



Corporation of the Township of Black River-Matheson

Municipal Asset
Management Plan

December 31st, 2013



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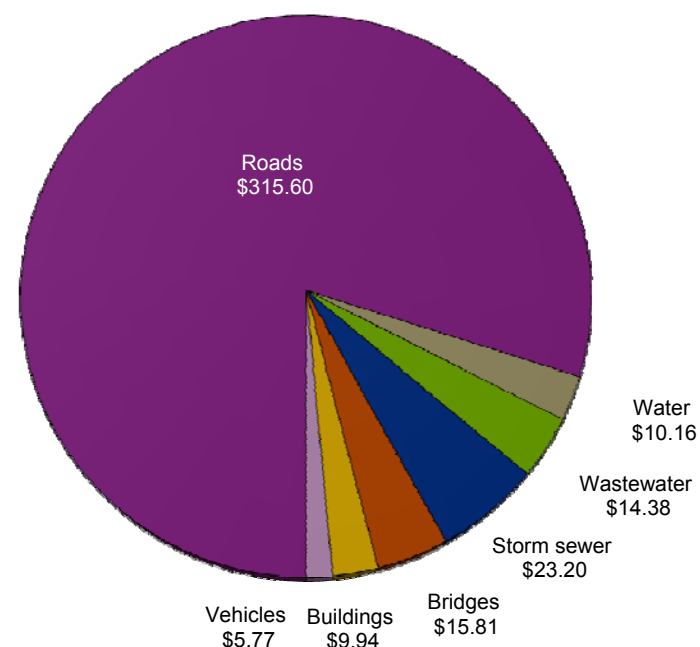
The development of an asset management plan has been identified as a pre-requisite for the receipt of funding from the Province of Ontario (the 'Province') under the Municipal Infrastructure Investment Initiative ('MIII') and as such, represents an important first step in obtaining financing for necessary 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.

Current state of infrastructure

Infrastructure represents a major investment on the part of the Township of Black River-Matheson (the 'Municipality'), with the estimated replacement cost of its assets – roads, bridges, buildings, vehicles, equipment and pipes – amounting to more than \$395 million, or \$164,000 per resident. In addition to the cost of replacing its assets, the Municipality is also required to repair and rehabilitate its infrastructure over its entire useful life, with the cost of these life cycle activities for linear infrastructure (roads and pipes) amounting to \$1.4 billion.

While the amounts of the Municipality's replacement and life cycle costs are significant, the real pressure from the perspective of its infrastructure comes from its current condition. Condition analysis conducted as part of the asset management planning process indicates that a significant proportion of the Municipality's infrastructure is either in fair or poor condition. Addressing the current state of the Municipality's infrastructure, which will deteriorate further if immediate maintenance isn't performed, is expected to cost approximately \$78 million over the next ten years, \$67 million of which relates to the Municipality's linear infrastructure – roads, water, wastewater and storm sewers.

Replacement value by type of asset (in millions)

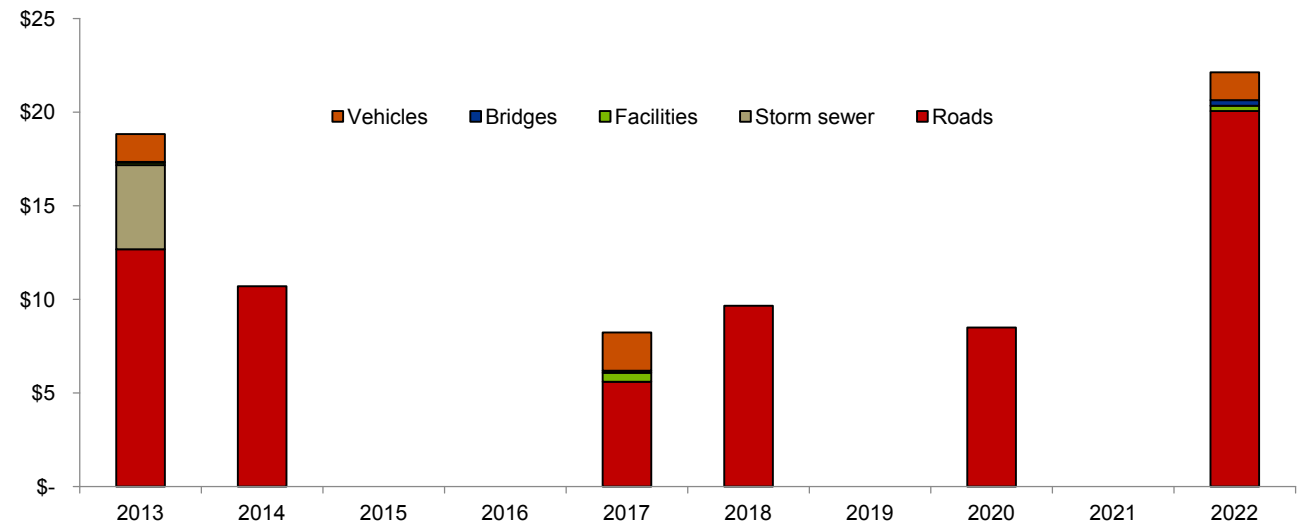


The high cost of future infrastructure investments reflects the declining state of the Municipality's assets, with a sizeable portion of assets rated as either poor or fair. Details of the Municipality's infrastructure condition assessment and identified capital investment requirements over the next ten years are provided on the following page.

Condition assessment results by infrastructure component

Infrastructure	Condition Assessment		
	Good	Fair	Poor
Roads	79%	12%	9%
Water mains	–	100%	–
Wastewater mains	100%	–	–
Storm sewers	35%	44%	21%
Bridges and culverts	59%	10%	31%
Buildings	36%	18%	46%
Vehicles	31%	31%	38%

Projected future infrastructure investment requirements (in millions)



Asset management strategies

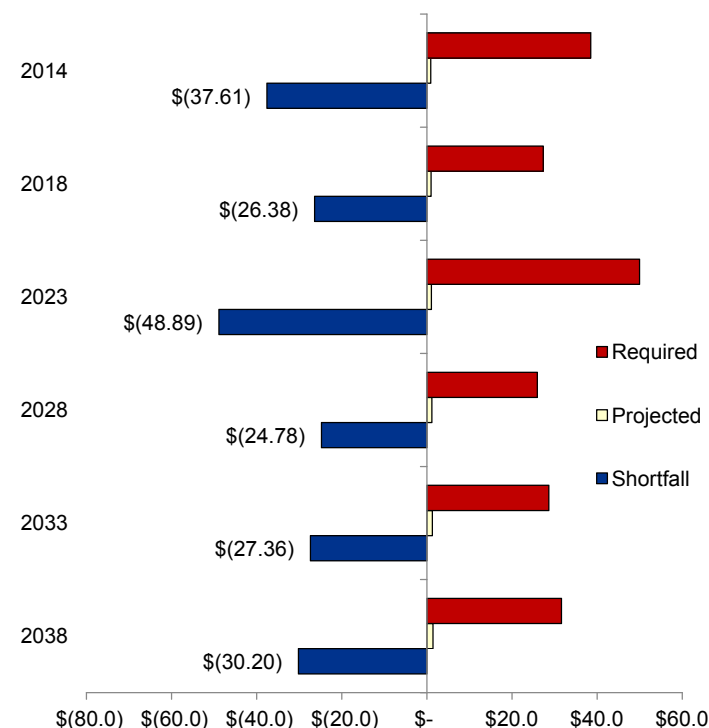
As required under MIII, this report identifies the required asset management strategies for the Municipality based on the types of infrastructure maintained as well as its current condition. As noted earlier, the Municipality would be required to spend an average of \$7.8 million per year over the next ten years in order to address the current issues identified with its infrastructure. While this would allow the Municipality to meet its immediate infrastructure investment needs, it does not allow for ongoing maintenance, rehabilitation and replacement of its infrastructure, the cost of which amounts to an additional \$19.7 million, bringing the Municipality's total infrastructure financing requirement to \$27.5 million per year. In comparison, the Municipality is budgeted to fund \$875,000 in capital expenditures during 2013. Clearly, it is unable to address the full spectre of its infrastructure needs, resulting in ongoing annual infrastructure deficits.

In light of the significant gap between its infrastructure financing requirement and its capacity to raise revenues for capital purposes, the Municipality will be required to prioritize its investments. For the purposes of the asset management plan, three different categories have been identified:

- **Priority 1** – consists of infrastructure investments required within the next five years, investments that qualify for grants and immediate investment needs stemming from new legislation or regulation, public health or safety concerns or other issues
- **Priority 2** – includes infrastructure investments required within six to ten years and other lower priority infrastructure
- **Priority 3** – representing the lowest class of investment priority, this category includes infrastructure with no investment requirement identified within the next ten years, discontinued infrastructure and other lower priority infrastructure

For linear infrastructure, the primary driver of future capital investments will be wastewater improvements, with road, water and storm sewer improvements undertaken at the same time.

Calculated annual infrastructure funding shortfalls (in millions)



Financing strategy

While the Municipality is unable to unilaterally address its infrastructure-related financial requirement, it recognizes the need to begin to address the challenge. As part of its financing strategy, the Municipality is proposing the following measures intended to increase funding for capital requirements:

- Permanently protecting the current level of capital expenditures so as to provide a consistent stream of funding into the future;
- Introducing a five year capital levy that would see the total levy increase by 2%, with the new revenue allocated to capital purposes (i.e. not for operations). The capital levy would add approximately \$60,000 per year to existing capital funding (\$302,000 in total over the next five years), representing a 35% increase in capital spending.
- Exploring the continued use of debt as a means of funding infrastructure requirements, including the adoption of a program whereby a fixed percentage of capital expenditures are financed through debt; and
- Upon the repayment of existing indebtedness, redirecting debt servicing costs to capital expenditures, capital reserves or new debt for capital projects so as to preserve existing funding for capital purposes; and
- Continuing to pursue grant programs provided by senior levels of government.

The issue of affordability

When considering the Municipality's ability to fund its capital requirements and its entitlement for grants, there needs to be a recognition of the limited ability of the Municipality to finance its capital needs due to issues surrounding affordability. In addition to the affordability considerations developed by the Province under the revised OMPF model, it is also important to remember that:

- The Municipality's population has decreased at a significantly faster rate than other communities and the Province as a whole. While the Province's total population increased by 19.5% between 1996 and 2011, the Municipality's population fell by 25.2% over the same period. The consequence of this trend is clear – fewer people in the community translates into fewer people able to fund municipal operations.
- The Municipality's residents have a higher degree of reliance on pension income (i.e. fixed income) as opposed to other communities. Overall, 18% of total reported personal income in the Municipality is derived from pensions, as opposed to the Provincial average of 14%. Additionally, the pension income has increased from 16% to 18% from 2002 to 2009. The consequences of this trend are also clear – those residents that remain within the Municipality are increasingly limited in their ability to afford ongoing taxation increases given the higher reliance on fixed income sources.

About this plan

The Municipality's asset management plan has been developed based on the guidance provided by the Province in *Building Together – Guide for Municipal Asset Management Plans*, which has been tailored to reflect the small size of the Municipality and the nature of its operations and infrastructure. Preparation of the plan involved Municipal staff as well as external financial and engineering advisors paid for through the MIII.

In completing the asset management plan for the Municipality:

- Accepted industry best practices were used for the development of the plan components, including the condition assessments, identification of life cycle requirements and estimated costs;
- The asset management plan was reviewed by Municipal council prior to adoption;
- The asset management plan was compared to the requirements under MIII to ensure compliance; and
- Expressions of interest submitted to date have been based on the priorities identified in the asset management plan.

We would like to acknowledge the cooperation of Municipal staff in the preparation of this report.



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Asset Management Planning
for the Township of Black River-
Matheson

Chapter I Introduction



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 Municipality to move from planning to execution.

The purpose of the asset management

The asset management plan outlines the Municipality's planned approach for the acquisition and maintenance of its infrastructure, which in turn allows the Municipality to meet its stated mission and mandate by supporting the delivery of services to its residents. In achieving this objective, the asset management plan:

- Provides elected officials, Municipal staff, funding agencies, community stakeholders and residents with an indication of the Municipality's investment in infrastructure and its current condition;
- Outlines the total financial requirement associated with the management of this infrastructure investment, based on recommended asset management practices that encompass the total life cycle of the assets;
- Prioritizes the Municipality's infrastructure needs, recognizing that the scope of the financial requirement is beyond the capabilities of the Municipality and that some form of prioritization is required; and
- Presents a financial strategy that outlines how the Municipality intends to meet its infrastructure requirements.

It is important to recognize that the asset management plan is just that – a plan. The asset management plan (which has been prepared for the purposes of meeting the requirements of the Municipal Infrastructure Investment Initiative) does not represent a formal, multi-year budget for the Municipality. The approval of operating and capital budgets is undertaken as part of the Municipality's overall annual budget process. Accordingly, the financial performance and priorities outlined in the asset management plan are subject to change based on future decisions of Council with respect to operating and capital costs, taxation levels and changes to regulatory requirements or the condition of the Municipality's infrastructure.

The asset management plan encompasses the following components of the Municipality's infrastructure:

Transportation Infrastructure	Water and Wastewater Infrastructure	Other Infrastructure
• Roads • Bridges and culverts • Streetlights • Storm sewers	• Treatment facilities • Water distribution system • Wastewater collection system	• Vehicles • Facilities

For the purposes of developing the asset management plan, a 25-year planning horizon was considered, although the analysis includes a discussion of required activities over the entire life cycle of the Municipality's infrastructure. It is expected that the Municipality will update its asset management plan every four years (to coincide with Council elections) 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 Municipality's economic or demographic profile (positive or negative), which would impact on the nature and service level of its infrastructure

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

Workstep	Report Section
1. Information concerning the Municipality's tangible capital assets was reviewed and summarized to provide a preliminary inventory of assets, acquisition year, remaining useful life and historical cost.	Pages 15 to 20 Appendices A to F
2. A condition assessment of the Municipality's infrastructure was developed based on a review of previously commissioned assessments, the age and estimated remaining useful life of the infrastructure and engineering inspections of certain components.	Pages 21 and 22 Appendices A to F
3. Asset management strategies for each component of the Municipality's infrastructure were developed to provide an indication as to the recommended course of action for infrastructure procurement, maintenance and replacement/rehabilitation over the estimated useful life of the infrastructure component. As part of the development of the asset management strategies, cost estimates were prepared for the recommended activities.	Pages 28 to 38 Appendices G and H
4. Based on the asset management strategies (which provide an indication as to the cost of the recommended activities) and the condition assessment (which provides an indication as to the timing of the recommended activities), an unencumbered financial projection was developed that outlined the overall cost of recommended asset management strategies assuming that the Municipality was to undertake all of the recommended activities when required (i.e. assuming sufficient funds were available for all required infrastructure maintenance and replacement). Consistent with the provisions of MIII, no grants were considered in the preparation of the unencumbered financial projection.	Pages 37 and 38 Pages 42 to 44 Appendix J Appendix K
5. Recognizing that the overall financial requirement associated with the recommended asset management strategies is unaffordable for the Municipality, the required asset management activities were prioritized based on the potential risk of failure (determined by the condition assessment), the potential impact on residents and other stakeholders and other considerations.	Pages 39 and 40 Appendix I
6. A second set of financial projections was developed based on the resources available to the Municipality to support its asset management activities, including funding from taxation and user fees. Consistent with the provisions of MIII, no grants were considered in the preparation of the financial projections.	Pages 42 to 44 Appendix L

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

- Council and staff of the Municipality
- KPMG LLP, financial advisors to the Municipality
- exp Services Inc., engineering advisors to the Municipality

The asset management plan outlined in this report represents a forecast of the Municipality'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 Municipality and its elected officials and staff, recognizing that the approval of operating and capital budgets is undertaken as part of the Municipality's overall annual budgeting process.

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

Action Item	Frequency
1. Updating of infrastructure priorities based on: • Ongoing condition assessments (e.g. bi-annual bridge inspections) • Visual inspection by municipal personnel • Identified failures or unanticipated deterioration of infrastructure components • 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 four years
3. Comparison of actual service level indicators to planned service level indicators and identification of significant variances (positive or negative)	Annually



Introduction 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 Township of Black River-Matheson. KPMG has not and will not perform management functions or make management decisions for the Township of Black River-Matheson.

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 Township of Black River-Matheson nor are we an insider or associate of the Township of Black River-Matheson 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 Township of Black River-Matheson and are acting objectively.



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Asset Management Planning
for the Township of Black River-
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Chapter II State of Local Infrastructure

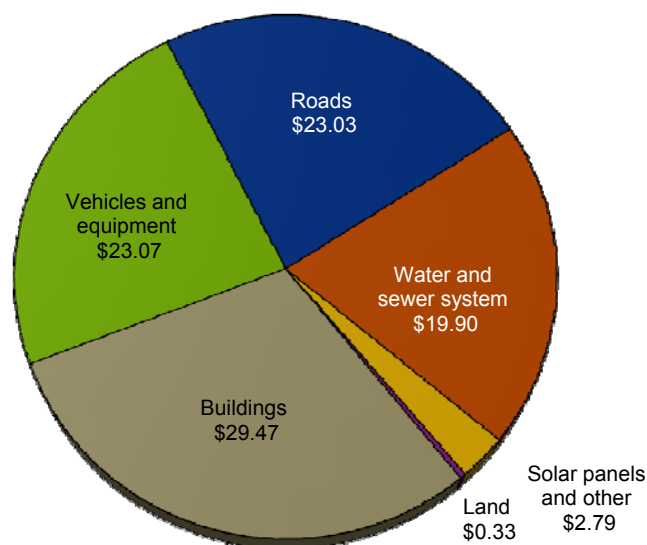


At December 31, 21012, the Municipality reported a total investment of \$29.9 million in tangible capital assets ('TCA') at historical cost. This equates to an average investment of \$24,000 per household, or \$12,500 per resident.

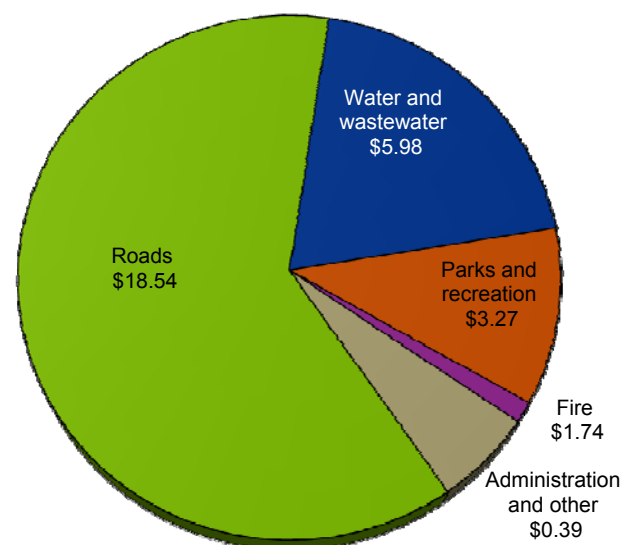
With a historical cost of \$29.5 million, buildings (including the Municipality's water and wastewater treatment facilities, parks and recreation buildings and administrative offices), represent the single largest type of infrastructure and account for 30% of the Municipality's total infrastructure (at historical cost). Roads (\$23.03 million), water and wastewater piping (\$19.90 million) and vehicles and equipment (\$23.07 million) represent the next largest asset types by historical cost.

From a functional perspective, the Municipality's roads and road network and water and wastewater represent the largest components of its infrastructure (\$18.54 million and \$5.98 million respectively), accounting for a combined total of 82% of the overall historical cost of the Municipality's infrastructure.

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

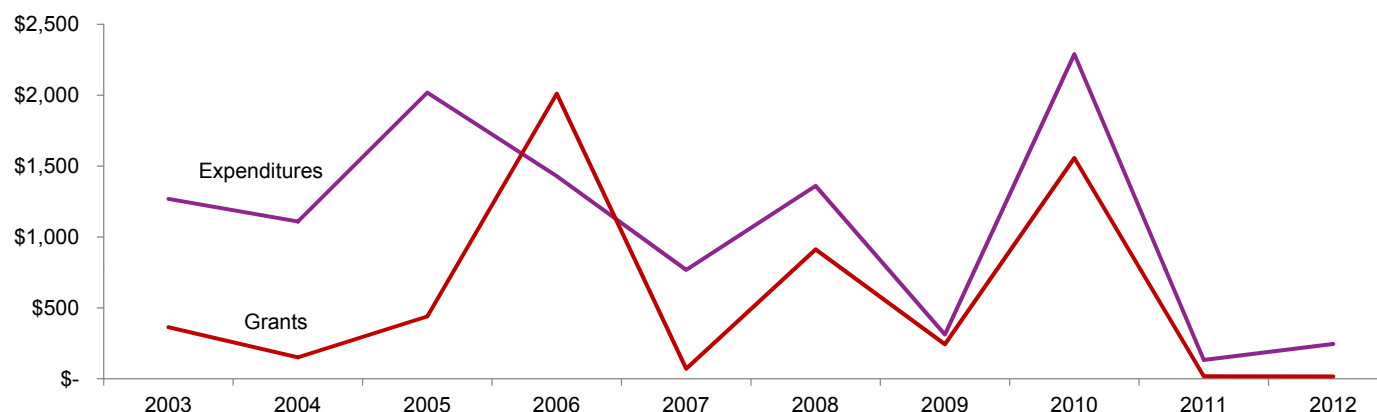


Tangible capital assets by use (historical cost, in millions)



Over the last 10 years, the Municipality's investment in its infrastructure has totaled just over \$10.9 million, with Federal and Provincial capital grants amounting to approximately \$5.8 million over the same period. As noted below, the Municipality's investment in infrastructure has traditionally been closely tied to grant revenues.

Capital expenditures and grants (in thousands)



Since 2003, transportation infrastructure has represented the largest area of investment for the Municipality, amounting to \$5.98 million or 55% of total capital spending. Environmental services infrastructure comprised the next largest component of capital expenditures, amounting to \$2.0 million since 2003 or 18% of total spending.

Capital expenditures by program

(in thousands of dollars)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Transportation	349	470	1,221	1,084	484	643	222	1,280	–	230	5,983
Environmental services	132	324	585	187	124	449	–	197	17	–	2,015
Parks and recreation	104	85	77	84	20	44	49	804	20	15	1,302
Fire	634	71	70	–	19	10	8	–	82	–	894
Administration and other	50	159	65	74	121	215	33	8	14	–	739
Total	1,269	1,109	2,018	1,429	768	1,361	312	2,289	133	245	10,933

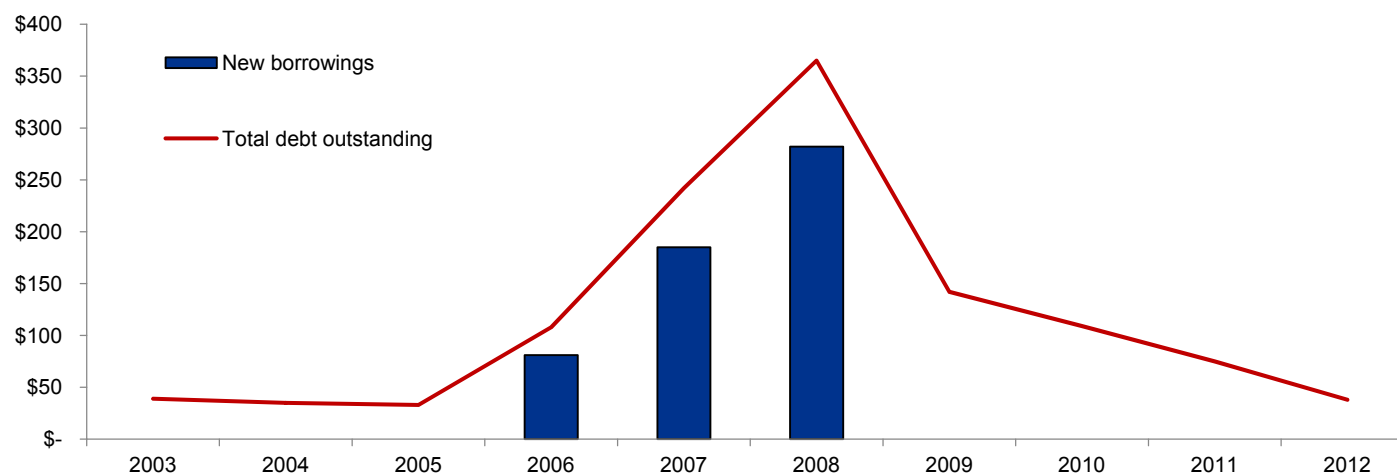
In order to fund its capital investments, the Municipality has relied on a combination of grants, long-term debt, contributions from reserves and reserve funds and taxation and user fee revenues, with grants funding 53% of capital expenditures and long-term debt each funding 7.5% of capital expenditures over the last ten years.

Capital expenditures and funding

(in thousands of dollars)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Total capital expenditures	1,269	1,109	2,018	1,429	768	1,361	312	2,289	133	245	10,933
Grants received	363	151	439	2,011	70	912	243	1,557	17	16	5,779
Local financing requirement	906	958	1,579	(582)	698	449	69	732	116	229	5,154
Long-term debt issued	39	35	33	108	242	365	–	–	–	–	822
Taxation, user fee and reserve funding	867	923	1,546	(690)	456	84	69	732	116	229	4,332

As at December 31, 2012, the Municipality had a total of \$38,168 in outstanding long-term debt, the entire amount relating to Roads infrastructure.

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



For asset management purposes, the historical cost of the Municipality's infrastructure is arguably of limited value in that it reflects the cost at the date that the infrastructure investment was incurred, as opposed to what it would cost the Municipality to replace the infrastructure at the present time. While the use of replacement value is a more meaningful measure of the financial requirement associated with the Municipality's infrastructure (and is a required component for asset management plans under MIII), it is also of limited value in that it only considers the replacement cost at the end of the infrastructure's useful life and does not contemplate:

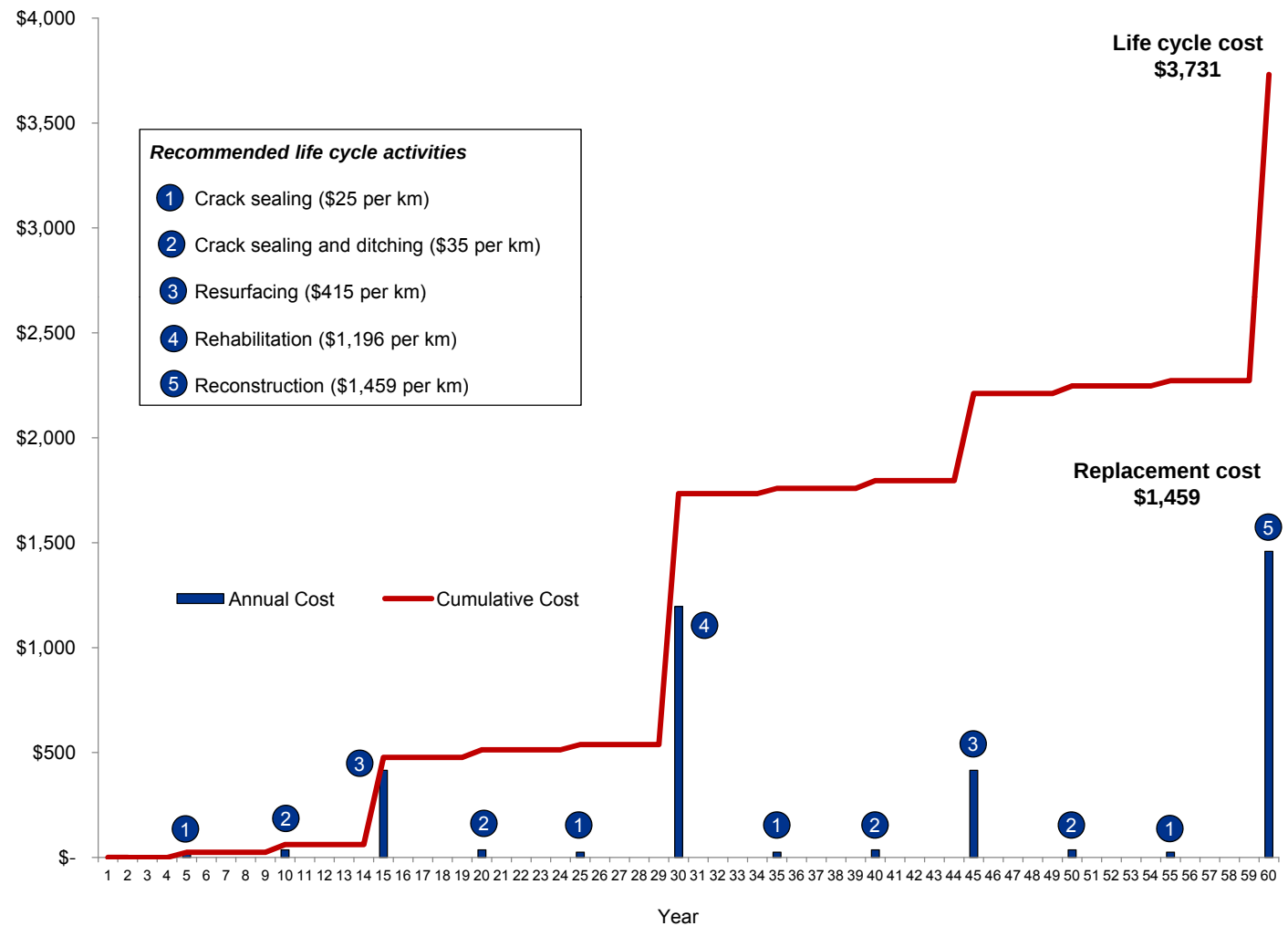
- The fact that certain components of the Municipality's infrastructure, such as roads, will not be fully replaced at the end of useful life but rather will be reconstructed; and
- Asset management activities that are required (by best practice) to be incurred prior to the end of the useful life of the Municipality's infrastructure.

Accordingly, for the purposes of the Municipality's asset management plan, we have provided the following for each component of the Municipality's infrastructure:

- **Historical cost**, based on the Municipality's TCA data as reported in its 2012 financial information return
- **Replacement cost**, based on cost estimates prepared by the Municipality's engineering advisors. For the purposes of the asset management plan, replacement cost is defined as follows:
 - Roads – road reconstruction costs at the end of useful life, including necessary curbs, sidewalks, drainage (as appropriate based on the type of road)
 - Bridges and culverts – estimated reconstruction cost
 - Water and wastewater pipes – replacement costs at the end of useful life, including hydrants, valves, road reinstatement and service to the property line
 - Vehicles – estimated purchase price
 - Buildings – estimated reconstruction cost
- **Life cycle costs**, based on cost estimates prepared by the Municipality's engineering advisors. Life cycle costs encompass the cost of all recommended maintenance activities associated with a component of the Municipality's infrastructure prior to the end of useful life. The nature of life cycle costs will vary depending on the type of infrastructure in question, with certain assets requiring little life cycle activities prior to the end of useful life while others require regularly scheduled maintenance activities. For the purpose of the Municipality's asset management plan, life cycle costs have been provided for linear infrastructure (roads, water and wastewater mains).

We have included on the following page a depiction of the life cycle requirements associated with one type of road, including the difference between replacement cost and life cycle cost.

Life cycle costing profile – paved rural collector road (7.0m lane) (in thousands)



Additional information concerning the Municipality's infrastructure can be found in the following appendices:

- **Appendix A** – Infrastructure profile – roads
- **Appendix B** – Infrastructure profile – water
- **Appendix C** – Infrastructure profile – wastewater
- **Appendix D** – Infrastructure profile – storm sewer
- **Appendix E** – Infrastructure profile – bridges and structures
- **Appendix F** – Infrastructure profile – buildings and facilities
- **Appendix G** – Infrastructure profile – vehicles
- **Appendix H** – Life cycle profiles for linear infrastructure, including recommended activities and costs
- **Appendix I** – Costing estimates for life cycle activities for linear infrastructure

The current replacement value of the Municipality's infrastructure (expressed in 2013 funds) is estimated to be in the order of \$395 million, 80% of which (\$315 million) relates to the municipal road network. Overall, the replacement value of the Municipality's infrastructure amounts to approximately \$164,000 per resident or \$337,000 per household, or 13 times the historical cost of infrastructure.

The total life cycle cost associated with the Municipality's linear infrastructure (roads, water and wastewater mains) is just over \$1.1 billion, with roads representing the largest category of life cycle costs (\$1 billion or 95% of total life cycle costs).

Replacement and life cycle costs by component

	Quantity	Useful Life	Replacement Cost	Life Cycle Cost
Roads	375,720 m	60 to 75 years	\$315,652,052	\$1,084,519,344
Water distribution network	16,300 m	80 years	\$10,159,026	\$12,863,978
Wastewater collection network	13,667 m	80 years	\$14,378,719	\$20,156,808
Storm sewer collection network	22,933 m	80 years	\$23,196,216	\$29,810,986
Total linear infrastructure			\$363,386,013	\$1,147,351,116
Bridges and culverts	29	50 to 75 years	\$15,809,953	
Buildings and facilities	50	20 to 75 years	\$9,935,652	
Vehicles and equipment	39	9 to 20 years	\$5,765,000	
Total in-scope infrastructure			\$394,896,618	

In order to assess the condition of the Municipality's infrastructure, which in turn determines the timing for asset management activities, different approaches were adopted depending on the type of infrastructure:

- **Roads** – condition assessments for roads (paved, surface treated and gravel) were determined based on a *Condition Rating* that ranked the Municipality's road network on a scale of 0.00 to 10.00 based on factors such as structural cracking, non-structural cracking, rutting and roughness.
- **Water and wastewater mains** – given the inability to directly observe underground infrastructure, condition assessments for water and wastewater mains were determined based on the estimated remaining useful life.
- **Bridges and large culverts** – condition assessments were based on the *Bridge Condition Index* as determined by the most recent bridge inspections conducted in accordance with the Ontario Structure Inspection Manual.
- **Facilities** – condition assessments for buildings were based on a *Facility Condition Index* that considered the level of required repairs to the various facility components (structure, mechanical, electrical and roof) as a percentage of its total replacement cost, based on a physical inspection of the Municipality's buildings and the estimated remaining useful life.
- **Vehicles** – condition assessments for the Municipality's fleet were determined based on the estimated remaining useful life of the individual vehicles.

In order to determine the allocation of the Municipality's infrastructure by condition category (good, fair, poor), the following benchmarks were utilized.

Condition assessment benchmarks

Infrastructure components	Basis of Assessment	Good	Fair	Poor
Roads	Condition rating	Greater than 6.00	4.00 to 6.00	Less than 4.00
Water and wastewater mains	Remaining useful life	Greater than 50%	10% to 50%	Less than 10%
Bridges and large culverts	Bridge condition index	Greater than 70	60 to 70	Less than 60
Facilities	Facility condition index	Less than 5%	5% to 10%	More than 10%
Vehicles	Remaining useful life	Greater than 50%	10% to 50%	Less than 10%

Details of the condition assessments for individual infrastructure components can be found in the infrastructure profiles in **Appendices A to G**.

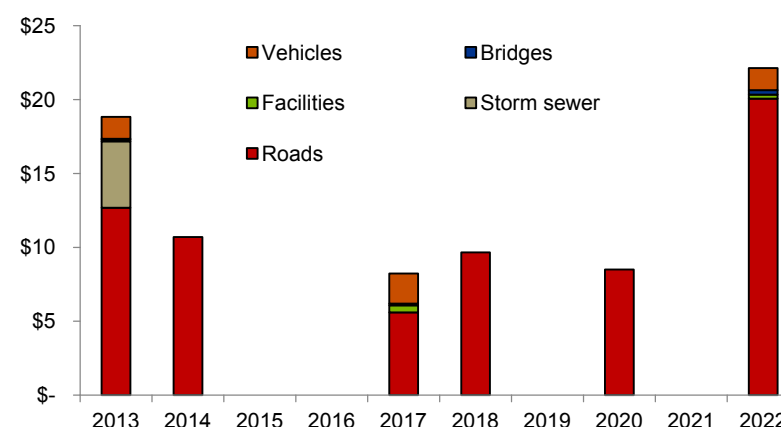
The results of the condition assessment indicate that a sizeable portion of the Municipality's infrastructure is either rated as poor or fair.

Condition assessment results by infrastructure component

Infrastructure	Condition Assessment		
	Good	Fair	Poor
Roads	79%	12%	9%
Water mains	—	100%	—
Wastewater mains	100%	—	—
Storm sewers	35%	44%	21%
Bridges and culverts	59%	10%	31%
Buildings	36%	18%	46%
Vehicles	31%	31%	38%

As a result of the high proportion of the Municipality's infrastructure ranked as poor or fair, it faces an immediate infrastructure deficit of approximately \$18.8 million, with an additional \$60.0 million of capital investment requirements identified over the next ten years. Every category of infrastructure excluding water and wastewater requires some level of investment over the next ten years, with the largest costs associated with the Municipality's road network (\$67 million), fleet (\$5.0 million) and storm sewer system (\$4.5 million).

Projected future infrastructure investment requirements (in millions)



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 wastewater mains will be assessed periodically through the use of camera inspections, with a five year inspection cycle being the long-term target
- Condition assessments for facilities will be assessed through an engineering/architectural inspection of the facilities periodically, with a ten year inspection cycle being the long-term target
- 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 Municipality 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 Township of Black River-
Matheson

Chapter III Desired Levels of Service



The Municipality's asset management strategy is intended to maintain its infrastructure at a certain capacity and in doing so, allow it 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 Municipality's infrastructure, as well as an assessment of its 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	Full compliance	2014
Water	Days under boil water advisory	None		2014
	Response time for notices submitted in accordance with subsection 18(1) of SDWA	5 days		2014
	Number of water main breaks per 100 km	5.0		2017
Wastewater	Wastewater backups per 100 km	20.0		2017
	Percentage of wastewater flows bypassed	5.0%		2017
Vehicles	Operability	90%		2014
Facilities	Availability (percentage of planned operating hours)	99%		2014
	Compliance with Accessibility for Ontarians with Disability Act and Integrated Accessibility Standards	Full compliance	In progress	As per legislation

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

It is also important to recognize that in certain instances, a deviation from the Municipality's targeted service level may be the result of uncontrollable and unforeseen factors and any evaluation of the Municipality'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 Municipality or otherwise controllable. Absent some form of compensating strategy (such as standby power generators), these events may cause the Municipality to deviate from its targeted service levels.

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 Municipality'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 Municipality's desired service levels and asset management plan:

- The *Accessibility for Ontarians with Disability Act* and the accompanying *Integration Accessibility Standards* may require the Municipality 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 Municipality'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 Municipality to amend its existing performance measurement targets and/or introduce new targets.

On an annual basis, the Municipality 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 Township of Black River-
Matheson

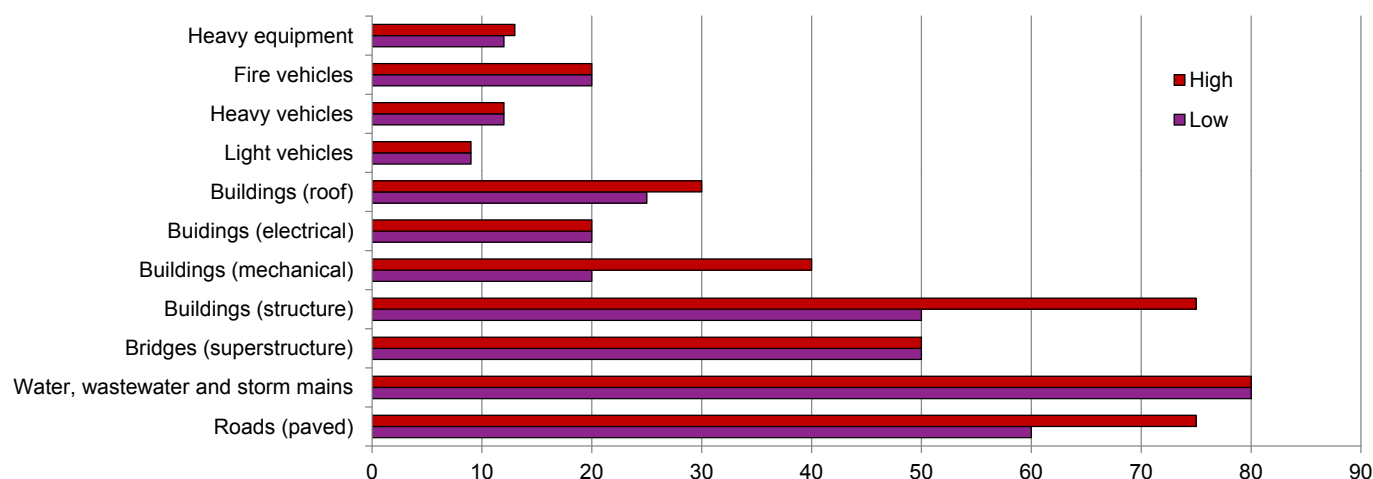
Chapter IV Asset Management Strategy



For each significant component of the Municipality's infrastructure, asset management strategies have been developed that outline:

1. The expected life cycle period for each asset, which defines the period that the Municipality will be required to maintain its infrastructure and secure the necessary financing for maintenance and replacement activities. As noted below, there is considerable variability in the estimated life cycle periods of the Municipality's infrastructure.

Life cycles for municipal infrastructure (in years)



2. The extent to which asset management activities can be integrated with other assets, most commonly the integration of above ground and below ground infrastructure (roads, water, wastewater and storm sewer). The integration of different infrastructure components is a critical element of the Municipality's asset management plan given the staggering of the end of useful life for major assets.
3. Criteria and strategies for the replacement and rehabilitation of the assets.
4. Consequences of not undertaking the necessary asset management activities, particularly the impact on useful lives and overall costs.
5. The determination of priorities when considering integrated assets (e.g. roads and pipes).

Asset management strategies for each component are presented on the following pages.

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.
Integration opportunities	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 10 and is based on a visual survey conducted, where 10 represents a new pavement in excellent condition and 0 an impassible pavement. If the PCI ranks at 5, resurfacing should be considered, if PCI ranges from 3 to 5, rehabilitation should be considered. In the case that the PCI falls below 3, 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 75mm of HMA • Pulverize with underlying granular and surface with 50mm to 75mm of HMA • Mill and resurface patches of pavement with 50mm 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 5 result in exponential increases in pavement rehabilitation costs. It also increases significantly road maintenance costs. Pavements identified by a PCI below 3 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.

<i>Anticipated asset life cycle</i>	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.
<i>Integration opportunities</i>	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.
<i>Rehabilitation and replacement criteria</i>	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 road in excellent condition and 0 an impassible roadway. If the GCI ranges from 3 to 5, rehabilitation should be considered. In the case that the GCI falls below 3, reconstruction is a more effective option.
<i>Rehabilitation and replacement strategies</i>	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 replacement of the granular road base and the granular surface.
<i>Life cycle consequences</i>	The effects of gravel road rehabilitation that is insufficiently funded are reflected in the GCI index which as a result will typically fall below 6. The poor quality of the roadway will be reflected in rising reconstruction and maintenance costs. Roads which are identified by a GCI of 3 or lower typically show signs of a poor level of service increasing the associated degrees of risk and liability.
<i>Integrated asset priorities</i>	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 are deteriorating and approaching their useful service life.

<i>Anticipated asset life cycle</i>	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.
<i>Integration opportunities</i>	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.
<i>Rehabilitation and replacement criteria</i>	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.
<i>Rehabilitation and replacement strategies</i>	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.
<i>Life cycle consequences</i>	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.
<i>Integrated asset priorities</i>	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.

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.
Integration opportunities	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 water flow. 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.

<i>Anticipated asset life cycle</i>	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 the structure replacement to between 30 to 75 years.
<i>Integration opportunities</i>	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.
<i>Rehabilitation and replacement criteria</i>	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.
<i>Rehabilitation and replacement strategies</i>	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.
<i>Life cycle consequences</i>	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.
<i>Integrated asset priorities</i>	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.

<i>Anticipated asset life cycle</i>	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.
<i>Integration opportunities</i>	Typically it is not integrated with the other work other than potential road widening or resurfacing projects.
<i>Rehabilitation and replacement criteria</i>	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.
<i>Rehabilitation and replacement strategies</i>	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.
<i>Life cycle consequences</i>	The reduction of bridge and culvert service life endangers user safety and results in a decrease of level of service.
<i>Integrated asset priorities</i>	Typically it is not integrated with the other work other than potential road widening or resurfacing projects.

<i>Anticipated asset life cycle.</i>	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.
<i>Integration opportunities</i>	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.
<i>Rehabilitation and replacement criteria</i>	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.
<i>Rehabilitation and replacement strategies</i>	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.
<i>Life cycle consequences</i>	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.
<i>Integrated asset priorities</i>	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.

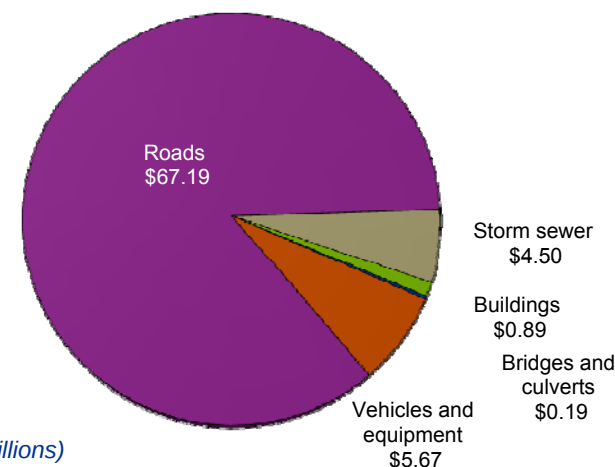
<i>Anticipated asset life cycle.</i>	Service life is dependent on the type or vehicle/equipment and service area. The expected life cycle of cars and pickup trucks is 8-10 years, 10 years for duty trucks, 12 years for ice resurfaces, 10-15 years for front loaders, backhoes and tractors, 20 years for graders, and 20-25 years for fire vehicles.
<i>Integration opportunities</i>	Integrated with operation adjustments, modifications in service levels, meeting environmental regulations, technological upgrades and financial plans.
<i>Rehabilitation and replacement criteria</i>	Replacement of fleet will be dictated by the results of lifecycle cost analysis considering the following variables: repairs, insurance, fuel, depreciation, and downtime costs.
<i>Rehabilitation and replacement strategies</i>	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.
<i>Life cycle consequences</i>	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.
<i>Integrated asset priorities</i>	Not applicable.

For asset management planning purposes, the financial requirement associated with the Municipality's infrastructure requirements can be divided into two categories:

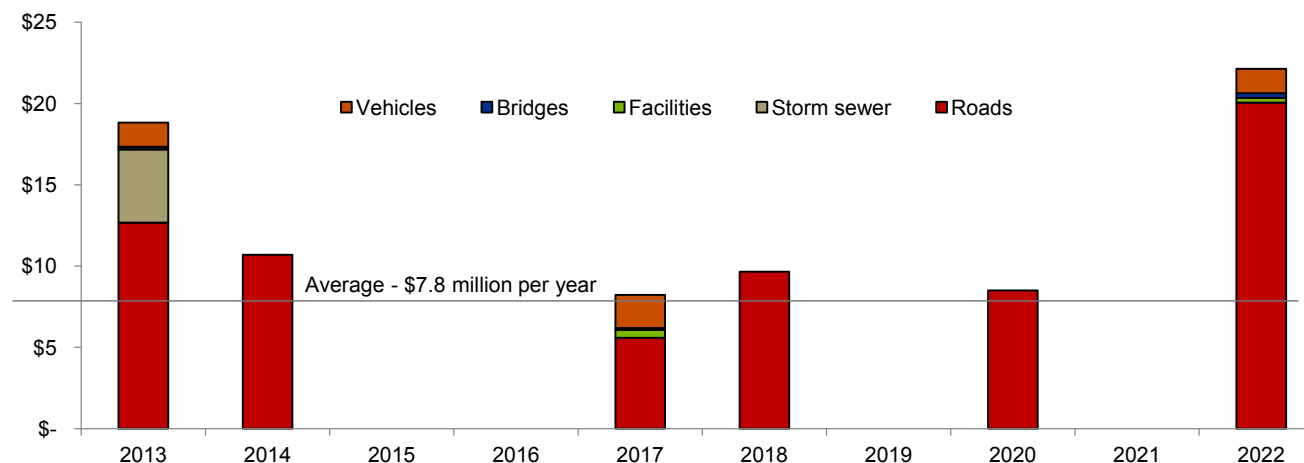
- **Immediate infrastructure investment needs.** Based on the results of the condition assessment, an indication as to the types of asset management activities required over the next ten years, and their associated costs, has been developed. Overall, it is estimated that the Municipality would need to invest \$78.0 million in its infrastructure, the majority of which (\$67.1 million or 86%) relates to the road network.

On average, the Municipality's immediate infrastructure investment needs amount to approximately \$7.8 million per year, recognizing that approximately \$19 million of the Municipality's investment requirement should be incurred immediately.

Immediate infrastructure needs (in millions)



Projected future infrastructure investment requirements by year (in millions)



- **Sustainable life cycle requirements.** In addition to its immediate needs, the Municipality will also be required to fund the cost associated with all of its life cycle activities over the useful life of its infrastructure. As the Municipality has traditionally relied on grants to fund a major portion of its infrastructure, its historical levels of capital investment have fluctuated significantly. However, if the Municipality chose to fund its life cycle requirements evenly over the life of its assets, it would establish a regular and sustainable stream of funding for ongoing capital asset management that would be equal to either:
 - The total life cycle cost of the asset divided by its useful life. This approach is appropriate for linear assets that have significant life cycle requirements throughout their useful life.
 - The total replacement cost of the asset divided by its useful life, which is appropriate for assets with fewer life cycle requirements and where straight replacement of the asset is the more likely scenario.

Based on this approach, we have calculated the average annual contribution required to ensure a sustainable stream of funding for the Municipality's assets to be in the order of \$19.7 million.

Estimated sustainable life cycle requirement

Asset Component	Basis of Determination	Total Costs Over Useful Life	Estimated Useful Life	Annual Requirement
Roads	Life cycle	\$1,084,519,344	60 years	\$18,075,322
Water distribution network	Life cycle	\$12,863,978	75 years	\$171,520
Wastewater collection network	Life cycle	\$20,156,808	80 years	\$251,960
Storm sewer collection network	Life cycle	\$29,810,986	80 years	\$372,637
Bridges and culverts	Replacement	\$15,809,953	50 years	\$316,199
Buildings and facilities	Replacement	\$9,935,652	50 years	\$198,713
Vehicles and equipment	Replacement	\$5,765,000	20 years	\$288,250
Total		\$1,178,861,721		\$19,674,602

The overall infrastructure financing requirement for the Municipality, assuming that all life cycle activities are undertaken at the recommended intervals and that the Municipality funds overall life cycle and replacement costs evenly over the assets lives, is calculated to be in the order of \$27.5 million, as follows:

- Immediate infrastructure investment needs \$7.8 million
- Sustainable life cycle requirements \$19.7 million

In comparison, the Municipality's 2013 budget provided for \$875,000 in tax support for capital expenditures. Given the magnitude of the estimated infrastructure financing requirement, it is evident that ***the Municipality is unable to fully meet its ongoing infrastructure requirements without significant levels of support from senior levels of government*** on an ongoing (i.e. annual) basis. As such, the Municipality will be required to prioritize its capital investments and the application of its available funds.

For asset management purposes, the investment requirements associated with the Municipality's infrastructure are divided into three main categories, as follows:

Category	Description
Priority 1	• Assets with an investment requirement within the next five years, based on condition or useful life • Co-located assets that may not require investment within the next five years but should be replaced as part of the integrated project. For example, sewer and water pipes underneath a road may not be at the end of their useful life but could be replaced as part of a road reconstruction project if they are approaching the end of their useful life before the next road reconstruction. • Assets that may qualify for specific grants, even if an immediate investment requirement has not been identified within the next five years • Infrastructure investments required as a result of changing legislation, public health or safety concerns or strategic purposes (e.g. economic development)
Priority 2	• Assets with an investment requirement within the next six to ten years • Assets that would otherwise be classed as Priority 1 but are considered to have reduced importance due to low utilization by the community (e.g. roads with low traffic volumes), compensating strategies in the event of failure (e.g. detours, reduced speed limits or load limits or limited impacts on public health or safety in the event of a failure)
Priority 3	• Assets with no investment requirements identified within the next ten years • Assets to be discontinued or abandoned • Assets that would otherwise be classified as Priority 1 or 2 but are considered to have reduced importance

As part of its ongoing asset management activities, the Municipality will review its prioritization criteria and asset rankings and, if considered necessary, make appropriate revisions.



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Asset Management Planning
for the Township of Black River-
Matheson

Chapter V Financing Strategy



The development of the Municipality'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 Municipality's financing shortfall) is based on the following parameters:

- Presents annual revenues and expenditures for the planning period (25 years), 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. Accordingly, only Federal Gas Tax and the Municipality's allocation for capacity funding under the Municipal Infrastructure Investment Initiative have been included in the projections; and
- Identifies the potential funding shortfall and how it will be managed.

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

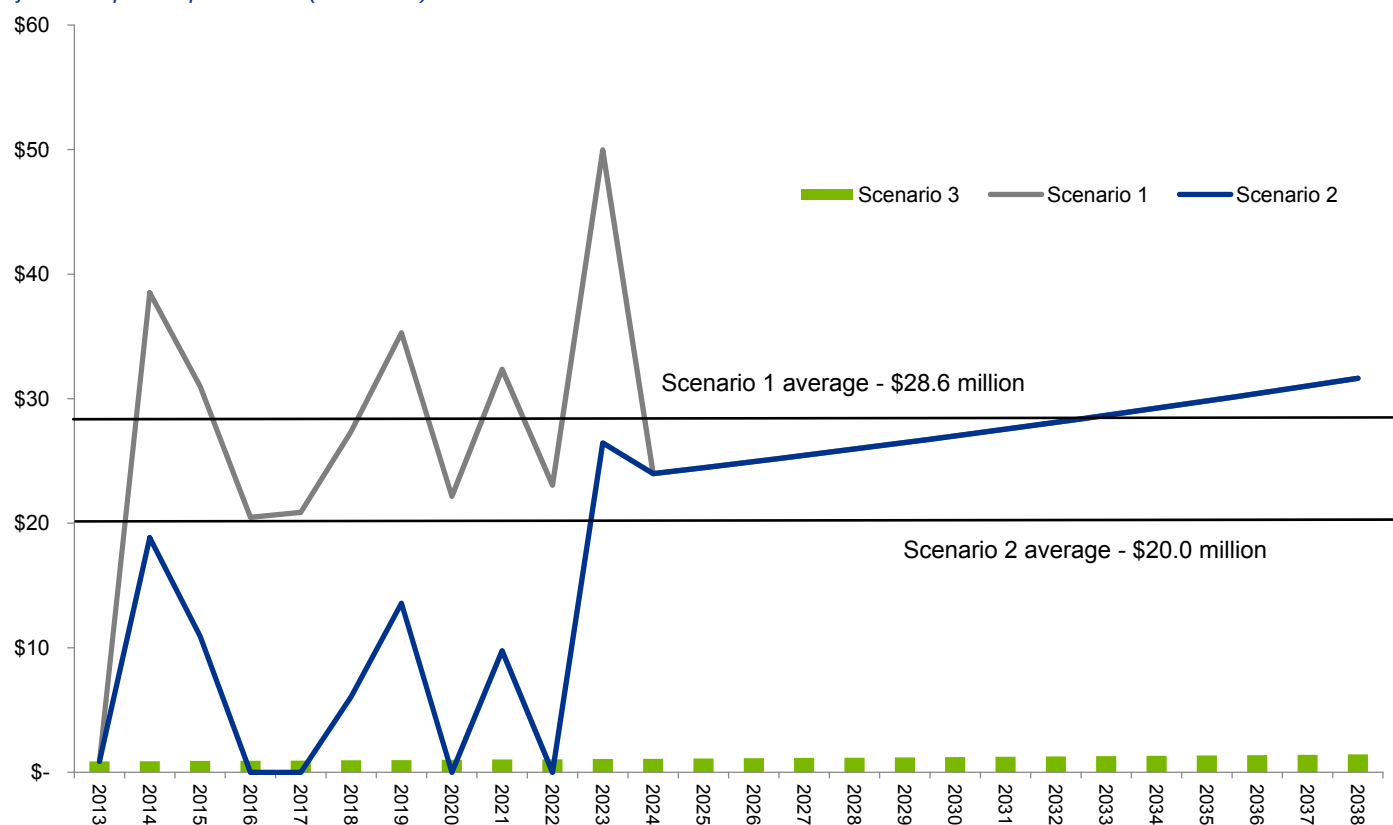
- **Scenario 1** – Representing the base case scenario, this scenario reflects the assumption that all identified asset management requirements (immediate and long-term contributions) will be incurred by the Municipality. This represents the worst case scenario as it involves the highest level of capital financing requirement and ultimately is not practical due to the increase in municipal revenues necessary to support the required level of capital investment.
- **Scenario 2** – Under this scenario, the Municipality's capital expenditures are projected to be as follows:
 - During the first 10 years of the projection period, the Municipality will make capital investments based on the identified priority infrastructure investment requirements (i.e. \$7.8 million per year).
 - During the remainder of the projection period, the Municipality will make capital investments equal to the amount of the sustainable life cycle contribution requirements (i.e. \$19.7 million per year).
- **Scenario 3** – Under this scenario, it is assumed that the Municipality will continue to make capital investments based on the amount of funding budgeted in 2013 for capital expenditures (i.e. \$875,000 per year).

Financial projections for each of the scenarios are contained in the following appendices:

- **Appendix J** – Scenario 1
- **Appendix K** – Scenario 2
- **Appendix L** – Scenario 3

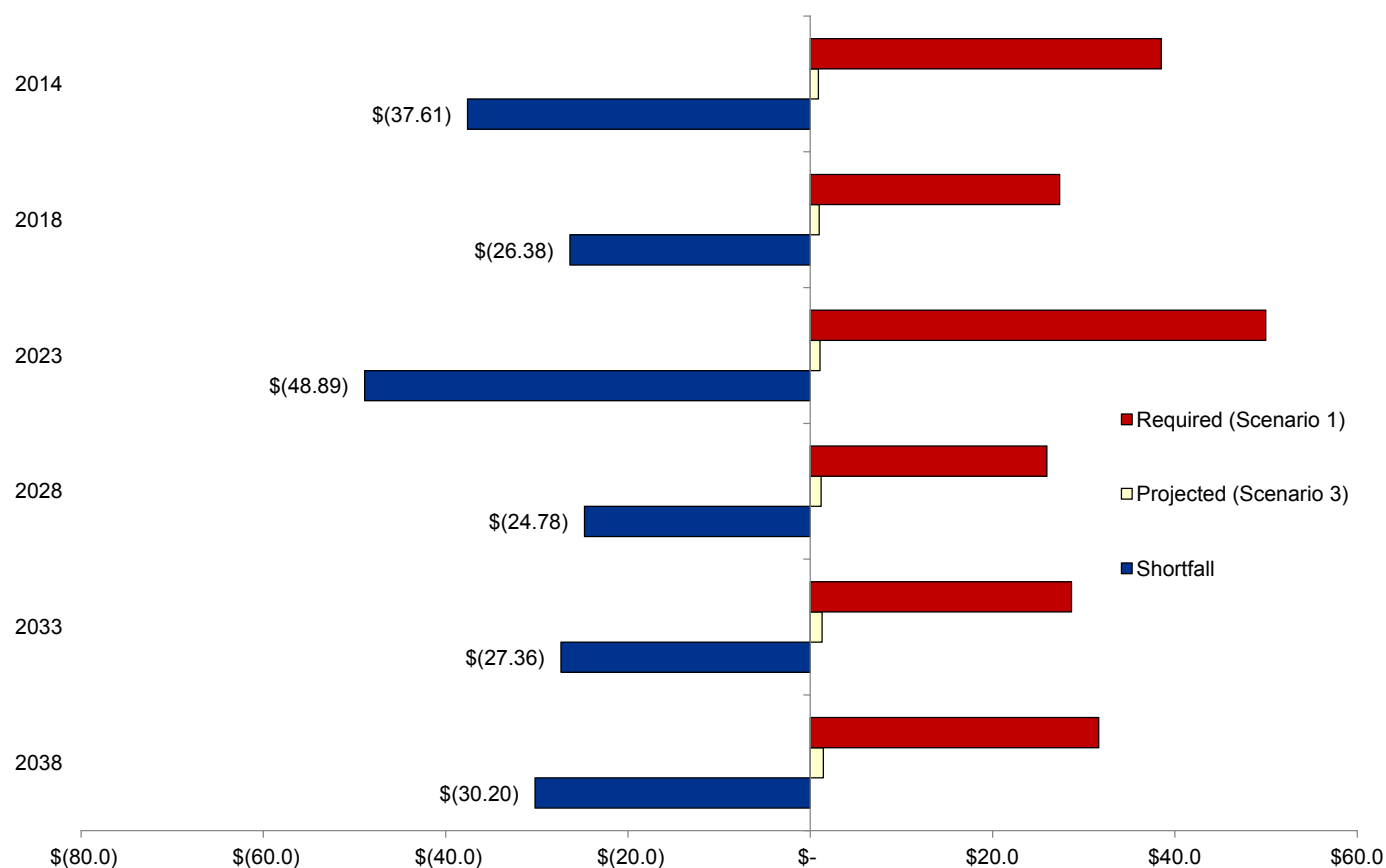
Financial projections developed in support of the asset management plan demonstrate both the magnitude and immediacy of the Municipality's identified capital requirements, with the required level of capital expenditures under Scenarios 1 and 2 significantly higher than the current level. At the same time, the average residential taxes per household is expected to increase accordingly if taxpayers are solely responsible for funding the capital requirements.

Projected capital expenditures (in millions)



At the current level of capital expenditures, the Municipality is expected to continue its existing annual infrastructure deficit as its level of capital expenditures will be insufficient to maintain its infrastructure in its present state, let alone address immediate and short-term infrastructure requirements. As noted below, the Municipality's current annual funding shortfall is expected to in the range of \$20 million to \$40 million annually.

Calculated annual infrastructure funding shortfalls (in millions)



A suggested five year capital financing policy is included as Appendix M.

In order to address the current and future shortfalls in capital funding, the Municipality has identified the following potential courses of action:

- 1. Five year capital levy.** In order to address the immediate and short-term infrastructure requirements, the Municipality is contemplating the introduction of a five year capital levy that would see the total municipal levy increase by 2% per year in order to fund capital expenditures. The proceeds from this capital levy would either be expended during the year, used to finance debt servicing costs for infrastructure related borrowings or placed in a reserve fund until such time as the funds are required (the Municipality adopts a similar approach for Federal Gas Tax, which is sometimes 'banked' until sufficient funds are accumulated to finance capital projects). As noted below, the introduction of a five year capital levy is expected to provide an additional \$302,000 for capital purposes, representing a 35% increase in capital expenditures over the next five years.

Impact of five year, 2% capital levy on taxation and capital spending (in thousands)

Year	Municipal Levy			Capital Expenditures		
	Prior Year's Levy	Capital Levy Increase	Current Year's Levy	Prior Year's Expenditures	New Funding	Current Year's Expenditures
2014	\$2,907	\$58	\$2,965	\$875	\$58	\$933
2015	\$2,965	\$59	\$3,024	\$933	\$59	\$992
2016	\$3,024	\$60	\$3,084	\$992	\$60	\$1,052
2017	\$3,084	\$62	\$3,146	\$1,052	\$62	\$1,114
2018	\$3,146	\$63	\$3,209	\$1,114	\$63	\$1,177
Average annual increase in municipal levy			2.0%	Increase in capital expenditures		35%

The adoption and annual renewal of a capital levy is subject to the Municipality's annual budget process. In order to assist with establishing the levy, we have included a suggested capital financing policy as Appendix N.

A suggested borrowing policy is included as **Appendix N**.

2. Use of borrowing for infrastructure investments. Historically, the Municipality has relied on borrowings in certain instances as a means of funding infrastructure investments. On an ongoing basis, the Municipality may wish to consider the use of debt for additional infrastructure investments, conditional upon the following:

- The infrastructure investment will provide a stream of non-taxation revenues that can be used to fund some or all of the associated debt servicing costs; and/or
- The Municipality requires debt financing to fund its portion of infrastructure projects that are cost shared with senior government; and/or
- The infrastructure investment is unavoidable as a result of regulatory changes or concerns over public health and safety and cannot be funded through other means; and
- The associated debt servicing costs would not jeopardize the Municipality's financial sustainability or result in the Municipality exceeding its annual debt repayment limit.

The use of debt financing is particularly helpful in addressing immediate capital investment requirements as it allows the Municipality to spread the cost of projects over the term of the loan. For example, the amount of capital expenditures that could potentially be financed through the Municipality's proposed capital levy could amount to as much as \$4.7 million, recognizing that future capital expenditures would be limited as the financing is directed towards debt servicing, not infrastructure investments. Alternatively, the Municipality may wish to adopted a phased approach to debt financing, whereby a fixed percentage of capital expenditures would be financed through debentures during the capital levy period.

In addition to the issuance of new debt, the Municipality can also redirect funds currently used to service existing debt towards capital expenditures once the debt is repaid. By reinvesting these funds in capital or using them to pay for new infrastructure loans (as opposed to reducing the municipal levy upon the repayment of the existing loans), the Municipality can further increase its funding for capital purposes.

Potential debt financed through five year capital levy

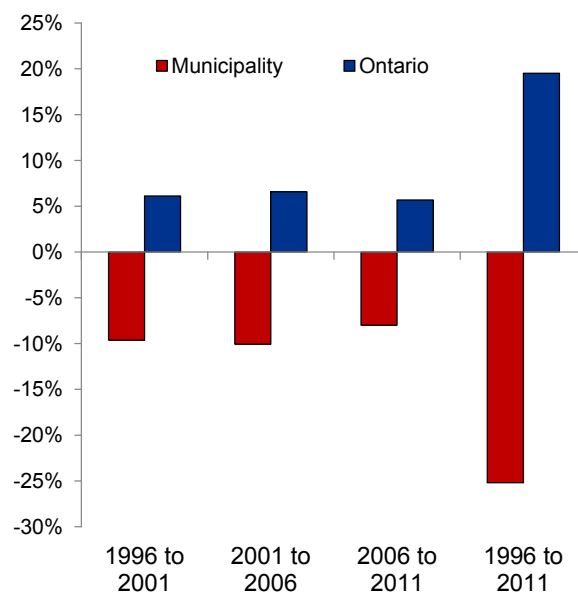
Year	Capital Levy	10 Year Loan (3.09%)	20 Year Loan (3.90%)	25 Year Loan (4.11%)
2014	\$58	\$493	\$795	\$896
2015	\$59	\$501	\$809	\$911
2016	\$60	\$509	\$823	\$926
2017	\$62	\$526	\$850	\$957
2018	\$63	\$535	\$864	\$973
Total	\$302	\$2,565	\$4,141	\$4,663

Despite the ability of the Municipality to increase the level of financing for infrastructure investments and other asset management activities, the magnitude of the financial requirement associated with its infrastructure precludes the Municipality from addressing its needs without some form of grants. In the absence of capital grants, the Municipality will be required to defer capital expenditures until such time as sufficient funding is available.

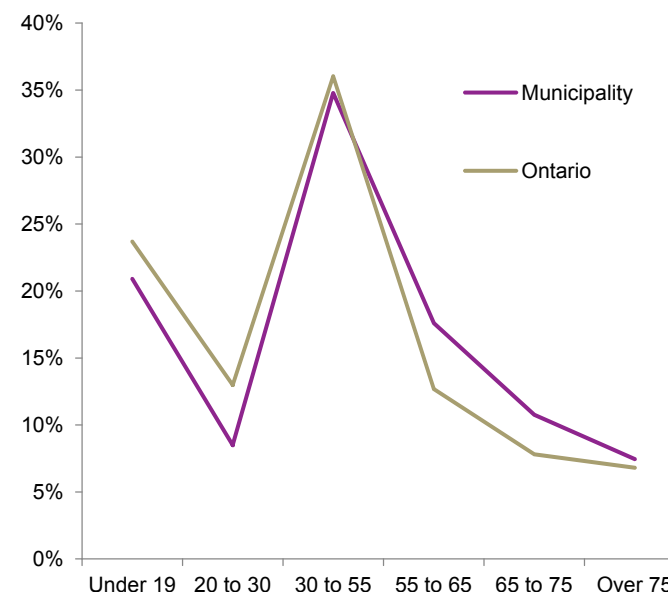
While it is expected that most, if not all, Ontario municipalities will be challenged to meet their financial requirements associated with infrastructure, the Province should give particular attention to the Municipality's limited ability to fund capital investments in comparison to other municipalities, based on the following:

- From 1996 to 2011, **the Municipality's total population has decreased by 25.2%**, compared to a 19.5% increase in the Province's population over the same period.
- At the same time, **the Municipality's population has aged faster than the Provincial average**, with the median age of the Municipality's residents amounting to 47.9 years compared to the Provincial median age of 42.5 years.

Population changes – 1996 to 2011

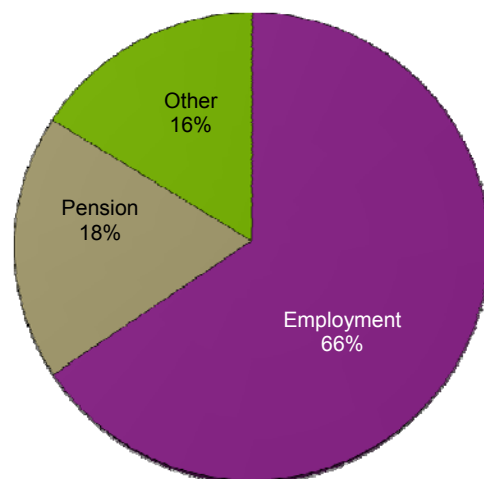


Population distribution by age group (2011)

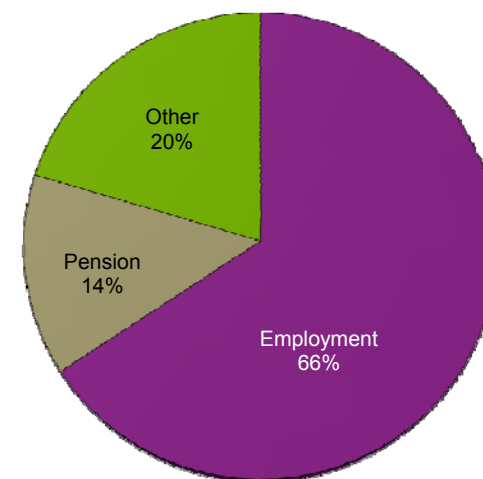


- **Residents of the Municipality are more reliant on pension incomes** than the remainder of the Province, limiting their ability to afford ongoing property tax increases. Additionally, the percentage of personal income generated from employment has not changed between 2002 and 2009, while pension incomes have risen from 16% of total incomes to 18%.

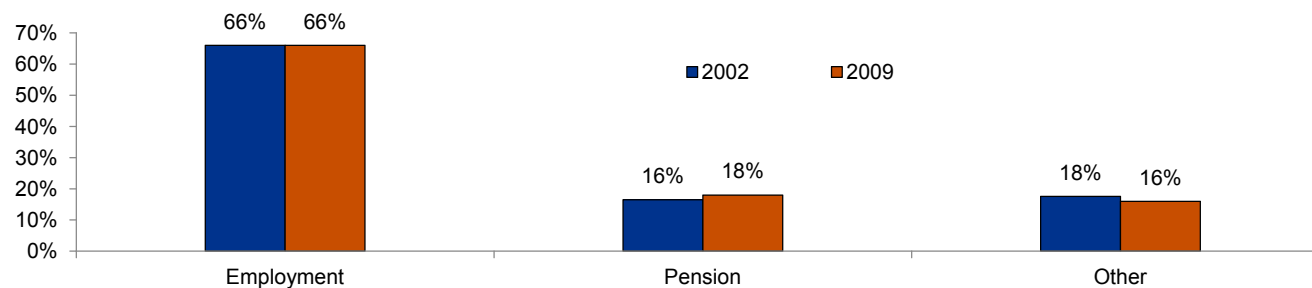
Reported personal income by source – Municipality residents (2009)



Reported personal income by source – Provincial residents (2009)



Reported personal income by source – Municipality residents (2002 vs. 2009)



In addition to the challenges posed by the changing nature of its demographics, the Municipality is facing additional financial pressures from an operational perspective, including:

- The continuing impacts of inflation, including wage settlements and higher benefit costs, which increase the Municipality's operating expenditures
- Announced reductions in government funding programs, including planned reductions in OMPF funding and decreases in Federal Gas Tax funding

In light of its affordability constraints, the Municipality recognizes and appreciates the importance of programs such as the Municipal Infrastructure Investment Initiative and the Small, Rural and Northern Municipal Infrastructure Fund. That said, the current approach to allocating funding to municipalities is extremely problematic from a planning perspective:

- Unlike Federal Gas Tax, which is provided to municipalities as a recurring stream of known funding, the current Provincial infrastructure programs are based on applications with no guarantee of funding success. Accordingly, municipalities are unable to 'bank' Provincial infrastructure funding to finance larger capital projects, use proceeds as a source of funding for borrowing costs incurred in connection with infrastructure investments, or plan beyond the current funding submissions.
- The requirement for municipalities to apply for funding through the completion of expressions of interest can be a challenge, particularly for smaller municipalities with limited resources. In a number of instances, smaller municipalities are required to divert staff from other priorities or incur costs for outside consultants in order to complete the required expressions of interest, with no certainty that they will actually obtain funding.

As a means of maximizing the effectiveness of its capital financing programs, the Municipality requests that the Province consider the following:

- Replacing the current competitive, application based funding process with a committed stream of funding to eligible municipalities, thereby supporting long-term planning for infrastructure needs;
- Review the basis for allocating funding to communities, with increased emphasis placed on smaller communities that are challenged to meet their infrastructure needs due to limited assessment growth, higher than average population decreases and lower than average non-residential assessment, all of which pose challenges from an affordability perspective.
- Reinstating Connecting Link funding, the elimination of which has increased the financial pressures faced on municipalities from an infrastructure perspective.
- Extending the eligibility requirement for funding programs to include other components of municipal infrastructure that are critical to a community's success, including vehicles, recreational and cultural assets.



cutting through complexity



**Asset Management Planning
for the Township of Black River-
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Chapter VI Asset Management Plan Cross Reference



In this section of the report, the Municipality's asset management plan has been cross-referenced to the requirements outlined in *Building Together – Guide for Municipal Asset Management Plans* as a means of demonstrating that the Municipality has met the Province's expectations for asset management plans submitted under the Municipal Infrastructure Investment Initiative.

Required Section	Content	Location in Asset Management Plan
Executive summary		Pages 2 to 7
Introduction	- explains how the goals of the municipality are dependent on Infrastructure - clarifies the relationship of the asset management plan to municipal planning and financial documents - describes to the public the purpose of the asset management plan - states which infrastructure assets are included in the plan. Best practice is to develop a plan that covers all infrastructure assets for which the municipality is responsible. At a minimum, plans should cover roads, bridges, water and wastewater systems, and social housing - identifies how many years the asset management plan covers and when it will be updated. At a minimum, plans must cover 10 years and be updated regularly. Best practice is for plans to cover the entire lifecycle of assets - describes how the asset management plan was developed — who was involved, what resources were used, any limitations, etc. - identifies how the plan will be evaluated and improved through clearly defined actions. Best practice is for actions to be short-term (less than three years) and include a timetable for implementation	Chapter I Pages 9 to 13
State of local infrastructure	- asset types (e.g. urban arterial road, rural arterial road, watermain) and quantity/extent (e.g. length in kilometres for linear assets). - financial accounting valuation and replacement cost valuation. - asset age distribution and asset age as a proportion of expected useful life. - asset condition (e.g. proportion of assets in "good," "fair" and "poor" condition). Asset condition must be assessed according to standard engineering practices. For bridge structures, condition is based on an analysis of bridge inspection reports. - discusses how and when information regarding the characteristics, value, and condition of assets will be updated.	Chapter 2 Pages 15 to 23 Appendices A to J

Required Section	Content	Location in Asset Management Plan
<i>Desired level of service</i>	- defines levels of service through performance measures, targets and timeframes to achieve the targets if they are not already being achieved. - discusses any external trends or issues that may affect expected levels of service or the municipality's ability to meet them - shows current performance relative to the targets set out	Chapter III Pages 25 and 26
<i>Asset management strategy</i>	- non-infrastructure solutions – 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 – including regularly scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events - renewal/rehabilitation activities – significant repairs designed to extend the life of the asset. For example, the lining of iron watermain can defer the need for replacement - replacement activities – 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 - disposal activities – the activities associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed by the municipality - expansion activities (if necessary) – planned activities required to extend services to previously unserved areas - or expand services to meet growth demands - discusses procurement methods - includes an overview of the risks associated with the strategy and any actions that will be taken in response.	Chapter IV Pages 28 to 40 Appendix I
<i>Financial strategy</i>	- shows yearly expenditure forecasts broken down by: - Non-infrastructure solutions - Maintenance activities - Renewal/rehabilitation activities - Replacement activities - Disposal activities - Expansion activities (if necessary) - provides actual expenditures for these categories for comparison purposes. - gives a breakdown of yearly revenues by confirmed source - discusses key assumptions and alternative scenarios where appropriate. - identifies any funding shortfall relative to financial requirements that cannot be eliminated and discuss the impact of the shortfall and how the impact will be managed.	Chapter V Pages 42 to 49 Appendices J to N



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Asset Management Planning
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Appendix A Infrastructure Profile Roads



Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	1 - 5 YR Road Improvement Expenditures									
					2013		2014		2015		2016		2017	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
boisvert Avenue	Pierre Morin Street	West of Pierre Morin Street	0.03	Resurfacing	4.00	\$7,477.35	10.00		9.67		9.34		9.01	
Vimy Ridge Road	Vimy Ridge Road	No. 17 Bridge	0.1	Resurfacing	3.00	\$31,297.30	7.50		7.25		7.00		6.75	
Cedar Road	1.8km W of Cedar Road	0.2km W	0.2	Rehabilitation	2.00	\$62,594.60	7.50		7.25		7.00		6.75	
Taylor Road West Con 2/3	Val Gagne Rd	0.2km W	0.2	Rehabilitation	2.00	\$62,594.60	7.50		7.25		7.00		6.75	
Ferguson Road	River Side	Egerton Ave	0.2	Resurfacing	3.00	\$62,594.60	7.50		7.25		7.00		6.75	
Sixth Avenue	Second Street	MacDougall Street	0.3	Resurfacing	3.00	\$74,773.50	10.00		9.67		9.34		9.01	
Sixth Avenue	MacDougall Street	Railway Street	0.31	Resurfacing	3.00	\$77,265.95	10.00		9.67		9.34		9.01	
Blue Jay Road	Mundy Ave	Ash St	0.2	Resurfacing	4.00	\$83,049.00	10.00		9.67		9.34		9.01	
Bowman/ Hislop Twp Line	Cherry Rd. West	0.3km S	0.3	Rehabilitation	1.00	\$93,891.90	7.50		7.25		7.00		6.75	
Bowman Con 3/4	Burton Rd S	0.3km W	0.3	Rehabilitation	1.00	\$93,891.90	7.50		7.25		7.00		6.75	
Wildgoose Road	Mallard Road	0.4km W	0.4	Resurfacing	3.00	\$125,189.20	7.50		7.25		7.00		6.75	
Pine Road	Tamarack Road	0.7km E	0.7	Rehabilitation	1.00	\$219,081.10	7.50		7.25		7.00		6.75	
Beaver Road	Fisher Rd S	0.7km W	0.7	Resurfacing	3.00	\$219,081.10	7.50		7.25		7.00		6.75	
Country Lane West	4.6km W of Hwy 577	1.0km W	1	Rehabilitation	1.00	\$312,973.00	7.50		7.25		7.00		6.75	
Raven Road	Radisson Cres	Brunelle Rd N	1	Resurfacing	4.00	\$312,973.00	7.50		7.25		7.00		6.75	
Otter Road	Grindstone Road	1.1km E	1.1	Rehabilitation	1.00	\$344,270.30	7.50		7.25		7.00		6.75	
Spruce Road North	Hwy 101	1.1km N	1.1	Rehabilitation	1.00	\$344,270.30	7.50		7.25		7.00		6.75	
Elk Road West	5.7km W of Hwy 577	1.2km W	1.2	Rehabilitation	2.00	\$375,567.60	7.50		7.25		7.00		6.75	
Currie Con 5/6	Fisher Rd S	1.2km W	1.2	Resurfacing	3.00	\$375,567.60	7.50		7.25		7.00		6.75	
Teal Road	Brunetville Rd	End	1.2	Resurfacing	4.00	\$375,567.60	7.50		7.25		7.00		6.75	
Silver Road East	Granite Road	Hwy 11	1.2	Resurfacing	4.00	\$375,567.60	7.50		7.25		7.00		6.75	
Starling Road	Sparrow Rd	0.3 km S	1.3	Rehabilitation	1.00	\$406,864.90	7.50		7.25		7.00		6.75	
Taylor Con 3/4	Val Gagne Rd	1.1km W	1.1	Rehabilitation	2.00	\$435,692.95	10.00		9.50		9.00		8.50	
Sapphire Road	1.1km W of Burton Rd S	Jade Road	1.4	Rehabilitation	2.00	\$438,162.20	7.50		7.25		7.00		6.75	
Red Deer Road West	0.5km W of Hwy 577	1.5km W	1.5	Resurfacing	3.00	\$469,459.50	7.50		7.25		7.00		6.75	
Black Bird Road	Spruce Falls RD	Brunelle Rd S	1.6	Resurfacing	4.00	\$500,756.80	7.50		7.25		7.00		6.75	
Stock Lot 3 & 4	Country Lane West	1.5km S	1.5	Rehabilitation	1.00	\$594,126.75	10.00		9.50		9.00		8.50	
Robin Road	1.3km W of Hwy 11	3.3km W of Hwy 11	2	Resurfacing	3.00	\$625,946.00	7.50		7.25		7.00		6.75	
Grindstone Road	Otter Road	2.3km S	2.3	Resurfacing	3.00	\$719,837.90	7.50		7.25		7.00		6.75	
Fawn Road	Red Deer Rd East	Hwy 11	1	Rehabilitation	2.00	\$844,847.00	10.00		9.67		9.34		9.01	
Burton Road South	1.4km S of Hwy 11	Bowman Con 3/4	2.7	Resurfacing	3.00	\$845,027.10	7.50		7.25		7.00		6.75	
Walker Road	2.5km East of Dumont St	3.2km E	3.2	Resurfacing	4.00	\$1,328,784.00	10.00		9.67		9.34		9.01	
Walker Road	Rue Principale	Hwy 11	1.7	Rehabilitation	1.00	\$1,436,239.90	10.00		9.67		9.34		9.01	
Pierre Morin Street	Principal Street	Boisvert Avenue	0.03	Resurfacing	5.00		4.67	\$7,477.35	10.00		9.67		9.34	
Lessard Street	Labonte Avenue	Nushka Avenue	0.04	Resurfacing	5.00		4.67	\$9,969.80	10.00		9.67		9.34	
Lessard Street	Nushka Avenue	Church Avenue	0.04	Resurfacing	5.00		4.67	\$9,969.80	10.00		9.67		9.34	
Pierre Morin Street	Boisvert Avenue	Val Gagne Road South	0.04	Resurfacing	5.00		4.67	\$9,969.80	10.00		9.67		9.34	
Lessard Street	Church Avenue	Therault Street	0.05	Resurfacing	5.00		4.67	\$12,462.25	10.00		9.67		9.34	
Morin St.	Rue Principale	Boisvert Ave	0.1	Resurfacing	5.00		4.67	\$24,924.50	10.00		9.67		9.34	
Fourth Avenue	Poplar Road	Marilyn Avenue	0.11	Resurfacing	5.00		4.67	\$27,416.95	10.00		9.67		9.34	
Fourth Avenue	Park Lane	Poplar Road	0.12	Resurfacing	5.00		4.67	\$29,909.40	10.00		9.67		9.34	
Fourth Avenue	Hwy 11	Park Lane	0.13	Resurfacing	5.00		4.67	\$32,401.85	10.00		9.67		9.34	
Marten Road	0.7km W of Lynx Road	0.2km W	0.2	Resurfacing	5.00		4.75	\$35,057.80	7.50		7.25		7.00	
Leslie Crescent	Cummings Avenue	Carr Avenue	0.23	Resurfacing	5.00		4.67	\$57,326.35	10.00		9.67		9.34	
Bowman Avenue	Quinn Crescent	Cummings Avenue	0.32	Resurfacing	5.00		4.67	\$79,758.40	10.00		9.67		9.34	
Road to Microwave Tower	Thompson Rd	End	0.5	Resurfacing	5.00		4.75	\$87,644.50	7.50		7.25		7.00	
Grouse Road	Nipigon St	End	0.8	Resurfacing	5.00		4.75	\$140,231.20	7.50		7.25		7.00	
Country Lane West	3.8km W of Hwy 577	0.8km W	0.8	Resurfacing	5.00		4.75	\$140,231.20	7.50		7.25		7.00	
Shale Road	North Road	1.0km W	1	Resurfacing	5.00		4.75	\$175,289.00	7.50		7.25		7.00	
Diamond Road	Nickle Road	1.0km N	1	Resurfacing	5.00		4.75	\$175,289.00	7.50		7.25		7.00	
Wavel Road	Cabot St	Wolfe	1.3	Resurfacing	5.00		4.75	\$227,875.70	7.50		7.25		7.00	
Jade Road	Sapphire Rd.	1.3km S	1.3	Resurfacing	5.00		4.75	\$227,875.70	7.50		7.25		7.00	
Taylor Road East	Hwy 11	0.5km E	1.3	Resurfacing	5.00		4.75	\$227,875.70	7.50		7.25		7.00	
Nickle Road	Forestry Road	Diamond Road	1.6	Resurfacing	5.00		4.75	\$280,462.40	7.50		7.25		7.00	
Painkiller Road	Nickle Road	1.6km N	1.6	Resurfacing	5.00		4.75	\$280,462.40	7.50		7.25		7.00	
Buffalo Road	Monahan Road	1.7km N	1.7	Resurfacing	5.00		4.75	\$297,991.30	7.50		7.25		7.00	
Cedar Road	Tamarack Road	1.8km W	1.8	Resurfacing	5.00		4.75	\$315,520.20	7.50		7.25		7.00	
Champagne Ave.	Brunetville Rd	End	1.2	Resurfacing	5.00		4.67	\$498,294.00	10.00		9.67		9.34	
Grindstone Road	Hwy 101	Otter Road	3.2	Resurfacing	5.00		4.75	\$560,924.80	7.50		7.25		7.00	
Taylor Road West	Hwy 11	Val Gagne Rd	3.5	Resurfacing	5.00		4.75	\$613,511.50	7.50		7.25		7.00	
North Butler Lake Road	Hwy 11 (Government Rd)	End	3.6	Resurfacing	5.00		4.75	\$631,040.40	7.50		7.25		7.00	
Painkiller Road	1.6km N of Nickle Road	Beatty/ Coulson B'ndy	4.5	Resurfacing	5.00		4.75	\$788,800.50	7.50		7.25		7.00	
Fisher Road North	Monahan Road	Fisher Rd North	3.2	Resurfacing	5.00		4.67	\$1,328,784.00	10.00		9.67		9.34	
Monahan Road	Val Gagne Road	Fisher Rd N	8.1	Resurfacing	5.00		4.67	\$3,363,484.50	10.00		9.67		9.34	
Ennis Street	0.05km W of McIntyre (End)	McIntyre Avenue	0.05	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$12,462.25
Cummings Avenue	Leslie Avenue	Second Street	0.06	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$14,954.70
Therault Street	Lessard Street	Principale Street	0.07	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$17,447.15
Cummings Avenue	Bowman Avenue	Carr Avenue	0.08	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$19,939.60
Denning Street	McIntyre Avenue	Timmins Avenue	0.085	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$21,185.83
Denning Street	Timmins Avenue	Ferguson Avenue	0.085	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$21,185.83
Ennis Street	McIntyre Avenue	Timmins Avenue	0.09	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$22,432.05
Ennis Street	Timmins Avenue	Ferguson Avenue	0.09	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$22,432.05
Ross Avenue	Edward Avenue	Gleason Avenue	0.09	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$22,432.05

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	1 - 5 YR Road Improvement Expenditures									
					2013		2014		2015		2016		2017	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Second Street	Tenth Avenue	Quinn Crescent	0.09	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$22,432.05
Second Street	Seventh Avenue	Eighth Avenue	0.1	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$24,924.50
Fourth Avenue	Railway Street	Vimy Ridge Rd.	0.1	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$24,924.50
Second Street	Highway 101 (Fourth Avenue)	Fifth Avenue	0.11	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$27,416.95
Second Street	Fifth Avenue	Sixth Avenue	0.11	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$27,416.95
Second Street	Sixth Avenue	Seventh Avenue	0.11	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$27,416.95
CIM Road	Seventh Avenue	Eighth Avenue	0.11	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$27,416.95
Fourth Avenue	Vimy Ridge Rd.	Hwy 11	0.11	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$27,416.95
Seventh Avenue	CIM Road	Second Street	0.14	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$34,894.30
Fourth Avenue			0.15	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$37,386.75
Fourth Avenue			0.15	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$37,386.75
Edward Avenue	Victoria Street	Moreau Street	0.16	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$39,879.20
Edward Avenue	Moreau Street	Ross Avenue	0.16	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$39,879.20
Eight Avenue	MacDougall Street	Railway Street	0.16	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$39,879.20
Fourth Avenue	MacDougall Street	Railway Street	0.16	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$39,879.20
Fourth Avenue	Second Street	MacDougall Street	0.16	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$39,879.20
Cummings Avenue	Carr Avenue	Leslie Avenue	0.17	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$42,371.65
Second Street			0.18	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$44,864.10
Second Street	Quinn Crescent	Cummings Avenue	0.19	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$47,356.55
Second Street	Eighth Avenue	Tenth Avenue	0.21	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$52,341.45
Second Avenue	Second Street	Railway Street	0.25	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$62,311.25
MacDougall Street	First Avenue	Second Avenue	0.26	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$64,803.70
Seventh Avenue	Second Street	MacDougall Street	0.3	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$74,773.50
Seventh Avenue	MacDougall Street	Railway Street	0.3	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$74,773.50
Ross Avenue	Eudlid Avenue	Highway 572	0.31	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$77,265.95
Eight Avenue	Second Street	MacDougall Street	0.33	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$82,250.85
Eight Avenue	CIM Road	Second Street	0.36	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$89,728.20
MacDougall Street	Second Avenue	Fourth Avenue	0.4	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$99,698.00
Principale Street	Lessard Ave.	0.7km N	0.7	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$290,671.50
Cardinal Road West	Lasalle Ave	Richmond Ave	0.75	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$311,433.75
North Road	Hwy 101	0.8km N	0.8	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$332,196.00
Val Gagne Road	Rue Principale	Hwy 11	1.3	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$539,818.50
Taylor Lot 2/3	Walker Rd	Red Deer Rd East	3.1	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$1,287,259.50
Country Lane East	Taylor Lot 2/3	Fawn Rd	3.2	Resurfacing	6.00		5.67		5.34		5.01		4.68	\$1,328,784.00
Railway Street	Smith Lane	Second Avenue	0.07	Resurfacing	6.50		6.17		5.84		5.51		5.18	
Railway Street	Fourth Avenue	Fifth Avenue	0.1	Resurfacing	6.50		6.17		5.84		5.51		5.18	
Ferguson Road	Brunetville Rd	Town Limits	0.15	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Ross Mine Road	Ross Avenue	North of Ross Avenue	0.16	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Railway Street	Corner of MacDougall Street	Smith Lane	0.14	Resurfacing	6.50		6.17		5.84		5.51		5.18	
Vimy Ridge Road	Hwy 101(4th Ave)	0.2km E of Hwy 101 (4th Ave)	0.2	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Vimy Ridge Road	Fourth Avenue	East of Fourth Avenue	0.2	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Railway Street	Eighth Avenue	Arena Avenue	0.18	Resurfacing	6.50		6.17		5.84		5.51		5.18	
Railway Street	Sixth Avenue	Seventh Avenue	0.2	Resurfacing	6.50		6.17		5.84		5.51		5.18	
Railway Street	Seventh Avenue	Eighth Avenue	0.2	Resurfacing	6.50		6.17		5.84		5.51		5.18	
Railway Street	Second Avenue	Fourth Avenue	0.22	Resurfacing	6.50		6.17		5.84		5.51		5.18	
Railway Street	Fifth Avenue	Sixth Avenue	0.4	Resurfacing	6.50		6.17		5.84		5.51		5.18	
North Road	Quartz Rd	0.6km N	0.6	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Twin Lake Road South	1.6km S of Hwy 101	0.7km S	0.7	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Vimy Ridge Road	Robin Road	Hwy 11	0.8	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Ermine Road	Black Bear Rd. S	0.8km W	0.8	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Tritton Road	Hwy 101	0.8km N	0.8	Resurfacing	6.00		5.75		5.50		5.25		5.00	
St. Andrew Road	Hwy 101	0.8km N	0.8	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Carr Con 4/5	Forestry Road	0.8km E	0.8	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Taylor Road East	0.5km E of Hwy 11	1.3km E	1	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Owl Road	Clear Lake Rd S	Spruce Falls RD	1	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Cougar Road	Monahan Road	1.0km N	1	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Bobcat Road West	Val Gagne Road	0.6km W	0.6	Resurfacing	7.00		6.50		6.00		5.50		5.00	
Jade Road	Sapphire Rd.	0.2km S of Hwy 11	1.4	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Black Bear Road North	Hwy 101	0.8km N	0.8	Resurfacing	7.00		6.50		6.00		5.50		5.00	
Guibord Ave.	Hwy 572	1.0km S of Hwy 572	1.6	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Wavel Road	Radisson Cres	Brunelle Rd N	2	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Copper Road West	North Road	2.0km W	2	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Hawk Road	St Lawrence	Ash St	2.4	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Fisher Road South	Beaver Rd	2.8km S	2.8	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Watabeag Lake Road	Silver Rd. West	Bowman/ McCain B'ndy	5.6	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Granite Road	Cherry Rd. West	Vimy Ridge Rd.	5.8	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Val Gagne Road	Hwy 11	Hwy 101	7	Resurfacing	6.00		5.75		5.50		5.25		5.00	
Monahan Road	Burton Rd N	Fisher Rd N	5.7	Resurfacing	7.00		6.50		6.00		5.50		5.00	
Cardinal Road West	Blue Jay Road	0.25km W	0.25	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Watabeag Lake Road	0.3km S of Marilyn Ave.	Silver Rd. West	4.1	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Marten Road	Lynx Road	0.7km W	0.7	Resurfacing	8.00		7.50		7.00		6.50		6.00	
Lava Mountain Road	Brunetville Rd	Cedar St	3.2	Resurfacing	7.00		6.67		6.34		6.01		5.68	
McIntyre Avenue	Ennis Street	Denning Street	0.12	Resurfacing	7.00		6.67		6.34		6.01		5.68	

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ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	1 - 5 YR Road Improvement Expenditures									
					2013		2014		2015		2016		2017	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
McIntyre Avenue	Denning Street	Knox Street	0.08	Resurfacing	7.00	6.67			6.34		6.01		5.68	
McIntyre Avenue	Knox Street	St. Joseph Street	0.07	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Knox Street	0.089km W of McIntyre (End)	McIntyre Avenue	0.089	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Knox Street	McIntyre Avenue	Timmins Avenue	0.083	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Knox Street	Timmins Avenue	Ferguson Avenue	0.084	Resurfacing	7.00	6.67			6.34		6.01		5.68	
St. Joseph Street	McIntyre Avenue	Timmins Avenue	0.8	Resurfacing	7.00	6.67			6.34		6.01		5.68	
St. Joseph Street	Timmins Avenue	Ferguson Avenue	0.8	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Leduc Street	Timmins Avenue	West of Timmins Avenue	0.09	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Edward Avenue	Highway 572	Victoria Street	0.46	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Ross Avenue	Gleason Avenue	Euclid Avenue	0.09	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Euclid Avenue	Hwy 572	Ross St.	0.8	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Victoria Street	Edward Ave.	Euclid Ave.	0.17	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Moreau Street	Edward Ave.	Euclid Ave.	0.17	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Red Squirrel Road	Red Deer Rd West	Hwy 577	3.1	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Fisher Road North	Monahan Road	Hwy 11	3	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Principale Street	Walker Rd.	0.9km N	0.9	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Gauthier Lake Road	Val Gagne Road	Gauthier Lake Park	1.3	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Principale Street	Labonte Street	Nushka Avenue	0.1	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Principale Street	Nushka Avenue	Dumont St	0.2	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Labonte Avenue	Rue Principale	Lessard St.	0.1	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Nushka Avenue	Rue Principale	Lessard St.	0.1	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Church Avenue	Lessard Street	Principale Street	0.12	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Poplar Road	Fourth Avenue	Park Lane	0.31	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Poplar Road	Park Lane	Hwy 11	0.18	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Hough Road	Fourth Avenue	West of Fourth Avenue	0.32	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Park Lane	Fourth Avenue	Poplar Road	0.33	Resurfacing	7.00	6.67			6.34		6.01		5.68	
MacDougall Street	Fourth Avenue	Fifth Avenue	0.2	Resurfacing	7.00	6.67			6.34		6.01		5.68	
MacDougall Street	Fifth Avenue	Sixth Avenue	0.2	Resurfacing	7.00	6.67			6.34		6.01		5.68	
MacDougall Street	Sixth Avenue	Seventh Avenue	0.19	Resurfacing	7.00	6.67			6.34		6.01		5.68	
MacDougall Street	Seventh Avenue	Eighth Avenue	0.2	Resurfacing	7.00	6.67			6.34		6.01		5.68	
MacDougall Street	Eighth Avenue	To Arena	0.19	Resurfacing	7.00	6.67			6.34		6.01		5.68	
First Avenue	Black River	MacDougall Street	0.11	Resurfacing	7.00	6.67			6.34		6.01		5.68	
fifth Avenue	Second Street	MacDougall Street	0.45	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Fifth Avenue	MacDougall Street	Railway Street	0.44	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Quinn Crescent	Second Street	Carr Avenue	0.18	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Quinn Crescent	Car Avenue	Bowman Avenue	0.14	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Quinn Crescent	Bowman Avenue	Water Station	0.1	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Carr Avenue	Quinn Crescent	Leslie Crescent	0.09	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Carr Avenue	Leslie Crescent	Cummings Avenue	0.12	Resurfacing	7.00	6.67			6.34		6.01		5.68	
Whiskey Jack Road	Kimberly Dr	Avenue Rd	1.4	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Starling Road	Brunelle Rd S	Clear Lake Rd	3.5	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Sparrow Road	Mundy Ave	Hemlock Ave	0.9	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Blue Jay Road	Kimberly Dr	Avenue Rd	0.05	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Mallard Road	Hazel St	Trudeau Ave	1.6	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Falcon Road	Brunetville Rd	Cedar St	0.9	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Talbock Lake Road	Clark St	End	2.1	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Pump House Road	Champagne St.	0.3km E	0.3	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Miller Road North	Hwy 11	Ferguson Rd	2.3	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Vimy Ridge Road	Hwy 11	Ferguson Rd	3.2	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Hemlock Road	Vimy Ridge Rd.	Hwy 11	0.8	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Cherry Road East	Hwy 11	Vimy Ridge Rd.	2.5	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Willow Road	Vimy Ridge Road	1.8km E	1.8	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Falcon Road	Playfair Twp Line	Hwy 572	1.6	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Tamarack Road	Hwy 572	Hwy 101	8	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Pine Road	Tamarack Road	7.9km W	7.9	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Cherry Road West	Hwy 11	Granite Road	1.6	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Burton Road North	Hwy 11	Monahan Rd	0.5	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Monahan Road	Burton Rd. North	Cummings Ave.	0.8	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Burton Road South	Hwy 11	1.4km S	1.4	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Jade Road	Hwy 11	0.2km S of Hwy 11	0.2	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Ruby Road	Hwy 11	0.6km S	0.6	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Fourth Avenue	Marilyn Avenue	South of Marilyn	0.3	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Vimy Ridge Road	0.2km E of Hwy 101 (4th Ave)	0.6km E of Hwy 101 (4th Ave)	0.4	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Black Bear Road South	Hwy 101	4.6km S	4.6	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Twin Lake Road South	Hwy 101	1.6km S	1.6	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Val Gagne Road	Hwy 101	4.8km S	4.8	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Bobcat Road East	Val Gagne Road	0.4km E	0.4	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Moose Road South	Hwy 101	2.1km S	2.1	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Fretz Road	Hwy 101	2.4km S	2.4	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Moose Road North	Hwy 101	2.7km N	2.7	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Caribou Road East	Hwy 577	2.6km W	2.6	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Elk Road West	Hwy 577	5.7km W	5.7	Resurfacing	7.00	6.75			6.50		6.25		6.00	
Country Lane West	Hwy 577	3.8km W	3.8	Resurfacing	7.00	6.75			6.50		6.25		6.00	

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					2013		2014		2015		2016		2017	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Caribou Road East	Hwy 577	1.6km E	1.6	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Red Deer Road West	Val Gagne Road	Hwy 577	3.2	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Lynx Road	Hwy 101	Hwy 11	1.6	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Taylor Road East	1.8km E of Hwy 11	Monahan Rd	3	Resurfacing	7.00		6.75		6.50		6.25		6.00	
North Road	0.8km N of Hwy 101	Quartz Rd	6.9	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Quartz Road	North Road	1.4km W	1.4	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Nickle Road	North Road	Forestry Road	1.6	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Iron Road	North Road	2.0km W	2	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Copper Road East	North Road	Forestry Road	1.6	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Forestry Road	Hwy 101	6.9km N	6.9	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Lady Maude Road	Nickle Road	1.9km N	1.9	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Copper Road East	Diamond Road	5.0km E	5	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Birch Road North	Hwy 101	1.0km N	1	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Birch Road North	1.0km N of Hwy 101	0.2km N	0.2	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Aspen Road	Hwy 101	1.2km N	1.2	Resurfacing	7.00		6.75		6.50		6.25		6.00	
Ferguson Avenue	Highway 572	Ennis Street	0.12		8.00		7.67		7.34		7.01		6.68	
Ferguson Avenue	Ennis Street	Denning Street	0.12		8.00		7.67		7.34		7.01		6.68	
Ferguson Avenue	Denning Street	Knox Street	0.08		8.00		7.67		7.34		7.01		6.68	
Ferguson Avenue	Knox Street	St. Joseph Street	0.081		8.00		7.67		7.34		7.01		6.68	
Ferguson Avenue	St. Joseph Street	Bastien Street	0.21		8.00		7.67		7.34		7.01		6.68	
Ferguson Avenue	Bastien Street	Lava Mountain Road	0.24		8.00		7.67		7.34		7.01		6.68	
Timmins Avenue	Highway 572	Ennis Street	0.15		8.00		7.67		7.34		7.01		6.68	
Timmins Avenue	Enni	Denning Street	0.12		8.00		7.67		7.34		7.01		6.68	
Timmins Avenue	Denning Street	Knox Street	0.08		8.00		7.67		7.34		7.01		6.68	
Timmins Avenue	Knox Street	St. Joseph Street	0.08		8.00		7.67		7.34		7.01		6.68	
Timmins Avenue	St. Joseph Street	Bastien Street	0.21		8.00		7.67		7.34		7.01		6.68	
Bastien Street	Highway 11	Timmins Avenue	0.4		8.00		7.67		7.34		7.01		6.68	
Bastien Street	Timmins Avenue	Ferguson Avenue	0.085		8.00		7.67		7.34		7.01		6.68	
Vimy Ridge Road	0.6km E of Hwy 101 (4th Ave)	Bowman/ Hislop B'ndy	3.9		8.00		7.67		7.34		7.01		6.68	
Red Deer Road East	Monahan Road	Hwy 11	1.3		8.00		7.67		7.34		7.01		6.68	
Red Deer Road East	Fisher Rd North	Monahan Rd	4.3		8.00		7.67		7.34		7.01		6.68	
Country Lane East	Fawn Rd	Rue Principale	1.4		8.00		7.67		7.34		7.01		6.68	
Dumont St	0.3km N of Rue Principale	Walker Rd.	0.5		8.00		7.67		7.34		7.01		6.68	
Walker Road	Dumont St.	2.5km E	2.5		8.00		7.67		7.34		7.01		6.68	
Fawn Road	Country Lane East	Walker Road	1.6		8.00		7.67		7.34		7.01		6.68	
Val Gagne Dump Road	Val Gagne Road	0.2km W	0.2		8.00		7.67		7.34		7.01		6.68	
Red Deer Road West	Hwy 11	Val Gagne Road	0.6		8.00		7.67		7.34		7.01		6.68	
Walker Lot 4/5	Walker Rd	0.6km N	0.6		8.00		7.67		7.34		7.01		6.68	
Marilyn Avenue	Fourth Avenue	East of Fourth	0.32		8.00		7.67		7.34		7.01		6.68	
Smith Lane	MacDougall Street	Railway Street	0.09		8.00		7.67		7.34		7.01		6.68	
South Butler Lake Road	Brunetville Rd	End	4.6		8.00		7.75		7.50		7.25		7.00	
Northland Bible Camp Road	Hwy 11 (Government Rd)	End	0.3		8.00		7.75		7.50		7.25		7.00	
Grouse Road	Cite Des Jeunes	Erikson St	6.9		8.00		7.75		7.50		7.25		7.00	
Butler Lake Dump Road	Frontenac Cres	Wolfe	1.3		8.00		7.75		7.50		7.25		7.00	
Owl Road	Brunelle Rd S	End	0.1		8.00		7.75		7.50		7.25		7.00	
Ferguson Road	Clear Lake Rd S	Town Limits	5.9		8.00		7.75		7.50		7.25		7.00	
Blue Jay Road	Devonshire	Egerton Ave	1.4		8.00		7.75		7.50		7.25		7.00	
Cardinal Road East	Avenue Rd	End	0.4		8.00		7.75		7.50		7.25		7.00	
Cardinal Road West	Hwy 11 (Government Rd)	St Patrick St	3.8		8.00		7.75		7.50		7.25		7.00	
Wildgoose Road	Lasalle Ave	Richmond Ave	1.6		8.00		7.75		7.50		7.25		7.00	
Miller Road South	Brunetville Rd	Brock Cre E/W	0.4		8.00		7.75		7.50		7.25		7.00	
Miller Road South	Nipigon St	Ottawa Ave	1.3		8.00		7.75		7.50		7.25		7.00	
Wildgoose Road	Spruce St	Ash St	2.3		8.00		7.75		7.50		7.25		7.00	
Falcon Road	Hazel St	Etienne St	3		8.00		7.75		7.50		7.25		7.00	
Starling Road	Ferguson Road	Hwy 11	0.2		8.00		7.75		7.50		7.25		7.00	
Robin Road	Hwy 11	1.3km W	1.3		8.00		7.75		7.50		7.25		7.00	
Miller Road North	Miller Road North	0.6km	0.6		8.00		7.75		7.50		7.25		7.00	
Vimy Ridge Road	Bowman/ Hislop B'ndy	Vimy Ride Rd (66)	4.2		8.00		7.75		7.50		7.25		7.00	
Balsam Drive	Vimy Ridge Road	0.8 km S	0.8		8.00		7.75		7.50		7.25		7.00	
Birch Road South	Hwy 101	Birch Rd. S 3.2km S	3.2		8.00		7.75		7.50		7.25		7.00	
Spruce Road South	Pine Raod	Hwy 101	1.6		8.00		7.75		7.50		7.25		7.00	
Birch Road South	Birch Rd. S 3.2km S of Hwy 101	1.1km E	1.1		8.00		7.75		7.50		7.25		7.00	
Alder Drive	Hwy 11	0.1km N	0.1		8.00		7.75		7.50		7.25		7.00	
Silver Road West	Watabeag Lake Road	Granite Road	1.6		8.00		7.75		7.50		7.25		7.00	
Belleek Lake Road	Watabeag Lake Rd.	Belleek Lake	1		8.00		7.75		7.50		7.25		7.00	
Sapphire Road	Burton Rd. South	1.1km W	2.1		8.00		7.75		7.50		7.25		7.00	
Fisher Road South	Hwy 101	Beaver Rd	3.2		8.00		7.75		7.50		7.25		7.00	
Red Deer Road West	Hwy 577	0.5km W	0.5		8.00		7.75		7.50		7.25		7.00	
Country Lane West	Hwy 11	Hwy 572	2.3		8.00		7.75		7.50		7.25		7.00	
Elk Road East	Hwy 577	0.6km E	0.6		8.00		7.75		7.50		7.25		7.00	
Twin Lake Road North	Hwy 101	0.8km N	0.8		8.00		7.75		7.50		7.25		7.00	
Country Lane East	Hwy 11	Rue Principale	1		8.00		7.75		7.50		7.25		7.00	
Copper Road East	Forestry Road	Diamond Road	1.6		8.00		7.75		7.50		7.25		7.00	

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	1 - 5 YR Road Improvement Expenditures									
					2013		2014		2015		2016		2017	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Diamond Road	Hwy 101	Nickle Road	4.4		8.00		7.75		7.50		7.25		7.00	
Nickle Road	Diamond Road	Game Lake	4.1		8.00		7.75		7.50		7.25		7.00	
Gleason Avenue	Hwy 572	Ross St.	0.8		9.00		8.67		8.34		8.01		7.68	
Black Bird Road	Laval	Brunelle Rd S	1.6		9.00		8.75		8.50		8.25		8.00	
Blue Jay Road	Hemlock St	Winnipeg Ave	3		9.00		8.75		8.50		8.25		8.00	
Matheson Dump Road	Granite Rd	0.4km W	0.4		9.00		8.75		8.50		8.25		8.00	

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	6 -10 YR Road Improvement Expenditures									
					2018		2019		2020		2021		2022	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
boisvert Avenue	Pierre Morin Street	West of Pierre Morin Street	0.03	Resurfacing	8.68		8.35		8.02		7.69		7.36	
Vimy Ridge Road	Vimy Ridge Road	No. 17 Bridge	0.1	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Cedar Road	1.8km W of Cedar Road	0.2km W	0.2	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Taylor Road West Con 2/3	Val Gagne Rd	0.2km W	0.2	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Ferguson Road	River Side	Egerton Ave	0.2	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Sixth Avenue	Second Street	MacDougall Street	0.3	Resurfacing	8.68		8.35		8.02		7.69		7.36	
Sixth Avenue	MacDougall Street	Railway Street	0.31	Resurfacing	8.68		8.35		8.02		7.69		7.36	
Blue Jay Road	Mundy Ave	Ash St	0.2	Resurfacing	8.68		8.35		8.02		7.69		7.36	
Bowman/ Hislop Twp Line	Cherry Rd. West	0.3km S	0.3	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Bowman Con 3/4	Burton Rd S	0.3km W	0.3	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Wildgoose Road	Mallard Road	0.4km W	0.4	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Pine Road	Tamarack Road	0.7km E	0.7	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Beaver Road	Fisher Rd S	0.7km W	0.7	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Country Lane West	4.6km W of Hwy 577	1.0km W	1	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Raven Road	Radisson Cres	Brunelle Rd N	1	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Otter Road	Grindstone Road	1.1km E	1.1	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Spruce Road North	Hwy 101	1.1km N	1.1	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Elk Road West	5.7km W of Hwy 577	1.2km W	1.2	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Currie Con 5/6	Fisher Rd S	1.2km W	1.2	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Teal Road	Brunetville Rd	End	1.2	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Silver Road East	Granite Road	Hwy 11	1.2	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Starling Road	Sparrow Rd	0.3 km S	1.3	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Taylor Con 3/4	Val Gagne Rd	1.1km W	1.1	Rehabilitation	8.00		7.50		7.00		6.50		6.00	
Sapphire Road	1.1km W of Burton Rd S	Jade Road	1.4	Rehabilitation	6.50		6.25		6.00		5.75		5.50	
Red Deer Road West	0.5km W of Hwy 577	1.5km W	1.5	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Black Bird Road	Spruce Falls RD	Brunelle Rd S	1.6	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Stock Lot 3 & 4	Country Lane West	1.5km S	1.5	Rehabilitation	8.00		7.50		7.00		6.50		6.00	
Robin Road	1.3km W of Hwy 11	3.3km W of Hwy 11	2	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Grindstone Road	Otter Road	2.3km S	2.3	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Fawn Road	Red Deer Rd East	Hwy 11	1	Rehabilitation	8.68		8.35		8.02		7.69		7.36	
Burton Road South	1.4km S of Hwy 11	Bowman Con 3/4	2.7	Resurfacing	6.50		6.25		6.00		5.75		5.50	
Walker Road	2.5km East of Dumont St	3.2km E	3.2	Resurfacing	8.68		8.35		8.02		7.69		7.36	
Walker Road	Rue Principale	Hwy 11	1.7	Rehabilitation	8.68		8.35		8.02		7.69		7.36	
Pierre Morin Street	Principal Street	Boisvert Avenue	0.03	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Lessard Street	Labonte Avenue	Nushka Avenue	0.04	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Lessard Street	Nushka Avenue	Church Avenue	0.04	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Pierre Morin Street	Boisver Avenue	Val Gagne Road South	0.04	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Lessard Street	Church Avenue	Theriault Street	0.05	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Morin St.	Rue Principale	Boisvert Ave	0.1	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Fourth Avenue	Poplar Road	Marilyn Avenue	0.11	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Fourth Avenue	Park Lane	Poplar Road	0.12	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Fourth Avenue	Hwy 11	Park Lane	0.13	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Marten Road	0.7km W of Lynx Road	0.2km W	0.2	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Leslie Crescent	Cummings Avenue	Carr Avenue	0.23	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Bowman Avenue	Quinn Crescent	Cummings Avenue	0.32	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Road to Microwave Tower	Thompson Rd	End	0.5	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Grouse Road	Nipigon St	End	0.8	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Country Lane West	3.8km W of Hwy 577	0.8km W	0.8	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Shale Road	North Road	1.0km W	1	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Diamond Road	Nickle Road	1.0km N	1	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Wavel Road	Cabot St	Wolfe	1.3	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Jade Road	Sapphire Rd.	1.3km S	1.3	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Taylor Road East	Hwy 11	0.5km E	1.3	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Nickle Road	Forestry Road	Diamond Road	1.6	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Painkiller Road	Nickle Road	1.6km N	1.6	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Buffalo Road	Monahan Road	1.7km N	1.7	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Cedar Road	Tamarack Road	1.8km W	1.8	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Champagne Ave.	Brunetville Rd	End	1.2	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Grindstone Road	Hwy 101	Otter Road	3.2	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Taylor Road West	Hwy 11	Val Gagne Rd	3.5	Resurfacing	6.75		6.50		6.25		6.00		5.75	
North Butler Lake Road	Hwy 11 (Government Rd)	End	3.6	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Painkiller Road	1.6km N of Nickle Road	Beatty/ Coulson B'ndy	4.5	Resurfacing	6.75		6.50		6.25		6.00		5.75	
Fisher Road North	Monahan Road	Fisher Rd North	3.2	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Monahan Road	Val Gagne Road	Fisher Rd N	8.1	Resurfacing	9.01		8.68		8.35		8.02		7.69	
Ennis Street	0.05km W of McIntyre (End)	McIntyre Avenue	0.05	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Cummings Avenue	Leslie Avenue	Second Street	0.06	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Theriault Street	Lessard Street	Principale Street	0.07	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Cummings Avenue	Bowman Avenue	Carr Avenue	0.08	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Denning Street	McIntyre Avenue	Timmins Avenue	0.085	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Denning Street	Timmins Avenue	Ferguson Avenue	0.085	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Ennis Street	McIntyre Avenue	Timmins Avenue	0.09	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Ennis Street	Timmins Avenue	Ferguson Avenue	0.09	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Ross Avenue	Edward Avenue	Gleason Avenue	0.09	Resurfacing	10.00		9.67		9.34		9.01		8.68	

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	6 -10 YR Road Improvement Expenditures									
					2018		2019		2020		2021		2022	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Second Street	Tenth Avenue	Quinn Crescent	0.09	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Second Street	Seventh Avenue	Eighth Avenue	0.1	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Fourth Avenue	Railway Street	Vimy Ridge Rd.	0.1	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Second Street	Highway 101 (Fourth Avenue)	Fifth Avenue	0.11	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Second Street	Fifth Avenue	Sixth Avenue	0.11	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Second Street	Sixth Avenue	Seventh Avenue	0.11	Resurfacing	10.00		9.67		9.34		9.01		8.68	
CJM Road	Seventh Avenue	Eighth Avenue	0.11	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Fourth Avenue	Vimy Ridge Rd.	Hwy 11	0.11	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Seventh Avenue	CJM Road	Second Street	0.14	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Fourth Avenue			0.15	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Fourth Avenue			0.15	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Edward Avenue	Victoria Street	Moreau Street	0.16	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Edward Avenue	Moreau Street	Ross Avenue	0.16	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Eight Avenue	MacDougall Street	Railway Street	0.16	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Fourth Avenue	MacDougall Street	Railway Street	0.16	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Fourth Avenue	Second Street	MacDougall Street	0.16	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Cummings Avenue	Carr Avenue	Leslie Avenue	0.17	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Second Street			0.18	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Second Street	Quinn Crescent	Cummings Avenue	0.19	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Second Street	Eighth Avenue	Tenth Avenue	0.21	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Second Avenue	Second Street	Railway Street	0.25	Resurfacing	10.00		9.67		9.34		9.01		8.68	
MacDougall Street	First Avenue	Second Avenue	0.26	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Seventh Avenue	Second Street	MacDougall Street	0.3	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Seventh Avenue	MacDougall Street	Railway Street	0.3	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Ross Avenue	Euclid Avenue	Highway 572	0.31	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Eight Avenue	Second Street	MacDougall Street	0.33	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Eight Avenue	CJM Road	Second Street	0.36	Resurfacing	10.00		9.67		9.34		9.01		8.68	
MacDougall Street	Second Avenue	Fourth Avenue	0.4	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Principale Street	Lessard Ave.	0.7km N	0.7	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Cardinal Road West	Lasalle Ave	Richmond Ave	0.75	Resurfacing	10.00		9.67		9.34		9.01		8.68	
North Road	Hwy 101	0.8km N	0.8	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Val Gagne Road	Rue Principale	Hwy 11	1.3	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Taylor Lot 2/3	Walker Rd	Red Deer Rd East	3.1	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Country Lane East	Taylor Lot 2/3	Fawn Rd	3.2	Resurfacing	10.00		9.67		9.34		9.01		8.68	
Railway Street	Smith Lane	Second Avenue	0.07	Resurfacing	4.85	\$17,447.15	10.00		9.67		9.34		9.01	
Railway Street	Fourth Avenue	Fifth Avenue	0.1	Resurfacing	4.85	\$24,924.50	10.00		9.67		9.34		9.01	
Ferguson Road	Brunetville Rd	Town Limits	0.15	Resurfacing	4.75	\$26,293.35	7.50		7.25		7.00		6.75	
Ross Mine Road	Ross Avenue	North of Ross Avenue	0.16	Resurfacing	4.75	\$28,046.24	7.50		7.25		7.00		6.75	
Railway Street	Corner of MacDougall Street	Smith Lane	0.14	Resurfacing	4.85	\$34,894.30	10.00		9.67		9.34		9.01	
Vimy Ridge Road	Hwy 101(4th Ave)	0.2km E of Hwy 101 (4th Ave)	0.2	Resurfacing	4.75	\$35,057.80	7.50		7.25		7.00		6.75	
Vimy Ridge Road	Fourth Avenue	East of Fourth Avenue	0.2	Resurfacing	4.75	\$35,057.80	7.50		7.25		7.00		6.75	
Railway Street	Eighth Avenue	Arena Avenue	0.18	Resurfacing	4.85	\$44,864.10	10.00		9.67		9.34		9.01	
Railway Street	Sixth Avenue	Seventh Avenue	0.2	Resurfacing	4.85	\$49,849.00	10.00		9.67		9.34		9.01	
Railway Street	Seventh Avenue	Eighth Avenue	0.2	Resurfacing	4.85	\$49,849.00	10.00		9.67		9.34		9.01	
Railway Street	Second Avenue	Fourth Avenue	0.22	Resurfacing	4.85	\$54,833.90	10.00		9.67		9.34		9.01	
Railway Street	Fifth Avenue	Sixth Avenue	0.4	Resurfacing	4.85	\$99,698.00	10.00		9.67		9.34		9.01	
North Road	Quartz Rd	0.6km N	0.6	Resurfacing	4.75	\$105,173.40	7.50		7.25		7.00		6.75	
Twin Lake Road South	1.6km S of Hwy 101	0.7km S	0.7	Resurfacing	4.75	\$122,702.30	7.50		7.25		7.00		6.75	
Vimy Ridge Road	Robin Road	Hwy 11	0.8	Resurfacing	4.75	\$140,231.20	7.50		7.25		7.00		6.75	
Ermine Road	Black Bear Rd. S	0.8km W	0.8	Resurfacing	4.75	\$140,231.20	7.50		7.25		7.00		6.75	
Triton Road	Hwy 101	0.8km N	0.8	Resurfacing	4.75	\$140,231.20	7.50		7.25		7.00		6.75	
St. Andrew Road	Hwy 101	0.8km N	0.8	Resurfacing	4.75	\$140,231.20	7.50		7.25		7.00		6.75	
Carr Con 4/5	Forestry Road	0.8km E	0.8	Resurfacing	4.75	\$140,231.20	7.50		7.25		7.00		6.75	
Taylor Road East	0.5km E of Hwy 11	1.3km E	1	Resurfacing	4.75	\$175,289.00	7.50		7.25		7.00		6.75	
Owl Road	Clear Lake Rd S	Spruce Falls RD	1	Resurfacing	4.75	\$175,289.00	7.50		7.25		7.00		6.75	
Cougar Road	Monahan Road	1.0km N	1	Resurfacing	4.75	\$175,289.00	7.50		7.25		7.00		6.75	
Bobcat Road West	Val Gagne Road	0.6km W	0.6	Resurfacing	4.50	\$197,550.00	10.00		9.50		9.00		8.50	
Jade Road	Sapphire Rd.	0.2km S of Hwy 11	1.4	Resurfacing	4.75	\$245,404.60	7.50		7.25		7.00		6.75	
Black Bear Road North	Hwy 101	0.8km N	0.8	Resurfacing	4.50	\$263,400.00	10.00		9.50		9.00		8.50	
Guibord Ave.	Hwy 572	1.0km S of Hwy 572	1.6	Resurfacing	4.75	\$280,462.40	7.50		7.25		7.00		6.75	
Wavel Road	Radisson Cres	Brunelle Rd N	2	Resurfacing	4.75	\$350,578.00	7.50		7.25		7.00		6.75	
Copper Road West	North Road	2.0km W	2	Resurfacing	4.75	\$350,578.00	7.50		7.25		7.00		6.75	
Hawk Road	St Lawrence	Ash St	2.4	Resurfacing	4.75	\$420,693.60	7.50		7.25		7.00		6.75	
Fisher Road South	Beaver Rd	2.8km S	2.8	Resurfacing	4.75	\$490,809.20	7.50		7.25		7.00		6.75	
Watabeag Lake Road	Silver Rd. West	Bowman/ McCain B'ndy	5.6	Resurfacing	4.75	\$981,618.40	7.50		7.25		7.00		6.75	
Granite Road	Cherry Rd. West	Vimy Ridge Rd.	5.8	Resurfacing	4.75	\$1,016,676.20	7.50		7.25		7.00		6.75	
Val Gagne Road	Hwy 11	Hwy 101	7	Resurfacing	4.75	\$1,227,023.00	7.50		7.25		7.00		6.75	
Monahan Road	Burton Rd N	Fisher Rd N	5.7	Resurfacing	4.50	\$1,876,725.00	10.00		9.50		9.00		8.50	
Cardinal Road West	Blue Jay Road	0.25km W	0.25	Resurfacing	5.50		5.00		4.50	\$82,312.50	10.00		9.50	
Watabeag Lake Road	0.3km S of Marilyn Ave.	Silver Rd. West	4.1	Resurfacing	5.50		5.00		4.50	\$1,349,925.00	10.00		9.50	
Marten Road	Lynx Road	0.7km W	0.7	Resurfacing	5.50		5.00		4.50	\$230,475.00	10.00		9.50	
Lava Mountain Road	Brunetville Rd	Cedar St	3.2	Resurfacing	5.35		5.02		4.69	\$1,328,784.00	10.00		9.67	
McIntyre Avenue	Ennis Street	Denning Street	0.12	Resurfacing	5.35		5.02		4.69	\$29,909.40	10.00		9.67	

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	6 -10 YR Road Improvement Expenditures									
					2018		2019		2020		2021		2022	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
McIntyre Avenue	Denning Street	Knox Street	0.08	Resurfacing	5.35		5.02		4.69	\$19,939.60	10.00		9.67	
McIntyre Avenue	Knox Street	St. Joseph Street	0.07	Resurfacing	5.35		5.02		4.69	\$17,447.15	10.00		9.67	
Knox Street	0.089km W of McIntyre (End)	McIntyre Avenue	0.089	Resurfacing	5.35		5.02		4.69	\$22,182.81	10.00		9.67	
Knox Street	McIntyre Avenue	Timmins Avenue	0.083	Resurfacing	5.35		5.02		4.69	\$20,687.34	10.00		9.67	
Knox Street	Timmins Avenue	Ferguson Avenue	0.084	Resurfacing	5.35		5.02		4.69	\$20,936.58	10.00		9.67	
St. Joseph Street	McIntyre Avenue	Timmins Avenue	0.8	Resurfacing	5.35		5.02		4.69	\$199,396.00	10.00		9.67	
St. Joseph Street	Timmins Avenue	Ferguson Avenue	0.8	Resurfacing	5.35		5.02		4.69	\$199,396.00	10.00		9.67	
Leduc Street	Timmins Avenue	West of Timmins Avenue	0.09	Resurfacing	5.35		5.02		4.69	\$22,432.05	10.00		9.67	
Edward Avenue	Highway 572	Victoria Street	0.46	Resurfacing	5.35		5.02		4.69	\$114,652.70	10.00		9.67	
Ross Avenue	Gleason Avenue	Euclid Avenue	0.09	Resurfacing	5.35		5.02		4.69	\$22,432.05	10.00		9.67	
Euclid Avenue	Hwy 572	Ross St.	0.8	Resurfacing	5.35		5.02		4.69	\$199,396.00	10.00		9.67	
Victoria Street	Edward Ave.	Euclid Ave.	0.17	Resurfacing	5.35		5.02		4.69	\$42,371.65	10.00		9.67	
Moreau Street	Edward Ave.	Euclid Ave.	0.17	Resurfacing	5.35		5.02		4.69	\$42,371.65	10.00		9.67	
Red Squirrel Road	Red Deer Rd West	Hwy 577	3.1	Resurfacing	5.35		5.02		4.69	\$1,287,259.50	10.00		9.67	
Fisher Road North	Monahan Road	Hwy 11	3	Resurfacing	5.35		5.02		4.69	\$1,245,735.00	10.00		9.67	
Principale Street	Walker Rd.	0.9km N	0.9	Resurfacing	5.35		5.02		4.69	\$373,720.50	10.00		9.67	
Gauthier Lake Road	Val Gagne Road	Gauthier Lake Park	1.3	Resurfacing	5.35		5.02		4.69	\$539,818.50	10.00		9.67	
Principale Street	Labonte Street	Nushka Avenue	0.1	Resurfacing	5.35		5.02		4.69	\$24,924.50	10.00		9.67	
Principale Street	Nushka Avenue	Dumont St.	0.2	Resurfacing	5.35		5.02		4.69	\$49,849.00	10.00		9.67	
Labonte Avenue	Rue Principale	Lessard St.	0.1	Resurfacing	5.35		5.02		4.69	\$24,924.50	10.00		9.67	
Nushka Avenue	Rue Principale	Lessard St.	0.1	Resurfacing	5.35		5.02		4.69	\$24,924.50	10.00		9.67	
Church Avenue	Lessard Street	Principale Street	0.12	Resurfacing	5.35		5.02		4.69	\$29,909.40	10.00		9.67	
Poplar Road	Fourth Avenue	Park Lane	0.31	Resurfacing	5.35		5.02		4.69	\$77,265.95	10.00		9.67	
Poplar Road	Park Lane	Hwy 11	0.18	Resurfacing	5.35		5.02		4.69	\$44,864.10	10.00		9.67	
Hough Road	Fourth Avenue	West of Fourth Avenue	0.32	Resurfacing	5.35		5.02		4.69	\$79,758.40	10.00		9.67	
Park Lane	Fourth Avenue	Poplar Road	0.33	Resurfacing	5.35		5.02		4.69	\$82,250.85	10.00		9.67	
MacDougall Street	Fourth Avenue	Fifth Avenue	0.2	Resurfacing	5.35		5.02		4.69	\$49,849.00	10.00		9.67	
MacDougall Street	Fifth Avenue	Sixth Avenue	0.2	Resurfacing	5.35		5.02		4.69	\$49,849.00	10.00		9.67	
MacDougall Street	Sixth Avenue	Seventh Avenue	0.19	Resurfacing	5.35		5.02		4.69	\$47,356.55	10.00		9.67	
MacDougall Street	Seventh Avenue	Eighth Avenue	0.2	Resurfacing	5.35		5.02		4.69	\$49,849.00	10.00		9.67	
MacDougall Street	Eighth Avenue	To Arena	0.19	Resurfacing	5.35		5.02		4.69	\$47,356.55	10.00		9.67	
First Avenue	Black River	MacDougall Street	0.11	Resurfacing	5.35		5.02		4.69	\$27,416.95	10.00		9.67	
fifth Avenue	Second Street	MacDougall Street	0.45	Resurfacing	5.35		5.02		4.69	\$112,160.25	10.00		9.67	
Fifth Avenue	MacDougall Street	Railway Street	0.44	Resurfacing	5.35		5.02		4.69	\$109,667.80	10.00		9.67	
Quinn Crescent	Second Street	Carr Avenue	0.18	Resurfacing	5.35		5.02		4.69	\$44,864.10	10.00		9.67	
Quinn Crescent	Car Avenue	Bowman Avenue	0.14	Resurfacing	5.35		5.02		4.69	\$34,894.30	10.00		9.67	
Quinn Crescent	Bowman Avenue	Water Station	0.1	Resurfacing	5.35		5.02		4.69	\$24,924.50	10.00		9.67	
Carr Avenue	Quinn Crescent	Leslie Crescent	0.09	Resurfacing	5.35		5.02		4.69	\$22,432.05	10.00		9.67	
Carr Avenue	Leslie Crescent	Cummings Avenue	0.12	Resurfacing	5.35		5.02		4.69	\$29,909.40	10.00		9.67	
Whiskey Jack Road	Kimberly Dr	Avenue Rd	1.4	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$245,404.60	
Starling Road	Brunelle Rd S	Clear Lake Rd	3.5	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$613,511.50	
Sparrow Road	Mundy Ave	Hemlock Ave	0.9	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$157,760.10	
Blue Jay Road	Kimberly Dr	Avenue Rd	0.05	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$8,764.45	
Mallard Road	Hazel St	Trudeau Ave	1.6	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$280,462.40	
Falcon Road	Brunetville Rd	Cedar St	0.9	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$157,760.10	
Talbock Lake Road	Clark St	End	2.1	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$368,106.90	
Pump House Road	Champagne St.	0.3km E	0.3	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$52,586.70	
Miller Road North	Hwy 11	Ferguson Rd	2.3	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$403,164.70	
Vimy Ridge Road	Hwy 11	Ferguson Rd	3.2	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$560,924.80	
Hemlock Road	Vimy Ridge Rd.	Hwy 11	0.8	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$140,231.20	
Cherry Road East	Hwy 11	Vimy Ridge Rd.	2.5	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$438,222.50	
Willow Road	Vimy Ridge Road	1.8km E	1.8	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$315,520.20	
Falcon Road	Playfair Twp Line	Hwy 572	1.6	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$280,462.40	
Tamarack Road	Hwy 572	Hwy 101	8	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$1,402,312.00	
Pine Road	Tamarack Road	7.9km W	7.9	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$1,384,783.10	
Cherry Road West	Hwy 11	Granite Road	1.6	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$280,462.40	
Burton Road North	Hwy 11	Monahan Rd	0.5	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$87,644.50	
Monahan Road	Burton Rd. North	Cummings Ave.	0.8	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$140,231.20	
Burton Road South	Hwy 11	1.4km S	1.4	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$245,404.60	
Jade Road	Hwy 11	0.2km S of Hwy 11	0.2	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$35,057.80	
Ruby Road	Hwy 11	0.6km S	0.6	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$105,173.40	
Fourth Avenue	Marilyn Avenue	South of Marilyn	0.3	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$52,586.70	
Vimy Ridge Road	0.2km E of Hwy 101 (4th Ave)	0.6km E of Hwy 101 (4th Ave)	0.4	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$70,115.60	
Black Bear Road South	Hwy 101	4.6km S	4.6	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$806,329.40	
Twin Lake Road South	Hwy 101	1.6km S	1.6	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$280,462.40	
Val Gagne Road	Hwy 101	4.8km S	4.8	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$841,387.20	
Bobcat Road East	Val Gagne Road	0.4km E	0.4	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$70,115.60	
Moose Road South	Hwy 101	2.1km S	2.1	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$368,106.90	
Fretz Road	Hwy 101	2.4km S	2.4	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$420,693.60	
Moose Road North	Hwy 101	2.7km N	2.7	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$473,280.30	
Caribou Road East	Hwy 577	2.6km W	2.6	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$455,751.40	
Elk Road West	Hwy 577	5.7km W	5.7	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$999,147.30	
Country Lane West	Hwy 577	3.8km W	3.8	Resurfacing	5.75		5.50		5.25		5.00	4.75	\$666,098.20	

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	6 -10 YR Road Improvement Expenditures									
					2018		2019		2020		2021		2022	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Caribou Road East	Hwy 577	1.6km E	1.6	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$280,462.40
Red Deer Road West	Val Gagne Road	Val Gagne Road	3.2	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$560,924.80
Lynx Road	Hwy 101	Hwy 11	1.6	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$280,462.40
Taylor Road East	1.8km E of Hwy 11	Monahan Rd	3	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$525,867.00
North Road	0.8km N of Hwy 101	Quartz Rd	6.9	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$1,209,494.10
Quartz Road	North Road	1.4km W	1.4	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$245,404.60
Nickle Road	North Road	Forestry Road	1.6	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$280,462.40
Iron Road	North Road	2.0km W	2	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$350,578.00
Copper Road East	North Road	Forestry Road	1.6	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$280,462.40
Forestry Road	Hwy 101	6.9km N	6.9	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$1,209,494.10
Lady Maude Road	Nickle Road	1.9km N	1.9	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$333,049.10
Copper Road East	Diamond Road	5.0km E	5	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$876,445.00
Birch Road North	Hwy 101	1.0km N	1	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$175,289.00
Birch Road North	1.0km N of Hwy 101	0.2km N	0.2	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$35,057.80
Aspen Road	Hwy 101	1.2km N	1.2	Resurfacing	5.75	5.50	5.75	5.50	5.75	5.50	5.75	5.50	4.75	\$210,346.80
Ferguson Avenue	Highway 572	Ennis Street	0.12		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Ferguson Avenue	Ennis Street	Denning Street	0.12		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Ferguson Avenue	Denning Street	Knox Street	0.08		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Ferguson Avenue	Knox Street	St. Joseph Street	0.081		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Ferguson Avenue	St. Joseph Street	Bastien Street	0.21		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Ferguson Avenue	Bastien Street	Lava Mountain Road	0.24		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Timmins Avenue	Highway 572	Ennis Street	0.15		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Timmins Avenue	Enii	Denning Street	0.12		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Timmins Avenue	Denning Street	Knox Street	0.08		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Timmins Avenue	Knox Street	St. Joseph Street	0.08		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Timmins Avenue	St. Joseph Street	Bastien Street	0.21		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Bastien Street	Highway 11	Timmins Avenue	0.4		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Bastien Street	Timmins Avenue	Ferguson Avenue	0.085		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Vimy Ridge Road	0.6km E of Hwy 101 (4th Ave)	Bowman/ Hislop B'ndy	3.9		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Red Deer Road East	Monahan Road	Hwy 11	1.3		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Red Deer Road East	Fisher Rd North	Monahan Rd	4.3		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Country Lane East	Fawn Rd	Rue Principale	1.4		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Dumont St	0.3km N of Rue Principale	Walker Rd.	0.5		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Walker Road	Walker St.	2.5km E	2.5		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Fawn Road	Country Lane East	Walker Road	1.6		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Val Gagne Dump Road	Val Gagne Road	0.2km W	0.2		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Red Deer Road West	Hwy 11	Val Gagne Road	0.6		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Walker Lot 4/5	Walker Rd	0.6km N	0.6		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Marilyn Avenue	Fourth Avenue	East of Fourth	0.32		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
Smith Lane	MacDougall Street	Railway Street	0.09		6.35	6.02	6.35	6.02	6.35	6.02	6.35	6.02	5.03	
South Butler Lake Road	Brunetville Rd	End	4.6		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Northland Bible Camp Road	Hwy 11 (Government Rd)	End	0.3		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Grouse Road	Cite Des Jeunes	Erikson St	6.9		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Butler Lake Dump Road	Frontenac Cres	Wolfe	1.3		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Owl Road	Brunelle Rd S	End	0.1		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Ferguson Road	Clear Lake Rd S	Town Limits	5.9		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Blue Jay Road	Devonshire	Egerton Ave	1.4		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Cardinal Road East	Avenue Rd	End	0.4		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Cardinal Road West	Hwy 11 (Government Rd)	St Patrick St	3.8		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Wildgoose Road	Lasalle Ave	Richmond Ave	1.6		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Miller Road South	Brunetville Rd	Brock Cre E/W	0.4		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Miller Road South	Nipigon St	Ottawa Ave	1.3		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Wildgoose Road	Spruce St	Ash St	2.3		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Falcon Road	Hazel St	Etienne St	3		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Starling Road	Ferguson Road	Hwy 11	0.2		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Robin Road	Hwy 11	1.3km W	1.3		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Miller Road North	Miller Road North	0.6km	0.6		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Vimy Ridge Road	Bowman/ Hislop B'ndy	Vimy Ride Rd (66)	4.2		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Balsam Drive	Vimy Ridge Road	0.8 km S	0.8		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Birch Road South	Hwy 101	Birch Rd. S 3.2km S	3.2		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Spruce Road South	Pine Raod	Hwy 101	1.6		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Birch Road South	Birch Rd. S 3.2km S of Hwy 101	1.1km E	1.1		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Alder Drive	Hwy 11	0.1km N	0.1		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Silver Road West	Watabeag Lake Road	Granite Road	1.6		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Belleek Lake Road	Watabeag Lake Rd.	Belleek Lake	1		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Sapphire Road	Burton Rd. South	1.1km W	2.1		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Fisher Road South	Hwy 101	Beaver Rd	3.2		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Red Deer Road West	Hwy 577	0.5km W	0.5		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Country Lane West	Hwy 11	Hwy 572	2.3		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Elk Road East	Hwy 577	0.6km E	0.6		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Twin Lake Road North	Hwy 101	0.8km N	0.8		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Country Lane East	Hwy 11	Rue Principale	1		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	
Copper Road East	Forestry Road	Diamond Road	1.6		6.75	6.50	6.75	6.50	6.75	6.50	6.75	6.50	5.75	

Municipality Of Black River - Matheson
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ROAD	Section Start	Section End	Length (km)	Type of Work to be Done	6 -10 YR Road Improvement Expenditures									
					2018		2019		2020		2021		2022	
					C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$	C.R.	\$
Diamond Road	Hwy 101	Nickle Road	4.4		6.75		6.50		6.25		6.00		5.75	
Nickle Road	Diamond Road	Game Lake	4.1		6.75		6.50		6.25		6.00		5.75	
Gleason Avenue	Hwy 572	Ross St.	0.8		7.35		7.02		6.69		6.36		6.03	
Black Bird Road	Laval	Brunelle Rd S	1.6		7.75		7.50		7.25		7.00		6.75	
Blue Jay Road	Hemlock St	Winnipeg Ave	3		7.75		7.50		7.25		7.00		6.75	
Matheson Dump Road	Granite Rd	0.4km W	0.4		7.75		7.50		7.25		7.00		6.75	

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ROAD	Section Start	Section End	Length (km)	Surface Type	Replacement Cost per KM	Total Replacement Cost	Life Cycle Cost per KM	Total Life Cycle Cost
boisvert Avenue	Pierre Morin Street	West of Pierre Morin Street	0.03	HCB	1,933,493	58,005	4,837,733	145,132
Vimy Ridge Road	Vimy Ridge Road	No. 17 Bridge	0.10	GR	555,003	55,500	2,377,670	237,767
Cedar Road	1.8km W of Cedar Road	0.2km W	0.20	GR	555,003	111,001	2,377,670	475,534
Taylor Road West Con 2/3	Val Gagne Rd	0.2km W	0.20	GR	555,003	111,001	2,377,670	475,534
Ferguson Road	River Side	Egerton Ave	0.20	GR	555,003	111,001	2,377,670	475,534
Sixth Avenue	Second Street	MacDougall Street	0.30	HCB	1,933,493	580,048	4,837,733	1,451,320
Sixth Avenue	MacDougall Street	Railway Street	0.31	HCB	1,933,493	599,383	4,837,733	1,499,697
Blue Jay Road	Mundy Ave	Ash St	0.20	HCB	1,933,493	386,699	4,837,733	967,547
Bowman/ Hislop Twp Line	Cherry Rd. West	0.3km S	0.30	GR	555,003	166,501	2,377,670	713,301
Bowman Con 3/4	Burton Rd S	0.3km W	0.30	GR	555,003	166,501	2,377,670	713,301
Wildgoose Road	Mallard Road	0.4km W	0.40	GR	555,003	222,001	2,377,670	951,068
Pine Road	Tamarack Road	0.7km E	0.70	GR	555,003	388,502	2,377,670	1,664,369
Beaver Road	Fisher Rd S	0.7km W	0.70	GR	555,003	388,502	2,377,670	1,664,369
Country Lane West	4.6km W of Hwy 577	1.0km W	1.00	GR	555,003	555,003	2,377,670	2,377,670
Raven Road	Radisson Cres	Brunelle Rd N	1.00	GR	555,003	555,003	2,377,670	2,377,670
Otter Road	Grindstone Road	1.1km E	1.10	GR	555,003	610,503	2,377,670	2,615,437
Spruce Road North	Hwy 101	1.1km N	1.10	GR	555,003	610,503	2,377,670	2,615,437
Elk Road West	5.7km W of Hwy 577	1.2km W	1.20	GR	555,003	666,004	2,377,670	2,853,204
Currie Con 5/6	Fisher Rd S	1.2km W	1.20	GR	555,003	666,004	2,377,670	2,853,204
Teal Road	Brunetville Rd	End	1.20	GR	555,003	666,004	2,377,670	2,853,204
Silver Road East	Granite Road	Hwy 11	1.20	GR	555,003	666,004	2,377,670	2,853,204
Starling Road	Sparrow Rd	0.3 km S	1.30	GR	555,003	721,504	2,377,670	3,090,971
Taylor Con 3/4	Val Gagne Rd	1.1km W	1.10	LCB	555,003	610,503	2,377,670	2,615,437
Sapphire Road	1.1km W of Burton Rd S	Jade Road	1.40	GR	555,003	777,004	2,377,670	3,328,738
Red Deer Road West	0.5km W of Hwy 577	1.5km W	1.50	GR	555,003	832,505	2,377,670	3,566,505
Black Bird Road	Spruce Falls RD	Brunelle Rd S	1.60	GR	555,003	888,005	2,377,670	3,804,272
Stock Lot 3 & 4	Country Lane West	1.5km S	1.50	LCB	555,003	832,505	2,377,670	3,566,505
Robin Road	1.3km W of Hwy 11	3.3km W of Hwy 11	2.00	GR	555,003	1,110,006	2,377,670	4,755,340
Grindstone Road	Otter Road	2.3km S	2.30	GR	555,003	1,276,507	2,377,670	5,468,641
Fawn Road	Red Deer Rd East	Hwy 11	1.00	HCB	1,933,493	1,933,493	4,837,733	4,837,733
Burton Road South	1.4km S of Hwy 11	Bowman Con 3/4	2.70	GR	555,003	1,498,508	2,377,670	6,419,709
Walker Road	2.5km East of Dumont St	3.2km E	3.20	HCB	1,933,493	6,187,178	4,837,733	15,480,746
Walker Road	Rue Principale	Hwy 11	1.70	HCB	1,933,493	3,286,938	4,837,733	8,224,146
Pierre Morin Street	Principal Street	Boisvert Avenue	0.03	HCB	1,933,493	58,005	4,837,733	145,132
Lessard Street	Labonte Avenue	Nushka Avenue	0.04	HCB	1,933,493	77,340	4,837,733	193,509
Lessard Street	Nushka Avenue	Church Avenue	0.04	HCB	1,933,493	77,340	4,837,733	193,509
Pierre Morin Street	Boisver Avenue	Val Gagne Road South	0.04	HCB	1,933,493	77,340	4,837,733	193,509
Lessard Street	Church Avenue	Therault Street	0.05	HCB	1,933,493	96,675	4,837,733	241,887
Morin St.	Rue Principale	Boisvert Ave	0.10	HCB	1,933,493	193,349	4,837,733	483,773
Fourth Avenue	Poplar Road	Marilyn Avenue	0.11	HCB	1,933,493	212,684	4,837,733	532,151
Fourth Avenue	Park Lane	Poplar Road	0.12	HCB	1,933,493	232,019	4,837,733	580,528
Fourth Avenue	Hwy 11	Park Lane	0.13	HCB	1,933,493	251,354	4,837,733	628,905
Marten Road	0.7km W of Lynx Road	0.2km W	0.20	GR	555,003	111,001	2,377,670	475,534
Leslie Crescent	Cummings Avenue	Carr Avenue	0.23	HCB	1,933,493	444,703	4,837,733	1,112,679
Bowman Avenue	Quinn Crescent	Cummings Avenue	0.32	HCB	1,933,493	618,718	4,837,733	1,548,075
Road to Microwave Tower	Thompson Rd	End	0.50	GR	555,003	277,502	2,377,670	1,188,835
Grouse Road	Nipigon St	End	0.80	GR	555,003	444,002	2,377,670	1,902,136
Country Lane West	3.8km W of Hwy 577	0.8km W	0.80	GR	555,003	444,002	2,377,670	1,902,136
Shale Road	North Road	1.0km W	1.00	GR	555,003	555,003	2,377,670	2,377,670
Diamond Road	Nickle Road	1.0km N	1.00	GR	555,003	555,003	2,377,670	2,377,670

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ROAD	Section Start	Section End	Length (km)	Surface Type	Replacement Cost per KM	Total Replacement Cost	Life Cycle Cost per KM	Total Life Cycle Cost
Wavel Road	Cabot St	Wolfe	1.30	GR	555,003	721,504	2,377,670	3,090,971
Jade Road	Sapphire Rd.	1.3km S	1.30	GR	555,003	721,504	2,377,670	3,090,971
Taylor Road East	Hwy 11	0.5km E	1.30	GR	555,003	721,504	2,377,670	3,090,971
Nickle Road	Forestry Road	Diamond Road	1.60	GR	555,003	888,005	2,377,670	3,804,272
Painkiller Road	Nickle Road	1.6km N	1.60	GR	555,003	888,005	2,377,670	3,804,272
Buffalo Road	Monahan Road	1.7km N	1.70	GR	555,003	943,505	2,377,670	4,042,039
Cedar Road	Tamarack Road	1.8km W	1.80	GR	555,003	999,005	2,377,670	4,279,806
Champagne Ave.	Brunetville Rd	End	1.20	HCB	1,933,493	2,320,192	4,837,733	5,805,280
Grindstone Road	Hwy 101	Otter Road	3.20	GR	555,003	1,776,010	2,377,670	7,608,544
Taylor Road West	Hwy 11	Val Gagne Rd	3.50	GR	555,003	1,942,511	2,377,670	8,321,845
North Butler Lake Road	Hwy 11 (Government Rd)	End	3.60	GR	555,003	1,998,011	2,377,670	8,559,612
Painkiller Road	1.6km N of Nickle Road	Beatty/ Coulson B'ndy	4.50	GR	555,003	2,497,514	2,377,670	10,699,515
Fisher Road North	Monahan Road	Fisher Rd North	3.20	HCB	1,933,493	6,187,178	4,837,733	15,480,746
Monahan Road	Val Gagne Road	Fisher Rd N	8.10	HCB	1,933,493	15,661,293	4,837,733	39,185,637
Ennis Street	0.05km W of McIntyre (End)	McIntyre Avenue	0.05	HCB	1,933,493	96,675	4,837,733	241,887
Cummings Avenue	Leslie Avenue	Second Street	0.06	HCB	1,933,493	116,010	4,837,733	290,264
Therault Street	Lessard Street	Principale Street	0.07	HCB	1,933,493	135,345	4,837,733	338,641
Cummings Avenue	Bowman Avenue	Carr Avenue	0.08	HCB	1,933,493	154,679	4,837,733	387,019
Denning Street	McIntyre Avenue	Timmins Avenue	0.09	HCB	1,933,493	164,347	4,837,733	411,207
Denning Street	Timmins Avenue	Ferguson Avenue	0.09	HCB	1,933,493	164,347	4,837,733	411,207
Ennis Street	McIntyre Avenue	Timmins Avenue	0.09	HCB	1,933,493	174,014	4,837,733	435,396
Ennis Street	Timmins Avenue	Ferguson Avenue	0.09	HCB	1,933,493	174,014	4,837,733	435,396
Ross Avenue	Edward Avenue	Gleason Avenue	0.09	HCB	1,933,493	174,014	4,837,733	435,396
Second Street	Thenth Avenue	Quinn Crescent	0.09	HCB	1,933,493	174,014	4,837,733	435,396
Second Street	Seventh Avenue	Eighth Avenue	0.10	HCB	1,933,493	193,349	4,837,733	483,773
Fourth Avenue	Railway Street	Vimy Ridge Rd.	0.10	HCB	1,933,493	193,349	4,837,733	483,773
Second Street	Highway 101 (Fourth Avenue)	Fifth Avenue	0.11	HCB	1,933,493	212,684	4,837,733	532,151
Second Street	Fifth Avenue	Sixth Avenue	0.11	HCB	1,933,493	212,684	4,837,733	532,151
Second Street	Sixth Avenue	Seventh Avenue	0.11	HCB	1,933,493	212,684	4,837,733	532,151
CJM Road	Seventh Avenue	Eighth Avenue	0.11	HCB	1,933,493	212,684	4,837,733	532,151
Fourth Avenue	Vimy Ridge Rd.	Hwy 11	0.11	HCB	1,933,493	212,684	4,837,733	532,151
Seventh Avenue	CJM Road	Second Street	0.14	HCB	1,933,493	270,689	4,837,733	677,283
Fourth Avenue			0.15	HCB	1,933,493	290,024	4,837,733	725,660
Fourth Avenue			0.15	HCB	1,933,493	290,024	4,837,733	725,660
Edward Avenue	Victoria Street	Moreau Street	0.16	HCB	1,933,493	309,359	4,837,733	774,037
Edward Avenue	Moreau Street	Ross Avenue	0.16	HCB	1,933,493	309,359	4,837,733	774,037
Eight Avenue	MacDougall Street	Railway Street	0.16	HCB	1,933,493	309,359	4,837,733	774,037
Fourth Avenue	MacDougall Street	Railway Street	0.16	HCB	1,933,493	309,359	4,837,733	774,037
Fourth Avenue	Second Street	MacDougall Street	0.16	HCB	1,933,493	309,359	4,837,733	774,037
Cummings Avenue	Carr Avenue	Leslie Avenue	0.17	HCB	1,933,493	328,694	4,837,733	822,415
Second Street			0.18	HCB	1,933,493	348,029	4,837,733	870,792
Second Street	Quinn Crescent	Cummings Avenue	0.19	HCB	1,933,493	367,364	4,837,733	919,169
Second Street	Eighth Avenue	Tenth Avenue	0.21	HCB	1,933,493	406,034	4,837,733	1,015,924
Second Avenue	Second Street	Railway Street	0.25	HCB	1,933,493	483,373	4,837,733	1,209,433
MacDougall Street	First Avenue	Second Avenue	0.26	HCB	1,933,493	502,708	4,837,733	1,257,811
Seventh Avenue	Second Street	MacDougall Street	0.30	HCB	1,933,493	580,048	4,837,733	1,451,320
Seventh Avenue	MacDougall Street	Railway Street	0.30	HCB	1,933,493	580,048	4,837,733	1,451,320
Ross Avenue	Euclid Avenue	Highway 572	0.31	HCB	1,933,493	599,383	4,837,733	1,499,697
Eight Avenue	Second Street	MacDougall Street	0.33	HCB	1,933,493	638,053	4,837,733	1,596,452
Eight Avenue	CJM Road	Second Street	0.36	HCB	1,933,493	696,057	4,837,733	1,741,584
MacDougall Street	Second Avenue	Fourth Avenue	0.40	HCB	1,933,493	773,397	4,837,733	1,935,093

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ROAD	Section Start	Section End	Length (km)	Surface Type	Replacement Cost per KM	Total Replacement Cost	Life Cycle Cost per KM	Total Life Cycle Cost
Principale Street	Lessard Ave.	0.7km N	0.70	HCB	1,933,493	1,353,445	4,837,733	3,386,413
Cardinal Road West	Lasalle Ave	Richmond Ave	0.75	HCB	1,933,493	1,450,120	4,837,733	3,628,300
North Road	Hwy 101	0.8km N	0.80	HCB	1,933,493	1,546,794	4,837,733	3,870,186
Val Gagne Road	Rue Principale	Hwy 11	1.30	HCB	1,933,493	2,513,541	4,837,733	6,289,053
Taylor Lot 2/3	Walker Rd	Red Deer Rd East	3.10	HCB	1,933,493	5,993,828	4,837,733	14,996,972
Country Lane East	Taylor Lot 2/3	Fawn Rd	3.20	HCB	1,933,493	6,187,178	4,837,733	15,480,746
Railway Street	Smith Lane	Second Avenue	0.07	HCB	1,933,493	135,345	4,837,733	338,641
Railway Street	Fourth Avenue	Fifth Avenue	0.10	HCB	1,933,493	193,349	4,837,733	483,773
Ferguson Road	Brunetville Rd	Town Limits	0.15	GR	555,003	83,250	2,377,670	356,651
Ross Mine Road	Ross Avenue	North of Ross Avenue	0.16	GR	555,003	88,800	2,377,670	380,427
Railway Street	Smith Lane	Corner of MacDougall Street	0.14	HCB	1,933,493	270,689	4,837,733	677,283
Vimy Ridge Road	Hwy 101(4th Ave)	0.2km E of Hwy 101 (4th Ave)	0.20	GR	555,003	111,001	2,377,670	475,534
Vimy Ridge Road	Fourth Avenue	East of Fourth Avenue	0.20	GR	555,003	111,001	2,377,670	475,534
Railway Street	Eighth Avenue	Arena Avenue	0.18	HCB	1,933,493	348,029	4,837,733	870,792
Railway Street	Sixth Avenue	Seventh Avenue	0.20	HCB	1,933,493	386,699	4,837,733	967,547
Railway Street	Seventh Avenue	Eighth Avenue	0.20	HCB	1,933,493	386,699	4,837,733	967,547
Railway Street	Second Avenue	Fourth Avenue	0.22	HCB	1,933,493	425,368	4,837,733	1,064,301
Railway Street	Fifth Avenue	Sixth Avenue	0.40	HCB	1,933,493	773,397	4,837,733	1,935,093
North Road	Quartz Rd	0.6km N	0.60	GR	555,003	333,002	2,377,670	1,426,602
Twin Lake Road South	1.6km S of Hwy 101	0.7km S	0.70	GR	555,003	388,502	2,377,670	1,664,369
Vimy Ridge Road	Robin Road	Hwy 11	0.80	GR	555,003	444,002	2,377,670	1,902,136
Ermine Road	Black Bear Rd. S	0.8km W	0.80	GR	555,003	444,002	2,377,670	1,902,136
Triton Road	Hwy 101	0.8km N	0.80	GR	555,003	444,002	2,377,670	1,902,136
St. Andrew Road	Hwy 101	0.8km N	0.80	GR	555,003	444,002	2,377,670	1,902,136
Carr Con 4/5	Forestry Road	0.8km E	0.80	GR	555,003	444,002	2,377,670	1,902,136
Taylor Road East	0.5km E of Hwy 11	1.3km E	1.00	GR	555,003	555,003	2,377,670	2,377,670
Owl Road	Clear Lake Rd S	Spruce Falls RD	1.00	GR	555,003	555,003	2,377,670	2,377,670
Cougar Road	Monahan Road	1.0km N	1.00	GR	555,003	555,003	2,377,670	2,377,670
Bobcat Road West	Val Gagne Road	0.6km W	0.60	LCB	555,003	333,002	2,377,670	1,426,602
Jade Road	Sapphire Rd.	0.2km S of Hwy 11	1.40	GR	555,003	777,004	2,377,670	3,328,738
Black Bear Road North	Hwy 101	0.8km N	0.80	LCB	555,003	444,002	2,377,670	1,902,136
Guibord Ave.	Hwy 572	1.0km S of Hwy 572	1.60	GR	555,003	888,005	2,377,670	3,804,272
Wavel Road	Radisson Cres	Brunelle Rd N	2.00	GR	555,003	1,110,006	2,377,670	4,755,340
Copper Road West	North Road	2.0km W	2.00	GR	555,003	1,110,006	2,377,670	4,755,340
Hawk Road	St Lawrence	Ash St	2.40	GR	555,003	1,332,007	2,377,670	5,706,408
Fisher Road South	Beaver Rd	2.8km S	2.80	GR	555,003	1,554,008	2,377,670	6,657,476
Watabeag Lake Road	Silver Rd. West	Bowman/ McCain B'ndy	5.60	GR	555,003	3,108,017	2,377,670	13,314,952
Granite Road	Cherry Rd. West	Vimy Ridge Rd.	5.80	GR	555,003	3,219,017	2,377,670	13,790,486
Val Gagne Road	Hwy 11	Hwy 101	7.00	GR	555,003	3,885,021	2,377,670	16,643,690
Monahan Road	Burton Rd N	Fisher Rd N	5.70	LCB	555,003	3,163,517	2,377,670	13,552,719
Cardinal Road West	Blue Jay Road	0.25km W	0.25	LCB	555,003	138,751	2,377,670	594,418
Watabeag Lake Road	0.3km S of Marilyn Ave.	Silver Rd. West	4.10	LCB	555,003	2,275,512	2,377,670	9,748,447
Marten Road	Lynx Road	0.7km W	0.70	LCB	555,003	388,502	2,377,670	1,664,369
Lava Mountain Road	Brunetville Rd	Cedar St	3.20	HCB	1,933,493	6,187,178	4,837,733	15,480,746
McIntyre Avenue	Ennis Street	Denning Street	0.12	HCB	1,933,493	232,019	4,837,733	580,528
McIntyre Avenue	Denning Street	Knox Street	0.08	HCB	1,933,493	154,679	4,837,733	387,019
McIntyre Avenue	Knox Street	St. Joseph Street	0.07	HCB	1,933,493	135,345	4,837,733	338,641
Knox Street	0.089km W of McIntyre (End)	McIntyre Avenue	0.09	HCB	1,933,493	172,081	4,837,733	430,558
Knox Street	McIntyre Avenue	Timmins Avenue	0.08	HCB	1,933,493	160,480	4,837,733	401,532
Knox Street	Timmins Avenue	Ferguson Avenue	0.08	HCB	1,933,493	162,413	4,837,733	406,370
St. Joseph Street	McIntyre Avenue	Timmins Avenue	0.80	HCB	1,933,493	1,546,794	4,837,733	3,870,186

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Surface Type	Replacement Cost per KM	Total Replacement Cost	Life Cycle Cost per KM	Total Life Cycle Cost
St. Joseph Street	Timmins Avenue	Ferguson Avenue	0.80	HCB	1,933,493	1,546,794	4,837,733	3,870,186
Leduc Street	Timmins Avenue	West of Timmins Avenue	0.09	HCB	1,933,493	174,014	4,837,733	435,396
Edward Avenue	Highway 572	Victoria Street	0.46	HCB	1,933,493	889,407	4,837,733	2,225,357
Ross Avenue	Gleason Avenue	Euclid Avenue	0.09	HCB	1,933,493	174,014	4,837,733	435,396
Euclid Avenue	Hwy 572	Ross St.	0.80	HCB	1,933,493	1,546,794	4,837,733	3,870,186
Victoria Street	Edward Ave.	Euclid Ave.	0.17	HCB	1,933,493	328,694	4,837,733	822,415
Moreau Street	Edward Ave.	Euclid Ave.	0.17	HCB	1,933,493	328,694	4,837,733	822,415
Red Squirrel Road	Red Deer Rd West	Hwy 577	3.10	HCB	1,933,493	5,993,828	4,837,733	14,996,972
Fisher Road North	Monahan Road	Hwy 11	3.00	HCB	1,933,493	5,800,479	4,837,733	14,513,199
Principale Street	Walker Rd.	0.9km N	0.90	HCB	1,933,493	1,740,144	4,837,733	4,353,960
Gauthier Lake Road	Val Gagne Road	Gauthier Lake Park	1.30	HCB	1,933,493	2,513,541	4,837,733	6,289,053
Principale Street	Labonte Street	Nushka Avenue	0.10	HCB	1,933,493	193,349	4,837,733	483,773
Principale Street	Nushka Avenue	Dumont St	0.20	HCB	1,933,493	386,699	4,837,733	967,547
Labonte Avenue	Rue Principale	Lessard St.	0.10	HCB	1,933,493	193,349	4,837,733	483,773
Nushka Avenue	Rue Principale	Lessard St.	0.10	HCB	1,933,493	193,349	4,837,733	483,773
Church Avenue	Lessard Street	Principale Street	0.12	HCB	1,933,493	232,019	4,837,733	580,528
Poplar Road	Fourth Avenue	Park Lane	0.31	HCB	1,933,493	599,383	4,837,733	1,499,697
Poplar Road	Park Lane	Hwy 11	0.18	HCB	1,933,493	348,029	4,837,733	870,792
Hough Road	Fourth Avenue	West of Fourth Avenue	0.32	HCB	1,933,493	618,718	4,837,733	1,548,075
Park Lane	Fourth Avenue	Poplar Road	0.33	HCB	1,933,493	638,053	4,837,733	1,596,452
MacDougall Street	Fourth Avenue	Fifth Avenue	0.20	HCB	1,933,493	386,699	4,837,733	967,547
MacDougall Street	Fifth Avenue	Sixth Avenue	0.20	HCB	1,933,493	386,699	4,837,733	967,547
MacDougall Street	Sixth Avenue	Seventh Avenue	0.19	HCB	1,933,493	367,364	4,837,733	919,169
MacDougall Street	Seventh Avenue	Eighth Avenue	0.20	HCB	1,933,493	386,699	4,837,733	967,547
MacDougall Street	Eighth Avenue	To Arena	0.19	HCB	1,933,493	367,364	4,837,733	919,169
First Avenue	Black River	MacDougall Street	0.11	HCB	1,933,493	212,684	4,837,733	532,151
fifth Avenue	Second Street	MacDougall Street	0.45	HCB	1,933,493	870,072	4,837,733	2,176,980
Fifth Avenue	MacDougall Street	Railway Street	0.44	HCB	1,933,493	850,737	4,837,733	2,128,603
Quinn Crescent	Second Street	Carr Avenue	0.18	HCB	1,933,493	348,029	4,837,733	870,792
Quinn Crescent	Car Avenue	Bowman Avenue	0.14	HCB	1,933,493	270,689	4,837,733	677,283
Quinn Crescent	Bowman Avenue	Water Station	0.10	HCB	1,933,493	193,349	4,837,733	483,773
Carr Avenue	Quinn Crescent	Leslie Crescent	0.09	HCB	1,933,493	174,014	4,837,733	435,396
Carr Avenue	Leslie Crescent	Cummings Avenue	0.12	HCB	1,933,493	232,019	4,837,733	580,528
Whiskey Jack Road	Kimberly Dr	Avenue Rd	1.40	GR	555,003	777,004	2,377,670	3,328,738
Starling Road	Brunelle Rd S	Clear Lake Rd	3.50	GR	555,003	1,942,511	2,377,670	8,321,845
Sparrow Road	Mundy Ave	Hemlock Ave	0.90	GR	555,003	499,503	2,377,670	2,139,903
Blue Jay Road	Kimberly Dr	Avenue Rd	0.05	GR	555,003	27,750	2,377,670	118,884
Mallard Road	Hazel St	Trudeau Ave	1.60	GR	555,003	888,005	2,377,670	3,804,272
Falcon Road	Brunetville Rd	Cedar St	0.90	GR	555,003	499,503	2,377,670	2,139,903
Talbock Lake Road	Clark St	End	2.10	GR	555,003	1,165,506	2,377,670	4,993,107
Pump House Road	Champagne St.	0.3km E	0.30	GR	555,003	166,501	2,377,670	713,301
Miller Road North	Hwy 11	Ferguson Rd	2.30	GR	555,003	1,276,507	2,377,670	5,468,641
Vimy Ridge Road	Hwy 11	Ferguson Rd	3.20	GR	555,003	1,776,010	2,377,670	7,608,544
Hemlock Road	Vimy Ridge Rd.	Hwy 11	0.80	GR	555,003	444,002	2,377,670	1,902,136
Cherry Road East	Hwy 11	Vimy Ridge Rd.	2.50	GR	555,003	1,387,508	2,377,670	5,944,175
Willow Road	Vimy Ridge Road	1.8km E	1.80	GR	555,003	999,005	2,377,670	4,279,806
Falcon Road	Playfair Twp Line	Hwy 572	1.60	GR	555,003	888,005	2,377,670	3,804,272
Tamarack Road	Hwy 572	Hwy 101	8.00	GR	555,003	4,440,024	2,377,670	19,021,360
Pine Road	Tamarack Road	7.9km W	7.90	GR	555,003	4,384,524	2,377,670	18,783,593
Cherry Road West	Hwy 11	Granite Road	1.60	GR	555,003	888,005	2,377,670	3,804,272
Burton Road North	Hwy 11	Monahan Rd	0.50	GR	555,003	277,502	2,377,670	1,188,835

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Surface Type	Replacement Cost per KM	Total Replacement Cost	Life Cycle Cost per KM	Total Life Cycle Cost
Monahan Road	Burton Rd. North	Cummings Ave.	0.80	GR	555,003	444,002	2,377,670	1,902,136
Burton Road South	Hwy 11	1.4km S	1.40	GR	555,003	777,004	2,377,670	3,328,738
Jade Road	Hwy 11	0.2km S of Hwy 11	0.20	GR	555,003	111,001	2,377,670	475,534
Ruby Road	Hwy 11	0.6km S	0.60	GR	555,003	333,002	2,377,670	1,426,602
Fourth Avenue	Marilyn Avenue	South of Marilyn	0.30	GR	555,003	166,501	2,377,670	713,301
Vimy Ridge Road	0.2km E of Hwy 101 (4th Ave)	0.6km E of Hwy 101 (4th Ave)	0.40	GR	555,003	222,001	2,377,670	951,068
Black Bear Road South	Hwy 101	4.6km S	4.60	GR	555,003	2,553,014	2,377,670	10,937,282
Twin Lake Road South	Hwy 101	1.6km S	1.60	GR	555,003	888,005	2,377,670	3,804,272
Val Gagne Road	Hwy 101	4.8km S	4.80	GR	555,003	2,664,014	2,377,670	11,412,816
Bobcat Road East	Val Gagne Road	0.4km E	0.40	GR	555,003	222,001	2,377,670	951,068
Moose Road South	Hwy 101	2.1km S	2.10	GR	555,003	1,165,506	2,377,670	4,993,107
Fretz Road	Hwy 101	2.4km S	2.40	GR	555,003	1,332,007	2,377,670	5,706,408
Moose Road North	Hwy 101	2.7km N	2.70	GR	555,003	1,498,508	2,377,670	6,419,709
Caribou Road East	Hwy 577	2.6km W	2.60	GR	555,003	1,443,008	2,377,670	6,181,942
Elk Road West	Hwy 577	5.7km W	5.70	GR	555,003	3,163,517	2,377,670	13,552,719
Country Lane West	Hwy 577	3.8km W	3.80	GR	555,003	2,109,011	2,377,670	9,035,146
Caribou Road East	Hwy 577	1.6km E	1.60	GR	555,003	888,005	2,377,670	3,804,272
Red Deer Road West	Val Gagne Road	Hwy 577	3.20	GR	555,003	1,776,010	2,377,670	7,608,544
Lynx Road	Hwy 101	Hwy 11	1.60	GR	555,003	888,005	2,377,670	3,804,272
Taylor Road East	1.8km E of Hwy 11	Monahan Rd	3.00	GR	555,003	1,665,009	2,377,670	7,133,010
North Road	0.8km N of Hwy 101	Quartz Rd	6.90	GR	555,003	3,829,521	2,377,670	16,405,923
Quartz Road	North Road	1.4km W	1.40	GR	555,003	777,004	2,377,670	3,328,738
Nickle Road	North Road	Forestry Road	1.60	GR	555,003	888,005	2,377,670	3,804,272
Iron Road	North Road	2.0km W	2.00	GR	555,003	1,110,006	2,377,670	4,755,340
Copper Road East	North Road	Forestry Road	1.60	GR	555,003	888,005	2,377,670	3,804,272
Forestry Road	Hwy 101	6.9km N	6.90	GR	555,003	3,829,521	2,377,670	16,405,923
Lady Maude Road	Nickle Road	1.9km N	1.90	GR	555,003	1,054,506	2,377,670	4,517,573
Copper Road East	Diamond Road	5.0km E	5.00	GR	555,003	2,775,015	2,377,670	11,888,350
Birch Road North	Hwy 101	1.0km N	1.00	GR	555,003	555,003	2,377,670	2,377,670
Birch Road North	1.0km N of Hwy 101	0.2km N	0.20	GR	555,003	111,001	2,377,670	475,534
Aspen Road	Hwy 101	1.2km N	1.20	GR	555,003	666,004	2,377,670	2,853,204
Ferguson Avenue	Highway 572	Ennis Street	0.12	HCB	1,933,493	232,019	4,837,733	580,528
Ferguson Avenue	Ennis Street	Denning Street	0.12	HCB	1,933,493	232,019	4,837,733	580,528
Ferguson Avenue	Denning Street	Knox Street	0.08	HCB	1,933,493	154,679	4,837,733	387,019
Ferguson Avenue	Knox Street	St. Joseph Street	0.08	HCB	1,933,493	156,613	4,837,733	391,856
Ferguson Avenue	St. Joseph Street	Bastien Street	0.21	HCB	1,933,493	406,034	4,837,733	1,015,924
Ferguson Avenue	Bastien Street	Lava Mountain Road	0.24	HCB	1,933,493	464,038	4,837,733	1,161,056
Timmins Avenue	Highway 572	Ennis Street	0.15	HCB	1,933,493	290,024	4,837,733	725,660
Timmins Avenue	Enii	Denning Street	0.12	HCB	1,933,493	232,019	4,837,733	580,528
Timmins Avenue	Denning Street	Knox Street	0.08	HCB	1,933,493	154,679	4,837,733	387,019
Timmins Avenue	Knox Street	St. Joseph Street	0.08	HCB	1,933,493	154,679	4,837,733	387,019
Timmins Avenue	St. Joseph Street	Bastien Street	0.21	HCB	1,933,493	406,034	4,837,733	1,015,924
Bastien Street	Highway 11	Timmins Avenue	0.40	HCB	1,933,493	773,397	4,837,733	1,935,093
Bastien Street	Timmins Avenue	Ferguson Avenue	0.09	HCB	1,933,493	164,347	4,837,733	411,207
Vimy Ridge Road	0.6km E of Hwy 101 (4th Ave)	Bowman/ Hislop B'ndy	3.90	HCB	1,933,493	7,540,623	4,837,733	18,867,159
Red Deer Road East	Monahan Road	Hwy 11	1.30	HCB	1,933,493	2,513,541	4,837,733	6,289,053
Red Deer Road East	Fisher Rd North	Monahan Rd	4.30	HCB	1,933,493	8,314,020	4,837,733	20,802,252
Country Lane East	Fawn Rd	Rue Principale	1.40	HCB	1,933,493	2,706,890	4,837,733	6,772,826
Dumont St	0.3km N of Rue Principale	Walker Rd.	0.50	HCB	1,933,493	966,747	4,837,733	2,418,867
Walker Road	Dumont St.	2.5km E	2.50	HCB	1,933,493	4,833,733	4,837,733	12,094,333
Fawn Road	Country Lane East	Walker Road	1.60	HCB	1,933,493	3,093,589	4,837,733	7,740,373

Municipality Of Black River - Matheson
Asset Management Plan
Road Management Plan

ROAD	Section Start	Section End	Length (km)	Surface Type	Replacement Cost per KM	Total Replacement Cost	Life Cycle Cost per KM	Total Life Cycle Cost
Val Gagne Dump Road	Val Gagne Road	0.2km W	0.20	HCB	1,933,493	386,699	4,837,733	967,547
Red Deer Road West	Hwy 11	Val Gagne Road	0.60	HCB	1,933,493	1,160,096	4,837,733	2,902,640
Walker Lot 4/5	Walker Rd	0.6km N	0.60	HCB	1,933,493	1,160,096	4,837,733	2,902,640
Marilyn Avenue	Fourth Avenue	East of Fourth	0.32	HCB	1,933,493	618,718	4,837,733	1,548,075
Smith Lane	MacDougall Street	Railway Street	0.09	HCB	1,933,493	174,014	4,837,733	435,396
South Butler Lake Road	Brunetville Rd	End	4.60	GR	555,003	2,553,014	2,377,670	10,937,282
Northland Bible Camp Road	Hwy 11 (Government Rd)	End	0.30	GR	555,003	166,501	2,377,670	713,301
Grouse Road	Cite Des Jeunes	Erikson St	6.90	GR	555,003	3,829,521	2,377,670	16,405,923
Butler Lake Dump Road	Frontenac Cres	Wolfe	1.30	GR	555,003	721,504	2,377,670	3,090,971
Owl Road	Brunelle Rd S	End	0.10	GR	555,003	55,500	2,377,670	237,767
Ferguson Road	Clear Lake Rd S	Town Limits	5.90	GR	555,003	3,274,518	2,377,670	14,028,253
Blue Jay Road	Devonshire	Egerton Ave	1.40	GR	555,003	777,004	2,377,670	3,328,738
Cardinal Road East	Avenue Rd	End	0.40	GR	555,003	222,001	2,377,670	951,068
Cardinal Road West	Hwy 11 (Government Rd)	St Patrick St	3.80	GR	555,003	2,109,011	2,377,670	9,035,146
Wildgoose Road	Lasalle Ave	Richmond Ave	1.60	GR	555,003	888,005	2,377,670	3,804,272
Miller Road South	Brunetville Rd	Brock Cre E/W	0.40	GR	555,003	222,001	2,377,670	951,068
Miller Road South	Nipigon St	Ottawa Ave	1.30	GR	555,003	721,504	2,377,670	3,090,971
Wildgoose Road	Spruce St	Ash St	2.30	GR	555,003	1,276,507	2,377,670	5,468,641
Falcon Road	Hazel St	Etienne St	3.00	GR	555,003	1,665,009	2,377,670	7,133,010
Starling Road	Ferguson Road	Hwy 11	0.20	GR	555,003	111,001	2,377,670	475,534
Robin Road	Hwy 11	1.3km W	1.30	GR	555,003	721,504	2,377,670	3,090,971
Miller Road North	Miller Road North	0.6km	0.60	GR	555,003	333,002	2,377,670	1,426,602
Vimy Ridge Road	Bowman/ Hislop B'ndy	Vimy Ride Rd (66)	4.20	GR	555,003	2,331,013	2,377,670	9,986,214
Balsam Drive	Vimy Ridge Road	0.8 km S	0.80	GR	555,003	444,002	2,377,670	1,902,136
Birch Road South	Hwy 101	Birch Rd. S 3.2km S	3.20	GR	555,003	1,776,010	2,377,670	7,608,544
Spruce Road South	Pine Raod	Hwy 101	1.60	GR	555,003	888,005	2,377,670	3,804,272
Birch Road South	Birch Rd. S 3.2km S of Hwy 101	1.1km E	1.10	GR	555,003	610,503	2,377,670	2,615,437
Alder Drive	Hwy 11	0.1km N	0.10	GR	555,003	55,500	2,377,670	237,767
Silver Road West	Watabeag Lake Road	Granite Road	1.60	GR	555,003	888,005	2,377,670	3,804,272
Belleek Lake Road	Watabeag Lake Rd.	Belleek Lake	1.00	GR	555,003	555,003	2,377,670	2,377,670
Sapphire Road	Burton Rd. South	1.1km W	2.10	GR	555,003	1,165,506	2,377,670	4,993,107
Fisher Road South	Hwy 101	Beaver Rd	3.20	GR	555,003	1,776,010	2,377,670	7,608,544
Red Deer Road West	Hwy 577	0.5km W	0.50	GR	555,003	277,502	2,377,670	1,188,835
Country Lane West	Hwy 11	Hwy 572	2.30	GR	555,003	1,276,507	2,377,670	5,468,641
Elk Road East	Hwy 577	0.6km E	0.60	GR	555,003	333,002	2,377,670	1,426,602
Twin Lake Road North	Hwy 101	0.8km N	0.80	GR	555,003	444,002	2,377,670	1,902,136
Country Lane East	Hwy 11	Rue Principale	1.00	GR	555,003	555,003	2,377,670	2,377,670
Copper Road East	Forestry Road	Diamond Road	1.60	GR	555,003	888,005	2,377,670	3,804,272
Diamond Road	Hwy 101	Nickle Road	4.40	GR	555,003	2,442,013	2,377,670	10,461,748
Nickle Road	Diamond Road	Game Lake	4.10	GR	555,003	2,275,512	2,377,670	9,748,447
Gleason Avenue	Hwy 572	Ross St.	0.80	HCB	1,933,493	1,546,794	4,837,733	3,870,186
Black Bird Road	Laval	Brunelle Rd S	1.60	GR	555,003	888,005	2,377,670	3,804,272
Blue Jay Road	Hemlock St	Winnipeg Ave	3.00	GR	555,003	1,665,009	2,377,670	7,133,010
Matheson Dump Road	Granite Rd	0.4km W	0.40	GR	555,003	222,001	2,377,670	951,068
Total			375.72			315,652,052		1,084,519,344



cutting through complexity



Asset Management Planning
for the Township of Black River-
Matheson

Appendix B Infrastructure Profile Water



Municipality Of Black River - Matheson
Asset Management Plan
Potable Water Distribution System -Mains

Description	Diameter	Length	Date Installed	Years Of Service	Total Life Cycle Cost Over 80 Years	Anticipated Date to Replace	Replacement Cost 2013
Bowman Ave	100	1.10	1960	53	\$956.22	2045	\$694.22
Bowman Ave	100	13.40	1960	53	\$11,648.51	2045	\$8,456.87
Bowman Ave	100	2.60	1960	53	\$2,260.16	2045	\$1,640.89
Bowman Ave	100	3.30	1960	53	\$2,868.66	2045	\$2,082.66
4th Ave	100	2.70	1960	53	\$2,347.09	2045	\$1,704.00
Macdougall	100	22.40	1960	53	\$19,472.14	2045	\$14,136.86
Macdougall	100	0.60	1960	53	\$521.58	2045	\$378.67
2 Quinn/ 2nd St	100	2.30	1960	53	\$1,999.37	2045	\$1,451.55
Off Cummings Ave	100	6.60	1960	53	\$5,737.33	2045	\$4,165.33
4 Quinn/ 2nd St	100	94.40	1960	53	\$82,061.16	2045	\$59,576.78
Railyway St	100	10.20	1960	53	\$8,866.78	2045	\$6,437.32
8th Ave & 2nd St	100	2.30	1960	53	\$1,999.37	2045	\$1,451.55
320 8th Ave	100	13.90	1960	53	\$12,083.16	2045	\$8,772.43
429 7th Ave	100	7.00	1960	53	\$6,085.04	2045	\$4,417.77
	50	374.10	1960	53	N/A	2050	\$108,863.10
Hwy 11	50	34.30	1960	53	N/A	2050	\$9,981.30
Hwy 11	50	6.60	1960	53	N/A	2050	\$1,920.60
Hwy 11	50	25.00	1960	53	N/A	2050	\$7,275.00
Hwy 11	50	45.50	1960	53	N/A	2050	\$13,240.50
Hwy 11	50	27.30	1960	53	N/A	2050	\$7,944.30
St Joseph St	100	27.90	1960	53	\$24,253.25	2050	\$17,607.97
St Joseph St	100	5.30	1960	53	\$4,607.25	2050	\$3,344.88
St Joseph St	100	72.40	1960	53	\$62,936.74	2050	\$45,692.36
btwn Timmins& Ferguson	100	2.40	1960	53	\$2,086.30	2050	\$1,514.66
btwn Timmins& Ferguson	100	3.30	1960	53	\$2,868.66	2050	\$2,082.66
btwn Timmins& Ferguson	100	106.90	1960	53	\$92,927.31	2050	\$67,465.66
Champagne Ave	100	205.70	1960	53	\$178,813.36	2050	\$129,819.33
St Joseph St	100	4.90	1960	53	\$4,259.53	2050	\$3,092.44
btwn Timmins& Ferguson	100	132.10	1960	53	\$114,833.47	2050	\$83,369.63
Ennis St	100	36.20	1960	53	\$31,468.37	2050	\$22,846.18
btwn Timmins& Ferguson	100	46.90	1960	53	\$40,769.79	2050	\$29,599.06
Bowman Ave	100	44.10	1960	53	\$38,335.78	2050	\$27,831.95
Bowman Ave	100	21.90	1960	53	\$19,037.49	2050	\$13,821.31
Bowman Ave	100	3.60	1960	53	\$3,129.45	2050	\$2,272.00
Bowman Ave	100	19.90	1960	53	\$17,298.91	2050	\$12,559.09
Bowman Ave	100	15.10	1960	53	\$13,126.31	2050	\$9,529.76
Bowman Ave	100	26.60	1960	53	\$23,123.17	2050	\$16,787.53
16/18 Bowman Ave	100	7.10	1960	53	\$6,171.97	2050	\$4,480.88
Bowman Ave	100	8.80	1960	53	\$7,649.77	2050	\$5,553.77
Bowman Ave	100	1.50	1960	53	\$1,303.94	2050	\$946.67
Bowman Ave	100	23.80	1960	53	\$20,689.15	2050	\$15,020.42
Bowman Ave	100	3.10	1960	53	\$2,694.81	2050	\$1,956.44
Bowman Ave	100	23.10	1960	53	\$20,080.65	2050	\$14,578.64
Bowman Ave	100	5.90	1960	53	\$5,128.82	2050	\$3,723.55
Bowman Ave	100	22.90	1960	53	\$19,906.79	2050	\$14,452.42
6th Ave	100	14.20	1960	53	\$12,343.95	2050	\$8,961.76
361 Macdougall	100	8.40	1960	53	\$7,302.05	2050	\$5,301.32
361 Macdougall	100	11.10	1960	53	\$9,649.14	2050	\$7,005.32
361/365 Macdougall	100	2.90	1960	53	\$2,520.95	2050	\$1,830.22
365 Macdougall	100	21.90	1960	53	\$19,037.49	2050	\$13,821.31
Railyway St	100	20.20	1960	53	\$17,559.70	2050	\$12,748.42
Railyway St	100	3.20	1960	53	\$2,781.73	2050	\$2,019.55
Railyway St	100	11.00	1960	53	\$9,562.21	2050	\$6,942.21
Railyway St	100	66.10	1960	53	\$57,460.20	2050	\$41,716.37
Railyway St	100	4.00	1960	53	\$3,477.17	2050	\$2,524.44
Railyway St	100	24.50	1960	53	\$21,297.65	2050	\$15,462.20
Railyway St	100	6.30	1960	53	\$5,476.54	2050	\$3,975.99
460 2nd St	100	8.40	1960	53	\$7,302.05	2050	\$5,301.32
Macdougall & 2nd Ave	100	2.60	1960	53	\$2,260.16	2050	\$1,640.89
Macdougall	100	58.10	1960	53	\$50,505.87	2050	\$36,667.49
Macdougall	100	58.40	1960	53	\$50,766.65	2050	\$36,856.82
Macdougall	100	7.40	1960	53	\$6,432.76	2050	\$4,670.21
Macdougall & 2nd Ave	100	12.80	1960	53	\$11,126.94	2050	\$8,078.21
Macdougall	100	47.50	1960	53	\$41,291.37	2050	\$29,977.73
Macdougall	100	11.60	1960	53	\$10,083.79	2050	\$7,320.88

Municipality Of Black River - Matheson
Asset Management Plan
Potable Water Distribution System -Mains

Description	Diameter	Length	Date Installed	Years Of Service	Total Life Cycle Cost Over 80 Years	Anticipated Date to Replace	Replacement Cost 2013
406 4th Ave	100	4.70	1960	53	\$4,085.67	2050	\$2,966.22
427 Poplar	100	160.80	1960	53	\$139,782.15	2050	\$101,482.49
Quinn Cres	100	66.30	1960	53	\$57,634.06	2050	\$41,842.59
Bowman Ave	100	8.50	1960	53	\$7,388.98	2050	\$5,364.44
Off Cummings Ave	100	6.20	1960	53	\$5,389.61	2050	\$3,912.88
Off Cummings Ave	100	18.60	1960	53	\$16,168.83	2050	\$11,738.65
Maddougall	100	6.20	1960	53	\$5,389.61	2050	\$3,912.88
512 8th Ave	100	2.30	1960	53	\$1,999.37	2050	\$1,451.55
321 8th Ave	100	2.30	1960	53	\$1,999.37	2050	\$1,451.55
324 8th Ave	100	2.30	1960	53	\$1,999.37	2050	\$1,451.55
332 7th Ave	100	7.00	1960	53	\$6,085.04	2050	\$4,417.77
332 7th Ave	100	7.00	1960	53	\$6,085.04	2050	\$4,417.77
358 2nd Ave	100	95.80	1960	53	\$83,278.17	2050	\$60,460.34
Railway St	100	83.90	1960	53	\$72,933.60	2050	\$52,950.13
Railway St	100	16.90	1960	53	\$14,691.03	2050	\$10,665.76
Railway St	100	79.70	1960	53	\$69,282.57	2050	\$50,299.47
Railway St	100	8.70	1960	53	\$7,562.84	2050	\$5,490.66
436 5th Ave	100	2.60	1960	53	\$2,260.16	2050	\$1,640.89
4 th Ave	100	196.70	1960	53	\$170,989.74	2050	\$124,139.34
Maddougall	100	14.30	1960	53	\$12,430.88	2050	\$9,024.87
Poplar	150	125.40	1960	53	\$114,025.22	2050	\$84,157.19
Poplar	150	261.50	1960	53	\$237,779.86	2050	\$175,495.27
Marilyn	150	149.40	1960	53	\$135,848.22	2050	\$100,263.83
Marilyn	150	56.00	1960	53	\$50,920.35	2050	\$37,582.16
Marilyn	150	16.00	1960	53	\$14,548.67	2050	\$10,737.76
Marilyn	150	6.80	1960	53	\$6,183.19	2050	\$4,563.55
St Joseph St	150	9.80	1960	53	\$8,911.06	2050	\$6,576.88
btwn McIntyre & Timmins	150	60.60	1960	53	\$55,103.10	2050	\$40,669.27
Victoria St	150	63.60	1960	53	\$57,830.97	2050	\$42,682.60
Victoria St	150	17.90	1960	53	\$16,276.33	2050	\$12,012.87
Moreau St	150	83.10	1960	53	\$75,562.17	2050	\$55,769.24
Moreau St	150	3.50	1960	53	\$3,182.52	2050	\$2,348.89
Moreau St	150	79.90	1960	53	\$72,652.43	2050	\$53,621.69
Ross St	150	83.10	1960	53	\$75,562.17	2050	\$55,769.24
Ross St	150	79.90	1960	53	\$72,652.43	2050	\$53,621.69
Ross St	150	3.50	1960	53	\$3,182.52	2050	\$2,348.89
Hwy 572	150	120.30	1960	53	\$109,387.83	2050	\$80,734.53
Back Alley Timmins	150	135.20	1960	53	\$122,936.28	2050	\$90,734.07
McIntyre St	150	111.40	1960	53	\$101,295.13	2050	\$74,761.65
St Joseph St	150	660.90	1960	53	\$600,951.08	2050	\$443,536.60
Chapagne Ave	150	4.80	1960	53	\$4,364.60	2050	\$3,221.33
At Joseph St	150	72.60	1960	53	\$66,014.60	2050	\$48,722.59
At Joseph St	150	3.20	1960	53	\$2,909.73	2050	\$2,147.55
Bastien St	150	113.50	1960	53	\$103,204.64	2050	\$76,170.99
MacIntyre St	150	3.20	1960	53	\$2,909.73	2050	\$2,147.55
Knox St	150	3.10	1960	53	\$2,818.81	2050	\$2,080.44
McIntyre St	150	117.90	1960	53	\$107,205.53	2050	\$79,123.87
btwn McIntyre & Denning	150	78.10	1960	53	\$71,015.71	2050	\$52,413.69
Denning St	150	3.80	1960	53	\$3,455.31	2050	\$2,550.22
Denning St	150	4.90	1960	53	\$4,455.53	2050	\$3,288.44
Ennis St	150	38.60	1960	53	\$35,098.67	2050	\$25,904.85
Ennis St	150	1.30	1960	53	\$1,182.08	2050	\$872.44
Ennis St	150	132.60	1960	53	\$120,572.12	2050	\$88,989.19
Albert St	150	82.50	1960	53	\$75,016.59	2050	\$55,366.58
Hwy 572	150	65.70	1960	53	\$59,740.48	2050	\$44,091.93
Gleason Ave	150	37.90	1960	53	\$34,462.17	2050	\$25,435.07
Albert St	150	4.00	1960	53	\$3,637.17	2050	\$2,684.44
Cain St	150	78.50	1960	53	\$71,379.42	2050	\$52,682.14
Cain St	150	4.00	1960	53	\$3,637.17	2050	\$2,684.44
4 th Ave	150	8.70	1960	53	\$7,910.84	2050	\$5,838.66
Vimy Ridge	150	8.10	1960	53	\$7,365.27	2050	\$5,435.99
Undeveloped	150	167.90	1960	53	\$152,670.13	2050	\$112,679.37
Undeveloped	150	8.70	1960	53	\$7,910.84	2050	\$5,838.66
Undeveloped	150	5.70	1960	53	\$5,182.96	2050	\$3,825.33
Vimy Ridge	150	13.10	1960	53	\$11,911.73	2050	\$8,791.54

Municipality Of Black River - Matheson
Asset Management Plan
Potable Water Distribution System -Mains

Description	Diameter	Length	Date Installed	Years Of Service	Total Life Cycle Cost Over 80 Years	Anticipated Date to Replace	Replacement Cost 2013
Vimy Ridge	150	41.10	1960	53	\$37,371.90	2050	\$27,582.62
Vimy Ridge	150	168.60	1960	53	\$153,306.63	2050	\$113,149.15
Vimy Ridge	150	27.30	1960	53	\$24,823.67	2050	\$18,321.30
Vimy Ridge	150	198.70	1960	53	\$180,676.32	2050	\$133,349.56
Cummings Ave	150	12.50	1960	53	\$11,366.15	2050	\$8,388.88
Carr Ave	150	110.30	1960	53	\$100,294.91	2050	\$74,023.43
Leslie Ave	150	81.50	1960	53	\$74,107.30	2050	\$54,695.47
Carr Ave	150	5.90	1960	53	\$5,364.82	2050	\$3,959.55
Quinn Cres	150	18.10	1960	53	\$16,458.19	2050	\$12,147.09
Quinn Cres	150	89.40	1960	53	\$81,290.70	2050	\$59,997.23
Quinn Cres	150	26.80	1960	53	\$24,369.03	2050	\$17,985.75
Quinn Cres	150	76.70	1960	53	\$69,742.70	2050	\$51,474.14
Quinn Cres	150	3.50	1960	53	\$3,182.52	2050	\$2,348.89
Leslie Ave	150	147.40	1960	53	\$134,029.64	2050	\$98,921.61
Cummings Ave	150	152.00	1960	53	\$138,212.38	2050	\$102,008.72
Carr/ Cummings	150	18.70	1960	53	\$17,003.76	2050	\$12,549.76
Carr Ave	150	6.90	1960	93	\$6,274.11	2050	\$4,630.66
Carr Ave	150	51.20	1960	53	\$46,555.75	2050	\$34,360.83
2nd St	150	126.30	1960	53	\$114,843.58	2050	\$84,761.19
Carr Ave	150	10.60	1960	53	\$9,638.50	2050	\$7,113.77
2nd st	150	38.70	1960	53	\$35,189.60	2050	\$25,971.96
2nd st	150	160.30	1960	53	\$145,759.51	2050	\$107,578.93
8th Ave	150	4.40	1960	53	\$4,000.88	2050	\$2,952.88
7th Ave	150	4.40	1960	53	\$4,000.88	2050	\$2,952.88
8th Ave	150	49.90	1960	53	\$45,373.67	2050	\$33,488.39
8th Ave	150	2.90	1960	53	\$2,636.95	2050	\$1,946.22
8th Ave	150	3.00	1960	53	\$2,727.88	2050	\$2,013.33
8th Ave	150	3.60	1960	53	\$3,273.45	2050	\$2,416.00
8th Ave	150	23.90	1960	53	\$21,732.08	2050	\$16,039.53
8th Ave & 2nd St	150	3.00	1960	53	\$2,727.88	2050	\$2,013.33
8th Ave	150	125.90	1960	53	\$114,479.86	2050	\$84,492.75
8th Ave	150	17.00	1960	53	\$15,457.96	2050	\$11,408.87
8th Ave	150	19.60	1960	53	\$17,822.12	2050	\$13,153.76
8th Ave	150	142.00	1960	53	\$129,119.46	2050	\$95,297.62
8th Ave	150	1.40	1960	53	\$1,273.01	2050	\$939.55
8th Ave	150	12.90	1960	53	\$11,729.87	2050	\$8,657.32
8th Ave	150	11.20	1960	53	\$10,184.07	2050	\$7,516.43
8th Ave	150	107.50	1960	53	\$97,748.89	2050	\$72,144.33
8th Ave	150	19.70	1960	53	\$17,913.05	2050	\$13,220.87
8th Ave	150	1.50	1960	53	\$1,363.94	2050	\$1,006.67
7th Ave	150	10.70	1960	53	\$9,729.42	2050	\$7,180.88
7th Ave	150	16.70	1960	53	\$15,185.18	2050	\$11,207.54
7th Ave	150	61.70	1960	53	\$56,103.32	2050	\$41,407.49
7th Ave	150	35.20	1960	53	\$32,007.08	2050	\$23,623.07
7th Ave	150	3.40	1960	53	\$3,091.59	2050	\$2,281.77
7th Ave	150	95.70	1960	53	\$87,019.24	2050	\$64,225.23
7th Ave	150	71.20	1960	53	\$64,741.59	2050	\$47,783.03
7th Ave	150	9.20	1960	53	\$8,365.49	2050	\$6,174.21
7th Ave	150	10.10	1960	53	\$9,183.85	2050	\$6,778.21
7th Ave	150	139.00	1960	53	\$126,391.59	2050	\$93,284.29
7th Ave	150	17.80	1960	53	\$16,185.40	2050	\$11,945.76
Railway St	150	9.10	1960	53	\$8,274.56	2050	\$6,107.10
Railway st / ONR Land	150	7.70	1960	53	\$7,001.55	2050	\$5,167.55
Railway st / ONR Land	150	26.30	1960	53	\$23,914.38	2050	\$17,650.19
Hwy 11	150	400.60	1960	53	\$364,262.38	2050	\$268,846.67
Hwy 11	150	2.10	1960	53	\$1,909.51	2050	\$1,409.33
Hwy 11	150	77.50	1960	53	\$70,470.13	2050	\$52,011.03
Hwy 11	150	34.60	1960	53	\$31,461.50	2050	\$23,220.41
Hwy 11	150	22.70	1960	53	\$20,640.93	2050	\$15,234.20
Hwy 11	150	13.50	1960	53	\$12,275.44	2050	\$9,059.99
Hwy 11	150	9.70	1960	53	\$8,820.13	2050	\$6,509.77
Hwy 11	150	13.30	1960	53	\$12,093.58	2050	\$8,925.76
Hwy 11	150	29.60	1960	53	\$26,915.04	2050	\$19,864.86
Hwy 11	150	21.90	1960	53	\$19,913.49	2050	\$14,697.31
Hwy 11	150	23.00	1960	53	\$20,913.72	2050	\$15,435.53

Municipality Of Black River - Matheson
Asset Management Plan
Potable Water Distribution System -Mains

Description	Diameter	Length	Date Installed	Years Of Service	Total Life Cycle Cost Over 80 Years	Anticipated Date to Replace	Replacement Cost 2013
Hwy 11	150	28.10	1960	53	\$25,551.11	2050	\$18,858.19
Hwy 11	150	24.40	1960	53	\$22,186.72	2050	\$16,375.08
Hwy 11	150	25.40	1960	53	\$23,096.02	2050	\$17,046.19
Hwy 11	150	31.70	1960	53	\$28,824.56	2050	\$21,274.19
Hwy 11	150	364.30	1960	53	\$331,255.08	2050	\$244,485.37
Country Lane W	150	55.40	1960	53	\$50,374.78	2050	\$37,179.49
Ctry Ln W to 1021	150	11.70	1960	53	\$10,638.72	2050	\$7,851.99
Hwy 11	150	28.00	1960	53	\$25,460.18	2050	\$18,791.08
Hwy 11	150	5.50	1960	53	\$5,001.11	2050	\$3,691.11
St Joseph St	150	3.00	1960	53	\$2,727.88	2050	\$2,013.33
St Joseph St	150	4.20	1960	53	\$3,819.03	2050	\$2,818.66
St Joseph St	200	93.70	1960	53	\$93,821.06	2050	\$70,144.76
6th Ave	200	1.20	1960	53	\$1,201.55	2050	\$898.33
6th Ave	200	41.80	1960	53	\$41,854.01	2050	\$31,291.90
2nd St	200	49.60	1960	53	\$49,664.08	2050	\$37,131.06
2nd St	200	15.20	1960	53	\$15,219.64	2050	\$11,378.87
Cummings Ave	200	55.80	1960	53	\$55,872.09	2050	\$41,772.44
Cummings Ave	200	3.80	1960	53	\$3,804.91	2050	\$2,844.72
MacDougall	200	5.80	1960	53	\$5,807.49	2050	\$4,341.94
MacDougall	200	90.80	1960	53	\$90,917.31	2050	\$67,973.79
2nd St	200	14.10	1960	53	\$14,118.22	2050	\$10,555.40
6th Ave	200	12.90	1960	53	\$12,916.67	2050	\$9,657.07
5th Ave	200	11.10	1960	53	\$11,114.34	2050	\$8,309.57
MacDougall	200	93.20	1960	53	\$93,320.41	2050	\$69,770.45
2nd St	200	86.80	1960	53	\$86,912.15	2050	\$64,979.35
2nd St	200	11.80	1960	53	\$11,815.25	2050	\$8,833.60
6th Ave	200	11.20	1960	53	\$11,214.47	2050	\$8,384.43
2nd St	200	90.40	1960	53	\$90,516.80	2050	\$67,674.34
2nd St	200	6.80	1960	53	\$6,808.79	2050	\$5,090.55
6th Ave	200	38.00	1960	53	\$38,049.10	2050	\$28,447.18
6th Ave	200	16.10	1960	53	\$16,120.80	2050	\$12,052.62
6th Ave	200	62.70	1960	53	\$62,781.01	2050	\$46,937.85
6th Ave	200	22.40	1960	53	\$22,428.94	2050	\$16,768.86
6th Ave	200	102.00	1960	53	\$102,131.78	2050	\$76,358.22
6th Ave	200	14.60	1960	53	\$14,618.86	2050	\$10,929.71
5th Ave	200	10.30	1960	53	\$10,313.31	2050	\$7,710.68
5th Ave	200	21.40	1960	53	\$21,427.65	2050	\$16,020.25
5th Ave	200	25.40	1960	53	\$25,432.82	2050	\$19,014.69
5th Ave	200	10.80	1960	53	\$10,813.95	2050	\$8,084.99
5th Ave	200	18.90	1960	53	\$18,924.42	2050	\$14,148.73
5th Ave	200	34.60	1960	53	\$34,644.70	2050	\$25,901.91
5th Ave	200	7.20	1960	53	\$7,209.30	2050	\$5,389.99
5th Ave	200	30.90	1960	53	\$30,939.92	2050	\$23,132.05
5th Ave	200	6.00	1960		\$6,007.75	2050	\$4,491.66
5th Ave	200	18.30	1960	53	\$18,323.64	2050	\$13,699.56
5th Ave	200	113.60	1960	53	\$113,746.77	2050	\$85,042.10
2nd St	200	103.10	1960	53	\$103,233.21	2050	\$77,181.69
2nd St	200	3.90	1960	53	\$3,905.04	2050	\$2,919.58
2nd St	200	98.60	1960	53	\$98,727.39	2050	\$73,812.95
4th Ave	250	12.70	1960	53	\$13,643.51	2050	\$10,377.30
4th Ave	250	49.90	1960	53	\$53,607.17	2050	\$40,773.79
4th Ave	250	18.90	1960	53	\$20,304.12	2050	\$15,443.38
4th Ave	250	18.50	1960	53	\$19,874.40	2050	\$15,116.54
4th Ave	250	88.60	1960	53	\$95,182.27	2050	\$72,395.95
4th Ave	250	50.40	1960	53	\$54,144.32	2050	\$41,182.34
4th Ave	250	158.20	1960	53	\$169,952.99	2050	\$129,266.80
4th Ave	250	4.70	1960	53	\$5,049.17	2050	\$3,840.42
Marilyn	250	6.00	1960	53	\$6,445.75	2050	\$4,902.66
4th Ave	250	80.60	1960	53	\$86,587.94	2050	\$65,859.07
Arena Ave	250	100.50	1960	53	\$107,966.35	2050	\$82,119.56
CJM Rd	250	6.10	1960	53	\$6,553.18	2050	\$4,984.37
4th Ave	250	7.10	1960	53	\$7,627.47	2050	\$5,801.48
4th Ave	250	64.40	1960	53	\$69,184.40	2050	\$52,621.88
4th Ave	250	13.90	1960	53	\$14,932.66	2050	\$11,357.83
4th Ave	250	75.00	1960	53	\$80,571.90	2050	\$61,283.25

Municipality Of Black River - Matheson
Asset Management Plan
Potable Water Distribution System -Mains

Description	Diameter	Length	Date Installed	Years Of Service	Total Life Cycle Cost Over 80 Years	Anticipated Date to Replace	Replacement Cost 2013
4th Ave	250	141.70	1960	53	\$152,227.18	2050	\$115,784.49
4th Ave	250	107.50	1960	53	\$115,486.39	2050	\$87,839.33
Cain St	50	1,338.80	1980	33	N/A	2070	\$389,590.80
Off Macdougall	50	79.00	1980	33	N/A	2070	\$22,989.00
Off Labonte Ave	100	2.00	1980	33	\$1,738.58	2070	\$1,262.22
	125	2.00	1980	33	\$1,778.58	2070	\$1,302.22
	125	1.50	1980	33	\$1,333.94	2070	\$976.67
	125	2.10	1980	33	\$1,867.51	2070	\$1,367.33
	125	2.90	1980	33	\$2,578.95	2070	\$1,888.22
Alarie Park	150	250.10	1980	33	\$227,413.93	2070	\$167,844.61
Alarie Park	150	2.40	1980	33	\$2,182.30	2070	\$1,610.66
Alarie Park	150	2.40	1980	33	\$2,182.30	2070	\$1,610.66
Alarie Park	150	4.70	1980	33	\$4,273.67	2070	\$3,154.22
Alarie Park	150	2.30	1980	33	\$2,091.37	2070	\$1,543.55
Hwy 11	150	72.80	1980	33	\$66,196.46	2070	\$48,856.81
Hwy 11	150	10.10	1980	33	\$9,183.85	2070	\$6,778.21
Hwy 11	150	6.20	1980	33	\$5,637.61	2070	\$4,160.88
Hwy 11	150	27.10	1980	33	\$24,641.81	2070	\$18,187.08
Hwy 11	150	11.50	1980	33	\$10,456.86	2070	\$7,717.77
Hwy 11	150	0.50	1980	33	\$454.65	2070	\$335.56
Hwy 11	150	1.30	1980	33	\$1,182.08	2070	\$872.44
Hwy 11	150	0.50	1980	33	\$454.65	2070	\$335.56
Hwy 11	150	1.10	1980	33	\$1,000.22	2070	\$738.22
Hwy 11	150	15.70	1980	33	\$14,275.88	2070	\$10,536.43
Hwy 11	150	62.30	1980	33	\$56,648.89	2070	\$41,810.15
Hwy 11	150	48.00	1980	33	\$43,646.02	2070	\$32,213.28
Hwy 11	150	138.60	1980	33	\$126,027.87	2070	\$93,015.85
Hwy 11	150	42.50	1980	33	\$38,644.91	2070	\$28,522.18
518 Principale Easment	150	3.70	1980	33	\$3,364.38	2070	\$2,483.11
518 Principale Easment	150	17.10	1980	33	\$15,548.89	2070	\$11,475.98
516 Principal Easement	150	5.40	1980	33	\$4,910.18	2070	\$3,623.99
516 Principal Easement	150	9.30	1980	33	\$8,456.42	2070	\$6,241.32
514 Principal Easement	150	12.80	1980	33	\$11,638.94	2070	\$8,590.21
514 Principal Easement	150	14.70	1980	33	\$13,366.59	2070	\$9,865.32
510 Principal Easement	150	4.00	1980	33	\$3,637.17	2070	\$2,684.44
514 Principal Easement	150	16.00	1980	33	\$14,548.67	2070	\$10,737.76
508 Principal Easement	150	11.30	1980	33	\$10,275.00	2070	\$7,583.54
508 Principal Easement	150	4.10	1980	33	\$3,728.10	2070	\$2,751.55
	150	26.90	1980	33	\$24,459.95	2070	\$18,052.86
	150	4.20	1980	33	\$3,819.03	2070	\$2,818.66
Dumont St	150	1.60	1980	33	\$1,454.87	2070	\$1,073.78
Dumont St	150	1.30	1980	33	\$1,182.08	2070	\$872.44
Dumont St	150	18.50	1980	33	\$16,821.90	2070	\$12,415.54
Dumont St	150	110.90	1980	33	\$100,840.48	2070	\$74,426.10
Dumont St	150	62.20	1980	33	\$56,557.96	2070	\$41,743.04
Dumont St	150	6.00	1980	33	\$5,455.75	2070	\$4,026.66
Rue Pricipale	150	103.40	1980	33	\$94,020.79	2070	\$69,392.77
Crosses Theriault	150	24.80	1980	33	\$22,550.44	2070	\$16,643.53
Off Church St	150	14.20	1980	33	\$12,911.95	2070	\$9,529.76
Rue Pricipale	150	3.20	1980	33	\$2,909.73	2070	\$2,147.55
211 Theriault	150	2.10	1980	33	\$1,909.51	2070	\$1,409.33
Lessard/ Nushka	150	2.30	1980	33	\$2,091.37	2070	\$1,543.55
Lessard St	150	78.50	1980	33	\$71,379.42	2070	\$52,682.14
Dumont St	150	0.30	1980	33	\$272.79	2070	\$201.33
Dumont St	150	1.90	1980	33	\$1,727.65	2070	\$1,275.11
Dumont St	150	1.90	1980	33	\$1,727.65	2070	\$1,275.11
522 Rue Principal	150	2.90	1980	33	\$2,636.95	2070	\$1,946.22
Crosses Church Are	150	95.50	1980	33	\$86,837.39	2070	\$64,091.01
Lessard St	150	53.00	1980	33	\$48,192.48	2070	\$35,568.83
Labonte Ave	150	1.00	1980	33	\$909.29	2070	\$671.11
Labonte Ave	150	2.80	1980	33	\$2,546.02	2070	\$1,879.11
Labonte Ave	150	3.40	1980	33	\$3,091.59	2070	\$2,281.77
Labonte Ave	150	8.40	1980	33	\$7,638.05	2070	\$5,637.32
Labonte Ave	150	11.90	1980	33	\$10,820.57	2070	\$7,986.21
Labonte Ave	150	17.30	1980	33	\$15,730.75	2070	\$11,610.20

Municipality Of Black River - Matheson
Asset Management Plan
Potable Water Distribution System -Mains

Description	Diameter	Length	Date Installed	Years Of Service	Total Life Cycle Cost Over 80 Years	Anticipated Date to Replace	Replacement Cost 2013
Labonte Ave	150	14.70	1980	33	\$13,366.59	2070	\$9,865.32
Labonte/Lessard	150	112.00	1980	33	\$101,840.70	2070	\$75,164.32
Lessard St	150	3.00	1980	33	\$2,727.88	2070	\$2,013.33
Nushka	150	103.30	1980	33	\$93,929.86	2070	\$69,325.66
Crosses 214 Church	150	2.20	1980	33	\$2,000.44	2070	\$1,476.44
Crosses 214 Church	150	40.80	1980	33	\$37,099.11	2070	\$27,381.29
Crosses 574 Principal	150	34.40	1980	33	\$31,279.64	2070	\$23,086.18
Crosses 574 Principal	150	2.40	1980	33	\$2,182.30	2070	\$1,610.66
Crosses 574 Principal	150	26.20	1980	33	\$23,823.45	2070	\$17,583.08
crosses 211 Theriault	150	22.70	1980	33	\$20,640.93	2070	\$15,234.20
211 Theriault	150	40.00	1980	33	\$36,371.68	2070	\$26,844.40
564 Principal	150	1.60	1980	33	\$1,454.87	2070	\$1,073.78
Crosses 562 Principal	150	160.00	1980	33	\$145,486.72	2070	\$107,377.60
Rue Principale	150	1.70	1980	33	\$1,545.80	2070	\$1,140.89
Rue Principale	150	10.00	1980	33	\$9,092.92	2070	\$6,711.10
Rue Principale	150	6.00	1980	33	\$5,455.75	2070	\$4,026.66
Rue Principale	150	4.10	1980	33	\$3,728.10	2070	\$2,751.55
Rue Principale	150	59.60	1980	33	\$54,193.80	2070	\$39,998.16
Crosses 522 Principapal	150	11.60	1980	33	\$10,547.79	2070	\$7,784.88
Crosses 522 Principapal	150	25.50	1980	33	\$23,186.95	2070	\$17,113.31
btwn 4th and 3rd	25	7.60	2000	13	N/A	2085	\$1,482.00
btwn 4th and 3rd	25	101.20	2000	13	N/A	2085	\$19,734.00
2nd Ave	25	69.90	2000	13	N/A	2085	\$13,630.50
Hough Rd	25	70.20	2000	13	N/A	2085	\$13,689.00
2nd Ave	25	124.80	2000	13	N/A	2085	\$24,336.00
Smith Lane	25	78.40	2000	13	N/A	2090	\$15,288.00

16,299.50

Summary of Asset Replacement & Cost by Year	
Total Replacement Cost 2045	\$115,366.91
Total Replacement Cost 2050	\$8,099,478.91
Total Replacement Cost 2070	\$1,856,021.63
Total Replacement Cost 2085	\$72,871.50
Total Replacement Cost 2090	\$15,288.00

Total

\$12,863,978.01

\$10,159,026.95



cutting through complexity



Asset Management Planning
for the Township of Black River-
Matheson

Appendix C Infrastructure Profile Wastewater



Municipality Of Black River- Matheson
Asset Management Plan
Sanitary Sewer Network - Pipes

Description	Location	Length In Meters	Diameter	Date Installed	Years Of Service	Life Cycle Cost (80 Years)	Date to Replace	Reconstruction Cost 2013
63		99.2	150	1980	33	\$146,306.65	2060	\$104,366.83
592	Quinn Cres	119.6	150	1980	33	\$176,393.90	2060	\$125,829.37
593	Quinn Cres	58.8	150	1980	33	\$86,722.09	2060	\$61,862.60
615		77.5	150	1980	33	\$114,302.07	2060	\$81,536.59
755		43.5	150	1980	33	\$64,156.64	2060	\$45,765.70
757		3	150	1980	33	\$4,424.60	2060	\$3,156.26
788		28.1	150	1980	33	\$41,443.72	2060	\$29,563.59
922		33.3	150	1980	33	\$49,113.02	2060	\$35,034.43
924	Timmins Ave.	14.9	150	1980	33	\$21,975.49	2060	\$15,676.07
56	Labonte Ave.	95.3	200	1980	33	\$140,554.67	2060	\$100,263.70
57	Rue Principale	34.1	200	1980	33	\$50,292.91	2060	\$35,876.10
58	Rue Principale	110.1	200	1980	33	\$162,382.68	2060	\$115,834.56
59	Lessard St.	37.4	200	1980	33	\$55,159.97	2060	\$39,347.98
60	Nushka Ave.	66.8	200	1980	33	\$98,521.01	2060	\$70,279.28
61	Nushka Ave.	64.9	200	1980	33	\$95,718.76	2060	\$68,280.32
62	Rue Principale	11.2	200	1980	33	\$16,518.49	2060	\$11,783.35
64	Lessard St.	35.5	200	1980	33	\$52,357.72	2060	\$37,349.02
65	Lessard St.	61.8	200	1980	33	\$91,146.68	2060	\$65,018.85
66	Church Ave.	87.8	200	1980	33	\$129,493.18	2060	\$92,373.06
67	Church Ave.	85.7	200	1980	33	\$126,395.96	2060	\$90,163.68
68	Rue Principale	88.1	200	1980	33	\$129,935.64	2060	\$92,688.69
69	Rue Principale	53.2	200	1980	33	\$78,462.84	2060	\$55,970.92
70	Rue Principale	81.7	200	1980	33	\$120,496.50	2060	\$85,955.34
78	Rue Principale	80	200	1980	33	\$117,989.23	2060	\$84,166.80
79	Rue Principale	84.22	200	1980	33	\$124,213.16	2060	\$88,606.60
80	Rue Principale	94.5	200	1980	33	\$139,374.78	2060	\$99,422.03
103	Hwy. 11	56.7	200	1980	33	\$83,624.87	2060	\$59,653.22
104	Hwy. 11	24.4	200	1980	33	\$35,986.72	2060	\$25,670.87
105	Hwy. 11	30.7	200	1980	33	\$45,278.37	2060	\$32,299.01
106	Hwy. 11	47.9	200	1980	33	\$70,646.05	2060	\$50,394.87
107	Hwy. 11	113.5	200	1980	33	\$167,397.22	2060	\$119,411.65
108	Hwy. 11	178.6	200	1980	33	\$263,410.96	2060	\$187,902.38
109	Hwy. 11	49.7	200	1980	33	\$73,300.81	2060	\$52,288.62
110	Hwy. 11	31.2	200	1980	33	\$46,015.80	2060	\$32,825.05
111	Hwy. 11	40.1	200	1980	33	\$59,142.10	2060	\$42,188.61
112	Hwy. 11	42.7	200	1980	33	\$62,976.75	2060	\$44,924.03
113	Hwy. 11	29.8	200	1980	33	\$43,950.99	2060	\$31,352.13
114	Hwy. 11	53.2	200	1980	33	\$78,462.84	2060	\$55,970.92
115	Hwy. 11	93.3	200	1980	33	\$137,604.94	2060	\$98,159.53
128	Lessard St.	47.3	200	1980	33	\$69,761.13	2060	\$49,763.62
273	Rue Principale	35.6	200	1980	33	\$52,505.21	2060	\$37,454.23
274	Therault St.	79.5	200	1980	33	\$117,251.80	2060	\$83,640.76
575	Leslie Cres	57.8	200	1980	33	\$85,247.22	2060	\$60,810.51
577	Leslie Cres	34	200	1980	33	\$50,145.42	2060	\$35,770.89
579	Leslie Cres	43.3	200	1980	33	\$63,861.67	2060	\$45,555.28
581	Leslie Cres	72.2	200	1980	33	\$106,485.28	2060	\$75,960.54
583	Carr Ave.	45.1	200	1980	33	\$66,516.43	2060	\$47,449.03
385	Carr Ave.	76.6	200	1980	33	\$112,974.69	2060	\$80,589.71
587	Carr Ave.	37.6	200	1980	33	\$55,454.94	2060	\$39,558.40
595	Quinn Cres.	72.9	200	1980	33	\$107,517.69	2060	\$76,697.00
597	Bowman Ave.	103.7	200	1980	33	\$152,943.54	2060	\$109,101.21
599	Quinn Cres.	89.2	200	1980	33	\$131,557.99	2060	\$93,845.98
601	Quinn Cres.	73.8	200	1980	33	\$108,845.07	2060	\$77,643.87
603	Quinn Cres.	7.6	200	1980	33	\$11,208.98	2060	\$7,995.85
605	Quinn Cres.	68	200	1980	33	\$100,290.85	2060	\$71,541.78
620	Seventh Ave.	43.5	200	1980	33	\$64,156.64	2060	\$45,765.70
622	Seventh Ave.	153.6	200	1980	33	\$226,539.33	2060	\$161,600.26
624	Seventh Ave.	159.9	200	1980	33	\$235,830.98	2060	\$168,228.39
626		93.8	200	1980	33	\$138,342.37	2060	\$98,685.57
634	Eighth Ave.	78.9	200	1980	33	\$116,366.88	2060	\$83,009.51
636	Eighth Ave.	85.4	200	1980	33	\$125,953.51	2060	\$89,848.06
639	Arena Ave.	102.3	200	1980	33	\$150,878.73	2060	\$107,628.30

Municipality Of Black River- Matheson
Asset Management Plan
Sanitary Sewer Network - Pipes

Description	Location	Length In Meters	Diameter	Date Installed	Years Of Service	Life Cycle Cost (80 Years)	Date to Replace	Reconstruction Cost 2013
641	MacDougall St.	91.6	200	1980	33	\$135,097.67	2060	\$96,370.99
664	Sixth Ave.	159.4	200	1980	33	\$235,093.54	2060	\$167,702.35
666	Sixth Ave.	24.7	200	1980	33	\$36,429.18	2060	\$25,986.50
668	Fifth Ave	95	200	1980	33	\$140,112.21	2060	\$99,948.08
670	Fifth Ave	57.3	200	1980	33	\$84,509.79	2060	\$60,284.47
672	Fifth Ave	88.3	200	1980	33	\$130,230.61	2060	\$92,899.11
674	Fifth Ave	68.2	200	1980	33	\$100,585.82	2060	\$71,752.20
676		36	200	1980	33	\$53,095.15	2060	\$37,875.06
680	Second St.	68.5	200	1980	33	\$101,028.28	2060	\$72,067.82
682		76.1	200	1980	33	\$112,237.26	2060	\$80,063.67
684	Second St.	30.3	200	1980	33	\$44,688.42	2060	\$31,878.18
686		32.5	200	1980	33	\$47,933.13	2060	\$34,192.76
688	First Ave.	58	200	1980	33	\$85,542.19	2060	\$61,020.93
690	First Ave.	58	200	1980	33	\$85,542.19	2060	\$61,020.93
692	First Ave.	99.6	200	1980	33	\$146,896.59	2060	\$104,787.67
694	MacDougall St.	35.9	200	1980	33	\$52,947.67	2060	\$37,769.85
697	Third Ave.	83.1	200	1980	33	\$122,561.31	2060	\$87,428.26
699		25.8	200	1980	33	\$38,051.53	2060	\$27,143.79
701		46.1	200	1980	33	\$67,991.29	2060	\$48,501.12
703		79.9	200	1980	33	\$117,841.75	2060	\$84,061.59
705	Vimy Ridge Rd.	48	200	1980	33	\$70,793.54	2060	\$50,500.08
707	Vimy Ridge Rd.	67.5	200	1980	33	\$99,553.41	2060	\$71,015.74
709		73.3	200	1980	33	\$108,107.63	2060	\$77,117.83
711		90.7	200	1980	33	\$133,770.29	2060	\$95,424.11
713		102.2	200	1980	33	\$150,731.24	2060	\$107,523.09
715		44.7	200	1980	33	\$65,926.48	2060	\$47,028.20
717		44.6	200	1980	33	\$65,779.00	2060	\$46,922.99
719		107.5	200	1980	33	\$158,548.03	2060	\$113,099.14
721	Marilyn Ave.	67.8	200	1980	33	\$99,995.87	2060	\$71,331.36
723	Marilyn Ave.	75.5	200	1980	33	\$111,352.34	2060	\$79,432.42
725	Marilyn Ave.	69.96	200	1980	33	\$103,181.58	2060	\$73,603.87
727		61.5	200	1980	33	\$90,704.22	2060	\$64,703.23
729		50.6	200	1980	33	\$74,628.19	2060	\$53,235.50
731	Poplar Rd.	14.2	200	1980	33	\$20,943.09	2060	\$14,939.61
733		78.6	200	1980	33	\$115,924.42	2060	\$82,693.88
735		79.3	200	1980	33	\$116,956.83	2060	\$83,430.34
737	Poplar Rd.	73.9	200	1980	33	\$108,992.55	2060	\$77,749.08
739	Poplar Rd.	87.4	200	1980	33	\$128,903.24	2060	\$91,952.23
741	Poplar Rd.	90.1	200	1980	33	\$132,885.37	2060	\$94,792.86
753	Sixth Ave.	121	200	1980	33	\$178,458.71	2060	\$127,302.29
787	Bowman Ave.	10.1	200	1980	33	\$14,896.14	2060	\$10,626.06
790	Bowman Ave.	86.5	200	1980	33	\$127,575.86	2060	\$91,005.35
792	Bowman Ave.	105.9	200	1980	33	\$156,188.25	2060	\$111,415.80
816	Fourth Ave.	44.5	200	1980	33	\$65,631.51	2060	\$46,817.78
818	Poplar Rd.	78	200	1980	33	\$115,039.50	2060	\$82,062.63
820		83.2	200	1980	33	\$122,708.80	2060	\$87,533.47
832	Alarie Park	178.5	200	1980	33	\$263,263.47	2060	\$187,797.17
836		11	200	1980	33	\$16,223.52	2060	\$11,572.94
837	Euclid Ave.	11	200	1980	33	\$16,223.52	2060	\$11,572.94
856		19.1	200	1980	33	\$28,169.93	2060	\$20,094.82
865	Gleason Ave.	47.4	200	1980	33	\$69,908.62	2060	\$49,868.83
875	Hwy. 572	284.7	200	1980	33	\$419,894.18	2060	\$299,528.60
883	Hwy. 572	97.8	200	1980	33	\$144,241.84	2060	\$102,893.91
884	Gleason Ave.	16.3	200	1980	33	\$24,040.31	2060	\$17,148.99
885	Gleason Ave.	434.3	200	1980	33	\$640,534.04	2060	\$456,920.52
911	Gleason Ave.	61.9	200	1980	33	\$91,294.17	2060	\$65,124.06
913	Ross St.	73.9	200	1980	33	\$108,992.55	2060	\$77,749.08
917	Edward Ave.	23.5	200	1980	33	\$34,659.34	2060	\$24,724.00
935		68.3	200	1980	33	\$100,733.31	2060	\$71,857.41
936		20.5	200	1980	33	\$30,234.74	2060	\$21,567.74
938		36	200	1980	33	\$53,095.15	2060	\$37,875.06
940		38.4	200	1980	33	\$56,634.83	2060	\$40,400.06

Municipality Of Black River- Matheson
Asset Management Plan
Sanitary Sewer Network - Pipes

Description	Location	Length In Meters	Diameter	Date Installed	Years Of Service	Life Cycle Cost (80 Years)	Date to Replace	Reconstruction Cost 2013
942	St Joseph St.	41.7	200	1980	33	\$61,501.89	2060	\$43,871.94
944		121.3	200	1980	33	\$178,901.17	2060	\$127,617.91
965		91.6	200	1980	33	\$135,097.67	2060	\$96,370.99
973		67.3	200	1980	33	\$99,258.44	2060	\$70,805.32
975	Ennis St.	90.4	200	1980	33	\$133,327.83	2060	\$95,108.48
993		81.2	200	1980	33	\$119,759.07	2060	\$85,429.30
999		63.5	200	1980	33	\$93,653.95	2060	\$66,807.40
1003		15.2	200	1980	33	\$22,417.95	2060	\$15,991.69
1005	Ennis St.	44.4	200	1980	33	\$65,484.02	2060	\$46,712.57
1011		40.9	200	1980	33	\$60,321.99	2060	\$43,030.28
1015		50.4	200	1980	33	\$74,333.22	2060	\$53,025.08
1019		66.6	200	1980	33	\$98,226.04	2060	\$70,068.86
1021		76.9	200	1980	33	\$113,417.15	2060	\$80,905.34
1023		64.1	200	1980	33	\$94,538.87	2060	\$67,438.65
1025		71.6	200	1980	33	\$105,600.36	2060	\$75,329.29
1027		61.4	200	1980	33	\$90,556.74	2060	\$64,598.02
1029	McIntyre Ave.	51.3	200	1980	33	\$75,660.60	2060	\$53,971.96
1031	McIntyre Ave.	79.2	200	1980	33	\$116,809.34	2060	\$83,325.13
1033	McIntyre Ave.	70.2	200	1980	33	\$103,535.55	2060	\$73,856.37
1035	Knox St.	55	200	1980	33	\$81,117.60	2060	\$57,864.68
71		13.9	250	1980	33	\$20,500.63	2060	\$14,623.98
72		80.4	250	1980	33	\$118,579.18	2060	\$84,587.63
73		152.8	250	1980	33	\$225,359.43	2060	\$160,758.59
74		149	250	1980	33	\$219,754.94	2060	\$156,760.67
75		123.8	250	1980	33	\$182,588.34	2060	\$130,248.12
76		52	250	1980	33	\$76,693.00	2060	\$54,708.42
77		160.7	250	1980	33	\$237,010.87	2060	\$169,070.06
628	Eighth Ave.	87.1	250	1980	33	\$128,460.78	2060	\$91,636.60
630	Eighth Ave.	100.7	250	1980	33	\$148,518.95	2060	\$105,944.96
632	Eighth Ave.	74.3	250	1980	33	\$109,582.50	2060	\$78,169.92
642	Second St.	102.9	250	1980	33	\$151,763.65	2060	\$108,259.55
644	Second St.	113.4	250	1980	33	\$167,249.74	2060	\$119,306.44
646		54.8	250	1980	33	\$80,822.62	2060	\$57,654.26
648		32.6	250	1980	33	\$48,080.61	2060	\$34,297.97
650		37	250	1980	33	\$54,570.02	2060	\$38,927.15
652	Fourth Ave.	90	250	1980	33	\$132,737.89	2060	\$94,687.65
654	Fourth Ave.	157.1	250	1980	33	\$231,701.35	2060	\$165,282.55
656	Fourth Ave.	82.1	250	1980	33	\$121,086.45	2060	\$86,376.18
658	Fourth Ave.	114.2	250	1980	33	\$168,429.63	2060	\$120,148.11
660	Fourth Ave.	101.6	250	1980	33	\$149,846.32	2060	\$106,891.84
662	Fourth Ave.	81.5	250	1980	33	\$120,201.53	2060	\$85,744.93
839		58.4	250	1980	33	\$86,132.14	2060	\$61,441.76
845		21.9	250	1980	33	\$32,299.55	2060	\$23,040.66
847		17.2	250	1980	33	\$25,367.68	2060	\$18,095.86
849		7.2	250	1980	33	\$10,619.03	2060	\$7,575.01
850		13.2	250	1980	33	\$19,468.22	2060	\$13,887.52
852		59.2	250	1980	33	\$87,312.03	2060	\$62,283.43
853		18.6	250	1980	33	\$27,432.50	2060	\$19,568.78
855		39.3	250	1980	33	\$57,962.21	2060	\$41,346.94
858	Euclid Ave.	58.2	250	1980	33	\$85,837.17	2060	\$61,231.35
860	Euclid Ave.	77.5	250	1980	33	\$114,302.07	2060	\$81,536.59
863	Euclid Ave.	91	250	1980	33	\$134,212.75	2060	\$95,739.74
871		97.9	250	1980	33	\$144,389.32	2060	\$102,999.12
873	Ross Ave.	44.8	250	1980	33	\$66,073.97	2060	\$47,133.41
915	Edward Ave.	98.4	250	1980	33	\$145,126.76	2060	\$103,525.16
967		62.6	250	1980	33	\$92,326.57	2060	\$65,860.52
969		70	250	1980	33	\$103,240.58	2060	\$73,645.95
971		66.4	250	1980	33	\$97,931.06	2060	\$69,858.44
974	Ennis St.	43.7	250	1980	33	\$64,451.62	2060	\$45,976.11
609	Seventh Ave.	123.5	300	1980	33	\$182,145.88	2060	\$129,932.50
611	Seventh Ave.	41.4	300	1980	33	\$61,059.43	2060	\$43,556.32
613	Seventh Ave.	27.9	300	1980	33	\$41,148.74	2060	\$29,353.17

Municipality Of Black River- Matheson
Asset Management Plan
Sanitary Sewer Network - Pipes

Description	Location	Length In Meters	Diameter	Date Installed	Years Of Service	Life Cycle Cost (80 Years)	Date to Replace	Reconstruction Cost 2013
617	Seventh Ave.	42.5	300	1980	33	\$62,681.78	2060	\$44,713.61
619	Seventh Ave.	74	300	1980	33	\$109,140.04	2060	\$77,854.29
830	Fourth Ave.	34.7	300	1980	33	\$51,177.83	2060	\$36,507.35
1013		192.6	300	1980	33	\$284,059.08	2060	\$202,631.57
1016		154.4	300	1980	33	\$227,719.22	2060	\$162,441.92
1018		67.2	300	1980	33	\$99,110.95	2060	\$70,700.11

13,667

\$ 20,156,808

\$ 14,378,719

Summary of Asset Replacement & Cost by Year	
Total Replacement Cost 2060	\$14,378,719.44



cutting through complexity



Asset Management Planning
for the Township of Black River-
Matheson

Appendix D Infrastructure Profile Bridges and Structures



TOWNSHIP OF BLACK RIVER - MATHESON

BRIDGE ASSET SUMMARY

General Bridge Information						Remaining Service Life (Years)			Condition (2012)		Associated Costs							
#	Structure Name	Superstructure / Deck Type	Substructure	Year Built	Rehab	Est. Age	Substructure	Superstructure	Deck	BCI	BSI	Historical Cost	Replacement Cost	Life Cycle Costs				
														Immediate	Within 1 Year	1-5 Years	6-10 Years	Total Costs
1	Beaver Road	Bailey Bridge/ Timber Deck	Cast-in-Place Concrete	1940		73	12	3	0	34.4	32.4	\$15,032.00	\$1,885,709.12	\$3,000.00	\$4,000.00	\$50,000.00	\$6,000.00	\$63,000.00
2	Birch Road North	Bailey Bridge/ Timber Deck	Cast-in-Place Concrete	1950		63	0	3	0	40.7	38.7	\$17,071.00	\$2,618,655.68	\$3,000.00	\$39,000.00	\$3,000.00	\$0.00	\$45,000.00
3	Cardinal Road West	Bailey Bridge/ Timber Deck	Cast-in-Place Concrete	1983		30	30	20	30	60.9	58.9	\$83,609.00	\$108,848.40	\$2,500.00	\$1,500.00	\$8,000.00	\$0.00	\$12,000.00
4	Copper Road west	Bailey Bridge/ Timber Deck	Cast-in-Place Concrete	1950		63	12	3	12	70.6	68.6	\$28,987.00	\$616,689.60	\$500.00	\$4,000.00	\$10,000.00	\$0.00	\$14,500.00
5	Fisher Road South	Steel Girder / Timber Deck	Cast-in-Place Concrete	2006		7	53	43	53	41.9	39.9	\$428,000.00	\$758,499.90	\$0.00	\$1,200.00	\$0.00	\$2,000.00	\$3,200.00
6	Grindstone Road	Bailey Bridge/ Timber Deck	Cast-in-Place Concrete	1950		63	12	5	12	59.3	57.3	\$38,841.00	\$387,802.80	\$1,500.00	\$15,500.00	\$1,000.00	\$0.00	\$18,000.00
7	Grouse Road #27	Acrow Bridge/ Timber Deck	Cast-in-Place Concrete	1993		20	40	30	40	75.0	73.0	\$440,946.00	\$1,298,374.20	\$1,300.00	\$2,600.00	\$2,000.00	\$0.00	\$5,900.00
8	Grouse Road #28	Acrow Bridge/ Timber Deck	Cast-in-Place Concrete	1995		18	42	32	42	74.9	72.9	\$451,248.00	\$183,485.40	\$2,900.00	\$3,500.00	\$0.00	\$0.00	\$6,400.00
9	Grouse Road #30	Mabey Panel/ Steel Grid, Open	Cast-in-Place Concrete	2006		7	53	30	30	66.8	64.8	\$420,117.00	\$985,850.00	\$0.00	\$3,000.00	\$31,000.00	\$0.00	\$34,000.00
10	Lava Mountain Road	Mabey Panel/ Steel Grid, Open	Cast-in-Place Concrete	2004		9	43	12	12	75.0	73.0	\$625,488.00	\$577,000.00	\$1,800.00	\$4,000.00	\$2,000.00	\$1,500.00	\$9,300.00
11	Mallard Road Bridge	Bailey Bridge/ Timber Deck	Cast-in-Place Concrete	1950		63	53	3	3	28.7	26.7	\$13,061.00	\$555,000.00	\$2,000.00	\$2,000.00	\$47,200.00	\$2,500.00	\$53,700.00
12	Miller Road South	Bailey Bridge/ Timber Deck	Cast-in-Place Concrete	1950		63	43	12	12	57.5	55.5	\$25,206.00	\$450,000.00	\$1,500.00	\$15,000.00	\$13,500.00	\$36,000.00	\$66,000.00
13	Monahan Road	T-Beam/ Longitudinal Laminated Timber, (Prestressed)	Cast-in-Place Concrete	2004		9	41	53	53	75.0	73.0	\$483,908.00	\$500,000.00	\$0.00	\$2,400.00	\$19,000.00	\$0.00	\$21,400.00
14	Pike River Bridge	I-Beam or Girder/ Concrete, Cast in Place	Cast-in-Place Concrete	1989		24	51	43	43	71.3	69.3	\$553,287.00	\$600,000.00	\$0.00	\$3,100.00	\$7,000.00	\$4,500.00	\$14,600.00
15	Red Deer Road East	Bailey Bridge/ Timber Deck	Cast-in-Place Concrete	1950	2006	63	0	53	53	65.9	63.9	\$270,000.00	\$315,600.00	\$0.00	\$3,000.00	\$6,000.00	\$60,000.00	\$69,000.00
16	Red Deer Road West	Steel Girder / Timber Deck	Cast-in-Place Concrete	1972		41	51	12	12	74.9	72.9	\$56,808.00	\$232,440.00	\$200.00	\$4,500.00	\$6,000.00	\$20,000.00	\$30,700.00
17	Shubert Bridge	Steel Girder / Timber Deck	Cast-in-Place Concrete	1999		14	3	5	5	74.2	72.2	\$238,423.00	\$250,000.00	\$0.00	\$1,300.00	\$4,000.00	\$25,000.00	\$30,300.00
18	Vimy Ridge Road (16)	Bailey Panel/ Longitudinal Laminted Timber	Cast-in-Place Concrete	1950		63	3	12	12	41.8	39.8	\$45,830.00	\$550,000.00	\$3,000.00	\$2,000.00	\$90,000.00	\$0.00	\$95,000.00
19	Vimy Ridge Road (17)	T-Beam/ Timber, Wood Planks	Cast-in-Place Concrete	1947		66	3	40	40	21.7	19.7	\$23,885.00	\$500,000.00	\$6,400.00	\$0.00	\$1,000.00	\$0.00	\$7,400.00
20	Wavel Road	Steel Girder / Timber Deck	Cast-in-Place Concrete	1950		63	0	30	30	18.7	16.7	\$51,558.00	\$532,845.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
21	Burton Road South	Culvert		1995		18	51	40	40	72.0	70.0	\$5,460.00	\$130,000.00	\$4,000.00	\$0.00	\$0.00	\$0.00	\$4,000.00
22	Cardinal Road West	Culvert		1995		18	12	42	42	74.0	72.0	\$242,585.00	\$275,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
23	Falcon Road (CUL2)	Culvert		1995		18	51	32	32	75.0	73.0	\$70,795.00	\$88,966.59	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
24	Falcon Road (CUL3)	Culvert		1995		18	41	42	42	75.0	73.0	\$84,910.00	\$113,061.79	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
25	Nickel Road	Culvert		1995		18	26	53	53	70.0	68.0	\$63,006.00	\$83,109.80	\$5,000.00	\$0.00	\$0.00	\$0.00	\$5,000.00
26	Vimy Ridge Road	Culvert		1995		18	36	43	43	75.0	73.0	\$338,115.00	\$467,647.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
27	Wild Goose Road (CUL7)	Culvert		1995		18	12	53	53	75.0	73.0	\$349,838.00	\$367,500.00	\$0.00	\$2,318.00	\$0.00	\$0.00	\$2,318.00
28	Wild Goose Road (CUL5)	Culvert		1995		18	36	51	51	70.0	68.0	\$253,285.00	\$275,000.00	\$2,000.00	\$0.00	\$0.00	\$0.00	\$2,000.00
29	Willow Road	Culvert		1995		18	12	41	41	75.0	73.0	\$76,849.00	\$102,867.69	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
													\$15,809,953.62	\$40,600.00	\$113,918.00	\$300,700.00	\$157,500.00	\$612,718.00
Bridge Condition Index (BCI)		NOTES:																
Good 100 - 70		No OSIM reports available sor structure 21-29, according to the Ontario Structural Inspection Manual (OSIM) bridges with a span over 3.0 m need to be examined every two years. Culverts with a combined span over 3.0m need to be inspected every two or four years based on the discretion of the structural engineer.																
Fair 70 - 60																		
Poor < 60																		



cutting through complexity



Asset Management Planning
for the Township of Black River-
Matheson

Appendix E Infrastructure Profile Buildings and Facilities



TOWNSHIP OF BLACK RIVER MATHESON
BUILDING ASSET SUMMARY

		General Building Information				Remaining Service Life				Facility Condition	Associated Costs					
Buidling Name	Use	Year of Construction	Age (Yrs)	Size (ft²)	Structure	Mechanical	Electrical	Roof	Index (FCI)	Historical Cost	Replacement Cost	Life Cycle Costs				
												immediate	0-5 Years	5-10 Years	Total	
1	Arena	Recreation	1975	38	23,296	46	16	35	60	0.0%	\$686,856.00	\$2,584,000.00	\$0.00	\$0.00	\$0.00	\$0.00
2	Arena - Storage Shed	Recreation	1980	33	430	21	18	18	21	0.0%	\$4,870.00	\$12,075.00	\$0.00	\$0.00	\$0.00	\$0.00
3	Boat Launch - Canoe Building	Recreation	1988	25	430	31	18	18	31	0.0%	\$40,002.00	\$61,295.00	\$0.00	\$0.00	\$0.00	\$0.00
4	Dog Pound - Matheson	Protection	1970	43	144	21	11	21	7	8.6%	\$1,327.00	\$7,130.00	\$0.00	\$0.00	\$614.00	\$614.00
5	Fire Station - Holtyre	Protection	1970	43	1,250	40	14	11	9	9.2%	\$24,757.00	\$133,055.00	\$0.00	\$0.00	\$12,187.50	\$12,187.50
6	Fire Station - Matheson	Protection	1970	43	5,940	9	14	11	7	8.9%	\$116,318.00	\$625,140.00	\$0.00	\$0.00	\$55,363.80	\$55,363.80
7	Fire Station - Ramore	Protection	1970	43	2,704	5	N/A	N/A	0	0.5%	\$109,942.00	\$590,870.00	\$3,000.00	\$0.00	\$0.00	\$3,000.00
8	Fire station - Val Gagne	Protection	1970	43	1,040	21	11	7	9	14.6%	\$16,797.00	\$90,275.00	\$0.00	\$0.00	\$13,140.00	\$13,140.00
9	Garage- Raymore	Transportation	1970	43	1,092	13	N/A	N/A	0	15.8%	\$12,518.00	\$67,275.00	\$0.00	\$0.00	\$10,647.00	\$10,647.00
10	Garage - Holtyre	Transportation	1990	23	400	46	9	7	3	25.1%	\$22,395.00	\$31,165.00	\$3,900.00	\$0.00	\$3,920.00	\$7,820.00
11	Garage 1 (6 Bays)	Transportation	1970	43	4,505	17	8	5	0	14.4%	\$71,875.00	\$386,205.00	\$43,932.75	\$3,000.00	\$8,610.00	\$55,542.75
12	Garage 2	Transportation	1970	43	2,117	17	8	5	6	15.7%	\$32,760.00	\$176,065.00	\$0.00	\$3,000.00	\$24,625.75	\$27,625.75
13	Gauthier Lake Change Room	Recreation	2000	13	161	59	N/A	N/A	15	0.0%	\$7,433.00	\$8,500.00	\$0.00	\$0.00	\$0.00	\$0.00
14	Greenhill Vault	Health	1990	23	352	46	N/A	N/A	3	17.7%	\$13,966.00	\$19,435.00	\$0.00	\$3,432.00	\$0.00	\$3,432.00
15	Hough Lake Change Room	Recreation	1990	23	576	37	N/A	N/A	2	10.2%	\$17,272.00	\$24,035.00	\$0.00	\$2,459.20	\$0.00	\$2,459.20
16	Matheson Library	Recreation	1970	43	1,943	60	30	20	25	0.0%	\$60,428.00	\$324,760.00	\$0.00	\$0.00	\$0.00	\$0.00
17	Municipal Office	General	1970	43	4,074	13	0	0	0	7.2%	\$129,606.00	\$605,700.00	\$43,689.00	\$0.00	\$0.00	\$43,689.00
18	Museum	Recreation	1960	53	3,939	5	0	5	0	10.1%	\$93,765.00	\$659,985.00	\$36,879.50	\$6,000.00	\$23,500.00	\$66,379.50
19	Museum - Shed	Recreation	1970	43	430	21	11	7	9	23.5%	\$4,515.00	\$24,265.00	\$0.00	\$0.00	\$5,692.50	\$5,692.50
20	*Ponderosa	Recreation	1970	43	3,000	N/A	N/A	N/A	N/A	0.0%	\$93,230.00	\$501,055.00	\$0.00	\$0.00	\$0.00	\$0.00
21	Quonset Hut	General	2008	5	5,000	69	31	19	25	0.0%	\$294,572.00	\$294,572.00	\$0.00	\$0.00	\$0.00	\$0.00
22	Ramore Hall	Recreation	1986	27	4,100	41	4	7	9	10.6%	\$239,596.00	\$398,475.00	\$0.00	\$3,060.00	\$39,350.00	\$42,410.00
23	Rink Shack - Holtyre	Recreation	1988	25	520	44	6	7	9	9.9%	\$59,515.00	\$91,195.00	\$0.00	\$0.00	\$8,990.00	\$8,990.00
24	Rink Shack - Ramore	Recreation	1992	21	825	49	11	7	5	12.6%	\$61,360.00	\$79,695.00	\$0.00	\$8,043.75	\$2,000.00	\$10,043.75
25	Rink Shack - Val Gagne	Recreation	1984	29	760	39	1	7	9	13.9%	\$42,414.00	\$76,360.00	\$0.00	\$1,178.00	\$9,410.00	\$10,588.00
26	Sewage Treatment Plant	Water	1974	39	920	26	11	7	9	51.1%	\$27,788.00	\$849,130.00	\$0.00	\$420,000.00	\$13,820.00	\$433,820.00
27	Liftstation - Ramore	Sanitary	1988	25	310	44	6	7	7	14.3%	\$71,787.00	\$200,000.00	\$0.00	\$25,000.00	\$3,560.00	\$28,560.00
28	*Shillington Hall	Recreation	1988	25	2,600	N/A	N/A	N/A	N/A	0.0%	\$141,095.00	\$216,200.00	\$0.00	\$0.00	\$0.00	\$0.00
29	St Laurent Vault	Health	1980	33	352	34	11	7	9	23.2%	\$7,838.00	\$19,435.00	\$0.00	\$0.00	\$4,504.00	\$4,504.00
30	Storage Building (Quonset Building)	General	2011	2	N/A	58	28	18	23	0.0%	\$17,781.00	\$25,000.00	\$0.00	\$0.00	\$0.00	\$0.00
31	Tower (2 Buildings for Communication tower)	Protection	2011	2	200	73	35	23	29	0.0%	\$48,948.00	\$50,000.00	\$0.00	\$0.00	\$0.00	\$0.00
32	*Val Gagne Hall	Recreation	1970	43	3,705	N/A	N/A	N/A	N/A	0.0%	\$89,100.00	\$478,860.00	\$0.00	\$0.00	\$0.00	\$0.00
33	Val Gagne Vault	Health	1980	33	352	34	11	7	9	23.2%	\$7,838.00	\$19,435.00	\$0.00	\$0.00	\$4,503.04	\$4,503.04
34	Warehouse	Transportation	1980	33	2,730	27	8	5	6	34.4%	\$41,139.00	\$102,005.00	\$0.00	\$3,000.00	\$32,117.50	\$35,117.50
35	*Watabeag Church	Health	1988	25	744	N/A	N/A	N/A	N/A	0.0%	\$67,170.00	\$102,925.00	\$0.00	\$0.00	\$0.00	\$0.00
36	Water Treatment Plant Val Gagne	Water	1978	35	970	19	5	11	7	5.6%	\$45,099.00	\$479,435.00	\$0.00	\$23,500.00	\$3,560.00	\$27,060.00
37	Liftstation #1 (Off Second St.) Matheson	Sanitary	1976	37	310	29	5	11	7	6.6%	\$26,416.00	\$175,000.00	\$0.00	\$8,000.00	\$3,560.00	\$11,560.00
38	Liftstation #2 (Off Seventh St.) Matheson	Sanitary	1976	37	310	29	5	11	7	47.7%	\$26,416.00	\$175,000.00	\$0.00	\$80,000.00	\$3,560.00	\$83,560.00
39	Liftstation #3 (Off Quinn Cres.) Matheson	Sanitary	1976	37	310	29	5	11	7	12.3%	\$26,416.00	\$175,000.00	\$0.00	\$18,000.00	\$3,560.00	\$21,560.00
40	Liftstation (Off Hwy. 572) Holtyre	Sanitary	1988	25	310	44	5	6	7	6.7%	\$69,065.00	\$150,000.00	\$0.00	\$3,500.00	\$6,560.00	\$10,060.00
41	Liftstation (Ross Mine) Holtyre	Sanitary	1988	25	310	44	5	6	7	17.7%	\$69,065.00	\$150,000.00	\$0.00	\$20,000.00	\$6,560.00	\$26,560.00
42	Lagoon Holtyre	Sanitary	1988	25	41540m²	N/A	31	N/A	N/A	2.1%	\$521,063.00	\$726,950.00	\$0.00	\$0.00	\$15,000.00	\$15,000.00
43	Lagoon Val Gagne	Sanitary	1985	28	40000m²	N/A	28	N/A	N/A	0.7%	\$317,599.00	\$700,000.00	\$0.00	\$0.00	\$5,000.00	\$5,000.00
44	Lagoon Ramore	Sanitary	1990	23	33400m²	N/A	34	N/A	N/A	0.0%	\$141,269.00	\$584,500.00	\$0.00	\$0.00	\$0.00	\$0.00
45	Water Treatment Plant (Matheson)	Water	1997	16	420	55	5	18	5	8.1%	\$55,649.00	\$527,160.00	\$0.00	\$41,570.00	\$925.00	\$42,495.00
46	Water Treatment Plant Shed (Matheson)	Water	1997	16	N/A	55	5	18	5	17.8%	N/A	\$10,000.00	\$0.00	\$850.00	\$925.00	\$1,775.00
47	Water Treatment Plant (Val Gagne South)	Water	1985	28	280	40	5	3	7	3.9%	\$21,948.00	\$383,008.00	\$0.00	\$11,500.00	\$3,305.00	\$14,805.00
48	Water Treatment Plant (Ramore)	Water	1997	16	260	55	5	18	5	10.9%	\$20,392.00	\$369,610.00	\$0.00	\$2,210.00	\$37,925.00	\$40,135.00
49	Water Treatment Plant (Holtyre)	Water	1987	26	200	43	5	5	7	20.8%	N/A	\$259,958.00	\$0.00	\$51,500.00	\$2,625.00	\$54,125.00
50	Reservoir	Water	1930	83	450m³	26	N/A	N/A	N/A	2.5%	\$37,534.00	\$400,000.00	\$0.00	\$10,000.00	\$0.00	\$10,000.00
												\$9,935,652.00	\$127,501.25	\$482,072.95	\$276,555.09	\$886,129.29

Facility Condition Index (FCI)	
Good	< 5%
Fair	5% - 10 %
Poor	> 10%

NOTES:

Assumed Square Footage of Lift stations to be 310 ft²
* Buildings are not maintained by the Township are either leased or boarded up, no life cycle costs shown.
Replacement Cost Based on Information given by Municipality.
Replacement Cost of Water Treatment Plants based building estimate unless otherwise indicated from Black River Matheson, and on the number of wells per plant.
Liftstation, and sewage treatment plant are based on OCWA Capital Planning Study.
Life cycle cost for water treatment plants, and liftstation replacement cost based on projected historical cost.



cutting through complexity



Asset Management Planning
for the Township of Black River-
Matheson

Appendix F Infrastructure Profile Vehicles



Municipality Of Black River Matheson
Asset Management Plan
Fleet

Assessment Year: 2013

Asset ID	Asset Name	Purchase Year	Purchase Cost	Vehicle Category	Age	Estimated Useful Life	Remaining Useful Life	Replacement Value	Replace Immediately	Replace within Five Years	Replace within Ten Years
TPE53	1984 Backhoe/ Loader	1984		Backhoe, loader	29	12	0	\$ 125,000	\$ 125,000	\$ -	\$ -
TPE80	2004 Caterpillar D5N Dozer	2008	\$110,524	Backhoe, loader	5	12	7	\$ 125,000	\$ -	\$ -	\$ 125,000
TPE134	1984 Four Wheel Drive Loader	1997	\$106,656	Backhoe, loader	16	12	0	\$ 125,000	\$ 125,000	\$ -	\$ -
TPE145	Caterpillar Backhoe Loader	2008	\$101,022	Backhoe, loader	5	12	7	\$ 125,000	\$ -	\$ -	\$ 125,000
VH9	2002 Dodge Dakota Sport - light truck	2001	\$26,604	Car, normal use	12	9	0	\$ 35,000	\$ 35,000	\$ -	\$ -
VH6	Ford MHV Pumper - Off Road	1998	\$188,291	Fire equipment - heavy	15	20	5	\$ 250,000	\$ -	\$ 250,000	\$ -
VH7	Fire Truck Pumper - Off Road	2003	\$246,332	Fire equipment - heavy	10	20	10	\$ 250,000	\$ -	\$ -	\$ 250,000
TPE139	2001 Volvo Grader	2003	\$233,795	Grader	10	13	3	\$ 350,000	\$ -	\$ 350,000	\$ -
TPE143	2007 Caterpillar 160H Grader	2007	\$302,367	Grader	6	13	7	\$ 350,000	\$ -	\$ -	\$ 350,000
VH1	International 750 Tanker/Pumper - Off Road	2003	\$264,167	Medium-heavy truck	10	12	2	\$ 275,000	\$ -	\$ 275,000	\$ -
VH10	Ford MHV F800 - Heavy truck	1997	\$165,720	Medium-heavy truck	16	12	0	\$ 275,000	\$ 275,000	\$ -	\$ -
VH4	1979 GMC ME6 Tanker - Off Road	1979	\$73,327	Medium-heavy truck	34	12	0	\$ 275,000	\$ 275,000	\$ -	\$ -
VH5	1975 Ford MHV Tanker - Off Road	1975	\$26,581	Medium-heavy truck	38	12	0	\$ 275,000	\$ 275,000	\$ -	\$ -
VH2	Polaris 6 Wheel ATV Ranger - Off Road	2000	\$15,649	Off-road equipment	13	12	0	\$ 15,000	\$ 15,000	\$ -	\$ -
VH3	Ford MHV Rescue Truck - Off Road	1989	\$137,122	Fire equipment - medium	24	10	0	\$ 150,000	\$ 150,000	\$ -	\$ -
VH11	1989 Ford Sand Plow - heavy	1997	\$134,797	Plow	16	20	4	\$ 250,000	\$ -	\$ 250,000	\$ -
VH12	1994 Ford Plow - heavy	1997	\$136,719	Plow	16	20	4	\$ 250,000	\$ -	\$ 250,000	\$ -
VH14	2000 Ford Tandem Snowplow - heavy	2000	\$153,587	Plow	13	20	7	\$ 250,000	\$ -	\$ -	\$ 250,000
VH15	International Plow/Sander - heavy	2007	\$203,662	Plow	6	20	14	\$ 250,000	\$ -	\$ -	\$ -
VH16	International Plow/Sander - heavy	2008	\$185,456	Plow	5	20	15	\$ 250,000	\$ -	\$ -	\$ -
VH17	Snowplow - heavy	2009	\$189,362	Plow	4	20	16	\$ 250,000	\$ -	\$ -	\$ -
VH13	1999 Ford 5 Ton Sand Truck - heavy	1999	\$127,727	Plow	14	20	6	\$ 250,000	\$ -	\$ -	\$ 250,000
VH18	1996 Dodge Ramore 1500 Pickup - light	1997	\$21,544	Pick-up truck	16	10	0	\$ 35,000	\$ 35,000	\$ -	\$ -
VH19	1999 Ford F150 1/2 Ton - light	1999	\$22,139	Pick-up truck	14	10	0	\$ 35,000	\$ 35,000	\$ -	\$ -
VH20	2002 F150 1/2 Ton - light	2001	\$26,150	Pick-up truck	12	10	0	\$ 35,000	\$ 35,000	\$ -	\$ -
VH21	2004 Dodge Pickup Crew Cab - light	2007	\$39,903	Pick-up truck	6	10	4	\$ 35,000	\$ -	\$ 35,000	\$ -
VH22	Dodge 1/2 ton - light	2009	\$32,669	Pick-up truck	4	10	6	\$ 35,000	\$ -	\$ -	\$ 35,000
VH23	Ford F550 Super Duty	2005	\$57,489	Pick-up truck	8	10	2	\$ 35,000	\$ -	\$ 35,000	\$ -
VH24	2005 Dodge Ram	2009	\$10,216	Pick-up truck	4	10	6	\$ 35,000	\$ -	\$ -	\$ 35,000
VH8	Chev Crew Cab 1 Ton - light truck	2000	\$29,425	Pick-up truck	13	10	0	\$ 35,000	\$ 35,000	\$ -	\$ -
TPV126	2008 Dodge Ram 1500 Quad Cab 4x4	2009	\$34,181	Pick-up truck	4	10	6	\$ 35,000	\$ -	\$ -	\$ 35,000
RRV	Ford F150	1997		Pick-up truck	16	10	0	\$ 35,000	\$ 35,000	\$ -	\$ -
RRV	Dodge Ram	2005	\$10,687	Pick-up truck	8	10	2	\$ 35,000	\$ -	\$ 35,000	\$ -
	2012 Dodge Ram 1500		\$19,385	Pick-up truck	2013	10	0	\$ 35,000	\$ 35,000	\$ -	\$ -
	Dodge Ram	2008		Pick-up truck	5	10	5	\$ 35,000	\$ -	\$ 35,000	\$ -
	Dodge Ram	2011		Pick-up truck	2	10	8	\$ 35,000	\$ -	\$ -	\$ 35,000
TPV107	1989 Ford L9000 Sand Plow	1997		Plow	16	20	4	\$ 250,000	\$ -	\$ 250,000	\$ -
TPV127	1994 Ford L9000 tandem Plow	1997		Plow	16	20	4	\$ 250,000	\$ -	\$ 250,000	\$ -
TPE128	1994 20-ton Float	1994	\$15,458	Trailer	19	20	1	\$ 25,000	\$ -	\$ 25,000	\$ -
Total								\$ 5,765,000	\$ 1,485,000	\$ 2,040,000	\$ 1,490,000



cutting through complexity



Asset Management Planning
for the Township of Black River-
Matheson

Appendix G Life Cycle Profiles for Linear Infrastructure



MUNICIPAL ROADS - LIFECYCLE COSTING

URBAN ROADS

PAVED URBAN COLLECTOR (10.0m 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	TOTAL LIFECYCLE COST
Operational Items	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Rehabilitation	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Reconstruction	
Operation Cost / km	\$15,000	\$15,000	\$356,046	\$15,000	\$15,000	\$1,802,920	\$15,000	\$15,000	\$356,046	\$15,000	\$15,000	\$2,189,923	

Asset Operational Item	Cost / m	Cost / km	Road Structure
Crack Sealing	\$15.00	\$15,000.00	300mm Granular B
Resurfacing	\$356.05	\$356,046.48	150mm Granular A
Rehabilitation	\$1,802.92	\$1,802,919.85	50mm HL8
Reconstruction	\$2,189.92	\$2,189,923.36	40mm HL3

PAVED URBAN ARTERIAL (11.0m 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	TOTAL LIFECYCLE COST
Operational Items	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Rehabilitation	Crack Sealing	Crack Sealing	Resurfacing	Crack Sealing	Crack Sealing	Reconstruction	
Operation Cost / km	\$25,000	\$25,000	\$653,869	\$25,000	\$25,000	\$2,508,572	\$25,000	\$25,000	\$653,869	\$25,000	\$25,000	\$3,046,435	

Asset Operational Item	Cost / m	Cost / km	Road Structure
Crack Sealing	\$25.00	\$25,000.00	450mm Granular B
Resurfacing	\$653.87	\$653,869.24	150mm Granular A
Rehabilitation	\$2,508.57	\$2,508,572.09	2 x 50mm HL8
Reconstruction	\$3,046.43	\$3,046,434.51	40mm HL3

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 Ditching Brushing	Resurfacing Ditching Brushing	Granular Top Up Ditching Brushing	Rehabilitation Ditching Brushing	Granular Top Up Ditching Brushing	Reconstruction Ditching Brushing	TOTAL LIFECYCLE COST \$1,915,265
Operation Cost / km	\$74,000	\$175,289	\$74,000	\$670,473	\$74,000	\$847,503	

Asset Operational Item	Cost / m	Cost / km
100mm Granular Top Up	\$45.00	\$45,000.00
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	2 nd Application	Resurfacing	2 nd Application	Rehabilitation	2 nd Application	Reconstruction	TOTAL LIFECYCLE COST \$2,377,670
Operation Cost / km	\$52,500	\$470,445	\$52,500	\$753,585	\$52,500	\$996,141	

Asset Operational Item	Cost / m	Cost / km
2 nd Application of Surface	\$52.50	\$52,500.00
Ditching	\$11.50	\$11,500.00
Brushing	\$17.50	\$17,500.00
Resurfacing	\$470.45	\$470,445.25
Rehabilitation	\$753.58	\$753,584.50
Reconstruction	\$996.14	\$996,140.50

Road Structure

300mm Granular B
150mm Granular A
25mm First Surface Treatment
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	TOTAL LIFECYCLE COST \$3,731,360
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	

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	TOTAL LIFECYCLE COST \$4,837,733
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	

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

STORM SEWER LIFECYCLE COSTING

URBAN STORM SEWER

URBAN COLLECTION SEWER (300 - 900mm 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	
Operation Cost / km	\$35,000	\$56,000	\$135,538	\$56,000	\$943,890	TOTAL LIFECYCLE COST \$1,226,428

Asset Operational	Cost / m	Cost / km	Notes
Camera Inspection	\$15.00	\$15,000.00	
Structure Inspection	\$6.00	\$6,000.00	
Cleaning / Flushing	\$35.00	\$35,000.00	
Appurtenance Replac	\$225.90	\$225,896.00	
Complete Replaceme	\$943.89	\$943,890.00	

URBAN TRUNK SEWER (900 - 1500mm 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	
Operation Cost / km	\$35,000	\$56,000	\$189,536	\$56,000	\$1,562,685	TOTAL LIFECYCLE COST \$1,899,221

Asset Operational	Cost / m	Cost / km	Notes
Camera Inspection	\$15.00	\$15,000.00	
Structure Inspection	\$6.00	\$6,000.00	
Cleaning / Flushing	\$35.00	\$35,000.00	
Appurtenance Replac	\$315.89	\$315,894.00	
Complete Replaceme	\$1,562.69	\$1,562,685.00	

URBAN LARGE TRUNK SEWER (1500mm ø - 3.0 x 3.0m Box Culvert)

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	
Operation Cost / km	\$35,000	\$56,000	\$362,071	\$56,000	\$3,759,880	TOTAL LIFECYCLE COST \$4,268,951

Asset Operational	Cost / m	Cost / km	Notes
Camera Inspection	\$15.00	\$15,000.00	
Structure Inspection	\$6.00	\$6,000.00	
Cleaning / Flushing	\$35.00	\$35,000.00	
Appurtenance Replac	\$603.45	\$603,452.00	
Complete Replaceme	\$3,759.88	\$3,759,880.00	

RURAL STORM SEWER

RURAL COLLECTION SEWER (300 - 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	
Operation Cost / km	\$35,000	\$56,000	\$154,796	\$56,000	\$903,185	TOTAL LIFECYCLE COST \$1,204,981

Asset Operational	Cost / m	Cost / km	Notes
Camera Inspection	\$15.00	\$15,000.00	
Structure Inspection	\$6.00	\$6,000.00	
Cleaning / Flushing	\$35.00	\$35,000.00	
Appurtenance Replac	\$257.99	\$257,994.00	
Complete Replaceme	\$903.19	\$903,185.00	

RURAL TRUNK SEWER (900 - 1500mm 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	
Operation Cost / km	\$35,000	\$56,000	\$209,131	\$56,000	\$1,581,480	TOTAL LIFECYCLE COST \$1,937,611

Asset Operational	Cost / m	Cost / km	Notes
Camera Inspection	\$15.00	\$15,000.00	
Structure Inspection	\$6.00	\$6,000.00	
Cleaning / Flushing	\$35.00	\$35,000.00	
Appurtenance Replac	\$348.55	\$348,552.00	
Complete Replaceme	\$1,581.48	\$1,581,480.00	

SANITARY SEWER LIFECYCLE COSTING

SANITARY SEWER

SANITARY COLLECTION SEWER (150 - 300mm ø)

Service Year	20th Year	40th Year	50th Year	60th Year	80th Year	
Operational Items	Camera Cleaning/Flushing Structure Inspection	Camera Inspections Cleaning/Flushing Structure Inspections	60% Structure Replacement	Camera Inspections Cleaning/Flushing Structure Inspections	Complete Replacement	TOTAL LIFECYCLE COST \$1,474,865
Operation Cost / km	\$86,000	\$86,000	\$164,780	\$86,000	\$1,052,085	

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	\$1,052.09	\$1,052,085.00	

SANITARY COLLECTION SEWER (300-450mm ø)

Service Year	20th Year	40th Year	50th Year	60th Year	80th Year	
Operational Items	Camera Cleaning/Flushing Structure Inspection	Camera Inspections Cleaning/Flushing Structure Inspections	60% Structure Replacement	Camera Inspections Cleaning/Flushing Structure Inspections	Complete Replacement	TOTAL LIFECYCLE COST \$1,558,865
Operation Cost / km	\$86,000	\$86,000	\$173,780	\$86,000	\$1,127,085	

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	\$289.63	\$289,634.00	
Complete Replacement	\$1,127.09	\$1,127,085.00	

SANITARY TRUNK SEWER (500-750mm ø)

Service Year	20th Year	40th Year	50th Year	60th Year	80th Year	
Operational Items	Camera Cleaning/Flushing Structure Inspection	Camera Inspections Cleaning/Flushing Structure Inspections	60% Structure Replacement	Camera Inspections Cleaning/Flushing Structure Inspections	Complete Replacement	TOTAL LIFECYCLE COST \$2,535,263
Operation Cost / km	\$126,000	\$126,000	\$248,851	\$126,000	\$1,908,412	

Asset Operational Item	Cost / m	Cost / km	Notes
Camera Inspection	\$35.00	\$35,000.00	
Structure Inspection	\$6.00	\$6,000.00	
Cleaning / Flushing	\$85.00	\$85,000.00	
Structure Replacement	\$414.75	\$414,752.00	
Complete Replacement	\$1,908.41	\$1,908,412.00	

Forcemain (200mm ø)

Service Year	20th Year	40th Year	50th Year	60th Year	80th Year	
Operational Items	Camera Cleaning/Flushing Structure Inspection	Camera Inspections Cleaning/Flushing Structure Inspections	60% Structure Replacement	Camera Inspections Cleaning/Flushing Structure Inspections	Complete Replacement	TOTAL LIFECYCLE COST \$258,000
Operation Cost / km	\$86,000	\$86,000	\$0	\$86,000	\$0	

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	\$0.00	\$0.00	
Complete Replacement	\$0.00	\$0.00	

WATER SUPPLY LIFECYCLE COSTING

URBAN DISTRIBUTION WATERMAINS

URBAN DISTRIBUTION (100mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	TOTAL LIFECYCLE COST
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	
Operation Cost / km	\$55,000	\$128,182	\$55,000	\$631,110	

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	\$113.18	\$113,182.00	
Complete Main Replacement	\$631.11	\$631,110.00	

URBAN DISTRIBUTION (150mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	TOTAL LIFECYCLE COST
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	
Operation Cost / km	\$55,000	\$128,182	\$55,000	\$671,110	

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	\$113.18	\$113,182.00	
Complete Main Replacement	\$671.11	\$671,110.00	

URBAN DISTRIBUTION (200mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	TOTAL LIFECYCLE COST
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	
Operation Cost / km	\$55,000	\$142,682	\$55,000	\$748,610	

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	\$127.68	\$127,682.00	
Complete Main Replacement	\$748.61	\$748,610.00	

URBAN DISTRIBUTION (250mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	TOTAL LIFECYCLE COST
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	
Operation Cost / km	\$55,000	\$147,182	\$55,000	\$817,110	

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	\$132.18	\$132,182.00	
Complete Main Replacement	\$817.11	\$817,110.00	

URBAN DISTRIBUTION (300mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	TOTAL LIFECYCLE COST
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	
Operation Cost / km	\$55,000	\$157,182	\$55,000	\$953,910	

Asset Operational Item	Cost / m	Cost / km	Notes
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Valve Exercise	\$2.00	\$2,000.00	Annually
Swabbing/Chlorination	\$15.00	\$15,000.00	
Appurtenance Replacement	\$142.18	\$142,182.00	
Complete Main Replacement	\$953.91	\$953,910.00	

URBAN DISTRIBUTION (325mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$161,182	\$55,000	\$977,410	\$1,248,592

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	\$146.18	\$146,182.00	
Complete Main Replacement	\$977.41	\$977,410.00	

URBAN DISTRIBUTION (375mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$168,182	\$55,000	\$1,022,910	\$1,301,092

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	\$153.18	\$153,182.00	
Complete Main Replacement	\$1,022.91	\$1,022,910.00	

URBAN DISTRIBUTION (450mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$75,000	\$199,182	\$75,000	\$1,091,910	\$1,441,092

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	\$164.18	\$164,182.00	

Complete Main Replacement	\$1,091.91	\$1,091,910.00
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RURAL DISTRIBUTION WATERMAINS

RURAL DISTRIBUTION (150mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$91,682	\$55,000	\$506,860	\$708,542

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	\$76.68	\$76,682.00	
Complete Main Replacement	\$506.86	\$506,860.00	

RURAL DISTRIBUTION (200mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$104,432	\$55,000	\$582,940	\$797,372

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	\$89.43	\$89,432.00	
Complete Main Replacement	\$582.94	\$582,940.00	

RURAL DISTRIBUTION (250mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$108,182	\$55,000	\$650,020	\$868,202

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	\$93.18	\$93,182.00
Complete Main Replacement	\$650.02	\$650,020.00

RURAL DISTRIBUTION (300mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$75,000	\$167,937	\$75,000	\$873,085	\$1,191,022

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	\$132.94	\$132,937.00	
Complete Main Replacement	\$873.09	\$873,085.00	

RURAL DISTRIBUTION (325mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$144,437	\$55,000	\$900,245	\$1,154,682

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	\$129.44	\$129,437.00	
Complete Main Replacement	\$900.25	\$900,245.00	

RURAL DISTRIBUTION (375mm ø PVC)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$55,000	\$149,437	\$55,000	\$968,575	\$1,228,012

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	\$134.44	\$134,437.00	
Complete Main Replacement	\$968.58	\$968,575.00	

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 Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$145,000	\$308,564	\$145,000	\$1,050,910	\$1,649,474

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	\$1,050.91	\$1,050,910.00	

TRANSMISSION (600mm ø Pressure Pipe)

Service Year	20th Year	40th Year	60th Year	80th Year	
Operational Items	Valve Exercise Swabbing / Chlorination	Appurtenance Replacement Swabbing	Valve Exercise Swabbing / Chlorination	Complete Replacement	TOTAL LIFECYCLE COST
Operation Cost / km	\$235,000	\$414,874	\$235,000	\$1,460,685	\$2,345,559

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	\$1,460.69	\$1,460,685.00	



cutting through complexity



Asset Management Planning
for the Township of Black River-
Matheson

Appendix H Costing Estimates for Life Cycle Activities



ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

User Data Input Cells
End of Sheet Section

ROAD CONSTRUCTION UNIT RATES

Item	\$ / tonne	\$ / m ³	Conv.	Notes
Excavation & Disposal	\$18.92	\$35.00	1.85	Haul length, and unit conversion should be considered
Earth Cut	\$5.41	\$10.00	1.85	Haul length, and unit conversion should be considered
Digouts		\$65.00		Includes replacement granulars
Rock Excavation		\$75.00	2.70	Haul length, and unit conversion should be considered
Imported Earth Fill	\$17.95	\$35.00	1.95	Haul length, and unit conversion should be considered
Engineered Fill	\$25.00	\$50.00	2.10	Haul length, engineering requirements for fill and unit conversion should be considered
Granular C	\$12.00	\$24.00	2.00	Haul Length should be considered
Granular B	\$14.00	\$28.00	2.00	Haul Length should be considered
Granular B Type II	\$16.50	\$36.30	2.20	Haul Length should be considered
Granular A	\$18.50	\$44.40	2.40	Haul Length should be considered
HL3 Asphalt	\$170.00	\$416.50	2.45	Haul Length should be considered
HL4 Asphalt	\$165.00	\$404.25	2.45	Haul Length should be considered
HL8 Asphalt	\$150.00	\$367.50	2.45	Haul Length should be considered

	\$ / m ²	Notes
Single Surface Treatement	\$8.50	Availability, haul length should be considered
Double Surface Treatment	\$17.00	Availability, haul length should be considered
Pulverize	\$2.25	
Mill Wear Surface	\$3.50	
Prep Surface for Asphalt	\$1.25	

	\$ / m	Notes
Curb & Gutter	\$145.00	
Sidewalk	\$125.00	
Brushing	\$17.50	
Ditching	\$11.50	
Crack Sealing	\$15.00	

General Notes
Contract size should always be considered, the rates notes above are an average of many executed project tenders

ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

RURAL SECTIONS

RURAL - RECONSTRUCTION

Type/Description	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Unit Rate	Cost / lane km	Cost / lane m
Granular - 3.25m lane								
450mm Excavation & Disposal	1,000	4.650	0.45		2092.5	\$35.00	\$73,238	\$73.24
300mm Granular B	1,000	4.350	0.3		1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15		585	\$44.40	\$25,974	\$25.97
Digouts	150	5.000	1		750	\$65.00	\$48,750	\$48.75
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$10,000	\$10.00
Total (3.25m lane)							\$277,502	\$277.50
Total (6.50m road)							\$555,003	\$555.00
Rural Light SST - 3.25m lane								
475mm Excavation & Disposal	1,000	4.650	0.475		2208.75	\$35.00	\$77,306	\$77.31
300mm Granular B	1,000	4.350	0.3		1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15		585	\$44.40	\$25,974	\$25.97
Single Surface Treatment	1,000	3.250		3250		\$8.50	\$27,625	\$27.63
Digouts	150	5.000	1		750	\$65.00	\$48,750	\$48.75
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
Total (3.25m lane)							\$324,195	\$324.20
Total (6.50m road)							\$648,391	\$648.39
Rural Light DST - 3.25m lane								
475mm Excavation & Disposal	1,000	4.650	0.475		2208.75	\$35.00	\$77,306	\$77.31
300mm Granular B	1,000	4.350	0.3	4350	1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15	3900	585	\$44.40	\$25,974	\$25.97
Double Surface Treatment	1,000	3.250		3250		\$17.00	\$55,250	\$55.25
Digouts	150	5.000	1		750	\$65.00	\$48,750	\$48.75
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
Total (3.25m lane)							\$351,820	\$351.82

ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

Total (6.50m road)							\$703,641	\$703.64
Rural Light Paved - 3.25m lane								
500mm Excavation & Disposal	1,000	4.650	0.455		2115.75	\$35.00	\$74,051	\$74.05
300mm Granular B	1,000	4.350	0.3	4350	1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15	3900	585	\$44.40	\$25,974	\$25.97
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Digouts	150	5.000	1		750	\$65.00	\$48,750	\$48.75
Drainage / Culverts							\$45,000	\$45.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$35,000	\$35.00
Total (3.25m lane)							\$383,034	\$383.03
Total (6.50m road)							\$766,068	\$766.07
Rural Medium Paved - 3.5m lane (Collector)								
540mm Excavation & Disposal	1,000	4.900	0.54		2646	\$35.00	\$92,610	\$92.61
300mm Granular B	1,000	4.600	0.3	4600	1380	\$28.00	\$38,640	\$38.64
150mm Granular A	1,000	4.150	0.15	4150	622.5	\$44.40	\$27,639	\$27.64
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	\$64.31
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Digouts	150	6.000	1		900	\$65.00	\$58,500	\$58.50
Drainage / Culverts							\$150,000	\$150.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$45,000	\$45.00
Total (3.50m lane)							\$593,012	\$593.01
Total (7.0m road)							\$1,186,023	\$1,186.02
Rural Heavy Paved - 3.75m lane (Arterial)								
740mm Excavation & Disposal	1,000	5.450	0.74		4033	\$35.00	\$141,155	\$141.16
450mm Granular B	1,000	5.000	0.45	5000	2250	\$28.00	\$63,000	\$63.00
150mm Granular A	1,000	4.400	0.15	4400	660	\$44.40	\$29,304	\$29.30
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Digouts	150	6.000	1		900	\$65.00	\$58,500	\$58.50
Drainage / Culverts							\$225,000	\$225.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$55,000	\$55.00
Total (3.75m lane)							\$830,247	\$830.25
Total (7.5m road)							\$1,660,493	\$1,660.49

ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

RURAL - REHABILITATION								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Unit Rate	Cost / lane km	Cost / lane m
<i>Granular - 3.25m lane</i>								
150mm Excavation & Disposal	1,000	4.050	0.15		607.5	\$35.00	\$21,263	\$21.26
150mm Granular A	1,000	3.900	0.15	3900	585	\$44.40	\$25,974	\$25.97
Digouts	50	5.000	1		250	\$65.00	\$16,250	\$16.25
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$10,000	\$10.00
Total (3.25m lane)							\$156,487	\$156.49
Total (6.50m road)							\$312,973	\$312.97
<i>Rural Light SST - 3.25m lane</i>								
75mm Excavation & Disposal	1,000	3.850	0.075		288.75	\$35.00	\$10,106	\$10.11
50mm Granular A	1,000	3.800	0.05	3800	190	\$44.40	\$8,436	\$8.44
Single Surface Treatment	1,000	3.250		3250		\$8.50	\$27,625	\$27.63
Digouts	50	5.000	1		250	\$65.00	\$16,250	\$16.25
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
Total (3.25m lane)							\$170,417	\$170.42
Total (6.50m road)							\$340,835	\$340.83
<i>Rural Light DST - 3.25m lane</i>								
75mm Excavation & Disposal	1,000	3.850	0.075		288.75	\$35.00	\$10,106	\$10.11
50mm Granular A	1,000	3.800	0.05	3800	190	\$44.40	\$8,436	\$8.44
Double Surface Treatment	1,000	3.250		3250		\$17.00	\$55,250	\$55.25
Digouts	50	5.000	1		250	\$65.00	\$16,250	\$16.25
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$25,000	\$25.00
Total (3.25m lane)							\$198,042	\$198.04
Total (6.50m road)							\$396,085	\$396.08
<i>Rural Light Paved - 3.25m lane</i>								
100mm Excavation & Disposal	1,000	3.850	0.1		385	\$35.00	\$13,475	\$13.48
50mm Granular A	1,000	3.800	0.05	3800	190	\$44.40	\$8,436	\$8.44
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72

ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

Digouts	50	5.000	1		250	\$65.00	\$16,250	\$16.25
Drainage / Culverts							\$45,000	\$45.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$35,000	\$35.00
Total (3.25m lane)							\$235,880	\$235.88
Total (6.50m road)							\$471,760	\$471.76
Rural Medium Paved - 3.5m lane (Collector)								
140mm Excavation & Disposal	1,000	3.850	0.14		539	\$35.00	\$18,865	\$18.87
50mm Granular A	1,000	3.800	0.05	3800	190	\$44.40	\$8,436	\$8.44
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	\$64.31
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Digouts	50	6.000	1		300	\$65.00	\$19,500	\$19.50
Drainage / Culverts							\$150,000	\$150.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$45,000	\$45.00
Total (3.50m lane)							\$422,424	\$422.42
Total (7.0m road)							\$844,847	\$844.85
Rural Heavy Paved - 3.75m lane (Arterial)								
190mm Excavation & Disposal	1,000	3.850	0.19		731.5	\$35.00	\$25,603	\$25.60
50mm Granular A	1,000	3.800	0.05	3800	190	\$44.40	\$8,436	\$8.44
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Digouts	50	6.000	1		300	\$65.00	\$19,500	\$19.50
Drainage / Culverts							\$225,000	\$225.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$55,000	\$55.00
Total (3.75m lane)							\$578,045	\$578.04
Total (7.5m road)							\$1,156,090	\$1,156.09

ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

RURAL - RESURFACING								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Unit Rate	Cost / lane km	Cost / lane m
Granular - 3.25m lane								
150mm Granular A	1,000	3.325	0.15	3325	498.75	\$44.40	\$22,145	\$22.14
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$7,500	\$7.50
Total (3.25m lane)							\$87,645	\$87.64
Total (6.50m road)							\$175,289	\$175.29
Rural Light SST - 3.25m lane								
Pulverize Existing	1,000	3.250		3250		\$2.25	\$7,313	\$7.31
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
Single Surface Treatment	1,000	3.250		3250		\$8.50	\$27,625	\$27.63
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$15,000	\$15.00
Total (3.25m lane)							\$137,000	\$137.00
Total (6.50m road)							\$274,000	\$274.00
Rural Light DST - 3.25m lane								
Pulverize Existing	1,000	3.250		3250		\$2.25	\$7,313	\$7.31
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
Double Surface Treatment	1,000	3.250		3250		\$17.00	\$55,250	\$55.25
Drainage / Culverts							\$25,000	\$25.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$15,000	\$15.00
Total (3.25m lane)							\$164,625	\$164.63
Total (6.50m road)							\$329,250	\$329.25
Rural Light Paved - 3.25m lane								
Pulverize Existing	1,000	3.250		3250		\$2.25	\$7,313	\$7.31
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Drainage / Culverts							\$35,000	\$35.00
Brushing	2,000					\$17.50	\$35,000	\$35.00
Ditching	2,000					\$11.50	\$23,000	\$23.00
Contingency for Minor Contract Items							\$15,000	\$15.00
Total (3.25m lane)							\$179,094	\$179.09

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

URBAN SECTIONS

URBAN - RECONSTRUCTION								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m2)	Volume (m3)	Unit Rate	Cost / lane km	Cost / lane m
Urban Light Paved - 3.25m lane								
500mmExcavation & Disposal	1,000	4.650	0.5		2325	\$35.00	\$81,375	\$81.38
300mm Granular B	1,000	4.350	0.3	4350	1305	\$28.00	\$36,540	\$36.54
150mm Granular A	1,000	3.900	0.15	3900	585	\$44.40	\$25,974	\$25.97
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (one side)	1,000					\$125.00	\$125,000	\$125.00
Contingency for Minor Contract Items							\$45,000	\$45.00
Total (3.25m lane)							\$663,608	\$663.61
Total (6.50m road)							\$1,327,216	\$1,327.22
Urban Medium Paved - 3.50m lane (Collector)								
540mm Excavation & Disposal	1,000	4.900	0.54		2646	\$35.00	\$92,610	\$92.61
300mm Granular B	1,000	4.600	0.3	4600	1380	\$28.00	\$38,640	\$38.64
150mm Granular A	1,000	4.150	0.15	4150	622.5	\$44.40	\$27,639	\$27.64
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	\$64.31
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (one side)	1,000					\$125.00	\$125,000	\$125.00
Contingency for Minor Contract Items							\$70,000	\$70.00
Total (3.50m lane)							\$766,512	\$766.51
Total (7.0m road)							\$1,533,023	\$1,533.02
Total (10.0m road)							\$2,189,923	\$2,189.92
Urban Heavy Paved - 3.75m lane (Arterial)								
740mm Excavation & Disposal	1,000	5.200	0.74		3848	\$35.00	\$134,680	\$134.68
450mm Granular B	1,000	4.750	0.45	4750	2137.5	\$28.00	\$59,850	\$59.85
150mm Granular A	1,000	4.150	0.15	4150	622.5	\$44.40	\$27,639	\$27.64
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (both sides)	2,000					\$125.00	\$250,000	\$250.00
Contingency for Minor Contract Items							\$90,000	\$90.00
Total (3.75m lane)							\$1,038,675	\$1,038.68
Total (7.5m road)							\$2,077,351	\$2,077.35

ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

Total (11.0m road)	\$3,046,435	\$3,046.43
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URBAN - REHABILITATION								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m2)	Volume (m3)	Unit Rate	Cost / lane km	Cost / lane m
<i>Urban Light Paved - 3.25m lane</i>								
155mm Excavation & Disposal	1,000	3.850	0.155		596.75	\$35.00	\$20,886	\$20.89
50mm Granular A	1,000	3.800	0.05	3800	190	\$44.40	\$8,436	\$8.44
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (one side)	1,000					\$125.00	\$125,000	\$125.00
Contingency for Minor Contract Items							\$50,000	\$50.00
Total (3.25m lane)							\$554,041	\$554.04
Total (6.50m road)							\$1,108,082	\$1,108.08
<i>Urban Medium Paved - 3.50m lane (Collector)</i>								
240mm Excavation & Disposal	1,000	4.100	0.24		984	\$35.00	\$34,440	\$34.44
50mm Granular A	1,000	4.050	0.05	4050	202.5	\$44.40	\$8,991	\$8.99
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	\$64.31
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (one side)	1,000					\$125.00	\$125,000	\$125.00
Contingency for Minor Contract Items							\$50,000	\$50.00
Total (3.50m lane)							\$631,054	\$631.05
Total (7.0m road)							\$1,262,107	\$1,262.11
Total (10.0m road)							\$1,802,920	\$1,802.92
<i>Urban Heavy Paved - 3.75m lane (Arterial)</i>								
290mm Excavation & Disposal	1,000	4.350	0.29	4350	1261.5	\$35.00	\$44,153	\$44.15
50mm Granular A	1,000	4.300	0.05	4300	215	\$44.40	\$9,546	\$9.55
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	\$68.91
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Curb & Gutter	2,000					\$145.00	\$290,000	\$290.00
Sidewalk (both sides)	2,000					\$125.00	\$250,000	\$250.00
Contingency for Minor Contract Items							\$75,000	\$75.00
Total (3.75m lane)							\$855,205	\$855.20
Total (7.5m road)							\$1,710,410	\$1,710.41
Total (11.0m road)							\$2,508,572	\$2,508.57

ROAD CONSTRUCTION COSTING

ROAD RECONSTRUCTION, REHABILITATION & RESURFACING COSTING

URBAN - RESURFACING								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Unit Rate	Cost / lane km	Cost / lane m
Urban Light Paved - 3.25m lane								
Pulverize Existing	1,000	3.250		3250		\$2.25	\$7,313	\$7.31
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	\$59.72
Contingency for Minor Contract Items							\$50,000	\$50.00
Total (3.25m lane)							\$121,094	\$121.09
Total (6.50m road)							\$242,188	\$242
Urban Medium Paved - 3.50m lane (Collector)								
Mill Wear Surface	1,000	3.500		3500		\$3.50	\$12,250	\$12.25
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	\$58.31
Contingency for Minor Contract Items							\$50,000	\$50.00
Total (3.50m lane)							\$124,623	\$124.62
Total (7.0m road)							\$249,245	\$249
Total (10.0m road)							\$356,046	\$356.05
Urban Heavy Paved - 3.75m lane (Arterial)								
Mill Wear Surface	1,000	3.750		3750		\$3.50	\$13,125	\$13.13
Mill Wear Surface (Binder)	1,000	3.750		3750		\$3.50	\$13,125	\$13.13
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	\$4.06
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	\$55.13
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	\$62.48
Contingency for Minor Contract Items							\$75,000	\$75.00
Total (3.75m lane)							\$222,913	\$222.91
Total (7.5m road)							\$445,825	\$445.83
Total (11.0m road)							\$653,869	\$654

STORM SEWER COSTING

STORM SEWER SERVICING - CONSTRUCTION UNIT RATES

ITEMS	\$ / m	each	Notes
Concrete Pipe/Culverts			
300mm Concrete Pipe	\$175.00		
600mm Concrete Pipe	\$365.00		
900mm Concrete Pipe	\$555.00		
1200mm Concrete Pipe	\$765.00		
1500mm Concrete Pipe	\$1,150.00		
1.8 x 1.8m Box Culvert	\$2,200.00		
3.0 x 3.0m Box Culvert	\$4,500.00		
Storm Sewer Appurtenances			
1200mm Manhole		\$3,500.00	
1500mm Manhole		\$4,100.00	
1800mm Manhole		\$4,500.00	
2100mm Manhole		\$6,300.00	
2400mm Manhole		\$7,500.00	
Small Custom Struture		\$25,000.00	
Large Custom Structure		\$38,000.00	
Single Catch Basin		\$2,500.00	
Double Catch Basin		\$3,500.00	
Ditch Inlet Catch Basin		\$3,500.00	
Ditch Inlet Catch Basin Manhole		\$7,500.00	
Storm Services			
100mm Residential	\$135.00		
150mm Residential	\$195.00		
150mm Commercial	\$235.00		
200mm Commercial/Industrial	\$275.00		
300mm Industrial	\$375.00		

URBAN SECTIONS

URBAN - COLLECTION SYSTEMS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
Residential Storm Water Collection					
300mm Concrete Storm Sewer	300		\$175.00	\$52,500	\$52.50
600mm Concrete Storm Sewer	400		\$365.00	\$146,000	\$146.00
900mm Concrete Storm Sewer	300		\$555.00	\$166,500	\$166.50
1200mm Manholes		6	\$3,500.00	\$21,000	\$21.00
1500mm Manholes		2	\$4,100.00	\$8,200	\$8.20
1800mm Manholes		3	\$4,500.00	\$13,500	\$13.50
Single Catch Basin		10	\$2,500.00	\$25,000	\$25.00
Double Catch Basin		6	\$3,500.00	\$21,000	\$21.00
Residential Services	1,000	100	\$135.00	\$135,000	\$135.00
Commercial Services	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	20	2	\$375.00	\$7,500	\$7.50
Road Reinstatement	1,000		\$317.99	\$317,990	\$317.99
Contingency for Minor Contract Items				\$25,000	\$25.00
Total Cost				\$943,890	\$943.89
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$225,896	\$226

Trunk Storm Water Collection

900mm Concrete Storm Sewer	300		\$555.00	\$166,500	\$166.50
1200mm Concrete Storm Sewer	400		\$765.00	\$306,000	\$306.00
1500mm Concrete Storm Sewer	300		\$1,150.00	\$345,000	\$345.00
1800mm Manholes		6	\$4,500.00	\$27,000	\$27.00
2100mm Manholes		2	\$6,300.00	\$12,600	\$12.60
2400mm Manholes		3	\$7,500.00	\$22,500	\$22.50
Single Catch Basin		10	\$2,500.00	\$25,000	\$25.00
Double Catch Basin		6	\$3,500.00	\$21,000	\$21.00
Residential Services	600	60	\$135.00	\$81,000	\$81.00
Commercial Services	60	6	\$235.00	\$14,100	\$14.10
Industrial Services	60	6	\$375.00	\$22,500	\$22.50
Road Reinstatement	1,000		\$444.49	\$444,485	\$444.49
Contingency for Minor Contract Items				\$75,000	\$75.00
Total Cost				\$1,562,685	\$1,562.69
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$315,894	\$316

Large Trunk Storm Water Collection

1500mm Concrete Storm Sewer	300		\$1,150.00	\$345,000	\$345.00
1.8m x 1.8m Box Culvert	400		\$2,200.00	\$880,000	\$880.00
3.0m x 3.0m Box Culvert	300		\$4,500.00	\$1,350,000	\$1,350.00
2400mm Manholes		3	\$7,500.00	\$22,500	\$22.50
Sm. Custom Structure for Box Culvert		4	\$25,000.00	\$100,000	\$100.00
Lg. Custom Structure for Box Culvert		3	\$38,000.00	\$114,000	\$114.00
Single Catch Basin		10	\$2,500.00	\$25,000	\$25.00
Double Catch Basin		6	\$3,500.00	\$21,000	\$21.00
Residential Services	400	40	\$135.00	\$54,000	\$54.00
Commercial Services	100	10	\$235.00	\$23,500	\$23.50
Industrial Services	60	6	\$375.00	\$22,500	\$22.50
Road Reinstatement	1,000		\$657.38	\$657,380	\$657.38
Contingency for Minor Contract Items				\$145,000	\$145.00
			Total Cost	\$3,759,880	\$3,759.88
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$603,452	\$603

RURAL SECTIONS

RURAL - COLLECTION SYSTEMS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
Residential Storm Water Collection					
300mm Concrete Storm Sewer	300		\$175.00	\$52,500	\$52.50
600mm Concrete Storm Sewer	400		\$365.00	\$146,000	\$146.00
900mm Concrete Storm Sewer	300		\$555.00	\$166,500	\$166.50
1200mm Manholes		5	\$3,500.00	\$17,500	\$17.50
1500mm Manholes		2	\$4,100.00	\$8,200	\$8.20
1800mm Manholes		3	\$4,500.00	\$13,500	\$13.50
Single Catch Basin		3	\$2,500.00	\$7,500	\$7.50
Ditch Inlet Catch Basin		7	\$3,500.00	\$24,500	\$24.50
Road Reinstatement	1,000		\$444.49	\$444,485	\$444.49
Contingency for Minor Contract Items				\$22,500	\$22.50
			Total Cost	\$903,185	\$903.19
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$257,994	\$258

Trunk Storm Water Collection

900mm Concrete Storm Sewer	300		\$555.00	\$166,500	\$166.50
1200mm Concrete Storm Sewer	400		\$765.00	\$306,000	\$306.00
1500mm Concrete Storm Sewer	300		\$1,150.00	\$345,000	\$345.00
1800mm Manholes		5	\$4,500.00	\$22,500	\$22.50
2100mm Manholes		2	\$6,300.00	\$12,600	\$12.60
2400mm Manholes		3	\$7,500.00	\$22,500	\$22.50
Ditch Inlet Catch Basin		4	\$3,500.00	\$14,000	\$14.00
Road Reinstatement	1,000		\$657.38	\$657,380	\$657.38
Contingency for Minor Contract Items				\$35,000	\$35.00
			Total Cost	\$1,581,480	\$1,581.48
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$348,552	\$349

SANITARY SEWER COSTING

SANITARY SEWER SERVICING - CONSTRUCTION UNIT RATES

ITEMS	\$ / m	each	Notes
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PVC Sanitary Sewer

150mm PVC Pipe	\$215.00
225mm PVC Pipe	\$250.00
300mm PVC Pipe	\$285.00
375mm PVC Pipe	\$310.00
450mm PVC Pipe	\$335.00
500mm PVC Pipe	\$368.33
525mm PVC Pipe	\$385.00

Concrete Sanitary Sewer

600mm Concrete Pipe	\$385.00
750mm Concrete Pipe	\$735.00
825mm Concrete Pipe	\$900.00
975mm Concrete Pipe	\$1,200.00

Sanitary Sewer Appurtenances

1200mm Manhole	\$3,500.00
1500mm Manhole	\$4,100.00
1800mm Manhole	\$5,500.00

Sanitary Services

100mm Residential	\$155.00
150mm Residential	\$215.00
150mm Commercial	\$255.00
200mm Commercial/Industrial	\$295.00
300mm Industrial	\$395.00

Valves

150mm Valves	\$2,500.00
200mm Valves	\$3,250.00
250mm Valves	\$4,000.00
300mm Valves	\$5,000.00
375mm Vavles	\$6,500.00
450mm Valves	\$8,000.00
600mm Valves	\$9,500.00

ForceMains

38mm HDPE	\$75.00
50mm HDPE	\$115.00
60mm HDPE	\$135.00
75mm HDPE	\$150.00
100mm HDPE	\$165.00
150mm HDPE	\$205.00
200mm HDPE	\$245.00
300mm HDPE	\$325.00

URBAN & RURAL SECTIONS
SANITARY COLLECTION SYSTEMS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
Sanitary Collection Sewer (150mm - 300mm ø)					
150mm PVC Pipe	500		\$215.00	\$107,500	\$107.50
300mm PVC Pipe	500		\$285.00	\$142,500	\$142.50
1200mm Manholes		10	\$3,500.00	\$35,000	\$35.00
Residential Services	1,000	100	\$155.00	\$155,000	\$155.00
Commercial Services	20	2	\$255.00	\$5,100	\$5.10
Industrial Services to Property	20	2	\$395.00	\$7,900	\$7.90
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00
Total cost per km				\$1,052,085	\$1,052.09
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$274,634	\$275

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
Sanitary Collection Sewer (300mm - 450mm ø)					
300mm PVC Pipe	500		\$285.00	\$142,500	\$142.50
450mm PVC Pipe	500		\$335.00	\$167,500	\$167.50
1200mm Manholes		10	\$5,000.00	\$50,000	\$50.00
Residential Services	1,000	100	\$155.00	\$155,000	\$155.00
Commercial Services	20	2	\$255.00	\$5,100	\$5.10
Industrial Services to Property	20	2	\$395.00	\$7,900	\$7.90
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00
Total cost per km				\$1,127,085	\$1,127.09
Total Structures Only (+ 40% Contingency & Road Reinstatement)				\$289,634	\$290

Sanitary Collection Sewer (500mm - 750mm ø)

500mm PVC	600		\$368.33	\$220,998	\$221.00
750mm Concrete Pipe	400		\$735.00	\$294,000	\$294.00
1200mm Manholes		3	\$3,500.00	\$10,500	\$10.50
1500mm Manholes		4	\$4,100.00	\$16,400	\$16.40
1800mm Manholes		3	\$5,500.00	\$16,500	\$16.50
Residential Services	600	60	\$155.00	\$93,000	\$93.00
Commercial Services	60	6	\$255.00	\$15,300	\$15.30
Industrial Services	60	6	\$395.00	\$23,700	\$23.70
Road Reinstatement	1,000		\$873.38	\$873,380	\$873.38
Contingency for Minor Contract Items				\$55,000	\$55.00
			Total cost per km	\$1,908,412	\$1,908.41
			Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$414,752	\$415

Forcemains (38mm ø)

38mm HDPE	1,000		\$75.00	\$75,000	\$75.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00
			Total cost per km	\$674,085	\$674.09
			Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240

Forcemains (50mm ø)

50mm HDPE	1,000		\$115.00	\$115,000	\$115.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00
			Total cost per km	\$714,085	\$714.09
			Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240

Forcemains (60mm ø)

60mm HDPE	1,000		\$135.00	\$135,000	\$135.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00
			Total cost per km	\$734,085	\$734.09
			Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240

Forcemains (75mm ø)

75mm HDPE	1,000		\$150.00	\$150,000	\$150.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00
			Total cost per km	\$749,085	\$749.09
			Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240

Forcemains (100mm ø)

100mm HDPE	1,000		\$165.00	\$165,000	\$165.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00
			Total cost per km	\$764,085	\$764.09

Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240
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Forcemains (150mm ø)

100mm HDPE	1,000		\$205.00	\$205,000	\$205.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00

Total cost per km	\$804,085	\$804.09
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Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240
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Forcemains (200mm ø)

200mm HDPE	1,000		\$245.00	\$245,000	\$245.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00

Total cost per km	\$844,085	\$844.09
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Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240
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Forcemains (300mm ø)

300mm HDPE	1,000		\$325.00	\$325,000	\$325.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Contract Items				\$25,000	\$25.00

Total cost per km	\$924,085	\$924.09
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Total Structures Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240
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*Reduce residential services cost by 60%; commercial services by 20% and industrial services by 80% for rural sections.

WATER SUPPLY COSTING

WATER SUPPLY SERVICING - CONSTRUCTION UNIT RATES

ITEMS	\$ / m	each	Notes
Watermain Pipe			
100mm PVC Watermain	\$135.00		
150mm PVC Watermain	\$175.00		Includes minor fittings, granulars
200mm PVC Watermain	\$238.00		Includes minor fittings, granulars
250mm PVC Watermain	\$302.00		Includes minor fittings, granulars
300mm PVC Watermain	\$365.00		Includes minor fittings, granulars
325mm PVC Watermain	\$383.00		Includes minor fittings, granulars
375mm PVC Watermain	\$420.00		Includes minor fittings, granulars
450mm PVC Watermain	\$475.00		Includes minor fittings, granulars
450mm Pressure Pipe Watermain	\$555.00		Includes minor fittings, granulars
600mm Pressure Pipe Watermain	\$765.00		Includes minor fittings, granulars
Watermain Appurtenances			
150mm - 450mm Connection to Existing	\$8,000.00		
600mm - 1200mm Connection to Existing	\$18,000.00		
150mm Hydrants	\$4,500.00		
150mm Valves	\$2,500.00		
200mm Hydrants	\$5,500.00		
200mm Valves	\$3,250.00		
250mm Hydrants	\$6,000.00		
250mm Valves	\$4,000.00		
300mm Hydrants	\$6,500.00		
300mm Valves	\$5,000.00		
325mm Vavles	\$5,500.00		
375mm Vavles	\$6,500.00		
450mm Valve Chamber	\$21,000.00		
450mm Valves	\$8,000.00		
600mm Valve Chamber	\$28,000.00		
600mm Valves	\$9,500.00		
450mm Connection to distribution	\$20,000.00		
600mm Connection to distribution	\$30,000.00		
Watermain Services			
19mm Residential	\$165.00		Includes valve box at property line
25mm Residential	\$195.00		Includes valve box at property line
32mm Commercial	\$235.00		Includes valve box at property line
40mm Commercial/Industrial	\$275.00		Includes valve box at property line
100mm Industrial	\$375.00		Includes valve box at property line

General Notes

Contract size should always be considered, the rates notes above are an average of many executed project tenders

URBAN SECTIONS

URBAN - DISTRIBUTION MAINS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
100mm PVC					
100mm Watermain	1,000		\$135.00	\$135,000	\$135.00
Hydrants		10	\$4,500.00	\$45,000	\$45.00
Valves		6	\$2,500.00	\$15,000	\$15.00
Residential Services to Property Line	1,000	100	\$165.00	\$165,000	\$165.00
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	20	2	\$375.00	\$7,500	\$7.50
Connection to Existing System`		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$15,000	\$15.00
Total Cost				\$631,110	\$631.11
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$113,182	\$113.18

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
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150mm PVC

150mm Watermain	1,000		\$175.00	\$175,000	\$175.00
Hydrants		10	\$4,500.00	\$45,000	\$45.00
Valves		6	\$2,500.00	\$15,000	\$15.00
Residential Services to Property Line	1,000	100	\$165.00	\$165,000	\$165.00
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	20	2	\$375.00	\$7,500	\$7.50
Connection to Existing System`		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$15,000	\$15.00

Total Cost **\$671,110** **\$671.11**

Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement) **\$113,182** **\$113.18**

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
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200mm PVC

200mm Watermain	1,000		\$238.00	\$238,000	\$238.00
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$3,250.00	\$19,500	\$19.50
Residential Services to Property Line	1,000	100	\$165.00	\$165,000	\$165.00
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	20	2	\$375.00	\$7,500	\$7.50
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$15,000	\$15.00

Total Cost **\$748,610** **\$748.61**

Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement) **\$127,682** **\$127.68**

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
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250mm PVC

250mm Watermain	1,000		\$302.00	\$302,000	\$302.00
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$4,000.00	\$24,000	\$24.00
Residential Services to Property Line	1,000	100	\$165.00	\$165,000	\$165.00
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	20	2	\$375.00	\$7,500	\$7.50
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$15,000	\$15.00

Total Cost **\$817,110** **\$817.11**

Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement) **\$132,182** **\$132.18**

300mm PVC

300mm Watermain	1,000		\$365.00	\$365,000	\$365.00
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$5,000.00	\$30,000	\$30.00
Residential Services to Property Line	400	40	\$165.00	\$66,000	\$66.00
Commercial Services to Property Line	400	40	\$235.00	\$94,000	\$94.00
Industrial Services to Property Line	200	20	\$375.00	\$75,000	\$75.00
Connection to Existing System`		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$25,000	\$25.00

Total Cost **\$953,910** **\$953.91**

Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement) **\$142,182** **\$142.18**

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
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325mm PVC

325mm Watermain	1,000		\$383.00	\$383,000	\$383.00
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$5,500.00	\$33,000	\$33.00
Residential Services to Property Line	400	40	\$165.00	\$66,000	\$66.00
Commercial Services to Property Line	400	40	\$235.00	\$94,000	\$94.00
Industrial Services to Property Line	200	20	\$375.00	\$75,000	\$75.00
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$27,500	\$27.50

Total Cost **\$977,410** **\$977.41**

Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement) **\$146,182** **\$146.18**

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
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375mm PVC

375mm Watermain	1,000		\$420.00	\$420,000	\$420.00
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$6,500.00	\$39,000	\$39.00
Residential Services to Property Line	400	40	\$165.00	\$66,000	\$66.00
Commercial Services to Property Line	400	40	\$235.00	\$94,000	\$94.00
Industrial Services to Property Line	200	20	\$375.00	\$75,000	\$75.00
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$30,000	\$30.00
			Total Cost	\$1,022,910	\$1,022.91
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$153,182	\$153.18

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
450mm PVC					
450mm Watermain	1,000		\$475.00	\$475,000	\$475.00
Hydrants		10	\$5,500.00	\$55,000	\$55.00
Valves		6	\$8,000.00	\$48,000	\$48.00
Residential Services to Property Line	400	40	\$165.00	\$66,000	\$66.00
Commercial Services to Property Line	400	40	\$235.00	\$94,000	\$94.00
Industrial Services to Property Line	200	20	\$375.00	\$75,000	\$75.00
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$35,000	\$35.00
			Total Cost	\$1,091,910	\$1,091.91
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$164,182	\$164.18

URBAN - TRANSMISSION MAINS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
450mm Concrete Pressure Pipe					
450mm Watermain	1,000		\$555.00	\$555,000	\$555.00
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valve Chamber		4	\$21,000.00	\$84,000	\$84.00
Valves		4	\$8,000.00	\$32,000	\$32.00
Connection to Existing System`		1	\$8,000.00	\$8,000	\$8.00
Connections to Distribution System		4	\$20,000.00	\$80,000	\$80.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$38,000	\$38.00
			Total Cost	\$1,054,910	\$1,054.91
Appurtenances Replacement Only (+40% Contingency & Road Reinstatement)				\$247,564	\$247.56

600mm Concrete Pressure Pipe					
600 Watermain	1,000		\$765.00	\$765,000	\$765.00
Valve Chambers		4	\$28,000.00	\$112,000	\$112.00
Valves		4	\$9,500.00	\$38,000	\$38.00
Connection to Existing System		1	\$18,000.00	\$18,000	\$18.00
Connections to Distribution System		4	\$30,000.00	\$120,000	\$120.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$50,000	\$50.00
			Total Cost	\$1,482,685	\$1,482.69
Appurtenances Replacement Only (+40% Contingency & Road Reinstatement)				\$321,874	\$321.87

RURAL SECTIONS

RURAL - DISTRIBUTION MAINS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
150mm PVC					
150mm Watermain	1,000		\$175.00	\$175,000	\$175.00
Hydrants		4	\$4,500.00	\$18,000	\$18.00
Valves		5	\$2,500.00	\$12,500	\$12.50
Residential Services to Property Line	150	15	\$165.00	\$24,750	\$24.75
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	40	4	\$375.00	\$15,000	\$15.00
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
			Total Cost	\$511,860	\$511.86
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$81,682	\$81.68

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
200mm PVC					
200mm Watermain	1,000		\$238.00	\$238,000	\$238.00
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$3,250.00	\$16,250	\$16.25
Residential Services to Property Line	150	15	\$165.00	\$24,750	\$24.75
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	40	4	\$375.00	\$15,000	\$15.00
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$582,610	\$582.61
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$89,432	\$89.43

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
250mm PVC					
250mm Watermain	1,000		\$302.00	\$302,000	\$302.00
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$4,000.00	\$20,000	\$20.00
Residential Services to Property Line	150	15	\$165.00	\$24,750	\$24.75
Commercial Services to Property Line	20	2	\$235.00	\$4,700	\$4.70
Industrial Services to Property Line	40	4	\$375.00	\$15,000	\$15.00
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$650,360	\$650.36
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$93,182	\$93.18

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
300mm PVC					
300mm Watermain	1,000		\$365.00	\$365,000	\$365.00
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$5,000.00	\$25,000	\$25.00
Residential Services to Property Line	100	10	\$165.00	\$16,500	\$16.50
Commercial Services to Property Line	40	4	\$235.00	\$9,400	\$9.40
Industrial Services to Property Line	60	6	\$375.00	\$22,500	\$22.50
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$25,000	\$25.00
Total Cost				\$873,085	\$873.09
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$132,937	\$132.94

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
325mm PVC					
325mm Watermain	1,000		\$383.00	\$383,000	\$383.00
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$5,500.00	\$27,500	\$27.50
Residential Services to Property Line	100	15	\$165.00	\$16,500	\$16.50
Commercial Services to Property Line	40	2	\$235.00	\$9,400	\$9.40
Industrial Services to Property Line	60	4	\$375.00	\$22,500	\$22.50
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$10,000	\$10.00
Total Cost				\$886,585	\$886.59
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$129,437	\$129.44

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
375mm PVC					
375mm Watermain	1,000		\$420.00	\$420,000	\$420.00
Hydrants		4	\$5,500.00	\$22,000	\$22.00
Valves		5	\$6,500.00	\$32,500	\$32.50
Residential Services to Property Line	100	15	\$165.00	\$16,500	\$16.50
Commercial Services to Property Line	40	2	\$235.00	\$9,400	\$9.40
Industrial Services to Property Line	60	4	\$375.00	\$22,500	\$22.50
Connection to Existing System		2	\$8,000.00	\$16,000	\$16.00

Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$10,000	\$10.00
			Total Cost	\$928,585	\$928.59
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$134,437	\$134.44

RURAL - TRANSMISSION MAINS

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
450mm Concrete Pressure Pipe					
450mm Watermain	1,000		\$555.00	\$555,000	\$555.00
Hydrants		2	\$5,500.00	\$11,000	\$11.00
Valve Chamber		2	\$21,000.00	\$42,000	\$42.00
Valves		2	\$8,000.00	\$16,000	\$16.00
Connection to Existing System		1	\$8,000.00	\$8,000	\$8.00
Connections to Distribution System		4	\$20,000.00	\$80,000	\$80.00
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract Items				\$45,000	\$45.00
			Total Cost	\$992,910	\$992.91
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$134,182	\$134.18

600mm Concrete Pressure Pipe					
600 Watermain	1,000		\$765.00	\$765,000	\$765.00
Valve Chambers		2	\$28,000.00	\$56,000	\$56.00
Valves		2	\$9,500.00	\$19,000	\$19.00
Connection to Existing System		1	\$18,000.00	\$18,000	\$18.00
Connections to Distribution System		4	\$30,000.00	\$120,000	\$120.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items				\$65,000	\$65.00
			Total Cost	\$1,422,685	\$1,422.69
Appurtenances Replacement Only (+40% Contingency & 20% Road Reinstatement)				\$176,937	\$176.94



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Asset Management Planning
for the Township of Black River-
Matheson

Appendix M Suggested Capital Financing Policy



PURPOSE

The goal of the Municipality's capital financing policy shall be to set out the guiding principles for the financing of future capital expenditures in a manner that considers the infrastructure investment requirements of the Municipality as well as affordability issues for taxpayers.

GLOSSARY

Capital Levy – The amount of money raised through taxation that is transferred to the capital fund or reserves to be used to help pay for the cost of capital projects.

Debt – Any obligation for the payment of money. The Municipality considers debt to consist of debentures, cash loans from financial institutions, capital leases, debenture financing approved through bylaw for which no debt has yet been issued, debenture financing approved through the capital budget for which no bylaw has yet been established, outstanding financial commitments, loan guarantees and any debt issue by, or on behalf of the Municipality, including mortgages, debentures or demand loans.

Long-term Debt – Any Debt for which the repayment of any portion of the principal is due beyond one year.

Municipal Levy – The amount of money raised through taxation by the Municipality for the purposes of funding operating costs as well as the Capital Levy.

POLICY STATEMENTS

1. The Municipality shall increase the Municipal Levy by a minimum of 2% per year for each of the next five years (2014 to 2018 inclusive), with the 2% increase being added to the Capital Levy.
2. The increase in the Capital Levy shall only be used for the following purposes:
 - a. To fund capital expenditures;
 - b. To increase reserve balances in order to finance future capital expenditures; or
 - c. To finance the annual costs associated with Long-term Debt issued in connection with capital projects.
3. Subsequent to the five year phase-in period for increases to the Municipal Levy, the Municipality shall increase the Capital Levy by at least the Consumer Price Index, as published by Statistics Canada.



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Asset Management Planning
for the Township of Black River-
Matheson

Appendix N Suggested Borrowing Policy



PURPOSE

The goal of the Municipality's debt policy shall be to set out the guiding principles for the approval, issuance and administration of any Municipality debt, which shall adhere to all statutory requirements.

GLOSSARY

Debt – Any obligation for the payment of money. The Municipality considers debt to consist of debentures, cash loans from financial institutions, capital leases, debenture financing approved through bylaw for which no debt has yet been issued, debenture financing approved through the capital budget for which no bylaw has yet been established, outstanding financial commitments, loan guarantees and any debt issue by, or on behalf of the Municipality, including mortgages, debentures or demand loans.

Debt and Financial Obligation Limit – The maximum amount of annual debt servicing costs that a municipality can undertake or guarantee without seeking the approval of the Ontario Municipal Board. The Debt and Financial Obligation Limit is calculated pursuant to *Ontario Regulation 403/02 – Debt and Financial Obligation Limits*.

Lease Financial Agreements – A financial agreement, in accordance with *Ontario Regulation 653/05 – Debt Related Financial Instruments and Financial Agreements*, that a municipality may enter into for the purpose of obtaining long-term financing of a capital undertaking of the municipality.

Long-term Debt – Any Debt for which the repayment of any portion of the principal is due beyond one year.

Material Impact – Under *Ontario Regulation 653/05 – Debt Related Financial Instruments and Financial Agreements*, a Lease Financing Agreement has a material impact on a municipality if the costs or risks associated with the agreement significantly affect the municipality's Debt and Financial Obligation Limit, or would reasonably be expected to have a significant effect on that limit.

POLICY STATEMENTS

1. The Municipality shall only enter into Long-term Debt, including Lease Financing Agreements, where the following conditions are met:
 - a. The Long-term Debt will be managed in a manner consistent with other long-term planning, financial and management objectives.
 - b. Consideration will be given to the impact on future taxpayers.
 - c. Long-term Debt will be managed in a manner to limit financial risk exposure.
 - d. The timing, type and term of Long-term Debt will be determined with a view of minimizing long-term cost to the extent possible.

- e. The term of Long-term Debt will not exceed the useful life of the particular asset.
 - f. The issuance of Long-term Debt will not result in the Municipality exceeding its Debt and Financial Obligation Limit.
 - g. A category of Lease Financing Agreements may be relied upon for non-material or operational leases where the agreements will not, in the opinion of the Treasurer as delegated by Council through this policy, result in a Material Impact for the Municipality.
- 2. All Debt shall be issued in Canadian dollars.
 - 3. It shall be the general practice to issue Debt where the interest rates will be fixed over its term. The Municipality may issue Debt in which the interest rate will vary where, in the opinion of the Treasurer, it is in the Municipality's best interest to allow the rate to float provided such Debt, in addition to any other Debt, does not exceed fifteen percent (15%) of the total outstanding Debt of the Municipality in accordance with *Ontario Regulation 276/02 – Bank Loans*.
 - 4. Upon the repayment of Long-term Debt, the amounts previously committed to annual debt servicing shall not be removed from the Municipality's budget but rather will be reallocated towards:
 - a. Debt servicing costs for new Debt issued by the Municipality; and/or
 - b. Contributions to reserves for capital purposes.
 - 5. The awarding of any contract under this Policy, unless otherwise authorized by Council, shall follow the requirements as set out in the Municipality's procurement policy.
 - 6. Council, in conjunction with staff, shall review the Municipality's outstanding Debt in conjunction with the annual budget process.

RELEVANT LEGISLATION

- Municipal Act, 2001
- Ontario Regulation 247/01 – Variable Interest Rate Debentures and Foreign Currency Borrowing
- Ontario Regulation 276/02 – Bank Loans
- Ontario Regulation 278/02 – Construction Financing
- Ontario Regulation 403/02 – Debt and Financial Obligation Limits
- Ontario Regulation 653/05 – Debt Related Financial Instruments and Financial Agreements



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