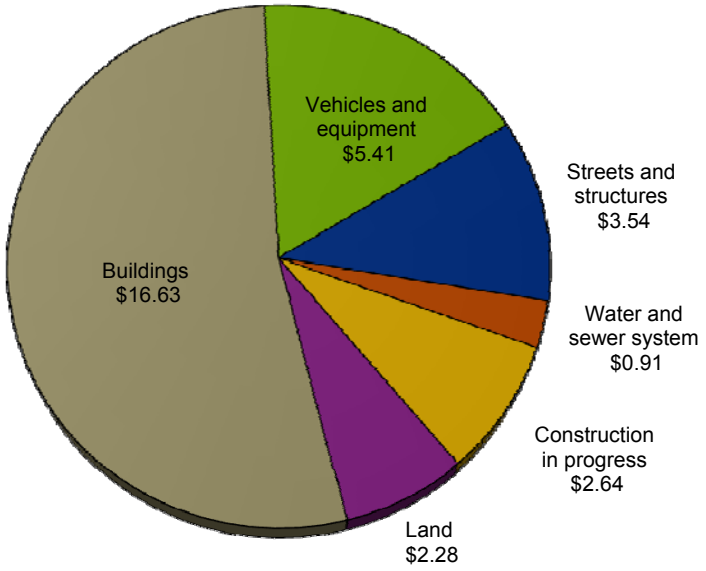
Overview of the Town's Infrastructure

At December 31, 2011 (the most recent financial reporting period for which audited financial statements are available), the Town reported a total investment of $31.4 million in tangible capital assets ('TCA') at historical cost. This equates to an average investment of $47,200 per household, or $10,500 per resident.

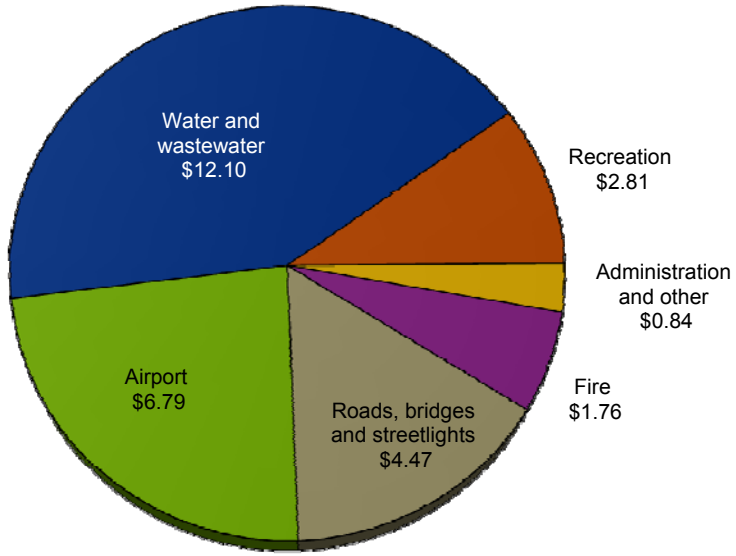
With a historical cost of $16.6 million, buildings, including the Town's area, administrative offices, water treatment plant and airport buildings, represent the single largest type of infrastructure and account for 53% of the Town's total infrastructure (at historical cost). Vehicles and equipment ($5.4 million) and streets and structures ($3.5 million) represent the next largest asset categories by historical cost.

From a functional perspective, the Town's water and wastewater system (including treatment and distribution/collection) represents the largest investment ($12.1 million) and accounts for 42% of all infrastructure, with the Town's airport ($6.8 million), roads network ($4.5 million) and recreational facilities ($2.8 million) representing the next largest asset categories by function. The significance of the Town's water and wastewater infrastructure is a reflection of the large number of facilities associated with the network (water treatment plant, ten lift stations, two lagoons).

Tangible capital assets by type (historical cost, in millions)



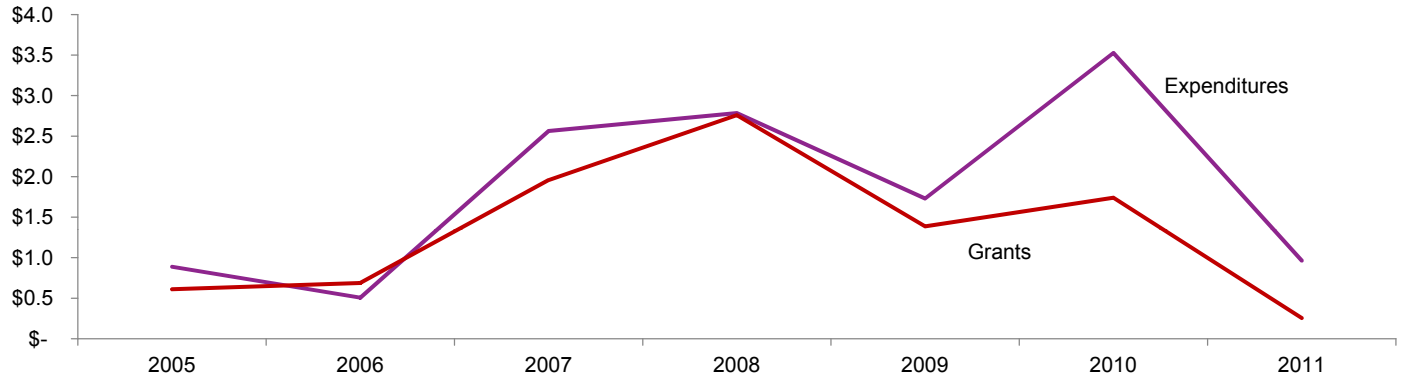
Tangible capital assets by type (historical cost, in millions)



Overview of the Town's Infrastructure

Between 2005 and 2011, the Town's investment in infrastructure has been closely linked to available grant revenues, with a total of $13.0 million in capital expenditures incurred and $9.4 million in grants received.

Capital expenditures and grants (in millions)



Overall, three-quarters of the Town's capital expenditures since 2005 have been in the airport ($3.6 million), roads and structures ($3.3 million) and the shoreline stabilization project ($2.8 million).

(in thousands of dollars)	2005	2006	2007	2008	2009	2010	2011	Total
Airport	616.7	241.4	1,954.8	46.5	188.9	–	568.0	3,616.3
Roads, bridges and streetlights	–	245.0	145.2	–	1,027.8	1,687.4	236.7	3,342.1
Shoreline stabilization	–	–	–	2,547.9	–	–	–	2,547.9
Water and wastewater treatment	–	–	–	–	150.8	1,632.7	–	1,783.5
Recreation	178.0	1.0	242.1	86.4	147.3	125.8	–	780.6
Water and wastewater network	65.7	–	222.0	102.9	–	25.8	–	416.4
Administration and other	28.8	19.2	–	–	215.0	54.7	159.8	477.7
Total	889.2	506.6	2,564.1	2,783.7	1,729.8	3,526.4	964.5	12,964.5

Overview of the Town's Infrastructure

From an infrastructure perspective, the Town has been challenged by the absence of financial capacity sufficient to meet its capital reinvestment requirements, due primarily to a limited assessment base that is heavily reliant on residential taxpayers (70% of the 2011 municipal levy was paid by residential taxpayers). As a result, it has been required to rely heavily on grants to support its capital program, with the consequence of reducing capital expenditures when grants are not available.

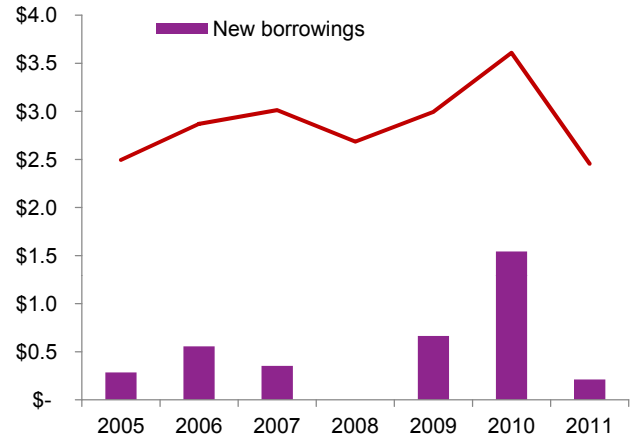
Additionally, a large part of the Town's capital expenditures since 2005 has been focused on either the airport or on immediate capital needs and as a result, a large component of the Town's infrastructure has not benefited from regular capital reinvestment that would address the ongoing aging and deterioration of the assets.

While debt financing has provided some form of alternative financing for the Town, it cannot in itself be a long-term funding source as the Town is approach its annual repayment limit, which will limit its ability to utilize debt financing in the future.

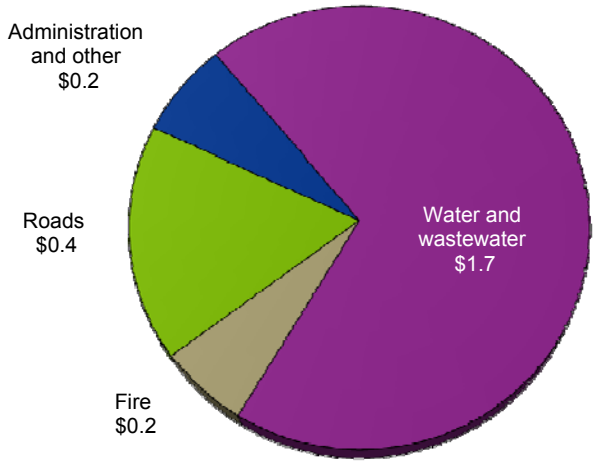
The combination of these factors has resulted in:

- The ongoing deterioration of the Town's infrastructure, with any available funding used to 'put out fires' (i.e. address immediate capital needs) as opposed to supporting a long term sustainable asset management strategy; and
- The inability of the Town to obtain additional debt financing in the future, which when combined with the limited capacity to raise taxes and user fees, means that capital reinvestment will be almost exclusively dependent on grant revenues.

Long-term debt issued and year-end outstanding borrowings (in millions)



Long-term debt outstanding by function (in millions)



Historical and Replacement Costs

The current estimated replacement value of the Town's infrastructure is $317.9 million, almost three quarters of which ($230.6 million) is related to its municipal road network. Buildings represent the next largest component of assets from a replacement value perspective, with a total replacement cost of approximately $55 million. Overall, the cost of replacing the Town's infrastructure amounts to $481,000 per household, or 11 times its historical cost.

	Quantity	Historical Cost	Estimated Replacement Cost	Estimated Useful Life	Average Age
Buildings	33	$16,624,700	$55,000,000	50 years	42 years
Vehicles	33	$1,771,900	$2,359,000	8-25 years	10 years
Equipment and furniture	318	$3,639,900	$4,520,000	5-20 years	12 years
Water distribution network	14,668 m	$285,600	$7,258,000	50-100 years	42 years
Wastewater collection network	10,704 m	$626,900	$11,668,000	30-100 years	42 years
Roads, streetlights and sidewalks	272,140 m	$2,261,000	$230,639,000	75 years	75 years
Bridges	257 m	$3,917,900	$6,491,000	60 years	33 years
Total		$29,127,900	$317,935,000		
Land		$2,276,300			
Total TCA per financial statements		$31,404,200			

Condition Assessment

Three approaches to determining the condition of the Town's assets were used for the purposes of developing the asset management plan:

- Condition assessments for structures were based on the Bridge Condition Index determined by the 2012 bridge inspection, conducted in accordance with the Ontario Structure Inspection Manual
- Condition assessments for the Town's wastewater collection network (including lift station) were based an independent engineering assessment
- Condition assessments for the Town's remaining infrastructure were determined based on the remaining percentage of the assets' estimated useful life

The analysis expressed the condition of the Town's infrastructure components based on the following criteria:

	Good	Fair	Poor
Bridge condition index	70 to 100	60 to 70	<60
Wastewater engineering assessment	Classified as either fair or poor based on engineering assessment		
Remaining useful life	50% to 100%	10% to 50%	<10%

Based on the condition assessment of the Town's infrastructure (which is provided on the following page), the following asset categories were identified as having relatively high percentages of assets classified as poor:

- Vehicles (52%)
- Wastewater mains (39%)
- Manholes (81%)
- Lift stations (30%)
- Bridges (50%)

Condition Assessment

	Basis of Condition Assessment	Good	Fair	Poor
Buildings	Useful life	34%	38%	28%
Vehicles	Useful life	45%	3%	52%
Equipment and furniture	Useful life	47%	34%	19%
Fire hydrants	Remaining useful life	–	100%	–
Watermains	Remaining useful life	21%	79%	–
Wastewater mains	Engineering assessment	–	61%	39%
Manholes	Engineering assessment	–	19%	81%
Lift stations	Engineering assessment	30%	40%	30%
Roads	Useful life	–	–	100%
Streetlights	Useful life	–	100%	–
Bridges	Bridge condition index	25%	25%	50%

In large part, the distribution of asset conditions can be attributed to two factors:

- The approaching end of useful life for major linear asset components (wastewater infrastructure and bridges); and
- The strategy of the Town to defer vehicle and equipment replacement as a result of limited financial resources.

Data Verification and Condition Assessment Policies

On a go-forward basis, the following policies will govern the updating and verification of the condition assessment:

- Condition assessments for bridges will be conducted every two years in accordance with Provincial regulations, with the asset management plan updated accordingly
- Condition assessments for water and wastewater mains will be assessed every five years through the use of camera inspections
- Condition assessments for facilities will be assess through an engineering/architectural inspection of the facilities every five years
- Condition assessments for other assets will be based on the percentage of remaining useful life in the absence of a third-party assessment of the assets. On an annual basis, the Town will review the useful lives and condition assessment criteria (good, fair, poor based on percentage of remaining life) and will adjust the asset management plan accordingly

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Asset Management Planning for the Town of Moosonee

Chapter III Desired Levels of Service

Performance Measures

The Town's asset management strategy is intended to maintain its infrastructure at a certain capacity and in doing so, allow the Town to meet its overall objectives with respect to service levels for its residents. Highlighted below are the key performance measures and service level targets for the major components of the Town's infrastructure, as well as an assessment of the Town's current performance and the anticipated date for achieving the service level target.

Infrastructure Component	Performance Measure	Targeted Performance	Current Performance	Achievement Date
Roads	Compliance with Ontario Regulation 239/02 – Minimum Maintenance Standards for Municipal Highways	Full compliance	Fully compliant	2013
Water	Days under boil water advisory	None	3 days	2013
	Response time for notices submitted in accordance with subsection 18(1) of SDWA	5 days	3 days	2013
	Number of water main breaks per km	2	0	2013
Wastewater	Infiltration rate	10%	30%	2016
Vehicles	Operability	90%	>90%	2013
Facilities	Availability (percentage of planned operating hours)	99%	100%	2013
	Compliance with Accessibility for Ontarians with Disability Act and Integrated Accessibility Standards	Full compliance	In transition	As per legislation

It is anticipated that the Town will monitor and report on its performance annually.

It is also important to recognize that in certain instances, a deviation from the Town's targeted service level may be the result of uncontrollable and unforeseen factors and any evaluation of the Town's performance should differentiate between controllable and uncontrollable events. For example, the availability of facilities (as a percentage of planned operating hours) could be impacted by weather conditions or power disruptions that may result in the closure of facilities but which are not caused by the Town or otherwise controllable. Absent some form of compensating strategy (such as standby power generators), these events may cause the Town to deviate from its targeted service levels.

The Impact of New Legislation and Regulation

From time to time, new legislation or regulations will be enacted that change minimum performance requirements for municipal infrastructure and by extension the performance measures outlined in the Town's asset management plan. At the present time, three major items of legislation and regulation have been identified as having the potential to impact on the Town's desired service levels and asset management plan:

- The Accessibility for Ontarians with Disability Act and the accompanying Integration Accessibility Standards may require the Town to alter components of its infrastructure to ensure accessibility for individuals with disabilities. The timeframe for compliance with the Act depends on both the nature of the requirement and the size of the municipality, with smaller communities generally provided with an extended period for compliance as compared to the Province or larger municipalities.
- The Province of Ontario has recently enacted revisions to Ontario Regulation 239/02 – Minimum Maintenance Standards for Municipal Highways. While the majority of these changes deal with winter maintenance activities (which are not included in the scope of the asset management plan), revisions have been made to inspection requirements for certain components of a municipal road network, which will impact on the Town's asset management activities in the future.
- It is anticipated that the Province of Ontario will introduce new legislation relating to wastewater treatment activities that are expected to increase the minimum performance standards, which may in turn require the Town to amend its existing performance measurement targets and/or introduce new targets.

On an annual basis, the Town will evaluate the impact of enacted legislation or regulation on its desired levels of service and will adjust its performance measures accordingly.

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Asset Management Planning for the Town of Moosonee

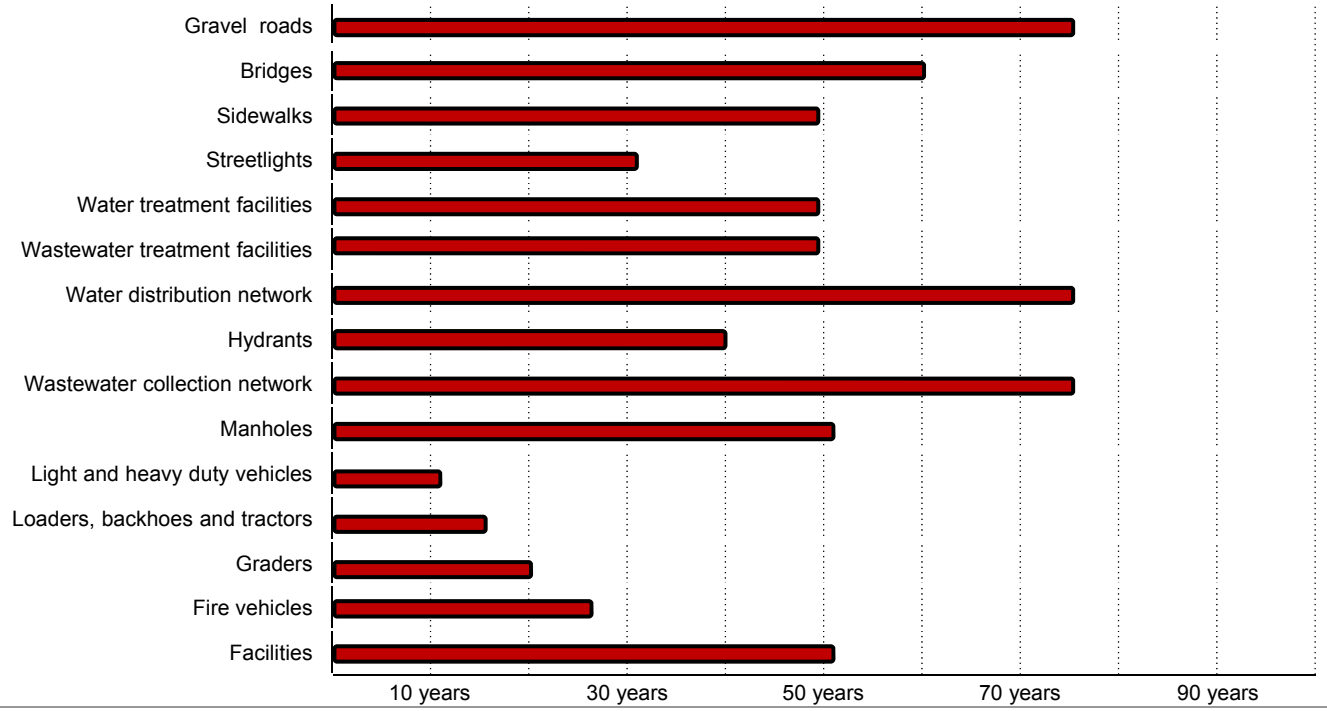
Chapter IV Asset Management Strategy

Key Asset Management Activities

For each significant component of the Town's infrastructure, asset management strategies (see Appendix A) have been developed that outline:

- The expected life cycle period for each asset
- The extent to which asset management activities can be integrated with other assets
- Criteria and strategies for the replacement and rehabilitation of the assets
- Consequences of not undertaking the necessary asset management activities
- The determination of priorities when considering integrated assets (e.g. roads and pipes)

The recommended life cycle periods for major components of the Town's infrastructure are presented below.



Financial Requirements

Based on the current age and condition of the Town's infrastructure and the timing and estimated cost of the asset management activities considered in the asset management strategies, a projection of the unencumbered or full cost of asset management activities (assuming all activities were undertaken) has been developed under two scenario:

- **Scenario 1** – Assumes that only immediate asset management activities will be undertaken, with no advance funding of asset management activities to be undertaken beyond the 10-year planning period
- **Scenario 2** – Assumes that the Town's allocation of financial resources will consider both asset management activities required to be undertaken within the 10-year planning period as well as a contribution to reserves to fund asset management activities that will occur in subsequent years. This scenario results in the highest financial requirement as it considers an annual contribution towards the total life cycle cost of the asset.

As noted below, the Town has an immediate infrastructure investment requirement (Scenario 1) of $21.5 million, consisting of $11.9 million for roads, $6.7 million for wastewater system repairs (including lift stations, manholes and sewermains), $1.6 million for the replacement of vehicles and equipment that are beyond their useful life (for example, the Town's pumper trucks are 21 and 39 years old) and $1.2 million in immediate repairs to the Town's bridges.

Asset Component	Useful Life	Estimated Replacement Value	Immediate Requirements (Scenario 1)	Contribution to Life Cycle Costs (Over 10 Years)	Total Life Cycle Requirements (Scenario 2)
Buildings	50 years	$55,000,000	$270,000	$10,940,000	$11,210,000
Vehicles	8-25 years	$2,359,000	$486,000	$1,250,000	$1,736,000
Equipment and furniture	5-20 years	$4,520,000	$1,114,000	$2,270,000	$3,384,000
Water distribution network	50-100 years	$7,258,000	–	$300,000	$300,000
Wastewater collection network	30-100 years	$11,668,000	$6,433,000	$55,000	$6,488,000
Roads, streetlights and sidewalks	75 years	$230,639,000	$11,968,000	$1,000,000	$1,000,000
Bridges	60 years	$6,491,000	$1,215,000	$880,000	$2,095,000
Total		$317,935,000	$21,486,000	$16,695,000	$26,213,000
Average annual financial requirement			$952,000	$1,670,000	$2,622,000

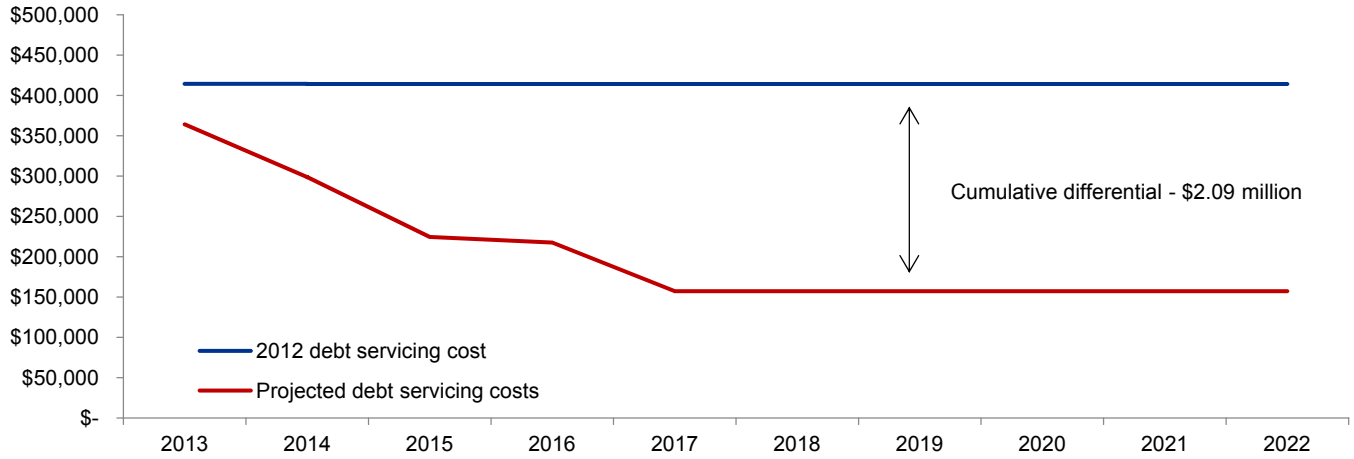
In addition to these immediate needs, the Town should also dedicate$1.67 million in annual capital financing for other infrastructure assets so as to ensure sufficient funding for their replacement and/or rehabilitation upon their reaching end of useful life.

Asset Management Prioritization

The Town's financial budget for 2012 does not consider any capital related expenditures, although funds for certain maintenance activities that constitute asset management activities were budgeted, as well as allocations for debt servicing costs. Over time, the Town's annual debt servicing costs will decline as the amount of outstanding debt is reduced, generating approximately $2.09 million of free cash flow that can be used to:

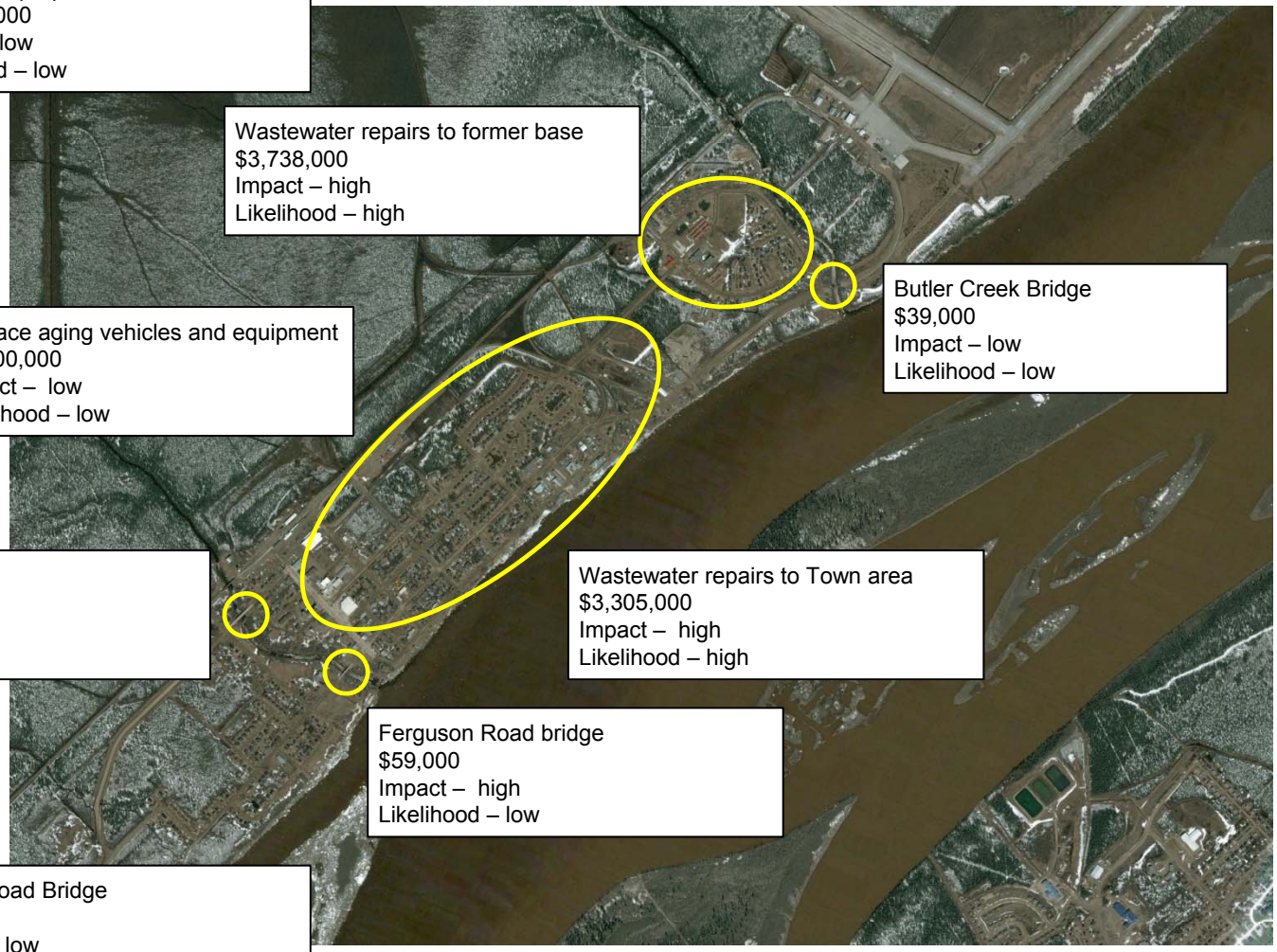
- Directly fund capital expenditures of $2.09 million ($209,000 per year on average); and/or
- Support additional debt of $2.8 million (based on a 20 year amortization period and an assumed interest rate of 4%), which would allow for an immediate capital investment by the Town; and/or
- Use the free cash flow to offset operating cost increases and minimize increases in the municipal levy and/or user fees (we do not recommend this option).

Comparison of 2012 and future debt servicing costs



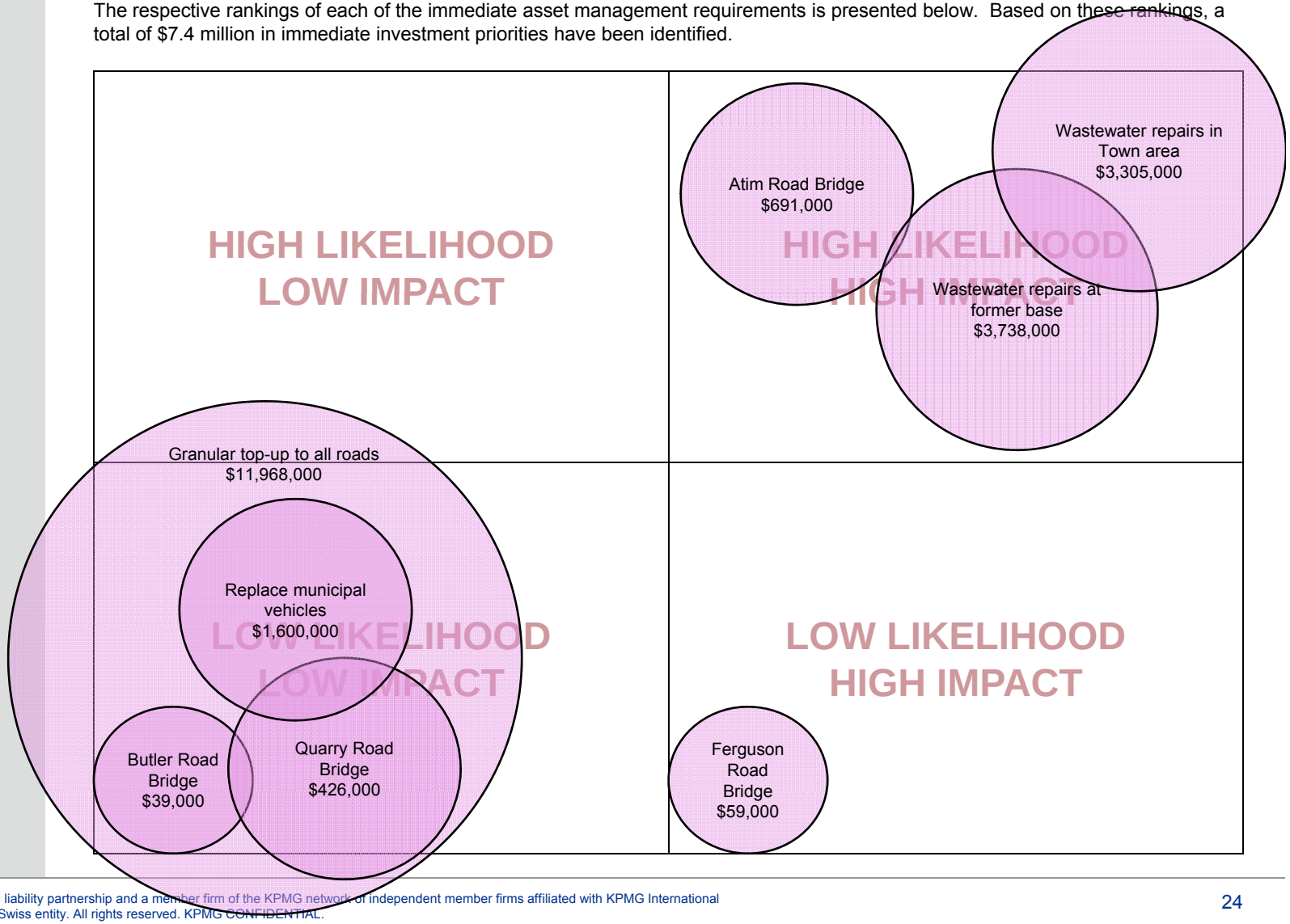
Regardless of the option selected by the Town, it is evident that the Town's available resources will be unable to fully meet its immediate infrastructure reinvestment requirement over the next 10 years, let alone support the contributions required if the total life cycle costs of its infrastructure are considered. As such, some form of prioritization of asset management needs is required.

Asset Management Prioritization



Asset Management Priorities

The respective rankings of each of the immediate asset management requirements is presented below. Based on these rankings, a total of $7.4 million in immediate investment priorities have been identified.



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Asset Management Planning for the Town of Moosonee

Chapter V
Financing Strategy

Basis of Analysis

The development of the Town's financing strategy for its asset management plan reflects the guidance outlined by the Province of Ontario in Building Together – Guide for Municipal Asset Management Plans. Specifically, the development of the financing strategy (and in particular the extent of the Town's financing shortfall) is based on the following parameters:

- Presents annual revenues and expenditures for the 10-year asset planning period, as well as comparative information;
- Does not consider grants from senior governments to be a confirmed source of revenue unless an agreement has been executed; and
- Identifies the potential funding shortfall and how it will be managed.

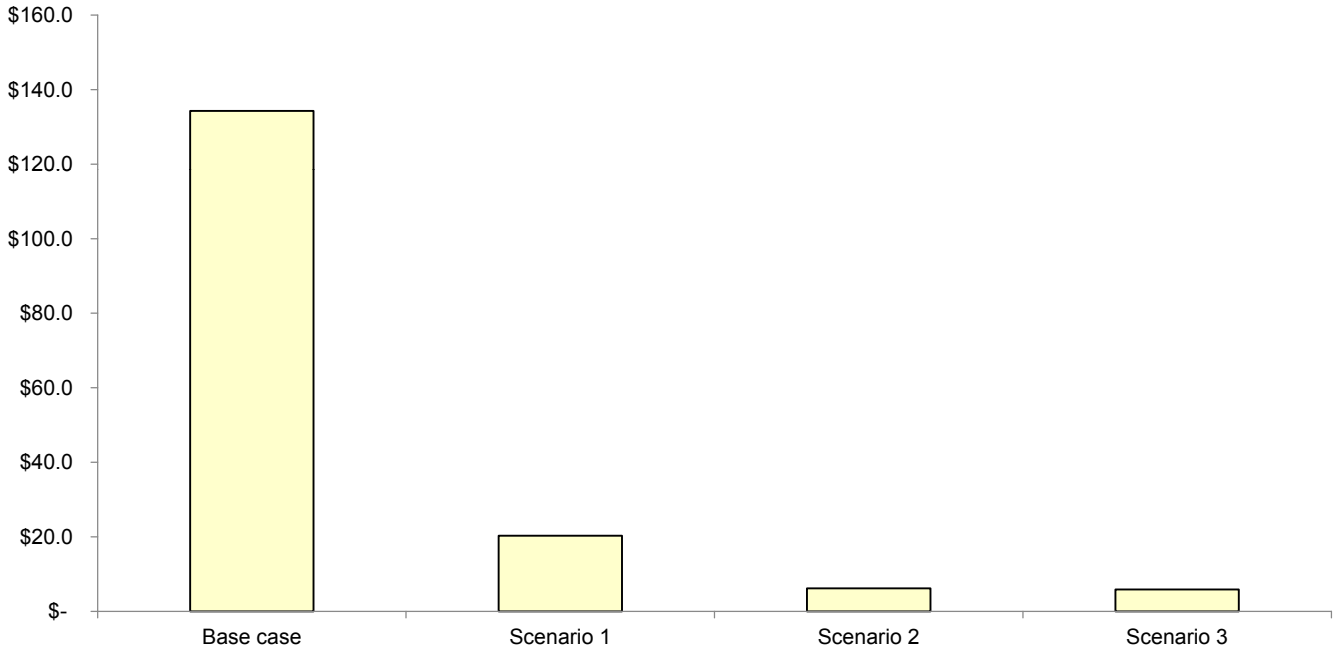
In developing the financial strategy, four alternative scenarios were considered:

- The base case scenario reflects the assumption that all identified asset management requirements (immediate and long-term contributions) will be incurred by the Town and reductions in long-term debt payments will not be transferred to capital purposes. This represents the worst case scenario and results in the highest financial shortfall.
- Scenario 1 reflects the assumption that only the immediate asset management requirements will be incurred by the Town, with contributions towards long-term life cycle costs not made. Under this scenario, it is assumed that the Town will not redirect reductions in long-term debt payments to capital.
- Scenario 2 reflects the assumption that only the priority asset management requirements will be met by the Town, with non-priority immediate requirements and long-term life cycle contributions not made. Under this scenario, it is assumed that the Town will not redirect reductions in long-term debt payments to capital.
- Scenario 4 reflects the assumption the same assumptions as Scenario 3, except that reductions in long-term debt payments will be redirected to capital. This options represents the best case scenario in that it results in the lowest financial shortfall.

Projected Financial Shortfalls

We have included as Appendix B financial projections outlining the anticipated municipal deficit (infrastructure shortfall) under each scenario, which range from $134 million over ten years under the base case scenario (worst case scenario) to $6 million under Scenario 4 (best case scenario).

Projected cumulative municipal shortfall (2013 to 2022), in millions



Under any of the presented scenarios, the Town is unable to meet its projected asset management requirements.

Potential Courses of Action

In order to address the anticipated financial shortfall facing the Town, we suggest the following potential courses of action:

- **Secure a long-term commitment for the current increase to the annual grant from the Province of Ontario.** The Town faces challenges that are unique within Ontario and as such, is currently under a funding arrangement that is also unique. While the Province's funding to the Town has primarily focused on operating costs, the emergence of immediate infrastructure requirements demonstrates that assistance is also required for capital reinvestment purposes. In the absence of this assistance, the Town will experience continuing deterioration in its infrastructure , resulting in higher operating costs and continued exposure of the Town's residents to public health and safety risks.

  Recently, the Province has provided the Town with a $500,000 increase in its annual grant, which we understand is in place for three years. The ability of the Town to secure a long-term commitment for this grant would be a major factor in addressing a significant component of the Town's infrastructure financing shortfall. Consistent with the guidance provided by the Province, we have not considered any portion of this grant beyond the three year period as it does not represent a confirmed source of revenue. If, however, this grant were to be extended through the entire 10-year projection period, the Town's expected capital shortfall would be reduced by $3.5 million ($500,000 per year x 7 years),

- **Provide funding through programs such as OSWAP-3 and MIII.** Currently, the financial plan does not consider any funding from established government programs and to the extent that the Town is successful in achieving these grants, its ability to address its infrastructure requirements is significantly enhanced. Similarly, the Town will seeking funding under the renewed Building Canada fund for infrastructure reinvestment requirements.

- **Waive the ARL calculation for the Town.** The calculation of the ARL is based on municipal revenues excluding senior government grants for both operating and capital purposes. However, the special funding arrangement between the Province and the Town reflects the fact that the Town is unable to generate a comparable level of municipal taxation as other communities. Given that the special funding represents in part a proxy or substitute for taxation revenues, its removal from the ARL calculation unfairly and adversely impacts on the borrowing limits of the Town (i.e. it results in a borrowing limit that is too low). The waiver of the ARL calculation would allow the Town to direct any increases in its special grant towards debt servicing, allowing it to borrow additional funds for infrastructure purposes. This would require a funding agreement between the Province and Town that is of sufficient length to ensure the continuity of the capital grant throughout the debt servicing period.

KPMG

cutting through complexity

Asset Management Planning for the Town of Moosonee

Appendix A Asset Management Plan Strategies

MUNICIPAL ASSET BENCHMARKS

Water Distribution System	
Anticipated Asset Life Cycle:	The life cycle ranges from 30 to 100 years. Examining individual elements, the expected service life of a water plant or pump station varies from 30 to 50 years. Valve replacement typically occurs every 30 to 50 years. Similarly, the hydrant life cycle is predicted as 40 years and chambers as 50 years. For watermains the life cycle can be approximated between 50 and 100 years and 75 years for water storage. These values hold true under the assumption that the elements are properly maintained throughout their service lives.
Integrated:	The replacement of these components may either be implemented as part of other construction work or may be conducted as a standalone project. The replacement may be incorporated into resurfacing and road reconstruction work which could include the integration of other utilities (wastewater, telephone, hydro, cable, natural gas, etc). In the case that full road replacement is not intended, standalone replacement of watermains can be carried out using trench cut and repair.
Rehabilitation and Replacement Criteria:	Several criteria used to evaluate and prioritize the watermain replacement schedules include: age, break history of the pipe, material type, size, surrounding soil conditions, pressure related issues, and hydrant spacing. In addition to these criteria other factors, such as the intent of future road rehabilitation, will modify the priority of the replacement schedule accordingly. Available historical data, which includes but is not limited to pipe failures and pipe break history, is used to aid in the replacement criteria. When a continued increase in maintenance costs reaches an uneconomical value, the replacement of the pipe is justified.
Rehabilitation and Replacement Strategies:	The rehabilitation strategy is dependent on the current state of the pipe. It is difficult to assess the state of deterioration in buried services, as such, high pressure cleaning and videotaping of watermains may be instituted. Several different rehabilitation approaches can be taken and include full replacement, cleaning and relining, and potential pipe bursting. Cathodic protection, when used in conjunction with these strategies, prolongs the service life. The strategy is chosen based primarily on the available data including the age, size, material type, break history, and hydraulic requirements.
Life Cycle Consequences:	The repercussions of unexpected failure will be disastrous. Due to unaccounted circumstances and unpredictable events, it is possible that some pipe materials with an expect service life of 100 years will require replacement earlier than expected, after only 30 years. In contrast, pipe materials with an expected life of 100 years may have the service life extended by an additional 50 years, with timely maintenance and rehabilitation.
Integrated Asset Priorities:	Replacement of deteriorating watermains is carried out based on the associated level of risk. The sequence in which rehabilitation or replacement is carried out is reliant on the priority of the watermain and the impact of disruption to service. High priority watermains include those where fire protection, water quality, and service disruption will results in water loss and collateral damage. Typically the integration of road rehabilitation with watermain replacement will increase the priority of the project. The project may also incorporate utilities such as wastewater, hydro, telephone, cable and gas.

MUNICIPAL ASSET BENCHMARKS

Wastewater Collection and Treatment	
Anticipated Asset Life Cycle:	The life cycle ranges from 15 to 100 years. Wastewater plants and sewage pump stations vary from 30 to 50 years. Examining individual elements, the expected service life of wastewater plant equipment, pumps, blowers, and SCADA systems ranges from 15 to 50 years. A manhole life cycle is predicted to be between 30 to 75 years and wastewater trunks between 50 to 100 years. These values hold true under the assumption that the elements are properly maintained throughout their service lives.
Integrated:	The replacement of these components may either be implemented as part of other construction work or may be conducted as a standalone project. The replacement may be incorporated into resurfacing and road reconstruction work which could include the integration of other utilities (wastewater, telephone, hydro, cable, natural gas, etc). In the case that full road replacement is not intended, standalone replacement of sanitary trunk can be carried out using trench cut and repair.
Rehabilitation and Replacement Criteria:	The assessment of the replacement schedule is determined primarily through conducting a CCTV inspection. The results of the inspection will be evaluated to estimate the degree of deterioration of the infrastructure. Included in the assessment are other criteria such as the material type, visible local collapses, upsizing requirements, and synchronization with roads rehabilitation programs.
Rehabilitation and Replacement Strategies:	The rehabilitation strategy is dependent on the assessed condition rating of the infrastructure. The optimal rehabilitation method is determined by assigning and examining the condition rating of the pipe. Most commonly the selected strategy is replacement of collapsing and deteriorated pipe. For localized damage, other practices may be instituted which include: spot repair, joint sealing, and Cured in Place Pipe (CIPP).
Life Cycle Consequences:	The process of degradation in sanitary sewers is similar to that of storm sewers. The repercussions of failure in sanitary sewers are considerably more substantial. Structural deterioration may lead to infiltration of ground water into the system which results in an increased volume of sewage directed to waste water treatment plants. These plants may not be designed to meet the growing demand result in increase in waste waterflow. Infiltration of ground water can also result in the deposition of sediment and debris, significantly reducing the flow capacity for waste water. Continued maintenance and rehabilitation is essential for the performance and reliability of any type of buried infrastructure.
Integrated Asset Priorities:	Replacement of deteriorating sanitary sewers is carried out based on the assessed condition. In the event that replacement is selected as the rehabilitation strategy, the project may expand to include other assets such as sidewalks, road trench cuts, or full pavement. Other utilities may also become included in the scope of work: hydro, telephone, cable, and natural gas. Typically the integration of road rehabilitation will increase the priority of the project.

MUNICIPAL ASSET BENCHMARKS

Stormwater Collection and Treatment	
Anticipated Asset Life Cycle:	A manhole life cycle is predicted to be between 30 to 75 years and stormwater trunks to be 50 to 100 years. These values hold true under the assumption that the elements are properly maintained throughout their service lives. A longterm maintenance plan is also necessary for SWM ponds and treatment structures as part of ongoing operational finances, in order to extend thestructure replacement to between 30 to 75 years.
Integrated:	The replacement may be incorporated into resurfacing and road reconstruction work which could include the integration of other utilities (wastewater, telephone, hydro, cable, natural gas, etc). In the case that full road replacement is not intended, standalone replacement of sanitary trunk can be carried out using trench cut and repair.
Rehabilitation and Replacement Criteria:	The development of the replacement schedule is determined primarily through conducting a CCTV inspection. The results of the inspection will be evaluated to estimate the degree of deterioration of the infrastructure. Included in the assessment are other criteria such as the material type, visible local collapses, upsizing requirements, and synchronization with roads rehabilitation programs. This investigation should be carried out every 20 years, rotating through the storm sewer systems, or when required, to examine system problems/failures. Additional stresses have been imposed on storm sewer systems with climate change and the increasing frequency and intensity of storms. Storm sewer systems are also strained and forced to expand with new land development.
Rehabilitation and Replacement Strategies:	The rehabilitation strategy is dependent on the assessed condition rating of the infrastructure. The optimal rehabilitation method is determined upon assigning and examining the condition rating of the pipe. Most commonly the selected strategy is replacement of collapsing and deteriorated pipe.
Life Cycle Consequences:	The process of degradation in storm sewers is similar to that of sanitary sewers however the repercussions of failure in storm sewers are considerably less substantial. Structural deterioration may lead to infiltration of ground water resulting in the deposition of sediment and debris, significantly reducing the flow of water. Continued maintenance and rehabilitation is essential for the durability of any type of buried infrastructure.
Integrated Asset Priorities:	Replacement of deteriorating storm sewers is carried out based on the assessed condition. In the event that replacement is selected as the rehabilitation strategy, the project may expand to include other assets such as sidewalks, curb/gutter, road trench cuts, or full pavement. Other utilities may also become included in the scope of work: hydro, telephone, cable, and natural gas. Typically the integration of road rehabilitation will increase the priority of the project.

MUNICIPAL ASSET BENCHMARKS

Paved Roads	
Anticipated Asset Life Cycle:	The life cycle of newly constructed pavement systems are dependent on several factors including the pavement design, material and construction quality, traffic volume, traffic loading, and environmental conditions. The service life can be approximated by the category of road: 60 years for pavement with curb, 60 years for pavement with open ditch, and 10 years for surface treatments.
Integrated:	Various other elements may be considered as integrated with paved roads. These include buried assets in the corridor: water sewers, storm sewers, hydro, telephone, natural gas, and cable. Other possible affected elements include traffic signals, street lighting, and sidewalks.
Rehabilitation and Replacement Criteria:	To assess paved roads the Pavement Condition Index (PCI) is used. PCI is a numerical index between 0 and 100 and is based on a visual survey conducted, where 100 represents a new pavement in excellent condition and 0 an impassible pavement. If the PCI ranges from 60 to 80, rehabilitation should be considered. In the case that the PCI falls below 60, reconstruction is a more effective option.
Rehabilitation and Replacement Strategies:	Several different rehabilitation strategies can be implemented. The selection of the strategy is dependent on the following criteria: PCI index, road classification (arterial, collector, local), urban or rural, ditched or curbed, benefit/cost ratio. These strategies include: · Total reconstruction of pavement with 80mm to 120mm of hot mix asphalt (HMA). · Mill and resurface pavement with 50mm to 75mm of HMA. · Strip and resurface pavement with 50mm to 75 mm of HMA. · Pulverize with underlying granulars and surface with 50mm to 75 mm of HMA. · Mill and resurface patches of pavement with 50 mm of HMA. · Routing and crack sealing pavements.
Life Cycle Consequences:	Failure to fund timely pavement rehabilitation will result in a reduction in the pavement PCI. Pavement PCI's below 60 result in exponential increases in pavement rehabilitation costs. It also increases significantly road maintenance costs. Pavements identified by a PCI below 40 typically reflect decreases in level of service and increasing associated degrees of risk and liability.
Integrated Asset Priorities:	The schedule of pavement rehabilitation is often planned in conjunction with underground utility rehabilitation works. Most commonly it is the rehabilitation of pavement systems that prompts the replacement of underground sewer and water services in the infrastructure is also in deteriorating condition and approaching its useful service life. The incorporation of other infrastructure rehabilitation may be done alongside Engineering & Public Works Department internally or with natural gas, hydro, and telephone utilities externally.

MUNICIPAL ASSET BENCHMARKS

Unpaved Roads	
Anticipated Asset Life Cycle:	The life cycle of newly placed gravel road systems are dependent on several factors including the material and construction quality, design, traffic volume, traffic loading, and environmental conditions. The service life can be approximated by the category of road: 60 years for earth with open ditch and 75 years for gravel with open ditch. Sufficient maintenance provided during the service life will help preserve conditions using such strategies as machine grading, ditching and brushing, and granular top up.
Integrated:	Various other elements may be considered as integrated with paved roads. These include buried assets in the utility corridor: water sewers, storm sewers, hydro, telephone, natural gas, and cable.
Rehabilitation and Replacement Criteria:	To assess gravel roads the Gravel Condition Index (GCI) is used. GCI is a numerical index between 0 and 100 and is based on a visual survey conducted, where 100 represents a newly constructed roadin excellent condition and 0 an impassible roadway. If the PCI ranges from 60 to 80, rehabilitation should be considered. In the case that the PCI falls below 60, reconstruction is a more effective option.
Rehabilitation and Replacement Strategies:	Several different rehabilitation strategies can be implemented. The selection of the strategy is dependent on the following criteria: GCI index, road classification (collector, local), urban or rural, benefit/cost ratio. In a rehabilitation scenario, the top 50 to 100 mm of gravel type “A” would be replaced. In the case of total reconstruction the work would include the placement of a 450mm layer of gravel type “B” as a sub base and an additional 150mm layer of gravel type “A”.
Life Cycle Consequences:	The effects of gravel road rehabilitation that is insufficiently funded are reflected in the GCI index which as a result will typically fall below 60. The poor quality of the roadway will bereflected in rising reconstruction and maintenance costs. Roads which are identified by a GCI of 40 or lower typically show signs of a poor level of service increasing the associated degrees of risk and liability.
Integrated Asset Priorities:	The schedule of road rehabilitation is often planned in conjunction with underground utility rehabilitation works. Most commonly it is the rehabilitation of gravel roads that prompts the replacement of underground utilities and sewer and water services if those services aredeteriorating and approaching their useful service life.

MUNICIPAL ASSET BENCHMARKS

Bridges	
Anticipated Asset Life Cycle:	The life cycle of bridges and culverts is considerably variable and dependent on construction methodology and materials, traffic loading, traffic volume, and environmental exposure conditions (temperatures, chloride concentrations, etc). Bridges and concrete culverts constructed after 2000 have an expected life cycle of 75 years, whereas those constructed pre 2000 have an expected life of 50 years. The approximated service life of steel corrugated culverts is 40 years.
Integrated:	Typically it is not integrated with the other work other than potential road widening or resurfacing projects.
Rehabilitation and Replacement Criteria:	The ranking of bridge and culvert work is based on several select criteria: safety, level of service, traffic volume and loading, and preservation of infrastructure. To assess the condition of the structures bi-annual visual inspections are conducted and if deemed necessary detailed bridge condition surveys are completed to better evaluate present conditions. In the inspections, bridge components are assessed individually recording the severity and degree of deterioration and the overall condition. Each bridge is assigned a Bridge Condition Index value between 100 and 0 where a value of 100 indicates excellent conditions and a value of 0 indicates poor deteriorating conditions.
Rehabilitation and Replacement Strategies:	The specification of the bridge or culvert rehabilitation strategy is reliant on the structure's age, data and observations acquired through inspections and condition surveys, and the estimated remaining service life. The following strategies should be implemented at the specified age: at 15 years the asphalt deck should be resurfaced and at 30 years the concrete deck should be patched, waterproofed and the joints replaced; at 50 years replace entire concrete deck.
Life Cycle Consequences:	The reduction of bridge and culvert service life endangers user safety and results in a decrease of level of service.
Integrated Asset Priorities:	NA

MUNICIPAL ASSET BENCHMARKS

Sidewalks and Trails	
Anticipated Asset Life Cycle:	The life cycle of sidewalks is considerably variable and dependent on construction methodology and materials, traffic loading and environmental exposure conditions (temperatures, chloride concentrations, etc). The expected life for asphalt sidewalks is 30 years and 50 years for concrete sidewalks. The approximated service life for limestone, gravel and nature trails is 30 years and 20 years for loose stone and wood pathways.
Integrated:	Other utilities located directly underneath the sidewalk such as gas, hydro, cable, and telephone.
Rehabilitation and Replacement Criteria:	To assess sidewalks the Sidewalk Condition Index (SCI) is used. SCI is a numerical index between 0 and 10 quantifies the amount of damage by examining the extent of cracking and number of deteriorated panels. A SCI of 4 or less indicates that rehabilitation may be required. The maintenance of natural and limestone trails will be carried out on a yearly basis and rehabilitation will be provided as necessary to address safety concerns, increased use, and weather events. Sidewalks and trails should be visually inspected annually to identify immediate repairs and a full SCI conducted every 5 years.
Rehabilitation and Replacement Strategies:	The specification of the sidewalk rehabilitation strategy is reliant on the SCI and road classification (arterial, collector, local). The following are possible strategies that may be implemented: lift and level sidewalk, removal of trip edges, and full sidewalk replacement. Rehabilitation or replacement of trail systems will be undertaken to mitigate safety issues, public concerns, or increased pedestrian use.
Life Cycle Consequences:	Potential risk for falls and trips.
Integrated Asset Priorities:	Buried utilities take precedence over sidewalks. In dealing with the underground utilities, individual sidewalk panels are replaced as necessary.

MUNICIPAL ASSET BENCHMARKS

Streetlights & Traffic Signals	
Anticipated Asset Life Cycle:	The anticipated service life of all streetlights elements is 30 years. This includes the following elements: concrete, cast aluminum, or wood poles and cobra or decorative lights. The expected life cycle of traffic lights is 25 years.
Integrated:	Integration with electricity above and below ground with area Power Authority Hydro.
Rehabilitation and Replacement Criteria:	The streetlights are required to maintain specified illumination levels as indicated in Engineering Standards. In the case that the illumination levels are insufficient, replacement is required. Other replacement criteria include Power Authority pole line rebuilds, life cycle requirements, and updated equipment technology. Several criteria that dictate the replacement of traffic signals include: roadway infrastructure reconstruction programs, increase in pedestrian and vehicle traffic, updated technology and lifecycle requirements, Power Authority pole removals, and changes in level of service.
Rehabilitation and Replacement Strategies:	To ensure proper lighting is attained, the streetlight infrastructure is to be rehabilitated in conjunction with road reconstruction projects. Specified illumination may be achieved with the replacement of streetlights with updated technology. To reduce light pollution and annual electricity expenses a streetlight conversion schedule may be put in place where lighting is replaced with Dark Sky compliant or more energy efficient luminaries.
Life Cycle Consequences:	The deterioration and poor maintenance of lighting systems and will result in unsafe light poles, safety concerns, increased outages, and increased maintenance costs. During Power Authority pole line reconstruction projects or roadway reconstruction projects the lighting system may be removed resulting in no illumination. Traffic signals that are not updated will not be able to accommodate the growing demand of pedestrian and vehicular traffic and movements resulting in longterm increased maintenance costs. In turn, the public will be subject to delays, traffic congestion and potential safety issues.
Integrated Asset Priorities:	Replacement of streetlights is done in conjunction with Power Authority line rebuilds and roadway reconstruction projects ensuring that the level of illumination as specified by the Engineering Standards or best practices is achieved. It is required that traffic signals uphold satisfactory levels of service to accommodate the growing demand of pedestrian and vehicular traffic and movements.

MUNICIPAL ASSET BENCHMARKS

Fleet	
Anticipated Asset Life Cycle:	Service life is dependent on the type or vehicle/equipment and service area. The expected life cycle of cars and pickup trucks is 8-10 years, 10 years for duty trucks, 12 years for ice resurfacers, 10-15 years for front loaders, backhoes and tractors, 20 years for graders, and 20-25 years for fire vehicles.
Integrated:	Integrated with operation adjustments, modifications in service levels, meeting environmental regulations, technological upgrades and financial plans.
Rehabilitation and Replacement Criteria:	Replacement of fleet will be dictated by the results of lifecycle cost analysis considering the following variables: repairs, insurance, fuel, depreciation, and downtime costs.
Rehabilitation and Replacement Strategies:	In the case that vehicular repairs exceed 40% of replacement costs, replacement is the optimal strategy. Other strategies include leasing opportunities, refurbishing, seasonal rentals, or tendering services to a third party.
Life Cycle Consequences:	Vehicles that are not maintained, or as vehicles reach the end of the service lives the efficiency of vehicles decrease, seeing an increase in cost per km. In the event of service interruption, work force costs are increased due to extended work schedules and overall loss of production.
Integrated Asset Priorities:	NA

MUNICIPAL ASSET BENCHMARKS

Facilities	
Anticipated Asset Life Cycle:	The Life Cycle ranges from 15 to 50 years. Examining individual elements, the expected service life of the roof system varies from 25 to 30 years. Hot boiler or carpeting replacement typically occurs every 15 years. Similarly, the building superstructure life cycle is predicted as 50 or more years. These values hold true under the assumption that the elements are properly maintained throughout their service lives.
Integrated:	Assets are appraised separately. The projects however are assembled by asset to make use of the “economics of scale” principle. Special attention is given to ensure that the disruption of asset operations is minimized over its service life.
Rehabilitation and Replacement Criteria:	To assess facilities the Facility Condition Index (FCI) is used. FCI is a ratio of total deferred maintenance, costs/ current replacement value of the facility. The index can be used to assess either individual assets or grouped assets. The FCI is currently accepted throughout North America.
Rehabilitation and Replacement Strategies:	The replacement schedule will be dictated by the actual asset conditions at the time, the stage in its life cycle, and the FCI asset condition summaries. Replacement may also be undertaken to meet any changes in safety, industry or technological specifications and standards. The facility must also be maintained to meet the requirements of the Accessibility for Ontarians with Disabilities Act (AODA) and upgrade ingress/egress points as necessary. Critical components which should be given special attention with annual inspections include facility roof and HVAC systems. Any scheduled improvements should take into consideration the institution of economical energy efficient systems and equipment.
Life Cycle Consequences:	Degradation of the building and its components are noticed, as well as increases in operational costs due to inefficiencies, health and safety concerns, and depreciation of Administration assets.
Integrated Asset Priorities:	The schedule of replacement is dependent on the facility’s stage in its life cycle, the actual condition at the time, and the convenience of performing the replacement without disturbing the operations.

MUNICIPAL ROADS - LIFECYCLE COSTING

RURAL ROADS

GRANULAR RURAL (6.5m Lane)

Service Year	13th Year	25th Year	38th Year	50th Year	63th Year	75th Year	
Operational Items	Granular Top Up	Resurfacing	Granular Top Up	Rehabilitation	Granular Top Up	Reconstruction	
	Ditching		Ditching		Ditching		
	Brushing		Brushing		Brushing		TOTAL LIFECYCLE COST
Operation Cost / km	$44,000	$175,289	$44,000	$670,473	$44,000	$847,503	$1,825,265

Asset Operational Item	Cost / m	Cost / km
100mm Granular Top Up	$15.00	$15,000.00
Ditching	$11.50	$11,500.00
Brushing	$17.50	$17,500.00
Resurfacing	$175.29	$175,289.00
Rehabilitation	$670.47	$670,473.00
Reconstruction	$847.50	$847,503.00

Road Structure
300mm Granular B
150mm Granular A

SURFACE TREATED RURAL MINOR (6.5m Lane)

Service Year	3rd Year	10th Year	13th Year	20th Year	23th Year	30th Year	
Operational Items	2nd Application	Resurfacing	2nd Application	Rehabilitation	2nd Application	Reconstruction	TOTAL LIFECYCLE COST
Operation Cost / km	$52,500	$329,250	$52,500	$753,585	$52,500	$996,141	$2,236,475

Asset Operational Item	Cost / m	Cost / km
2nd Application of Surface	$52.50	$52,500.00
Ditching	$11.50	$11,500.00
Brushing	$17.50	$17,500.00
Resurfacing	$329.25	$329,250.00
Rehabilitation	$753.58	$753,584.50
Reconstruction	$996.14	$996,140.50

Road Structure
300mm Granular B
150mm Granular A
25mm First Surface Treatement
25mm Second Surface Treatment

PAVED RURAL COLLECTOR (7.0m Lane)

Service Year	5th Year	10th Year	15th Year	20th Year	25th Year	30th Year	35th Year	40th Year	45th Year	50th Year	55th Year	60th Year	
Operational Items	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Rehabilitation	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Reconstruction	
		Ditching		Ditching				Ditching		Dithcing			TOTAL LIFECYCLE COST
Operation Cost / km	$25,000	$36,500	$415,245	$36,500	$25,000	$1,195,847	$25,000	$36,500	$415,245	$36,500	$25,000	$1,459,023	$3,731,360

Asset Operational Item	Cost / m	Cost / km
Crack Sealing	$25.00	$25,000.00
Ditching	$11.50	$11,500.00
Resurfacing	$415.25	$415,245.00
Rehabilitation	$1,195.85	$1,195,847.00
Reconstruction	$1,459.02	$1,459,023.00

Road Structure
300mm Granular B
150mm Granular A
50mm HL8
40mm HL3

PAVED RURAL ARTERIAL (7.5m Lane)

Service Year	5th Year	10th Year	15th Year	20th Year	25th Year	30th Year	35th Year	40th Year	45th Year	50th Year	55th Year	60th Year	
Operational Items	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Rehabilitation	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Reconstruction	
		Ditching		Ditching				Ditching		Dithcing			TOTAL LIFECYCLE COST
Operation Cost / km	$30,000	$41,500	$555,575	$41,500	$30,000	$1,507,090	$30,000	$41,500	$555,575	$41,500	$30,000	$1,933,493	$4,837,733

Asset Operational Item	Cost / m	Cost / km
Crack Sealing	$30.00	$30,000.00
Ditching	$11.50	$11,500.00
Resurfacing	$555.58	$555,575.00
Rehabilitation	$1,507.09	$1,507,089.50
Reconstruction	$1,933.49	$1,933,493.00

Road Structure
450mm Granular B
150mm Granular A
2 x 50mm HL8
40mm HL3

WATER SUPPLY LIFECYCLE COSTING

URBAN DISTRIBUTION WATERMAINS

RURAL DISTRIBUTION (150mmø PVC)

Service Year	**20th Year**	**40th Year**	**60th Year**	**80th Year**	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement	Valve Exercise Swabbing / Chlorination	Complete Replacement	**TOTAL LIFECYCLE COST**
Operation Cost / km	$55,000	$119,864	$55,000	$494,860	**$724,724**

Asset Operational Item	**Cost / m**	**Cost / km**	**Notes**
Valve Exercise	$2.00	$2,000.00	Annually
Swabbing/Chlorination	$15.00	$15,000.00	
Appurtenance Replacement	$119.86	$119,864.00	
Complete Main Replacement	$494.86	$494,860.00	

RURAL DISTRIBUTION (300mmø PVC)

Service Year	**20th Year**	**40th Year**	**60th Year**	**80th Year**	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement	Valve Exercise Swabbing / Chlorination	Complete Replacement	**TOTAL LIFECYCLE COST**
Operation Cost / km	$75,000	$196,374	$75,000	$860,585	**$1,206,959**

Asset Operational Item	**Cost / m**	**Cost / km**	**Notes**
Valve Exercise	$2.00	$2,000.00	Annually
Swabbing/Chlorination	$35.00	$35,000.00	
Appurtenance Replacement	$196.37	$196,374.00	
Complete Main Replacement	$860.59	$860,585.00	

WATER SUPPLY LIFECYCLE COSTING

TRANSMISSION WATERMAINS

TRANSMISSION (450mm ø Pressure Pipe)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement	Valve Exercise Swabbing / Chlorination	Complete Replacement	**TOTAL LIFECYCLE COST**
Operation Cost / km	$145,000	$243,564	$145,000	$1,010,910	**$1,544,474**

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	$4.00	$4,000.00	Annually
Swabbing/Chlorination	$65.00	$65,000.00	
Appurtenance Replacement	$243.56	$243,564.00	
Complete Main Replacement	$1,010.91	$1,010,910.00	

TRANSMISSION (600mm ø Pressure Pipe)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement	Valve Exercise Swabbing / Chlorination	Complete Replacement	**TOTAL LIFECYCLE COST**
Operation Cost / km	$235,000	$299,874	$235,000	$1,400,685	**$2,170,559**

Asset Operational Item	Cost / m	Cost / km	Notes
Valve Exercise	$6.00	$6,000.00	Annually
Swabbing/Chlorination	$115.00	$115,000.00	
Appurtenance Replacement	$299.87	$299,874.00	
Complete Main Replacement	$1,400.69	$1,400,685.00	

STREET LIGHTING AND TRAFFIC SIGNALS LIFECYCLE COSTING

STREET LIGHTING

STANDARD, UPGRADED & MAJOR SYSTEMS

Service Year	10th Year	20th Year	30th Year	40th Year	50th Year	60th Year	
Operational Items	Bulb Replacement	Bulb Replacement	Fixture + Bulb Replacement	Bulb Replacement	Bulb Replacement	Complete Replacement	**TOTAL LIFECYCLE COST**
Standard	$415	$415	$1,000	$415	$415	$10,700	**$13,360**
Upgraded	$665	$665	$1,350	$665	$1,350	$16,850	**$21,545**
Major	$855	$855	$1,690	$855	$855	$23,550	**$28,660**

Asset Operational Item	Cost / ea (Standard)	Cost / ea (Upgraded)	Cost / ea (Major)
Bulb Replacement	$415.00	$665.00	$855.00
Fixture + Bulb Replacement	$1,000.00	$1,350.00	$1,690.00
Complete Replacement	$10,700.00	$16,850.00	$23,550.00

TRAFFIC SIGNALS

STANDARD & MAJOR SYSTEMS

Service Year	10th Year	20th Year	30th Year	40th Year	50th Year	60th Year	
Operational Items	Bulb Replacement	Bulb Replacement	Fixture + Bulb Replacement	Bulb Replacement	Bulb Replacement	Complete Replacement	**TOTAL LIFECYCLE COST**
Standard	$165	$165	$60,500	$165	$165	$132,000	**$193,160**
Major	$165	$165	$95,700	$165	$165	$266,200	**$362,560**

Asset Operational Item	Cost / ea (Standard)	Cost / ea (Major)
Bulb Replacement	$165.00	$165.00
Fixture + Bulb Replacement	$60,500.00	$95,700.00
Complete Replacement	$132,000.00	$266,200.00

SIDEWALK & TRAILS - LIFECYCLE COSTING

SIDEWALKS

1.2m & 1.8m Concrete Sidewalk

Service Year	15th Year	30th Year	50th Year	
Operational Items	100m Panel Replacement	250m Panel Replacement	Reconstruction	**TOTAL LIFECYCLE COST / km**
1.2m Concrete Sidewalk	$13,000	$32,500	$175,090	**$220,590**
1.8m Concrete Sidewalk	$21,125	$52,813	$250,161	**$324,099**

Asset Operational Item	1.2m Sidewalk Cost / m	1.8m Sidewalk Cost / m	Sidewalk Structure
Panel Replacement	$130.00	$211.25	150mm Concrete
Reconstruction	$175.09	$250.16	150mm Granular A

TRAILS

1.5m & 3.5m Granular Trails

Service Year	8th Year	15th Year	23th Year	30th Year	
Operational Items	Resurfacing	Resurfacing	Resurfacing	Reconstruction	**TOTAL LIFECYCLE COST / km**
1.5m Granular Trail	$11,219	$11,219	$11,219	$100,532	**$134,188**
3.5m Granular Trail	$21,594	$21,594	$21,594	$150,477	**$215,258**

Asset Operational Item	1.5m Granular Cost / m	3.5m Granular Cost / m	Trail Structure
Resurfacing	$11.22	$21.59	50mm Chip Stone
Reconstruction	$100.53	$150.48	150mm Granular A

1.5m & 3.5m Surface Treated Trails

Service Year	7th Year	15th Year	21th Year	28th Year	
Operational Items	Resurfacing	Resurfacing	Resurfacing	Reconstruction	**TOTAL LIFECYCLE COST / km**
1.5m Surface Treated Trail	$25,000	$25,000	$25,000	$114,313	**$189,313**
3.5m Surface Treated Trail	$52,500	$52,500	$52,500	$181,465	**$338,965**

Asset Operational Item	1.5m Granular Cost / m	3.5m Granular Cost / m	Trail Structure
Resurfacing	$25.00	$52.50	(25mm) Single Surface Treatment
Reconstruction	$114.31	$181.47	150mm Granular A

1.5m & 3.5m Paved Trails

Service Year	15th Year	30th Year	
Operational Items	Resurfacing	Reconstruction	**TOTAL LIFECYCLE COST / km**
1.5m Paved Trail	$24,281	$117,844	**$142,126**
3.5m Paved Trail	$44,656	$177,371	**$222,028**

Asset Operational Item	1.5m Granular Cost / m	3.5m Granular Cost / m	Trail Structure
Resurfacing	$24.28	$44.66	25mm Asphalt
Reconstruction	$117.84	$177.37	150mm Granular A

SANITARY SEWER LIFECYCLE COSTING

SANITARY SEWER

SANITARY COLLECTION SEWER (150 - 450mm ø)

Service Year	20th Year	35th Year	50th Year	65th Year	80th Year	
Operational Items	Cleaning/Flushing	Camera Inspections Cleaning/Flushing Structure Inspections	60% Appurtenance Replacement	Camera Inspections Cleaning/Flushing Structure Inspections	Complete Replacement	**TOTAL LIFECYCLE COST**
Operation Cost / km	$55,000	$86,000	$164,780	$86,000	$1,090,085	**$1,481,865**

Asset Operational Item	Cost / m	Cost / km	Notes
Camera Inspection	$25.00	$25,000.00	
Structure Inspection	$6.00	$6,000.00	
Cleaning / Flushing	$55.00	$55,000.00	
Structure Replacement	$274.63	$274,634.00	
Complete Replacement	$1,090.09	$1,090,085.00	

SANITARY TRUNK SEWER (600 - 900mm ø)

Service Year	20th Year	35th Year	50th Year	65th Year	80th Year	
Operational Items	Cleaning/Flushing	Camera Inspections Structure Inspections Cleaning/Flushing	60% Appurtenance Replacement	Camera Inspections Structure Inspections Cleaning/Flushing	Complete Replacement	**TOTAL LIFECYCLE COST**
Operation Cost / km	$55,000	$86,000	$248,851	$86,000	$1,972,780	**$2,448,631**

Asset Operational Item	Cost / m	Cost / km	Notes
Camera Inspection	$25.00	$25,000.00	
Structure Inspection	$6.00	$6,000.00	
Cleaning / Flushing	$55.00	$55,000.00	
Structure Replacement	$414.75	$414,752.00	
Complete Replacement	$1,972.78	$1,972,780.00	

KPMG

cutting through complexity

Asset Management Planning
for the Town of Moosonee

Appendix B
Financial Projections

CORPORATION OF THE TOWN OF MOOSONEE

Summary of Projected Financial Performance

Scenario 1 - All Capital Requirements Included (Immediate and Life Cycle), Debt Reduction not Directed to Capital

Years Ended December 31
(Unaudited - See Notice to Reader)

	Budgeted	Forecasted										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Municipal revenues:												
Tax levy	$ 1,685,622	1,754,877	1,825,548	1,983,800	2,080,206	2,098,005	2,142,501	2,423,525	2,722,166	3,039,504	3,376,683	25,132,436
Water and wastewater user fees	669,200	803,040	963,648	1,156,378	1,387,654	1,665,185	1,998,222	2,118,115	2,245,202	2,379,914	2,522,709	17,909,268
Senior government operating grants	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	25,067,317
Senior government capital grants	110,000	110,000	110,000	-	-	-	-	-	-	-	-	330,000
Other	702,981	724,070	745,792	768,166	791,211	814,947	839,395	864,577	890,514	917,229	944,746	9,003,628
	5,446,650	5,670,834	5,923,835	6,187,191	6,537,918	6,856,984	7,258,965	7,685,064	8,136,729	8,615,494	9,122,985	77,442,649
Operating expenditures	5,006,387	5,306,770	5,625,176	5,962,687	6,320,448	6,699,675	7,101,656	7,527,755	7,979,420	8,458,185	8,965,676	74,953,835
Debt servicing	440,263	364,064	298,659	224,504	217,470	157,309	157,309	157,309	157,309	157,309	157,309	2,488,814
Capital expenditures	-	-	-	-	-	-	-	-	-	-	-	-
	5,446,650	5,670,834	5,923,835	6,187,191	6,537,918	6,856,984	7,258,965	7,685,064	8,136,729	8,615,494	9,122,985	77,442,649
Net municipal surplus (deficit) before undernoted items	-	-	-	-	-	-	-	-	-	-	-	-
Additional Provincial funding for capital purposes	-	500,000	500,000	500,000	-	-	-	-	-	-	-	1,500,000
Immediate capital reinvestment requirements:												
Gravel top-up for all municipal roads	-	(11,968,000)	-	-	-	-	-	-	-	-	-	(11,968,000)
Wastewater repairs to Town area	-	(3,305,000)	-	-	-	-	-	-	-	-	-	(3,305,000)
Wastewater repairs to former base area	-	(3,738,000)	-	-	-	-	-	-	-	-	-	(3,738,000)
Atim Road bridge repairs	-	(691,000)	-	-	-	-	-	-	-	-	-	(691,000)
Replace municipal vehicles	-	(1,600,000)	-	-	-	-	-	-	-	-	-	(1,600,000)
Quarry Road bridge repairs	-	(426,000)	-	-	-	-	-	-	-	-	-	(426,000)
Bulter Road bridge repairs	-	(39,000)	-	-	-	-	-	-	-	-	-	(39,000)
Ferguson Road bridge repairs	-	(59,000)	-	-	-	-	-	-	-	-	-	(59,000)
	-	(21,826,000)	-	-	-	-	-	-	-	-	-	(21,826,000)
Contribution to life cycle costing	-	(8,649,000)	(9,168,000)	(9,718,000)	(10,301,000)	(10,919,000)	(11,574,000)	(12,268,000)	(13,004,000)	(13,784,000)	(14,611,000)	(113,996,000)
Net municipal surplus (deficit)	$ -	(29,975,000)	(8,668,000)	(9,218,000)	(10,301,000)	(10,919,000)	(11,574,000)	(12,268,000)	(13,004,000)	(13,784,000)	(14,611,000)	(134,322,000)

CORPORATION OF THE TOWN OF MOOSONEE

Summary of Projected Financial Performance

Scenario 2 - Immediate Capital Requirements Included (No Life Cycle), Debt Reduction not Directed to Capital

Years Ended December 31
(Unaudited - See Notice to Reader)

	Budgeted	Forecasted										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Municipal revenues:												
Tax levy	$ 1,685,622	1,754,877	1,825,548	1,983,800	2,080,206	2,098,005	2,142,501	2,423,525	2,722,166	3,039,504	3,376,683	25,132,436
Water and wastewater user fees	669,200	803,040	963,648	1,156,378	1,387,654	1,665,185	1,998,222	2,118,115	2,245,202	2,379,914	2,522,709	17,909,268
Senior government operating grants	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	25,067,317
Senior government capital grants	110,000	110,000	110,000	-	-	-	-	-	-	-	-	330,000
Other	702,981	724,070	745,792	768,166	791,211	814,947	839,395	864,577	890,514	917,229	944,746	9,003,628
	5,446,650	5,670,834	5,923,835	6,187,191	6,537,918	6,856,984	7,258,965	7,685,064	8,136,729	8,615,494	9,122,985	77,442,649
Operating expenditures	5,006,387	5,306,770	5,625,176	5,962,687	6,320,448	6,699,675	7,101,656	7,527,755	7,979,420	8,458,185	8,965,676	74,953,835
Debt servicing	440,263	364,064	298,659	224,504	217,470	157,309	157,309	157,309	157,309	157,309	157,309	2,488,814
Capital expenditures	-	-	-	-	-	-	-	-	-	-	-	-
	5,446,650	5,670,834	5,923,835	6,187,191	6,537,918	6,856,984	7,258,965	7,685,064	8,136,729	8,615,494	9,122,985	77,442,649
Net municipal surplus (deficit) before undernoted items	-	-	-	-	-	-	-	-	-	-	-	-
Additional Provincial funding for capital purposes	-	500,000	500,000	500,000	-	-	-	-	-	-	-	1,500,000
Immediate capital reinvestment requirements:												
Gravel top-up for all municipal roads	-	(11,968,000)	-	-	-	-	-	-	-	-	-	(11,968,000)
Wastewater repairs to Town area	-	(3,305,000)	-	-	-	-	-	-	-	-	-	(3,305,000)
Wastewater repairs to former base area	-	(3,738,000)	-	-	-	-	-	-	-	-	-	(3,738,000)
Atim Road bridge repairs	-	(691,000)	-	-	-	-	-	-	-	-	-	(691,000)
Replace municipal vehicles	-	(1,600,000)	-	-	-	-	-	-	-	-	-	(1,600,000)
Quarry Road bridge repairs	-	(426,000)	-	-	-	-	-	-	-	-	-	(426,000)
Bulter Road bridge repairs	-	(39,000)	-	-	-	-	-	-	-	-	-	(39,000)
Ferguson Road bridge repairs	-	(59,000)	-	-	-	-	-	-	-	-	-	(59,000)
	-	(21,826,000)	-	-	-	-	-	-	-	-	-	(21,826,000)
Contribution to life cycle costing	-	-	-	-	-	-	-	-	-	-	-	-
Net municipal surplus (deficit)	$ -	(21,326,000)	500,000	500,000	-	-	-	-	-	-	-	(20,326,000)

CORPORATION OF THE TOWN OF MOOSONEE

Summary of Projected Financial Performance

Scenario 3 - Priority Capital Requirements Included (Excludes Non-Priority Immediate Requirements and Life Cycle Contributions), Debt Reduction not Directed to Capital

Years Ended December 31
(Unaudited - See Notice to Reader)

	Budgeted	Forecasted										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Municipal revenues:												
Tax levy	$ 1,685,622	1,754,877	1,825,548	1,983,800	2,080,206	2,098,005	2,142,501	2,423,525	2,722,166	3,039,504	3,376,683	25,132,436
Water and wastewater user fees	669,200	803,040	963,648	1,156,378	1,387,654	1,665,185	1,998,222	2,118,115	2,245,202	2,379,914	2,522,709	17,909,268
Senior government operating grants	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	25,067,317
Senior government capital grants	110,000	110,000	110,000	-	-	-	-	-	-	-	-	330,000
Other	702,981	724,070	745,792	768,166	791,211	814,947	839,395	864,577	890,514	917,229	944,746	9,003,628
	5,446,650	5,670,834	5,923,835	6,187,191	6,537,918	6,856,984	7,258,965	7,685,064	8,136,729	8,615,494	9,122,985	77,442,649
Operating expenditures	5,006,387	5,306,770	5,625,176	5,962,687	6,320,448	6,699,675	7,101,656	7,527,755	7,979,420	8,458,185	8,965,676	74,953,835
Debt servicing	440,263	364,064	298,659	224,504	217,470	157,309	157,309	157,309	157,309	157,309	157,309	2,488,814
Capital expenditures	-	-	-	-	-	-	-	-	-	-	-	-
	5,446,650	5,670,834	5,923,835	6,187,191	6,537,918	6,856,984	7,258,965	7,685,064	8,136,729	8,615,494	9,122,985	77,442,649
Net municipal surplus (deficit) before undernoted items	-	-	-	-	-	-	-	-	-	-	-	-
Additional Provincial funding for capital purposes	-	500,000	500,000	500,000	-	-	-	-	-	-	-	1,500,000
Immediate capital reinvestment requirements:												
Gravel top-up for all municipal roads	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater repairs to Town area	-	(3,305,000)	-	-	-	-	-	-	-	-	-	(3,305,000)
Wastewater repairs to former base area	-	(3,738,000)	-	-	-	-	-	-	-	-	-	(3,738,000)
Atim Road bridge repairs	-	(691,000)	-	-	-	-	-	-	-	-	-	(691,000)
Replace municipal vehicles	-	-	-	-	-	-	-	-	-	-	-	-
Quarry Road bridge repairs	-	-	-	-	-	-	-	-	-	-	-	-
Bulter Road bridge repairs	-	-	-	-	-	-	-	-	-	-	-	-
Ferguson Road bridge repairs	-	-	-	-	-	-	-	-	-	-	-	-
	-	(7,734,000)	-	-	-	-	-	-	-	-	-	(7,734,000)
Contribution to life cycle costing	-	-	-	-	-	-	-	-	-	-	-	-
Net municipal surplus (deficit)	$ -	(7,234,000)	500,000	500,000	-	-	-	-	-	-	-	(6,234,000)

CORPORATION OF THE TOWN OF MOOSONEE

Summary of Projected Financial Performance

Scenario 3 - Priority Capital Requirements Included (Excludes Non-Priority Immediate Requirements and Life Cycle Contributions), Debt Reduction Directed to Capital

Years Ended December 31
(Unaudited - See Notice to Reader)

	Budgeted	Forecasted										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Municipal revenues:												
Tax levy	$ 1,685,622	1,831,076	1,890,953	2,057,955	2,087,240	2,158,166	2,142,501	2,423,525	2,722,166	3,039,504	3,376,683	25,415,390
Water and wastewater user fees	669,200	803,040	963,648	1,156,378	1,387,654	1,665,185	1,998,222	2,118,115	2,245,202	2,379,914	2,522,709	17,909,268
Senior government operating grants	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	2,278,847	25,067,317
Senior government capital grants	110,000	110,000	110,000	-	-	-	-	-	-	-	-	330,000
Other	702,981	724,070	745,792	768,166	791,211	814,947	839,395	864,577	890,514	917,229	944,746	9,003,628
	5,446,650	5,747,033	5,989,240	6,261,346	6,544,952	6,917,145	7,258,965	7,685,064	8,136,729	8,615,494	9,122,985	77,725,603
Operating expenditures	5,006,387	5,306,770	5,625,176	5,962,687	6,320,448	6,699,675	7,101,656	7,527,755	7,979,420	8,458,185	8,965,676	74,953,835
Debt servicing	440,263	364,064	298,659	224,504	217,470	157,309	157,309	157,309	157,309	157,309	157,309	2,488,814
Capital expenditures	-	-	-	-	-	-	-	-	-	-	-	-
	5,446,650	5,670,834	5,923,835	6,187,191	6,537,918	6,856,984	7,258,965	7,685,064	8,136,729	8,615,494	9,122,985	77,442,649
Net municipal surplus (deficit) before undernoted items	-	76,199	65,405	74,155	7,034	60,161	-	-	-	-	-	282,954
Additional Provincial funding for capital purposes	-	500,000	500,000	500,000	-	-	-	-	-	-	-	1,500,000
Immediate capital reinvestment requirements:												
Gravel top-up for all municipal roads	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater repairs to Town area	-	(3,305,000)	-	-	-	-	-	-	-	-	-	(3,305,000)
Wastewater repairs to former base area	-	(3,738,000)	-	-	-	-	-	-	-	-	-	(3,738,000)
Atim Road bridge repairs	-	(691,000)	-	-	-	-	-	-	-	-	-	(691,000)
Replace municipal vehicles	-	-	-	-	-	-	-	-	-	-	-	-
Quarry Road bridge repairs	-	-	-	-	-	-	-	-	-	-	-	-
Bulter Road bridge repairs	-	-	-	-	-	-	-	-	-	-	-	-
Ferguson Road bridge repairs	-	-	-	-	-	-	-	-	-	-	-	-
	-	(7,734,000)	-	-	-	-	-	-	-	-	-	(7,734,000)
Contribution to life cycle costing	-	-	-	-	-	-	-	-	-	-	-	-
Net municipal surplus (deficit)	$ -	(7,157,801)	565,405	574,155	7,034	60,161	-	-	-	-	-	(5,951,046)

CORPORATION OF THE TOWN OF MOOSONEE

Summary of Required Life Cycle Contribution

(A) LINEAR INFRASTRUCTURE

Asset Category	Total Lifecycle Cost (Appendix A)	Total Lifecycle (in Years) (Appendix A)	Annual Lifecycle Contribution per Unit	Infrastructure Quantity (km)	Annual Lifecycle Contribution
Water distribution network	$ 724,724	80	$ 9,059	14.67	$ 133,000
Wastewater collection network	$ 1,481,865	80	$ 18,523	10.70	$ 198,000
Roads, streetlights and sidewalks	$ 1,825,265	75	$ 24,337	272.14	$ 6,623,000
					$ 6,954,000

(B) OTHER INFRASTRUCTURE COMPONENTS

Asset Category	Estimated Replacement Cost	Estimated Useful Life	Annual Lifecycle Contribution
Buildings	$ 55,000,000	50	$ 1,100,000
Vehicles	$ 2,359,000	17	$ 139,000
Equipment and furniture	$ 4,520,000	13	$ 348,000
Bridges	$ 6,491,000	60	$ 108,000
			$ 1,695,000

TOTAL ANNUAL LIFECYCLE REQUIREMENT (A) + (B)	**$ 8,649,000**

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