

McINTOSH
PERRY



Asset Management Plan

Road Network

Prepared for:

The Township of Bonnechere Valley
49 Bonnechere Street E
Eganville, ON K0J 1T0

Prepared by:

Phil Whelan, P. Eng.
McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road
Carp, ON
K0A 1L0

December 10th, 2013

Executive Summary

The Township of Bonnechere Valley's Road Network includes earth roads, gravel roads, surface treated and hot-mix paved roads, which generally experience low traffic volume. Presented in this report is a recommended 10-year capital program for the Township's road network, based on current spending levels, which is meant to be a tool for Municipal Staff and Council during decision making.

It is important to note that despite the municipality planning to spend more than \$6.12 million during the next 10 years, the road system condition will deteriorate without a greater financial commitment (Table 14). Not only is the current quality of the roads at stake, but the loss of the underlying gravel base in the pavement structure is also threatened by inadequate spending levels for road restoration and maintenance.

It is paramount to continue upgrading and rehabilitating roads. Timely rehabilitation is the most cost-efficient strategy for the municipality and its ratepayers. A proactive approach including condition assessment studies will provide meaningful management information for decision making.

Included in the plan are summaries of additional work needed to achieve optimum condition road ratings (Table 15), as well as considerations for funding sources. That being said, through regularly measuring the performance of its road system, the Municipality has the ability to better predict the deterioration rates of individual road segments and the overall network.

Funding opportunities, such as government grants, may be considered to offset the additional cost. However, the Township should also explore a variety of procurement methods to ensure the most economical allocation of the Municipality's resources.

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1.0 INTRODUCTION

The Township recognizes that in order to sustain services for its residents and for the competitiveness of its businesses, agriculture and industry, it must manage the Municipality's assets cost effectively. In 2004, the Township of Bonnechere Valley developed a Strategic Plan for the municipality. The purpose of the plan is to guide the Township into the future, providing a "road map" for employees, a reference document for taxpayers and community volunteers, and a decision-making template for Council.

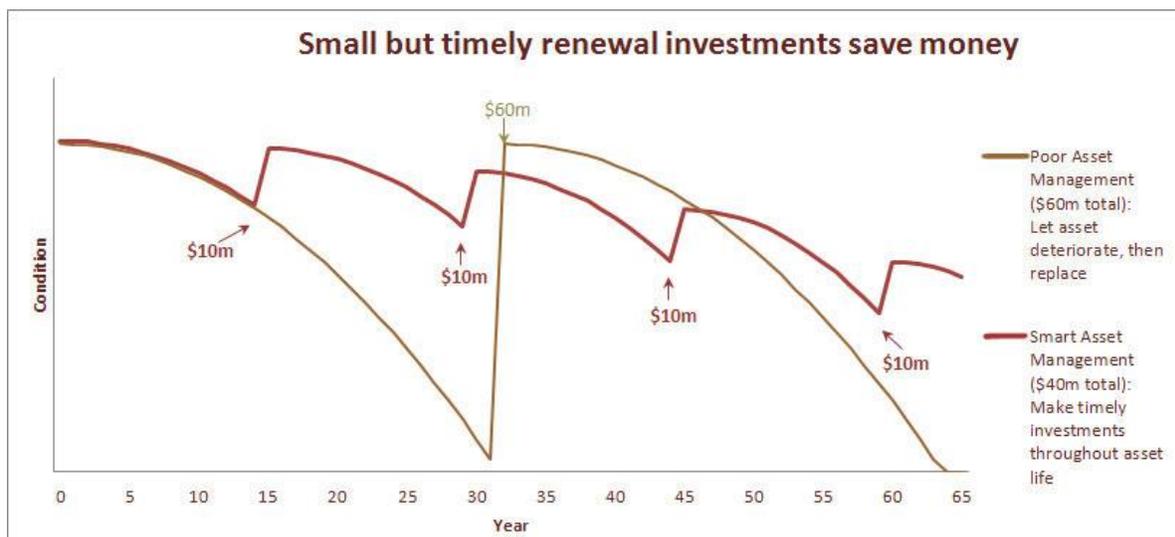
As a matter of policy, Bonnechere Valley Township provides services in areas where it clearly outperforms the private sector, and has exited from areas of business that are more effectively performed privately or through contracting out. All services offered (directly or contracted out) address necessary aspects of the everyday life of taxpayers, and are characterized by Council's responsibility for dependability, reliability, responsiveness and efficiency. The following are the core services and related activities from the Strategic Plan in which some of the bullet points have been underlined in bold to emphasize how much of the municipality's goals relate to infrastructure in order to better serve its rate payers:

- Planning and development,
- Fire protection,
- Police services and public safety (including School Crossing Guards),
- By-law enforcement,
- **Roads, parking and transportation,**
- **Parks, recreation and culture,**
- **Sidewalks, clean water and sewer services within the village of Eganville,**
- **Sidewalks, water and sewage to some new residential and commercial areas just beyond the 2004 village limits,**
- Support for clean water for all rural areas ,
- **Rural septage handled by an upgraded Village system capable of treating septage from throughout the Township,**
- **Waste management,**
- Secure funding / money management,
- Emergency preparedness,
- Development of a strong tax base, and
- Communication with the population served.

For this reason, the Municipality is developing Asset Management Plans for its road network, underground utilities and buildings, in which the focus of this plan is on the Road Network. Once the plans are developed for the various components of the infrastructure, the municipality will assimilate and synthesize the information into a comprehensive plan.

The asset management plan is a comprehensive document that inventories and assesses the Municipality’s infrastructure and develops a plan to best maintain the infrastructure. The plan outlines sustainability and provides strategies on how to finance the operation, maintenance, renewal and expansion of the system. The plan must take into account timely maintenance and capital repairs in order to best preserve the asset, while maintaining the desired levels of service to the public. The plan takes a long view perspective on managing the asset through life cycle cost analysis in which timely maintenance and rehabilitation can save money in the long term. For example, Figure 1 shows two ways to manage an asset. The first option is to allow the asset to deteriorate until it needs to be replaced, while the second option shows timely rehabilitation. At the end of the 64-year life cycle, Option 1 costs \$120 million (the initial investment plus the cost to replace the asset) and Option 2 costs \$100 million. Note that the asset’s condition in Option 2 is in far better shape than in Option 1.

FIGURE 1 – LIFE-CYCLE OF TWO RENEWAL OPTIONS



(Resource from “Building Together, Guide for Municipal Asset Management Plans”, Ministry of Infrastructure, Ontario)

McIntosh Perry Consulting Engineers Ltd. and Allan Chartered Accountants were commissioned by the Township to work with Senior Municipal Staff and Council to develop the Asset Management Plan for the Road Network. The Plan is to be presented at Council for public input. The Plan will also be made available to the public for its information and input. The asset management plan covers a period of ten (10) years in which the plan is to be updated every five (5) years. The update will be an opportunity to evaluate the assumptions made in this study and how the plan is maintaining and improving the road network as well as how it is meeting service-level targets.

1.1 STUDY METHODOLOGY

The Ministry of Transportation of Ontario “Inventory Manual for Municipal Roads for Small Lower Tier Municipalities” has been used in preparing this study and is briefly outlined in the sections below.

1. All road sections are listed with their condition rating by road type:
 - a. Earth Roads (Listed in inventory but not rated. Typically, these roads have little or no maintenance, only used seasonally.)
 - b. Gravel Roads
 - c. Surface Treated or Low Class Bituminous (LCB) Roads
 - d. Hot Mix Paved or High Class Bituminous (HCB) Roads
2. With the exception of Earth Roads, future condition ratings are calculated for each road and from this, predicted maintenance and capital expenditures can be produced. Newly reconstructed roads have a 10-point condition rating, and roads requiring partial reconstruction are assigned three points. Roads should not be allowed to go below three points due to the severity of the road conditions, e.g. very poor ride, difficult to maintain, usually a safety hazard.

Generally speaking, the Township roads have low traffic volumes, which are consistent throughout its road network. It has been assumed that asphalt roads will need to be resurfaced within 15 years and if not resurfaced, then reconstructed in 30 years. Note that roads cannot perpetually be resurfaced and at some point the roads must be reconstructed. It has been assumed that a surface treated road has a life expectancy of approximately 15 years before reconstruction is required.

The above noted life cycle assumptions should not have a great impact on the overall assessment of the road network, but some roads may experience slower or faster rates of deterioration. The capital program may need to be adjusted to account for this and other factors such as variations in pavement structure, sub-surface conditions, drainage, and truck traffic. e.g. A street scheduled for reconstruction in year five may have to be moved up in the five-year capital program and vice versa, a street scheduled for year three could be pushed back since its condition has not deteriorated as fast as earlier predicted.

Through regularly measuring the performance of its road system (e.g. Road Needs Study every five years, traffic counts, etc.), the Municipality will be able to better predict the deterioration rates of individual segments and therefore the overall network.

The condition rating for each road type will decrease every year unless maintenance and/or rehabilitation is performed. For gravel roads it is assumed that the condition of the road will be maintained with regular gravel resurfacing. Hard surface roads with no maintenance and/or no rehabilitation (which is not recommended) will need reconstruction within 15 years for surface treated roads and 30 years for asphalt roads. The following calculations show the rate of deterioration of the three surface types.

Gravel: No change in rating with regular maintenance.

Surface Treatment: $\frac{10 - 3 \text{ point condition rating}}{15 \text{ year life cycle before reconstructing}} = 0.47 \text{ pt/yr}$

Asphalt: $\frac{10 - 3 \text{ point conditions rating}}{30 \text{ year life cycle before reconstructing}} = 0.23 \text{ pt/yr}$

Based on the foregoing discussion, Table 1 provides an example of how the condition rating is forecasted for each surface type. In this example, it is assumed that road reconstruction was performed in the Base Year for each road type.

TABLE 1 – FORECASTING CONDITION RATING EXAMPLE

SURFACE TYPE	BASE YEAR	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
GRAVEL ¹	10.00	10.00	10.00	10.00	10.00	10.00
SURFACE TREATMENT	10.00	9.53	9.06	8.59	8.12	7.65
APHALT	10.00	9.77	9.54	9.31	9.08	8.85

¹Gravel Roads have a stable unchanging life expectancy, as long as routine loose top maintenance is performed. Gravel roads will remain this way until improvements are made.

- The average condition rating is determined for each road type by summing the product of length multiplied by the condition rating and then dividing by the total length of the road system. This will result in an average condition rating for the three road surface types. An example is demonstrated in Table 2, below.

TABLE 2 – AVERAGE CONDITION RATING BY SURFACE TYPE EXAMPLE

STREET	LENGTH (L) (Km)	CONDITION RATING (CR)	PRODUCT L x CR
1	1.00	7.00	7.00
2	2.00	3.00	6.00
3	3.00	5.00	15.00
TOTAL	6.00		28.00

$$\text{Where: Average Condition Rating} = \frac{\text{SUM (L} \times \text{CR)}}{\text{Total Length}} = \frac{28.00}{6.00} = 4.70$$

An overall condition rating can be calculated for the total Municipal system by combining the three surface types.

- The above noted analysis will determine if and when a road requires improvements within the next 10 years.
- To estimate the cost of construction, benchmark costs are used and are associated with the type of capital improvement. Average unit costs have been developed based on local construction costs.

Fixed costs are costs associated with maintenance of the existing road system and include overhead, salaries, etc. Fixed costs are generally met from the Township's budget prior to capital construction funds being allocated. Fixed costs for forecast requirements were derived from historical expenditures.

For future capital expenditures, the report presents cost estimates in 2013 dollars. At the time of budgeting, the Municipality should adjust capital expenditure by an appropriate cost of inflation.

- The 10-year capital program presented in this report is a tool for Municipal Staff and Council in selecting the 10-year program. As mentioned above, there may be other factors that must be considered and/or adjusted in order to reflect changes not foreseen at the time of writing this report.

1.2 BENCHMARK COSTING

The estimated cost for identified improvements is calculated on an approximate basis, using average unit prices. Refer to Table 3 below.

TABLE 3– UNIT PRICES

ITEM	UNIT	UNIT PRICE
Earth Excavation, Grading	cu.m.	\$ 12.00
Earth Excavation, Ditching	m	\$ 18.00
Road Widening per Shoulder	m	\$ 32.00
Removal – Pulverize	sq.m.	\$ 1.25
Removal – Asphalt	sq.m.	\$ 5.00
Removal – Mill Wear Course	sq.m.	\$ 5.00
Removal – Concrete Curb	m	\$ 7.00
Removal – Concrete Sidewalk	sq.m.	\$ 20.00
Remove and Replace 16m x 600mm Diameter CSP	each	\$ 6,000.00
Granular A	tonne	\$ 15.00
Granular B	tonne	\$ 14.00
Single Surface Treatment (SST)	sq.m.	\$ 3.50
Double Surface Treatment (DST)	sq.m.	\$ 7.00
Asphalt – Wear Course	tonne	\$ 140.00
Asphalt – Base Course	tonne	\$ 140.00
Rout & Seal	m	\$ 2.50
Rejuvenating Oil	sq.m.	\$ 1.50
Microfil	m	\$ 10.00
Micro-Surfacing	m	\$ 5.00
Ultrathin Resurfacing (scratch coat & surface coat)	m	\$ 6.50
Thin Overlays	sq.m.	\$ 11.00
Dense Graded Cold Mix	sq.m.	\$ 13.00
RAP Cold Mix	sq.m.	\$ 7.00
Tack Coat	sq.m.	\$ 1.25
Iron Adjustment	each	\$ 600.00
Concrete Sidewalk	sq.m.	\$ 100.00
Concrete Barrier Curb	m	\$ 90.00
Topsoil & Sod	sq.m.	\$ 17.50
Topsoil & Seed	sq.m.	\$ 6.00

Typical types of reconstruction for hard surfaced roads (resurfacing, partial reconstruction and full depth reconstruction) are presented in Tables 4 to 7 on the following pages. Full depth reconstruction includes an allowance for geotechnical investigation and testing as well as for engineering design and construction

supervision. In some instances, the Municipality may also use a professional engineer for resurfacing and/or partial reconstruction due to the complexity of the project and/or workload. Prices are in 2013 dollars and adjustments should be made for inflation each budget year. HST is extra.

TABLE 4 – LOW COST BITUMINOUS (LCB) - RURAL (R)

CODE	DESCRIPTION	UNIT PRICE (PER KM)
LCB-R1	Resurfacing	\$ 23,000
	Single surface treatment 6.0m wide	
LCB-R2	Partial Depth Reconstruction	\$ 126,000
	Pulverize or scarify, 50-150mm G.A., double surface treatment, 10% spot drainage improvements, culvert replacement & 10% contingency	
LCB-R3	Full Depth Reconstruction	\$ 448,000
	Earth exc., 150mm G.A., 300mm G.B., DST, culvert replacement, engineering, geotechnical and 10% contingency	

TABLE 5 – HIGH COST BITUMINOUS (HCB) - RURAL (R)

CODE	DESCRIPTION	UNIT PRICE (PER KM)
HCB-R1	Resurfacing	\$ 95,000
	40mm lift of HL3 asphalt by 6.0m and 10% contingency	
HCB-R2	Partial Depth Reconstruction	\$ 193,000
	Pulverize, 50-150mm G.A., 50mm lift of HL4 asp, shouldering, 10% spot drainage improvements, culvert replacement & 10% contingency	
HCB-R3	Full Depth Reconstruction	\$ 569,000
	Remove asphalt, earth exc., 150mm G.A., 300mm G.B., 50mm Lift of HL4 asphalt, shouldering, culvert replacement, engineering, geotechnical and 10% contingency	

TABLE 6 – HIGH COST BITUMINOUS (HCB) - SEMI-URBAN ROADS (S)

CODE	DESCRIPTION	UNIT PRICE (PER KM)
HCB-S1	Resurfacing	\$ 124,000
	40mm lift of HL3 asphalt by 6.0m wide, adjust iron, asphalt keys, tie-in driveways and 10% contingency	
HCB-S2	Partial Depth Reconstruction	\$ 267,000
	Remove asphalt, earth exc., 150mm G.A., 50mm lift of HL4 asphalt, shouldering, adjust iron, tie-in driveways, road culvert replacement, 10% spot drainage and 10% contingency	
HCB-S3	Full Depth Reconstruction	\$ 880,000
	Remove asphalt, earth exc., 150mm G.A., 300mm G.B., 50mm HL4 asp, shouldering, adjust iron, tie-in driveways, road & driveway culvert replacement, drainage, engineering, geotechnical & 10% contingency	

TABLE 7 – HIGH COST BITUMINOUS (HCB) - SEMI-URBAN ROADS (U)

CODE	DESCRIPTION	UNIT PRICE (PER KM)
HCB-U1	Resurfacing	\$ 197,000
	40mm Lift of HL3 asphalt by 6.5m wide, adjust iron, milling and 10% contingency	
HCB-U2	Partial Depth Reconstruction	\$ 441,000
	Remove asphalt, 10% curb and sidewalk repairs, earth exc., 150mm G.A., 40mm lift of HL3 and 40mm lift of HL4 asphalt, adjust iron and 10% contingency	
HCB-U3	Full Depth Reconstruction	\$ 1,231,000
	Remove asphalt, curbs and sidewalk, earth exc., 150mm G.A., 300mm G.B., 2 lifts of asphalt, adjust iron, curbs, sidewalk, tie-in driveways and lawns, geotechnical, engineering and 10% contingency	

2.0 DESIRED LEVELS OF SERVICE

The desired levels of service for maintenance are based on Ontario Regulation 239/02, Minimum Maintenance Standards for Municipal Highways. The Regulations classifies roads from 1 to 6 based on the volume of traffic and the posted or statutory speed limit. The standards outline the minimum maintenance standards for the following activities:

1. Patrolling,
2. Plowing, salting, and/or applying abrasive materials to the roadway for snow accumulation,
3. Salting and/or applying abrasive materials to icy roads and ice formation prevention,
4. Pothole repairs,
5. Shoulder drop repairs,
6. Crack repairs,
7. Debris removal,
8. Maintaining illumination,
9. Maintaining traffic control signals,
10. Repairing bridge spalls,
11. Sign replacement and repairs, and
12. Road and sidewalk surface discontinuities.

The desired level of service for maintaining the road system is based on the optimum life cycle of the road structure, i.e. the reconstruction strategy presented in Table 12, Section 4.3.1. Over the life cycle for the surface type the average condition rating for each surface type is as follows:

<u>Surface Type</u>	<u>Average Condition Rating</u>
Gravel	6.00
Surface Treatment	6.45
Asphalt	6.84

Section 3.0 presents the state of the local infrastructure and Section 4.0 sets out the strategy to maintain the infrastructure. The measure for the desired level of service for the road system will be based on the optimum average condition rating by surface type, which can be measured against the existing inventory of the road system. Section 5.0 will discuss the current gap in spending infrastructure and strategies on how to address the spending shortfall.

3.0 STATE OF LOCAL INFRASTRUCTURE

This section summarizes (1) the asset types (Gravel, Surface Treatment and Asphalt) and environment (Rural, Semi-Urban and Urban); (2) financial accounting valuation and replacement cost valuation; (3) asset age distribution in proportion to useful life; and (4) asset condition.

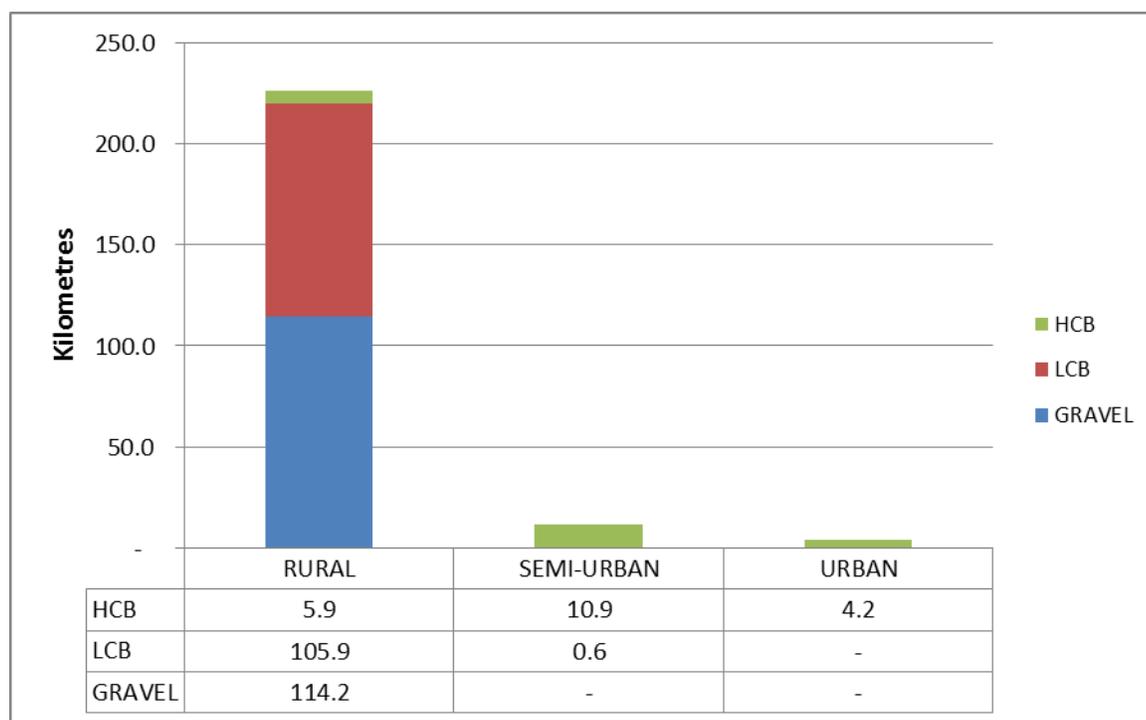
3.1 ASSET TYPES

Map 1 presents the roads by surface type, in which there is approximately a 50/50 split between hard surface and gravel roads. See Table 8 for the lengths for Gravel Roads (Year Round), Low Class Bituminous (LCB or surface treatment) and High Class Bituminous (HCB or asphalt). Earth roads (totalling 37.7km) are excluded from the rating of the roads. Figure 2 presents the length of surface type in each environment.

TABLE 8 - ROAD LENGTHS

SURFACE TYPE	LENGTH (KM)	LENGTH (%)
GRAVEL	114.2	47%
LCB	106.5	44%
HCB	21.0	9%
TOTAL	241.7	100%

FIGURE 2 – ROAD NETWORK BY ENVIRONMENT AND SURFACE TYPE



3.2 FINANCIAL ACCOUNTING AND REPLACEMENT COST VALUATION

The replacement value of the road infrastructure is \$110 million, which is in 2013 dollars and meets current standards. For example, a rural road with a current platform width of 6.0m would now be constructed to current standards of 8.0m. Table 9 presents the replacement value by asset type and environment. Appendix A shows the inventory for each road segment including the replacement value. The net book value of the road assets is \$17.5 million and is presented in Appendix B. The net book value is the original price of the asset less depreciation.

TABLE 9 - ASSET REPLACEMENT COST VALUATION (\$1,000,000s)

SURFACE TYPE	RURAL	SEMI-URBAN	URBAN	TOTAL
GRAVEL	\$ 44.5	\$ -	\$ -	\$ 44.5
LCB	\$ 47.4	\$ 0.3	\$ -	\$ 47.7
HCB	\$ 3.4	\$ 9.6	\$ 5.2	\$ 18.1
TOTAL	\$ 95.3	\$ 9.9	\$ 5.2	\$ 110.4

3.3 ASSET AGE AND REMAINING LIFE

The age distribution for gravel, surface treatment (LCB) and asphalt (HCB) roads is presented in Figures 3 to 5. The average remaining life of each asset type is presented in Table 10.

FIGURE 3 - AGE DISTRIBUTION - GRAVEL ROADS

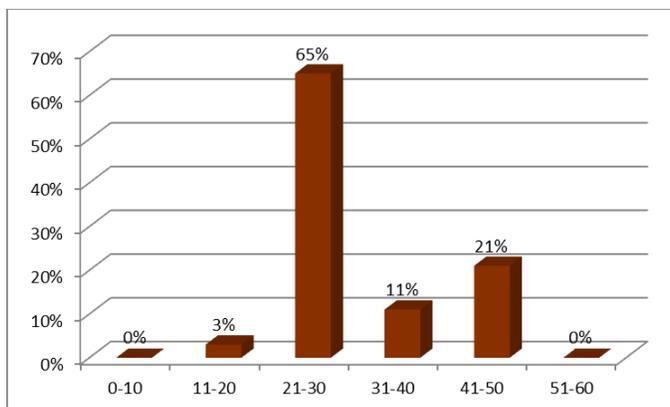


FIGURE 4 - AGE DISTRIBUTION - SURFACE TREATED ROADS (LCB)

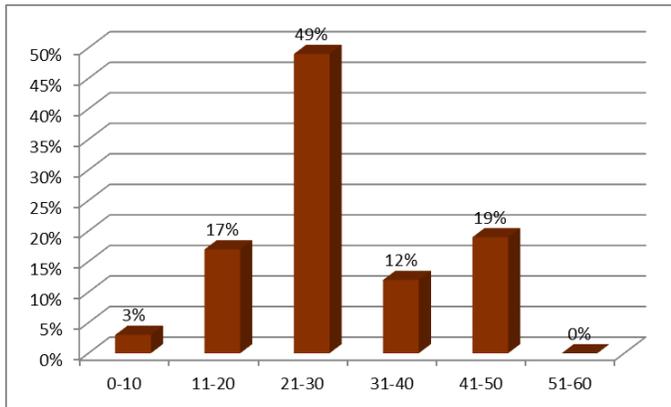


FIGURE 5 - AGE DISTRIBUTION - ASPHALT ROADS (HCB)

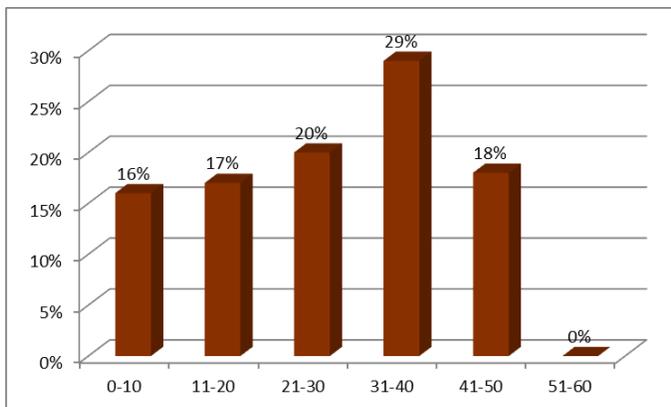


TABLE 10 - AVERAGE REMAINING LIFE BY ROAD TYPE (YEARS)

GRAVEL	SURFACE TREATMENT	ASPHALT
28	31	24

3.4 ASSET CONDITION RATING

The condition of each road has been categorized as “Very Poor”, “Poor”, “Fair”, “Good” and “Excellent” based on the condition rating assigned for the road segment. See Table 11 for the rating system.

TABLE 11 – CONDITON RATING

VERY POOR	POOR	FAIR	GOOD	EXCELLENT
1 - 2	3 - 4	5 - 6	7 - 8	9 - 10

Figures 6, 7 and 8 present the condition of each road type. The overall average structural condition of Bonnechere Valley’s road system is fair based on an overall rating of 6.29. Map 2 shows the now deficient roads, i.e. roads with a condition rating of less than 5.0 in 2013.

FIGURE 6 - CONDITION RATING DISTRIBUTION - GRAVEL ROAD

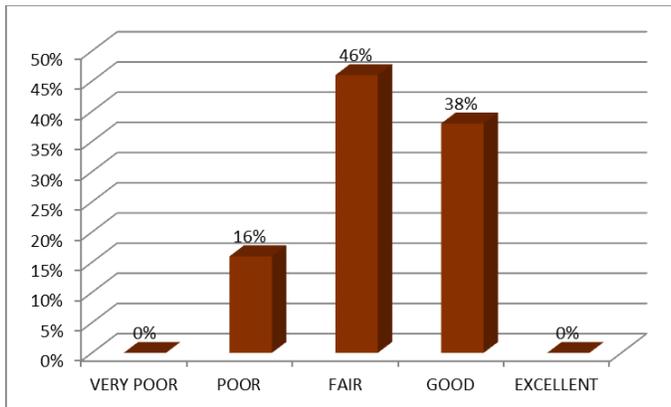


FIGURE 7 - CONDITION RATING DISTRIBUTION - SURFACE TREATED ROADS (LCB)

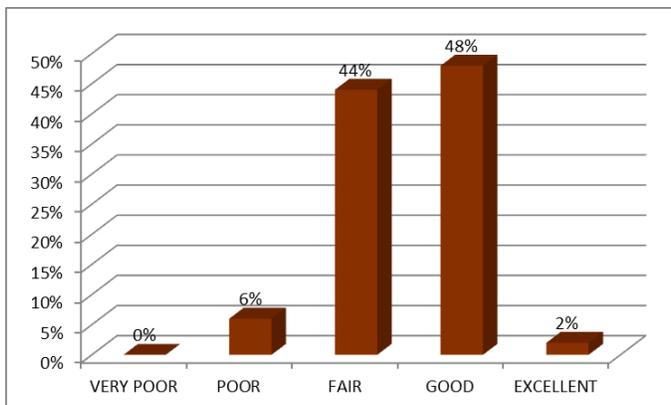
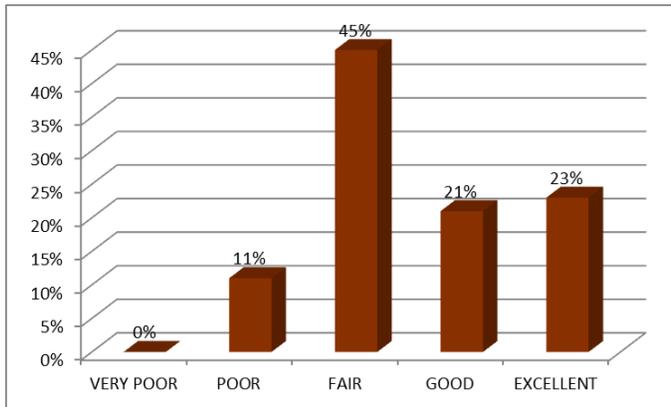


FIGURE 8 - CONDITION RATING DISTRIBUTION - ASPHALT ROADS (HCB)



4.0 ASSET MANAGEMENT STRATEGY

This section identifies the asset management strategies planned to sustain the assets at the desired level of service, including:

1. Non-infrastructure solutions,
2. Maintenance activities,
3. Renewal and reconstruction activities,
4. Disposal activities,
5. Expansion activities,
6. Procurement methods, and
7. Risks.

4.1 NON-INFRASTRUCTURE SOLUTIONS

The Official Plan guides public administrators and private interests towards the most desirable form of development under the anticipated conditions. The Plan was established in order to set the overall goals, objectives and policies consistent with the future development needs, and to promote “*Smart Growth*”. The municipality recognizes that growth is beneficial when it is well managed, as it generates employment and a stronger tax base. The municipality recognizes the interdependence between a healthy environment, healthy communities, and a strong economy. To foster a healthy environment, healthy communities, and a strong economy, the official plan identifies a number of goals and objectives, in which upgrading and replacing the road infrastructure is a priority. For the sustainability of the infrastructure, the Official Plan, Rural Policy 5.3 (2) (b) states:

- (b) residential development should not be located on lands which would involve major public expense in opening up and/or maintaining access routes, providing drainage or providing other public services and facilities, unless such major public services, access, or facilities are provided at the developer's expense.

4.2 MAINTENANCE ACTIVITIES

The 2007 Road Management Study identified inadequate spending levels for gravel resurfacing. Spending has since been increased in order to maintain the structural integrity of the gravel roads and thus avoid road failure and ballooning costs to reconstruct the gravel roads. The program is being monitored and will be adjusted if required.

It is recommended that the municipality review its policy for maintaining its asphalt roads in order to better preserve the asphalt pavement structure, and thus maintain the road at higher service levels and reduce costs in the long run. The two low cost maintenance strategies that McIntosh Perry would recommend for immediate implementation are: (1) Rout and Seal and (2) Rejuvenating Oil, which are further described in the following sections.

4.2.1 Rout and Seal



Description:

Rout and seal involves routing of cracks to a standardized size, cleaning and heating of routed cracks with a lance, followed by hot poured rubberized asphalt including squeegee. By keeping the water out, it prohibits freeze/thaw reactions in winter, and guards against reduced strength due to water infiltration at other times, thus retarding the development of alligator cracks.

Life Extension: 3+ years

When to use:

Routing and sealing is typically use in earlier portion of a pavement's life cycle, with cracks less than 12mm in width and with less than 1,500 linear metres of cracks per kilometre of pavement. Not normally used in single lift pavements over granular as it can promote full depth cracking where routed.

Cost: \$1.50 – \$2.50 per lineal metre.

4.2.2 *Rejuvenating Oil*

**Description:**

Rejuvenating oil penetrates an asphalt surface and restores the maltene to asphalt ratio. Following application and prior to traffic, a layer of manufactured sand is applied to provide temporary friction. This is subsequently swept up and reused.

Life Extension: 3+ years

When to use:

Typically around the seven to 10 year mark of a pavement's life cycle.

Cost: Approximately \$1.50 per square metre.

4.3 RENEWAL AND RECONSTRUCTION ACTIVITIES

4.3.1 Renewal and Reconstruction Strategy

The renewal and reconstruction strategy for preserving the road structure is presented in Table 12.

TABLE 12 – RENEWAL AND RECONSTRUCTION STRATEGY

SURFACE TYPE	ENVIRONMENT	LIFE-CYCLE YEAR	STRATEGY	AVERAGE CONDITION RATING
GRAVEL	RURAL	N/A	Maintain through regular gravel resurfacing	6.00
LCB (Surface Treatment)	RURAL	0	Construction of Asset	6.45
		8	Single Surface Treatment Overlay	
		19	Partial Depth Reconstruction	
		25	Single Surface Treatment Overlay	
		36	Partial Depth Reconstruction	
		42	Single Surface Treatment Overlay	
HCB (Asphalt)	RURAL SEMI-URBAN URBAN	55	Full-Depth Reconstruction	6.84
		0	Construction of Asset	
		17	Asphalt Overlay	
		43	Partial Depth Reconstruction	
		56	Asphalt Overlay	
		82	Partial Depth Reconstruction	
	100	Full-Depth Reconstruction		

Based on the above-noted strategy the life cycle for each road type and environment has been developed and is presented in Appendix C. Table 13 summarizes the average condition rating over the life of the asset and the yearly life-cycle cost for each road type.

TABLE 13 - LIFE CYCLE CONDITION RATING AND COST

TYPE	ENVIRONMENT	AVERAGE CONDITION RATING OVER ASSET LIFE	LIFE CYCLE COST PER YEAR
SURFACE TREATMENT	RURAL	6.45	\$ 13,982
ASPHALT	RURAL	6.84	\$ 11,450
	SEMI-URBAN		\$ 18,360
	URBAN		\$ 25,070

In developing the priority of road improvements, the first consideration for the available funds is for preserving the road system. Improvements to preserve the surface will be timed in order to provide the best value for maintaining the asset. Where the road has deteriorated to the point that only major and costly improvements will restore the structural strength of the road, improvements will be timed in order to take full advantage of the remaining life of the infrastructure, but not to the extent where the road falls below Minimum Maintenance Standards.

The second major component in the decision matrix is the Average Annual Daily Traffic (AADT) which provides an indication on the number of users of the road network. Priority is given to roads with higher AADT. As an example, if one street is a dead end and one street is a minor collector, and both cost the same per kilometre to reconstruct the minor collector would be selected over the dead end since it serves more commuters.

Other factors that may have to be considered are safety, truck traffic, development, economic, social, and timely scheduling of construction to coincide with other infrastructure works (e.g. sewers, watermain, etc).

Section 4.3.2 presents a 10-year plan based on current spending levels and analyzes the adequacy of the current spending levels. Section 4.3.3 presents the optimum spending levels in order to maintain the condition of roads at optimum level of service based on the reconstruction strategy presented in Table 12.

4.3.2 Ten Year Plan Based on Current Spending Levels

The recommended 10-year plan based on current spending levels of \$610,000/year is presented in Table 14 and is shown in Map 3. The “Type of Construction” codes are presented in Tables 4 to 7. It is recommended that the work be co-ordinated with sewer and water projects prior to reconstruction of urban roads.

TABLE 14 - TEN YEAR CAPITAL PLAN FOR ROAD RECONSTRUCTION (\$1,000s)

No.	STREET NAME	KM	TYPE OF CONSTRUCTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
017	Jane Street	0.30	HCB-S2 + Widening	\$ 238.2									
018	Jane Street	0.40	HCB-S2 + Widening	\$ 317.6									
019	Jane Street	0.10	HCB-S2 + Widening	\$ 79.4									
179	Bonnechere Street West	0.90	HCB-U - Pulverize + Two Lifts of Asp		\$ 363.6								
164	McGrath Road	6.80	LCB-R2 - 4.2 km (2016), 2.6 km (2017)			\$ 529.2	\$ 327.6						
165	Trebbien Road	0.70	LCB-R1			\$ 16.1							
168	McGrath Road	5.30	LCB-R2 - 1.6 km (2017), 3.7 km (2018)				\$ 201.6	\$ 466.2					
024	Grist Mill Road	0.20	LCB-R2 + Widening						\$ 38.0				
025	Grist Mill Road	0.60	LCB-R2 + Widening						\$ 114.0				
106	Silver Lake Road	0.60	LCB-R1						\$ 13.8				
113A	Silver Lake Road	2.60	LCB-R1 + PAD						\$ 124.8				
180	Bridge Street	1.10	HCB-U1						\$ 216.7				
095	Sand Road	4.80	LCB-R1							\$ 110.4			
104	Silver Lake Road	1.80	LCB-R1						\$ 41.4				
105	Silver Lake Road	2.00	LCB-R2 + Widening						\$ 380.0				
020	Hartwig Street	0.20	HCB-S2								\$ 53.4		
021	Hartwig Street	0.30	HCB-S1								\$ 37.2		
149A	Dunnigan Road	0.30	LCB-R2 + Widening								\$ 57.0		
150	Dunnigan Road	0.60	LCB-R1 + PAD								\$ 28.8		
162	Wieland Shore Road	4.00	LCB-R1 (3.5km), LCB-R2 (0.5km)								\$ 143.5		
146	French's Road	0.30	LCB-R1 + PAD								\$ 14.4		
151	Lake Clear Road	0.80	LCB-R1 + PAD								\$ 38.4		
152	Lake Clear Road	3.20	LCB-R1 + PAD								\$ 153.6		
039	Wellington Street	0.30	HCB-S3									\$ 264.0	
040	Wellington Street	0.70	HCB-S3 - 0.1 km (2022), 0.6 km (2023)									\$ 88.0	\$ 528.0
134A	Cormac Road	2.10	LCB-R1									\$ 48.3	
134B	Cormac Road	4.90	LCB-R1									\$ 112.7	
139	Janet Road	0.10	HCB-S2									\$ 26.7	
Total Pavement Preservation and Reconstruction				\$ 635.2	\$ 363.6	\$ 545.3	\$ 529.2	\$ 466.2	\$ 507.3	\$ 531.8	\$ 526.3	\$ 539.7	\$ 528.0
Gravel Resurface				\$ 80.0	\$ 80.0	\$ 80.0	\$ 80.0	\$ 80.0	\$ 80.0	\$ 80.0	\$ 80.0	\$ 80.0	\$ 80.0
Gravel Stock Piling					\$ 50.0				\$ 50.0				
Asset Management Plan Update								\$ 25.0					\$ 25.0
Total				\$ 715.2	\$ 493.6	\$ 625.3	\$ 609.2	\$ 571.2	\$ 637.3	\$ 611.8	\$ 606.3	\$ 619.7	\$ 633.0

Despite the municipality planning to spend over \$6.12 million over the next 10 years, the road system will deteriorate from an overall average condition rating of 6.29 to 4.75. Full analysis is contained in Appendix D.

4.3.3 Optimum Program

Timely rehabilitation reduces spending in the long run and is the most cost beneficial strategy for the municipality and rate payers. In order to maintain the road network at this level, sufficient spending is necessary. Table 15 presents the additional spending required over the next 10 years.

TABLE 15 – SUMMARY OF ADDITIONAL WORK OVER TEN (10) YEARS IN ORDER TO ACHIEVE OPTIMUM CONDITION RATING (\$1000s)

CODE	DESCRIPTION	LENGTH (KM)	COST
SURFACE TREATMENT OR LOW COST BITUMINOUS (LCB)			
LCB-R1	Resurfacing	53.50	\$ 1,317.90
LCB-R2	Partial Depth Reconstruction	37.30	\$ 4,699.80
LCB-R3	Full Depth Reconstruction	5.10	\$ 2,284.80
ASPHALT OR HIGH COST BITUMINOUS (HCB) - RURAL ROADS			
HCB-R1	Resurfacing	1.70	\$ 161.50
HCB-R2	Partial Depth Reconstruction	3.00	\$ 579.00
ASPHALT OR HIGH COST BITUMINOUS (HCB) - SEMI-URBAN ROADS			
HCB-S1	Resurfacing	1.90	\$ 235.60
HCB-S2	Partial Depth Reconstruction	2.80	\$ 697.20
ASPHALT OR HIGH COST BITUMINOUS (HCB) - URBAN ROADS			
HCB-U1	Resurfacing	0.20	\$ 39.40
HCB-U2	Partial Depth Reconstruction	0.30	\$ 132.30
TOTAL		105.80	\$ 10,147.50

Based on the foregoing, the municipality will need to more than double its current spending level on roads. As additional spending becomes available, more of the roads in need of improvements may be addressed. The backlog of needs is presented in Appendix E.

4.4 DISPOSAL ACTIVITIES

The Municipal Act provides the mechanism to close a road. The municipality identified Magnetic Hill Road for closure since it was no longer required for access to adjacent properties. No other roads have been identified for closure at the time of writing this report.

4.5 EXPANSION ACTIVITIES

The Official Plan sets the policy for the planned expansion activities. For further discussion please refer to Section 4.1.

4.6 PROCUREMENT METHODS

It is important to consider a variety of procurement methods to ensure the most cost effective allocation of The Township's resources. Some examples include working with other municipalities to combine resources for cost savings, or the consideration of the Alternate Financing and Procurement (AFP) model for major projects. Although the Township has participated in joint tenders with other municipalities in the past, the general consensus is that it is more cost effective to be the sole tenderer on most construction projects due to various geographic challenges, such as the location of gravel pits in comparison to the location of construction. Unless projects are very close in proximity, the cost to procure materials and/or services for the construction and maintenance of the road network is generally lower for the Township when it obtains them on its own. The procurement policy for the Township can be found in its entirety under By-Law No. 2005-13.

4.7 RISKS

The biggest risk to the municipality is inadequate spending levels as demonstrated in Section 4.3.2. The consequences of underfunding are the deterioration of the road system and loss of the underlying gravel base in the pavement structure. The consequences are escalating to repair and maintain costs. It is recommended that the following actions be taken to help mitigate some of the spending shortfall:

1. Adopt Ten Year Capital Plan for Road Reconstruction as presented in Table 14,
2. Complete additional work as presented in Table 15 as additional funds become available, and
3. Increase maintenance spending for low cost maintenance strategies and pavement preservation as presented in Section 4.2.

5.0 FINANCING STRATEGY

5.1 ECONOMIC ENVIRONMENT

Historically, road infrastructure has been funded from taxation and government grants. Increased obligations for services, such as policing, have stretched the demands for the tax dollar. The municipal tax levy has increased from \$2.159 million in 2009 to \$2.798 million in 2013. This represents an increase of 30% over a four year period. For the same period households have increased from 2342 to 2415, an increase of 3%.

In 2013 property taxes on an average household (assessment 167,000) are \$2,200. The property taxes include the levy for the Township, County of Renfrew and school boards. Statistics Canada 2011 census indicates more than 31% of the population in the Township are over 60 years old, generally considered the retired population. The residents between the ages of 55 to 59 comprise an additional 10% of the population. The Township has an aging population with a trend to fixed annual income. A comparison to the 2006 census indicates a comparable age profile.

The 2006 Statistics Canada community profile indicates a median income (after income tax) of \$49,918 compared to the Ontario median income of \$59,377. Estimating a cost of living factor for the period would have property taxes as 3.8% of median household income.

Affordability of tax increases is a concern in the Township of Bonnechere Valley.

In recent years, a sustainable source of infrastructure funding has been the Federal Gas Tax Grant. The funding has allowed the continual improvement of the road infrastructure. The Federal government has committed to the continuation of the funding, however the annual amount is expected to decrease as it is tied to population growth and Ontario will be receiving a lower proportion of funds. As the funding levels have not been released, the financing projections have maintained the gas funding at the existing level.

5.2 REGULATORY ENVIRONMENT & FINANCIAL FLEXIBILITY

The Province has established core services for which municipalities are responsible, as well as regulatory requirements for service standards. The costs of downloaded responsibilities comprise a significant proportion of the Municipal budget. Three significant areas are policing, roads as well as water and sewer.

Policing services are a Municipal responsibility, as are the minimum standards of levels of service. The original download included a Provincial funding format that protected the Municipal tax base. However, with the reduction in the Ontario Municipal Partnership Fund (OMPF) and the increasing costs of the contracted service, the net impact over three years is \$337,000 or 12% of the 2013 levy. The ability to reduce the level of service is limited and thereby reduces the financial flexibility available to the Township.

For roads, the Province establishes Minimum Maintenance Standards. The Township has regularly undertaken Roads Needs Studies as a “best practices” approach. The major benefits of a Roads Needs Study include:

Systematic Approach

- Roads prioritized based on needs
- Limited resources allocated to cost-effective projects
- Council can justify why a road was or was not selected for improvements

Long Term Strategy

- Tax dollars will be spent strategically
- Government grant availability may be optimized
- Ten year plan spans between terms of Council

Benchmark

- Ability to project future adequacy of the road system
- Comparability to other municipalities
- Justification for tax increase and/or shifting priorities to address spending shortfalls

Clearly, this plan is the foundation step for moving forward with forecasts for the replacement and rehabilitation activities associated with road infrastructure in the Township.

5.3 FINANCIAL PLAN

The financial models presented in Appendix F explore a long range plan for maintaining the most cost effective approach for delivering services at acceptable levels, assuming the lowest risk possible. A proactive approach including condition assessment studies will provide meaningful management information for decision making. In this manner, repair and replacement work can be assessed and completed on a timely basis to avoid the possibility of system failure.

Table 17 sets out the capital expenditures over a 10-year period. The information is based on capital expenditures included in Table 14 (Ten Year Capital Plan for Road Reconstruction) and Table 15 (Summary of Additional Work Over Ten Years in Order to Achieve Optimum Condition Rating). Table 16, the Financial Plan, includes the capital expenditures identified in Table 17 and the funding sources available. Funding sources include funds from reserves, proceeds of long term debt and government grants. As long term debt creates an obligation on future revenues, the repayment of long term debt is considered a commitment of future resources. The annual funding shortfall is calculated as the difference between required expenditures and the available sources of funding.

The continuity of reserves included in Table 16 is included to add clarification to funding sources available. The financial plan includes funds allocated for capital projects to accumulate within the reserve. As funds are required for capital expenditures and debt repayment they are withdrawn from the reserve.

5.3.1 Assumptions

The assumptions, both general and specific, for the financial models are included in the following table:

TABLE 16 – FINANCIAL MODEL ASSUMPTIONS

RISK FACTORS	CONSIDERATIONS
Interest Rate	Debt repayment on existing debt is based on the fixed rate associated with the debt. Annual updates to this plan, which is a “living” document, would include a review of the borrowing rates. Interest on reserves has been calculated at 2% (prime less 1%).
Inflation	No inflation factor has been included in the model for Years 2014-2015 as costs are broad estimates and could be incurred within as short a time frame as 2 years. For midrange expenditures (3-10 year period) inflation has been estimated at 2% per year based on simple interest. The risk for inflation estimates increases in longer term projections.
Discounting to Present Value	The future value of replacement costs are calculated at 2% compounding inflation rate. The risk in the inflation estimate is the potential for increased service standards and the inflation indices for construction outpacing standard inflation. To determine the present value investment of funds required interest rates are estimated at 2%.
Allocation to Reserves	The annual allocation to reserves is based on an estimate of historical spending. Annual increases are an estimate of inflation and growth. Interest income is allocated to reserves based on the opening reserve balance.
Capitilization Threshold	Generally, preventative maintenance activities are not considered capital and are not included in the long term capital plan. However, due to the traditional inclusion of gravel as a capital expenditure it is included in the capital plan.
Disposals	Disposals do not provide for any significant source of funding as the equipment would be obsolete at the time of replacement. The costs to remove infrastructure are included in the reconstruction costs.

5.4 FUNDING REQUIREMENTS

The current spending on road infrastructure will result in a decline in the overall average road condition rating 6.29 (fair) to 4.75 (poor). The Township has committed a regular investment towards preventative maintenance as set out in the historical costs in Table 18. In addition, short term expenditures include condition assessment studies. As the intent of the asset management plan is to be a “living” document, the results of the inspection and assessment reports could impact the annual review.

5.5 SOURCES OF FUNDING

5.5.1 *Taxation*

To maintain the road rating at an optimum rating would create an annual funding shortfall of approximately \$1 million per year. A 1% tax rate increase raises \$27,000. To fund the shortfall with taxation does not represent a tax increase that is socially acceptable, nor is it affordable for ratepayers.

5.5.2 *Development Charges*

The Township may consider the implementation of development charges which are intended to fund infrastructure related to new growth. Funds collected may be restricted in replacing current infrastructure. Given the historical growth rate of approximately 1% for residential development it is not likely that such charges would provide a significant source of funding.

5.5.3 *Government Grants*

The costs to maintain the road system cannot be sustained solely on taxation. The institution of the Federal Gas Tax Funding has provided the Township with a sustainable source of infrastructure fund. The Township will need to rely on government infrastructure funding to maintain the road system. The financial model illustrates the potential shortfall and the necessity for the prioritization of projects to optimize infrastructure funding as it becomes available.

It is imperative the Township be ready to move forward with specific detailed project requirements in order to satisfy the terms and conditions of possible funding opportunities.

This asset management plan is a foundation block for the implementation of an ongoing strategy to address emerging municipal infrastructure needs. Productive discussion regarding permanent funding solutions will be enhanced by the continued review and updating of the current model.

APPENDIX A

ASSET INVENTORY AND REPLACEMENT COST VALUATION

TABLE A.1 – ASSET INVENTORY AND REPLACEMENT COST VALUATION – GRAVEL – RURAL

No.	STREET	FROM	TO	Km	BOUND RD.	ENVIR	TYPE	PLAT. WIDTH	SURF WIDTH	R.O.W. WIDTH	SCHOOL BUS ROUTE	TRAFFIC RANGE	CONDIT'N RATING IN 2013	REPLACEMENT COST VALUATION
045	Bochert Road	Fourth Chute Road	Dead End	0.90	NO	R	G	7.7	6.7	20.0	NO	0-49	7.00	\$ 351,000
047	Aubrey Road	Fourth Chute Road	Dead End	0.60	NO	R	G	4.2	3.2	20.0	NO	0-49	4.00	\$ 234,000
052	McMaster Road	Scotch Bush Road	Dead End	1.10	NO	R	G	6.0	5.0	20.0	NO	0-49	7.00	\$ 429,000
053	Hussey Road	Scotch Bush Road	Dead End	0.50	NO	R	G	6.0	5.0	20.0	NO	0-49	7.00	\$ 195,000
054	Harry Dick Road	Scotch Bush Road	Dead End	0.80	NO	R	G	6.0	5.0	20.0	NO	0-49	7.00	\$ 312,000
056	Sutherland Road	Scotch Bush Road	Dead End	0.50	NO	R	G	7.8	6.8	20.0	NO	0-49	7.00	\$ 195,000
058	Ken Dick Road	Scotch Bush Road	1.7km East	1.70	NO	R	G	6.2	5.2	20.0	YES	0-49	6.00	\$ 663,000
062	Watson Road	Scotch Bush Road	Dead End	2.10	NO	R	G	4.5	3.5	Forced	NO	0-49	7.00	\$ 819,000
064	Flett Road	Scotch Bush Road	Dead End	0.10	NO	R	G	4.5	3.5	20.0	NO	0-49	5.00	\$ 39,000
068	Fiebig Road	1.6km East of Scotch Bush Road	1.6km West	1.60	NO	R	G	7.0	6.0	Forced	YES	50-199	7.00	\$ 624,000
069	Fiebig Road	1.6km West of Scotch Bush Road	Dead End	1.70	NO	R	G	5.8	4.8	Forced	YES	50-199	6.00	\$ 663,000
071	Merchand-Kearns Road	Hwy. 132	Dead End	1.90	NO	R	G	5.0	4.0	Forced	NO	0-49	6.00	\$ 741,000
072	Constant Lake Road	Scotch Bush Road	Hwy. 41	5.50	NO	R	G	7.5	6.5	20.0	YES	50-199	7.00	\$ 2,145,000
073	Constant Lake Road	Hwy. 41	Opeongo Road	4.60	NO	R	G	6.2	5.2	20.0	NO	50-199	6.00	\$ 1,794,000
074	Newfoundout Road	Opeongo Road	0.1km West	0.10	NO	R	G	4.4	3.4	Forced	NO	0-49	5.00	\$ 39,000
076	White Cedars Road	Hwy. 41	Dead End	1.40	NO	R	G	6.7	5.7	Forced	NO	50-199	7.00	\$ 546,000
077	Larmond Road	Hwy. 41	Dead End	0.80	NO	R	G	5.5	4.5	20.0	NO	0-49	6.00	\$ 312,000
078	Perrault Road	Hwy. 41	1.3km West	1.30	NO	R	G	6.3	5.3	20.0	NO	0-49	6.00	\$ 507,000
080	Perrault Road	Hwy. 41 East	Grattan Road	4.00	NO	R	G	6.5	5.5	20.0	NO	0-49	7.00	\$ 1,560,000
081	Heideman Road	Perrault Road	Dead End	1.00	NO	R	G	5.0	4.0	20.0	NO	0-49	6.00	\$ 390,000
082	Searson Road	Grattan Road	Dead End	0.90	NO	R	G	5.0	4.0	Forced	NO	0-49	6.00	\$ 351,000
083	Wren Road	Grattan Road	Dead End	0.80	NO	R	G	5.2	4.2	Forced	NO	0-49	6.00	\$ 312,000
084A	Grattan Road	Hwy. 41	Dead End	1.80	NO	R	G	8.0	7.0	20.0	YES	50-199	7.00	\$ 702,000
085	Minnie Road	Hwy. 41 East	Dead End	0.90	NO	R	G	5.2	4.2	20.0	YES	0-49	5.00	\$ 351,000
086	Minnie Road	Hwy. 41 West	Dead End	0.90	NO	R	G	5.2	4.2	20.0	NO	0-49	4.00	\$ 351,000
087	Berger Road	Hwy. 41	Dead End	0.70	NO	R	G	5.4	4.4	20.0	NO	0-49	5.00	\$ 273,000
089	Boldt Road	McGrath Road	2.0km West	2.00	NO	R	G	6.4	5.4	20.0	YES	50-199	6.00	\$ 780,000
089A	Boldt Road	2.0km West	Donegal Road	1.30	NO	R	G	8.5	7.5	20.0	YES	50-199	7.00	\$ 507,000
089B	Boldt Road	Donegal Road	Dead End	1.50	NO	R	G				YES	0-49	6.00	\$ 585,000
090	Donegal Road	Boldt Road	Foymount Road	2.00	NO	R	G	6.2	5.2	20.0	YES	50-199	7.00	\$ 780,000
091	Howard Road	Foymount Road	Dead End	0.30	NO	R	G	5.5	4.5	20.0	NO	0-49	5.00	\$ 117,000
093	Parry Sound Street	Foymount Road	Dead End	0.10	NO	R	G	6.0	5.0	20.0	NO	0-49	4.00	\$ 39,000
094	Little Elgin Street	Foymount Road	Dead End	0.10	NO	R	G	6.3	5.3	20.0	NO	0-49	4.00	\$ 39,000
096	Lensers Road	Foymount Road	Dead End	3.20	NO	R	G	5.5	4.5	20.1	YES	0-49	7.00	\$ 1,248,000
097	Randy's Road	Lensers Road	Dead End	0.70	NO	R	G	5.0	4.0	Forced	NO	0-49	5.00	\$ 273,000
100	Miller Road	Foymount Road	Dead End	0.80	NO	R	G	7.2	6.2	20.0	NO	0-49	6.00	\$ 312,000
101	Peachey Road	Foymount Road	Dead End	0.20	NO	R	G	5.3	4.3	Forced	NO	0-49	6.00	\$ 78,000
103	Verch Road	Foymount Road	Dead End	1.00	NO	R	G	6.1	5.1	Forced	NO	0-49	6.00	\$ 390,000
108A	Crimson Maple Road	1.3km North of Silver Lake Road	Pickewakin Reserve Boundary	2.30	NO	R	G	7.3	6.3	20.0	YES	0-49	7.00	\$ 897,000
109	Squirrel Depot Road	Crimson Lake Road	Dead End	0.10	NO	R	G	5.4	4.4	20.0	NO	0-49	6.00	\$ 39,000
110	Clee Road	Crimson Lake Road	Ruby Road	3.70	NO	R	G	5.4	4.4	20.0	YES	0-49	3.00	\$ 1,443,000
111	Mud Lake Road	Crimson Lake Road	Dead End	2.40	NO	R	G	5.8	4.8	20.0	NO	0-49	7.00	\$ 936,000
112	Factory Road	Mud Lake Road	Dead End	0.10	NO	R	G	5.8	4.8	20.0	NO	0-49	6.00	\$ 39,000
114	Corrigan Road	Silver Lake Road	Budd Road	2.60	NO	R	G	6.0	5.0	20.0	YES	0-49	6.00	\$ 1,014,000
115	Corrigan Road	Budd Road	Cormac Road	8.00	NO	R	G	5.8	4.8	20.0	NO	0-49	4.00	\$ 3,120,000
116	Budd Road	Carrigan Road	Risto Road	1.00	NO	R	G	6.0	5.0	20.0	YES	0-49	6.00	\$ 390,000
117	Risto Road	Silver Lake Road	Budd Road	4.30	NO	R	G	6.5	5.5	20.0	YES	50-199	7.00	\$ 1,677,000
118	Risto Road	Budd Road	Dead End	0.80	NO	R	G	5.8	4.8	20.0	NO	0-49	6.00	\$ 312,000
119	Silver Lake Road	7.6km W. of Crimson Maple Road	Cormac Road	5.50	NO	R	G	7.0	6.0	20.0	YES	200-399	6.00	\$ 2,145,000
120	Schauer Road	Silver Lake Road	Dead End	0.60	NO	R	G	4.7	3.7	20.0	NO	0-49	5.00	\$ 234,000
121	Wolfe Road	Silver Lake Road	Ruby Road	4.80	NO	R	G	5.8	4.8	20.0	NO	0-49	4.00	\$ 1,872,000
127	Richards Lane	Hoffman Road	Dead End	0.10	NO	R	G	5.0	4.8	20.0	NO	0-49	7.00	\$ 39,000
130	Skelly Road	Gorman Road	Dead End	0.50	NO	R	G	5.3	4.3	20.0	NO	0-49	6.00	\$ 195,000
131	Gorman Road	Ruby Road	0.7km West of Ruby Road	0.70	NO	R	G	9.0	8.0	20.0	NO	0-49	7.00	\$ 273,000
131A	Gorman Road	0.7km West of Ruby Road	Killaloe/Haggarty/Richards Town L	0.70	NO	R	G	6.2	5.2	20.0	YES	0-49	5.00	\$ 273,000
132	O'Connor Road	Gorman Road	Wolfe Road	3.10	NO	R	G	5.9	4.9	20.0	NO	0-49	5.00	\$ 1,209,000
133	Beggan Road	Cormac Road	Dead End	0.50	NO	R	G	4.5	3.5	20.0	NO	0-49	7.00	\$ 195,000
138	McCaulay Mountain Road	0.4km North of Foymount Road	Foymount Road	4.00	NO	R	G	7.5	6.5	20.0	NO	0-49	7.00	\$ 1,560,000
143	Benoit Road	Opeongo Road	Dead End	0.30	NO	R	G	4.3	3.3	20.0	NO	0-49	5.00	\$ 117,000
144	Raddatz Road	Opeongo Road	Dead End/Seasonal Road	0.90	NO	R	G	4.8	3.8	20.0	NO	0-49	5.00	\$ 351,000
149A	Dunnigan Road	Foymount Road, North	Dead End	0.30	NO	R	G	6.6	5.6	20.0	NO	0-49	7.00	\$ 117,000
153	Lake Clear Road	4.0km South of Foymount Road	Opeongo Road	2.40	NO	R	G	7.0	6.0	20.0	YES	200-399	7.00	\$ 936,000
155	Rosien Road	0.2km South of Opeongo Road	Dead End	6.20	NO	R	G	6.5	5.5	20.0	YES	0-49	6.00	\$ 2,418,000
158	Baptist Church Road	0.2 km North of Schavens Lake Rd	Schavens Lake Rd	0.20	NO	R	G	6.5	5.5	20.0	NO	0-49	6.00	\$ 78,000
159	Schavens Road	Baptist Church Road	Dead End	4.40	NO	R	G	6.9	5.9	20.0	NO	0-49	6.00	\$ 1,716,000
160	Felhaber Road	Baptist Church Road	2.2km South	2.20	NO	R	G	5.6	4.6	20.0	NO	0-49	6.00	\$ 858,000
176	Kennedy Road	McGrath Road	Dead End	0.10	NO	R	G	5.0	4.0	20.0	NO	0-49	6.00	\$ 39,000
WEIGHTED AVERAGE														5.96
TOTAL				114.20										\$ 44,538,000

APPENDIX B

NET BOOK VALUE OF ASSETS

TABLE B.1 – NET BOOK VALUE OF ASSETS

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
001-1977B	Concession St	1977	60.00	\$29,990	\$18,494	\$11,496
001-2011S	Concession St	2012	20.00	\$42,991	\$4,299	\$38,692
002-1977B	Maple Ridge Drive	1977	60.00	\$29,990	\$18,494	\$11,496
002-2011S	Maple Ridge Drive	2012	20.00	\$41,631	\$4,163	\$37,468
003-1975B	Maple St	1975	60.00	\$11,219	\$7,292	\$3,927
003-1975S	Maple St	1975	20.00	\$2,555	\$2,555	\$0
004-1983B	Maple St	1983	60.00	\$86,292	\$44,584	\$41,708
004-1999S	Maple St	1999	20.00	\$29,656	\$22,242	\$7,414
005-1983B	Bruce St	1983	60.00	\$37,940	\$19,602	\$18,338
005-1999S	Bruce St	1999	20.00	\$0	\$0	\$0
005-2008B	Bruce St	2009	60.00	\$3,908	\$326	\$3,582
005-2008S	Bruce St	2009	20.00	\$38,916	\$9,729	\$29,187
006-1965B	Bruce St	1965	60.00	\$5,062	\$4,134	\$928
006-1993S	Bruce St	1993	20.00	\$0	\$0	\$0
006-2008B	Bruce St	2009	60.00	\$1,303	\$109	\$1,194
006-2008S	Bruce St	2009	20.00	\$12,972	\$3,243	\$9,729
007-1990B	Bruce St	1990	60.00	\$165,680	\$66,272	\$99,408
007-1990S	Bruce St	1990	20.00	\$0	\$0	\$0
007-1990SIDE	Bruce St	1990	20.00	\$0	\$0	\$0
007-2008B	Bruce St	2009	60.00	\$7,817	\$651	\$7,166
007-2008S	Bruce St	2009	20.00	\$77,832	\$19,458	\$58,374
007-2008SIDE	Bruce St	2009	20.00	\$11,366	\$2,841	\$8,525
008-1977B	Wallace St	1977	60.00	\$32,710	\$20,171	\$12,539
008-1977S	Wallace St	1977	20.00	\$0	\$0	\$0
008-2008B	Wallace St	2009	60.00	\$2,862	\$239	\$2,623
008-2008S	Wallace St	2009	20.00	\$43,802	\$10,950	\$32,852
009-1971B	Wallace St	1971	60.00	\$29,952	\$21,466	\$8,486
009-1971S	Wallace St	1971	20.00	\$0	\$0	\$0
009-2008B	Wallace St	2009	60.00	\$3,953	\$329	\$3,624
009-2008S	Wallace St	2009	20.00	\$59,563	\$14,891	\$44,672
010-1965B	Elgin St	1965	60.00	\$10,124	\$8,268	\$1,856
010-1965S	Elgin St	1965	20.00	\$2,306	\$2,306	\$0
011-1976B	Oak St	1976	60.00	\$32,710	\$20,716	\$11,994
011-1976S	Oak St	1976	20.00	\$7,450	\$7,450	\$0
012-1983B	Ridge Rd	1983	60.00	\$18,391	\$9,502	\$8,889
012-1999S	Ridge Rd	1999	20.00	\$6,920	\$5,190	\$1,730
013-1971B	Victoria St	1971	60.00	\$29,952	\$21,466	\$8,486
013-1971S	Victoria St	1971	20.00	\$6,822	\$6,822	\$0

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
013-1971SIDE	Victoria St	1971	20.00	\$1,441	\$1,441	\$0
013-2011SIDE	Victoria St	2012	30.00	\$28,011	\$1,867	\$26,144
014-1983B	Knox Terrace	1983	60.00	\$36,783	\$19,005	\$17,778
014-1999S	Knox Terrace	1999	20.00	\$13,839	\$10,379	\$3,460
015-1982B	Raglan St	1982	60.00	\$17,813	\$9,500	\$8,313
015-1982S	Raglan St	1982	20.00	\$4,057	\$4,057	\$0
016-1982B	Raglan St	1982	60.00	\$17,813	\$9,500	\$8,313
016-1982S	Raglan St	1982	20.00	\$4,057	\$4,057	\$0
017-1971B	Jane St	1971	60.00	\$22,464	\$16,099	\$6,365
017-1971S	Jane St	1971	20.00	\$5,116	\$5,116	\$0
018-1971B	Jane St	1971	60.00	\$29,952	\$21,466	\$8,486
018-1971S	Jane St	1971	20.00	\$6,822	\$6,822	\$0
018-1971SIDE	Jane St	1971	30.00	\$8,040	\$8,040	\$0
019-1989B	Jane St	1989	60.00	\$15,718	\$6,549	\$9,169
019-2004S	Jane St	2004	10.00	\$2,168	\$2,168	\$0
020-1983B	Hartwig St	1983	60.00	\$36,783	\$19,005	\$17,778
020-1983S	Hartwig St	1983	20.00	\$8,378	\$8,378	\$0
021-1995B	Hartwig St	1995	60.00	\$83,976	\$26,592	\$57,384
021-2003S	Hartwig St	2003	20.00	\$24,645	\$13,555	\$11,090
022-1989B	Lisk St	1989	60.00	\$80,808	\$33,670	\$47,138
022-2001S	Lisk St	2001	20.00	\$23,351	\$15,178	\$8,173
023-1978B	Mill St	1978	60.00	\$23,278	\$13,967	\$9,311
023-1978S	Mill St	1978	20.00	\$5,302	\$5,302	\$0
024-1989B	Grist Mill Rd	1989	60.00	\$31,435	\$13,098	\$18,337
024-2004B	Grist Mill Rd	2004	60.00	\$1,048	\$159	\$889
024-2004S	Grist Mill Rd	2004	10.00	\$2,112	\$1,918	\$194
025-1983B	Grist Mill Rd	1983	60.00	\$64,390	\$33,268	\$31,122
025-2004B	Grist Mill Rd	2004	60.00	\$3,143	\$476	\$2,667
025-2004S	Grist Mill Rd	2004	10.00	\$6,335	\$5,754	\$581
026-1971B	John St	1971	60.00	\$52,415	\$37,564	\$14,851
026-1971S	John St	1971	20.00	\$0	\$0	\$0
026-1971SIDE	John St	1971	20.00	\$0	\$0	\$0
026-2005CUR	John St	2005	30.00	\$9,384	\$2,528	\$6,856
026-2008B	John St	2009	60.00	\$6,445	\$537	\$5,908
026-2008S	John St	2009	20.00	\$108,872	\$27,218	\$81,654
026-2008SIDE	John St	2009	20.00	\$9,720	\$2,430	\$7,290
027-1989B	Water St	1989	60.00	\$84,256	\$35,107	\$49,149
027-2001S	Water St	2001	20.00	\$22,239	\$14,455	\$7,784

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
028-1995B	Water St	1995	60.00	\$134,738	\$42,667	\$92,071
028-2003S	Water St	2003	20.00	\$46,004	\$25,302	\$20,702
029-1975B	Queen St	1975	60.00	\$78,531	\$51,045	\$27,486
029-1975S	Queen St	1975	20.00	\$0	\$0	\$0
029-1975SIDE	Queen St	1975	30.00	\$3,212	\$3,212	\$0
029-2009B	Queen St	2010	60.00	\$24,685	\$1,646	\$23,039
029-2009curb	Queen St	2010	30.00	\$361	\$48	\$313
029-2009S	Queen St	2010	20.00	\$159,517	\$31,903	\$127,614
029-2009SID	Queen St	2010	30.00	\$7,233	\$964	\$6,269
030-1971B	Queen St	1971	60.00	\$23,422	\$16,786	\$6,636
030-1971S	Queen St	1971	20.00	\$4,873	\$4,873	\$0
030-2012SIDE	Queen St	2013	30.00	\$39,552	\$1,318	\$38,234
031-1989B	Queen St	1989	60.00	\$107,744	\$44,893	\$62,851
031-2001S	Queen St	2001	20.00	\$31,135	\$20,238	\$10,897
032-1971B	Melanie St	1971	60.00	\$22,464	\$16,099	\$6,365
032-1971S	Melanie St	1971	20.00	\$5,116	\$5,116	\$0
032-2005B	Melanie St	2005	60.00	\$5,428	\$731	\$4,697
032-2005S	Melanie St	2005	20.00	\$8,020	\$3,241	\$4,779
033-2001B	Bell St	2001	60.00	\$34,174	\$7,404	\$26,770
033-2005B	Bell St	2005	60.00	\$5,428	\$731	\$4,697
033-2005S	Bell St	2005	20.00	\$8,020	\$3,241	\$4,779
033-2005SIDE	Bell St	2005	30.00	\$13,400	\$3,611	\$9,789
034-1977B	Foran St	1977	60.00	\$10,903	\$6,724	\$4,179
034-1997S	Foran St	1997	20.00	\$6,633	\$5,638	\$995
036-1964B	Alice St	1964	60.00	\$0	\$0	\$0
036-1964S	Alice St	1964	20.00	\$0	\$0	\$0
036-2008B	Alice St	2009	60.00	\$6,737	\$561	\$6,176
036-2008S	Alice St	2009	20.00	\$32,951	\$8,238	\$24,713
036-2008SIDE	Alice St	2009	30.00	\$35,749	\$5,958	\$29,791
036B-2009B	Alice St	2010	60.00	\$124,194	\$8,280	\$115,914
036B-2009CU	Alice St	2010	30.00	\$46,976	\$6,263	\$40,713
036B-2009S	Alice St	2010	20.00	\$146,311	\$29,262	\$117,049
036B-2009SID	Alice St	2010	30.00	\$79,800	\$10,640	\$69,160
037-1983B	Jessie St	1983	60.00	\$36,783	\$19,005	\$17,778
037-1983S	Jessie St	1983	20.00	\$8,378	\$8,378	\$0
038-1975B	Paul St	1975	60.00	\$11,219	\$7,292	\$3,927
038-1975S	Paul St	1975	20.00	\$0	\$0	\$0
038-2009B	Paul St	2010	60.00	\$5,081	\$339	\$4,742

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
038-2009S	Paul St	2010	20.00	\$13,876	\$2,775	\$11,101
039-1971B	Wellington St	1971	60.00	\$22,464	\$16,099	\$6,365
039-1971S	Wellington St	1971	20.00	\$5,116	\$5,116	\$0
040-1971B	Wellington St	1971	60.00	\$52,415	\$37,564	\$14,851
040-1971S	Wellington St	1971	20.00	\$10,505	\$10,505	\$0
040-1971SIDE	Wellington St	1971	30.00	\$6,566	\$6,566	\$0
040-2011S	Wellington St	2012	20.00	\$12,020	\$1,202	\$10,818
040-2011SIDE	Wellington St	2012	30.00	\$3,930	\$262	\$3,668
041-1977B	Veterans Way	1977	60.00	\$21,807	\$13,448	\$8,359
041-1997S	Veterans Way	1997	20.00	\$0	\$0	\$0
041-2009B	Veterans Way	2010	60.00	\$14,132	\$942	\$13,190
041-2009S	Veterans Way	2010	20.00	\$39,650	\$7,930	\$31,720
041-2009SIDE	Veterans Way	2010	30.00	\$28,197	\$3,760	\$24,437
042-1971B	James St	1971	60.00	\$14,976	\$10,733	\$4,243
042-1971S	James St	1971	20.00	\$0	\$0	\$0
042-2009B	James St	2010	60.00	\$7,298	\$487	\$6,811
042-2009S	James St	2010	20.00	\$25,653	\$5,131	\$20,522
042A-1971B	Louise St	1971	60.00	\$14,976	\$10,733	\$4,243
042A-1971S	Louise St	1971	20.00	\$0	\$0	\$0
042A-2009B	Louise St	2010	60.00	\$8,866	\$591	\$8,275
042A-2009S	Louise St	2010	20.00	\$28,412	\$5,682	\$22,730
043-1989B	Fourth Chute Rd	1989	60.00	\$94,305	\$39,294	\$55,011
043-2004S	Fourth Chute Rd	2004	10.00	\$13,008	\$13,008	\$0
044-1989B	Fourth Chute Rd	1989	60.00	\$330,069	\$137,529	\$192,540
044-2004S	Fourth Chute Rd	2004	10.00	\$45,530	\$45,530	\$0
045-1989B	Bochert Rd	1989	60.00	\$141,458	\$58,941	\$82,517
046-1989B	Fourth Chute Rd	1989	60.00	\$550,115	\$229,215	\$320,900
046-2004S	Fourth Chute Rd	2004	10.00	\$75,883	\$75,883	\$0
046-2010S	Fourth Chute Rd	2011	10.00	\$14,052	\$4,216	\$9,836
047-1971B	Aubrey Rd	1971	60.00	\$26,216	\$18,788	\$7,428
048-1989B	Fourth Chute Rd	1989	60.00	\$267,199	\$111,333	\$155,866
048-2004S	Fourth Chute Rd	2004	10.00	\$36,857	\$36,857	\$0
049-1983B	Scotch Bush Rd	1983	60.00	\$568,777	\$293,868	\$274,909
049-2003S	Scotch Bush Rd	2003	10.00	\$107,812	\$107,812	\$0
049A-2004B	Scotch Bush Rd	2004	60.00	\$1,506	\$228	\$1,278
049A-2004S	Scotch Bush Rd	2004	10.00	\$0	\$0	\$0
049B-2008B	Scotch Bush Rd	2009	60.00	\$8,772	\$731	\$8,041
049B-2008S	Scotch Bush Rd	2009	10.00	\$61,007	\$30,504	\$30,503

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
050-1965B	Franklin St	1965	60.00	\$3,481	\$2,843	\$638
050-1993S	Franklin St	1993	20.00	\$4,819	\$4,819	\$0
052-1995B	McMaster Rd	1995	60.00	\$179,671	\$56,896	\$122,775
053-1977B	Hussey Rd	1977	60.00	\$31,812	\$19,617	\$12,195
054-1977B	Scotch Bush Rd	1977	60.00	\$553,523	\$341,339	\$212,184
054-2002S	Scotch Bush Rd	2002	10.00	\$0	\$0	\$0
054-2005B	Scotch Bush Rd	2005	60.00	\$2,416	\$325	\$2,091
054-2005S	Scotch Bush Rd	2005	10.00	\$0	\$0	\$0
054-2008B	Scotch Bush Rd	2009	60.00	\$8,772	\$731	\$8,041
054-2008S	Scotch Bush Rd	2009	10.00	\$61,007	\$30,504	\$30,503
055-1989B	Harry Dick Rd	1989	60.00	\$125,741	\$52,392	\$73,349
056-1983B	Sutherland Rd	1983	60.00	\$53,658	\$27,723	\$25,935
058-1983B	Ken Dick Rd	1983	60.00	\$182,438	\$94,260	\$88,178
062-1989B	Watson Rd	1989	60.00	\$330,069	\$137,529	\$192,540
064-1977B	Flett Rd	1977	60.00	\$6,362	\$3,923	\$2,439
065-1983B	Sammon Rd	1983	60.00	\$32,195	\$16,634	\$15,561
065-2003S	Sammon Rd	2003	10.00	\$6,103	\$6,103	\$0
067-1989B	Scotch Bush Rd	1989	60.00	\$267,199	\$111,333	\$155,866
067-2004S	Scotch Bush Rd	2004	10.00	\$0	\$0	\$0
067-2008B	Scotch Bush Rd	2009	60.00	\$8,772	\$731	\$8,041
067-2008S	Scotch Bush Rd	2009	10.00	\$61,007	\$30,504	\$30,503
068-1989B	Fiebig Rd	1989	60.00	\$251,481	\$104,784	\$146,697
069-1983B	Fiebig Rd	1983	60.00	\$182,438	\$94,260	\$88,178
070-1971B	Scotch Bush Rd	1971	60.00	\$56,801	\$40,707	\$16,094
070-2001S	Scotch Bush Rd	2001	10.00	\$0	\$0	\$0
070-2008B	Scotch Bush Rd	2009	60.00	\$8,772	\$731	\$8,041
070-2008S	Scotch Bush Rd	2009	10.00	\$61,007	\$30,504	\$30,503
071-1983B	Merchand-Kearns Rd	1983	60.00	\$203,901	\$105,349	\$98,552
072-1989B	Constant Lake Rd	1989	60.00	\$864,467	\$360,195	\$504,272
073-1983B	Constant Lake Rd	1983	60.00	\$493,655	\$255,055	\$238,600
074-1977B	Newfoundout Rd	1977	60.00	\$6,362	\$3,923	\$2,439
076-1989B	White Cedars Rd	1989	60.00	\$220,046	\$91,686	\$128,360
077-1983B	Larmond Rd	1983	60.00	\$85,853	\$44,357	\$41,496
078-1983B	Perrault Rd	1983	60.00	\$139,511	\$72,081	\$67,430
080-1983B	Perrault Rd	1983	60.00	\$429,265	\$221,787	\$207,478
081-1983B	Heideman Rd	1983	60.00	\$107,316	\$55,447	\$51,869
082-1983B	Searson Rd	1983	60.00	\$96,585	\$49,902	\$46,683
083-1983B	Wren Rd	1983	60.00	\$85,853	\$44,357	\$41,496

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
084-1995B	Grattan Rd	1995	60.00	\$294,007	\$93,102	\$200,905
085-1977B	Minnie Rd	1977	60.00	\$57,261	\$35,311	\$21,950
086-1971B	Minnie Rd	1971	60.00	\$39,324	\$28,182	\$11,142
087-1977B	Berger Rd	1977	60.00	\$44,536	\$27,464	\$17,072
088-1995B	Wentland Rd	1995	60.00	\$261,339	\$82,757	\$178,582
088-2004B	Wentland Rd	2004	10.00	\$1,129	\$1,026	\$103
088-2004S	Wentland Rd	2004	10.00	\$16,871	\$15,324	\$1,547
088-2010B	Wentland Rd	2011	60.00	\$7,660	\$383	\$7,277
088-2010S	Wentland Rd	2011	10.00	\$10,332	\$3,100	\$7,232
089-1977B	Boldt Rd	1977	60.00	\$305,392	\$188,325	\$117,067
090-1989B	Donegal Rd	1989	60.00	\$314,352	\$130,980	\$183,372
091-1977B	Howard Rd	1977	60.00	\$19,087	\$11,770	\$7,317
092-1995B	Spring Creek Rd	1995	60.00	\$441,010	\$139,653	\$301,357
092-2004B	Spring Creek Rd	2004	60.00	\$1,806	\$273	\$1,533
092-2004S	Spring Creek Rd	2004	10.00	\$23,620	\$21,455	\$2,165
093-1971B	Parry Sound St	1971	60.00	\$4,369	\$3,131	\$1,238
094-1971B	Little Elgin St	1971	60.00	\$4,369	\$3,131	\$1,238
095-1989B	Sand Rd	1989	60.00	\$889,066	\$370,444	\$518,622
095-2001S	Sand Rd	2001	20.00	\$298,896	\$194,282	\$104,614
095-2005B	Sand Rd	2005	60.00	\$33,356	\$4,494	\$28,862
095-2005S	Sand Rd	2005	20.00	\$37,543	\$15,174	\$22,369
096-1989B	Lensers Rd	1989	60.00	\$502,963	\$209,568	\$293,395
097-1977B	Randys Rd	1977	60.00	\$44,536	\$27,464	\$17,072
098-1965B	Wittke Rd	1965	60.00	\$0	\$0	\$0
098-2000S	Wittke Rd	2000	10.00	\$0	\$0	\$0
098-2010B	Wittke Rd	2011	60.00	\$149,693	\$7,485	\$142,208
098-2010S	Wittke Rd	2011	10.00	\$130,875	\$39,262	\$91,613
099-1989B	Western Drive	1989	60.00	\$0	\$0	\$0
099-2010B	Western Drive	2011	60.00	\$1,034	\$52	\$982
099-2010S	Western Drive	2011	10.00	\$32,722	\$9,817	\$22,905
100-1971B	Miller Rd	1971	60.00	\$34,954	\$25,050	\$9,904
101-1977B	Peachey Rd	1977	60.00	\$12,725	\$7,847	\$4,878
102-1971B	Manning Rd	1971	60.00	\$139,818	\$100,203	\$39,615
102-2001S	Manning Rd	2001	10.00	\$0	\$0	\$0
102-2008B	Manning Rd	2009	60.00	\$26,047	\$2,171	\$23,876
102-2008S	Manning Rd	2009	10.00	\$71,718	\$35,859	\$35,859
103-1983B	Verch Rd	1983	60.00	\$107,316	\$55,447	\$51,869
104-1971B	Silver Lake Rd	1971	60.00	\$92,681	\$66,421	\$26,260

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
104-1995S	Silver Lake Rd	1995	20.00	\$91,809	\$87,219	\$4,590
105-1971B	Silver Lake Rd	1971	60.00	\$87,386	\$62,627	\$24,759
105-2001S	Silver Lake Rd	2001	10.00	\$38,548	\$38,548	\$0
105-2007B	Silver Lake Rd	2007	60.00	\$8,976	\$910	\$8,066
105-2007S	Silver Lake Rd	2007	10.00	\$10,472	\$6,370	\$4,102
106-1989B	Silver Lake Rd	1989	60.00	\$94,305	\$39,294	\$55,011
106-2004S	Silver Lake Rd	2004	10.00	\$13,008	\$13,008	\$0
107-1983B	Crimson Maple Rd	1983	60.00	\$139,511	\$72,081	\$67,430
107-2003S	Crimson Maple Rd	2003	10.00	\$26,444	\$26,444	\$0
108-1989B	Crimson Maple Rd	1989	60.00	\$644,421	\$268,509	\$375,912
108A-2011B	Crimson Maple Rd	2012	38.00	\$60,581	\$3,188	\$57,393
108A-2011S	Crimson Maple Rd	2012	10.00	\$86,102	\$17,220	\$68,882
109-1983B	Squirrel Depot Rd	1983	60.00	\$10,732	\$5,545	\$5,187
110-1965B	Clee Rd	1965	60.00	\$109,285	\$89,249	\$20,036
111-1989B	Mud Lake Rd	1989	60.00	\$377,222	\$157,176	\$220,046
112-1983B	Factory Rd	1983	60.00	\$10,732	\$5,545	\$5,187
113-1983B	Silver Lake Rd	1983	60.00	\$697,556	\$360,404	\$337,152
113-2003S	Silver Lake Rd	2003	10.00	\$132,222	\$132,222	\$0
113-2011B	Silver Lake Rd	2012	60.00	\$203,163	\$6,772	\$196,391
113-2011S	Silver Lake Rd	2012	10.00	\$65,778	\$13,156	\$52,622
114-1983B	Corrigan Rd	1983	60.00	\$279,023	\$144,162	\$134,861
115-1971B	Corrigan Rd	1971	60.00	\$349,545	\$250,507	\$99,038
116-1983B	Budd Rd	1983	60.00	\$107,316	\$55,447	\$51,869
117-1983B	Risto Rd	1983	60.00	\$461,460	\$238,421	\$223,039
118-1977B	Risto Rd	1977	60.00	\$50,899	\$31,388	\$19,511
119-1983B	Silver Lake Rd	1983	60.00	\$590,240	\$304,957	\$285,283
119-2011G	Silver Lake Rd	2012	25.00	\$20,557	\$1,645	\$18,912
120-1977B	Schauer Rd	1977	60.00	\$38,174	\$23,541	\$14,633
121-1971B	Wolfe Rd	1971	60.00	\$209,727	\$150,304	\$59,423
122-1977B	Zadow Rd	1977	60.00	\$146,334	\$90,239	\$56,095
122-2004B	Zadow Rd	2004	60.00	\$29,020	\$4,393	\$24,627
122-2004S	Zadow Rd	2004	10.00	\$29,326	\$26,638	\$2,688
123-1965B	Zadow Rd	1965	60.00	\$35,444	\$28,946	\$6,498
123-2000S	Zadow Rd	2000	10.00	\$0	\$0	\$0
123-2007B	Zadow Rd	2007	60.00	\$38,288	\$3,882	\$34,406
123-2007S	Zadow Rd	2007	10.00	\$27,960	\$17,009	\$10,951
124-1971B	Zadow Rd	1971	60.00	\$52,432	\$37,576	\$14,856
124-2001S	Zadow Rd	2001	10.00	\$0	\$0	\$0

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
124-2008B	Zadow Rd	2009	60.00	\$20,502	\$1,708	\$18,794
124-2008S	Zadow Rd	2009	10.00	\$41,722	\$20,861	\$20,861
125-1995B	Hoffman Rd	1995	60.00	\$457,344	\$144,826	\$312,518
125-2004B	Hoffman Rd	2004	60.00	\$27,596	\$4,178	\$23,418
125-2004S	Hoffman Rd	2004	10.00	\$26,017	\$23,632	\$2,385
125-2006B	Hoffman Rd	2006	60.00	\$73,462	\$8,673	\$64,789
125-2006S	Hoffman Rd	2006	10.00	\$45,393	\$32,153	\$13,240
126-1983B	Hoffman Rd	1983	60.00	\$0	\$0	\$0
126-2009B	Hoffman Rd	2010	60.00	\$56,194	\$3,746	\$52,448
126-2009S	Hoffman Rd	2010	10.00	\$57,248	\$22,899	\$34,349
127-1989B	Richards Lane	1989	60.00	\$15,718	\$6,549	\$9,169
128-1989B	Bonnechere Lodge Rd	1989	60.00	\$314,352	\$130,980	\$183,372
128-2005B	Bonnechere Lodge Rd	2005	60.00	\$17,080	\$2,301	\$14,779
128-2005S	Bonnechere Lodge Rd	2005	10.00	\$34,853	\$28,173	\$6,680
129-1989B	Gorman Rd	1989	60.00	\$314,352	\$130,980	\$183,372
129-2002S	Gorman Rd	2002	10.00	\$45,000	\$45,000	\$0
130-1983B	Skelly Rd	1983	60.00	\$53,658	\$27,723	\$25,935
131-1977B	Gorman Rd	1977	60.00	\$190,870	\$117,703	\$73,167
132-1971B	OConnor Rd	1971	20.00	\$135,449	\$135,449	\$0
133-1965B	Beggan Rd	1965	60.00	\$14,768	\$12,061	\$2,707
134-1977B	Cormac Rd	1977	60.00	\$445,363	\$274,641	\$170,722
134-2002S	Cormac Rd	2002	10.00	\$0	\$0	\$0
134-2007B	Cormac Rd	2007	60.00	\$58,733	\$5,955	\$52,778
134-2007S	Cormac Rd	2007	10.00	\$98,880	\$60,152	\$38,728
134-2011G	Cormac Rd	2012	25.00	\$20,557	\$1,645	\$18,912
134A-2008B	Cormac Rd	2009	60.00	\$7,860	\$655	\$7,205
134A-2008S	Cormac Rd	2009	10.00	\$70,153	\$35,076	\$35,077
136-1977B	Cedar Hedge Lane	1977	60.00	\$14,995	\$9,247	\$5,748
136-1997S	Cedar Hedge Lane	1997	20.00	\$10,612	\$9,020	\$1,592
137-1977B	McCauley Mountain Rd	1977	60.00	\$25,449	\$15,694	\$9,755
137-2002S	McCauley Mountain Rd	2002	10.00	\$0	\$0	\$0
137-2007S	McCauley Mountain Rd	2007	10.00	\$6,827	\$4,153	\$2,674
138-1983B	McCauley Mountain Rd	1983	60.00	\$429,265	\$221,787	\$207,478
139-1983B	Janet St	1983	60.00	\$18,391	\$9,502	\$8,889
139-1999S	Janet St	1999	20.00	\$6,920	\$5,190	\$1,730
140-1989B	Madawaska Crescent	1989	60.00	\$188,553	\$78,564	\$109,989
140-2012B	Madawaska Crescent	2013	60.00	\$40,197	\$670	\$39,527
140-2012S	Madawaska Crescent	2013	20.00	\$94,477	\$4,724	\$89,753

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
141-1989B	Algonquin Rd	1989	60.00	\$107,744	\$44,893	\$62,851
141-2012B	Algonquin Rd	2013	60.00	\$29,817	\$497	\$29,320
141-2012S	Algonquin Rd	2013	20.00	\$53,987	\$2,699	\$51,288
142-1989B	Sebastopol Dr	1989	60.00	\$166,700	\$69,458	\$97,242
142-2012B	Sebastopol Dr	2013	60.00	\$58,886	\$981	\$57,905
142-2012S	Sebastopol Dr	2013	20.00	\$121,470	\$6,074	\$115,396
143-1977B	Benoit Rd	1977	60.00	\$19,087	\$11,770	\$7,317
144-1977B	Raddatz Rd	1977	60.00	\$57,261	\$35,311	\$21,950
146-1983B	Frenchs Rd	1983	60.00	\$32,195	\$16,634	\$15,561
146-2003S	Frenchs Rd	2003	10.00	\$6,103	\$6,103	\$0
148A-1977B	Buelow Rd	1977	60.00	\$38,174	\$23,541	\$14,633
148A-2002S	Buelow Rd	2002	10.00	\$11,769	\$11,769	\$0
148A-2004SH	Buelow Rd	2004	60.00	\$6,941	\$1,051	\$5,890
149-1989B	Dunnigan Rd	1989	60.00	\$47,153	\$19,647	\$27,506
150-1971B	Dunnigan Rd	1971	60.00	\$26,216	\$18,788	\$7,428
150-2001S	Dunnigan Rd	2001	10.00	\$11,564	\$11,564	\$0
151-1995B	Lake Clear Rd	1995	60.00	\$130,670	\$41,379	\$89,291
151-2006B	Lake Clear Rd	2006	60.00	\$5,358	\$633	\$4,725
151-2006S	Lake Clear Rd	2006	10.00	\$34,330	\$24,317	\$10,013
152-1971B	Lake Clear Rd	1971	60.00	\$139,818	\$100,203	\$39,615
152-2001S	Lake Clear Rd	2001	10.00	\$0	\$0	\$0
152-2006SHO	Lake Clear Rd	2006	60.00	\$35,089	\$4,142	\$30,947
152-2007B	Lake Clear Rd	2007	60.00	\$53,498	\$5,424	\$48,074
152-2007S	Lake Clear Rd	2007	10.00	\$67,949	\$41,336	\$26,613
152-2010SHO	Lake Clear Rd	2011	60.00	\$577,924	\$28,896	\$549,028
153-1989B	Lake Clear Rd	1989	60.00	\$377,222	\$157,176	\$220,046
154-1977B	Rosien Rd	1977	60.00	\$12,725	\$7,847	\$4,878
154-2002S	Rosien Rd	2002	10.00	\$3,923	\$3,923	\$0
155-1983B	Rosien Rd	1983	60.00	\$665,362	\$343,770	\$321,592
157-1989B	Baptist Church Rd	1989	60.00	\$330,069	\$137,529	\$192,540
157-2002S	Baptist Church Rd	2002	10.00	\$39,100	\$39,100	\$0
158-1983B	Baptist Church Rd	1983	60.00	\$21,463	\$11,089	\$10,374
159-1983B	Schavens Lake Rd	1983	60.00	\$472,192	\$243,966	\$228,226
160-1977B	Felhaber Rd	1977	60.00	\$139,971	\$86,315	\$53,656
162-1977B	Wieland Shore Rd	1977	60.00	\$254,493	\$156,937	\$97,556
162-2002S	Wieland Shore Rd	2002	10.00	\$78,460	\$78,460	\$0
162-2005Shor	Wieland Shore Rd	2005	60.00	\$28,459	\$3,834	\$24,625
162-2012Shor	Wieland Shore Rd	2013	60.00	\$33,911	\$565	\$33,346

TABLE B.1 – NET BOOK VALUE OF ASSETS (CONT.)

ASSET ID	STREET	YEAR PLACED IN SERVICE	ASSET LIFE (Yrs/Mos)	BOOK COST	DEPRECIATION	NET BOOK VALUE
164-1995B	McGrath Rd	1995	60.00	\$1,110,692	\$351,719	\$758,973
164-2006B	McGrath Rd	2006	60.00	\$98,258	\$11,600	\$86,658
164-2006S	McGrath Rd	2006	10.00	\$107,341	\$76,033	\$31,308
165-1971B	Trebbien Rd	1971	60.00	\$30,585	\$21,919	\$8,666
165-2001S	Trebbien Rd	2001	10.00	\$13,492	\$13,492	\$0
168-1989B	McGrath Rd	1989	60.00	\$833,032	\$347,097	\$485,935
168-2005B	McGrath Rd	2005	60.00	\$30,258	\$4,076	\$26,182
168-2005S	McGrath Rd	2005	10.00	\$56,858	\$45,960	\$10,898
169-1995B	Augsburg Rd	1995	60.00	\$163,337	\$51,723	\$111,614
169-2005S	Augsburg Rd	2005	10.00	\$22,827	\$20,544	\$2,283
170-2001B	Klingbeil St	2001	60.00	\$46,999	\$10,183	\$36,816
170-2006B	Klingbeil St	2006	60.00	\$2,428	\$287	\$2,141
170-2006S	Klingbeil St	2006	20.00	\$23,684	\$8,388	\$15,296
171-1989B	Augsburg Rd	1989	60.00	\$282,916	\$117,882	\$165,034
171-2004B	Augsburg Rd	2004	60.00	\$920	\$139	\$781
171-2004S	Augsburg Rd	2004	10.00	\$15,597	\$14,167	\$1,430
172-1995B	Augsburg Rd	1995	60.00	\$522,679	\$165,515	\$357,164
172-2006B	Augsburg Rd	2006	60.00	\$7,380	\$871	\$6,509
172-2006S	Augsburg Rd	2006	10.00	\$52,745	\$37,361	\$15,384
174-1971B	McKitchen Rd	1971	60.00	\$5,149	\$3,690	\$1,459
174-1995S	McKitchen Rd	1995	20.00	\$5,100	\$4,845	\$255
175-1975B	Elsie St	1975	60.00	\$22,437	\$14,584	\$7,853
175-1975S	Elsie St	1975	20.00	\$5,110	\$5,110	\$0
176-1983B	Kennedy Rd	1983	60.00	\$23,617	\$12,202	\$11,415
178-1977SIDE	Bonnechere St East	1977	30.00	\$7,805	\$7,805	\$0
179-1977SIDE	Bonnechere St East	1977	30.00	\$19,044	\$19,044	\$0
180-1975SIDE	Bridge St	1975	30.00	\$15,560	\$15,560	\$0
TOTAL				\$ 3,525,850	\$ 1,381,796	\$ 2,144,054

ASSET ID: #-YEAR(TYPE)

is an unique identifier

(TYPE) is as follows: B = Base, S = Surface and SIDEW = Sidewalk

APPENDIX C

LIFE CYCLE ANALYSIS FOR ROADS BY SURFACE TYPE

TABLE C.1 – LIFE CYCLE FOR LCB-RURAL

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
0	LCB-R3	10.00	\$ 448,000
1		9.53	\$ -
2		9.06	\$ -
3		8.59	\$ -
4		8.12	\$ -
5		7.65	\$ -
6		7.18	\$ -
7		6.71	\$ -
8	LCB-R1	8.24	\$ 23,000
9		7.77	\$ -
10		7.30	\$ -
11		6.83	\$ -
12		6.36	\$ -
13		5.89	\$ -
14		5.42	\$ -
15		4.95	\$ -
16		4.48	\$ -
17		4.01	\$ -
18		3.54	\$ -
19	LCB-R2	9.00	\$ 126,000
20		8.53	\$ -
21		8.06	\$ -
22		7.59	\$ -
23		7.12	\$ -
24		6.65	\$ -
25	LCB-R1	8.18	\$ 23,000
26		7.71	\$ -
27		7.24	\$ -
28		6.77	\$ -
29		6.30	\$ -
30		5.83	\$ -
31		5.36	\$ -
32		4.89	\$ -
33		4.42	\$ -
34		3.95	\$ -
35		3.48	\$ -
36	LCB-R2	9.00	\$ 126,000
37		8.53	\$ -
38		8.06	\$ -
39		7.59	\$ -
40		7.12	\$ -

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
41		6.65	\$ -
42	LCB-R1	8.18	\$ 23,000
43		7.71	\$ -
44		7.24	\$ -
45		6.77	\$ -
46		6.30	\$ -
47		5.83	\$ -
48		5.36	\$ -
49		4.89	\$ -
50		4.42	\$ -
51		3.95	\$ -
52		3.48	\$ -
53		3.01	\$ -
54		2.54	\$ -
55		2.07	\$ -
AVERAGE		6.45	\$ 13,982

TABLE C.2 – LIFE CYCLE FOR HCB-RURAL

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
0	HCB-R3	10.00	\$ 569,000
1		9.77	\$ -
2		9.54	\$ -
3		9.31	\$ -
4		9.08	\$ -
5		8.85	\$ -
6		8.62	\$ -
7		8.39	\$ -
8		8.16	\$ -
9		7.93	\$ -
10		7.70	\$ -
11		7.47	\$ -
12		7.24	\$ -
13		7.01	\$ -
14		6.78	\$ -
15		6.55	\$ -
16		6.32	\$ -
17	HCB-R1	9.09	\$ 95,000
18		8.86	\$ -
19		8.63	\$ -
20		8.40	\$ -
21		8.17	\$ -
22		7.94	\$ -
23		7.71	\$ -
24		7.48	\$ -
25		7.25	\$ -
26		7.02	\$ -
27		6.79	\$ -
28		6.56	\$ -
29		6.33	\$ -
30		6.10	\$ -
31		5.87	\$ -
32		5.64	\$ -
33		5.41	\$ -
34		5.18	\$ -
35		4.95	\$ -
36		4.72	\$ -
37		4.49	\$ -
38		4.26	\$ -
39		4.03	\$ -
40		3.80	\$ -

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
41		3.57	\$ -
42		3.34	\$ -
43	HCB-R2	9.00	\$ 193,000
44		8.77	\$ -
45		8.54	\$ -
46		8.31	\$ -
47		8.08	\$ -
48		7.85	\$ -
49		7.62	\$ -
50		7.39	\$ -
51		7.16	\$ -
52		6.93	\$ -
53		6.70	\$ -
54		6.47	\$ -
55		6.24	\$ -
56	HCB-R1	9.01	\$ 95,000
57		8.78	\$ -
58		8.55	\$ -
59		8.32	\$ -
60		8.09	\$ -
61		7.86	\$ -
62		7.63	\$ -
63		7.40	\$ -
64		7.17	\$ -
65		6.94	\$ -
66		6.71	\$ -
67		6.48	\$ -
68		6.25	\$ -
69		6.02	\$ -
70		5.79	\$ -
71		5.56	\$ -
72		5.33	\$ -
73		5.10	\$ -
74		4.87	\$ -
75		4.64	\$ -
76		4.41	\$ -
77		4.18	\$ -
78		3.95	\$ -
79		3.72	\$ -
80		3.49	\$ -
81		3.26	\$ -

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
82	HCB-R2	9.00	\$ 193,000
83		8.77	\$ -
84		8.54	\$ -
85		8.31	\$ -
86		8.08	\$ -
87		7.85	\$ -
88		7.62	\$ -
89		7.39	\$ -
90		7.16	\$ -
91		6.93	\$ -
92		6.70	\$ -
93		6.47	\$ -
94		6.24	\$ -
95		6.01	\$ -
96		5.78	\$ -
97		5.55	\$ -
98		5.32	\$ -
99		5.09	\$ -
100		4.86	\$ -
AVERAGE		6.84	\$ 11,450

TABLE C.3 – LIFE CYCLE FOR HCB-SEMI-URBAN

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
0	HCB-S3	10.00	\$ 880,000
1		9.77	\$ -
2		9.54	\$ -
3		9.31	\$ -
4		9.08	\$ -
5		8.85	\$ -
6		8.62	\$ -
7		8.39	\$ -
8		8.16	\$ -
9		7.93	\$ -
10		7.70	\$ -
11		7.47	\$ -
12		7.24	\$ -
13		7.01	\$ -
14		6.78	\$ -
15		6.55	\$ -
16		6.32	\$ -
17	HCB-S1	9.09	\$ 124,000
18		8.86	\$ -
19		8.63	\$ -
20		8.40	\$ -
21		8.17	\$ -
22		7.94	\$ -
23		7.71	\$ -
24		7.48	\$ -
25		7.25	\$ -
26		7.02	\$ -
27		6.79	\$ -
28		6.56	\$ -
29		6.33	\$ -
30		6.10	\$ -
31		5.87	\$ -
32		5.64	\$ -
33		5.41	\$ -
34		5.18	\$ -
35		4.95	\$ -
36		4.72	\$ -
37		4.49	\$ -
38		4.26	\$ -
39		4.03	\$ -
40		3.80	\$ -

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
41		3.57	\$ -
42		3.34	\$ -
43	HCB-S2	9.00	\$ 267,000
44		8.77	\$ -
45		8.54	\$ -
46		8.31	\$ -
47		8.08	\$ -
48		7.85	\$ -
49		7.62	\$ -
50		7.39	\$ -
51		7.16	\$ -
52		6.93	\$ -
53		6.70	\$ -
54		6.47	\$ -
55		6.24	\$ -
56	HCB-S1	9.01	\$ 124,000
57		8.78	\$ -
58		8.55	\$ -
59		8.32	\$ -
60		8.09	\$ -
61		7.86	\$ -
62		7.63	\$ -
63		7.40	\$ -
64		7.17	\$ -
65		6.94	\$ -
66		6.71	\$ -
67		6.48	\$ -
68		6.25	\$ -
69		6.02	\$ -
70		5.79	\$ -
71		5.56	\$ -
72		5.33	\$ -
73		5.10	\$ -
74		4.87	\$ -
75		4.64	\$ -
76		4.41	\$ -
77		4.18	\$ -
78		3.95	\$ -
79		3.72	\$ -
80		3.49	\$ -
81		3.26	\$ -

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
82	HCB-S2	9.00	\$ 441,000
83		8.77	\$ -
84		8.54	\$ -
85		8.31	\$ -
86		8.08	\$ -
87		7.85	\$ -
88		7.62	\$ -
89		7.39	\$ -
90		7.16	\$ -
91		6.93	\$ -
92		6.70	\$ -
93		6.47	\$ -
94		6.24	\$ -
95		6.01	\$ -
96		5.78	\$ -
97		5.55	\$ -
98		5.32	\$ -
99		5.09	\$ -
100		4.86	\$ -
AVERAGE		6.84	\$ 18,360

TABLE C.4 – LIFE CYCLE FOR HCB-URBAN

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
0	HCB-R3	10.00	\$ 1,231,000
1		9.77	\$ -
2		9.54	\$ -
3		9.31	\$ -
4		9.08	\$ -
5		8.85	\$ -
6		8.62	\$ -
7		8.39	\$ -
8		8.16	\$ -
9		7.93	\$ -
10		7.70	\$ -
11		7.47	\$ -
12		7.24	\$ -
13		7.01	\$ -
14		6.78	\$ -
15		6.55	\$ -
16		6.32	\$ -
17	HCB-U1	9.09	\$ 197,000
18		8.86	\$ -
19		8.63	\$ -
20		8.40	\$ -
21		8.17	\$ -
22		7.94	\$ -
23		7.71	\$ -
24		7.48	\$ -
25		7.25	\$ -
26		7.02	\$ -
27		6.79	\$ -
28		6.56	\$ -
29		6.33	\$ -
30		6.10	\$ -
31		5.87	\$ -
32		5.64	\$ -
33		5.41	\$ -
34		5.18	\$ -
35		4.95	\$ -
36		4.72	\$ -
37		4.49	\$ -
38		4.26	\$ -
39		4.03	\$ -
40		3.80	\$ -

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
41		3.57	\$ -
42		3.34	\$ -
43	HCB-U2	9.00	\$ 441,000
44		8.77	\$ -
45		8.54	\$ -
46		8.31	\$ -
47		8.08	\$ -
48		7.85	\$ -
49		7.62	\$ -
50		7.39	\$ -
51		7.16	\$ -
52		6.93	\$ -
53		6.70	\$ -
54		6.47	\$ -
55		6.24	\$ -
56	HCB-U1	9.01	\$ 197,000
57		8.78	\$ -
58		8.55	\$ -
59		8.32	\$ -
60		8.09	\$ -
61		7.86	\$ -
62		7.63	\$ -
63		7.40	\$ -
64		7.17	\$ -
65		6.94	\$ -
66		6.71	\$ -
67		6.48	\$ -
68		6.25	\$ -
69		6.02	\$ -
70		5.79	\$ -
71		5.56	\$ -
72		5.33	\$ -
73		5.10	\$ -
74		4.87	\$ -
75		4.64	\$ -
76		4.41	\$ -
77		4.18	\$ -
78		3.95	\$ -
79		3.72	\$ -
80		3.49	\$ -
81		3.26	\$ -

YEAR	RECONST. TYPE	CONDIT'N RATING	\$\$\$ / KM
82	HCB-U2	9.00	\$ 441,000
83		8.77	\$ -
84		8.54	\$ -
85		8.31	\$ -
86		8.08	\$ -
87		7.85	\$ -
88		7.62	\$ -
89		7.39	\$ -
90		7.16	\$ -
91		6.93	\$ -
92		6.70	\$ -
93		6.47	\$ -
94		6.24	\$ -
95		6.01	\$ -
96		5.78	\$ -
97		5.55	\$ -
98		5.32	\$ -
99		5.09	\$ -
100		4.86	\$ -
AVERAGE		6.84	\$ 25,070

APPENDIX D
CONDITION RATING FORECAST

TABLE D.1 – FORCAST CONDITION RATINGS BY YEAR – GRAVEL SURFACE

No.	STREET	FROM	TO	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
045	Bochert Road	Fourth Chute Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
047	Aubrey Road	Fourth Chute Road	Dead End	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
052	McMaster Road	Scotch Bush Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
053	Hussey Road	Scotch Bush Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
054	Harry Dick Road	Scotch Bush Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
056	Sutherland Road	Scotch Bush Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
058	Ken Dick Road	Scotch Bush Road	1.7km East	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
062	Watson Road	Scotch Bush Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
064	Flett Road	Scotch Bush Road	Dead End	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
068	Fiebig Road	1.6km East of Scotch Bush Road	1.6km West	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
069	Fiebig Road	1.6km West of Scotch Bush Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
071	Merchand-Kearns Road	Hwy. 132	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
072	Constant Lake Road	Scotch Bush Road	Hwy. 41	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
073	Constant Lake Road	Hwy. 41	Opeongo Road	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
074	Newfoundout Road	Opeongo Road	0.1km West	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
076	White Cedars Road	Hwy. 41	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
077	Larmond Road	Hwy. 41	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
078	Perrault Road	Hwy. 41	1.3km West	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
080	Perrault Road	Hwy. 41 East	Grattan Road	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
081	Heideman Road	Perrault Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
082	Searson Road	Grattan Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
083	Wren Road	Grattan Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
084	Grattan Road	Hwy. 41	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
085	Minnie Road	Hwy. 41 East	Dead End	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
086	Minnie Road	Hwy. 41 West	Dead End	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
087	Berger Road	Hwy. 41	Dead End	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
089	Boldt Road	McGrath Road	2.0km West	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
089A	Boldt Road	2.0km West	Donegal Road	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
089B	Boldt Road	Donegal Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
090	Donegal Road	Boldt Road	Foymount Road	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
091	Howard Road	Foymount Road	Dead End	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
093	Parry Sound Street	Foymount Road	Dead End	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
094	Little Elgin Street	Foymount Road	Dead End	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
096	Lensers Road	Foymount Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
097	Randy's Road	Lensers Road	Dead End	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
100	Miller Road	Foymount Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
101	Peachey Road	Foymount Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
103	Verch Road	Foymount Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
108A	Crimson Maple Road	1.3km North of Silver Lake Road	Pickewakin Reserve Boundary	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
109	Squirrel Depot Road	Crimson Lake Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
110	Clee Road	Crimson Lake Road	Ruby Road	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
111	Mud Lake Road	Crimson Lake Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
112	Factory Road	Mud Lake Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
114	Corrigan Road	Silver Lake Road	Budd Road	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
115	Corrigan Road	Budd Road	Cormac Road	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
116	Budd Road	Carrigan Road	Risto Road	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
117	Risto Road	Silver Lake Road	Budd Road	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
118	Risto Road	Budd Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
119	Silver Lake Road	7.6km W. of Crimson Maple Road	Cormac Road	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
120	Schauer Road	Silver Lake Road	Dead End	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
121	Wolfe Road	Silver Lake Road	Ruby Road	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
127	Richards Lane	Hoffman Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
130	Skelly Road	Gorman Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
131	Gorman Road	Ruby Road	0.7km West of Ruby Road	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
131A	Gorman Road	0.7km West of Ruby Road	Killaloe/Haggarty/Richards Town L	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
132	O'Connor Road	Gorman Road	Wolfe Road	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
133	Beggan Road	Cormac Road	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
138	McCaulay Mountain Road	0.4km North of Foymount Road	Foymount Road	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
143	Benoit Road	Opeongo Road	Dead End	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
144	Raddatz Road	Opeongo Road	Dead End/Seasonal Road	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
149A	Dunnigan Road	Foymount Road, North	Dead End	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
153	Lake Clear Road	4.0km South of Foymount Road	Opeongo Road	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
155	Rosien Road	0.2km South of Opeongo Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
158	Baptist Church Road	0.2 km North of Schavens Lake Rd	Schavens Lake Rd	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
159	Schavens Road	Baptist Church Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
160	Felhaber Road	Baptist Church Road	2.2km South	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
176	Kennedy Road	McGrath Road	Dead End	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
WEIGHTED AVERAGE CONDITION RATING				5.96										
TOTAL KILOMETERS				114.20	113.90	113.90	113.90							

TABLE D.2 – FORCAST CONDITION RATINGS BY YEAR – LOW CLASS BITUMINOUS SURFACE

No.	STREET	FROM	TO	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
024	Grist Mill Road	John Street	0.2km West	5.00	4.53	4.06	3.59	3.12	2.65	9.00	8.53	8.06	7.59	7.12
025	Grist Mill Road	0.2km from Bonnechere Street, W	North Algona/Wilberforce Bounda	4.00	3.53	3.06	2.59	2.12	2.00	9.00	8.53	8.06	7.59	7.12
043	Fourth Chute Road	Grattan Town Line	0.6km East	5.00	4.53	4.06	3.59	3.12	2.65	2.18	2.00	2.00	2.00	2.00
044	Fourth Chute Road	0.6km East of Grattan Town Line	Bochert Road	5.50	5.03	4.56	4.09	3.62	3.15	2.68	2.21	2.00	2.00	2.00
046	Fourth Chute Road	Bochert Road	Aubrey Road	6.00	5.53	5.06	4.59	4.12	3.65	3.18	2.71	2.24	2.00	2.00
048	Fourth Chute Road	Aubrey Road	North Algona/Wilberforce Bounda	6.00	5.53	5.06	4.59	4.12	3.65	3.18	2.71	2.24	2.00	2.00
049A	Scotch Bush Road	Fourth Chute Road	Hyndford Road	6.00	5.53	5.06	4.59	4.12	3.65	3.18	2.71	2.24	2.00	2.00
049B	Scotch Bush Road	Hyndford Road	Hussey Rd/McMaster Rd	7.50	7.03	6.56	6.09	5.62	5.15	4.68	4.21	3.74	3.27	2.80
050	Franklin Street	Hyndford Road	Hindford Road	7.00	6.77	6.54	6.31	6.08	5.85	5.62	5.39	5.16	4.93	4.70
055	Scotch Bush Road	Hussey Road / McMaster Road	Sammon Road	7.00	6.53	6.06	5.59	5.12	4.65	4.18	3.71	3.24	2.77	2.30
065	Sammon Road	Scotch Bush Road	0.3km East	7.50	7.03	6.56	6.09	5.62	5.15	4.68	4.21	3.74	3.27	2.80
067	Scotch Bush Road	Sammon Road	Fiebig Road	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
070	Scotch Bush Road	Fiebig Road	Hwy. 132	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
088	Wentland Road	Hwy. 41	Dead End	6.00	5.53	5.06	4.59	4.12	3.65	3.18	2.71	2.24	2.00	2.00
095	Sand Road	Foymount Road	Silver Lake Road	6.00	5.53	5.06	4.59	4.12	3.65	3.18	4.71	4.24	3.77	3.30
098	Wittke Road	Foymount Road	Dead End	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
099	Western Drive	Wittke Road	Dead End	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
102	Manning Road	Foymount Road	Dead End/Merganser (Private Rd.)	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
104	Silver Lake Road	Foymount Road	Sand Road	7.00	6.53	6.06	5.59	5.12	4.65	4.18	5.71	5.24	4.77	4.30
105	Silver Lake Road	Sand Road	Augsburg Road	5.00	4.53	4.06	3.59	3.12	2.65	2.18	9.00	8.53	8.06	7.59
106	Silver Lake Road	Augsburg Road	Crimson Maple Road	6.00	5.53	5.06	4.59	4.12	3.65	5.18	4.71	4.24	3.77	3.30
107	Crimson Maple Street	Silver Lake Road	1.3km North	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
108B	Crimson Maple Road	1.3km North of Silver Lake Road	Pickewakin Reserve Boundary	9.00	8.53	8.06	7.59	7.12	6.65	6.18	5.71	5.24	4.77	4.30
113A	Silver Lake Road	Crimson Maple Road	0.9km West of Corrigan	5.00	4.53	4.06	3.59	3.12	2.65	4.18	3.71	3.24	2.77	2.30
113B	Silver Lake Road	0.9km West of Corrigan	0.9km west of Zadow	7.50	7.03	6.56	6.09	5.62	5.15	4.68	4.21	3.74	3.27	2.80
122	Zadow Road	Silver Lake Road	Ruby Road	5.00	4.53	4.06	3.59	3.12	2.65	2.18	2.00	2.00	2.00	2.00
123	Zadow Road	Ruby Rd	Hoffman Rd	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
124	Zadow Road	Hoffman Road	Rocky Point Drive	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
125	Hoffman Road	Ruby Road	Richards Lane	7.00	6.53	6.06	5.59	5.12	4.65	4.18	3.71	3.24	2.77	2.30
126	Hoffman Road	Richards Lane	Ruby Road	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
128	Bonnechere Lodge Road	Ruby Road	Dead End	7.50	7.03	6.56	6.09	5.62	5.15	4.68	4.21	3.74	3.27	2.80
129	Gorman Road	Ruby Road	Hawkins Road	5.00	4.53	4.06	3.59	3.12	2.65	2.18	2.00	2.00	2.00	2.00
134A	Cormac Road	Killaloe/Haggart/Richards Town Li	Silver Lake Road	7.50	7.03	6.56	6.09	5.62	5.15	4.68	4.21	3.74	5.27	4.80
134B	Cormac Road	Silver Lake Road	McCaulay Mountain Road	7.50	7.03	6.56	6.09	5.62	5.15	4.68	4.21	3.74	5.27	4.80
137	McCaulay Mountain Road	Foymount Road	0.4km North	8.00	7.53	7.06	6.59	6.12	5.65	5.18	4.71	4.24	3.77	3.30
146	French's Road	Lake Clear Road	Dead End	6.00	5.53	5.06	4.59	4.12	3.65	3.18	2.71	4.24	3.77	3.30
148A	Buelow Road	Foymount Road	Dead End/Seasonal	4.00	3.53	3.06	2.59	2.12	2.00	2.00	2.00	2.00	2.00	2.00
149A	Dunnigan Road	Foymount Road, North	Dead End									9.00	8.53	8.06
150	Dunnigan Road	Foymount Road, South	Dead End	4.00	3.53	3.06	2.59	2.12	2.00	2.00	2.00	4.00	3.53	3.06
151	Lake Clear Road	Foymount Road	0.8km South	7.00	6.53	6.06	5.59	5.12	4.65	4.18	3.71	5.24	4.77	4.30
152	Lake Clear Road	0.8km South of Foymount Road	3.2km South	7.00	6.53	6.06	5.59	5.12	4.65	4.18	3.71	5.24	4.77	4.30
154	Rosien Road	Opeongo Road	0.2km South	4.00	3.53	3.06	2.59	2.12	2.00	2.00	2.00	2.00	2.00	2.00
157	Baptist Church Road	Opeongo Road	0.2km North of Schavens Lake Road	6.00	5.53	5.06	4.59	4.12	3.65	3.18	2.71	2.24	2.00	2.00
162	Wieland Shore Road	Opeongo Road	Dead End	4.00	3.53	3.06	2.59	2.12	2.00	2.00	2.00	4.63	4.16	3.69
164	McGrath Road	Opeongo Road	6.8km North of Opeongo Road	6.00	5.53	5.06	6.55	8.71	8.24	7.77	7.30	6.83	6.36	5.89
165	Trebbien Road	McGrath Road	Dead End	4.00	3.53	3.06	4.59	4.12	3.65	3.18	2.71	2.24	2.00	2.00
168	McGrath Road	6.8km North of Opeongo Road	Hwy. 41	6.50	6.03	5.56	5.09	9.00	8.53	8.06	7.59	7.12	6.65	6.18
169	Augsburg Road	Town Line	1.0km West	7.00	6.53	6.06	5.59	5.12	4.65	4.18	3.71	3.24	2.77	2.30
171	Augsburg Road	1.0km from Town Line	1.8km West	6.00	5.53	5.06	4.59	4.12	3.65	3.18	2.71	2.24	2.00	2.00
172	Augsburg Road	2.8km West of Town Line	Silver Lake Road	6.50	6.03	5.56	5.09	4.62	4.15	3.68	3.21	2.74	2.27	2.00
WEIGHTED AVERAGE CONDITION RATING				6.58	6.11	5.64	5.30	5.22	4.77	4.44	4.27	4.05	3.78	3.42
TOTAL KILOMETERS				106.40	106.70	106.70	106.70							

TABLE D.4 – FORCAST CONDITION RATINGS BY YEAR – SUMMARY

SURFACE TYPE	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
GRAVEL	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96	5.96
LOW CLASS BITUMINOUS	6.58	6.11	5.64	5.30	5.22	4.77	4.44	4.27	4.05	3.78	3.42
HIGH CLASS BITUMINOUS	6.69	6.60	6.55	6.29	6.03	5.77	5.69	5.26	5.11	5.22	5.03
AVERAGE	6.29	6.08	5.87	5.70	5.64	5.42	5.27	5.15	5.04	4.93	4.75

APPENDIX E
BACKLOG OF ROAD NEEDS

TABLE E.1 – BACKLOG OF ROAD NEEDS

No.	STREET	FROM	TO	Km
003	Maple Street	Bonnechere Street, East	0.1km North	0.10
004	Maple Street	0.1km North of Bonnechere St., E.	Bruce Street	0.30
005	Bruce Street	North Algona/Wilberforce Road	0.3km South	0.30
006	Bruce Street	0.3km S. of N. Algona/Wilberforce Rd.	For 0.1km	0.10
007	Bruce Street	0.4km S. of N. Algona/Wilberforce Rd.	Bonnechere Street, E.	0.60
010	Elgin Street	Bonnechere Street, East	Dead End	0.20
011	Oak Street	Elgin Street	Ridge Road	0.30
012	Ridge Road	Oak Street	Dead End	0.10
013	Victoria Street	Elgin Street	Bruce Street	0.40
014	Knox Terrace	Bruce Street	Wallace Street	0.20
015	Raglan Street	Wallace Street	Dead End	0.10
016	Raglan Street	Wallace Street	Campbell Street (Private Rd)	0.10
022	Lisk Street	Hartwig Street	Dead End	0.30
023	Mill Street	Bonnechere Street, West	John Street	0.40
027	Water Street	Bridge Street	0.2km North	0.20
028	Water Street	0.2km North of Bridge Street	Village Limits/Augsburg Road	0.70
030	Queen Street	Patrick Street	Melanie Street	0.20
031	Fourth Chute Road	Melanie Street	0.4km South	0.40
032	Melanie Street	Queen Street	Alice Street/Hwy. 41	0.30
034	Foran Street	Alice Street/Hwy. 41	Dead End	0.10
037	Jessie Street	Alice Street	Dead End	0.20
043	Fourth Chute Road	Grattan Town Line	0.6km East	0.60
044	Fourth Chute Road	0.6km East of Grattan Town Line	Bochert Road	2.10
046	Fourth Chute Road	Bochert Road	Aubrey Road	3.50
048	Fourth Chute Road	Aubrey Road	North Algona/Wilberforce Boundary	1.70
049A	Scotch Bush Road	Fourth Chute Road	Hyndford Road	3.40
049B	Scotch Bush Road	Hyndford Road	Hussey Rd/McMaster Rd	1.90
050	Franklin Street	Hyndford Road	Hindford Road	0.10
055	Scotch Bush Road	Hussey Road / McMaster Road	Sammon Road	8.70
065	Sammon Road	Scotch Bush Road	0.3km East	0.30
067	Scotch Bush Road	Sammon Road	Fiebig Road	1.70
070	Scotch Bush Road	Fiebig Road	Hwy. 132	1.30
088	Wentland Road	Hwy. 41	Dead End	1.60
092	Spring Creek Road	Foymount Road	Hwy. 41	2.70
098	Wittke Road	Foymount Road	Dead End	3.80
099	Western Drive	Wittke Road	Dead End	0.80
102	Manning Road	Foymount Road	Dead End/Merganser (Private Rd.)	3.20
122	Zadow Road	Silver Lake Road	Ruby Road	2.30
123	Zadow Road	Ruby Rd	Hoffman Rd	1.20
124	Zadow Road	Hoffman Road	Rocky Point Drive	1.20
125	Hoffman Road	Ruby Road	Richards Lane	2.80
126	Hoffman Road	Richards Lane	Ruby Road	1.60
128	Bonnechere Lodge Road	Ruby Road	Dead End	2.00
129	Gorman Road	Ruby Road	Hawkins Road	2.00
136	Cedar Hedge Lane	McCaulay Mountain Road	Dead End	0.20
137	McCaulay Mountain Road	Foymount Road	0.4km North	0.40
148A	Buelow Road	Foymount Road	Dead End/Seasonal	0.60
154	Rosien Road	Opeongo Road	0.2km South	0.20
157	Baptist Church Road	Opeongo Road	0.2km North of Schavens Lake Road	2.00
169	Augsburg Road	Town Line	1.0km West	1.00
171	Augsburg Road	1.0km from Town Line	1.8km West	1.80
172	Augsburg Road	2.8km West of Town Line	Silver Lake Road	3.20
174	McKitchen Road	Hwy. 41	Dead End	0.10
175	Elsie Street	Bonnechere Street, West	Dead End	0.20

APPENDIX F
FINANCIAL MODELS

TABLE F.1 – FINANCIAL PLAN FOR ROAD INFRASTRUCTURE (\$)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
CAPITAL EXPENDITURE										
Road Construction	727,788	502,287	661,757	657,117	627,753	713,368	697,276	703,347	731,504	760,086
Road Construction Optimum Rating	1,032,610	1,053,262	1,073,914	1,094,566	1,115,218	1,135,871	1,156,523	1,177,175	1,197,827	1,218,479
Preventative Maintenance	0	0	0	0	0	0	0	0	0	0
TOTAL CAPITAL EXPENDITURE	1,760,397	1,555,549	1,735,671	1,751,683	1,742,972	1,849,239	1,853,799	1,880,522	1,929,331	1,978,565
FUNDING										
Reserves	487,000	502,000	516,000	532,000	548,000	565,000	581,000	599,000	617,000	635,000
Grants										
Federal Gas Tax Funding	112,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Development Charges	0	0	0	0	0	0	0	0	0	0
Long term debt proceeds										
Committed										
Annual debt repayment	-73,809	-22,372	-21,800	-21,227	-20,655	-20,082	-19,510	0	0	0
TOTAL FUNDING SOURCES	525,191	579,628	594,200	610,773	627,345	644,918	661,490	699,000	717,000	735,000
FUNDING SHORTFALL	-1,235,206	-975,921	-1,141,471	-1,140,910	-1,115,627	-1,204,321	-1,192,309	-1,181,522	-1,212,331	-1,243,565
CONTINUITY OF RESERVES										
Opening Balance	50,000	51,000	51,630	53,321	54,545	55,759	56,441	58,073	59,183	60,284
Allocated from current year revenues increase by 2% inflation 1% growth	487,000	501,610	516,658	532,158	548,123	564,566	581,503	598,949	616,917	635,425
Allocation of investment income	1,000	1,020	1,033	1,066	1,091	1,115	1,129	1,161	1,184	1,206
Deduct										
Funding for capital projects	-487,000	-502,000	-516,000	-532,000	-548,000	-565,000	-581,000	-599,000	-617,000	-635,000
Closing Balance	51,000	51,630	53,321	54,545	55,759	56,441	58,073	59,183	60,284	61,914
Interest income - BMO prime - 1%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
1% Tax rate increase raises	27,000									
Annual increase of 2% and growth 1%		27,810	28,644	29,504	30,389	31,300	32,239	33,207	34,203	35,229

TABLE F.3 – HISTORICAL REVENUES AND EXPENDITURES FOR ROAD INFRASTRUCTURE (\$)

	2010	2011	2012	2013
				BUDGET
EXPENDITURES				
Salaries , wages and benefits	494,604	470,596	582,837	576,850
Materials & supplies, vehicles, facilities	494,760	516,168	659,443	606,961
Preventative maintenance:				
Patching, sweeping, shouldering, washouts etc	80,875	59,605	47,658	72,539
Gravel roads	74,158	74,456	64,304	90,400
Road construction	652,989	491,117	533,535	518,618
Road equipment	235,924	11,543	231,815	0
Debt repayment - principal	236,792	280,972	286,327	300,000
- interest	21,857	27,343	23,093	0
Transfer to reserve	47,857	6,568	6,817	0
TOTAL EXPENDITURES	2,339,816	1,938,368	2,435,829	2,165,368
REVENUES				
User Charges	56,214	44,458	36,551	38,000
Federal Gas Tax Funding	112,798	112,424	112,424	112,425
TOTAL REVENUES	169,012	156,882	148,975	150,425
NET EXPENDITURE	2,170,804	1,781,486	2,286,854	2,014,943

TABLE F.4 – SCHEDULE OF LONG TERM DEBT PAYMENT

Debt	Department	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bank of Montreal - prime	Roads ISF Alice Street	50,864		0	0	0	0	0	0	0	0
Bank of Montreal - prime	Roads ISF Lake Clear	22,945	22,372	21,800	21,227	20,655	20,082	19,510	0	0	0
TOTAL		73,809	22,372	21,800	21,227	20,655	20,082	19,510	0	0	0