

Corporation of the Municipality of Markstay-Warren

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Municipal Asset Management Plan

December 31st, 2013



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Asset Management Planning for the Municipality of Markstay-Warren **Glossary of Terms**

Asset management planning	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.
Historical cost	Historical cost represents the actual cost incurred by the municipality at the date of acquisition. Given the timeframe between the date of acquisition and the current date, historical cost is not reflective of the replacement cost of the asset.
Replacement cost	Replacement cost reflects the cost that would be incurred in the event that the municipality was required to replace the asset at the present time in new condition.
Condition assessments	Condition assessment are a means of expressing the current state of the municipality's infrastructure based on three possible ratings – good, fair and poor. The determination of the ratings will vary based on the type of infrastructure involved.
Immediate infrastructure requirements	For the purposes of the asset management, immediate infrastructure requirements are capital investments that are recommended to be made within the next 10 years, based on the condition assessment of the infrastructure and the recommended life cycle activities. The immediate infrastructure requirement identified for the municipality is intended to address those assets that are currently rated as poor or expected to be rated as poor during the next ten years (due to deterioration caused by usage, weather, etc.).
Sustaining life cycle requirements	The sustainable life cycle requirement of an asset is the total of its life cycle costs divided by its estimated useful life. The sustainable life cycle requirement represents the amount of funding that should be committed to the municipality's infrastructure on an annual basis in order to fully fund the recommended life cycle activities.
Ontario Municipal Partnership Fund	The Ontario Municipal Property Fund (OMPF) is the primary Provincial mechanism for the flowing of operational grants to municipalities. OMPF funding is intended to assist municipalities that have limited property assessment, increased operating costs as a result of being northern or rural municipalities and/or are facing challenging fiscal circumstances.
Municipal Infrastructure Investment Initiative	The Municipal Infrastructure Investment Initiative (MIII) is a Provincial program designed to assist municipalities with critical road, bridge water and wastewater projects, with funding targeted to municipalities that would be unable to undertake priority projects without provincial support. While funding is available under MIII, the asset management plan does not consider any senior government grants other than those that have been secured as at the date of the asset management plan.
Federal Gas Tax	The Federal Gas Tax Fund (GTF) is a component of the broader Build Canada Fund introduced by the Federal Government. Initially intended to provide funding over a five year period, the GTF has been expanded into a longer term funding source for municipalities, who are allocated funding based on their reported census population. The Municipality has typically used GTF for capital improvements to roads and bridges.



Asset Management Planning for the Municipality of Markstay-Warren **Glossary of Terms**

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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

Linear infrastructure represents a major investment on the part of the Municipality of Markstay-Warren (the 'Municipality'), with the estimated replacement cost of its in-scope assets amounting to approximately \$161 million, or \$135,000 per household.

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 \$53 million over the next ten years.

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.

Replacement value by type of asset (in millions)





Condition assessment results by infrastructure component

Infrastructure	Basis of Assessment	Condition Assessment		
		Good	Fair	Poor
Roads	Condition Index	22%	36%	42%
Water distribution network – Warren	Remaining useful life	22%	78%	
Water distribution network – Markstay	Remaining useful life	_	100%	
Water treatment facilities - Warren	Remaining useful life	86%	-	14%
Water treatment facilities – Markstay	Remaining useful life	100%	-	
Wastewater collection network	Remaining useful life	2%	98%	-
Wastewater treatment facilities	Remaining useful life	33%	67%	
Bridges	Condition index	31%	13%	56%
Fleet	Remaining useful life	29%	24%	47%
Buildings and facilities	Remaining useful life	46%	32%	22%

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 \$5.3 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 replacement of its infrastructure, the cost of which amounts to an additional \$2.5 million, bringing the Municipality's total infrastructure financing requirement to \$7.8 million per year. In comparison, the Municipality made under \$400,000 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



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 \$50,000 per year to existing capital funding (\$255,000 in total over the next five years), representing a 69% increase in capital spending.
- Exploring the continued use of debt as a means of funding infrastructure requirements; and
- Continuing to pursue grant programs provided by senior levels of government.

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.



Asset Management Planning for the Municipality of Markstay-Warren

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Chapter I Introduction



Introduction Overview of the Asset Management Plan

Asset management planning defined

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

The purpose of the asset management plan

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.



Introduction

Scope of the Asset Management Plan

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

	Transportation Infrastructure	Water and Wastewater Infrastructure	Other Infrastructure
•	Roads Bridges	Water distribution systemWater collection systemWater and wastewater facilities	FleetFacilities

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



Introduction Methodology

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

	Workstep
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.
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.
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.
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.
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.
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.

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



Introduction

Evaluating and Improving the Asset Management Plan

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
	 Updating of infrastructure priorities based on: Ongoing condition assessments (e.g. camera 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
Ī	 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 Municipality of Markstay-Warren. KPMG has not and will not perform management functions or make management decisions for the Municipality of Markstay-Warren.

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 Municipality of Markstay-Warren nor are we an insider or associate of the Municipality of Markstay-Warren 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 Municipality of Markstay-Warren and are acting objectively.



Asset Management Planning for the Municipality of Markstay-Warren

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Chapter II State of Local Infrastructure



State of Local Infrastructure Overview of the Municipality's Infrastructure

At December 31, 2012, the Municipality reported a total investment of \$20.2 million in tangible capital assets ('TCA') at historical cost. This equates to an average investment of \$17,000 per household, or \$9,000 per resident.

With a historical cost of \$7.8 million, the Municipality's water and wastewater pipes represent the largest asset category, accounting for almost 40% of the Municipality's reported tangible capital assets based on historical cost. Buildings (\$3.8 million), bridges (\$3.4 million), vehicles and equipment (\$2.1 million) and roads (\$1.2 million) represent other large asset categories from the perspective of historical cost.

From a functional perspective, the Municipality's transportation, water and wastewaster networks represent the largest asset categories, amounting to \$14.1 million or 70% of all municipal assets by historical cost.





State of Local Infrastructure Historical and Replacement Cost

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

- Appendix A Infrastructure profile roads
- Appendix B Infrastructure profile water distribution
- Appendix C Infrastructure profile – wastewater collection
- Appendix D Infrastructure profile – bridges
- Appendix E Infrastructure profile – fleet
- Appendix F Infrastructure profile – buildings
- Appendix G Costing estimates for linear infrastructure

The current replacement value of the Municipality's linear infrastructure (expressed in 2013 funds) is estimated to be in the order of \$160 million, 76% of which (\$122 million) relates to the municipal road network. Overall, the replacement value of the Municipality's infrastructure amounts to approximately \$135,000 per household or \$70,000 per resident, or 8 times the historical cost of infrastructure.

Replacement costs by component

	Quantity	Useful Life	Replacement Cost
Roads	212,300 m	60 to 100 years	\$122,397,716
Water distribution network – Warren	3,792 m	70 years	\$1,955,214
Water distribution network – Markstay	14,185 m	80 years	\$4,007,770
Water treatment facilities – Warren	2	30 to 85 years	\$4,316,741
Water treatment facilities – Markstay	2	65 to 85 years	\$550,000
Wastewater collection network	5,348 m	70 years	\$5,661,335
Wastewater treatment facilities	3	60 to 70 years	\$3,430,319
Bridges	16	20 to 30 years	\$6,323,389
Fleet	34	10 to 25 years	\$4,695,000
Buildings and facilities	22	50 years	\$7,313,031
Total			\$160,650,515



State of Local Infrastructure **Condition Assessment**

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.
- **Bridges** 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.
- Other assets -condition assessments for other assets, including mains, buildings and vehicles, were based on the remaining useful life of the asset.

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

Infrastructure components	Basis of Assessment	Good	Fair	Poor
Roads	Condition rating	Greater than 6.00	4.00 to 6.00	Less than 4.00
Bridges	Bridge condition index	Greater than 70	60 to 70	Less than 60
Other assets	Remaining useful life	Greater than 50%	10% to 50%	Less than 10%

Condition assessment benchmarks



State of Local Infrastructure **Condition Assessment**

Details of the condition assessments for individual infrastructure components can be found in the infrastructure profiles in **Appendices A to F**. 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	Basis of Assessment	Condition Assessment		
		Good	Fair	Poor
Roads	Condition Index	22%	36%	42%
Water distribution network – Warren	Remaining useful life	22%	78%	-
Water distribution network – Markstay	Remaining useful life	-	100%	-
Water treatment facilities – Warren	Remaining useful life	86%	-	14%
Water treatment facilities – Markstay	Remaining useful life	100%	-	-
Wastewater collection network	Remaining useful life	2%	98%	-
Wastewater treatment facilities	Remaining useful life	33%	67%	-
Bridges	Condition index	31%	13%	56%
Fleet	Remaining useful life	29%	24%	47%
Buildings and facilities	Remaining useful life	46%	32%	22%

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 \$28.4 million, with an additional \$24.7 million of capital investment requirements identified over the next ten years. While the Municipality's infrastructure needs are driven by roads, the high level of water and wastewater infrastructure rate as fair may support an integrated approach to infrastructure renewal whereby capital projects involve road, water and wastewater reinvestments.

Projected future infrastructure investment requirements (in millions)





State of Local Infrastructure Data Verification and Condition Assessment Policies

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

- Condition assessments for bridges will be conducted every two years in accordance with Provincial regulations, with the asset management plan updated accordingly
- Condition assessments for water and wastewater mains will be assessed periodically through the use of camera inspections, with a five year inspection cycle being the long-term target
- Condition assessments for facilities will be assess 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



Asset Management Planning for the Municipality of Markstay-Warren

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Chapter III Desired Levels of Service



Desired Levels of Service Performance Measures

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	Achievement Date
Roads	Compliance with Ontario Regulation 239/02 – Minimum Maintenance Standards for Municipal Highways	Full compliance	2014
Water	Days under boil water advisory	None	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

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.



Desired Levels of Service The Impact of New Legislation and Regulation

From time to time, new legislation or regulations will be enacted that change minimum performance requirements for municipal infrastructure and by extension the performance measures outlined in the 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.



Asset Management Planning for the Municipality of Markstay-Warren

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Chapter IV Asset Management Strategy



Asset Management Strategy **Overview**

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)

- 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.



Asset Management Strategy Municipal Paved Road Systems

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.
Life cycle consequences Integrated asset priorities	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. 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.



Asset Management Strategy Municipal Granular Road Systems

Anticipated asset life cycle	The life cycle of newly placed gravel road systems are dependent on several factors including the material and construction quality, design, traffic volume, traffic loading, and environmental conditions. The service life can be approximated by the category of road: 60 years for earth with open ditch and 100 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.
Integration opportunities	Various other elements may be considered as integrated with paved roads. These include buried assets in the utility corridor: water sewers, storm sewers, hydro, telephone, natural gas, and cable.
Rehabilitation and replacement criteria	To assess gravel roads the Gravel Condition Index (GCI) is used. GCI is a numerical index between 0 and 100 and is based on a visual survey conducted, where 100 represents a newly constructed 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.
Rehabilitation and replacement strategies	Several different rehabilitation strategies can be implemented. The selection of the strategy is dependent on the following criteria: GCI index, road classification (collector, local), urban or rural, benefit/cost ratio. In a rehabilitation scenario, the top 50 to 100 mm of gravel type "A" would be replaced. In the case of total reconstruction the work would include the replacement of the granular road base and the granular surface.
Life cycle consequences	The effects of gravel road rehabilitation that is insufficiently funded are reflected in the GCI index which as a result will typically fall below 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.
Integrated asset priorities	The schedule of road rehabilitation is often planned in conjunction with underground utility rehabilitation works. Most commonly it is the rehabilitation of gravel roads that prompts the replacement of underground utilities and sewer and water services if those services are deteriorating and approaching their useful service life.



Asset Management Strategy Water Distribution Systems

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



Asset Management Strategy Wastewater Collection Systems

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 demander 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.	



Asset Management Strategy Financial Requirements

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 \$53.1 million in its infrastructure, the majority of which relates to the road network.

On average, the Municipality's immediate infrastructure investment needs amount to approximately \$5.3 million per year, recognizing that approximately \$28.4 million of the Municipality's investment requirement should be incurred immediately.





Projected future infrastructure investment requirements by year (in millions)



Asset Management Strategy Financial Requirements

• Sustainable life cycle requirements. In addition to its immediate needs, the Municipality will also be required to address the longer term need to replace its infrastructure as it approaches the end of its useful life. 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 replacement 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 approximately by the replacement value of its infrastructure divided by its useful life.

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 \$2.5 million.

Asset Component	Estimated Replacement Value	Estimated Useful Life ¹	Annual Requirement
Roads	\$122,397,716	80 years	\$1,529,971
Water distribution network – Warren	\$1,955,214	70 years	\$27,932
Water distribution network – Markstay	\$4,007,770	80 years	\$50,097
Water treatment facilities – Warren	\$4,316,741	55 years	\$78,486
Water treatment facilities – Markstay	\$550,000	75 years	\$7,333
Wastewater collection network	\$5,661,335	70 years	\$80,876
Wastewater treatment facilities	\$3,430,319	65 years	\$52,774
Bridges	\$6,323,389	25 years	\$252,936
Fleet	\$4,695,000	17 years	\$276,176
Buildings and facilities	\$7,313,031	50 years	\$146,261
Total	\$160,650,515		\$2,502,843

Estimated sustainable replacement requirement

¹ Where a range exists, the average has been used to determine the annual requirement.



Asset Management Strategy Prioritizing Infrastructure Requirements

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 \$7.8 million, as follows:

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Sustainable life cycle requirements
 \$2.5 million

In comparison, the Municipality raised \$2.4 million in taxes in 2012, with total capital expenditures amounting to \$367,000. 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.



Asset Management Planning for the Municipality of Markstay-Warren

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Chapter V Financing Strategy



Financing Strategy Basis of Analysis

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 (10 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. \$5.3 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. \$2.5 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. \$367,000 per year).

Financing Strategy Projected Financial Performance

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)



Financing Strategy Financing Strategies

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

In order to address the current and future shortfalls in capital funding, the Municipality may wish to consider the following 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 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 \$255,000 for capital purposes, representing a 69% increase in capital expenditures over the next five years.

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	\$2,435	\$49	\$2,484	\$367	\$49	\$416
2015	\$2,484	\$50	\$2,534	\$416	\$50	\$466
2016	\$2,534	\$51	\$2,585	\$466	\$51	\$517
2017	\$2,585	\$52	\$2,637	\$517	\$52	\$569
2018	\$2,637	\$53	\$2,690	\$569	\$53	\$622
Average annual increase in municipal levy		2.0%	Increase in capital e	expenditures	69%	

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

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 H.


Financing Strategy Financing Strategies

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

- 2. Use of borrowing for 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 \$3.9 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

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	\$49	\$417	\$672	\$757
2015	\$50	\$425	\$686	\$772
2016	\$51	\$433	\$700	\$787
2017	\$52	\$441	\$713	\$803
2018	\$53	\$450	\$727	\$819
Total	\$255	\$2,165	\$3,497	\$3,937

phased approach to debt financing, whereby a fixed percentage of capital expenditures would be financed through debentures during the capital levy period.

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Financing Strategy

Affordability and the Need for Grants

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:

- Supplementing 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.
- 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.

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Appendix A Infrastructure Profile -Roads

								Total			
			Condition		Re	placement	R	eplacement		Condition Rating	
ID	Road Name	Surface Type	Rating	Length (KM)	Co	ost per KM		Cost	Good	Fair	Poor
022	Cardinal Road	GR	2.00	1.0	\$	555,003	\$	555,003	-	-	1.00
028	Crerrar Road (Part 2)	GR	1.00	2.4	\$	555,003	\$	1,332,007	-	-	2.40
040	Gignac Road	GR	3.00	0.4	\$	555,003	\$	222,001	-	-	0.40
043	Ross Road	GR	1.00	0.2	\$	555,003	\$	111,001	-	-	0.20
054	Leveillee Road	GR	1.00	1.6	\$	555,003	\$	888,005	-	-	1.60
055	Molloy Road	GR	2.00	4.3	\$	555,003	\$	2,386,513	-	-	4.30
134	Eden Road	GR	1.00	0.5	\$	555,003	\$	277,502	-	-	0.50
001	Woodland Road	GR	5.00	1.1	\$	555,003	\$	610,503	-	1.10	-
002	Berton Street	GR	3.00	0.6	\$	555.003	\$	333.002	-	-	0.60
004	Hinds Road	GR	6.00	0.6	\$	555,003	\$	333.002	0.60	-	-
005	Gratton Street	GR	5.00	0.4	\$	555,003	\$	222.001	-	0.40	-
007	Riverview Road	GR	6.00	0.8	\$	555,003	\$	444.002	0.80	-	-
008	Macdonald Road	GR	6.00	1.3	\$	555.003	\$	721.504	1.30	-	-
009	Hood Road	GR	6.00	5.1	Ŝ	555,003	Ŝ	2,830,515	5.10	-	-
011	Kukagami Lake Road	GR	6.00	0.2	ŝ	555,003	ŝ	111.001	0.20	-	-
014	Park Drive	GR	4.00	10.3	ŝ	555,003	ŝ	5.716.531	-	-	10.30
015	Maclean Road	GR	5.00	2.4	ŝ	555,003	ŝ	1 332 007	-	2 40	-
017	Blaffert Road	GR	7.00	0.8	ŝ	555,003	ŝ	444 002	0.80	-	-
018	Nenewassi Lake Road	GR	5.00	2.2	ŝ	555 003	ŝ	1 221 007	-	2 20	_
019	Long Road	GR	5.00	0.7	ŝ	555 003	ŝ	388 502	_	0.70	_
020	Spodden Road	GR	5.00	5.8	¢	555 003	¢	3 210 017		5.80	-
020	Chamberlin Road	GR	5.00	53	Ψ ¢	555,003	Ψ ¢	2 9/1 516	_	5 30	_
021	Kallio Road	GR	3.00	0.9	Ψ ¢	555,003	Ψ ¢	/09 503	_	-	0.90
020	North Road (Part 1)	GR	8.00	1 1	Ψ ¢	555,003	Ψ ¢	610 503	1 10	_	-
024	North Road (Part 2)	GP	6.00	3.1	φ	555,003	Ψ ¢	1 720 500	3 10	_	_
025	St-Germain Road	GR	5.00	0.6	φ ¢	555,003	φ ¢	333 002	5.10	0.60	_
020	Crerrar Road (Part 1)	GR	3.00	0.0	φ ¢	555,003	φ ¢	444 002	_	0.00	- 0.80
027	McNabh Road	GR	4.00	10.2	φ ¢	555,003	φ ¢	5 661 031	_	_	10.20
029	Hunter Road	GR	4.00	2.0	φ ¢	555,003	φ ¢	1 609 509	_	2 00	10.20
030	loop Bood	GR	3.00 4.00	2.5	φ ¢	555,003	φ	200 502	-	2.50	0.70
031	Pattor Lako Poad	GR	4.00	0.7	φ Φ	555,003	¢ ¢	566,502 666,004	-	-	0.70
032	Makarral Road	GR	0.00 5.00	1.2	φ Φ	555,003	¢ ¢	166 501	1.20	-	-
033	Homostoad Road	GR	3.00	0.3	φ Φ	555,003	¢ ¢	777.004	-	0.30	-
034		GR	3.00	1.4	φ Φ	555,003	ф Ф	2 052 511	-	-	2 70
035		GR	4.00	3.7	¢ ¢	555,003	ф Ф	2,053,511	-	-	3.70
030		GR	3.00	3.1	¢ ¢	555,003	ф Ф	1,720,509	-	-	3.10
037		GR	4.00	0.9	¢ ¢	555,003	ф Ф	499,503	-	-	0.90
030	Lendry Dood	GR	4.00	5.0	¢ ¢	555,003	ф Ф	2,775,015	-	-	5.00
039		GK	4.00	D./	ф	555,003	ф Ф	3,103,517	-	-	5.70
041		GK	5.00	4.8	ф	555,003	ф Ф	2,004,014	-	4.80	-
042	Third Concession Read	GK	4.00	0.4	ф	555,003	ф Ф	222,001	-	-	0.40
044	Thiru Concession Road	GK	3.00	1.8 5 5	¢	555,003	¢	999,005	-	-	1.80
045	Boundary Koad	GK	6.00	5.5	¢	555,003	\$ ¢	3,052,517	5.50	-	-
046	Sauve Koad	GR	5.00	0.6	\$ ¢	555,003	\$ ¢	333,002	-	0.60	-
047	Lacoste Koad	GR	5.00	9.9	\$	555,003	\$	5,494,530	-	9.90	-

								Total			
			Condition		Re	placement	R	eplacement		Condition Rating	
ID	Road Name	Surface Type	Rating	Length (KM)	Co	ost per KM		Cost	Good	Fair	Poor
048	Labelle Road	GR	5.00	4.6	\$	555,003	\$	2,553,014	-	4.60	-
049	Joe's Road	GR	5.00	0.1	\$	555,003	\$	55,500	-	0.10	-
050	Rabbit Trail Road (NW, Part 1)	GR	5.00	0.2	\$	555,003	\$	111,001	-	0.20	-
051	Rabbit Trail Road (SE, Part 2)	GR	5.00	2.8	\$	555,003	\$	1,554,008	-	2.80	-
052	Simon Road	GR	5.00	1.0	\$	555,003	\$	555,003	-	1.00	-
053	Tincombe Road	GR	4.00	8.5	\$	555,003	\$	4,717,526	-	-	8.50
056	Griffiths Road	GR	5.00	2.1	\$	555,003	\$	1,165,506	-	2.10	-
057	Anderson Road	GR	3.00	0.4	\$	555,003	\$	222,001	-	-	0.40
058	Munroe Road	GR	4.00	4.8	\$	555.003	\$	2.664.014	-	-	4.80
059	Frappier Road	GR	3.00	2.4	\$	555,003	\$	1.332.007	-	-	2.40
060	Seguin Road	GR	3.00	6.6	\$	555.003	\$	3.663.020	-	-	6.60
061	Nipissing Road (Part 2)	GR	7.00	0.8	\$	555.003	\$	444.002	0.80	-	-
062	Bennet Road	GR	7.00	1.6	ŝ	555,003	\$	888.005	1 60	-	-
063	Sutcliffe Road	GR	5.00	1.6	ŝ	555 003	ŝ	888.005	-	1.60	_
065	Ebbers Road	GR	5.00	1.0	¢	555 003	¢	888.005	_	1.00	_
000	Stewart Road (Part 1)	GR	5.00	3.2	¢	555 003	¢	1 776 010	_	3 20	_
000	Stewart Road (Part 2)	CR	4.00	0.1	φ	555,003	φ	55 500	_	0.20	0.10
007	Ninissing Road (Part 2)	GR	4.00	0.1	φ Φ	555,003	φ Φ	1 997 010	- 2.40	-	0.10
000	Nipissing Road (Part 4)	GR	0.00	3.4	¢ ¢	555,003	ф Ф	1,007,010	3.40	-	-
009	Nipissing Road (Part 4)	GR	7.00	4.2	φ	555,003	φ Φ	2,331,013	4.20	-	-
070	Nipissing Road (Part 5)	GR	5.00	3.9	¢	555,003	¢	2,164,512	-	3.90	-
071		GR	4.00	0.9	\$	555,003	\$	499,503	-	-	0.90
072	Dupuis Road (Part 1)	GR	6.00	1.6	\$	555,003	\$	888,005	1.60	-	-
074	Bedard Road	GR	5.00	1.5	\$	555,003	\$	832,505	-	1.50	-
075	Richer Road	GR	3.00	2.0	\$	555,003	\$	1,110,006	-	-	2.00
076	Dumouchel Road (Part 1)	GR	6.00	1.6	\$	555,003	\$	888,005	1.60	-	-
077	Dumouchel Road (Part 2)	GR	5.00	4.8	\$	555,003	\$	2,664,014	-	4.80	-
078	Gervais Road	GR	5.00	3.5	\$	555,003	\$	1,942,511	-	3.50	-
079	Makannas Road	GR	4.00	0.9	\$	555,003	\$	499,503	-	-	0.90
080	The Little Brule Road	GR	5.00	1.6	\$	555,003	\$	888,005	-	1.60	-
081	Northern Central Road	GR	5.00	0.5	\$	555,003	\$	277,502	-	0.50	-
082	Black Fox Road	GR	3.00	0.9	\$	555,003	\$	499,503	-	-	0.90
085	Noland Road	GR	5.00	0.5	\$	555,003	\$	277,502	-	0.50	-
086	Shewchuk Road	GR	5.00	0.4	\$	555,003	\$	222,001	-	0.40	-
087	McKenzie Road	GR	4.00	0.2	\$	555,003	\$	111,001	-	-	0.20
088	Firefly Road	GR	5.00	0.2	\$	555,003	\$	111,001	-	0.20	-
089	Curry Point Road	GR	7.00	1.1	\$	555,003	\$	610,503	1.10	-	-
090	Paquette Road	GR	6.00	1.4	\$	555,003	\$	777,004	1.40	-	-
091	Dougherty Road	GR	6.00	0.8	\$	555.003	\$	444.002	0.80	-	-
093	Legion Street	GR	3.00	0.5	\$	555.003	\$	277.502	-	-	0.50
094	Hill Street	GR	4.00	1.5	\$	555.003	Ś	832.505	-	-	1.50
102	McMaster Street	GR	7.00	0.9	\$	555.003	\$	499.503	0.90	-	-
111	Therien Road	GR	3.00	0.1	\$	555.003	\$	55.500	-	-	0.10
112	Pine Poultry Road	GR	5.00	0.9	ŝ	555 003	ŝ	499 503	-	0 90	-
113	Warren Avenue	GR	6.00	1.4	\$	555.003	ŝ	777.004	1.40	-	-

								Total			
			Condition		Re	eplacement	R	eplacement		Condition Rating	
ID	Road Name	Surface Type	Rating	Length (KM)	С	ost per KM		Cost	Good	Fair	Poor
115	Stanhope Avenue	GR	3.00	0.7	\$	555,003	\$	388,502	-	-	0.70
122	Lafontaine Road (Gravel part)	GR	7.00	0.5	\$	555,003	\$	277,502	0.50	-	-
131	Mangan Road	GR	3.00	0.1	\$	555,003	\$	55,500	-	-	0.10
133	Mountain Street	GR	4.00	0.4	\$	555,003	\$	222,001	-	-	0.40
084	St Jean Street	HCB	6.00	0.2	\$	1,186,023	\$	237,205	0.20	-	-
092	Pioneer Street West	HCB	7.00	0.9	\$	1,186,023	\$	1,067,421	0.90	-	-
096	Main Street South (Part 1)	HCB	7.00	0.4	\$	1,186,023	\$	474,409	0.40	-	-
097	Main Street South (Part 2)	HCB	7.00	0.2	\$	1,186,023	\$	237,205	0.20	-	-
114	Dyke Street/ Hwy 539	HCB	10.00	0.1	\$	1,186,023	\$	118,602	0.10	-	-
116	Stanhope Avenue / Hwy 539	HCB	9.00	0.1	\$	1,186,023	\$	118,602	0.10	-	-
117	Stanhope Avenue (Part 3)	HCB	7.00	0.1	\$	1,186,023	\$	118,602	0.10	-	-
118	Rutland Avenue (Part 1)	HCB	4.00	0.2	\$	1,186,023	\$	237,205	-	-	0.20
119	Rutland Avenue (Part 2)	HCB	7.00	0.1	\$	1,186,023	\$	118,602	0.10	-	-
120	Balfour Street	HCB	7.00	0.4	\$	1,186,023	\$	474,409	0.40	-	-
121	Lafontaine Road	HCB	6.00	0.4	\$	1,186,023	\$	474,409	0.40	-	-
123	Salisbury Avenue	HCB	6.00	0.4	\$	1,186,023	\$	474,409	0.40	-	-
124	College Street	HCB	5.00	0.1	\$	1.186.023	\$	118.602	-	0.10	-
125	Warren Avenue (Paved Portion)	HCB	5.00	0.6	\$	1.186.023	\$	711.614	-	0.60	-
126	St. Thomas Street	HCB	3.00	0.2	\$	1.186.023	\$	237.205	-	-	0.20
127	Laurier Lane	HCB	3.00	0.9	\$	1,186,023	\$	1,067,421	-	-	0.90
128	Bertrand Street	HCB	3.00	0.2	\$	1.186.023	\$	237.205	-	-	0.20
129	Mangan Lane	HCB	4.00	0.1	\$	1.186.023	\$	118.602	-	-	0.10
130	Berube Avenue (Lane)	HCB	5.00	0.2	\$	1,186,023	\$	237,205	-	0.20	-
132	Fingal Avenue (Hwy 539)	HCB	8.00	0.2	\$	1,186,023	\$	237,205	0.20	-	-
003	Awrey Street	LCB	10.00	1.5	\$	648,391	\$	972,587	1.50	-	-
083	Labine Road	LCB	5.00	1.0	\$	648,391	\$	648,391	-	1.00	-
006	Sunset Road	LCB	9.00	0.8	\$	648,391	\$	518,713	0.80	-	-
010	Kukagami Lake Road	LCB	8.00	0.4	\$	648,391	\$	259,356	0.40	-	-
012	Amell Road	LCB	3.00	0.2	\$	648,391	\$	129,678	-	-	0.20
013	Park Drive	LCB	3.00	0.5	\$	648.391	\$	324,196	-	-	0.50
016	Chain Lake Road	LCB	5.00	0.5	\$	648,391	\$	324,196	-	0.50	-
064	Nipissing Road (Part 1)	LCB	8.00	0.6	\$	648,391	\$	389,035	0.60	-	-
073	Dupuis Road (Part 2)	LCB	4.00	0.1	\$	648,391	\$	64,839	-	-	0.10
095	Church Street	LCB	3.00	0.3	\$	648.391	\$	194.517	-	-	0.30
098	Front Street	LCB	3.00	0.3	\$	648,391	\$	194,517	-	-	0.30
099	Hagar Street	LCB	5.00	0.2	\$	648,391	\$	129,678	-	0.20	-
100	Lucien Street	LCB	5.00	0.3	\$	648.391	\$	194.517	-	0.30	-
101	Millichamp Street	LCB	6.00	0.2	\$	648.391	\$	129.678	0.20	-	-
103	Rita Street	LCB	4.00	0.2	\$	648.391	\$	129.678	-	-	0.20
104	Rejean Street	LCB	5.00	0.2	\$	648,391	\$	129,678	-	0.20	-
105	Rollande Street	LCB	3.00	0.1	\$	648,391	\$	64,839	-	-	0.10
106	Birch Street	LCB	5.00	0.3	\$	648.391	\$	194.517	-	0.30	-
107	Spruce Street	LCB	4.00	0.1	\$	648.391	Ś	64.839	-		0.10
108	Hawthorne Street	LCB	3.00	0.2	\$	648,391	\$	129,678	-	-	0.20
						,					

			Condition		Re	placement	Re	Total placement	Co	ondition Rating	
ID	Road Name	Surface Type	Rating	Length (KM)	Co	st per KM		Cost	Good	Fair	Poor
109 110	Main Street North Pioneer Street East	LCB LCB	5.00 7.00	0.1 0.3	\$ \$	648,391 648,391	\$ \$	64,839 194,517	- 0.30	0.10	-
				212.3	}		\$ 1	22,397,716	46.30	75.50	90.50
							Perc	centage	21.8%	35.6%	42.6%

ID	Road Name	Surface Type	Condition Rating	Length (KM)	Construction Requirement	Cost per k	M CR	20	14 Cost	CR	2015 Cost		CR	2016 Cost		CR	2017 Cos	st	CR	2018 Cost
028	Crerrar Road (Part 2)	GR	1.00	2.4	Rehabilitation	\$ 312,	973 1.00	0\$	751,135	10	\$	-	9.67	\$-	;	9.34	\$		9.01	\$-
043	Ross Road	GR	1.00	0.2	Rehabilitation	\$ 312,	973 1.00	0\$	62,595	10	\$	-	9.67	\$-	!	9.34	\$	-	9.01	\$-
054	Leveillee Road	GR	1.00	1.6	Rehabilitation	\$ 312,	973 1.00	0\$	500,757	10	\$	-	9.67	\$ -	1	9.34	\$	-	9.01	\$ -
134	Eden Road	GR	1.00	0.5	Rehabilitation	\$ 312,	973 1.00	0\$	156,487	10	\$	-	9.67	\$ -		9.34	\$	-	9.01	ş -
022	Cardinal Road	GR	2.00	1.0	Renabilitation	\$ 312,	973 1.6 973 1.6	/ \$ 7 ¢	312,973	10	э с		9.67	\$ - ¢		9.34 3.34	ъ с	-	9.01	\$ - ¢
035	Gignac Road	GR	2.00	4.3	Rehabilitation	\$ 312,	973 1.0 973 2.6	7\$ 7\$	1,345,764	10	ф Ç	2	9.67	з - с -		9.34 3.34	φ ¢		9.01	s -
002	Berton Street	GR	3.00	0.6	Rehabilitation	\$ 312,	973 2.6	7\$	187,784	10	ŝ		9.67	\$ -		9.34	\$	-	9.01	\$ -
023	Kallio Road	GR	3.00	0.9	Rehabilitation	\$ 312,	973 2.6	7 \$	281,676	10	\$	-	9.67	\$ -	:	9.34	\$	-	9.01	\$ -
027	Crerrar Road (Part 1)	GR	3.00	0.8	Rehabilitation	\$ 312,	973 2.6	7 \$	250,378	10	\$	-	9.67	\$-	!	9.34	\$	-	9.01	\$-
034	Homestead Road	GR	3.00	1.4	Rehabilitation	\$ 312,	973 2.6	7\$	438,162	10	\$	-	9.67	\$-	1	9.34	\$	-	9.01	\$-
036	Jacobson Road	GR	3.00	3.1	Rehabilitation	\$ 312,	973 2.6	7 \$	970,216	10	\$	-	9.67	\$ -	1	9.34	\$	-	9.01	\$ -
044	I hird Concession Road	GR	3.00	1.8	Rehabilitation	\$ 312,	3/3 2.6	75	563,351	10	\$	-	9.67	\$ - ¢		9.34	\$	-	9.01	\$ - ¢
057	Francisco Road	GR	3.00	0.4	Rehabilitation	\$ 312, \$ 312	973 2.0 373 2.6	/ ⊅ 7 €	751 135	10	э с		9.67			9.34 3.34	¢ ¢		9.01	р - с -
060	Seguin Road	GR	3.00	6.6	Rehabilitation	\$ 312,	973 2.6	7\$	2.065.622	10	s s		9.67	\$ -		9.34	ŝ		9.01	\$- \$-
075	Richer Road	GR	3.00	2.0	Rehabilitation	\$ 312,	973 2.6	7 \$	625,946	10	\$		9.67	\$-		9.34	\$	-	9.01	\$-
082	Black Fox Road	GR	3.00	0.9	Rehabilitation	\$ 312,	973 2.6	7 \$	281,676	10	\$	-	9.67	\$ -	1	9.34	\$	-	9.01	\$ -
093	Legion Street	GR	3.00	0.5	Rehabilitation	\$ 312,	973 2.6	7\$	156,487	10	\$	-	9.67	\$-	1	9.34	\$	-	9.01	\$-
111	Therien Road	GR	3.00	0.1	Rehabilitation	\$ 312,	2.6	7 \$	31,297	10	\$	-	9.67	\$-	1	9.34	\$	-	9.01	\$-
115	Stannope Avenue	GR	3.00	0.7	Rehabilitation	\$ 312,	3/3 2.6	/\$ 7 *	219,081	10	\$ ¢	-	9.67	\$ - ¢		1.34 2.24	\$ ¢	-	9.01	ծ - «
126	St Thomas Street	UCB	3.00	0.1	Rehabilitation	\$ 312, \$ 844	3/3 2.0	/ ⊅ 7 ¢	168 060	10	э ¢	-	9.67	ъ -		9.34 3.34	¢	-	9.01	р - с -
120	Laurier Lane	HCB	3.00	0.9	Rehabilitation	\$ 844	347 2.6	, y 7 \$	760.362	10	ŝ		9.67	s -		9.34	ŝ	-	9.01	s -
128	Bertrand Street	HCB	3.00	0.2	Rehabilitation	\$ 844.	347 2.6	 7 \$	168,969	10	ŝ		9.67	\$ -		9.34	ŝ	-	9.01	\$ -
012	Amell Road	LCB	3.00	0.2	Rehabilitation	\$ 340,	335 2.6	7\$	68,167	10	\$	-	9.67	\$ -	:	9.34	\$	-	9.01	\$-
013	Park Drive	LCB	3.00	0.5	Rehabilitation	\$ 340,	335 2.6	7\$	170,418	10	\$	-	9.67	\$-	1	9.34	\$	-	9.01	\$-
095	Church Street	LCB	3.00	0.3	Rehabilitation	\$ 340,	335 2.6	7\$	102,251	10	\$	-	9.67	\$-	1	9.34	\$	-	9.01	\$-
098	Front Street	LCB	3.00	0.3	Rehabilitation	\$ 340,	335 2.6	7 \$	102,251	10	\$	-	9.67	\$ -	1	9.34	\$	-	9.01	\$ -
105	Rollande Street	LCB	3.00	0.1	Rehabilitation	\$ 340,	335 2.6	7 \$	34,084	10	\$	-	9.67	\$ -		9.34	\$	-	9.01	ş -
108	Hawthorne Street	LCB	3.00	0.2	Renabilitation	\$ 340, ¢ 175	335 Z.b	/ \$ 7 ¢	1 905 477	10	ф С	-	9.67	ծ - «		9.34 2.24	\$ ¢	-	9.01	ծ - «
029	McNabb Road	GR	4.00	10.2	Resurfacing	\$ 175.	289 3.6	7\$	1,787,948	10	s s		9.67	\$ -		9.34	ŝ		9.01	\$- \$-
031	Jean Road	GR	4.00	0.7	Resurfacing	\$ 175,	289 3.6	7 \$	122,702	10	\$		9.67	\$-		9.34	\$	-	9.01	\$-
035	Leeftink Road	GR	4.00	3.7	Resurfacing	\$ 175,	289 3.6	7 \$	648,569	10	\$	-	9.67	\$ -	:	9.34	\$	-	9.01	\$ -
037	Luiting Road	GR	4.00	0.9	Resurfacing	\$ 175,	289 3.6	7\$	157,760	10	\$	-	9.67	\$-	1	9.34	\$	-	9.01	\$-
038	Tex's Road	GR	4.00	5.0	Resurfacing	\$ 175,	289 3.6	7 \$	876,445	10	\$	-	9.67	\$ -	1	9.34	\$	-	9.01	\$-
039	Landry Road	GR	4.00	5.7	Resurfacing	\$ 175,	289 3.6	7 \$	999,147	10	\$	-	9.67	\$ -		9.34	\$	-	9.01	ş -
042	Husky Irall Road	GR	4.00	0.4	Resurfacing	\$ 175, ¢ 175	289 3.5	/ \$ 7 ¢	70,116	10	ъ с	-	9.67	ծ - «		9.34 2.24	\$ ¢	-	9.01	ծ - «
058	Munroe Road	GR	4.00	4.8	Resurfacing	\$ 175, \$ 175	269 3.6	7\$ 7\$	841 387	10	э S	2	9.67	s -		9.34	э S	-	9.01	ş - S -
067	Stewart Road (Part 2)	GR	4.00	0.1	Resurfacing	\$ 175.	289 3.6	 7 \$	17.529	10	ŝ		9.67	\$ -		9.34	ŝ	-	9.01	\$ -
071	Langlois Road	GR	4.00	0.9	Resurfacing	\$ 175,	289 3.6	7\$	157,760	10	\$	-	9.67	\$ -	:	9.34	\$	-	9.01	\$-
079	Makannas Road	GR	4.00	0.9	Resurfacing	\$ 175,	289 3.6	7 \$	157,760	10	\$	-	9.67	\$-	!	9.34	\$	-	9.01	\$-
087	McKenzie Road	GR	4.00	0.2	Resurfacing	\$ 175,	289 3.6	7 \$	35,058	10	\$	-	9.67	\$ -	1	9.34	\$	-	9.01	\$ -
094	Hill Street	GR	4.00	1.5	Resurfacing	\$ 175,	289 3.6	7 \$	262,934	10	\$	-	9.67	\$-	1	9.34	\$	-	9.01	\$ -
133	Woodland Road	GR	4.00	0.4	Resurfacing	\$ 175, \$ 175	289 3.6	15 7¢	70,116	10	с	2	9.67	ծ - «		9.34 3.68	\$ \$ 10	-	9.01	ə - s
005	Gratton Street	GR	5.00	0.4	Resurfacing	\$ 175	289 4.6	, " 7\$	-	4.34	ŝ		4.01	s -		3.68	\$ 7	0.116	10	s -
015	MacLean Road	GR	5.00	2.4	Resurfacing	\$ 175.	289 4.6	7 \$	-	4.34	\$	-	4.01	\$ -		3.68	\$ 42	20,694	10	\$ -
018	Nepewassi Lake Road	GR	5.00	2.2	Resurfacing	\$ 175,	289 4.6	7\$	-	4.34	\$	-	4.01	\$ -	;	3.68	\$ 38	85,636	10	\$-
019	Long Road	GR	5.00	0.7	Resurfacing	\$ 175,	289 4.6	7\$	-	4.34	\$	-	4.01	\$ -	;	3.68	\$ 12	22,702	10	\$-
020	Snodden Road	GR	5.00	5.8	Resurfacing	\$ 175,	289 4.6	7 \$	-	4.34	\$	-	4.01	\$-	:	3.68	\$ 1,01	6,676	10	\$-
021	Chamberlin Road	GR	5.00	5.3	Resurfacing	\$ 175,	289 4.6	7 \$	-	4.34	\$	-	4.01	\$-		3.68	\$ 92	29,032	10	\$ -
026	St-Germain Road	GR	5.00	0.6	Resurfacing	\$ 175, \$ 175	289 4.6	/\$ 7 ¢	-	4.34	\$ ¢		4.01	ծ - «		3.68	\$ 10 ¢ = c	15,173	10	ծ - «
030	McKerral Road	GR	5.00	2.9	Resurfacing	ψ 1/5, \$ 175	289 4.6	γφ 7\$	-	4.34	ŝ		4.01	у - S -		3.68	φ 50 \$ F	52 587	10	÷ -
041	Dondo Road	GR	5.00	4.8	Resurfacing	\$ 175.	289 4.6		-	4.34	š	-	4.01	\$ -		3.68	\$ 84	1,387	10	\$ -
046	Sauve Road	GR	5.00	0.6	Resurfacing	\$ 175,	289 4.6	7\$	-	4.34	\$	-	4.01	\$ -	:	3.68	\$ 10	5,173	10	\$ -
047	Lacoste Road	GR	5.00	9.9	Resurfacing	\$ 175,	289 4.6	7\$	-	4.34	\$	-	4.01	\$-	;	3.68	\$ 1,73	35,361	10	\$-
048	Labelle Road	GR	5.00	4.6	Resurfacing	\$ 175,	289 4.6	7\$	-	4.34	\$	-	4.01	\$ -	:	3.68	\$ 80	06,329	10	\$ -
049	Joe's Road	GR	5.00	0.1	Resurfacing	\$ 175,	289 4.6	7 \$	-	4.34	\$	-	4.01	\$-	:	3.68	\$ 1	7,529	10	\$-
050	Rabbit Trail Road (NW, Part 1)	GR	5.00	0.2	Resurfacing	\$ 175, ¢ 175	289 4.6	/\$	-	4.34	\$ ¢	-	4.01	\$ - ¢		5.68 2.68	\$ 3	5,058	10	ծ - «
051	Rappit Hall Koad (SE, Part 2) Simon Road	GR	5.00	2.8	Resurfacing	⊅ 1/5, € 175	209 4.6	13 76	-	4.34	¢ ¢	-	4.01	ۍ د د		3.68	ວ 49 ເ 17	10,809 75,280	10	р - с
052	Griffiths Road	GR	5.00	2.1	Resurfacing	\$ 175, \$ 175	289 4.6	γ.φ 7.\$	-	4.34	ŝ	2	4.01	s -		3.68	\$ 36	3,209	10	\$ -
063	Sutcliffe Road	GR	5.00	1.6	Resurfacing	\$ 175.	289 4.6	7 \$	-	4.34	\$		4.01	\$ -		3.68	\$ 28	30,462	10	\$-
065	Ebbers Road	GR	5.00	1.6	Resurfacing	\$ 175,	289 4.6	7\$	-	4.34	\$	-	4.01	\$ -	;	3.68	\$ 28	30,462	10	\$-
066	Stewart Road (Part 1)	GR	5.00	3.2	Resurfacing	\$ 175.	289 4.6	7\$	-	4.34	\$	-	4.01	s -	:	3.68	\$ 56	60.925	10	s -

ID	Road Name	Surface Type	Condition Rating	Length (KM)	Construction Requirement	Cos	st per KM	CR	2014 Cost	CR	20	Cost	CR	2016 Cost	CR	2017 Cost	CR	2018 Cost
070	Nining Deed (Det 5)	CD.	5.00	2.0	Desurfacian	¢	475 000	4.67		4.24	¢		4.04	¢	2.69	¢ 602.627	10	¢
070	Redard Road (Part 5)	GR	5.00	3.9	Resurfacing	¢ 2	175,269	4.67	-	4.34	¢ 2	-	4.01	а - с -	3.68	\$ 003,027 \$ 262,934	10	
074	Dumouchel Road (Part 2)	GR	5.00	4.8	Resurfacing	\$	175 289	4.67	- -	4.34	ŝ	-	4.01	s -	3.68	\$ 841.387	10	s -
078	Gervais Road	GR	5.00	3.5	Resurfacing	ŝ	175,289	4.67	-	4.34	ŝ	-	4.01	\$-	3.68	\$ 613.512	10	\$ -
080	The Little Brule Road	GR	5.00	1.6	Resurfacing	\$	175.289	4.67	-	4.34	ŝ	-	4.01	\$ -	3.68	\$ 280,462	10	\$ -
081	Northern Central Road	GR	5.00	0.5	Resurfacing	\$	175,289	4.67	-	4.34	ŝ	-	4.01	\$ -	3.68	\$ 87,645	10	\$-
085	Noland Road	GR	5.00	0.5	Resurfacing	\$	175,289	4.67	s -	4.34	\$	-	4.01	\$ -	3.68	\$ 87,645	10	\$ -
086	Shewchuk Road	GR	5.00	0.4	Resurfacing	\$	175,289	4.67	6 -	4.34	\$	-	4.01	\$-	3.68	\$ 70,116	10	\$-
088	Firefly Road	GR	5.00	0.2	Resurfacing	\$	175,289	4.67	6 -	4.34	\$	-	4.01	\$-	3.68	\$ 35,058	10	\$-
112	Pine Poultry Road	GR	5.00	0.9	Resurfacing	\$	175,289	4.67	s -	4.34	\$	-	4.01	\$-	3.68	\$ 157,760	10	\$-
004	Hinds Road	GR	6.00	0.6	Resurfacing	\$	175,289	5.67	ş -	5.34	\$	-	5.01	\$-	4.68	\$-	4.35	\$-
007	Riverview Road	GR	6.00	0.8	Resurfacing	\$	175,289	5.67	- 6	5.34	\$	-	5.01	\$ -	4.68	\$-	4.35	\$ -
008	Macdonald Road	GR	6.00	1.3	Resurfacing	\$	175,289	5.67	6 -	5.34	\$	-	5.01	\$ -	4.68	\$-	4.35	\$-
009	Hood Road	GR	6.00	5.1	Resurfacing	\$	175,289	5.67 \$	6 -	5.34	\$	-	5.01	\$ -	4.68	ş -	4.35	ş -
011	Kukagami Lake Road	GR	6.00	0.2	Resurfacing	\$	175,289	5.67 \$		5.34	\$	-	5.01	ş -	4.68	ş -	4.35	ş -
025	North Road (Part 2)	GR	6.00	3.1	Resurracing	\$	175,289	5.67 3	-	5.34	\$	-	5.01	\$ -	4.68	\$ -	4.35	ъ -
032	Ratter Lake Road	GR	6.00	1.Z	Resurfacing	ф ¢	175,289	5.67		5.34	¢	-	5.01	ъ - с	4.68	ծ - «	4.35	ծ - «
040	Nining Road (Part 2)	GR	6.00	3.5	Resultacing	¢	175,209	5.07	-	5.34	¢ ¢	-	5.01	э - с	4.00	э - с	4.55	- с
000	Dupuis Road (Part 1)	GR	6.00	1.6	Resultacing	¢	175,209	5.07	-	5.34	¢ ¢	-	5.01	э - с	4.00	э - с	4.55	- с
072	Dupuis Road (Part 1)	GR	6.00	1.0	Resurfacing	¢ ¢	175,289	5.67	· ·	5 34	¢ 2	-	5.01	а с	4.00	 -	4.35	э - с -
000	Paquette Road	GR	6.00	1.0	Resurfacing	¢	175 289	5.67		5 34	ŝ		5.01	\$.	4.68	φ ς _	4 35	¢
091	Dougherty Road	GR	6.00	0.8	Resurfacing	\$	175,289	5.67	-	5.34	ŝ	-	5.01	\$-	4.68	\$-	4.35	\$ -
113	Warren Avenue	GR	6.00	1.4	Resurfacing	ŝ	175,289	5.67	-	5.34	ŝ	-	5.01	\$-	4.68	\$-	4.35	\$ -
017	Blaffert Road	GR	7.00	0.8	Resurfacing	\$	175.289	6.67	-	6.34	ŝ	-	6.01	\$ -	5.68	\$ -	5.35	\$ -
061	Nipissing Road (Part 2)	GR	7.00	0.8	Resurfacing	\$	175,289	6.67	-	6.34	ŝ	-	6.01	\$ -	5.68	\$ -	5.35	\$-
062	Bennet Road	GR	7.00	1.6	Resurfacing	\$	175,289	6.67	5 -	6.34	\$	-	6.01	\$ -	5.68	\$ -	5.35	\$ -
069	Nipissing Road (Part 4)	GR	7.00	4.2	Resurfacing	\$	175,289	6.67	s -	6.34	\$	-	6.01	\$ -	5.68	\$ -	5.35	\$ -
089	Curry Point Road	GR	7.00	1.1	Resurfacing	\$	175,289	6.67 \$	6 -	6.34	\$	-	6.01	\$-	5.68	\$-	5.35	\$-
102	McMaster Street	GR	7.00	0.9	Resurfacing	\$	175,289	6.67	6 -	6.34	\$	-	6.01	\$-	5.68	\$-	5.35	\$-
122	Lafontaine Road (Gravel part)	GR	7.00	0.5	Resurfacing	\$	175,289	6.67 \$	s -	6.34	\$	-	6.01	\$-	5.68	\$-	5.35	\$-
024	North Road (Part 1)	GR	8.00	1.1	Resurfacing	\$	175,289	7.67 \$	6 -	7.34	\$	-	7.01	\$-	6.68	\$-	6.35	\$-
118	Rutland Avenue (Part 1)	HCB	4.00	0.2	Resurfacing	\$	415,245	3.67	\$ 83,049	10	\$	-	9.67	\$-	9.34	\$-	9.01	\$-
129	Mangan Lane	HCB	4.00	0.1	Resurfacing	\$	415,245	3.67	\$ 41,525	10	\$	-	9.67	\$-	9.34	\$-	9.01	\$-
124	College Street	HCB	5.00	0.1	Resurfacing	\$	415,245	4.67	- 6	4.34	\$	-	4.01	\$ -	3.68	\$ 41,525	10	\$ -
125	Warren Avenue (Paved Portion)	HCB	5.00	0.6	Resurfacing	\$	415,245	4.67	6 -	4.34	\$	-	4.01	\$ -	3.68	\$ 249,147	10	\$ -
130	Berube Avenue (Lane)	HCB	5.00	0.2	Resurfacing	\$	415,245	4.67 \$		4.34	\$	-	4.01	ş -	3.68	\$ 83,049	10	ş -
084	St Jean Street	HCB	6.00	0.2	Resurfacing	\$	415,245	5.67	-	5.34	\$	-	5.01	\$ -	4.68	\$ -	4.35	\$ -
121	Lafontaine Road	HCB	6.00	0.4	Resurracing	\$	415,245	5.67 3	-	5.34	\$	-	5.01	\$ -	4.68	\$ -	4.35	ъ -
123	Salisbury Avenue	HCB	6.00	0.4	Resurfacing	ф ¢	415,245	5.67		5.34	¢	-	5.01	ъ - с	4.68	ծ - «	4.35	ծ - «
092	Main Street South (Part 1)	HCB	7.00	0.9	Resultacing	¢	415,245	6.67	-	6.24	¢ ¢	-	6.01	э - с	5.00	э - с	5.55	- с
090	Main Street South (Part 2)	HCB	7.00	0.4	Resurfacing	¢ ¢	415,245	6.67		6 34	¢ 2	-	6.01	а с	5.68	 -	5 35	э - с -
117	Stanhone Avenue (Part 3)	HCB	7.00	0.1	Resurfacing	¢	415 245	6.67		6 34	ŝ		6.01	\$.	5.68	φ ς _	5 35	¢
119	Rutland Avenue (Part 2)	HCB	7.00	0.1	Resurfacing	ŝ	415 245	6.67	-	6.34	ŝ	-	6.01	\$ -	5.68	\$-	5.35	\$ -
120	Balfour Street	HCB	7.00	0.4	Resurfacing	\$	415,245	6.67	-	6.34	ŝ	-	6.01	\$-	5.68	\$-	5.35	\$ -
132	Fingal Avenue (Hwy 539)	HCB	8.00	0.2	Resurfacing	ŝ	415,245	7.67	- -	7.34	ŝ	-	7.01	\$ -	6.68	\$ -	6.35	\$ -
116	Stanhope Avenue / Hwy 539	HCB	9.00	0.1	Resurfacing	\$	415,245	8.67	-	8.34	ŝ	-	8.01	\$ -	7.68	\$ -	7.35	\$-
114	Dyke Street/ Hwy 539	HCB	10.00	0.1	Resurfacing	\$	415,245	9.67	5 -	9.34	\$	-	9.01	\$ -	8.68	\$ -	8.35	\$ -
073	Dupuis Road (Part 2)	LCB	4.00	0.1	Resurfacing	\$	274,000	3.67	\$ 27,400	10	\$	-	9.67	\$ -	9.34	\$ -	9.01	\$ -
103	Rita Street	LCB	4.00	0.2	Resurfacing	\$	274,000	3.67	54,800	10	\$	-	9.67	\$-	9.34	\$-	9.01	\$-
107	Spruce Street	LCB	4.00	0.1	Resurfacing	\$	274,000	3.67	\$ 27,400	10	\$	-	9.67	\$-	9.34	\$-	9.01	\$-
083	Labine Road	LCB	5.00	1.0	Resurfacing	\$	274,000	4.67	s -	4.34	\$	-	4.01	\$-	3.68	\$ 274,000	10	\$-
016	Chain Lake Road	LCB	5.00	0.5	Resurfacing	\$	274,000	4.67 \$	s -	4.34	\$	-	4.01	\$-	3.68	\$ 137,000	10	\$-
099	Hagar Street	LCB	5.00	0.2	Resurfacing	\$	274,000	4.67 \$	s -	4.34	\$	-	4.01	\$-	3.68	\$ 54,800	10	\$-
100	Lucien Street	LCB	5.00	0.3	Resurfacing	\$	274,000	4.67	- 6	4.34	\$	-	4.01	\$ -	3.68	\$ 82,200	10	\$ -
104	Rejean Street	LCB	5.00	0.2	Resurfacing	\$	274,000	4.67	- 6	4.34	\$	-	4.01	\$ -	3.68	\$ 54,800	10	\$ -
106	Birch Street	LCB	5.00	0.3	Resurfacing	\$	274,000	4.67	6 -	4.34	\$	-	4.01	ş -	3.68	\$ 82,200	10	ş -
109	Main Street North	LCB	5.00	0.1	Resurfacing	\$	274,000	4.67 \$	- F	4.34	\$	-	4.01	\$ -	3.68	\$ 27,400	10	\$-
101	Millichamp Street	LCB	6.00	0.2	Resurfacing	\$	274,000	5.67	5 -	5.34	\$	-	5.01	ş -	4.68	ş -	4.35	ş -
110	Pioneer Street East	LCB	7.00	0.3	Resurfacing	\$	274,000	6.67	ў -	6.34	\$	-	6.01	ş -	5.68	\$ -	5.35	\$ -
010	Kukagami Lake Road	LCB	8.00	0.4	Resurfacing	\$	274,000	7.67	- •	7.34	\$	-	7.01	ъ -	6.68	ծ - «	6.35	»՝ -
004	Nipissing Road (Part 1)	LCB	8.00	0.0	Resultacing	¢	274,000	1.0/	p -	1.34	\$ ¢	-	7.01	¢ -	0.00	φ - ¢	0.35	ው - ድ
000	Awrey Street	LOD	9.00	0.0	Resurfacing	¢ ¢	274,000	0.0/ 3	р - С	0.34	¢ ¢	-	0.01	ф -	1.00	φ - ¢	1.30	φ - ¢
003	Awiey olleel	LUD	10.00	1.0	resultacing	φ	214,000	9.07	- 9	9.34	φ	-	9.01	φ -	0.00	φ -	0.30	ψ -
				040.0					04 640 600		¢			6		¢ 40,700,000		¢

ID	Road Name	Surface Type	Condition	Length (KM)	Construction	Cost per KM	CP	2019 Cost	CP	2020 Cost	CP	2021 Cost	CP	2022 Cost	CP	2023
	Road Name	Sunace Type	Raung	Length (Kivi)	Requirement	Cost per Kivi	UK	COSI	UN	Cost	UK	COSI	GK	COSI	UK	COSI
028	Crerrar Road (Part 2)	GR	1.00	2.4	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$ -	8.02	\$-	7.69	\$-	7.36	\$-
043	Ross Road	GR	1.00	0.2	Rehabilitation	\$ 312,973 \$ 312,973	8.68	\$ ¢	- 8.35	\$ - ¢ -	8.02	\$ - ¢ -	7.69	\$ - ¢	7.36	\$ - ¢ -
134	Eden Road	GR	1.00	0.5	Rehabilitation	\$ 312,973	8.68	э \$	- 8.35	а - S -	8.02	а - S -	7.09	φ - \$ -	7.36	s -
022	Cardinal Road	GR	2.00	1.0	Rehabilitation	\$ 312,973	8.68	ŝ	- 8.35	\$ -	8.02	\$ -	7.69	\$ -	7.36	\$ -
055	Molloy Road	GR	2.00	4.3	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$ -	8.02	\$-	7.69	\$-	7.36	\$ -
040	Gignac Road	GR	3.00	0.4	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
002	Berton Street	GR	3.00	0.6	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
023	Kallio Road	GR	3.00	0.9	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$ -	8.02	\$ - ¢	7.69	\$ - ¢	7.36	\$ - ¢
027	Homestead Road	GR	3.00	0.8	Rehabilitation	\$ 312,973 \$ 312,973	0.00 8.68	э \$	- 8.35	s -	8.02	5 - S -	7.69	ъ - \$ -	7.36	ъ - \$ -
036	Jacobson Road	GR	3.00	3.1	Rehabilitation	\$ 312,973	8.68	ŝ	- 8.35	\$ -	8.02	\$ -	7.69	\$ -	7.36	\$ -
044	Third Concession Road	GR	3.00	1.8	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
057	Anderson Road	GR	3.00	0.4	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
059	Frappier Road	GR	3.00	2.4	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$ -	7.36	\$ -
060	Seguin Road	GR	3.00	0.0	Renabilitation	\$ 312,973 ¢ 312,073	8.68	\$ ¢	- 8.35	ծ - «	8.02	\$ - ¢	7.69	ֆ - «	7.30	ծ - «
075	Black Fox Road	GR	3.00	2.0	Rehabilitation	\$ 312,973	8.68	s s	- 8.35	s -	8.02	s -	7.09	φ - \$ -	7.36	s -
093	Legion Street	GR	3.00	0.5	Rehabilitation	\$ 312,973	8.68	ŝ	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
111	Therien Road	GR	3.00	0.1	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$ -	8.02	\$ -	7.69	\$ -	7.36	\$ -
115	Stanhope Avenue	GR	3.00	0.7	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
131	Mangan Road	GR	3.00	0.1	Rehabilitation	\$ 312,973	8.68	\$	- 8.35	\$-	8.02	\$ -	7.69	\$ -	7.36	\$-
126	St. Thomas Street	HCB	3.00	0.2	Rehabilitation	\$ 844,847	8.68	\$	- 8.35	\$ -	8.02	\$ - ¢	7.69	\$ - ¢	7.36	\$ - ¢
127	Bertrand Street	нсв	3.00	0.9	Rehabilitation	\$ 044,047 \$ 844,847	0.00 8.68	э с	- 0.30	s -	8.02	s - s -	7.69	ъ - с -	7.30	арана Страна С Страна Страна С С С С С С С С С С С С С С С С С С
012	Amell Road	LCB	3.00	0.2	Rehabilitation	\$ 340.835	8.68	\$	- 8.35	φ - \$ -	8.02	\$- \$-	7.69	\$ -	7.36	\$- \$-
013	Park Drive	LCB	3.00	0.5	Rehabilitation	\$ 340,835	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
095	Church Street	LCB	3.00	0.3	Rehabilitation	\$ 340,835	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
098	Front Street	LCB	3.00	0.3	Rehabilitation	\$ 340,835	8.68	\$	- 8.35	\$ -	8.02	\$ -	7.69	\$ -	7.36	\$-
105	Rollande Street	LCB	3.00	0.1	Rehabilitation	\$ 340,835	8.68	\$	- 8.35	ş -	8.02	\$ -	7.69	\$ -	7.36	\$ -
108	Hawthorne Street	LCB	3.00	0.2	Renabilitation	\$ 340,835 ¢ 175,290	8.68	\$ ¢	- 8.35	ծ - «	8.02	\$ - ¢	7.69	ֆ - «	7.30	ծ - «
029	McNabb Road	GR	4.00	10.2	Resurfacing	\$ 175,289	8.68	э \$	- 8.35	s -	8.02	s -	7.69	\$ - \$ -	7.36	s -
031	Jean Road	GR	4.00	0.7	Resurfacing	\$ 175,289	8.68	ŝ	- 8.35	\$-	8.02	\$ -	7.69	\$-	7.36	\$ -
035	Leeftink Road	GR	4.00	3.7	Resurfacing	\$ 175,289	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
037	Luiting Road	GR	4.00	0.9	Resurfacing	\$ 175,289	8.68	\$	- 8.35	\$ -	8.02	\$ -	7.69	\$ -	7.36	\$ -
038	Tex's Road	GR	4.00	5.0	Resurfacing	\$ 175,289	8.68	\$	- 8.35	ş -	8.02	\$ -	7.69	\$ -	7.36	\$ -
039	Landry Road Husky Trail Road	GR	4.00	5.7	Resurfacing	\$ 175,289 \$ 175,289	8.68	ъ с	- 8.35 - 8.35	\$- ¢	8.02	\$ - ¢ -	7.69	\$ - ¢	7.36	\$ - ¢ -
053	Tincombe Road	GR	4.00	8.5	Resurfacing	\$ 175,209	8.68	s s	- 8.35	s -	8.02	s -	7.69	φ - \$ -	7.36	φ - S -
058	Munroe Road	GR	4.00	4.8	Resurfacing	\$ 175,289	8.68	\$	- 8.35	\$-	8.02	\$ -	7.69	\$-	7.36	\$-
067	Stewart Road (Part 2)	GR	4.00	0.1	Resurfacing	\$ 175,289	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
071	Langlois Road	GR	4.00	0.9	Resurfacing	\$ 175,289	8.68	\$	- 8.35	\$ -	8.02	\$ -	7.69	\$ -	7.36	\$ -
079	Makannas Road	GR	4.00	0.9	Resurfacing	\$ 175,289	8.68	\$	- 8.35	\$-	8.02	\$-	7.69	\$-	7.36	\$-
087	McKenzie Road	GR	4.00	0.2	Resurfacing	\$ 175,289	8.68	\$	- 8.35	\$ - ¢	8.02	\$ - ¢	7.69	\$ - ¢	7.36	\$ - ¢
133	Mountain Street	GR	4.00	0.4	Resurfacing	\$ 175,289	8.68	э \$	- 8.35	а - S -	8.02	а - S -	7.09	φ - \$ -	7.36	s -
001	Woodland Road	GR	5.00	1.1	Resurfacing	\$ 175,289	9.67	ŝ	- 9.34	\$ -	9.01	\$-	8.68	\$ -	8.35	\$ -
005	Gratton Street	GR	5.00	0.4	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	\$-	8.68	\$-	8.35	\$-
015	MacLean Road	GR	5.00	2.4	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$ -	9.01	\$ -	8.68	\$ -	8.35	\$-
018	Nepewassi Lake Road	GR	5.00	2.2	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$ -	9.01	\$-	8.68	\$ -	8.35	\$-
019	Long Koad Spodden Road	GR	5.00	0.7	Resurfacing	\$ 175,289 \$ 175,280	9.67	ъ с	- 9.34	\$- ¢-	9.01	\$ - ¢ -	8.68	\$ - ¢	8.35	\$ - ¢ -
020	Chamberlin Road	GR	5.00	5.3	Resurfacing	\$ 175,209	9.67	s s	- 9.34	s -	9.01	s -	8.68	φ - \$ -	8.35	φ - S -
026	St-Germain Road	GR	5.00	0.6	Resurfacing	\$ 175,289	9.67	ŝ	- 9.34	\$ -	9.01	\$ -	8.68	\$-	8.35	\$ -
030	Hunter Road	GR	5.00	2.9	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$ -	9.01	\$-	8.68	\$-	8.35	\$ -
033	McKerral Road	GR	5.00	0.3	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$ -	9.01	\$ -	8.68	\$ -	8.35	\$ -
041	Dondo Road	GR	5.00	4.8	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$ -	9.01	\$-	8.68	\$ -	8.35	\$-
046	Sauve Koad	GR	5.00	0.6	Resurfacing	a 1/5,289	9.67	\$ ¢	- 9.34	ა - ღ	9.01	ծ - «	8.68	ծ - «	8.35	ა - ღ
047	Labelle Road	GR	5.00	9.9 4.6	Resurfacing	y 175,269 \$ 175,289	9.67	э \$	- 9.34 - 9.34	9 - S -	9.01	9 - S -	0.00 8.68	ۍ د ۲	6.35 8.35	9 - S -
049	Joe's Road	GR	5.00	0.1	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	÷ -	8.68	\$ -	8.35	\$-
050	Rabbit Trail Road (NW, Part 1)	GR	5.00	0.2	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	\$-	8.68	\$-	8.35	\$-
051	Rabbit Trail Road (SE, Part 2)	GR	5.00	2.8	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$ -	9.01	\$-	8.68	\$ -	8.35	\$-
052	Simon Road	GR	5.00	1.0	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$ -	9.01	\$-	8.68	ş -	8.35	\$-
056	Grimiths Road	GR	5.00	2.1	Resurfacing	\$ 1/5,289 \$ 175,289	9.67	\$ ¢	- 9.34	ծ - «	9.01	ծ - «	8.68	ծ - «	8.35	ծ - «
065	Ebbers Road	GR	5.00	1.6	Resurfacing	\$ 175,289	9,67	s S	- 9.34	s -	9.01	φ - \$ -	8.68	ş -	8.35	\$- \$-
066	Stewart Road (Part 1)	GR	5.00	3.2	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	\$-	8.68	\$ -	8.35	\$-
					0											

ID	Road Name	Surface Type	Condition Rating	Length (KM)	Construction Requirement	Cost per KM	CR	2019 Cost	CR	2020 Cost	CR	2021 Cost	CR	2022 Cost	CR	2023 Cost
		0.5				A 175.000		•				•				
070	Nipissing Road (Part 5)	GR	5.00	3.9	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$ - ¢	9.01	\$ - ¢	8.68	\$ ¢	- 8.35	\$ - ¢
074	Dumouchel Road (Part 2)	GR	5.00	4.8	Resurfacing	\$ 175,289	9.67	э S	- 9.34	s -	9.01	s -	8.68	э S	- 8.35	s -
078	Gervais Road	GR	5.00	3.5	Resurfacing	\$ 175,289	9.67	ŝ	- 9.34	\$-	9.01	\$ -	8.68	ŝ	- 8.35	\$-
080	The Little Brule Road	GR	5.00	1.6	Resurfacing	\$ 175,289	9.67	ŝ	- 9.34	\$ -	9.01	\$ -	8.68	ŝ	- 8.35	\$ -
081	Northern Central Road	GR	5.00	0.5	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	\$ -	8.68	\$	- 8.35	\$-
085	Noland Road	GR	5.00	0.5	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	\$-	8.68	\$	- 8.35	\$-
086	Shewchuk Road	GR	5.00	0.4	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	\$-	8.68	\$	- 8.35	\$-
088	Firefly Road	GR	5.00	0.2	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	\$-	8.68	\$	- 8.35	\$-
112	Pine Poultry Road	GR	5.00	0.9	Resurfacing	\$ 175,289	9.67	\$	- 9.34	\$-	9.01	\$-	8.68	\$	- 8.35	\$-
004	Hinds Road	GR	6.00	0.6	Resurfacing	\$ 175,289	4.02	\$	- 3.69	\$ 105,173	10	\$ -	9.67	\$	- 9.34	\$ -
007	Riverview Road	GR	6.00	0.8	Resurfacing	\$ 175,289	4.02	\$	- 3.69	\$ 140,231	10	\$ -	9.67	\$	- 9.34	\$-
800	Macdonald Road	GR	6.00	1.3	Resurfacing	\$ 175,289	4.02	\$	- 3.69	\$ 227,876	10	\$ -	9.67	\$	- 9.34	\$ -
009	Hood Road	GR	6.00	5.1	Resurfacing	\$ 175,289	4.02	\$	- 3.69	\$ 893,974	10	\$ -	9.67	\$	- 9.34	\$ -
011	Kukagami Lake Road	GR	6.00	0.2	Resurfacing	\$ 175,289	4.02	\$ ¢	- 3.69	\$ 35,058 ¢ = 42,206	10	ъ - е	9.67	ъ с	- 9.34	ծ - «
020	Rotter Lake Road	GR	6.00	1.2	Resurfacing	\$ 175,209 \$ 175,280	4.02	ф Ç	- 3.09	\$ 343,390	10	φ - ¢ -	9.07	ф Ф	- 9.34	а - с -
045	Boundary Road	GR	6.00	5.5	Resurfacing	\$ 175,209	4.02	¢ ¢	- 3.69	\$ 964.090	10	у - с -	9.67	Ψ ¢	- 9.34	φ - \$
068	Nipissing Road (Part 3)	GR	6.00	3.4	Resurfacing	\$ 175,289	4.02	\$	- 3.69	\$ 595 983	10	\$ -	9.67	ŝ	- 9.34	\$-
072	Dupuis Road (Part 1)	GR	6.00	1.6	Resurfacing	\$ 175,289	4.02	\$	- 3.69	\$ 280,462	10	\$ -	9.67	ŝ	- 9.34	\$- \$-
076	Dumouchel Road (Part 1)	GR	6.00	1.6	Resurfacing	\$ 175,289	4.02	ŝ	- 3.69	\$ 280,462	10	\$ -	9.67	ŝ	- 9.34	\$ -
090	Paquette Road	GR	6.00	1.4	Resurfacing	\$ 175,289	4.02	ŝ	- 3.69	\$ 245,405	10	\$ -	9.67	ŝ	- 9.34	\$ -
091	Dougherty Road	GR	6.00	0.8	Resurfacing	\$ 175,289	4.02	\$	- 3.69	\$ 140,231	10	\$-	9.67	\$	- 9.34	\$ -
113	Warren Avenue	GR	6.00	1.4	Resurfacing	\$ 175,289	4.02	\$	- 3.69	\$ 245,405	10	\$ -	9.67	\$	- 9.34	\$ -
017	Blaffert Road	GR	7.00	0.8	Resurfacing	\$ 175,289	5.02	\$	- 4.69	\$-	4.36	\$ -	4.03	\$	- 3.7	\$ 140,231
061	Nipissing Road (Part 2)	GR	7.00	0.8	Resurfacing	\$ 175,289	5.02	\$	- 4.69	\$-	4.36	\$-	4.03	\$	- 3.7	\$ 140,231
062	Bennet Road	GR	7.00	1.6	Resurfacing	\$ 175,289	5.02	\$	- 4.69	\$-	4.36	\$-	4.03	\$	- 3.7	\$ 280,462
069	Nipissing Road (Part 4)	GR	7.00	4.2	Resurfacing	\$ 175,289	5.02	\$	- 4.69	\$-	4.36	\$-	4.03	\$	- 3.7	\$ 736,214
089	Curry Point Road	GR	7.00	1.1	Resurfacing	\$ 175,289	5.02	\$	- 4.69	\$-	4.36	\$-	4.03	\$	- 3.7	\$ 192,818
102	McMaster Street	GR	7.00	0.9	Resurfacing	\$ 175,289	5.02	\$	- 4.69	\$-	4.36	\$-	4.03	\$	- 3.7	\$ 157,760
122	Lafontaine Road (Gravel part)	GR	7.00	0.5	Resurfacing	\$ 175,289	5.02	\$	- 4.69	\$-	4.36	\$ -	4.03	\$	- 3.7	\$ 87,645
024	North Road (Part 1)	GR	8.00	1.1	Resurfacing	\$ 175,289	6.02	\$	- 5.69	\$-	5.36	\$ -	5.03	\$	- 4.7	\$-
118	Rutland Avenue (Part 1)	HCB	4.00	0.2	Resurfacing	\$ 415,245	8.68	\$	- 8.35	ş -	8.02	\$ -	7.69	\$	- 7.36	ş -
129	Mangan Lane	HCB	4.00	0.1	Resurfacing	\$ 415,245	8.68	\$	- 8.35	ş -	8.02	ş -	7.69	\$	- 7.36	ş -
124	College Street	HCB	5.00	0.1	Resurfacing	\$ 415,245	9.67	\$	- 9.34	\$ -	9.01	\$ -	8.68	\$	- 8.35	\$ -
120	Deruha Avenue (Leza)	HCB	5.00	0.6	Resurfacing	\$ 415,245 ¢ 445,245	9.67	¢ ¢	- 9.34	ф -	9.01	ֆ - «	0.00	ъ ¢	- 0.35	ֆ - «
084	St lean Street	нсв	5.00	0.2	Resurfacing	\$ 415,245 \$ 415,245	9.67	¢ ¢	- 9.34	¢ 83.040 2 -	9.01	φ - ¢ -	0.00	ф с	- 0.35	р - с .
121	Lafontaine Road	HCB	6.00	0.4	Resurfacing	\$ 415,245 \$ 415,245	4.02	Ψ S	- 3.69	\$ 166.098	10	φ - \$ -	9.67	Ψ ¢	- 9.34	\$ - \$ -
123	Salishury Avenue	HCB	6.00	0.4	Resurfacing	\$ 415,245 \$ 415,245	4.02	Ψ S	- 3.69	\$ 166,098	10	φ - \$ -	9.67	Ψ ¢	- 9.34	\$ - \$ -
092	Pioneer Street West	HCB	7.00	0.9	Resurfacing	\$ 415,245	5.02	ŝ	- 4.69	\$ 100,000	4.36	\$ -	4.03	\$	- 3.7	\$ 373.721
096	Main Street South (Part 1)	HCB	7.00	0.4	Resurfacing	\$ 415,245	5.02	ŝ	- 4.69	\$ -	4.36	\$ -	4.03	ŝ	- 3.7	\$ 166.098
097	Main Street South (Part 2)	НСВ	7.00	0.2	Resurfacing	\$ 415,245	5.02	ŝ	- 4.69	\$ -	4.36	\$ -	4.03	ŝ	- 3.7	\$ 83.049
117	Stanhope Avenue (Part 3)	HCB	7.00	0.1	Resurfacing	\$ 415,245	5.02	\$	- 4.69	\$ -	4.36	\$ -	4.03	\$	- 3.7	\$ 41,525
119	Rutland Avenue (Part 2)	HCB	7.00	0.1	Resurfacing	\$ 415,245	5.02	\$	- 4.69	\$ -	4.36	\$ -	4.03	\$	- 3.7	\$ 41,525
120	Balfour Street	HCB	7.00	0.4	Resurfacing	\$ 415,245	5.02	\$	- 4.69	\$-	4.36	\$-	4.03	\$	- 3.7	\$ 166,098
132	Fingal Avenue (Hwy 539)	HCB	8.00	0.2	Resurfacing	\$ 415,245	6.02	\$	- 5.69	\$-	5.36	\$-	5.03	\$	- 4.7	\$-
116	Stanhope Avenue / Hwy 539	HCB	9.00	0.1	Resurfacing	\$ 415,245	7.02	\$	- 6.69	\$-	6.36	\$-	6.03	\$	- 5.7	\$-
114	Dyke Street/ Hwy 539	HCB	10.00	0.1	Resurfacing	\$ 415,245	8.02	\$	- 7.69	\$-	7.36	\$-	7.03	\$	- 6.7	\$-
073	Dupuis Road (Part 2)	LCB	4.00	0.1	Resurfacing	\$ 274,000	8.68	\$	- 8.35	\$-	8.02	\$ -	7.69	\$	- 7.36	\$ -
103	Rita Street	LCB	4.00	0.2	Resurfacing	\$ 274,000	8.68	\$	- 8.35	\$-	8.02	\$ -	7.69	\$	- 7.36	\$ -
107	Spruce Street	LCB	4.00	0.1	Resurfacing	\$ 274,000	8.68	\$	- 8.35	\$ -	8.02	\$ -	7.69	\$	- 7.36	\$-
083	Labine Road	LCB	5.00	1.0	Resurfacing	\$ 274,000	9.67	\$	- 9.34	ş -	9.01	ş -	8.68	\$	- 8.35	ş -
016	Chain Lake Road	LCB	5.00	0.5	Resurfacing	\$ 274,000	9.67	\$	- 9.34	\$ -	9.01	\$ -	8.68	\$	- 8.35	\$ -
099	Hagar Street	LCB	5.00	0.2	Resurfacing	\$ 274,000	9.67	\$	- 9.34	\$ - ¢	9.01	\$ -	8.68	\$	- 8.35	\$ -
100	Lucien Street	LCB	5.00	0.3	Resurfacing	\$ 274,000	9.67	¢ ¢	- 9.34	ф -	9.01	ֆ - «	0.00	ъ ¢	- 0.35	ֆ - «
104	Rich Street		5.00	0.2	Resurfacing	φ ∠/4,000 \$ 274,000	9.07	φ Q	- 9.34	φ - \$ -	9.01	φ - \$	0.00	¢ ¢	- 0.35	φ - \$ -
100	Main Street North	LCB	5.00	0.3	Resultacing	\$ 274,000	9.07	с Э	- 9.34	а - с	9.01	- с	0.00	ф С	- 0.33	э - с
109	Millichamp Street	LCB	6.00	0.7	Resurfacing	\$ 274,000	4 02	ŝ	- 3.60	\$ 54.800	10	\$ -	9.67	ŝ	- 0.33	\$ -
110	Pioneer Street East	LCB	7.00	0.3	Resurfacing	\$ 274,000	5.02	ŝ	- 4,69	\$ -	4.36	š -	4.03	ŝ	- 3.7	\$ 82,200
010	Kukagami Lake Road	LCB	8.00	0.4	Resurfacing	\$ 274.000	6.02	ŝ	- 5.69	ş -	5,36	\$ -	5.03	ŝ	- 4.7	\$ -
064	Nipissing Road (Part 1)	LCB	8.00	0.6	Resurfacing	\$ 274,000	6.02	\$	- 5.69	\$ -	5.36	\$ -	5.03	ŝ	- 4.7	\$ -
006	Sunset Road	LCB	9.00	0.8	Resurfacing	\$ 274,000	7.02	\$	- 6.69	\$ -	6.36	\$-	6.03	\$	- 5.7	\$ -
003	Awrey Street	LCB	10.00	1.5	Resurfacing	\$ 274,000	8.02	\$	- 7.69	\$ -	7.36	\$-	7.03	\$	- 6.7	\$-
	-															
				242.2		-		¢		¢ 5 070 407		¢.		¢		C 0.000 E70



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Appendix B Infrastructure Profile – Water Distribution

Corporation of the Municipality of Markstay-Warren Summary of Municipal Water System - Warren

STREET	FROM STREET	TO STREET	DIAM (mm)	LENGTH (m)	In-service date (Mon/Yr)	Base Design Life	Remaining Life	Re	placement	Estimated Replacement Cost	Good	Fair	Poor
Balfour Street	Salisbury Avenue	Stanhope Avenue	100	100.63	1962	70	19	\$	511,860	\$ 51,508	-	100.63	-
College Street	East End	10 Block 10 College Avenue	100	220.55	1962	70	19	\$	511,860	\$ 112,891	-	220.55	-
HWY 539	Stanhope Avenue	Salisbury Avenue	100	82.16	1962	70	19	\$	511,860	\$ 42,054	-	82.16	-
HWY 539	North End	Stanhope Avenue	100	50.16	1962	70	19	\$	511,860	\$ 25,675	-	50.16	-
Laurier Lane	East End	Bertrand Street	100	69.42	1962	70	19	\$	511,860	\$ 35,533	-	69.42	-
Salisbury Avenue	East End	Balfour Street	100	75.95	1962	70	19	\$	511,860	\$ 38,876	-	75.95	-
Salisbury Avenue	East side of Balfour Street	West side of Balfour Street	100	10.77	1962	70	19	\$	511,860	\$ 5,513	-	10.77	-
Salisbury Avenue	Balfour Street	HWY 539	100	77.95	1962	70	19	\$	511,860	\$ 39,899	-	77.95	-
Salisbury Avenue	East of Salisbury Avenue	126 Salisbury Avenue	100	66.57	1962	70	19	\$	511,860	\$ 34,075	-	66.57	-
Balfour Street	Lafontaine Street	Salisbury Avenue	150	105.3	1962	70	19	\$	511,860	\$ 53,899	-	105.30	-
Balfour Street	Salisbury Avenue	Stanhope Avenue	150	100.63	1962	70	19	\$	511,860	\$ 51,508	-	100.63	-
Bertrand Street	Laurier Lane	Mangan Lane	150	82.2	1962	70	19	\$	511,860	\$ 42,075	-	82.20	-
College Street	10 Block 10 College Avenue	Warren Avenue	150	56.65	1962	70	19	\$	511,860	\$ 28,997	-	56.65	-
HWY 539	Stanhope Avenue	Rutland Avenue	150	101.72	1962	70	19	\$	511,860	\$ 52,066	-	101.72	-
Lafontaine Street	East End	Balfour Street	150	151.26	1962	70	19	\$	511,860	\$ 77,424	-	151.26	-
Lafontaine Street	Balfour Street	HWY 539	150	135.06	1962	70	19	\$	511,860	\$ 69,132	-	135.06	-
Laurier Lane	Bertrand Street	Warren Avenue	150	153.33	1962	70	19	\$	511,860	\$ 78,483	-	153.33	-
Mangan Lane	Bertrand Street	East End	150	97.57	1962	70	19	\$	511,860	\$ 49,942	-	97.57	-
Rutland Avenue	West End	HWY 539	150	97.85	1962	70	19	\$	511,860	\$ 50,086	-	97.85	-
Rutland Avenue	HWY 539	Balfour Street	150	168.4	1962	70	19	\$	511,860	\$ 86,197	-	168.40	-
Rutland Avenue	224 Rutland Avenue	225 Rutland Avenue	150	9.92	1962	70	19	\$	511,860	\$ 5,078	-	9.92	-
Rutland Avenue	224 Rutland Avenue	Warren Avenue	150	351.49	1962	70	19	\$	511,860	\$ 179,914	-	351.49	-
Stanhope Avenue	HWY 539	Balfour Street	150	46.7	1962	70	19	\$	511,860	\$ 23,904	-	46.70	-
Stanhope Avenue	HWY 539	HWY 539	150	113.11	1962	70	19	\$	511,860	\$ 57,896	-	113.11	-
Stanhope Avenue	185 Stanhope Avenue	183 Stanhope Avenue	150	25.11	1975	70	32	\$	511,860	\$ 12,853	-	25.11	-
Warren Avenue	College Street	Stanhope Avenue	150	68.45	1962	70	19	\$	511,860	\$ 35,037	-	68.45	-
Warren Avenue	Stanhope Avenue	Rutland Avenue	150	94.76	1962	70	19	\$	511,860	\$ 48,504	-	94.76	-
Registered Easement	Rutland Avenue	Stanhope Avenue	150	91.82	1962	70	19	\$	511,860	\$ 46,999	-	91.82	-
ROW	Stanhope Avenue	Salisbury Avenue	150	104.72	2008	70	65	\$	511,860	\$ 53,602	104.72	-	-
Rutland Avenue	Balfour Street	224 Rutland Avenue	150	113.64	2008	70	65	\$	511,860	\$ 58,168	113.64	-	-
Registered Easement			150	69.04	2008	70	65	\$	511,860	\$ 35,339	69.04	-	-
Registered Easement			150	45.75	2008	70	65	\$	511,860	\$ 23,418	45.75	-	-
Registered Easement			150	43.84	2008	70	65	\$	511,860	\$ 22,440	43.84	-	-
Stanhope Avenue	183 Stanhope Avenue	Warren Avenue	150	302.58	2008	70	65	\$	511,860	\$ 154,879	302.58	-	-
Stanhope Avenue	Balfour Street	185 Stanhope Avenue	150	112.41	2008	70	65	\$	511,860	\$ 57,538	112.41	-	-
ROW	HWY 17	Rutland Avenue	200	151.48	1962	70	19	\$	582,610	\$ 88,254	-	151.48	-
Registered Easement			200	43.87	2008	70	65	\$	582,610	\$ 25,559	43.87	-	-
Total										\$ 1,955,214	835.85	2,956.97	

22.0% Percentage 78.0%

Total

Corporation of the Municipality of Markstay-Warren Municipal Water Distribution System - Markstay

		Length by	Diameter		Repla	icem	nent Cost pe	er K	М		Total Replace	eme	ent Cost	
ROAD SECTION	150mm	200mm	250mm	Total	150mm		200mm		250mm	150mm	200mm		250mm	Total
Pioneer Street West-Legion Street-Hill Street	300.5	1,473.0		1,773.5	\$ 511,860	\$	582,610	\$	650,360	\$ 153,814	\$ 858,185	\$	-	\$ 1,011,998
Main Street South-Mountain Street	107.0	364.5	975.5	1,447.0	\$ 511,860	\$	582,610	\$	650,360	\$ 54,769	\$ 212,361	\$	634,426	\$ 901,557
Front Street-Church Street-Hagar Street-Lucien Street	1,348.0			1,348.0	\$ 511,860	\$	582,610	\$	650,360	\$ 689,987	\$ -	\$	-	\$ 689,987
Millichamp Street-McMaster Street	96.4	433.2	192.0	721.6	\$ 511,860	\$	582,610	\$	650,360	\$ 49,343	\$ 252,387	\$	124,869	\$ 426,599
Pioneer Street East		400.3		400.3	\$ 511,860	\$	582,610	\$	650,360	\$ -	\$ 233,219	\$	-	\$ 233,219
Rita Street-Rollande Street-Rejean Street	105.0			105.0	\$ 511,860	\$	582,610	\$	650,360	\$ 53,745	\$ -	\$	-	\$ 53,745
Main Street North	263.0	528.3		791.3	\$ 511,860	\$	582,610	\$	650,360	\$ 134,619	\$ 307,793	\$	-	\$ 442,412
Spruce Street-Hawthorne Street-Birch Street	485.0			485.0	\$ 511,860	\$	582,610	\$	650,360	\$ 248,252	\$ -	\$	-	\$ 248,252
Transmission main		7,113.0		7,113.0	\$ 511,860	\$	582,610	\$	650,360		\$ 4,144,105			
				14,184.7										\$ 4,007,770

Municipality of Markstay-Warren

Summary of Municipal Water Infrastructure - Buildings

						Condit	ion Asses	sment
ASSET	In-service date (Mon/Yr)	Base Design Life	Remaining Life	Estimated Current Replacement Cost	Replacement Requirement	Good	Fair	Poor
Chlorine Monitoring Station (original well, pump & pump house)	1962	50	0	\$ 327,491	\$ 327,491			1
Water Treatment, Reservoir & Booster Station								
Structural/ Site Works (40%)	2009	85	81	\$ 838,128	\$-	1		
Process/electrical/mechanical/I&C (60%)	2009	30	26	\$ 1,257,193	\$-	1		
2008 Addition								
Structural/ Site Works (40%)	2009	85	81	\$ 659,418	\$-	1		
Process/electrical/mechanical/I&C (60%)	2009	30	26	\$ 989,128	\$-	1		
2009 Addition								
Structural/ Site Works (40%)	2009	85	81	\$ 98,153	\$-	1		
Process/electrical/mechanical/I&C (60%)	2009	30	26	\$ 147,230	\$-	1		
Total Water Treatment, Reservoir & Booster Station								
Re-Chlorination Building	2001	85	73	\$ 50,000	\$-	1		
Water Tower	2001	65	53	\$ 500,000	\$-	1		
				\$ 4,866,741	\$ 327,491	8	-	1



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Appendix C Infrastructure Profile – Wastewater Collection

Corporation of the Municipality of Markstay - Warren Warren Wastewater Linear Asset Summary

					In-service	Base						
			DIAM	LENGTH	date	Design	Remaining	Replacement	Replacement			
STREET	FROM	TO	(mm)	(m)	(Mon/Yr)	Life	Life	Cost per KM	Cost	Good	Fair	Poor
Registered Easement			150	59	2008	70	65	\$ 1,052,085	\$ 62,073	59.0	-	-
Registered Easement			150	64	2008	70	65	\$ 1,052,085	\$ 67,333	64.0	-	-
Balfour Street	South End	Rutland Avenue	200	39.94	1975	70	32	\$ 1,052,085	\$ 42,020	-	39.9	-
College Street	East End	Warren Avenue	200	84.9	1975	70	32	\$ 1,052,085	\$ 89,322	-	84.9	-
College Street	East End	Warren Avenue	200	93.27	1975	70	32	\$ 1,052,085	\$ 98,128	-	93.3	-
College Street	East End	Warren Avenue	200	90.06	1975	70	32	\$ 1,052,085	\$ 94,751	-	90.1	-
HWY 539	North End	Stanhope Avenue	200	145.79	1975	70	32	\$ 1,052,085	\$ 153,383	-	145.8	-
HWY 539	Stanhope Avenue	Rutland Avenue	200	45	1975	70	32	\$ 1,052,085	\$ 47,344	-	45.0	-
Lafontaine Street	East End	Balfour Street	200	88.06	1975	70	32	\$ 1,052,085	\$ 92,647	-	88.1	-
Lafontaine Street	East End	Balfour Street	200	92.05	1975	70	32	\$ 1,052,085	\$ 96,844	-	92.1	-
Lafontaine Street	Balfour Street	HWY 539	200	107.83	1975	70	32	\$ 1,052,085	\$ 113,446	-	107.8	-
Laurier Lane	East End	Bertrand Street	200	84.56	1975	70	32	\$ 1,052,085	\$ 88,964	-	84.6	-
Laurier Lane	East End	Bertrand Street	200	87.29	1975	70	32	\$ 1,052,085	\$ 91,836	-	87.3	-
Laurier Lane	Bertrand Street	Warren Avenue	200	94.85	1975	70	32	\$ 1,052,085	\$ 99,790	-	94.9	-
Mangan Lane	Laurier Lane	Bertrand Street	200	90.17	1975	70	32	\$ 1,052,085	\$ 94,867	-	90.2	-
Mangan Lane	Laurier Lane	Bertrand Street	200	91.33	1975	70	32	\$ 1,052,085	\$ 96,087	-	91.3	-
Mangan Lane	Bertrand Street	East End	200	105.77	1975	70	32	\$ 1,052,085	\$ 111,279	-	105.8	-
Rutland Avenue	West End	HWY 539	200	99.78	1975	70	32	\$ 1,052,085	\$ 104,977	-	99.8	-
Rutland Avenue	HWY 539	Balfour Street	200	60	1975	70	32	\$ 1,052,085	\$ 63,125	-	60.0	-
Rutland Avenue	HWY 539	Balfour Street	200	80.43	1975	70	32	\$ 1,052,085	\$ 84,619	-	80.4	-
Rutland Avenue	Balfour Street	Berube Lane	200	99	1975	70	32	\$ 1,052,085	\$ 104,156	-	99.0	-
Rutland Avenue	Balfour Street	Berube Lane	200	92	1975	70	32	\$ 1,052,085	\$ 96,792	-	92.0	-
Rutland Avenue	Balfour Street	Berube Lane	200	97.78	1975	70	32	\$ 1,052,085	\$ 102,873	-	97.8	-
Rutland Avenue	Balfour Street	Berube Lane	200	99.18	1975	70	32	\$ 1,052,085	\$ 104,346	-	99.2	-
Rutland Avenue	Berube Lane	Warren Avenue	200	100.66	1975	70	32	\$ 1,052,085	\$ 105,903	-	100.7	-
Salisbury Avenue	East End	Balfour Street	200	90.89	1975	70	32	\$ 1,052,085	\$ 95,624	-	90.9	-
Salisbury Avenue	Balfour Street	HWY 539	200	100	1975	70	32	\$ 1,052,085	\$ 105,209	-	100.0	-
Stanhope Avenue	Berube Lane	Balfour Street	200	83.71	1975	70	32	\$ 1,052,085	\$ 88,070	-	83.7	-
Stanhope Avenue	Berube Lane	Balfour Street	200	86.91	1975	70	32	\$ 1,052,085	\$ 91,437	-	86.9	-
Stanhope Avenue	Balfour Street	HWY 539	200	72.36	1975	70	32	\$ 1,052,085	\$ 76,129	1 -	72.4	-
Stanhope Avenue	HWY 539	HWY 539	200	89.9	1975	70	32	\$ 1,052,085	\$ 94,582	1 -	89.9	-
Stanhope Avenue	Balfour Street	Berube Lane	200	72.32	1975	70	32	\$ 1,052,085	\$ 76,087	-	72.3	-
Stanhope Avenue	Balfour Street	Berube Lane	200	99.83	1975	70	32	\$ 1,052,085	\$ 105,030	1 -	99.8	_
Stanhope Avenue	Berube Lane	Warren Avenue	200	94.22	1975	70	32	\$ 1,052,085	\$ 99,127	-	94.2	-

Warren Avenue	College Street	Stanhope Avenue	200	54.12	1975	70	32	\$ 1,052,085	\$	56,939	-	54.1	-
Warren Avenue	Stanhope Avenue	Rutland Avenue	200	114.92	1975	70	32	\$ 1,052,085	\$	120,906	-	114.9	-
ROW	HWY 17	Mangan Lane	200	67.6	1975	70	32	\$ 1,052,085	\$	71,121	-	67.6	-
Not on a street			200	192.2	1975	70	32	\$ 1,052,085	\$	202,211	-	192.2	-
Mangan Lane	Laurier Lane	Bertrand Street	250	44.4	1975	70	32	\$ 1,052,085	\$	46,713	-	44.4	-
Mangan Lane	Warren Avenue	Sanitary Lagoon	250	1431.6	1975	70	32	\$ 1,052,085	\$	1,506,165	-	1,431.6	-
Registered Easement			250	3.1	1975	70	32	\$ 1,052,085	\$	3,261	-	3.1	-
Registered Easement			350	148.4376	1975	70	32	\$ 1,127,085	\$	167,302	-	148.4	-
Registered Easement			350	71.628	1975	70	32	\$ 1,127,085	\$	80,731	-	71.6	-
Registered Easement			350	161.8488	1975	70	32	\$ 1,127,085	\$	182,417	-	161.8	-
Registered Easement			350	75.7428	1975	70	32	\$ 1,127,085	\$	85,369	-	75.7	-
				5348.44					\$	5,661,335	123.0	5,225.4	-
									Do	rcontago	2 20/	07 7%	
									ге	icentaye	2.370	71.1/0	

Corporation of the Municipality of Markstay - Warren Wastewater Facilities

ASSET	In-service date (Mon/Yr)	Base Design Life	Remaining Life	Estimated Current Replacement Cost	Good	Fair	Poor
Sewage Pumping Station (original) - 34.7 L/s	1975	60	22	\$ 919,692		1	
Retention Waste Stabilization Ponds (Lagoons)	1975	70	32	\$ 2,398,627		1	
New Lift Station - 8.0 L/s	2008	60	55	\$ 112,000	1		
				\$ 3,430,318.60	1	2	0



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Appendix D Infrastructure Profile -Bridges

Markstay-Warren Asset Management Plan Bridges

		Structure Type	In Service Year	Years In Service	Estimated Service Life	Remaining Service Life	E Re	Estimated placement Cost
1	Bedard Road	Culvert	2004	9	30	21	\$	74,574
2	Sutcliffe Road	Concrete	1960	53	20	0	\$	608,619
3	Nipissing Road	Concrete	2008	5	30	25	\$	1,121,172
4	Griffith Road	Wood	1975	38	20	0	\$	272,429
5	Noland Road	Culvert	2005	8	30	22	\$	146,990
6	Maint St S	Concrete	1955	58	20	0	\$	991,179
7	Pioneer St W	Concrete	1971	42	20	0	\$	936,902
8	Main St N	Concrete	1990	23	20	0	\$	1,111,744
9	Leeftink Rd	Bailey	1967	46	25	0	\$	176,210
10	Leeftink Rd - Betterment	Deck	1999	14	20	6	\$	12,411
11	Dondo Rd	Culvert	2006	7	30	23	\$	184,676
12	Crerar Rd	Wood	1975	38	20	0	\$	57,964
13	Park Dr	Culvert	2006	7	30	23	\$	372,216
14	Chain Lake Rd	Bailey	1975	38	25	0	\$	81,497
15	Chain Lake Rd - Betterment	Deck	1999	14	20	6	\$	29,897
16	Nepewassi Lake Rd	Wood	1980	33	20	0	\$	144,909
							\$	6,323,389



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Appendix E Infrastructure Profile -Fleet

MUNICIPALITY OF MARKSTAY-WARREN

SUMMARY OF VEHICLES AND OTHER EQUIPMENT HEAVY EQUIPMENT

													Replacement Requirement						Condition Rating					
Asset Description	Asset ID	Year	Asset Classification	Estimated Useful Life	Years in Service	Remaining Useful Life	Replace Cos	ement st	2013	2014	2015	2016		2017	2018	2019	2020	2021		2022	Good	Fair	F	oor
1990 Ford C8000 Tilt Cab Pumper	23-221	1990	Fire equipment - heavy	25	23	2	\$ 2	50,000 \$	- \$	- \$	250,000	\$ -	\$	-	\$ -	\$ -	\$ -	\$ -	\$	-	-		-	1
1996 International 4900 Series Tanker	23-213	1996	Fire equipment - heavy	25	17	8	\$ 2	50,000 \$	- \$	- \$	-	\$-	\$	-	\$-	\$-	\$-	\$ 250,00	00 \$	-	-		1	-
84 Ford Pumper		1984	Fire equipment - heavy	25	29	0	\$ 2	50,000 \$	250,000 \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	-			1
1995 Freightliner FL-80	23-231	1995	Fire equipment - heavy	25	18	7	\$ 2	50,000 \$	- \$	- \$	-	\$-	\$	-	\$-	\$-	\$ 250,000	\$ -	\$	-	-		1	-
1996 Freightliner Tanker	23-233	1996	Fire equipment - heavy	25	17	8	\$ 2	50,000 \$	- \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$ 250,00	00 \$	-	-		1	-
1993 Volvo Pumper	23-211	1993	Fire equipment - heavy	25	20	5	\$ 2	50,000 \$	- \$	- \$	-	\$ -	\$	-	\$ 250,000	\$-	\$-	\$-	\$	-	-		1	-
1996 Freightliner Tanker	23-243	1996	Fire equipment - heavy	25	17	8	\$2	50,000 \$	- \$	- \$	-	\$-	\$	-	\$-	\$-	\$-	\$ 250,00	00 \$	-	-		1	-
2003 Freighliner Pumper	23-241	2003	Fire equipment - heavy	25	10	15	\$ 2	50,000 \$	- \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	1			-
2003 Grader & Warranty	34-333	2003	Grader	20	10	10	\$ 3	00,000 \$	- \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	1			-
1970 John Deere 544 Loader	34-334	1970	Backhoe and loader	20	43	0	\$1	05,000 \$	105,000 \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	-			1
2008 Case Loader	34-334	2008	Backhoe and loader	20	5	15	\$1	05,000 \$	- \$	- \$	-	\$-	\$	-	\$-	\$-	\$-	\$-	\$	-	1			-
1990 JD 310C Backhoe Loader	34-335	1990	Backhoe and loader	20	23	0	\$1	05,000 \$	105,000 \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	-			1
1966 Steamer	34-336	1966	Other equipment	20	47	0	\$1	00,000 \$	100,000 \$	- \$	-	\$-	\$	-	\$-	\$-	\$-	\$-	\$	-	-			1
2000 Int Tandem	34-338	2000	Plow	20	13	7	\$ 2	00,000 \$	- \$	- \$	-	\$ -	\$	-	\$-	\$-	\$ 200,000	\$-	\$	-	-		1	-
2007 Int. Model 7500/Plow & box	34-339	2007	Plow	20	6	14	\$ 2	00,000 \$	- \$	- \$	-	s -	\$	-	\$-	\$ -	s -	\$ -	\$	-	1			-
1998 International Model Tandem	34-343	1998	Grader	20	15	5	\$ 3	00,000 \$	- \$	- \$	-	\$ -	\$	-	\$ 300,000	\$-	\$-	\$-	\$	-	-		1	-
2003 Grader & Warranty	34-344	2003	Backhoe and loader	20	10	10	\$1	05,000 \$	- \$	- \$	-	\$ -	\$	-	\$ -	\$ -	\$-	\$-	\$	-	1		-	-
89 JD Loader	34-345	1989	Backhoe and loader	20	24	0	\$1	05,000 \$	105,000 \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	-			1
74 Ford Tractor	34-346	1974	Other equipment	20	39	0	\$	25,000 \$	25,000 \$	- \$	-	\$-	\$	-	\$-	\$-	\$-	\$-	\$	-	-			1
1966 Steamer	34-347	1966	Plow	20	47	0	\$ 2	00,000 \$	200,000 \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	-			1
2007 Int. Model 7500/Plow & box	34-349	2007	Plow	20	6	14	\$ 2	00,000 \$	- \$	- \$	-	\$ -	\$	-	\$ -	\$ -	\$-	\$-	\$	-	1		-	-
1977 Float-rebuilt in 2007	34-351	1977	Plow	20	36	0	\$ 2	00,000 \$	200,000 \$	- \$	-	s -	\$	-	\$-	\$ -	s -	\$ -	\$	-	-			1
1993 Model 440 Zamboni	72-711	1993	Other equipment	20	20	0	\$	80,000 \$	80,000 \$	- \$	-	\$ -	\$	-	\$ -	\$ -	\$ -	\$ -	\$	-	-		-	1
Kubota snowblower, sweeper, tractor	72-712	2005	Other equipment	20	8	12	\$	25,000 \$	- \$	- \$	-	\$ -	\$	-	\$ -	\$ -	\$-	\$-	\$	-	1		-	-
Kubota Tractor B4200	72-713	2005	Other equipment	20	8	12	\$	25,000 \$	- \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	1			-
2002 GMC	34-340	2002	Light vehicle	10	11	0	\$	35,000 \$	35,000 \$	- \$	-	\$-	\$	-	\$-	\$ -	\$-	\$-	\$	-	-			1
2002 GMC Pick up	34-350	2002	Light vehicle	10	11	0	\$	35,000 \$	35,000 \$	- \$	-	\$-	\$	-	\$-	\$-	\$-	\$ -	\$	-	-		-	1
2009 Chev Pick-Up	34-337	2009	Light vehicle	10	4	6	\$	35,000 \$	- \$	- \$	-	\$ -	\$	-	\$-	\$ 35,000	\$-	\$-	\$	-	1			-
2000 GMC	23-215	2000	Light vehicle	10	13	0	\$	35,000 \$	35,000 \$	- \$	-	\$-	\$	-	\$-	\$-	\$-	\$ -	\$	-	-		-	1
2002 GM Cube Van-engine	23-235	2002	Light vehicle	10	11	0	\$	35,000 \$	35,000 \$	- \$	-	\$ -	\$	-	\$-	\$ -	\$-	\$-	\$	-	-			1
2002 GM Cube Van	23-235	2002	Light vehicle	10	11	0	\$	35,000 \$	35,000 \$	- \$	-	\$ -	\$	-	\$-	\$-	\$-	\$-	\$	-	-			1
1997 Ford Rescue Van	23-245	1997	Light vehicle	10	16	0	\$	35,000 \$	35,000 \$	- \$	-	\$-	\$	-	\$-	\$ -	\$-	\$-	\$	-	-			1
2007 Dodge Truck	23-245	2007	Light vehicle	10	6	4	\$	35,000 \$	- \$	- \$	-	\$ -	\$	35,000	\$-	\$-	\$-	\$-	\$	-	-		1	-
08 Dodge Ram	23-236	2008	Light vehicle	10	5	5	\$	35,000 \$	- \$	- \$	-	\$-	\$	-	\$ 35,000	\$-	\$-	\$-	\$	-	1			-
							\$ 4,6	95,000 \$	1,380,000 \$	- \$	250,000	\$ -	\$	35,000	\$ 585,000	\$ 35,000	\$ 450,000	\$ 750,00	00 \$	-	10		8	16
																			Perc	entage	29.4%	23	.5%	47.1%



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Appendix F Infrastructure Profile -Buildings

MUNICIPALITY OF MARKSTAY-WARREN

ASSET	SSET MANAGEMENT PLAN - BUILDINGS								Condition Assessment			Investment Requirement				
Roll	Location		Description	Acquisition Year	Useful Life	Years In Service	Remaining Useful Life	Replacement Cost	Good	Fair	Poor	Immediate	V	Vithin Five Years	Withir Yea	n Ten ars
1-15402	37 Warren Ave	W Garage		1976	50.00	37.00	13.00	\$ 205,229	-	1	-	\$-	\$	-	\$	-
2-004	34 Salisbury	W First Response		1960	50.00	53.00	0.00	\$ 9,567	-	-	1	\$ 9,56	57 \$	-	\$	-
2-00810	2009	Multi-Use Facility		2012	50.00	1.00	49.00	\$ 1,912,496	1	-	-	\$-	\$	-	\$	-
2-119	32 Rultand Ave	W Fire Station														
			Firehall	1965	50.00	48.00	2.00	\$ 191,523	-	-	1	\$-	\$	191,523	\$	-
			Firehall	1983	50.00	30.00	20.00	\$ 22,510	-	1	-	\$-	\$	-	\$	-
			Firehall	1997	50.00	16.00	34.00	\$ 93,417	1	-	-	\$-	\$	-	\$	-
2-12001	40 Rutland Ave	GAC/EPC		1950	50.00	63.00	0.00	\$ 518,978	-	-	1	\$ 518,97	/8 \$	-	\$	-
2-12002	38 Rutland Ave	Opp/Dentist Bldg		1979	50.00	34.00	16.00	\$ 67,531	-	1	-	\$-	\$	-	\$	-
4-172	7 Hagar St	Storage Bldg Markstay		1993	50.00	20.00	30.00	\$ 50,584	1	-	-	\$-	\$	-	\$	-
4-173	21 Main St. S.	Office		1984	50.00	29.00	21.00	\$ 508,130	-	1	-	\$-	\$	-	\$	-
			Misc STR1	1988	50.00	25.00	25.00	\$ 14,938	1	-	-	\$-	\$	-	\$	-
4-267	8 Church St	M. Seniors/Ballfield		1967	50.00	46.00	4.00	\$ 156,293	-	-	1	\$-	\$	156,293	\$	-
			Addition	1996	50.00	17.00	33.00	\$ 7,879	1	-	-	\$-	\$	-	\$	-
4-355	48 Main St	M Garage		1980	50.00	33.00	17.00	\$ 37,647	-	1	-	\$-	\$	-	\$	-
			Shed	1985	50.00	28.00	22.00	\$ 26,725	-	1	-	\$-	\$	-	\$	-
			Salt Shed	2000	50.00	13.00	37.00	\$ 126,733	1	-	-	\$-	\$	-	\$	-
4-682		Loughrin Fire Hall		1995	50.00	18.00	32.00	\$ 32,465	1	-	-	\$-	\$	-	\$	-
			New Septic	1999	50.00	14.00	36.00	\$ 8,397	1	-	-	\$-	\$	-	\$	-
5-241	Awrey Fire Hall			1960	50.00	53.00	0.00	\$ 200,000	-	-	1	\$ 200,00	00\$	-	\$	-
2-00810	1 Lafontaine St	Arena		1974	50.00	39.00	11.00	\$ 3,043,765	-	1	-	\$-	\$	-	\$	-
			Entrance	2003	50.00	10.00	40.00	\$ 36,549	1	-	-	\$-	\$	-	\$	-
			Zamboni Room	2003	50.00	10.00	40.00	\$ 41,675	1	-	-	\$-	\$	-	\$	-
								\$ 7,313,031	10	7	5	\$ 728,54	I5 \$	347,816	\$	
							F	ercentage	45.5%	31.8%	5 <u>22.7%</u>					



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Appendix G Costing Estimates for Linear Infrastructure

User Data Input Cells End of Sheet Section

ROAD CONSTRUCTION UNIT RATES

ltem	\$ / 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 conver
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
	\$ / m² 	Notes		
Single Surface Treatement	\$8.50	Availability, ha	aul length sho	uld be considered

Single Surface Treatement	\$8.50	Availability, ha
Double Surface Treatment	\$17.00	Availability, ha
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

aul length should be considered

rsion should be considered

RURAL SECTIONS **RURAL - RECONSTRUCTION** Width (m) Length (m) Type/Description Granular - 3.25m lane

450mm Excavation & Disposal	1,000	4.650	0.45	2092.5	\$35.00	\$73,238
300mm Granular B	1,000	4.350	0.3	1305	\$28.00	\$36,540
150mm Granular A	1,000	3.900	0.15	585	\$44.40	\$25,974
Digouts	150	5.000	1	750	\$65.00	\$48,750
Drainage / Culverts						\$25,000
Brushing	2,000				\$17.50	\$35,000
Ditching	2,000				\$11.50	\$23,000
Contingency for Minor Contract Items						\$10,000
				Total	(3.25m lane)	\$277,502
				Total	(6.50m road)	\$555,003

Rural Light SST - 3.25m lane

				Total (6.50m road)	\$648,391	
				Total (3.25m lane)	\$324,195	
Contingency for Minor Contract Items						\$25,000	
Ditching	2,000				\$11.50	\$23,000	
Brushing	2,000				\$17.50	\$35,000	
Drainage / Culverts						\$25,000	
Digouts	150	5.000	1	750	\$65.00	\$48,750	
Single Surface Treatment	1,000	3.250	3250		\$8.50	\$27,625	
150mm Granular A	1,000	3.900	0.15	585	\$44.40	\$25,974	
300mm Granular B	1,000	4.350	0.3	1305	\$28.00	\$36,540	
475mm Excavation & Disposal	1,000	4.650	0.475	2208.75	\$35.00	\$77,306	
\bullet							

Rural Light DST - 3.25m lane

				Total (3.25m lane)	\$351,820	
Contingency for Minor Contract Items						\$25,000	
Ditching	2,000				\$11.50	\$23,000	
Brushing	2,000				\$17.50	\$35,000	
Drainage / Culverts						\$25,000	
Digouts	150	5.000	1	750	\$65.00	\$48,750	
Double Surface Treatment	1,000	3.250	3250		\$17.00	\$55,250	
150mm Granular A	1,000	3.900	0.15 3900	585	\$44.40	\$25,974	
300mm Granular B	1,000	4.350	0.3 4350	1305	\$28.00	\$36,540	
475mm Excavation & Disposal	1,000	4.650	0.475	2208.75	\$35.00	\$77,306	

Depth (m) Area (m²) Volume (m³) Unit Rate Cost / lane km Cost

Total (6.50m road)

ost / lane m
M7 0 0 4
\$73.24
\$36.54
\$25.97
\$48.75
\$25.00
\$35.00
\$23.00
\$10.00
\$277.50
\$555.00
φ333.00
\$77.31
\$36.54
\$25.97
\$27.63
\$48.75
\$25.00
\$35.00
\$23.00
\$25.00
\$324 20
¢6/8 30
φ040.39
Ф77 04
\$//.31
\$36.54
\$25.97
\$55.25
\$48.75
\$25.00
\$35.00
\$23.00
\$25.00
\$351.82
T

Rural Light Paved - 3.25m lane

500mm Excavation & Disposal	1,000	4.650	0.455	2115.75	\$35.00	\$74,051
300mm Granular B	1,000	4.350	0.3 4350	1305	\$28.00	\$36,540
150mm Granular A	1,000	3.900	0.15 3900	585	\$44.40	\$25,974
50mm HL8	1,000	3.250	0.05 3250	162.5	\$367.50	\$59,719
Digouts	150	5.000	1	750	\$65.00	\$48,750
Drainage / Culverts						\$45,000
Brushing	2,000				\$17.50	\$35,000
Ditching	2,000				\$11.50	\$23,000
Contingency for Minor Contract Items						\$35,000
				Total	(3.25m lane)	\$383,034
				Total ((6.50m road)	\$766,068

Rural Medium Paved - 3.5m lane (Collector)

				Tota	al (7.0m road)	\$1,186,023	
				Tota	l (3.50m lane)	\$593,012	
Contingency for Minor Contract Items						\$45,000	
Ditching	2,000				\$11.50	\$23,000	
Brushing	2,000				\$17.50	\$35,000	
Drainage / Culverts						\$150,000	
Digouts	150	6.000	1	900	\$65.00	\$58,500	
40mm HL3	1,000	3.500	0.04 3500	140	\$416.50	\$58,310	
50mm HL8	1,000	3.500	0.05 3500	175	\$367.50	\$64,313	
150mm Granular A	1,000	4.150	0.15 4150	622.5	\$44.40	\$27,639	
300mm Granular B	1,000	4.600	0.3 4600	1380	\$28.00	\$38,640	
540mm Excavation & Disposal	1,000	4.900	0.54	2646	\$35.00	\$92,610	

Rural Heavy Paved - 3.75m lane (Arterial)

				Tota	l (7.5m road)	\$1,660,493
				Total	(3.75m lane)	\$830,247
Contingency for Minor Contract Items						\$55,000
Ditching	2,000				\$11.50	\$23,000
Brushing	2,000				\$17.50	\$35,000
Drainage / Culverts						\$225,000
Digouts	150	6.000	1	900	\$65.00	\$58,500
40mm HL3	1,000	3.750	0.04 3750	150	\$416.50	\$62,475
50mm HL8	1,000	3.750	0.05 3750	187.5	\$367.50	\$68,906
50mm HL8	1,000	3.750	0.05 3750	187.5	\$367.50	\$68,906
150mm Granular A	1,000	4.400	0.15 4400	660	\$44.40	\$29,304
450mm Granular B	1,000	5.000	0.45 5000	2250	\$28.00	\$63,000
740mm Excavation & Disposal	1,000	5.450	0.74	4033	\$35.00	\$141,155

\$703,641

Total (6.50m road)

\$703.64
\$74.05
\$36.54
\$25.97
\$59.72
\$48.75
\$45.00
\$35.00
\$23.00
\$35.00 ¢202 02
\$383.U3 \$766.07
\$766.07
.
\$92.61
\$38.64
\$27.64
\$64.31
\$58.31 ¢50.50
\$38.5U
\$150.00
\$23.00
\$45.00
\$593.01
\$1,186.02
\$141.16
\$63.00
\$29.30
\$68.91
\$68.91
\$62.48
\$58.50
\$225.00
\$35.00
\$23.00
\$55.00
\$830.25
\$1,660.49

RURAL - REHABILITATION

Type/Description

Width (m) Length (m)

Granular - 3.25m lane

				Total (6	6.50m road)	\$312,973	
				Total (3.25m lane)	\$156,487	
Contingency for Minor Contract Items						\$10,000	
Ditching	2,000				\$11.50	\$23,000	
Brushing	2,000				\$17.50	\$35,000	
Drainage / Culverts						\$25,000	
Digouts	50	5.000	1	250	\$65.00	\$16,250	
150mm Granular A	1,000	3.900	0.15 3900	585	\$44.40	\$25,974	
150mm Excavation & Disposal	1,000	4.050	0.15	607.5	\$35.00	\$21,263	

Rural Light SST - 3.25m lane

75mm Excavation & Disposal	1,000	3.850	0.075	288.75	\$35.00	\$10,106
50mm Granular A	1,000	3.800	0.05	3800 190	\$44.40	\$8,436
Single Surface Treatment	1,000	3.250		3250	\$8.50	\$27,625
Digouts	50	5.000	1	250	\$65.00	\$16,250
Drainage / Culverts						\$25,000
Brushing	2,000				\$17.50	\$35,000
Ditching	2,000				\$11.50	\$23,000
Contingency for Minor Contract Items						\$25,000
				Tot	al (3.25m lane)	\$170,417
				Tot	al (6.50m road)	\$340,835

Rural Light DST - 3.25m lane

75mm Excavation & Disposal	1,000	3.850	0.075	288.75	\$35.00	\$10,106
50mm Granular A	1,000	3.800	0.05 3800	190	\$44.40	\$8,436
Double Surface Treatment	1,000	3.250	3250		\$17.00	\$55,250
Digouts	50	5.000	1	250	\$65.00	\$16,250
Drainage / Culverts						\$25,000
Brushing	2,000				\$17.50	\$35,000
Ditching	2,000				\$11.50	\$23,000
Contingency for Minor Contract Items						\$25,000
				Total	(3.25m lane)	\$198,042
				\$396,085		

Rural Light Paved - 3.25m lane

100mm Excavation & Disposal	1,000	3.850	0.1	385	\$35.00	\$13,475
50mm Granular A	1,000	3.800	0.05 3800	190	\$44.40	\$8,436
50mm HL8	1,000	3.250	0.05 3250	162.5	\$367.50	\$59,719

Depth (m) Area (m²) Volume (m³) Unit Rate Cost / lane km Cost

set / Jano m
JSL / IANE III
\$21.26
\$25.97
\$16.25
\$25.00
\$35.00
\$23.00
\$10.00
\$156.49
\$312.97
~~
\$10.11
\$8.44
\$27.63
\$16.25
\$25.00
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\$170.42
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Ф40 44
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\$25.00
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\$23.00
\$25.00
\$198.04
\$396.08
A
\$13.48
\$8.44
\$59.72

				Tota	l (6.50m road)	\$471,760	
				Tota	al (3.25m lane)	\$235,880	
Contingency for Minor Contract Items						\$35,000	
Ditching	2,000				\$11.50	\$23,000	
Brushing	2,000				\$17.50	\$35,000	
Drainage / Culverts						\$45,000	
Digouts	50	5.000	1	250	\$65.00	\$16,250	

Rural Medium Paved - 3.5m lane (Collector)

140mm Excavation & Disposal	1.000	3.850	0.14		539	\$35.00	\$18.865
50mm Granular A	1,000	3.800	0.05	3800	190	\$44.40	\$8,436
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310
Digouts	50	6.000	1		300	\$65.00	\$19,500
Drainage / Culverts							\$150,000
Brushing	2,000					\$17.50	\$35,000
Ditching	2,000					\$11.50	\$23,000
Contingency for Minor Contract Items							\$45,000
	· · · · · · · · · · · · · · · · · · ·	<u>'</u>			Tota	al (3.50m lane)	\$422,424
					Tot	al (7.0m road)	\$844,847

Rural Heavy Paved - 3.75m lane (Arterial)

190mm Excavation & Disposal	1,000	3.850	0.19	731.5	\$35.00	\$25,603	
50mm Granular A	1,000	3.800	0.05 3800	190	\$44.40	\$8,436	
50mm HL8	1,000	3.750	0.05 3750	187.5	\$367.50	\$68,906	
50mm HL8	1,000	3.750	0.04 3750	150	\$367.50	\$55,125	
40mm HL3	1,000	3.750	0.04 3750	150	\$416.50	\$62,475	
Digouts	50	6.000	1	300	\$65.00	\$19,500	
Drainage / Culverts						\$225,000	
Brushing	2,000				\$17.50	\$35,000	
Ditching	2,000				\$11.50	\$23,000	
Contingency for Minor Contract Items						\$55,000	
				Total	(3.75m lane)	\$578,045	
				Tota	al (7.5m road)	\$1,156,090	

Total (7.0m road)

\$16.25
\$45.00
\$35.00
\$23.00
\$35.00
\$235.88
\$471.76
\$18.87
\$8.44
\$64.31
\$58.31
\$19.50
\$150.00
\$35.00
\$23.00
\$45.00
\$422.42
\$844.85
\$25.60
\$8.44
\$68.91
\$55.13
\$62.48
\$19.50
\$225.00
\$35.00
\$23.00
\$55.00
\$578.04
\$1,156.09

RURAL - RESURFACING

Type/Description	Length (m)	Width (m)		
Granular - 3.25m lane				
150mm Granular A	1,000	3.325		
Brushing	2,000			
Ditching	2,000			
Contingency for Minor Contract Items				

Rural Light SST - 3.25m lane

				Total (6.50m road)	\$274,000	
				Total (3.25m lane)	\$137,000	
Contingency for Minor Contract Items					\$15,000	
Ditching	2,000			\$11.50	\$23,000	
Brushing	2,000			\$17.50	\$35,000	
Drainage / Culverts					\$25,000	
Single Surface Treatment	1,000	3.250	3250	\$8.50	\$27,625	
Prepare Surface	1,000	3.250	3250	\$1.25	\$4,063	
Pulverize Existing	1,000	3.250	3250	\$2.25	\$7,313	

Rural Light DST - 3.25m lane

Pulverize Existing	1,000	3.250	3250	\$2.25	\$7,313	
Prepare Surface	1,000	3.250	3250	\$1.25	\$4,063	
Double Surface Treatment	1,000	3.250	3250	\$17.00	\$55,250	
Drainage / Culverts					\$25,000	
Brushing	2,000			\$17.50	\$35,000	
Ditching	2,000			\$11.50	\$23,000	
Contingency for Minor Contract Items					\$15,000	
				Total (3.25m lane)	\$164,625	
				Total (6.50m road)	\$329,250	

Rural Light Paved - 3.25m lane

	Total (3.25m lane) \$179,					\$179.094	\$179.09
Contingency for Minor Contract Items						\$15,000	\$15.00
Ditching	2,000				\$11.50	\$23,000	\$23.00
Brushing	2,000				\$17.50	\$35,000	\$35.00
Drainage / Culverts						\$35,000	\$35.00
50mm HL8	1,000	3.250	0.05 3250	162.5	\$367.50	\$59,719	\$59.72
Prepare Surface	1,000	3.250	3250		\$1.25	\$4,063	\$4.06
Pulverize Existing	1,000	3.250	3250		\$2.25	\$7,313	\$7.31

Depth (m) Area (m²) Volume (m³) Unit Rate Cost / lane km Cost

	Total (6.50m road)			\$175,289	
	Total (3.25m lane)				
				\$7,500	
			\$11.50	\$23,000	
			\$17.50	\$35,000	
0.15	3325	498.75	\$44.40	\$22,145	

Cost / lane	m
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	7.31
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Ψ <u></u> \$2	7 63
	5 00
 \$3	5.00
ψ0 \$2	3.00
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יų 12	7 00
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پ۲	4.00
\$	7.31
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ψυ	5.00
\$2	3 00
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\$2 \$1 \$16 \$32	3.00 5.00 4.63 9.25
\$2 \$1 \$16 \$32	3.00 5.00 4.63 9.25
\$2 \$1 \$16 \$32 \$	3.00 5.00 4.63 9.25 7.31
\$2 \$1 \$16 \$32 \$ \$ \$	3.00 5.00 4.63 9.25 7.31
\$2 \$1 \$16 \$32 \$32 \$5	3.00 5.00 4.63 9.25 7.31 4.06 9.72
\$2 \$1 \$16 \$32 \$32 \$32 \$32 \$32 \$32 \$ 5 \$5 \$5 \$5	3.00 5.00 4.63 9.25 7.31 4.06 9.72 5.00
\$2 \$1 \$16 \$32 \$32 \$32 \$5 \$5 \$5 \$3 \$3 \$3	3.00 5.00 4.63 9.25 7.31 4.06 9.72 5.00
\$2 \$1 \$16 \$32 \$32 \$32 \$5 \$5 \$5 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3	3.00 5.00 4.63 9.25 7.31 4.06 9.72 5.00 5.00
\$2 \$1 \$16 \$32 \$32 \$32 \$5 \$5 \$5 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3	3.00 5.00 4.63 9.25 7.31 4.06 9.72 5.00 5.00 3.00
\$2 \$1 \$16 \$32 \$32 \$3 \$5 \$5 \$5 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3	3.00 5.00 4.63 9.25 7.31 4.06 9.72 5.00 5.00 3.00 3.00

Rural Medium Paved - 3.5m lane (Coll	ector)					
Mill Wear Surface	1,000	3.500	3500		\$3.50	\$12,250
Prepare Surface	1,000	3.250	3250		\$1.25	\$4,063
40mm HL3	1,000	3.500	0.04 3500	140	\$416.50	\$58,310
Drainage / Culverts						\$50,000
Brushing	2,000				\$17.50	\$35,000
Ditching	2,000				\$11.50	\$23,000
Contingency for Minor Contract Items						\$25,000
				Tot	al (3.50m lane)	\$207,623
				Тс	otal (7.0m road)	\$415,245

Rural Heavy Paved - 3.75m lane (Arterial)

					Tot	al (7.5m road)	\$555,575	
					Tota	I (3.75m lane)	\$277,788	
Contingency for Minor Contract Items							\$35,000	
Ditching	2,000					\$11.50	\$23,000	
Brushing	2,000					\$17.50	\$35,000	
Drainage / Culverts							\$50,000	
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	
Prepare Surface	1,000	3.250		3250		\$1.25	\$4,063	
Mill Wear Surface	1,000	3.750		3750		\$3.50	\$13,125	
•	-							

\$358,188

Total (6.50m road)

\$358.19
\$12.25
\$4.06
\$58.31
\$50.00
\$35.00
\$23.00
\$25.00
\$207.62
CAAE OF
\$415.25
\$415.25
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\$415.25 \$13.13
\$415.25 \$13.13 \$4.06
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\$415.25 \$13.13 \$4.06 \$55.13 \$62.48 \$50.00
\$415.25 \$13.13 \$4.06 \$55.13 \$62.48 \$50.00 \$35.00
\$415.25 \$13.13 \$4.06 \$55.13 \$62.48 \$50.00 \$35.00 \$35.00 \$23.00
\$415.25 \$13.13 \$4.06 \$55.13 \$62.48 \$50.00 \$35.00 \$35.00 \$35.00
\$415.25 \$13.13 \$4.06 \$55.13 \$62.48 \$62.48 \$50.00 \$35.00 \$35.00 \$35.00 \$35.00 \$277.79
\$415.25 \$13.13 \$4.06 \$55.13 \$62.48 \$50.00 \$35.00 \$35.00 \$35.00 \$35.00 \$277.79 \$555.58

URBAN SECTIONS								
URBAN - RECONSTRUCTION								
Type/Description	Length (m)	Width (m)	Depth (m)	Area (m	12) Volume (r	n3) Unit Rate	Cost / Iane km	Cos
Urban Light Paved - 3.25m lane								
500mmExcavation & Disposal	1,000	4.650	0.5		2325	\$35.00	\$81,375	
300mm Granular B	1,000	4.350	0.3	4350	1305	\$28.00	\$36,540	
150mm Granular A	1,000	3.900	0.15	3900	585	\$44.40	\$25,974	
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	
Curb & Gutter	2,000					\$145.00	\$290,000	
Sidewalk (one side)	1,000					\$125.00	\$125,000	
Contingency for Minor Contract Items							\$45,000	
					Total	(3.25m lane)	\$663,608	
					Total	(6.50m road)	\$1,327,216	

Urban Medium Paved - 3.50m lane (Collector)

					l ota Total	(7.0m road) (10.0m road)	\$1,533,023 \$2,189,923	
					Total	(3.50m lane)	\$766,512	
ontingency for Minor Contract Items							\$70,000	
dewalk (one side)	1,000					\$125.00	\$125,000	
urb & Gutter	2,000					\$145.00	\$290,000	
)mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	
)mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	
50mm Granular A	1,000	4.150	0.15	4150	622.5	\$44.40	\$27,639	
00mm Granular B	1,000	4.600	0.3	4600	1380	\$28.00	\$38,640	
Omm Excavation & Disposal	1,000	4.900	0.54		2646	\$35.00	\$92,610	

Urban Heavy Paved - 3.75m lane (Arterial)

				Tota	l (7.5m road)	\$2,077,351	
				Total	(3.75m lane)	\$1,038,675	9
Contingency for Minor Contract Items						\$90,000	
Sidewalk (both sides)	2,000				\$125.00	\$250,000	
Curb & Gutter	2,000				\$145.00	\$290,000	
40mm HL3	1,000	3.750	0.04 3750	150	\$416.50	\$62,475	
50mm HL8	1,000	3.750	0.04 3750	150	\$367.50	\$55,125	
50mm HL8	1,000	3.750	0.05 3750	187.5	\$367.50	\$68,906	
150mm Granular A	1,000	4.150	0.15 4150	622.5	\$44.40	\$27,639	
450mm Granular B	1,000	4.750	0.45 4750	2137.5	\$28.00	\$59,850	
740mm Excavation & Disposal	1,000	5.200	0.74	3848	\$35.00	\$134,680	

cost / lane m
\$81.38
\$36.54
\$25.97
\$59.72
\$290.00
\$125.00
\$45.00
\$663.61
\$1,327.22
© 00 61
\$92.01 \$38.64
\$30.04 \$27.64
\$64.31
\$58.31
\$290.00
\$125.00
\$70.00
\$766.51
\$1,533.02
\$2,189.92
¢121 62
\$59.85
\$27.64
\$68.91
\$55.13
\$62.48
\$290.00
\$250.00
\$90.00
\$1,038.68
\$2,077.35

URBAN - REHABILITATION

Type/Description

Length (m)

Width (m)

Urban Light Paved - 3.25m lane

					Total Total ((3.25m lane) (6.50m road)	\$554,041 \$1,108,082	
Contingency for Minor Contract Items							\$50,000	
Sidewalk (one side)	1,000					\$125.00	\$125,000	
Curb & Gutter	2,000					\$145.00	\$290,000	
50mm HL8	1,000	3.250	0.05	3250	162.5	\$367.50	\$59,719	
50mm Granular A	1,000	3.800	0.05	3800	190	\$44.40	\$8,436	
155mm Excavation & Disposal	1,000	3.850	0.155		596.75	\$35.00	\$20,886	

Urban Medium Paved - 3.50m lane (Collector)

240mm Excavation & Disposal	1,000	4.100	0.24		984	\$35.00	\$34,440	
50mm Granular A	1,000	4.050	0.05	4050	202.5	\$44.40	\$8,991	
50mm HL8	1,000	3.500	0.05	3500	175	\$367.50	\$64,313	
40mm HL3	1,000	3.500	0.04	3500	140	\$416.50	\$58,310	
Curb & Gutter	2,000					\$145.00	\$290,000	
Sidewalk (one side)	1,000					\$125.00	\$125,000	
Contingency for Minor Contract Items							\$50,000	
					Tota	(3.50m lane)	\$631,054	
					Tota	al (7.0m road)	\$1,262,107	
					Total	(10.0m road)	\$1,802,920	

Urban Heavy Paved - 3.75m lane (Arterial)

					Total	(11.0m road)	\$2,508,572	
					Tota	l (7.5m road)	\$1,710,410	
					Total	(3.75m lane)	\$855,205	
Contingency for Minor Contract Items							\$75,000	
Sidewalk (both sides)	2,000					\$125.00	\$250,000	
Curb & Gutter	2,000					\$145.00	\$290,000	
40mm HL3	1,000	3.750	0.04	3750	150	\$416.50	\$62,475	
50mm HL8	1,000	3.750	0.04	3750	150	\$367.50	\$55,125	
50mm HL8	1,000	3.750	0.05	3750	187.5	\$367.50	\$68,906	
50mm Granular A	1,000	4.300	0.05	4300	215	\$44.40	\$9,546	
290mm Excavation & Disposal	1,000	4.350	0.29	4350	1261.5	\$35.00	\$44,153	

Depth (m) Area (m2) Volume (m3) Unit Rate Cost / lane km Cost

\$3,046.43

ost / Iane m
\$20 80
φ20.03 \$8.44
\$59.72
\$290.00
\$125.00
\$50.00
\$554.04
\$1,108.08
\$34.44
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\$1 802 92
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\$44.15
\$9.55
\$68.91
\$55.13
\$62.48
\$290.00
\$250.00
\$75.00
\$855.20
\$1,/10.41
\$2,508.57

URBAN - RESURFACING

Type/Description

Length (m)

Urban Light Paved - 3.25m lane

				Total	(6.50m road)	\$242,188	
				Total	(3.25m lane)	\$121,094	
Contingency for Minor Contract Items						\$50,000	
50mm HL8	1,000	3.250	0.05 3250	162.5	\$367.50	\$59,719	
Prepare Surface	1,000	3.250	3250		\$1.25	\$4,063	
Pulverize Existing	1,000	3.250	3250		\$2.25	\$7,313	
- - - - - - - - - -							

Urban Medium Paved - 3.50m lane (Collector)

				Tota Tota	al (7.0m road)	\$249,245 \$356.046
				Tota	l (3.50m lane)	\$124,623
Contingency for Minor Contract Items						\$50,000
40mm HL3	1,000	3.500	0.04 3500	140	\$416.50	\$58,310
Prepare Surface	1,000	3.250	3250		\$1.25	\$4,063
Mill Wear Surface	1,000	3.500	3500		\$3.50	\$12,250

Urban Heavy Paved - 3.75m lane (Arterial)

				Tot	al (7.5m road)	\$445,825	
				Tota	al (3.75m lane)	\$222,913	
						\$75,000	
1,000	3.750	0.04	3750	150	\$416.50	\$62,475	
1,000	3.750	0.04	3750	150	\$367.50	\$55,125	
1,000	3.250		3250		\$1.25	\$4,063	
1,000	3.750		3750		\$3.50	\$13,125	
1,000	3.750		3750		\$3.50	\$13,125	
	1,000 1,000 1,000 1,000 1,000	1,000 3.750 1,000 3.750 1,000 3.250 1,000 3.750 1,000 3.750 1,000 3.750	1,000 3.750 1,000 3.750 1,000 3.250 1,000 3.750 0.04 1,000 3.750 0.04	1,000 3.750 3750 1,000 3.750 3750 1,000 3.250 3250 1,000 3.750 0.04 1,000 3.750 0.04 1,000 3.750 0.04	1,000 3.750 3750 1,000 3.750 3750 1,000 3.250 3250 1,000 3.750 0.04 1,000 3.750 0.04 1,000 3.750 0.04 1,000 3.750 0.04 1,000 3.750 0.04 1,000 3.750 0.04 1,000 3.750 Total	1,000 3.750 3750 \$3.50 1,000 3.750 3750 \$3.50 1,000 3.250 3250 \$1.25 1,000 3.750 0.04 3750 150 \$367.50 1,000 3.750 0.04 3750 150 \$416.50 1,000 3.750 0.04 3750 150 \$416.50 1,000 3.750 0.04 3750 150 \$416.50 Total (3.75m lane)	1,000 3.750 3750 \$3.50 \$13,125 1,000 3.750 3750 \$3.50 \$13,125 1,000 3.250 3250 \$1.25 \$4,063 1,000 3.750 0.04 3750 150 \$367.50 \$55,125 1,000 3.750 0.04 3750 150 \$416.50 \$62,475 1,000 3.750 0.04 3750 150 \$416.50 \$62,475 1,000 3.750 0.04 3750 150 \$416.50 \$62,475 1,000 3.750 0.04 3750 150 \$416.50 \$62,475 1,000 3.750 0.04 3750 150 \$416.50 \$62,475 1,000 3.750 0.04 3750 150 \$416.50 \$75,000

Width (m) Depth (m) Area (m²) Volume (m³) Unit Rate Cost / lane km Cost

st / lane m
\$7.31
\$4.06
\$59.72 \$50.00
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φ121.03 \$242
ΨΖΤΖ
\$12.25
\$4.06
\$58.31
\$50.00
\$124.62
\$249
\$356.05
<u> </u>
\$13.13 \$13.13
\$4.06
\$55.13
\$62.48
\$75.00
\$222.91
\$445.83
\$654
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	¢405.00		Includes weber have at an exact the

19mm Residential	\$165.00	Inclu
25mm Residential	\$195.00	Inclu
32mm Commercial	\$235.00	Inclu
40mm Commercial/Industrial	\$275.00	Inclu
100mm Industrial	\$375.00	Inclu

Includes valve box at property line 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 Repla	acement Only (+40%	6 Contingency & 2	0% Road Reinstatement)	\$113,182	\$113.18
		0,	,	. ,	

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
Appurtenances Repla	acement Only (+40%	% Contingen	Total Cost hcv & 20% Road Reinstatement)	\$671,110 \$113.182	\$671.11 \$113.18
Turne/Decemination	Longth (m)		h Unit Data	Cast / Irm	Cast / m
Type/Description	Length (m)	Eac	ch Unit Rate	Cost / Km	Cost / m
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
Appurtenances Repla	acement Only (+40%	% Contingen	I otal Cost ncy & 20% Road Reinstatement)	\$748,610 \$127,682	\$748.61 \$127.68
		-	· · · · · ·		
Type/Description	Length (m)	Eac	ch Unit Rate	Cost / km	Cost / m
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 Repla	acement Only (+40%	% Contingen	ncy & 20% Road Reinstatement)	\$132,182	\$132.18
200mm BV/C					
300mm Watermain	1 000		\$365.00	\$365,000	\$365.00
Hydrants	1,000	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
Commerical Services to propoerty 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 Repla	acement Only (+40%	% Contingen	ncy & 20% Road Reinstatement)	\$142,182	\$142.18
Type/Description	Length (m)	Eac	ch Unit Rate	Cost / km	Cost / m
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 Repla	acement Only (+40%	% Contingen	icy & 20% Road Reinstatement)	\$146,182	\$146.18
Type/Description	an ath ()	E		Cost / km	Cost/m
i ype/Deaci iptioli	Length (m)	Eac	Jin Unit Kate	CUSI / KIII	COSt / III

Type/Description

Length (m)

			0.000.00	* (* * * *	A 100 00
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 Repla	cement Only (+40%	6 Contingency & 20	% Road Reinstatement)	\$153,182	\$153.18
Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
450mm BVC					
450mm Watermain	1 000		\$475.00	\$475.000	\$475.00
Hydrante	1,000	10	\$5,500,00	\$55,000	\$55.00
Valvos		6	\$3,300.00	\$35,000	\$35.00
Valves	400	40	\$8,000.00	\$40,000	\$40.00 \$66.00
Commercial Services to Property Line	400	40	\$105.00	\$00,000	\$00.00
	400	40	\$235.00	\$94,000 \$75,000	\$94.00
Connection to Evicting System	200	20	\$375.00	\$75,000	\$75.00
Connection to Existing System	1 000	1	\$0,000.00	\$0,000 \$225,010	\$0.00 \$025.01
Road Reinstatement	1,000		\$235.91	\$235,910	\$235.91
Contingency for Minor Contract items			Total Coat	\$35,000	\$35.00
Annurtenances Renla	cement Only (+40°	6 Contingency & 20	Road Reinstatement)	\$1,091,910 \$164 182	\$1,091.91 \$164.18
· + F	,	· · · · · · · · · · · · · · · · · · ·	,	* • • • • • • • • •	
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	1,000		\$200.01	\$38,000	\$38.00
Containgeney for Marter Contract Refile			Total Cost	\$1 054 910	\$1 054 91
Appurtenances F	Replacement Only	+40% Contingency	& Road Reinstatement)	\$247,564	\$247.56
600mm Concrete Pressure Pipe	1 000		¢705.00	\$705,000	\$705.00
600 watermain	1,000		\$765.00	\$765,000	\$765.00
		4	\$28,000.00	\$112,000	\$112.00
		4	\$9,500.00	\$38,000	\$38.00
Connection to Existing System		1	\$18,000.00	\$18,000	\$18.00
Connections to Distribution System	4.000	4	\$30,000.00	\$120,000	\$120.00
Road Reinstatement	1,000		\$379.69	\$379,685	\$379.69
Contingency for Minor Contract Items			Tatal Orat	\$50,000	\$50.00
• · · ·				\$1,482,685	\$1,482.69
Appurtenances H	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
	1,000	4	\$175.00 \$4,500.00	φ170,000 Φ10.000	φ1/0.00 Φ40.00
i iyuidillə		+ r	\$ 4 ,500.00	\$10,000	\$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
Koad 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 Repla	cement Only (+40%	6 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 Repla	acement Only (+40%	6 Contingency 8	& 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	1,000	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
g			Total Cost	\$650.360	\$650.36
Appurtenances Repla	cement Only (+40%	6 Contingency 8	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 Repla	acement Only (+40%	6 Contingency 8	20% Road Reinstatement)	\$132,937	\$132.94
Typo/Decoviation	Longth (m)	Each	Unit Pato	Cost / km	Cost/m
Type/Description	Length (m)	Lach	onn nate		003(7)
325mm PVC		I	· · · · · · · · · · · · · · · · · · ·	•	•
325mm Watermain	1,000	4	\$383.00	\$383,000	\$383.00
Hydrants Velvee		4	\$5,500.00	\$22,000	\$22.00
Valves	400	ວ 15	\$5,500.00	\$27,500	\$27.50
Commorcial Services to Property Line	100	2	\$105.00 \$225.00	\$10,500	\$10.5U
Industrial Services to Property Line	40	4	¢235.00	39,400 \$22 EUU	ູ ລອ.40 ຄວາ ກາ
Connection to Existing System	00	2	\$375.00	\$22,500	\$22.50 \$16.00
Road Reinstatement	1 000	2	\$379.69	\$379,685	\$10.00
Contingency for Minor Contract Items	1,000		\$37 9.09	\$10,000	\$10.00
Contingency for Minor Contract terms			Total Cost	\$886,585	\$886.59
Appurtenances Repla	acement Only (+40%	6 Contingency 8	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 Repla	acement 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 Repla	acement 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 Repla	acement Only (+40%	% Contingency & 209	% Road Reinstatement)	\$176,937	\$176.94

SANITARY SEWER COSTING

SANITARY SEWER SERVICING - CONSTRUCTION UNIT RATES

ITEMS	\$ / m	each	Notes
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 Sewe	r	J	
600mm Concrete Pipe	\$385.00		
750mm Concrete Pipe	\$735.00		
825mm Concrete Pipe	\$900.00		
975mm Concrete Pipe	\$1,200.00		
Sanitary Sewer Appurte	nances		
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/Industri	\$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 HDPF	\$75.00	l	
50mm HDPE	\$115.00		
60mm HDPE	\$135.00		
75mm HDPE	\$150.00		
	\$155.00		
	\$105.00		
	\$205.00		
	\$245.00		
	\$325.00		
375mm HDPE			
URBAN & RURAL S	SECTIONS ON SYSTEMS		
Type/Description	Length (m)	Each	Unit Rate
Sanitary Collection Sew	er (150mm - 300mmø)		
150mm PVC Pipe	500		\$215.00
300mm PVC Pipe	500		\$285.00

Sanitary Collection S	ewer (150mm - 300	mmø)			
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 Pro	pper20	2	\$395.00	\$7,900	\$7.90
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor C	ontract Items			\$25,000	\$25.00
			Total cost per km	\$1,052,085	\$1,052.09
	Total Str	uctures Only (+ 40% Co	ntingency & Road Reinstatement)	\$274,634	\$275

Cost / km

Cost / m

Type/Description	Length (m)	Each	Unit Rate	Cost / km	Cost / m
Sanitary Collection S	ewer (300mm - 450mmø)				
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 Pro	pper20	2	\$395.00	\$7,900	\$7.90
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
Contingency for Minor Co	ontract Items			\$25,000	\$25.00
			Total cost per km	\$1,127,085	\$1,127.09
	Total Structures	Only (+ 40% Contingen	cy & Road Reinstatement)	\$289,634	\$290
Sanitary Collection S	ewer (500mm - 750mmø)				
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 Co	ontract Items			\$55,000	\$55.00
			Total cost per km	\$1,908,412	\$1,908.41
	Total Structures	Only (+ 40% Contingen	cy & Road Reinstatement)	\$414,752	\$415
Forcemains (38mmø))				
38mm HDPE	1,000		\$75.00	\$75,000	\$75.00
			A	A	A

	Total Structures	Only (+ 40% Contingency	\$240		
	\$674,085	\$674.09			
Contingency for Minor Contr	act Items			\$25,000	\$25.00
Road Reinstatement	1,000		\$574.09	\$574,085	\$574.09
38mm HDPE	1,000		\$75.00	\$75,000	\$75.00

Somm HOPE 0.00 \$115.00 \$115.00 \$115.00 Goad Renardament 1.000 \$574.09 \$527.00 \$520 Contingency for Minor Contract Items Total Cost per km \$714.085 \$714.08 Forcemains (60mm e) 5135.000 \$135.000 \$135.000 \$135.000 Road Reinstatement 1.000 \$135.000 \$135.000 \$135.000 Road Reinstatement 1.000 \$574.09 \$224.085 \$574.09 Contingency for Minor Contract Items Total Cost per km \$724.085 \$574.09 Forcemains (75mm e) Total Cost per km \$724.085 \$574.09 Formingency for Minor Contract Items Total Cost per km \$724.085 \$574.09 Forcemains (75mm e) Total Cost per km \$724.085 \$574.09 Contingency for Minor Contract Items Total Cost per km \$724.085 \$574.09 Structures Only (+ 40% Contingency & Road Reinstatement) \$229.050 \$576.09 \$576.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$229.050 \$576.09 \$576.09 \$576.09	Forcemains (50mmø)			
Read Reinstamement 1.000 \$574.08	50mm HDPE	1,000	\$115.00	\$115,000	\$115.00
Contingency for Minor Contract Items Total Cost per km \$714.085 \$774.09 Forcemains (60mm s) Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (60mm s) Structures Only (+ 40% Contingency & Road Reinstatement) \$135.000 \$135.000 \$574.09 Road Reinstatement 1.000 \$135.000 \$574.09 \$574.09 \$574.09 Forcemains (forms) Total Cost per km \$734.085 \$574.09 \$576.00 \$576.00 Forcemains (forms) Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (forms) Total Cost per km \$774.005 \$574.00 \$576.000 Road Reinstatement 1.000 \$576.000 \$576.000 \$576.000 \$576.000 Forcemains (100mm s) Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (100mm s) Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (100mm s) Total Cost per km \$764.085 \$774.09 Gontingency for Minor Contract Items Total Cost	Road Reinstatement	1,000	\$574.09	\$574,085	\$574.09
Total Cost per km \$714,085 \$714,085 \$714,085 \$74,085 \$240 Forcemains (60mm s) 1000 8136,000 \$135,000 \$135,000 \$135,000 \$135,000 \$135,000 \$135,000 \$135,000 \$135,000 \$135,000 \$2574,085 \$2574,085 \$2574,085 \$2574,085 \$2574,085 \$2574,085 \$258,000 \$258,000 \$258,000 \$258,000 \$258,000 \$258,000 \$258,000 \$258,000 \$258,000 \$258,000 \$2574,085 \$2574,095	Contingency for Minor C	ontract Items		\$25,000	\$25.00
Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (60mm s)			Total cost per km	\$714,085	\$714.09
Forcemains (60mm e) 60mm HDPE 1,000 \$135.00 \$135.00 \$135.00 Contingency for Minor Contract Items \$27.00 \$27.00 \$27.00 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Parcemains (75mma) \$150.00 \$150.00 \$150.00 Zimm HDPE \$100 \$574.085 \$274.085 Good Reinstatement 1.000 \$574.006 \$575.000 Contingency for Minor Contract Items \$274.085 \$274.006 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (100mme) Total cost per km \$744.085 \$774.096 Young HDPE Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Contingency for Minor Contract Items \$774.096 \$574.096 \$275.000 \$257.000 Contingency for Minor Contract Items \$774.096 \$274.096 \$274.096 \$274.096 Contingency for Minor Contract Items \$205.000 \$205.000 \$225.000 \$225.000 \$225.000 \$225.000 <td></td> <td>Total Structure</td> <td>s Only (+ 40% Contingency & Road Reinstatement)</td> <td>\$239,634</td> <td>\$240</td>		Total Structure	s Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240
Procentians (of mm sp) Strate Strate Road Reinstatement 1,000 \$135.00 \$135.00 \$135.00 Road Reinstatement 1,000 \$574.08 \$5774.08 \$5774.08 Contingency for Minor Contract Items Total Oct per km \$724,085 \$7734.09 Forcemains (75mm IDPE 1,000 \$150.00 \$150.000 \$252.000 </td <td>F</td> <td>,</td> <td></td> <td></td> <td></td>	F	,			
Baltim Pure Gontingency for Minor Contract Items 200000 5974.000 5160.000 5160.000 5160.000 5160.000 5160.000 5160.000 5160.000 5160.000 5274.000 5275.000 5270.000 5275.000<	Forcemains (bummø)	\$125.00	\$125,000	\$125.00
Indextration Integration Strate Strat Strate Strate <	Road Reinstatement	1,000	\$133.00	\$133,000	\$574.09
Total cost per km \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$734,085 \$524,000 \$150,000 \$150,000 \$150,000 \$574,085 <td>Contingency for Minor C</td> <td>ontract Items</td> <td>\$01 i.00</td> <td>\$25,000</td> <td>\$25.00</td>	Contingency for Minor C	ontract Items	\$01 i.00	\$25,000	\$25.00
Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Parcemains (Tismus) 1,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$250,000	Containgency for finiter o		Total cost per km	\$734.085	\$734.09
Forcemains (75mm.s) Total Cost and Substance Only (* 60 Contingency Contingency Contingency Contingency Contingency Ior Minor Contract Items 1,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$150,000 \$250,		Total Structure	s Only (+ 40% Contingency & Road Reinstatement)	\$239 634	\$240
Term HDPE 1000 \$150.000 \$150.000 \$150.000 Read Reinstatement 1.000 \$574.095 <t< td=""><td>Forcemains (75mmø</td><td>)</td><td></td><td>4200,001</td><td>\$2.10</td></t<>	Forcemains (75mmø)		4200,001	\$ 2.10
Road Reinstatement 1,000 \$574.09 \$574.09 \$574.09 Contingency for Minor Contract Items Total cost per km \$749,085 \$574.09 Forcemains (100mma) Total cost per km \$749,085 \$749,085 Forcemains (100mma) \$165.00 \$165.00 \$165.00 1000m HDPE 1,000 \$165.00 \$165.00 \$25.00 Contingency for Minor Contract Items Total cost per km \$764.085 \$776.408 Contingency for Minor Contract Items Total cost per km \$764.085 \$764.085 Contingency for Minor Contract Items Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (150mm e) Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (150mm e) Total cost per km \$260.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$220.00 \$225.00 \$225.00 \$225.00 \$225.00 \$225.00 \$226.00 \$226.00	75mm HDPE	1 000	\$150.00	\$150,000	\$150.00
Contingency for Minor Contract Items Total cost per km \$749,085 \$749,085 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (100mm e) \$165,000 \$165,000 \$165,000 Road Reinstatement 1,000 \$165,000 \$574,085 \$574,085 Contingency for Minor Contract Items Total cost per km \$764,085 \$574,09 Contingency for Minor Contract Items Total cost per km \$764,085 \$574,09 Contingency for Minor Contract Items Total cost per km \$764,085 \$774,09 Forcemains (150mm e) 1000 \$205,000 \$205,000 \$205,000 Road Reinstatement 1,000 \$205,000 \$205,000 \$205,000 Road Reinstatement 1,000 \$257,408 \$574,085 \$574,085 Contingency for Minor Contract Items Total cost per km \$804,085 \$804,095 Contingency for Minor Contract Items Total Structures Only (+ 40% Contingency & Road Reinstatement) \$223,634 \$245,00 200mm HDPE 1,000 \$245,000 \$245,000 \$245,000 <td>Road Reinstatement</td> <td>1,000</td> <td>\$574.09</td> <td>\$574.085</td> <td>\$574.09</td>	Road Reinstatement	1,000	\$574.09	\$574.085	\$574.09
Total cost per km \$749,085 \$749,085 Forcemains (100mme) Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (100mme) \$165,00 \$165,00 \$165,00 \$165,00 \$165,00 \$165,00 \$250,00 \$250,00 \$250,00 \$250,00 \$250,00 \$225,00 \$250,00 \$225,00 \$226,00 \$245,00 \$246,00 \$246,00 \$246,00 \$246,00 \$246,00 \$246,00 \$244,00 \$244,00 \$200,00 \$225,00 \$224,000 \$245,00 \$224,000 \$245,00 \$224,000 \$245,00 \$224,000 \$245,00 \$224,000 \$245,00 \$224,000 \$224,000 \$245,00	Contingency for Minor C	ontract Items		\$25,000	\$25.00
Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (100mm e) Contingency for Minor Contract Items 1,000 \$165,000 \$165,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$205,000			Total cost per km	\$749,085	\$749.09
Forcemains (100mm s) Intervention State 100mm HDPE 1,000 \$165,00 \$165,00 \$165,00 \$165,00 \$165,00 \$165,00 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$20,000		Total Structure	s Only (+ 40% Contingency & Road Reinstatement)	\$239.634	\$240
100mm HDPE 1,000 \$165,00 \$165,00 \$165,00 \$174,09 Contingency for Minor Contract Items Total cost per km \$774,09 \$574,09 \$574,09 Contingency for Minor Contract Items Total cost per km \$764,085 \$764,095 Forcemains (150mm e) Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$245,00 100mm HDPE 1,000 \$205,00 \$205,00 \$205,00 \$205,00 Road Reinstatement 1,000 \$574,09 \$574,085 \$574,09 Contingency for Minor Contract Items Total cost per km \$205,000 \$225,000 Contingency for Minor Contract Items Total cost per km \$804,085 \$804,085 Contingency for Minor Contract Items Total Structures Only (+ 40% Contingency & Road Reinstatement) \$225,000 \$255,000 Contingency for Minor Contract Items Total Structures Only (+ 40% Contingency & Road Reinstatement) \$225,000 \$246,000 Road Reinstatement 1,000 \$245,000 \$245,000 \$252,000 Gontingency for Minor Contract Items Total Structures Only (+ 40% Contingency & Road Reinstatem	Forcemains (100mm	ø)	, (+	+
Road Reinstatement 1,000 \$574,08	100mm HDPE	1.000	\$165.00	\$165.000	\$165.00
Contingency for Minor Contract Items Total Cost per km \$764,085 \$764,085 \$764,085 \$764,085 \$764,085 \$764,085 \$764,085 \$764,085 \$524,005 Forcemains (150mm #) 100mm HDPE 1,000 \$205,000 \$225,000 \$225,000 \$225,000 \$225,000 \$225,000 \$224,000 \$245,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,000 <td>Road Reinstatement</td> <td>1,000</td> <td>\$574.09</td> <td>\$574,085</td> <td>\$574.09</td>	Road Reinstatement	1,000	\$574.09	\$574,085	\$574.09
Total cost per km \$764,085 \$764.095 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (150mmø) \$205,000 \$205,000 \$205,000 100mm HDPE 1,000 \$205,000 \$205,000 \$250,000 Contingency for Minor Contract Items \$205,000 \$252,000 \$252,000 Total Ocot per km \$804,085 \$804,090 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (200mm ø) 200mm HDPE 1,000 \$245,000 \$245,000 \$245,000 Contingency for Minor Contract Items \$245,000 \$245,000 \$245,000 Contingency for Minor Contract Items Total Cost per km \$244,005 \$844,095 Soutingency for Minor Contract Items Total Cost per km \$244,005 \$844,095 Soutingency for Minor Contract Items Total Cost per km \$244,005 \$844,095 Soutingency for Minor Contract Items \$25,000 \$325,000 \$325,000 Contingency for Minor Contract Items \$325,000	Contingency for Minor C	ontract Items		\$25,000	\$25.00
Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (150mm ø) 1000 \$205,000 \$206,000 \$206,000 \$204,0085 \$804,095 \$804,095 \$804,095 \$200,000 \$245,000 \$245,000 \$245,000 \$245,000 \$245,000 \$245,000 \$245,000 \$246,000			Total cost per km	\$764,085	\$764.09
Forcemains (150mm s) Income HOPE Sector		Total Structure	s Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240
Forcemains (150mm e) 100mm HDPE 1,000 \$205,			, ,		
100mm HDPE 1,000 \$205.00 \$205.00 \$205.00 Road Reinstatement 1,000 \$574.09 \$574.09 \$574.09 Contingency for Minor Contract Items Total cost per km \$804,085 \$804.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$235,000 \$245.00 200mm HDPE 1,000 \$245.00 \$245.00 200mm HDPE 1,000 \$245.00 \$245.00 Contingency for Minor Contract Items \$245.00 \$245.00 Contingency for Minor Contract Items Total Cost per km \$245.00 Contingency for Minor Contract Items Total Cost per km \$246.00 Solom HDPE 1,000 \$25.000 \$25.00 Contingency for Minor Contract Items Total Cost per km \$244.085 Solom HDPE 1,000 \$325.00 \$325.00 Solom HDPE 1,000 \$325.00 \$325.00 Contingency for Minor Contract Items Total Cost per km \$240 Solom HDPE 1,000 \$325.00 \$325.00 Contingency for Minor Contract Items	Forcemains (150mm	ø)			
Road Reinstatement 1,000 \$574.09 \$674.085 \$674.09 Contingency for Minor Contract Items Total cost per km \$804.085 \$804.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (200mm ø) 200mm HDPE 1,000 \$245.00 \$245.00 Road Reinstatement 1,000 \$2574.09 \$274.085 Contingency for Minor Contract Items \$245.00 \$245.00 \$245.00 Contingency for Minor Contract Items \$2574.09 \$574.09 \$257.000 \$225.00 Contingency for Minor Contract Items Total cost per km \$844.085 \$844.09 \$225.00 \$226.00 \$226.0	100mm HDPE	1.000	\$205.00	\$205.000	\$205.00
Contingency for Minor Contract Items \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$26,000 \$26,000 \$26,000 \$2240 Forcemains (200mm ø) 200mm HDPE 1,000 \$245,000 \$250,000 <	Road Reinstatement	1,000	\$574.09	\$574,085	\$574.09
Total cost per km \$804,085 \$804.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (200mm ø) 200mm HDPE 1,000 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$245.00 \$225.00 \$225.00 \$225.00 \$225.00 \$225.00 \$225.00 \$225.00 \$224.00 \$244.09 \$244.095 \$844.09 \$240 \$240 \$240 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$26.00<	Contingency for Minor C	ontract Items		\$25,000	\$25.00
Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (200mm ø) 200mm HDPE 1,000 \$245.00 \$245.00 \$245.00 \$245.00 Road Reinstatement 1,000 \$574.09 \$574.085 \$574.09 Contingency for Minor Contract Items Total cost per km \$844,085 \$844.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) Total cost per km \$844,085 \$844.09 300mm HDPE 1,000 \$325,000 \$325,000 \$325,000 Road Reinstatement 1,000 \$574.095 \$574.095 \$574.095 Contingency for Minor Contract Items \$25,000 \$25,000 \$225,000 \$225,000 \$225,000 \$225,000 \$224,009 \$25,000 \$25,000 \$224,009 \$24,008 \$240,005 \$240,005 \$240,005 \$240,005 \$240,005 \$240,005 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$250,000			Total cost per km	\$804,085	\$804.09
Forcemains (200mm #) 200mm HDPE 1,000 \$245,00 \$245,000 \$245,000 Road Reinstatement 1,000 \$574,085 \$574,095 Contingency for Minor Contract Items Total cost per km \$844,085 \$844.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) 300mm HDPE 1,000 \$325,000 \$326,000		Total Structure	s Only (+ 40% Contingency & Road Reinstatement)	\$239,634	\$240
Forcemains (200mm ø) 200mm HDPE 1,000 \$245.00 \$245.00 \$245.00 Road Reinstatement 1.000 \$574.09 \$574.085 \$574.09 Contingency for Minor Contract Items \$25.00 \$25.00 \$25.00 Total cost per km \$844.085 \$844.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) S00mm HDPE 1.000 \$325.00 \$3325.00 \$3325.00 \$3325.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$25.00 \$26.00 \$26.00 \$26.00 \$26.00 \$26.00 \$26.00 \$26.00 \$26.00 \$26.00					
Forcemains (200mm ø) 200mm HDPE 1,000 \$245.00 \$245.00 \$245.00 Road Reinstatement 1,000 \$574.09 \$\$74.085 \$\$574.09 Contingency for Minor Contract Items \$25.000 \$\$25.000 \$\$25.000 \$\$25.000 Total cost per km \$\$844,085 \$\$844.095 \$\$00mm #0 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$\$239,634 \$\$2400 Forcemains (300mm ø) Total Structures Only (+ 40% Contingency & Road Reinstatement) \$\$25,000 \$\$325.00 Source temperature of the structures only (+ 40% Contingency & Road Reinstatement) \$\$25,000 \$\$25,000 Contingency for Minor Contract Items \$\$25,000 \$\$25,000 \$\$25,000 Total cost per km \$\$24,085 \$\$224.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$\$239,634 \$\$240 Forcemains (300mm ø) \$\$25,000 \$\$25,000 \$\$25,000 \$\$25,000 \$\$26,000 \$\$450.000 \$\$450.000 \$\$450.000 \$\$450.000					
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Road Reinstatement 1,000 \$574,085 \$574,085 \$574,09 Contingency for Minor Contract Items Total cost per km \$25,000 \$25.00 Total cost per km \$844,085 \$844.09 Forcemains (300mm ø) \$239,634 \$240 300mm HDPE 1,000 \$325.00 \$325.00 Road Reinstatement 1,000 \$325.00 \$325.00 Road Reinstatement 1,000 \$325.00 \$325.00 Contingency for Minor Contract Items \$574.09 \$574.085 \$574.09 Contingency for Minor Contract Items Total cost per km \$924,085 \$924.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) 300mm HDPE 1,000 \$450.00 \$450.00 \$450.00 Road Reinstatement 1,000 \$574.09 \$574.09 \$574.09 Contingency for Minor Contract Items \$25,000	200mm HDPE	1,000	\$245.00	\$245,000	\$245.00
Contingency for Minor Contract Items Total \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$239,634 \$240 Forcemains (300mm ø) 300mm HDPE 1,000 \$325,000 \$3325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$325,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$224,008 \$225,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 <	Road Reinstatement	1,000	\$574.09	\$574.085	\$574.09
Total cost per km \$844,095 \$844.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) 300mm HDPE 1,000 \$325,000	Contingency for Minor C	ontract Items		\$25,000	\$25.00
Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) \$300mm HDPE 1,000 \$325,00 \$326,00 \$30,00 \$30,00 \$30,00 \$30,00 \$30,00 \$30,00 \$30,00 \$30,00 \$30,00 \$30,00	Containgency for finiter o		Total cost per km	\$844.085	\$844.09
Forcemains (300mm ø) \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$250,004 \$325,000 \$325,000 \$325,000 \$325,000 \$250,004 \$250,004 \$250,005 \$250,006 \$250,006 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$260,000 \$450,000 \$25,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 \$250,000 </td <td></td> <td>Total Structure</td> <td>s Only (+ 40% Contingency & Road Reinstatement)</td> <td>\$239 634</td> <td>\$240</td>		Total Structure	s Only (+ 40% Contingency & Road Reinstatement)	\$239 634	\$240
Forcemains (300mm ø) 300mm HDPE 1,000 \$325.00 \$325.00 Road Reinstatement 1,000 \$574.08 \$574.09 Contingency for Minor Contract Items \$25,000 \$25.00 Total cost per km \$924,085 \$924.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) 300mm HDPE 1,000 \$450.00 \$450.00 Somm HDPE 1,000 \$450.00 \$450.00 \$450.00 Contingency for Minor Contract Items \$25,000 \$450.00 \$450.00 \$450.00 \$450.00 \$450.00 \$450.00 \$450.00 \$450.00 \$25.00			e enny (140% contangency a rioua remotatement)	\$200,001	\$ 210
300mm HDPE 1,000 \$325.00 \$325.00 Road Reinstatement 1,000 \$574.085 \$574.09 Contingency for Minor Contract Items \$25,000 \$25.00 Total cost per km \$924,085 \$924.09 Total Cost per km \$924,085 \$924.09 Total Cost per km \$924,085 \$924.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) 300mm HDPE 1,000 \$450.00 \$450.00 \$450.00 Road Reinstatement 1,000 \$574.09 \$674.090 \$450.00 Contingency for Minor Contract Items Total cost per km \$25,000 \$25.00 Contingency for Minor Contract Items \$25,000 \$25.00 Total cost per km \$1,049,090 \$1,049.09 Total Cost per km \$1,049,090 \$1,049.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,636 \$240	Forcemains (300mm	ø)			
Soorim HDFL 1,000 002,000	300mm HDPF	1 000	\$325.00	\$325,000	\$325.00
Contingency for Minor Contract Items Contingency for Minor Contract Items State State<	Road Reinstatement	1,000	\$574.09	\$574.085	\$574.09
Total cost per km \$924,085 \$924.09 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) \$300mm HDPE 1,000 \$450,000 \$574,090 \$574,090 \$574,090 \$574,090 \$25,000 \$25,000 \$25,000 \$25,000 \$250,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$25,000 \$26,000 \$21,049,090 \$1,049,090 \$1,049,090 \$1,049,090 \$1,049,090 \$239,636 \$240 Total Structures Only (+ 40% Contingency & Road Reinstatement)	Contingency for Minor C	ontract Items		\$25.000	\$25.00
Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,634 \$240 Forcemains (300mm ø) \$300mm HDPE 1,000 \$450,000 \$574,090 \$574,090 \$574,090 \$25,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,000 \$26,	<u> </u>		Total cost per km	\$924.085	\$924.09
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Contingency for Minor Contract Items \$25,000 \$25,000 Total cost per km \$1,049,090 \$1,049,090 Total Structures Only (+ 40% Contingency & Road Reinstatement) \$239,636 \$240	Road Reinstatement	1,000	\$574.09	\$574,090	\$574.09
Total cost per km\$1,049,090\$1,049.09Total Structures Only (+ 40% Contingency & Road Reinstatement)\$239,636\$240	Contingency for Minor C	ontract Items		\$25,000	\$25.00
Total Structures Only (+ 40% Contingency & Road Reinstatement)\$239,636\$240			Total cost per km	\$1,049,090	\$1,049.09
		Total Structure	s Only (+ 40% Contingency & Road Reinstatement)	\$239,636	\$240

*Reduce residential services cost by 60%; commercial services by 20% and industrial services by 80% for rural sections.



Asset Management Planning for the Municipality of Markstay-Warren

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Appendix H 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.



Asset Management Planning for the Municipality of Markstay-Warren

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Appendix I 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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