



West Nipissing Ovest

Municipality of West Nipissing

Road Needs Study Report – 2023

D.M. Wills Project No. 22-4839

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Peterborough

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**Prepared for:
The Municipality of West Nipissing**



W I L L S

Executive Summary

The Corporation of the Municipality of West Nipissing (Municipality) retained the services of D.M. Wills Associates (Wills) to undertake a review of the Municipality's existing road network, and assess its physical condition as well as confirm various road attributes. Data collected during the field review was used to develop a prioritized listing of the road network needs, the results of which are documented in this report.

The Municipality's road infrastructure system spans a total of 547 km primarily within a rural setting, with small areas of urban and semi-urban development. The road network includes surfaces ranging from gravel to hot mix paved (asphalt). The Municipality has approximately 429 km of gravel roads, 45 km of surface treated roads (low class bituminous (LCB)), and 73 km of hot mix asphalt paved roads (high class bituminous (HCB)).

Two primary indicators of the relative health of a road are the structural adequacy and surface condition ratings. The current average structural adequacy rating for the Municipality's road network is 13.8/20. The current average surface condition rating for the Municipality's road network is 7.0/10.

2% (12.1 km) of the road network has a Structural "NOW" need, 4% (24.5 km) has a Structural "1-5" year need, and 6% (34.0 km) of the road network has a Structural "6-10" year need.

It should be noted that a structural "NOW" need does not explicitly mean that work must be undertaken on the road immediately (although this may be so in some cases). A structural "NOW" need means that a significant portion of the road is showing distress of the road bed and requires significant intervention i.e. reconstruction or major rehabilitation to renew its service life. A structural "1-5" year need is expected to become a "NOW" need in the next five years, and a "6-10" year need is expected to become a "NOW" need in the next 10 years.

Note that many "6-10" year reconstruction needs may be deferred by timely resurfacing, extending their service lives. As highlighted above, the Municipality has a notable portion of their roads (6%) with a "6-10" Year Structural Need.

Resurfacing and Preservation Management

In addition to addressing currently deficient roads (i.e. capital reconstruction), a dedicated preservation management approach is required, **and perhaps even more important**, to "keep the good roads good"; the fundamental principle being that it costs much less to maintain a good road than it does to let it fail and then reconstruct it, from a life cycle cost perspective. Ultimately, the goal of preservation management is to extend the useful life of a road and road network, maximizing the Municipality's investment over the road life-cycle.

Road resurfacing is an effective way of extending the overall life of the pavement structure and therefore a road resurfacing program is highly recommended. Roads with a structural adequacy of 12/20 or greater are included as candidates for potential resurfacing. Preliminary recommendations and prioritization for road resurfacing are based on condition rating and traffic demands on each road section, as per the Inventory Manual. A road with higher traffic volumes and fair structural adequacy is given priority over a road with moderate traffic and good structural adequacy score, in an attempt to intervene and extend the life of the road before it deteriorates to a level that can no longer be resurfaced (i.e. more expensive reconstruction is required). Specific resurfacing treatment recommendations must be assessed through further field investigation and detail design effort, prior to selecting and implementing the resurfacing strategy.

Based on typical degradation rates for gravel roads, surface treatment, and hot mix, a resurfacing program and related budget is recommended as follows:

Hot Mix Paved Roads:

- 73.4 km of paved roads (HCB).
- Degradation rate 0.25 / year (rating drops from 10 to 5, over a 20-year period).
- Annual resurfacing 3.7 km / year.
- **Annual budget \$1,546,600:** (3.7 km / year x \$209,000 / ln **RMP1** x 2 lanes).

Surface Treated Roads:

- 45.0 km of surface treated roads (LCB).
- Degradation rate 0.625 / year (rating drops from 10 to 5, over a 7-year period).
- Annual resurfacing 6.4 km / year.
- **Annual budget \$268,800** (6.4km / year x \$42,000 / km **ST1**).

Gravel roads require regular maintenance. Maintenance includes regular grading and reapplication of new gravel. Typically, gravel roads should be resurfaced on a 3 - 5 year cycle.

Gravel Roads:

- 428.5 km of earth / gravel roads.
- 100 mm gravel every 5 years.
- Annual gravelling of 85.7 km.
- Granular A (\$31,000 / km).
- **Annual budget \$2,656,700 (85.7 km / year x \$31,000 G) **.**

*** Cost based on supply of Gravel only with application of gravel by internal forces.*

Based on typical degradation rates for gravel roads, surface treatment, and hot mix, a total resurfacing program, (hot mix, surface treatment and gravel) is estimated at \$4,472,100 per year.

Further to the recommendations above with respect to resurfacing, it is also recommended that regular maintenance in the form of roadside ditch cleanout and brush clearing be undertaken as a critical component to preservation management in order to extend the useful service life of the existing roads.

Capital Improvements

Preliminary recommendations and prioritization for planned capital improvements i.e. reconstruction, have been developed based on the condition rating and traffic demands on each road section, as per the Inventory Manual. Those roads identified as having a "NOW", 1 – 5, or 6 - 10 year need have been included in the capital improvement plan for reconstruction.

A total length of 70.6 km of roads were identified as having structural needs in the "NOW", 1 – 5 or 6-10 year periods. The estimated cost to improve these roads is approximately \$18.2 M.

It is important to highlight the network's average structural adequacy score of 13.8/20, as noted previously. A significant portion of the Municipality's roads are approaching a condition that will require reconstruction, as opposed to less costly resurfacing.

A fully funded 10 year plan following the recommendations in this report includes \$4.5 M/year for resurfacing needs and \$1.8 M/year for the capital needs over ten years.

Given that a majority of the Municipality's Road network have a structural need of 6-10 years or no structural need, Wills recommends that priority should be given to resurfacing and preservation over capital needs should funding fall short of ideal levels.

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1.0 Purpose, Background and Study Method

1.1 Purpose

The purpose of the 2023 Road Needs Study Report is to update the current road inventory and road condition assessments within the Municipality of West Nipissing (Municipality). Using this information, a prioritized listing of the road network needs is developed. The information derived from the study and documented in this report will provide assistance to the Municipality for developing and executing a planned road maintenance and improvement program.

The Municipality retained the services of D.M. Wills Associates (Wills) to undertake a review of the existing road network, and assess its physical condition as well as confirm various attributes. Data collected as a result of the field review is used to develop a prioritized listing of the road network needs, the results of which are documented in this report.

1.2 Background

The Municipality of West Nipissing is located in Northeastern Ontario on Lake Nipissing. The geography is dominated by the Canadian Shield and provides many pristine lakes and vistas for the Municipality's 14,500 residents.

In 2023, the Municipality retained Wills to undertake a road condition assessment for the Municipality's road network. This study utilizes both the Inventory Manual for Municipal Roads inspection methodology, and the PCI methodology.

1.3 Study Objectives

Based on discussion with Municipality staff, the following study objectives were identified:

- Provide a current inventory and value of the Municipality's roads, assess road conditions and needs, and develop a priority listing for construction needs and improvements.
- Provide a prioritized list of capital projects for the Municipality to invest in.
- Provide an inventory and full condition assessment of Municipally owned guide rail sections.

To ensure compliance with the latest Ministry of Transportation (MTO) guidelines, the inventories were completed in accordance with the most current edition of the Inventory Manual for Municipal Roads.

1.4 Study Methodology

The procedure utilized to complete the study was in accordance with the Ministry of Transportation's Inventory Manual for Municipal Roads (February 1991).

Additionally, field reviews for the purpose of Pavement Condition Index (PCI) were undertaken in accordance with:

- MTO Manual for Condition Rating of Flexible Pavements, SP-024.
- MTO Manual for Condition Rating of Surface-Treated Roads, SP-021.

There are two key observations when using PCI methods: the Ride Condition Rating (RCR), and the Distress Manifestation Index (DMI). RCR is a subjective measurement of how smooth a travelled surface is, rated from 0 to 10, with 10 representing excellent, new surfaces, and 0 representing an extremely rough, impassible road. DMI aggregates various forms of visible pavement distress into a rating from 0 to 10, with 10 representing a new surface and 0 representing a destroyed surface.

RCR and DMI are rated strictly independently. A rough road may have relatively few visible distresses while a fairly smooth road may display many distresses. In general, rough roads display associated visible distresses.

The combined approach facilitates comparing all the Municipality's roads, as the Inventory Manual prescribes the same rating system regardless of surface type, while also providing detailed descriptions of the types of distress encountered on surfaces as per the PCI ratings. This approach is compliant with O. Reg. 588/17. Wills undertook the field study in April and May of 2023.

During the field study, a visual assessment of the following road characteristics was documented to assess the current adequacy of the road:

- Platform Width (overall width of road).
- Surface Width (width of pavement surface).
- Shoulder Width.
- Surface Type (gravel, low class bituminous, or high class bituminous).
- Drainage Type (open ditches vs. storm sewers etc.).
- Surface Condition (assigned based on Ride Condition Rating for this Study).
- Maintenance Demand.
- Roadside Environment.
- Capacity.
- Alignment.

1.4.1 Critical Deficiencies

Critical deficiencies represent road characteristics that result in increased maintenance costs or lead to an inadequate level of service. Road sections may be assessed as critically deficient if any one of the following characteristics fall below the minimum tolerable standards defined in the MTO Inventory Manual:

- Surface type - Insufficient surface type for traffic volumes.
- Surface width - Insufficient width of the road surface excluding the shoulders.
- Capacity - Inability of the road to accommodate traffic volumes at peak periods.
- Structural Adequacy - Inability of the road base to support vehicular traffic.
- Drainage - Increased frequency of flooding or excessive maintenance effort required to prevent flooding.

Critically deficient roads have generally reached the end of their service life and /or require major work to improve e.g. widening or new surface type. As such, reconstruction is generally required.

Surface Type

The following parameters were used to assess the adequacy of the road surface type. Road sections with traffic volumes (AADT) in excess of the minimum tolerable values for Earth and Gravel in **Table 1**, were noted as critically deficient triggering a “NOW” surface type need as per the Inventory Manual Method.

Table 1 - Surface Type by Annual Average Daily Traffic (AADT)

Surface Type	AADT		
	Inventory Manual		MTO Pavement Design and Rehabilitation Manual ¹
	Tolerable Range	Design Standard	
Earth (E)	<50	-	-
Gravel (G)	<400	0-199	0 - 199
Low Class Bituminous (LCB) / Surface Treatment	-	200-399	200 - 1500
High Class Bituminous (HCB) / Hot Mix	-	400+	>1500

Table 1 provides further guidance with respect to surface type from both the Inventory Manual as well as the MTO Pavement Design and Rehabilitation Manual.

¹ Ministry of Transportation. Pavement Design and Rehabilitation Manual, Second Edition, 2013, Table 3.3.3 Structural Design Guidelines for Flexible Pavement – Secondary Highways

As detailed in **Table 1**, Gravel surfaces are generally considered acceptable for AADT of less than 200 vehicles but may be tolerable up to 400 AADT. Transition to Surface Treatment should be considered above 200 AADT. Gravel road maintenance costs (resurfacing, grading, dust suppression, etc.) versus surface treatment costs are key considerations.

Low Class Bituminous (LCB) i.e. Surface Treatment may be acceptable for traffic volumes between 200 and 1500 AADT. A transition to a Hot Mix or High Class Bituminous surface from Surface Treatment must be considered on a case by case basis. The following factors require consideration:

- Surface Treatment Maintenance Costs.
- Commercial Vehicle Loading.
- Roadside Environment (Urban, Semi-urban, vs. Rural).
- On-street Parking.
- Adjacent Drainage Infrastructure i.e. curb and gutter, catch basins etc.
- Asphalt Availability / Cost.
- Surface / Platform Width.
- Traffic Volume Growth.
- Sub-base Quality.
- Roadbed Frost Susceptibility.
- Future Resurfacing / Rehabilitation Costs.

Vehicle loading is one of the key considerations for pavement design and ultimately the decision between Hot Mix and Surface Treatment. Roads with high levels of commercial traffic require a more substantial pavement structure. The values noted in Table 1, for the "MTO Method" are generally reflective of a highway with 10% commercial vehicles. Roads with AADT in excess of 400 vehicles with a good sub-base and commercial vehicles up to 10% may still perform very well with a Surface Treatment. Existing/past performance of a Surface Treatment can be an excellent indicator when considering the upgrade to Hot Mix.

Surface Width

Surface widths that fall below minimum tolerable standards, as detailed in the MTO Inventory Manual are noted as critically deficient triggering a "NOW" need.

The Default Minimum Surface Widths for Rural roads are included in **Table 2**:

Table 2 – Rural Road Surface Width by Annual Average Daily Traffic (AADT)

	AADT							
	1-49	40-199	200-399	400-999	1000-1999	2000-2999	3000-3999	4000+
Road Width (m)	5.0	5.5	5.5	6.0	6.0	6.0	6.5	6.5

Capacity

An in-depth traffic capacity analysis was not completed as part of the scope of this Road Needs Study. Decisions with respect to expansion of roads should be made within the context of a Transportation Master Plan or Official Plan for the Municipality.

However, from a general perspective, a two-lane road can typically provide adequate service up to an AADT of approximately 12,000 vehicles. The functionality of a road from a capacity standpoint is of course dependent upon other factors in combination with volume. Adjacent land uses, number of access points i.e. entrances and side roads etc. also have a significant impact on how the road functions.

A rural road with limited entrances and side roads will have a much greater capacity to flow traffic versus an urban street with many entrances and side road intersections. The AADT of 12,000 can be used as a 'rule of thumb' to trigger further analysis on the road capacity and operation. For the purposes of this study, a detailed capacity analysis was not undertaken as part of the scope of work. All roads were assigned to be adequate from a capacity perspective noting that no road section had an AADT greater than 6,000.

Structural Adequacy

In cases where road base or structure is showing distress over more than 20% of the length of the road section, a score between 1 and 7 (out of 20) is assessed and the road section is assigned a "NOW" need and considered Critically Deficient per the Inventory Manual. The structural adequacy rating is often the best indicator of the overall road section's health.

It should be noted that a structural "NOW" need does not explicitly mean that work must be undertaken on the road immediately (although this may be so in some cases). A structural "NOW" need means that a significant portion of the road is showing distress of the road bed and requires significant intervention i.e. reconstruction or major rehabilitation to renew its service life. A structural "1 – 5" year need is expected to become a "NOW" need in the next five years, and a "6 – 10" year need is expected to become a "NOW" need in the next 10 years.

Drainage

A road section is assessed as a "NOW" need for drainage generally when a road becomes impassable due to water one or more times a year. This information is not readily accessible from inspection. Characteristics such as ditching, water ponding on or around the road, and evidence of past washouts were used to assess road drainage. As such, a road was given a "NOW" need for drainage if there were evident drainage problems that would likely lead to an impassable road during a heavy rain or a rapid snow melt.

2.0 The Road System

2.1 Inventory and Classification

All roads in the municipal road system were inventoried according to the methods outlined in the Inventory Manual for Municipal Roads.

The inventory procedure requires that each road in the system be studied as a separate unit. Initially, the road system was divided into sections so that each conformed, as close as possible, to the following requirements:

- Uniform traffic volume.
- Uniform terrain.
- Uniform physical conditions.
- Uniform adjacent land.

Depending on location with respect to the built up areas, roads were classified in a manner generally descriptive of the type of construction as follows:

- Urban - Roads with curb and gutter and storm sewer drainage.
- Semi-Urban - Roads in built up areas (development exceeds 50% of the frontage) without curb and gutter or curb and gutter on one side only.
- Rural - Roads with development on less than 50% of the frontage.

Rural roads were further evaluated based on estimated traffic volumes; such as 0 to 50 vehicles per day, 51 to 200, and 201 to 400 etc. For the purpose of this study, 19 counts were completed in May 2023. Where gaps existed in the data, traffic volumes were estimated using the 2023 traffic count data and/or using local characteristics for each road section.

Table 3 summarizes the total road length in kilometres by surface type and road environment as of May 2023.

The existing road system consists of 547 km of roadway, 429 km of gravel roads, 45 km of surface treated roads (LCB) and 73 km of HCB (asphalt paved) roads; with all calculations being approximate and rounded to the nearest kilometre.

Table 3 - Road System Inventory

Municipality of West Nipissing		
Road System in Kilometres		
(As of May 2023)		
A.	Surface Type	Totals*
	Earth	0
	Gravel (Loose Top Gravel)	428.5
	Surface Treatment (LCB & ICB)	45.0
	Hot Mix Asphalt (HCB)	73.4
	Total A	546.9 km
B.	Roadside Environment	
(i)	Rural	
	Earth	0
	Gravel (loose Top Gravel)	420.1
	Surface Treatment (LCB & ICB)	36.0
	Hot Mix Asphalt (HCB)	10.2
	Total Rural	466.3 km
(ii)	Semi-Urban	
	Gravel (loose Top Gravel)	8.4
	Surface Treatment (LCB)	9.0
	Hot Mix Asphalt (HCB)	58.3
	Total Semi-Urban	75.7 km
(iii)	Urban	
	Gravel (loose Top Gravel)	0
	Surface Treatment (LCB)	0
	Hot Mix Asphalt (HCB)	4.9
	Total Urban	4.9 km
	Total B	546.9 km

**Estimated to the nearest centreline kilometre.*

3.0 Road Needs

The primary purpose of the study is to develop a list of all roads within the Municipality ranked according to priority with respect to road needs.

The method of evaluating road needs in terms of type, cost and timing of improvements is identified in the Inventory Manual for Municipal Roads.

It is important to note that budgetary restrictions will often influence the level of upgrades to the road system and therefore it is imperative to maximize the improvements based on availability of funds and needs priority.

3.1 Critical Deficiencies

The inventory of the road system revealed that certain road sections are now deficient or will become deficient during the study period.

As noted previously, critical deficiencies include road characteristics which result in increased maintenance costs and which inevitably lead to an inadequate level of service. A road section is critically deficient if any one of the following characteristics fall below the minimum tolerable standards defined in the Inventory Manual.

- Surface type - Incorrect surface type to suit traffic volumes on the roadway.
- Surface width - Insufficient width of the road surface excluding the shoulders.
- Capacity - Inability of the road to accommodate traffic volumes at peak periods.
- Structural Adequacy - Inability of the road base to support vehicular traffic.
- Drainage - Increased frequency of flooding or excessive maintenance effort required to prevent flooding.

Of the 547 km of roads inventoried, a total of 70.9 km were found to be critically deficient in one or more areas. Of the 70.9 km, approximately 37.1 km represents roads with AADT of less than 50 vehicles. Regardless of condition, roads with AADT of 50 or less are typically assigned as "Adequate" (as per the Ministry protocol) for the purpose of the system adequacy calculation.

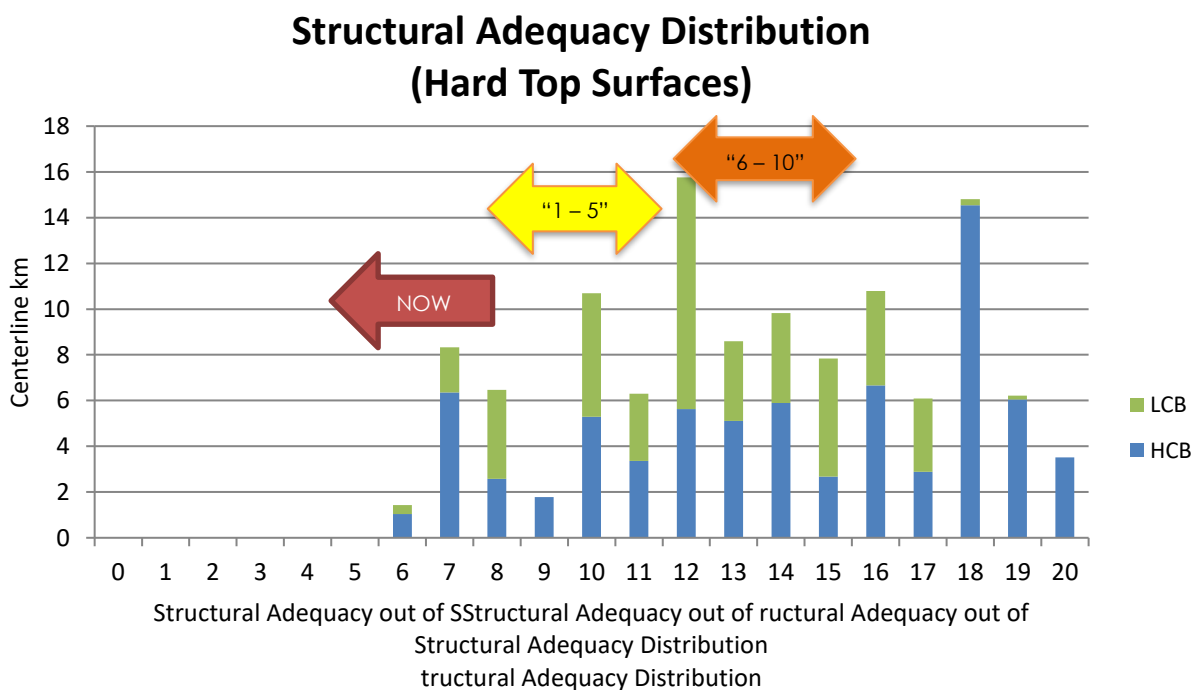
The overall system adequacy for the Municipality's road network, which is based upon the total road kilometres less the identified critically deficient ("NOW" needs) roads, is as follows:

$$\text{2023 System Adequacy} = \frac{547 - (70.9 - 37.1)}{547} \times 100\% = 94\%$$

The average surface condition rating of all roads is 7.0/10 while the average structural adequacy rating is 13.8/20. This suggests that the typical road has a fair to good riding quality, but just at the point where significant rehabilitation or reconstruction is required.

A review of the structural adequacy distribution of the Municipality's hard top roads identifies a group of roads, 49.2 km, that are in very good condition (structural adequacy of 15 and over), and with regular resurfacing and preservative maintenance, should not require reconstruction in the next 10 years. Another cohort of roads, approximately 34.0 km, are in average condition (Structural Adequacy from 12 to 14). Some of these roads may continue to perform well, but without timely resurfacing and preventative maintenance, many of them are expected to become NOW or 1 – 5 year needs. The remaining 35.2 km of hard top road network is well distributed over the very poor to poor range (structural adequacy from 1 to 11). Most of these roads will require reconstruction over the next 5 years to fully repair them.

It is therefore recommended that, while the Municipality endeavors to repair these poor roads as part of its 10-year capital plan, every reasonable effort is made, through preservation management, to prevent the current cohort of fair to very good roads (49.2 km) from becoming capital reconstruction needs themselves.



3.2 Pavement Condition Index (PCI)

Pavement Condition Index (PCI) was calculated based on the same MTO PCI methodologies, using the following empirical formula:

$$PCI = 10 \times \sqrt{\frac{RCR}{10}} \times DMI \times w_c$$

Where DMI is the Distress Manifestation Index (0 to 10), calculated based on distress severity and density, RCR is the assigned Ride Condition Rating out of 10, w_c is the weighting constant to adjust for pavement bias (1.088 for HCB and 0.962 for LCB and gravel surfaces).

The overall weighted PCI for the Municipality's road network is as follows:

$$\text{Overall Weighted Condition} = \frac{\sum \text{length} \times PCI}{\sum \text{length}} = 74.8$$

3.3 Priority Ratings of Roads

A mathematical empirical formula was used to calculate the priority rating for each road section. The priority rating is a weighted calculation which takes into account the existing traffic volume and overall condition rating of the road.

This priority analysis is an impartial procedure to place the deficiencies in order of relative need. **A higher Priority Rating number indicates a relatively greater need for improvement.**

The formula takes into account the current traffic volume (AADT), whether it is from actual road counts or estimated road counts and the Condition Rating (CR) of the road at the time of this Road Needs Study Report. The formula is as follows:

$$\text{Priority Rating} = 0.2 \times (100 - CR) \times (AADT + 40)^{0.25}$$

In utilizing the above equation Wills identified a priority listing for review with Municipality staff. It is important to emphasize that the priority rating calculation considers only CR and traffic volumes.

When developing the recommended capital expenditure plan consideration may be given to the remaining useful service life of a road / roadbed with a view to coordinating major reconstruction efforts at / near the end of the road's life. Furthermore, while a priority rating will give a general idea of which roads should be improved before others, it does not prescribe an exact order for road improvements nor does it determine the timing of preservation and rehabilitation work. For example, it may be wise to defer the full reconstruction of a high priority road ("let the bad roads fail") in favour of resurfacing work on a medium priority road ("keep the good roads good").

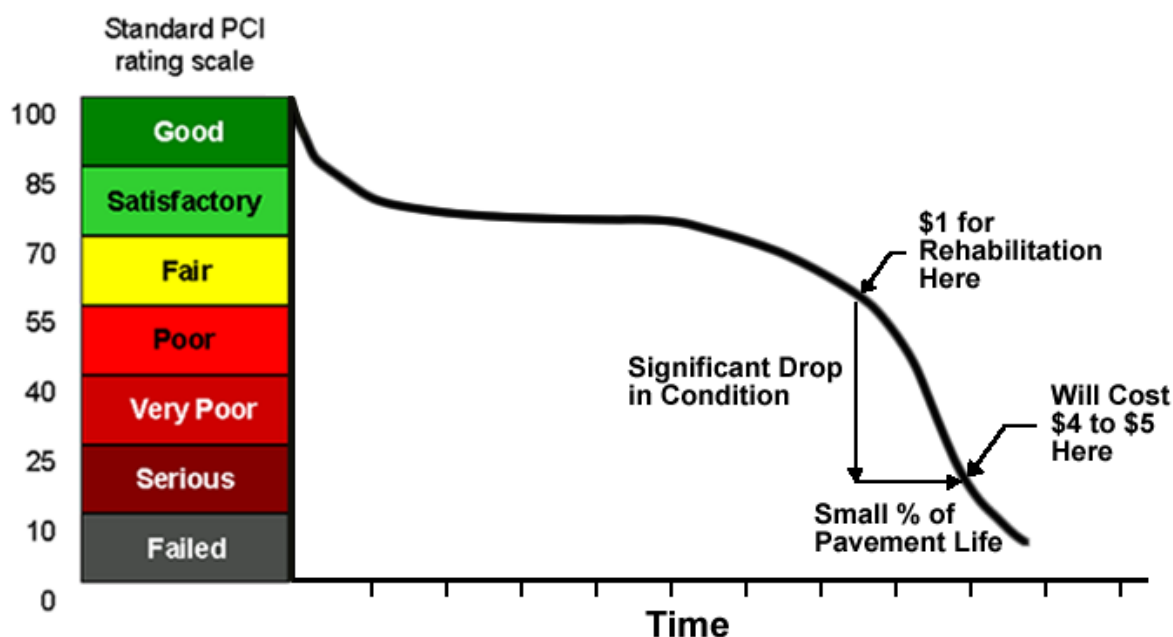
4.0 Roads Best Management Practices

The key to managing a pavement / road network is the timing of maintenance and rehabilitation activities. This idea evolves from the fact that a pavement's structural integrity does not fall constantly with time. A pavement generally provides a constant, acceptable condition for the first part of its service life and then begins to deteriorate very rapidly. In many cases, maintenance and rehabilitation measures are not taken until structural failure or noticeable changes in ride quality become apparent. This is the "fix it once it is already broken" approach.

The unfortunate consequence of this decision is that maintenance and rehabilitation becomes exponentially more expensive over the life of the pavement and is often overlooked until the pavement condition reaches a severe state of distress. There is opportunity for substantial cost savings when intervention is made *before* the pavement becomes severely compromised; i.e. "fix it before it breaks". **Figure 1** illustrates the underlying principle in support of a preservation management approach to pavement infrastructure. The principle also has application to each of the classes of roads maintained by the Municipality. Significant cost savings will result from proactive intervention rather than simply waiting as long as possible before performing maintenance.

Examples of approach to roads management with their associated cost implications over the lifecycle of a road are set out below in **Section 4.1** and are provided as an illustration of the benefit of a "preservation management approach".

Figure 1 - Typical Service Life of an Asphalt Pavement



4.1 Example Life Cycle Cost Analysis

The following life cycle costs analysis compares three (3) different municipalities Municipality 1, Municipality 2 and Municipality 3; each with three (3) distinct approaches to pavement management. For this analysis we will assume each of the three (3) municipalities has 7000 m² of pavement, i.e. 1 km of asphalt paved road that is 7 m wide. In each scenario, the road is assumed to have been constructed in 2013 and will operate under normal traffic loading.

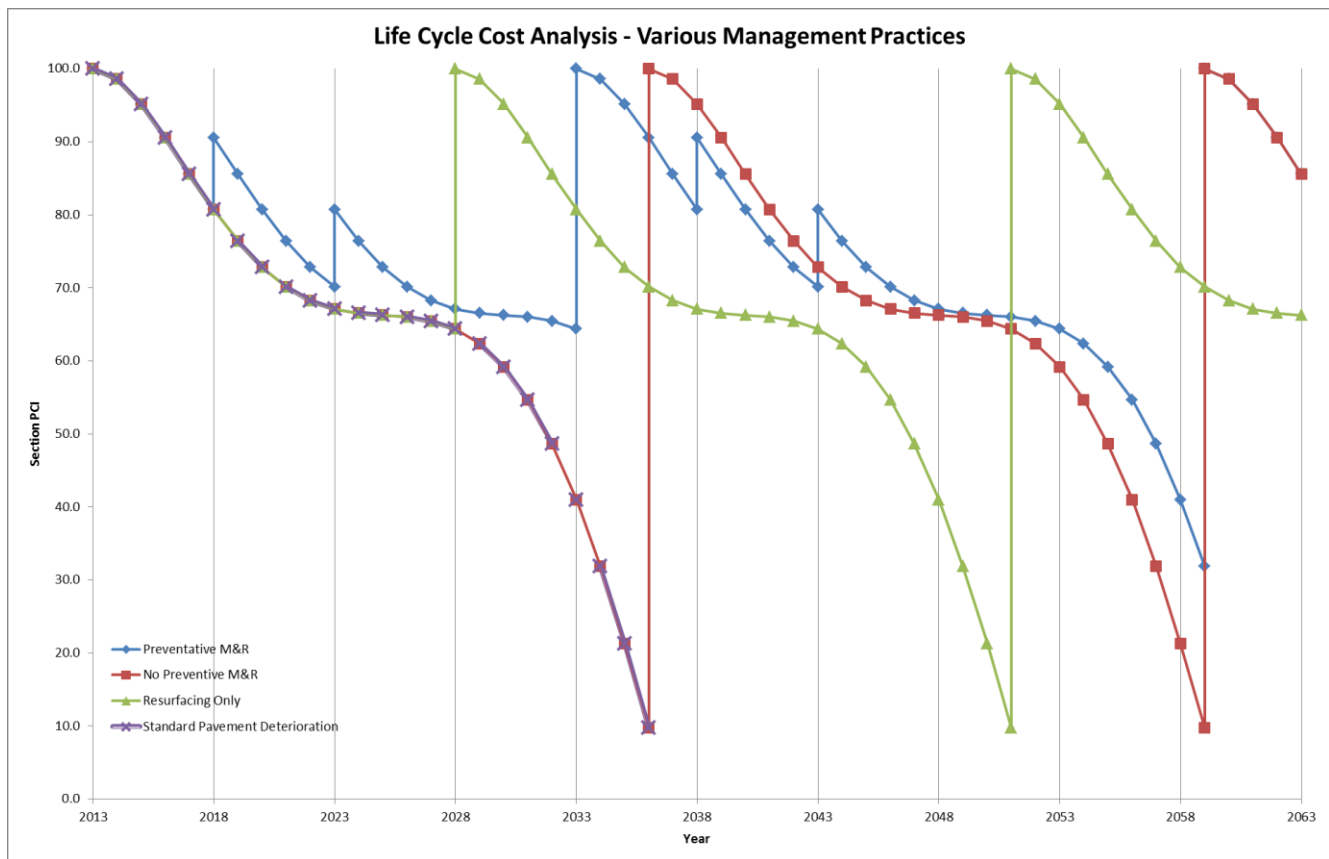
The Life Cycle Cost Analysis (LCCA) assumes no user costs. The LCCA uses a discount rate of 2.5% / year.

The LCCA shows the three (3) different municipalities and tracks their pavement management decisions and related condition over the specified time period.

Municipality 1 represents decisions made based on strategic preventive maintenance and rehabilitation (M&R), Municipality 2 represents decisions based on no preventive M&R and Municipality 3 represents decisions based on resurfacing only.

Figure 2 below illustrates a time- pavement condition plot for each Municipality.

Figure 2 - Time-Condition Plot for 3 Municipalities



The costs associated with the corresponding maintenance and rehabilitation decisions are outlined in the following three (3) charts:

Preventive M&R									
Year	Age	Treatment	Δ PCI	PCI _q	Quantity	Unit	Unit Cost	Total Cost	Present Worth
		-- Annual Ditching/Clearing --							
2018	5	Localized Preventive - Rout and Seal	81-90	Satisfactory-Good	1000	m	\$1.50	\$1,500.00	\$1,325.78
2023	10	Global Preventive - Slurry Seal	70-81	Satisfactory-Good	7000	m ²	\$6.50	\$45,500.00	\$35,544.53
2033	20	Surface Course	64-100	Poor-Good					
		Mill and Dispose of Surface Course			7000	m ²	\$12.00	\$84,000.00	
		50mm Surface Course			892.5	t	\$135.00	\$120,487.50	
								\$204,487.50	\$124,792.78
2038	25	Localized Preventive - Rout and Seal	81-88	Satisfactory-Good	4500	m	\$1.50	\$6,750.00	\$3,640.89
2043	30	Global Preventive - Slurry Seal	68-78	Satisfactory-Good	7000	m ²	\$6.50	\$45,500.00	\$21,691.79
2048	35	Safety/Stopgap Maintenance - AC Patching/Leveling	N/A	N/A	5%	m ²	\$30.00	\$10,500.00	\$4,424.40
2053	40	Safety/Stopgap Maintenance - AC Patching/Leveling	N/A	N/A	10%	m ²	\$30.00	\$21,000.00	\$7,821.04
2058	45	Full Reconstruction	32-100	Serious-Good					
		Remove Asphalt Full Depth			7000	m ²	\$15.00	\$105,000.00	
		Add and Compact Corrective Aggregate/Correct Crossfall (25mm avg.)			420	t	\$35.00	\$14,700.00	
		40mm Base Course			686	t	\$125.00	\$85,750.00	
		50mm Surface Course			892.5	t	\$135.00	\$120,487.50	
								\$325,937.50	\$107,290.28
2063	5	Localized Preventive - Rout and Seal	81-90	Satisfactory-Good	1000	m	\$1.50	\$1,500.00	\$436.41
Final PCI in 2063:			90	Good					Net: \$306,967.90
								Residual Value:	\$85,346.08
								Total Cost:	\$221,621.82

The policy of Municipality 1 is to strategically intervene with preventative maintenance measures over the course of the pavement's service life. Two (2) significant maintenance measures are performed on the pavement at various times and ultimately extend the service life of the pavement, prorating the total cost of the pavement over a longer period of time. Eventually, a full reconstruction is required and this cycle repeats. The total life cycle costs are substantially less when compared to Municipality 2 and 3, at a total of \$221,622 over 50 years.

No Preventive M&R									
Year	Age	Treatment	Δ PCI	PCI _q	Quantity	Unit	Unit Cost	Total Cost	Present Worth
2023	10	Safety/Stopgap Maintenance - AC Patching/Leveling	N/A	N/A	5%	m ²	\$30.00	\$10,500.00	\$8,202.58
2028	15	Safety/Stopgap Maintenance - AC Patching/Leveling	N/A	N/A	10%	m ²	\$30.00	\$21,000.00	\$14,499.78
2030	17	Safety/Stopgap Maintenance - AC Patching/Leveling	N/A	N/A	20%	m ²	\$30.00	\$42,000.00	\$27,602.19
2036	23	Full Reconstruction	10-100	Poor-Good					
		Remove Asphalt Full Depth			7000	m ²	\$15.00	\$105,000.00	
		Add and Compact Corrective Aggregate/Correct Crossfall (25mm avg.)			420	t	\$35.00	\$14,700.00	
		40mm Base Course			686	t	\$125.00	\$85,750.00	
		50mm Surface Course			892.5	t	\$135.00	\$120,487.50	
								\$325,937.50	\$184,707.88
2043	7	Safety/Stopgap Maintenance - AC Patching/Leveling	N/A	N/A	5%	m ²	\$30.00	\$10,500.00	\$5,005.80
2048	12	Safety/Stopgap Maintenance - AC Patching/Leveling	N/A	N/A	10%	m ²	\$30.00	\$21,000.00	\$8,848.79
2053	17	Safety/Stopgap Maintenance - AC Patching/Leveling	N/A	N/A	20%	m ²	\$30.00	\$42,000.00	\$15,642.09
2059	23	Full Reconstruction	10-100	Poor-Good					
		Remove Asphalt Full Depth			7000	m ²	\$15.00	\$105,000.00	
		Add and Compact Corrective Aggregate/Correct Crossfall (25mm avg.)			420	t	\$35.00	\$14,700.00	
		40mm Base Course			686	t	\$125.00	\$85,750.00	
		50mm Surface Course			892.5	t	\$135.00	\$120,487.50	
								\$325,937.50	\$104,673.45
Final PCI in 2063:			86	Good	Net:				\$369,182.56
Residual Value:								\$81,552.92	
Total Cost:								\$287,629.64	

The policy of Municipality 2 is to simply construct the pavement and wait until serious deficiencies begin to appear before acting. This approach unfortunately remains common still today. Over the last period of the pavement's life, maintenance is required to ensure safety and operation until the pavement becomes completely destroyed. Once the pavement has failed, a complete reconstruction is carried out restoring the pavement to new condition. This cycle repeats again until a second reconstruction is required. The total costs are substantial and total \$287,630 over 50 years.

The policy of Municipality 3 is periodic resurfacing. The pavement is constructed and time passes until early signs of serious distress are observed. This occurs after the time when preventive maintenance is neither appropriate nor possible, but before the pavement becomes completely destroyed. Resurfacing is performed and restores the pavement to almost new condition. The pavement then deteriorates for the remainder of its life, requiring significant maintenance in the last years before it becomes completely destroyed. A full reconstruction is then carried out and the cycle continues. The total costs are in between that of Municipality 1 and 2 at \$260,038 over 50 years.

Resurfacing Only										
Year	Age	Treatment	Δ PCI	PCI _q	Quantity	Unit	Unit Cost	Total Cost	Present Worth	
2028	15	Surface Course	64-100	Poor-Good						
		Mill and Dispose of Surface Course			7000	m ²	\$12.00	\$84,000.00		
		50mm Surface Course			892.5	t	\$135.00	\$120,487.50		
							\$204,487.50	\$141,191.58		
2051	23	Full Reconstruction	10-100	Serious-Good						
		Remove Asphalt Full Depth			7000	m ²	\$15.00	\$105,000.00		
		Add and Compact Corrective Aggregate/Correct Crossfall (25mm avg.)			420	t	\$35.00	\$14,700.00		
		40mm Base Course			686	t	\$125.00	\$85,750.00		
		50mm Surface Course			892.5	t	\$135.00	\$120,487.50		
							\$325,937.50	\$127,534.43		
2067	15	Surface Course	64-100	Poor-Good						
		Mill and Dispose of Surface Course			7000	m ²	\$12.00	\$84,000.00		
		50mm Surface Course			892.5	t	\$135.00	\$120,487.50		
							\$204,487.50	\$53,898.67		
Final PCI in 2063:			66	Good					Net:	\$322,624.67
								Residual Value:	\$62,587.12	
								Total Cost:	\$260,037.55	

It may be easy to see upfront cost savings by understanding that as long as any costs associated with maintaining the pavement are deferred as long as possible, money will be saved. The reality is that extending a pavements service life prorates the total cost of the pavement over a longer period of time and ultimately becomes more economical in the long run. If preventive maintenance measures are strategically planned and carried out then the service life of the pavement can be maximized and substantial reconstruction costs can be deferred for longer periods of time. In a time when economy and efficiency are becoming more and more important, this type of proactive management is essential in the management of infrastructure.

Preservation Management Approach

4.1.1 Gravel Roads

The Municipality currently maintains approximately 430 km of gravel road. The proposed preservation management approach for this class of road is outlined in the following **Table 4** and **Table 5**.

Table 4 - Preservation Management Approach- Gravel Surface

Action	Frequency
Regrade surfaces to maintain smooth / safe driving surface and proper crossfall.	As needed, generally 2-3 times per year for higher volume gravel, or more frequently as necessary; 1-2 for lower volume.
Add calcium to tighten surface, retain aggregate and reduce dust.	Each spring on all roads of higher volume and as needed during summer months.
Ditching and brushing of right-of-ways to improve roadbed drainage and safety.	Complete road network every 10 years.

Table 5 - Capital Activities – Gravel Roads

Action	Frequency
Add layer (100 mm) of granular material to road surface.	Every 3-5 years for gravel roads.
Base and sub-base improvements.	As needed or as dictated by traffic volumes.
Reconstruct / convert to hard top.	As dictated by traffic volumes.

4.1.2 Surface Treated Roads

Surface treated roads have a hard wearing surface that must be preserved in order to be effective. The Municipality currently maintains 45 km of surface treated roads. Unlike gravel roads, a significant investment has been made in the surface and consequently these roads must be managed properly to obtain the longest possible service life from the surface.

Table 6 - Preservation Management Approach – Surface Treated Roads

Activity	Age (Years)	Ride Condition Rating	Estimated Service Life Extension (Years)
Slurry Seal	3	8	4
Single Surface Treatment	6	7	3
Double Surface Treatment	10	6	5
Pulverize and DST	14	<4	8

In addition to the noted preservation approach in **Table 6**, the following best management practices may be employed to preserve the surface, extend the service life and reduce life cycle costs of surface treated roads:

1. Surface treatment shall be applied to the entire road platform, from "grass to grass", including any shoulders. This will eliminate grading on surface treated roads, which has a tendency to damage the edge of the surface treatment and cause premature failure of the surface.
2. Suitable new technologies will be utilized where they can be demonstrated to reduce life cycle costs, such as fibre-reinforced surface treatment. This technology can be used to mitigate reflective cracking (if cracks are narrow and inactive) when a single or double surface treatment is applied over an aging surface. It can eliminate the need for pulverizing the underlying surface in certain situations and can reduce overall costs.
3. Assess drainage and culvert needs prior to any significant renewal or rehabilitation strategy and complete any improvements concurrently. This will eliminate the need to cut / excavate a relatively new surface to replace a culvert.
4. Ditching and clearing (brushing) of the right-of-ways (ROW) to improve roadbed drainage and safety.

4.1.3 Asphalt Roads

Asphalt surfaces are the smoothest and most durable hard top surface used by the Municipality; however, they are also the most expensive. The Municipality currently maintains 73 km of asphalt surface roads. Asphalt provides a constant, acceptable condition for the initial portion of its service life but then begins to deteriorate rapidly as it ages. Surface defects such as cracking and raveling are the first signs of the deterioration. If left untreated, the pavement will rapidly deteriorate to the point where reconstruction is the only option. A preservation management strategy can mitigate this by applying renewal treatments earlier in the pavements life before the conditions begin to deteriorate too far. **Table 7** below summarizes preservation management activities to be considered for asphalt roads:

Table 7 - Preservation Management Approach – Rural Asphalt Roads

Activity	Age (Years)	Ride Condition Rating	Estimated Service Life Extension (years)
Crack seal	2-6	9	2
Slurry Seal / Microsurface	4-8	8	4-6
Overlay	12-15	6-7	10
Pulverize and Pave	20-25	< 5	20
Reconstruct	30	< 4	30

Note: Slurry seal can be used on lower volume paved roads (less than 1000 vehicles per day). For roads with volumes in excess of 1000 AADT, microsurfacing should be considered.

In addition to the above noted preservation approach, the following best management practices may be employed to extend the service life and reduce life cycle costs of asphalt roads:

1. Review the condition of other infrastructure, particularly underground infrastructure prior to implementing any major renewal or rehabilitation of the pavement. Any repairs or capital upgrades to other infrastructure should be coordinated. This should reduce utility cuts in newer asphalt.
2. Repair potholes in the surface in a timely fashion to prevent saturation and weakening of road base.
3. Undertake regular shouldering program of rural paved roads to promote proper drainage. Poorly maintained shoulders allow surface water to pond and saturate the road base, which weakens the base and leads to cracking at the edge of pavements.
4. Undertake a ditching program to ensure there is adequate drainage for road base on rural roads. This will reduce the likelihood of structural distresses caused by softening of the road base due to poor drainage.
5. Specify the appropriate type of performance graded asphalt cement for the location.
6. Undertake a brush clearing program to reduce shading of the roadbed and remove roots / vegetation from the road base.

4.2 Application of Preservation Management Approach

The preservation management activities detailed in each of the tables above are not necessarily intended or required to be completed on each and every road. Road deterioration rates and the type of deterioration will dictate when action should be taken and what kind of treatment is most appropriate. The intention of the above is to outline the series of techniques to be considered in an effort to realize and extend the useful service life of the road asset for the lowest overall lifecycle cost while maintaining the highest overall condition. As detailed in the life cycle costs analysis presented above, the preservation management approach to roads is proven to yield the lowest overall life-cycle costs.

Each of the preservation management activities for gravel, surface treatment and asphalt roads identified above (including route and seal, slurry seal, resurfacing etc.), shall be considered as part of the regular Road Needs Study Report every five (5) years. Recommendations on the specific treatments required shall be documented and prioritized in this Report.

5.0 Road Needs Study Summary Table

5.1 Types of Improvements

All roads were examined to appraise the extent and type of improvement necessary.

“Order of Magnitude” construction costs were developed for each of the below options on a per kilometre basis. An estimated cost for isolated frost heave repairs was also considered.

The below alternative rehabilitation strategies are considered preliminary in nature and are intended to assist in providing an order of magnitude cost estimate to rehabilitate the road. Further field investigations and engineering design is required to confirm and develop the rehabilitation strategies for each road.

5.1.1 Asphalt

High Class Bituminous roads (HCB) or hot mix asphalt roads have rehabilitation alternatives ranging from a simple overlay to complete reconstruction. The following is a listing of standard road rehabilitation techniques that were considered for HCB or hot mix asphalt roads.

RO1	Resurfacing, Single-Lift Overlay.
RO2	Resurfacing, Double-Lift Overlay.
RMP1	Resurfacing, Mill and Pave 1-Lift.
RMP2	Resurfacing, Mill and Pave 2-Lifts.
PP1	Pulverize and Pave 1-Lift.
PP2	Pulverize and Pave 2-Lifts.
Recon 1R	Excavate and Reconstruct Road and Pave 1-Lift – Rural.
Recon 1S	Excavate and Reconstruct Road and Pave 1-Lift – Semi-Urban.
Recon 2S	Excavate and Reconstruct Road and Pave 2-Lifts – Semi-Urban.
Recon 2U	Excavate and Reconstruct Urban Road and Pave 2-Lifts – Urban.
SS	Slurry Seal (Preventative Maintenance).
MS	Microsurfacing (Preventative Maintenance).
RS	Route and Seal (Preventative Maintenance).

5.1.2 Surface Treatment

Surface treated roads are generally able to be rehabilitated with either a single or double Low Class Bituminous (LCB) overlay treatment. They may also be upgraded to HCB pavement or downgraded to gravel. In some cases, previous resurfacing of LCB roads has occurred or the LCB surface or road structure has deteriorated to a state where a simple overlay surface treatment is not feasible. In these cases consideration can be given to removal or pulverizing of the existing surface treatment and placement of a new application. In some cases, where it is necessary to improve the overall roadbed structure, the addition of Granular A to build up the road and the reapplication of a surface treatment is recommended. The following is a listing of standard road rehabilitation techniques that were considered for LCB (surface treated) roads:

- ST1** Single Surface Treatment.
- ST2** Double Surface Treatment.
- ST2R** Double Surface Treatment, with Removal of Existing.
- ST2A** Double Surface Treatment, over New Granular A.
- ST2PA** Double Surface Treatment, over Pulverized Existing and New Granular A.
- ST2PAW** Double Surface Treatment, over Pulverized Existing and New Granular A with 1 m Widening.
- SS** Slurry Seal (Preventative Maintenance).

5.1.3 Gravel

Gravel roads can likewise be upgraded with the reapplication of Gravel (G) or surface treatments (ST1).

5.2 Benchmark Construction Costs

The Unit Price Form found in **Appendix A** is based on average prices for the local area. The unit prices were used to prepare an array of benchmark construction costs.

The design standards in **Table 8** were utilized for development of the benchmark cost estimates for reconstruction. It should be noted that these are suggested standards and therefore should not necessarily be used as standards for detail design of roadway improvements.

Table 8 - Design Standards for Construction Cost Estimates

Functional Classification	Surface Width (m)	Shoulder Width (m)	Granular A Depth (mm)	Granular B Depth (mm)	Hot Mix Depth (mm)*
Rural R200 (50 to 199 vpd)	6.0	1.5	150	450	-
Rural R300 (200 to 399 vpd)	6.0	1.5	150	450	16*
Rural R400 (400 to 999 vpd)	6.5	1.5	150	450	50
Semi - Urban Local Residential	6.0	1.5	150	450	50
Semi - Urban Local Industrial	6.5	1.5	150	450	50
Urban Local Residential	8.5	-	150	600	100
Urban Local Industrial	9.0	-	150	600	100

*Note - Prime and Double Surface Treatment is based on 16 mm of Hot Mix.

6.0 Improvement Plan

In the following tables you will find three columns being used to describe the condition of the road; Surface Condition, Structural Adequacy, and Condition Rating. To better understand the prioritization of the lists, descriptions of these ratings can be found below.

Surface Condition: Surface conditions relate to driving ease, comfort and safety. Inadequacies for paved surface include excessive or uneven crowns, washboarding, raveling and bumpiness because of cracking, sealing, and rough patching. Inadequacies on loose top surfaces do not include situations that can be readily corrected by maintenance blading. They do include unconsolidated surfaces due to poorly graded or clean aggregate and permanent roughness due to insufficient depth of aggregate or weak subgrade. The effects of surface inadequacies in ascending order of seriousness are noise, vibration, sway, excessive steering effort and reduced speed. *Rated on a scale of 1 to 10.*

Structural Adequacy: The Structural Adequacy point rating relates to the capability of the surface and base courses to support a load and to resist deformation or rupture. Soft spots and frost boils are structural adequacy distress signs for loose top roads. For paved surfaces, distress signs may be cracking, rutting, heaving, pot-holing, roughness, alligatoring, dishing, breakup, distortion, frost boils, etc. *Rated on a scale of 1 to 20.*

Condition Rating: A holistic rating that sums point ratings from alignment, surface condition, surface width, level of service, structural adequacy, drainage and maintenance demands. The condition rating is one of the major factors used to calculate the Priority Rating. *Rated on a scale of 1 to 100.*

6.1 Road Needs

The Municipality of West Nipissing's Capital Improvement Plan is included on the next page, **Table 9**. This table notes the recommended capital improvements based on priorities throughout the Municipality. AADT is based on traffic counts provided by the Municipality. **All costs are based on 2023 dollars and should be adjusted for inflation based on program year, for budgeting purposes.** The capital improvements are listed in descending priority based on traffic volumes and Condition Rating, as described previously.

Table 9 – Municipality of West Nipissing Capital Improvement Plan

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
NOW Needs										
372	JOHN ST	249M EAST OF CLARK ST	COURSOL RD	0.06	2000	Recon 1S - Full Reconstruction + 1 Lift	\$40	5	6	65
373	JOHN ST	CLARK ST	249M EAST OF CLARK ST	0.25	2000	Recon 1S - Full Reconstruction + 1 Lift	\$167	5	6	65
249	ETHEL ST	MICHAUD ST	COURSOL RD	0.50	1529	Recon 1S - Full Reconstruction + 1 Lift	\$338	5	7	66
246	ETHEL ST	NIPISSING ST	CHURCH ST	0.10	1000	Recon 1S - Full Reconstruction + 1 Lift	\$68	5	7	66
247	ETHEL ST	MAIN ST	205 M EAST OF MAIN ST	0.21	1000	Recon 1S - Full Reconstruction + 1 Lift	\$138	5	7	66
248	ETHEL ST	205 M EAST OF MAIN ST	NIPISSING ST	0.06	1000	Recon 1S - Full Reconstruction + 1 Lift	\$41	5	7	66
250	ETHEL ST	KING ST	MAIN ST	0.09	400	Recon 1S - Full Reconstruction + 1 Lift	\$60	5	7	66
496	MACKIE ST	CHURCH ST	ARTHUR ST	0.10	800	Recon 1S - Full Reconstruction + 1 Lift	\$68	5	7	66
754	RUSSELL ST	HOLDITCH ST	KING ST	0.10	800	Recon 1S - Full Reconstruction + 1 Lift	\$69	5	7	66
127	CHRETIE RD	MILLRAND RD	MICHEL RD	1.40	49	Recon G - Full Reconstruction 6m Gravel Road	\$281	4	7	47
26	ARTHUR ST	NORTH ST	ETHEL ST	0.14	400	Recon 1S - Full Reconstruction + 1 Lift	\$95	5	7	66
262	FIRST ST	MAIN ST	LEVESQUE ST	0.10	400	Recon 1S - Full Reconstruction + 1 Lift	\$66	5	7	66
30	ARTHUR ST	SALTER ST	SOUTH END	0.10	200	Recon 1S - Full Reconstruction + 1 Lift	\$68	4	6	62
645	PARKER ST	SALTER ST	FIRST ST	0.12	200	Recon 1S - Full Reconstruction + 1 Lift	\$81	4	6	62
222	DUFFERIN ST	TORONTO RD	SIMCOE ST	0.08	200	ST2A - Double Surface Treatment with Granular A	\$8	5	7	63
82	BOURGAULT ST	RIVERVIEW CT	EAST END	0.09	200	Recon 1S - Full Reconstruction + 1 Lift	\$61	4	6	63

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
83	BOURGAULT ST	MICHAUD ST	RIVERVIEW CT	0.09	200	Recon 1S - Full Reconstruction + 1 Lift	\$57	4	6	63
225	DUFFERIN ST	SIMCOE ST	CACHE BAY RD	0.10	200	ST2A - Double Surface Treatment with Granular A	\$10	5	7	63
671	PRINCIPAL ST E	SYLVESTRE ST	DES ERABLES ST	0.10	400	Recon 1S - Full Reconstruction + 1 Lift	\$64	5	7	70
676	PRINCIPAL ST E	DUBEAU ST	SYLVESTRE ST	0.10	400	Recon 1S - Full Reconstruction + 1 Lift	\$68	5	7	70
679	PRINCIPAL ST E	DES ERABLES ST	HERITAGE CR	0.30	400	Recon 1S - Full Reconstruction + 1 Lift	\$199	5	7	70
37	AUBREY ST	LEVESQUE ST	NIPISSING ST	0.17	150	Recon 1S - Full Reconstruction + 1 Lift	\$112	4	7	63
779	SANDHILL RD	SABOURIN RD	CACHE BAY RD	0.14	123	ST2A - Double Surface Treatment with Granular A	\$15	4	7	62
126	CHOLETTE AV	THIRD ST	SOUTH END	0.09	100	ST2A - Double Surface Treatment with Granular A	\$10	4	6	61
202	DOMINA CR	DOVERCOURT RD	EAST END	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$66	4	7	61
604	NORTH ST	ARTHUR ST	MICHAUD ST	0.10	200	Recon 1S - Full Reconstruction + 1 Lift	\$67	5	7	66
255	EUGENE RD	RAINVILLE RD	POIRIER RD	1.53	200	ST2A - Double Surface Treatment with Granular A	\$156	5	7	66
605	NORTH ST	CHURCH ST	ARTHUR ST	0.10	200	Recon 1S - Full Reconstruction + 1 Lift	\$68	5	7	66
727	RITCHIE RD	LEVAC RD	WATERFRONT DR	0.67	200	Recon 1S - Full Reconstruction + 1 Lift	\$450	5	7	66
515	MARGARET ST	BOOTH ST	CACHE ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$96	4	6	63
628	OUELLETTE CR	FOURTH ST	NORTH END	0.09	100	Recon 1S - Full Reconstruction + 1 Lift	\$57	4	6	63
834	SYLVESTRE ST	PRINCIPAL ST E	GINGRAS AV	0.15	100	ST2A - Double Surface Treatment with Granular A	\$15	4	6	64

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
20	ANDERSON ST	CACHE S	MARTIN ST	0.09	100	Recon 1S - Full Reconstruction + 1 Lift	\$60	4	7	64
219	DUBEAU ST	PRINCIPAL ST E	GINGRAS AV	0.12	100	ST2A - Double Surface Treatment with Granular A	\$12	4	7	65
44	BAIN AV	MILL ST	JESSUP ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$95	5	7	65
552	MILL ST	HAY ST	BAIN AV	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$69	5	7	65
46	BAIN AV	JESSUP ST	YOUNG ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$93	5	7	65
553	MILL ST	BAIN AV	WATERFRONT DR	0.11	100	Recon 1S - Full Reconstruction + 1 Lift	\$71	5	7	65
554	MILL ST	ANDERSON ST	HAY ST	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$65	5	7	65
722	RAMSAY ST	SPRING ST	NORTH END	0.05	49	Recon 1S - Full Reconstruction + 1 Lift	\$30	4	6	62
562	MONTREAL ST	ABITIBI ST	NORTH END	0.16	49	ST2A - Double Surface Treatment with Granular A	\$16	4	6	62
884	WATERFRONT DR	DOCK RD	JESSUP ST	0.09	100	Recon 1S - Full Reconstruction + 1 Lift	\$57	5	7	66
903	YOUNG ST	HAY ST	BAIN AV	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$69	5	7	66
342	HERITAGE CR	PRINCIPAL ST E	PRINCIPAL ST E	0.25	100	Recon 1S - Full Reconstruction + 1 Lift	\$169	5	7	66
885	WATERFRONT DR	MILL ST	DOCK RD	0.06	100	Recon 1S - Full Reconstruction + 1 Lift	\$37	5	7	66
886	WATERFRONT DR	GORDON ST	BOOTH ST	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$66	5	7	66
336	HAY ST	BOOTH ST	CACHE ST	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$70	5	7	66
887	WATERFRONT DR	BOOTH ST	CACHE ST	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$68	5	7	66
74	BOOTH ST	LEVAC RD	MARGARET ST	0.23	100	Recon 1S - Full Reconstruction + 1 Lift	\$153	5	7	66

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
76	BOOTH ST	ANDERSON ST	HAY ST	0.11	100	Recon 1S - Full Reconstruction + 1 Lift	\$76	5	7	66
530	MARY ST	EDWARD ST	BOOTH ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$97	5	7	66
362	JESSUP ST	BAIN AV	WATERFRONT DR	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$69	5	7	66
888	WATERFRONT DR	RITCHIE RD	MILL ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$95	5	7	66
889	WATERFRONT DR	YOUNG ST	GORDON ST	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$70	5	7	66
337	HAY ST	MILL ST	JESSUP ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$95	5	7	66
363	JESSUP ST	ANDERSON ST	HAY ST	0.04	100	Recon 1S - Full Reconstruction + 1 Lift	\$26	5	7	66
531	MARY ST	BOOTH ST	CACHE ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$94	5	7	66
1	ABITIBI ST	MONTREAL ST	OTTAWA ST	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$68	5	7	66
77	BOOTH ST	MARGARET ST	MARY ST	0.18	100	Recon 1S - Full Reconstruction + 1 Lift	\$124	5	7	66
904	YOUNG ST	BAIN AV	WATERFRONT DR	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$67	5	7	66
339	HAY ST	JESSUP ST	YOUNG ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$94	5	7	66
890	WATERFRONT DR	CACHE ST	EAST END	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$70	5	7	66
891	WATERFRONT DR	JESSUP ST	YOUNG ST	0.14	100	Recon 1S - Full Reconstruction + 1 Lift	\$95	5	7	66
78	BOOTH ST	BAIN AV	WATERFRONT DR	0.10	100	Recon 1S - Full Reconstruction + 1 Lift	\$68	5	7	66
240	EDWARD ST	MARY ST	ANDERSON ST	0.27	100	Recon 1S - Full Reconstruction + 1 Lift	\$181	5	7	66
905	YOUNG ST	ANDERSON ST	HAY ST	0.11	100	Recon 1S - Full Reconstruction + 1 Lift	\$76	5	7	66
241	EDWARD ST	LEVAC RD	MARY ST	0.33	100	Recon 1S - Full Reconstruction + 1 Lift	\$219	5	7	66

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
733	RIVERVIEW CT	BOURGAULT ST	SOUTH END	0.06	49	Recon 1S - Full Reconstruction + 1 Lift	\$38	4	6	63
705	RACETTE ST	PRINCIPAL ST E	GRINGAS AVE	0.07	100	Recon 2U - Full Reconstruction + 2 Lifts	\$105	5	7	72
1 - 5 Year Needs										
581	NIPISSING ST	QUEEN ST	HIGHWAY 17	0.13	2000	PP1 - Pulverize and Pave 1 Lift	\$30	5	10	69
588	NIPISSING ST	WILLIAM ST	QUEEN ST	0.12	2000	PP1 - Pulverize and Pave 1 Lift	\$28	5	10	69
364	JOHN ST	CARRIE ST	CLARK ST	0.10	2000	PP1 - Pulverize and Pave 1 Lift	\$23	5	9	69
366	JOHN ST	ARTHUR ST	MICHAUD ST	0.10	2000	PP1 - Pulverize and Pave 1 Lift	\$23	5	9	69
368	JOHN ST	MICHAUD ST	CARRIE ST	0.10	2000	PP1 - Pulverize and Pave 1 Lift	\$24	5	9	69
365	JOHN ST	CHURCH ST	ARTHUR ST	0.10	2000	PP1 - Pulverize and Pave 1 Lift	\$24	5	9	69
367	JOHN ST	NIPISSING ST	CHURCH ST	0.10	2000	PP1 - Pulverize and Pave 1 Lift	\$24	5	9	69
587	NIPISSING ST	JOHN ST	WILLIAM ST	0.12	2000	PP1 - Pulverize and Pave 1 Lift	\$28	6	11	72
128	CHURCH ST	ETHEL ST	MACKIE ST	0.14	800	PP1 - Pulverize and Pave 1 Lift	\$33	5	8	67
130	CHURCH ST	MACKIE ST	MARKET ST	0.14	800	PP1 - Pulverize and Pave 1 Lift	\$34	5	8	67
501	MAIN ST	ETHEL ST	MARKET ST	0.28	800	PP1 - Pulverize and Pave 1 Lift	\$66	5	10	69
591	NIPISSING ST	RUSSELL ST	JOHN ST	0.13	1200	PP1 - Pulverize and Pave 1 Lift	\$30	6	11	72
244	ETHEL ST	CHURCH ST	ARTHUR ST	0.10	1000	PP1 - Pulverize and Pave 1 Lift	\$23	6	11	71
245	ETHEL ST	ARTHUR ST	MICHAUD ST	0.10	1000	PP1 - Pulverize and Pave 1 Lift	\$23	6	11	71
518	MARKET ST	NIPISSING ST	CHURCH ST	0.10	800	PP1 - Pulverize and Pave 1 Lift	\$24	6	9	70
522	MARKET ST	CHURCH ST	ARTHUR ST	0.10	800	PP1 - Pulverize and Pave 1 Lift	\$23	6	9	70

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
524	MARKET ST	PARKER ST	NIPISSING ST	0.06	800	PP1 - Pulverize and Pave 1 Lift	\$14	6	9	70
595	NIPISSING ST	MARKET ST	RUSSELL ST	0.10	1000	PP1 - Pulverize and Pave 1 Lift	\$23	6	11	72
596	NIPISSING ST	MACKIE ST	MARKET ST	0.14	1000	PP1 - Pulverize and Pave 1 Lift	\$33	6	11	72
758	RUSSELL ST	CLARK ST	COURSOL RD	0.31	800	PP1 - Pulverize and Pave 1 Lift	\$72	6	10	71
443	LAURIER ST	PAQUETTE ST	EAST END	0.11	49	ST2A - Double Surface Treatment with Granular A	\$11	5	8	50
766	SALTER ST	LEVESQUE ST	MAIN ST	0.10	600	PP1 - Pulverize and Pave 1 Lift	\$24	6	10	70
132	CHURCH ST	MARKET ST	RUSSELL ST	0.10	400	PP1 - Pulverize and Pave 1 Lift	\$23	5	8	67
133	CHURCH ST	RUSSELL ST	JOHN ST	0.13	400	PP1 - Pulverize and Pave 1 Lift	\$30	5	8	67
583	NIPISSING ST	ETHEL ST	MACKIE ST	0.14	800	PP1 - Pulverize and Pave 1 Lift	\$34	6	11	72
371	JOHN ST	RIVER ST	HOLDITCH ST	0.14	4251	PP2 - Pulverize and Pave 2 Lifts	\$56	6	11	82
209	DRIVE IN RD	SABOURIN RD	LARONDE RD	0.21	800	PP1 - Pulverize and Pave 1 Lift	\$50	6	11	73
370	JOHN ST	KING ST	MAIN ST	0.10	4000	PP2 - Pulverize and Pave 2 Lifts	\$40	6	11	82
374	JOHN ST	LEVESQUE ST	PARKER ST	0.10	4000	PP2 - Pulverize and Pave 2 Lifts	\$41	6	11	82
375	JOHN ST	MAIN ST	LEVESQUE ST	0.10	4000	PP2 - Pulverize and Pave 2 Lifts	\$39	6	11	82
376	JOHN ST	HOLDITCH ST	KING ST	0.10	4000	PP2 - Pulverize and Pave 2 Lifts	\$40	6	11	82
208	DRIVE IN RD	HIGHWAY 17	VACHON RD	0.54	706	PP1 - Pulverize and Pave 1 Lift	\$128	6	11	73
114	CARTIER ST	HIGHWAY 17	PIETTE RD	0.06	400	PP1 - Pulverize and Pave 1 Lift	\$14	5	8	70
116	CARTIER ST	PIETTE RD	PRINCIPAL ST W	0.09	400	PP1 - Pulverize and Pave 1 Lift	\$21	5	8	70

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
369	JOHN ST	PARKER ST	NIPISSING ST	0.06	3000	PP2 - Pulverize and Pave 2 Lifts	\$24	6	11	82
728	RIVER ST	JOHN ST	WILLIAM ST	0.12	400	PP1 - Pulverize and Pave 1 Lift	\$28	6	10	71
452	LECLAIR RD	LAPLAGE RD	BEAUDRY RD	1.66	400	ST2A - Double Surface Treatment with Granular A	\$170	5	8	71
453	LECLAIR RD	ROBERGE RD	LAPLAGE RD	1.60	400	ST2A - Double Surface Treatment with Granular A	\$164	5	8	71
730	RIVER ST	WILLIAM ST	QUEEN ST	0.12	400	PP1 - Pulverize and Pave 1 Lift	\$29	6	10	71
454	LECLAIR RD	ANDRE-LYNE RD	ROBERGE RD	0.51	400	ST2A - Double Surface Treatment with Granular A	\$52	5	8	71
129	CHURCH ST	NORTH ST	ETHEL ST	0.14	400	PP1 - Pulverize and Pave 1 Lift	\$33	6	11	72
131	CHURCH ST	BOURGAULT ST	NORTH ST	0.09	400	PP1 - Pulverize and Pave 1 Lift	\$20	6	11	72
798	SIMCOE ST	DUFFERIN ST	TORONTO ST	0.08	150	PP1 - Pulverize and Pave 1 Lift	\$19	5	9	66
799	SIMCOE ST	LISGAR ST	DUFFERIN ST	0.12	150	PP1 - Pulverize and Pave 1 Lift	\$29	5	9	66
620	OTTAWA ST	DUFFERIN ST	IMPERIAL ST	0.08	200	PP1 - Pulverize and Pave 1 Lift	\$19	5	10	68
625	OTTAWA ST	LISGAR ST	DUFFERIN ST	0.12	200	PP1 - Pulverize and Pave 1 Lift	\$29	5	10	68
641	PARKER ST	RAILWAY ST	SALTER ST	0.10	200	PP1 - Pulverize and Pave 1 Lift	\$23	5	9	69
734	RIVET ST	COURSOL RD	LACHANCE DR	0.44	150	PP1 - Pulverize and Pave 1 Lift	\$103	5	10	67
223	DUFFERIN ST	CACHE BAY RD	OTTAWA ST	0.10	200	ST2A - Double Surface Treatment with Granular A	\$11	6	11	69
273	FOURTH ST	MCKEE ST	NIPISSING ST	0.07	200	PP1 - Pulverize and Pave 1 Lift	\$17	6	8	69
143	COCKBURN RD	GERALD CRES	STEVENS RD	0.14	200	PP1 - Pulverize and Pave 1 Lift	\$33	5	10	69

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
274	FOURTH ST	OUELLETTE CT	LEVESQUE ST	0.10	200	PP1 - Pulverize and Pave 1 Lift	\$23	6	8	69
144	COCKBURN RD	GARDEN VILLAGE RD	GERALD CRES	0.79	200	PP1 - Pulverize and Pave 1 Lift	\$186	5	10	69
275	FOURTH ST	LEVESQUE ST	MCKEE ST	0.09	200	PP1 - Pulverize and Pave 1 Lift	\$20	6	8	69
276	FOURTH ST	KING ST	OUELLETTE CT	0.11	200	PP1 - Pulverize and Pave 1 Lift	\$25	6	8	69
349	HOLDITCH ST	FOURTH ST	SOUTH END	0.24	200	PP1 - Pulverize and Pave 1 Lift	\$57	6	10	70
358	JANEN ST	KING ST	LEVESQUE ST	0.20	100	PP1 - Pulverize and Pave 1 Lift	\$47	5	8	66
760	SABOURIN RD	HIGHWAY 64	SANDHILL RD	0.98	150	ST2A - Double Surface Treatment with Granular A	\$100	5	10	69
451	LECLAIR RD	HIGHWAY 64	SAVIGNAC RD	1.50	400	ST2A - Double Surface Treatment with Granular A	\$153	6	10	75
456	LECLAIR RD	SAVIGNAC RD	ANDRE-LYNE RD	1.05	400	ST2A - Double Surface Treatment with Granular A	\$107	6	10	75
621	OTTAWA ST	PINE ST	LORNE ST	0.12	200	PP1 - Pulverize and Pave 1 Lift	\$27	6	11	71
751	ROY ST	THIRD ST	MAGEAU ST	0.36	200	PP1 - Pulverize and Pave 1 Lift	\$85	5	11	71
624	OTTAWA ST	LORNE ST	LISGAR ST	0.12	200	PP1 - Pulverize and Pave 1 Lift	\$29	6	11	71
487	LILLIE ST	SALTER ST	SOUTH END	0.13	100	PP1 - Pulverize and Pave 1 Lift	\$31	5	9	67
17	ANDERSON ST	YOUNG ST	EDWARD ST	0.06	100	PP1 - Pulverize and Pave 1 Lift	\$15	5	8	67
569	MORRISON CRT	KING ST	EAST END	0.11	100	PP1 - Pulverize and Pave 1 Lift	\$26	5	9	67
18	ANDERSON ST	MILL ST	JESSUP ST	0.14	100	PP1 - Pulverize and Pave 1 Lift	\$32	5	8	67
19	ANDERSON ST	JESSUP ST	YOUNG ST	0.14	100	PP1 - Pulverize and Pave 1 Lift	\$32	5	8	67

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
560	MONTREAL ST	ABITIBI ST	BRIDGE ST	0.15	150	ST2A - Double Surface Treatment with Granular A	\$15	6	10	70
254	EUGENE RD	ALOUETE RD	ARBOUR RD	1.16	200	ST2A - Double Surface Treatment with Granular A	\$119	6	11	72
446	LEBLANC RD	HIGHWAY 17	DRIVE IN RD	0.88	100	ST2A - Double Surface Treatment with Granular A	\$90	5	10	68
633	PAQUETTE ST	HIGHWAY 17	LAURIER ST	0.06	200	PP1 - Pulverize and Pave 1 Lift	\$13	6	11	73
732	RIVERSIDE ST	ROY ST	EAST END	0.06	49	PP1 - Pulverize and Pave 1 Lift	\$14	5	8	65
43	BAIN AV	BOOTH ST	CACHE ST	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$24	6	9	69
47	BAIN AV	CACHE ST	MARTIN ST	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$24	6	9	69
61	BEAUDIN ST	HIGHWAY 17	ST LAURENT ST	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$22	5	10	69
48	BAIN AV	MARTIN ST	EAST END	0.27	100	PP1 - Pulverize and Pave 1 Lift	\$63	6	9	69
770	SALTER ST	MAIN ST	WEST END	0.06	100	PP1 - Pulverize and Pave 1 Lift	\$15	6	10	70
631	PAQUETTE ST	LAURIER ST	ST LAURANT ST	0.06	200	PP1 - Pulverize and Pave 1 Lift	\$14	6	11	74
632	PAQUETTE ST	ST LAURANT ST	PRINCIPAL ST W	0.10	200	PP1 - Pulverize and Pave 1 Lift	\$23	6	11	74
761	SABOURIN RD	SANDHILL RD	DRIVE IN RD	0.48	150	ST2A - Double Surface Treatment with Granular A	\$49	6	11	72
42	BAIN AV	GORDON ST	BOOTH ST	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$23	6	10	70
45	BAIN AV	YOUNG ST	GORDON ST	0.11	100	PP1 - Pulverize and Pave 1 Lift	\$25	6	10	70
309	GINGRAS AV	TELESPHORE ST	HIGHWAY 17	1.16	200	Recon 1R - Full Reconstruction + 1 Lift	\$781	6	10	74

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
60	BEAUDIN ST	ST LAURENT ST	PRINCIPAL ST W	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$23	5	10	71
325	GORDON ST	BAIN AV	WATERFRONT DR	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$24	6	10	71
750	ROY ST	RIVERSIDE ST	THIRD ST	0.14	100	PP1 - Pulverize and Pave 1 Lift	\$33	5	11	71
15	ANDERSON ST	EDWARD ST	BOOTH ST	0.15	100	PP1 - Pulverize and Pave 1 Lift	\$34	6	10	71
16	ANDERSON ST	BOOTH ST	CACHE ST	0.14	100	PP1 - Pulverize and Pave 1 Lift	\$33	6	10	71
529	MARTIN ST	CACHE ST	BAIN AV	0.18	100	PP1 - Pulverize and Pave 1 Lift	\$43	6	10	71
326	GORDON ST	HAY ST	BAIN AV	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$23	6	10	71
75	BOOTH ST	HAY ST	BAIN AV	0.11	100	PP1 - Pulverize and Pave 1 Lift	\$25	6	11	72
329	GRAND ALLEE	GRAND ALLEE	DES EPINETTES RD	0.04	100	ST2A - Double Surface Treatment with Granular A	\$4	6	11	72
333	GRANDE ALLEE	HIGHWAY 64	DES CEDRES RD	0.10	100	ST2A - Double Surface Treatment with Granular A	\$10	6	11	72
331	GRAND ALLEE	MAPLE ST	GRAND ALLEE	0.26	100	ST2A - Double Surface Treatment with Granular A	\$26	6	11	72
332	GRAND ALLEE	DES EPINETTES RD	GRAND ALLEE	0.79	100	ST2A - Double Surface Treatment with Granular A	\$81	6	11	72
405	LAC CLAIR RD	MAPLE ST	HIGHWAY 64	0.14	100	ST2A - Double Surface Treatment with Granular A	\$14	6	10	73
809	SPRUCE CT	DUMOUCHEL ST	EAST END	0.09	100	PP1 - Pulverize and Pave 1 Lift	\$21	7	11	73
438	LAROCQUE ST	ROBIDAS ST	PATENAUDE RD	0.72	100	ST2A - Double Surface Treatment with Granular A	\$73	6	10	73

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
6 - 10 Year Needs										
465	LEVAC RD	HIGHWAY 17	THIBEAULT RD	0.40	2888	PP2 - Pulverize and Pave 2 Lifts	\$158	6	12	75
462	LEVAC RD	THIBEAULT RD	CACHE ST	0.14	2800	PP2 - Pulverize and Pave 2 Lifts	\$55	6	12	75
383	KING ST	RUSSELL ST	JOHN ST	0.12	2000	PP1 - Pulverize and Pave 1 Lift	\$29	6	12	73
385	KING ST	MARKET ST	RUSSELL ST	0.10	2000	PP1 - Pulverize and Pave 1 Lift	\$23	6	12	73
763	SALTER ST	ARTHUR ST	LILLIE ST	0.10	1000	PP1 - Pulverize and Pave 1 Lift	\$23	6	12	72
767	SALTER ST	MICHAUD ST	ARTHUR ST	0.10	1000	PP1 - Pulverize and Pave 1 Lift	\$24	6	12	72
768	SALTER ST	COURSOL RD	PARK ST	0.12	1000	PP1 - Pulverize and Pave 1 Lift	\$29	6	12	72
769	SALTER ST	PARK ST	DESGROSEILERS ST	0.17	1000	PP1 - Pulverize and Pave 1 Lift	\$41	6	12	72
774	SALTER ST	BELANGER ST	MICHAUD ST	0.03	1000	PP1 - Pulverize and Pave 1 Lift	\$7	6	12	72
776	SALTER ST	DESGROSEILERS ST	BELANGER ST	0.18	1000	PP1 - Pulverize and Pave 1 Lift	\$43	6	12	72
463	LEVAC RD	CACHE ST	BOOTH ST	0.17	1500	ST2A - Double Surface Treatment with Granular A	\$17	6	12	75
765	SALTER ST	LILLIE ST	NIPISSING ST	0.10	1000	PP1 - Pulverize and Pave 1 Lift	\$24	6	12	73
380	KING ST	FOURTH ST	JANEN ST	0.08	2000	RMP1 - Mill & Pave, 1 Lift	\$32	7	13	77
377	KING ST	ETHEL ST	MACKIE ST	0.14	1000	PP1 - Pulverize and Pave 1 Lift	\$32	6	12	73
389	KING ST	MACKIE ST	MARKET ST	0.14	1000	PP1 - Pulverize and Pave 1 Lift	\$33	6	12	73
752	RUSSELL ST	PARKER ST	NIPISSING ST	0.06	800	PP1 - Pulverize and Pave 1 Lift	\$14	6	12	73
753	RUSSELL ST	NIPISSING ST	CHURCH ST	0.10	800	PP1 - Pulverize and Pave 1 Lift	\$24	6	12	73
755	RUSSELL ST	CHURCH ST	ARTHUR ST	0.10	800	PP1 - Pulverize and Pave 1 Lift	\$23	6	12	73

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
757	RUSSELL ST	ARTHUR ST	MICHAUD ST	0.10	800	PP1 - Pulverize and Pave 1 Lift	\$23	6	12	73
598	NIPISSING ST	AUBREY ST	QUESNEL RD	0.72	800	PP1 - Pulverize and Pave 1 Lift	\$168	6	12	73
869	TORONTO ST	DUFFERIN ST	SIMCOE ST	0.10	1200	RMP1 - Mill & Pave, 1 Lift	\$42	7	14	77
870	TORONTO ST	DOVERCOURT RD	LISGAR ST	0.12	1200	RMP1 - Mill & Pave, 1 Lift	\$51	7	14	77
157	COURSOL RD	LEGAULT RD	RUSSELL ST	0.14	1200	RMP1 - Mill & Pave, 1 Lift	\$57	7	13	77
871	TORONTO ST	LISGAR ST	DUFFERIN ST	0.07	1200	RMP1 - Mill & Pave, 1 Lift	\$28	7	14	77
159	COURSOL RD	ETHEL ST	LEGAULT RD	0.27	1200	RMP1 - Mill & Pave, 1 Lift	\$113	7	13	77
872	TORONTO ST	SIMCOE ST	CACHE BAY RD	0.13	1200	RMP1 - Mill & Pave, 1 Lift	\$55	7	14	77
204	DOVERCOURT RD	ST JACQUES CT	DOMINA CR	0.11	1200	RMP1 - Mill & Pave, 1 Lift	\$47	7	14	78
205	DOVERCOURT RD	DOMINA CR	TORONTO ST	0.31	1200	RMP1 - Mill & Pave, 1 Lift	\$128	7	14	78
207	DOVERCOURT RD	SABOURIN RD	ST JACQUES CT	0.10	1200	RMP1 - Mill & Pave, 1 Lift	\$44	7	14	78
212	DRIVE IN RD	LEBLANC RD	SABOURIN RD	0.81	800	RMP1 - Mill & Pave, 1 Lift	\$338	7	13	76
764	SALTER ST	PARKER ST	LEVEQUE ST	0.10	600	RMP1 - Mill & Pave, 1 Lift	\$42	7	13	75
775	SALTER ST	NIPISSING ST	PARKER ST	0.06	600	RMP1 - Mill & Pave, 1 Lift	\$26	7	13	75
704	QUESNEL RD	CHAMPAGNE RD	WEST END	3.64	500	ST2A - Double Surface Treatment with Granular A	\$372	7	12	74
851	THIRD ST	MAIN ST	LEVESQUE ST	0.10	800	RMP1 - Mill & Pave, 1 Lift	\$43	7	13	77
852	THIRD ST	KING ST	MAIN ST	0.10	800	RMP1 - Mill & Pave, 1 Lift	\$42	7	13	77
498	MACKIE ST	NIPISSING ST	CHURCH ST	0.10	800	RMP1 - Mill & Pave, 1 Lift	\$43	7	14	77

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
756	RUSSELL ST	MAIN ST	LEVESQUE ST	0.10	800	RMP1 - Mill & Pave, 1 Lift	\$41	7	14	77
759	RUSSELL ST	KING ST	MAIN ST	0.10	800	RMP1 - Mill & Pave, 1 Lift	\$42	7	14	77
211	DRIVE IN RD	VACHON RD	LEBLANC RD	0.33	800	RMP1 - Mill & Pave, 1 Lift	\$138	7	13	77
858	THIRD ST	LEVESQUE ST	NIPISSING ST	0.16	800	RMP1 - Mill & Pave, 1 Lift	\$68	7	13	77
856	THIRD ST	NIPISSING ST	DUMOUCHEL ST	0.30	800	RMP1 - Mill & Pave, 1 Lift	\$125	7	14	78
896	WILLIAM ST	CARRIE ST	CLARK ST	0.10	1200	RMP1 - Mill & Pave, 1 Lift	\$42	8	14	80
902	WILLIAM ST	MICHAUD ST	CARRIE ST	0.10	1000	RMP1 - Mill & Pave, 1 Lift	\$43	8	14	80
492	LISGAR ST	TORONTO ST	SIMCOE ST	0.16	200	PP1 - Pulverize and Pave 1 Lift	\$38	6	12	72
64	BEAUDRY RD	LEVAC RD	LECLAIR RD	0.09	400	ST2A - Double Surface Treatment with Granular A	\$9	6	12	76
263	FIRST ST	LEVESQUE ST	PARKER ST	0.10	400	RMP1 - Mill & Pave, 1 Lift	\$42	7	13	76
264	FIRST ST	PARKER ST	NIPISSING ST	0.06	400	RMP1 - Mill & Pave, 1 Lift	\$26	7	13	76
638	PARK ST	SPRINGER ST	SOUTHVIEW CR	0.10	200	PP1 - Pulverize and Pave 1 Lift	\$23	7	12	73
639	PARK ST	SALTER ST	SPRINGER ST	0.10	200	PP1 - Pulverize and Pave 1 Lift	\$23	7	12	73
611	O'HARA ST	HIGHWAY 17	NORTH END	0.15	200	PP1 - Pulverize and Pave 1 Lift	\$36	6	12	73
702	QUESNEL RD	NIPISSING ST	ROY ST	0.80	579	ST1 - Single Surface Treatment	\$34	7	14	79
700	QUESNEL RD	ROY ST	CHAMPAGNE RD	1.33	550	ST1 - Single Surface Treatment	\$56	7	14	79
184	DEMERS ST	THIRD ST	RIVERFRONT DR	0.16	200	PP1 - Pulverize and Pave 1 Lift	\$38	6	12	74
185	DEMERS ST	RIVERFRONT DR	RIVERFRONT DR	0.82	200	PP1 - Pulverize and Pave 1 Lift	\$194	6	12	74

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
138	CLARK ST	RUSSELL ST	JOHN ST	0.10	400	RMP1 - Mill & Pave, 1 Lift	\$42	7	14	78
197	DESGROSEILLIERS ST	SPRINGER ST	SOUTH END	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$24	6	12	71
488	LILLIE ST	RAILWAY ST	SALTER ST	0.10	100	PP1 - Pulverize and Pave 1 Lift	\$23	6	12	71
589	NIPISSING ST	QUESNEL RD	MARLEAU RD	1.34	800	RMP1 - Mill & Pave, 1 Lift	\$562	7	13	82
217	DUBEAU ST	VERCHERES ST	ST JEAN BAPTISTE ST	0.08	200	PP1 - Pulverize and Pave 1 Lift	\$19	6	12	76
218	DUBEAU ST	HIGHWAY 17	VERCHERES ST	0.05	200	PP1 - Pulverize and Pave 1 Lift	\$11	6	12	76
359	JARBEAU RD	LAROCQUE ST	WEST END	0.24	100	ST2A - Double Surface Treatment with Granular A	\$25	6	12	72
883	VILLENEUVE CT	BAY ST	SOUTH END	0.45	100	PP1 - Pulverize and Pave 1 Lift	\$107	6	12	72
490	LISGAR ST	OTTAWA ST	MONTREAL ST	0.10	200	RMP1 - Mill & Pave, 1 Lift	\$44	7	14	76
491	LISGAR ST	CACHE BAY RD	OTTAWA ST	0.10	200	RMP1 - Mill & Pave, 1 Lift	\$43	7	14	76
493	LISGAR ST	MONTREAL ST	SOUTH END	0.17	200	RMP1 - Mill & Pave, 1 Lift	\$70	7	14	76
464	LEVAC RD	EDWARD ST	RITCHIE RD	1.06	900	ST2A - Double Surface Treatment with Granular A	\$109	6	12	83
629	PAIEMENT CRT	LEVESQUE ST	WEST END	0.11	100	PP1 - Pulverize and Pave 1 Lift	\$25	6	12	73
729	RIVER ST	SECOND ST	THIRD ST	0.12	100	PP1 - Pulverize and Pave 1 Lift	\$27	6	12	73
461	LEVAC RD	RITCHIE RD	ARCAND RD	0.06	800	ST2A - Double Surface Treatment with Granular A	\$6	6	12	83
467	LEVAC RD	ARCAND RD	BEAUDRY RD	3.15	800	ST2A - Double Surface Treatment with Granular A	\$322	6	12	83
661	PINE ST	OTTAWA ST	MONTREAL ST	0.14	200	RMP1 - Mill & Pave, 1 Lift	\$57	7	14	77

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
848	THIRD ST	DUMOUCHEL ST	BELANGER AV	0.03	200	RMP1 - Mill & Pave, 1 Lift	\$13	7	14	77
227	DUMOUCHEL ST	OAK CT	SPRUCE CT	0.14	200	RMP1 - Mill & Pave, 1 Lift	\$58	7	14	77
228	DUMOUCHEL ST	THIRD ST	OAK CT	0.08	200	RMP1 - Mill & Pave, 1 Lift	\$33	7	14	77
224	DUFFERIN ST	OTTAWA ST	MONTREAL ST	0.10	200	ST1 - Single Surface Treatment	\$4	7	14	77
384	KING ST	JANEN ST	CAMERON CT	0.21	200	RMP1 - Mill & Pave, 1 Lift	\$89	7	13	77
277	FOURTH ST	HOLDITCH ST	KING ST	0.11	200	RMP1 - Mill & Pave, 1 Lift	\$48	7	14	77
390	KING ST	MORRISON CT	FOURTH ST	0.19	200	RMP1 - Mill & Pave, 1 Lift	\$77	7	13	77
84	BOURGAULT ST	CHURCH ST	MICHAUD ST	0.21	200	RMP1 - Mill & Pave, 1 Lift	\$86	7	14	77
563	MONTREAL ST	LISGAR ST	DUFFERIN ST	0.12	200	ST1 - Single Surface Treatment	\$5	7	14	77
226	DUMOUCHEL ST	SPRUCE CT	BIRCH CT	0.10	200	RMP1 - Mill & Pave, 1 Lift	\$40	7	14	77
731	RIVERFRONT DR	DEMERS ST	DEMERS ST	0.60	200	RMP1 - Mill & Pave, 1 Lift	\$252	7	14	77
803	SOUTHVIEW CR	PARK ST	EAST END	0.08	100	RMP1 - Mill & Pave, 1 Lift	\$35	7	13	74
619	OLIVIER RD	HIGHWAY 64	EAST END	1.73	100	ST2A - Double Surface Treatment with Granular A	\$177	7	12	74
681	PRINCIPAL ST W	AURELE ST	CARTIER ST	0.12	400	RMP1 - Mill & Pave, 1 Lift	\$48	7	14	81
682	PRINCIPAL ST W	COTE ST	AURELE ST	0.25	400	RMP1 - Mill & Pave, 1 Lift	\$102	7	14	81
684	PRINCIPAL ST W	BEAUDIN ST	COTE ST	0.10	400	RMP1 - Mill & Pave, 1 Lift	\$43	7	14	81
486	LEVIS ST	NIPISSING ST	LEVESQUE ST	0.17	150	RMP1 - Mill & Pave, 1 Lift	\$69	7	13	76
36	AUBIN ST	THIRD ST	NORTH END	0.18	150	RMP1 - Mill & Pave, 1 Lift	\$74	7	13	76

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
873	TOULOUSE CR	HIGHWAY 17	SOUTH END	0.37	150	RMP1 - Mill & Pave, 1 Lift	\$154	7	13	76
149	COTE ST	ST LAURENT ST	PRINCIPAL ST W	0.08	200	RMP1 - Mill & Pave, 1 Lift	\$33	7	14	78
150	COTE ST	HIGHWAY 17	PIETTE ST	0.07	200	RMP1 - Mill & Pave, 1 Lift	\$29	7	14	78
151	COTE ST	PIETTE ST	ST LAURENT ST	0.04	200	RMP1 - Mill & Pave, 1 Lift	\$18	7	14	78
310	GINGRAS AV	SYLVESTRE ST	DES IRABLES ST	0.10	200	RMP1 - Mill & Pave, 1 Lift	\$41	7	14	78
773	SALTER ST	DUTRISAC RD	COURSOL RD	0.81	200	ST1 - Single Surface Treatment	\$34	7	14	78
311	GINGRAS AV	DEBEAU ST	SYLVESTRE ST	0.10	200	RMP1 - Mill & Pave, 1 Lift	\$43	7	14	78
312	GINGRAS AV	DES IRABLES ST	TELESPHORE ST	0.42	200	RMP1 - Mill & Pave, 1 Lift	\$174	7	14	78
188	DES CEDRES ST	MAPLE ST	GRAND ALLEE	0.13	100	ST1 - Single Surface Treatment	\$5	7	13	75
119	CEDAR GROVE DR	PINE ST	TAMERACK AV	0.20	100	RMP1 - Mill & Pave, 1 Lift	\$85	7	14	75
607	OAK CT	DUMOUCHEL ST	EAST END	0.10	100	RMP1 - Mill & Pave, 1 Lift	\$40	7	14	75
575	MUSKOSUNG LAKE RD	HIGHWAY 575	FILION RD	2.32	100	ST1 - Single Surface Treatment	\$97	7	13	75
512	MAPLE ST	DES CEDRES RD	GRAND ALLEE	0.33	150	ST1 - Single Surface Treatment	\$14	7	13	77
54	BAY ST	VILLENEUVE CT	SPRING ST	0.41	150	RMP1 - Mill & Pave, 1 Lift	\$173	7	14	77
355	JACQUES ST	DUPRAS ST	DENIS ST	0.12	100	ST1 - Single Surface Treatment	\$5	7	13	76
356	JACQUES ST	DENIS ST	NORTH END	0.07	100	ST1 - Single Surface Treatment	\$3	7	13	76
338	HAY ST	YOUNG ST	GORDON ST	0.11	100	RMP1 - Mill & Pave, 1 Lift	\$45	7	13	76

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
340	HAY ST	GORDON ST	BOOTH ST	0.10	100	RMP1 - Mill & Pave, 1 Lift	\$40	7	13	76
357	JACQUES ST	ROSE ST	DUPRAS ST	0.11	100	ST1 - Single Surface Treatment	\$5	7	13	76
215	DUBEAU ST	ST JEAN BAPTISTE ST	PRINCIPAL ST E	0.08	200	RMP1 - Mill & Pave, 1 Lift	\$35	7	14	80
122	CHAMPLAIN ST	PRINCIPAL ST E	SOUTH END	0.06	100	RMP1 - Mill & Pave, 1 Lift	\$25	7	13	77
330	GRAND ALLEE	DES CEDRES RD	MAPLE ST	0.38	100	ST1 - Single Surface Treatment	\$16	7	14	77
810	ST LAURENT ST	BEAUDIN ST	PAQUETTE ST	0.14	100	ST1 - Single Surface Treatment	\$6	8	14	78
812	ST LAURENT ST	COTE ST	BEAUDIN ST	0.14	100	ST1 - Single Surface Treatment	\$6	8	14	78
361	JESSUP ST	HAY ST	BAIN AV	0.10	49	RMP1 - Mill & Pave, 1 Lift	\$41	7	14	75
573	MUSKOSUNG LAKE RD	FILLION RD	ST. MARY'S RD	0.04	49	ST1 - Single Surface Treatment	\$2	7	13	75
118	CEDAR GROVE DR	TAMERACK AV	WEST END	0.02	49	RMP1 - Mill & Pave, 1 Lift	\$10	7	14	75
574	MUSKOSUNG LAKE RD	ST. MARY'S RD	SOUTH END	0.37	49	ST1 - Single Surface Treatment	\$15	7	13	75
72	BIRCH CT	DUMOUCHEL ST	EAST END	0.09	100	RMP1 - Mill & Pave, 1 Lift	\$37	8	14	79
194	DES PINS ST	MAPLE ST	NORTH END	0.10	49	ST1 - Single Surface Treatment	\$4	7	14	77

Notes:

1. Rehabilitation strategy to be confirmed by geotechnical investigations at detail design.
2. Timing of storm sewer/culvert work should be considered in conjunction with road reconstruction and vice versa, where applicable.

6.2 Annual Resurfacing Program

Based on typical degradation rates for gravel roads, surface treatment, and hot mix, a resurfacing program / budget is recommended, in addition to the noted capital construction works, as follows:

Hot Mix Paved Roads:

- 73.4 km of paved roads (HCB).
- Degradation rate 0.25 / year (rating drops from 10 to 5, over a 20-year period).
- Annual resurfacing 3.7 km / year.
- **Annual budget \$1,546,600:** (3.7 km / year x \$209,000 / ln **RMP1** x 2 lanes).
- 45.0 km of surface treated roads (LCB).
- Degradation rate 0.625 / year (rating drops from 10 to 5, over a 7-year period).
- Annual resurfacing 6.4 km / year.
- **Annual budget \$268,800** (6.4km / year x \$42,000 / km **ST1**).

Gravel roads require regular maintenance. Maintenance includes regular grading and reapplication of new gravel. Typically, gravel roads should be resurfaced on a 3 - 5 year cycle.

Gravel Roads:

- 428.5 km of earth / gravel roads.
- 100 mm gravel every 5 years.
- Annual gravelling of 85.7 km.
- Granular A (\$31,000 / km).
- **Annual budget \$2,656,700 (85.7 km / year x \$31,000 G) **.**

*** Cost based on supply of Gravel only with application of gravel by internal forces.*

The total resurfacing program, (hot mix, surface treatment and gravel) is estimated at \$4,472,100 per year.

Relative road preservation / resurfacing priorities for all roads not included in the previous Capital Improvement Plan are listed below in **Table 10**, Municipality of West Nipissing Resurfacing Plan. Roads are listed in order of descending preservation priority.

Table 10 – Municipality of West Nipissing Resurfacing Plan

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
433	LAPOINTE RD	TOMIKO ROAD	WEST END	1.96	49	G - Gravel (100mm)	\$60	4	8	46
606	NORTHSHORE RD	LAC CLAIR RD	WEST END	2.24	100	G - Gravel (100mm)	\$69	7	14	53
187	DENNONVILLE RD	SAINT JOSEPH RD	EAST END	0.45	49	G - Gravel (100mm)	\$14	4	8	48
354	ISLAND RD	KIPLING WEST RD	SOUTH END	0.40	49	G - Gravel (100mm)	\$12	5	8	49
659	PINE POULTRY RD	DEER LAKE RD	BOUNDARY	6.49	49	G - Gravel (100mm)	\$200	6	12	50
578	NATURE'S TRAIL RD	HIGHWAY 528	EAST END	1.95	75	G - Gravel (100mm)	\$60	6	11	56
874	TRAILS END RD	DOKIS RESERVE RD	EAST END	0.70	49	G - Gravel (100mm)	\$22	6	12	54
416	LAFOND RD	LAC CLAIR RD	WEST END	0.86	49	G - Gravel (100mm)	\$27	6	10	54
875	TROTTIER RD	TROTTIER RD	HIGHWAY 64	0.50	75	G - Gravel (100mm)	\$15	6	12	57
877	TROTTIER RD	HIGHWAY 64	TROTTIER RD	0.27	75	G - Gravel (100mm)	\$8	6	12	57
297	GAGNE ST	LAROCQUE ST	SOUTH END	0.10	49	G - Gravel (100mm)	\$3	6	12	55
421	LAKEVIEW RD	BEAR LAKE RD	NORTH END	0.61	49	G - Gravel (100mm)	\$19	6	12	55
303	GERALD ST	LAROCQUE ST	SOUTH END	0.06	49	G - Gravel (100mm)	\$2	6	12	55
833	SUNNYRIDGE RD	KIPLING WEST RD	NORTH END	0.82	49	G - Gravel (100mm)	\$25	7	14	55
516	MARIER RD	MUNROE RD	NORTH END	1.60	49	G - Gravel (100mm)	\$49	5	10	55
725	RICHER RD	TOMIKO ROAD	WEST END	1.85	49	G - Gravel (100mm)	\$57	6	10	55
880	VAILLANCOURT RD	HIGHWAY 64	EAST END	1.32	49	G - Gravel (100mm)	\$41	6	10	55
109	CARON RD	HIGHWAY 64	EGLISE RD	0.12	189	G - Gravel (100mm)	\$4	8	16	65
305	GIDEON RD	HIGHWAY 64	SHUSWAP RD	0.46	49	G - Gravel (100mm)	\$14	6	12	56
549	MICHEL RD	CLAUDE RD	WEST END	2.58	49	G - Gravel (100mm)	\$80	6	12	56

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
153	COURCHESNE RD	HIGHWAY 64	LAFRENIERE RD	3.23	49	G - Gravel (100mm)	\$99	6	12	56
239	ECOLE ST	HIGHWAY 64	SOUTH END	0.09	49	G - Gravel (100mm)	\$3	6	12	56
660	PINE RIDGE RD	CHEBOGAN RD	EAST END	0.94	49	G - Gravel (100mm)	\$29	6	12	56
802	SOUTHSHORE RD	LAC CLAIR RD	WEST END	1.37	49	G - Gravel (100mm)	\$42	7	14	56
568	MORLEY DR	EAST RD	SOUTH END	0.10	49	G - Gravel (100mm)	\$3	6	12	57
876	TROTTIER RD	TROTTIER RD	SOUTH END	2.92	49	G - Gravel (100mm)	\$90	6	12	57
566	MOOSE POINT RD	SANDY POINT RD	WEST END	0.71	49	G - Gravel (100mm)	\$22	6	12	57
743	ROBIDAS ST	LAROCQUE ST	LAROCQUE ST	0.09	49	G - Gravel (100mm)	\$3	6	12	57
23	ARBOUR RD	BROUILLETTE RD	EAST END	0.27	49	G - Gravel (100mm)	\$8	6	12	57
782	SANDY POINT RD	MOOSE POINT RD	EAST END	0.98	49	G - Gravel (100mm)	\$30	6	12	57
278	FRASER RD	HIGHWAY 539	NORTH END	1.90	49	G - Gravel (100mm)	\$59	7	14	57
608	O'BRIEN RD	ST-AMAND RD	WEST END	0.31	75	G - Gravel (100mm)	\$10	7	14	60
609	O'BRIEN RD	RIDDLE RD	ST-AMAND RD	0.13	75	G - Gravel (100mm)	\$4	7	14	60
190	DES EPINETTES RD	GRAND ALLEE	SOUTH END	0.41	100	G - Gravel (100mm)	\$13	7	14	62
70	BELLEFEUILLE RD	GIROUX-VEZINA RD	SOUTH END	0.50	49	G - Gravel (100mm)	\$15	6	12	58
91	BURNT LAKE RD	HIGHWAY 64	WEST END	2.47	49	G - Gravel (100mm)	\$76	6	12	58
238	EAST RD	PERCH LAKE RD	EAST END	4.47	49	G - Gravel (100mm)	\$138	6	12	58
818	STEVENS RD	COCKBURN RD	MAURICE RD	0.32	100	G - Gravel (100mm)	\$10	7	14	63
304	GERARD RD	COMEAU RD	SOUTH END	0.09	49	G - Gravel (100mm)	\$3	7	14	59
816	ST-AMAND RD	O'BRIEN RD	NORTH END	0.35	49	G - Gravel (100mm)	\$11	7	14	59

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
536	MCDONALD RD	NORTH & SOUTH RD	BOUNDARY	4.24	49	G - Gravel (100mm)	\$131	7	14	59
92	CACHE BAY RD	SAND HILL RD	PINE ST	0.35	1800	RO1 - Hot Mix Overlay, 1 Lift	\$77	8	15	81
422	LAKEWOOD RD	HIGHWAY 64	EAST END	0.56	49	G - Gravel (100mm)	\$17	7	14	60
564	MOOSE POINT RD	TOMIKO RD	ROBITAILLE RD	1.01	49	G - Gravel (100mm)	\$31	4	8	63
158	COURSOL RD	JOHN ST	HIGHWAY 17	0.38	2000	Preventative Maintenance	-	8	16	82
110	CARON RD	EGLISE RD	WEST END	2.90	100	G - Gravel (100mm)	\$89	8	16	65
89	BROUILLETTE RD	ARBOUR RD	SOUTH END	0.64	49	G - Gravel (100mm)	\$20	7	14	61
842	TEAL RD	INTERSECTION WITH LAKE ACCESS	117M WEST OF INTERSECTION	0.12	49	G - Gravel (100mm)	\$4	7	14	61
534	MAURICE RD	COCKBURN RD	STEVENS RD	0.33	49	G - Gravel (100mm)	\$10	7	14	61
843	TEAL RD	117M WEST OF INTERSECTION	PARK ENTRANCE	0.24	49	G - Gravel (100mm)	\$7	7	14	61
298	GAGNON RD	ALOUETTE RD	SOUTH END	0.72	49	G - Gravel (100mm)	\$22	7	14	61
120	CEMETERY RD	HIGHWAY 64	SOUTH END	0.52	49	G - Gravel (100mm)	\$16	7	14	61
612	OLD AUBIN RD	HIGHWAY 64	HILLMAN RD	0.48	49	G - Gravel (100mm)	\$15	7	14	62
162	COUTU RD	HIGHWAY 64	EAST END	0.65	49	G - Gravel (100mm)	\$20	7	14	62
163	COYOTE RIDGE RD	SHORELINE RD	SOUTH END	0.75	49	G - Gravel (100mm)	\$23	7	14	62
214	DU ROCHER RD	ALFRED RD	SOUTH END	0.11	49	G - Gravel (100mm)	\$3	7	14	62
425	LANDFILL SITE RD	HIGHWAY 17	NORTH END	2.12	100	G - Gravel (100mm)	\$65	5	10	66
687	PROM DU LAC	DUTRISAC RD	EAST END	1.18	100	G - Gravel (100mm)	\$36	8	16	66

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
413	LAC DEUX MILLES RD	MARLEAU RD	WEST END	0.74	75	G - Gravel (100mm)	\$23	8	16	65
690	QUEEN ST	CHURCH ST	ARTHUR ST	0.10	1600	Preventative Maintenance	-	8	16	82
691	QUEEN ST	ARTHUR ST	MICHAUD ST	0.10	1600	Preventative Maintenance	-	8	16	82
694	QUEEN ST	NIPISSING ST	CHURCH ST	0.10	1600	Preventative Maintenance	-	8	16	82
898	WILLIAM ST	LEVESQUE ST	PARKER ST	0.10	1600	Preventative Maintenance	-	8	16	82
901	WILLIAM ST	PARKER ST	NIPISSING ST	0.06	1600	Preventative Maintenance	-	8	16	82
865	TOMIKO RD	CHEBOGAN RD	MOOSE POINT RD	3.98	200	G - Gravel (100mm)	\$122	6	12	71
866	TOMIKO RD	MOOSE POINT RD	TOMIKO RD	4.00	200	G - Gravel (100mm)	\$123	6	12	71
867	TOMIKO RD	TOMIKO RD	CHARLES BAY RD	2.41	200	G - Gravel (100mm)	\$74	6	12	71
868	TOMIKO RD	CHARLES BAY RD	MARIGOLD LN	0.14	200	G - Gravel (100mm)	\$4	6	12	71
142	COCKBURN RD	STEVENS RD	MAURICE RD	0.09	49	G - Gravel (100mm)	\$3	7	14	63
533	MAURICE RD	STEVENS RD	WEST END	0.09	49	G - Gravel (100mm)	\$3	7	14	63
152	COTE ST	HIGHWAY 17	NORTH END	0.06	49	G - Gravel (100mm)	\$2	7	14	63
640	PARKER ST	QUEEN ST	HIGHWAY 17	0.13	1000	RO1 - Hot Mix Overlay, 1 Lift	\$28	8	15	80
510	MAIN ST	FIRST ST	SECOND ST	0.14	800	RO1 - Hot Mix Overlay, 1 Lift	\$30	8	15	79
670	PRIEUR ST	HIGHWAY 64	SOUTH END	0.19	49	G - Gravel (100mm)	\$6	8	16	64
195	DESAULNIERS RD	HIGHWAY 539	WEST END	0.27	49	G - Gravel (100mm)	\$8	8	16	64
408	LAC CLAIR RD	HIGHWAY 17	STEWART RD	0.48	200	G - Gravel (100mm)	\$15	8	16	72
179	DEER LAKE RD	BEAR LAKE RD	PINE POULTRY RD	2.13	100	G - Gravel (100mm)	\$66	6	12	68

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
720	RAINVILLE RD	HIGHWAY 64	EUGENE RD	3.37	100	G - Gravel (100mm)	\$104	6	12	68
832	SUNNYRIDGE RD	BEAR LAKE RD	NORLAND RD	1.67	100	G - Gravel (100mm)	\$52	6	12	68
103	CACHE ST	LEVAC RD	MARGARET ST	0.31	1339	Preventative Maintenance	-	8	16	82
565	MOOSE POINT RD	ROBITAILLE RD	SANDY POINT RD	0.50	49	G - Gravel (100mm)	\$15	5	10	67
470	LEVESQUE ST	QUEEN ST	HIGHWAY 17	0.12	1000	Preventative Maintenance	-	8	16	81
476	LEVESQUE ST	WILLIAM ST	QUEEN ST	0.12	1000	Preventative Maintenance	-	8	16	81
642	PARKER ST	JOHN ST	WILLIAM ST	0.12	800	RO1 - Hot Mix Overlay, 1 Lift	\$27	8	15	80
647	PARKER ST	WILLIAM ST	QUEEN ST	0.12	800	RO1 - Hot Mix Overlay, 1 Lift	\$26	8	15	80
154	COURSOL RD	LACHANCE RD	ETHEL ST	0.08	1200	Preventative Maintenance	-	8	16	82
155	COURSOL RD	RUSSELL ST	JOHN ST	0.11	1200	Preventative Maintenance	-	8	16	82
895	WILLIAM ST	CHURCH ST	ARTHUR ST	0.10	1200	Preventative Maintenance	-	8	16	82
104	CACHE ST	MARGARET ST	MARY ST	0.20	1200	Preventative Maintenance	-	8	16	82
897	WILLIAM ST	NIPissing ST	CHURCH ST	0.10	1200	Preventative Maintenance	-	8	16	82
695	QUEEN ST	CARRIE ST	CLARK ST	0.10	1200	Preventative Maintenance	-	8	16	82
698	QUEEN ST	MICHAUD ST	CARRIE ST	0.10	1200	Preventative Maintenance	-	8	16	82
106	CACHE ST	MARY ST	ANDERSON ST	0.20	1200	Preventative Maintenance	-	8	16	82
58	BEAR LAKE RD	DEER LAKE RD	LAKEVIEW RD	1.34	100	G - Gravel (100mm)	\$41	6	12	69
180	DEER LAKE RD	HIGHWAY 17	BEAR LAKE RD	3.55	100	G - Gravel (100mm)	\$109	6	12	69

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
540	MERCER LAKE RD	DOKIS RESERVE RD	EAST END	1.15	49	G - Gravel (100mm)	\$35	5	10	68
62	BEAUDRY RD	HIGHWAY 17	GAUTHIER RD	1.49	49	G - Gravel (100mm)	\$46	5	10	66
177	DE L'ETANG RD	SABOURIN RD	LEVERT RD	1.36	49	G - Gravel (100mm)	\$42	6	10	66
828	ST-JOSEPH RD	DENNONVILLE RD	1.1 KM EAST OF DENNONVILLE RD	1.05	49	G - Gravel (100mm)	\$32	5	10	66
237	EAST RD	HIGHWAY 64	FRYER'S RD	3.22	150	G - Gravel (100mm)	\$99	6	12	72
593	NIPISSING ST	SALTER ST	FIRST ST	0.12	3000	Preventative Maintenance	-	9	18	86
466	LEVAC RD	BOOTH ST	EDWARD ST	0.16	1200	ST1 - Single Surface Treatment	\$7	8	16	83
397	KIPLING WEST RD	POINT RD	OLD NORTH RD	0.45	100	G - Gravel (100mm)	\$14	8	16	70
242	EGLISE RD	HIGHWAY 64	CARON RD	0.21	100	G - Gravel (100mm)	\$6	6	12	70
231	DUTRISAC RD	HIGHWAY 17	SALTER ST	0.20	2835	Preventative Maintenance	-	9	18	86
519	MARKET ST	MAIN ST	LEVESQUE ST	0.10	800	Preventative Maintenance	-	8	16	81
710	RAILWAY ST	NIPISSING ST	LILLIE ST	0.10	800	ST1 - Single Surface Treatment	\$4	8	15	81
29	ARTHUR ST	WILLIAM ST	QUEEN ST	0.12	800	RO1 - Hot Mix Overlay, 1 Lift	\$26	8	15	81
646	PARKER ST	RUSSELL ST	JOHN ST	0.12	800	Preventative Maintenance	-	8	16	81
134	CHURCH ST	WILLIAM ST	QUEEN ST	0.12	800	Preventative Maintenance	-	8	16	81
521	MARKET ST	LEVESQUE ST	PARKER ST	0.10	800	Preventative Maintenance	-	8	16	81
483	LEVESQUE ST	RUSSELL ST	JOHN ST	0.13	800	Preventative Maintenance	-	8	16	81
135	CHURCH ST	JOHN ST	WILLIAM ST	0.12	800	Preventative Maintenance	-	8	16	81
34	ARTHUR ST	JOHN ST	WILLIAM ST	0.12	800	RO1 - Hot Mix Overlay, 1 Lift	\$26	8	15	81

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
485	LEVESQUE ST	JOHN ST	WILLIAM ST	0.12	800	Preventative Maintenance	-	8	16	81
136	CHURCH ST	QUEEN ST	HIGHWAY 17	0.13	800	Preventative Maintenance	-	8	16	81
855	THIRD ST	CHOLETTE AV	ALAIN CT	0.04	800	Preventative Maintenance	-	8	16	81
861	THIRD ST	ALAIN CT	PARK ST	0.10	800	Preventative Maintenance	-	8	16	81
899	WILLIAM ST	ARTHUR ST	MICHAUD ST	0.10	1000	Preventative Maintenance	-	8	16	82
160	COURSOL RD	GOULARD RD	RIVET ST	0.27	1000	Preventative Maintenance	-	8	16	82
161	COURSOL RD	RIVET ST	LACHANCE RD	0.13	1000	Preventative Maintenance	-	8	16	82
63	BEAUDRY RD	GAUTHIER RD	LEVAC RD	1.61	49	G - Gravel (100mm)	\$50	5	10	67
141	CLAUDE RD	MILLRAND RD	MICHEL RD	1.23	49	G - Gravel (100mm)	\$38	6	12	67
744	ROBITAILLE RD	MOOSE POINT RD	WEST END	1.72	49	G - Gravel (100mm)	\$53	5	10	67
334	GUENETTE RD	LABROSSE RD	NORTH END	0.57	49	G - Gravel (100mm)	\$17	7	14	67
618	OLD NORTH RD	KIPLING WEST RD	NORTH END	2.20	49	G - Gravel (100mm)	\$68	8	16	67
182	DELORME RD	LEBLANC RD	SMILIE RD	1.02	150	G - Gravel (100mm)	\$31	8	16	73
668	POIRIER RD	HIGHWAY 64	AVENUE DU LAC	0.72	150	G - Gravel (100mm)	\$22	8	16	73
739	ROBERTS RD	NICHOLSON RD	EAST END	1.19	49	G - Gravel (100mm)	\$37	6	12	71
740	ROBERTS RD	HIGHWAY 539	NICHOLSON RD	0.75	49	G - Gravel (100mm)	\$23	6	12	71
404	LAC CACHE RD	HIGHWAY 575	EAST END	0.99	100	G - Gravel (100mm)	\$31	8	13	71
93	CACHE BAY RD	IMPERIAL ST	TORONTO ST	0.06	2500	Preventative Maintenance	-	9	18	86

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
701	QUESNEL RD	DUTRISAC RD	NIPISSING ST	1.64	700	G - Gravel (100mm)	\$50	8	16	81
741	ROBICHAUD RD	PERRIN RD	EAST END	0.10	49	G - Gravel (100mm)	\$3	8	16	68
455	LECLAIR RD	HIGHWAY 64	WEST END	2.28	49	G - Gravel (100mm)	\$70	6	12	68
417	LAFRAMBOISE RD	DANIS RD	NORTH END	0.62	49	G - Gravel (100mm)	\$19	8	16	68
829	ST-JOSEPH RD	1.1 KM EAST OF DENNONVILLE RD	EAST END	2.21	49	G - Gravel (100mm)	\$68	5	10	68
505	MAIN ST	SECOND ST	THIRD ST	0.13	800	Preventative Maintenance	-	8	16	82
771	SALTER ST	1.25 KM WEST OF GOLF COURSE RD	DUTRISAC RD	0.28	800	G - Gravel (100mm)	\$9	8	16	82
772	SALTER ST	GOLF COURSE RD	1.25 KM WEST OF GOLF COURSE RD	1.25	800	G - Gravel (100mm)	\$39	8	16	82
95	CACHE BAY RD	DUFFERIN ST	IMPERIAL ST	0.07	2225	Preventative Maintenance	-	9	18	86
827	ST-JOSEPH RD	DU MOULIN RD	DENNONVILLE RD	1.21	100	G - Gravel (100mm)	\$37	7	14	72
406	LAC CLAIR RD	NORTHSHORE RD	FIELD LANDFILL SITE	0.55	100	G - Gravel (100mm)	\$17	7	14	72
783	SAVIGNAC RD	LECLAIR RD	1.6 KM SOUTH OF LECLAIR RD	1.60	100	G - Gravel (100mm)	\$49	6	12	72
401	LABROSSE RD	GUENETTE RD	FILLITRAULT RD	0.43	100	G - Gravel (100mm)	\$13	8	16	72
784	SAVIGNAC RD	1.6 KM SOUTH OF LECLAIR RD	RAINVILLE RD	1.66	100	G - Gravel (100mm)	\$51	6	12	72
403	LABROSSE RD	HIGHWAY 575	GUENETTE RD	2.15	100	G - Gravel (100mm)	\$66	6	12	72
392	KIPLING EAST RD	SUNNY RIDGE RD	PARADIS RD	1.81	100	G - Gravel (100mm)	\$56	8	16	72

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
171	DALCOURT RD	NORTH & SOUTH RD	WEST END	1.01	49	G - Gravel (100mm)	\$31	6	11	69
35	ASHBURTON RD	LACROQUE ST	SOUTH END	1.82	49	G - Gravel (100mm)	\$56	6	10	69
686	PROM DU LAC	DUTRISAC RD	WEST END	0.20	49	Preventative Maintenance	-	9	18	69
335	GUILLEMETTE RD	HIGHWAY 539	WEST END	3.00	49	G - Gravel (100mm)	\$92	6	12	69
220	DUBUC RD	CRYSTAL FALLS RD	EAST END	9.38	49	G - Gravel (100mm)	\$289	6	10	69
169	CRYSTAL FALLS RD	HIGHWAY 64	SHORELINE RD	2.10	200	G - Gravel (100mm)	\$65	7	14	76
94	CACHE BAY RD	LISGAR ST	DUFFERIN ST	0.13	2000	Preventative Maintenance	-	9	18	86
97	CACHE BAY RD	LORNE ST	LISGAR ST	0.12	2000	Preventative Maintenance	-	9	18	86
232	DUTRISAC RD	SALTER ST	QUESNEL RD	1.55	2000	Preventative Maintenance	-	9	18	86
586	NIPISSING ST	HIGHWAY 17	RAILWAY ST	0.15	5133	Preventative Maintenance	-	10	19	89
826	ST-JOSEPH RD	HIGHWAY 539A	DU MOULIN RD	1.62	100	G - Gravel (100mm)	\$50	7	14	73
407	LAC CLAIR RD	FIELD LANDFILL SITE	MAPLE ST	2.15	100	G - Gravel (100mm)	\$66	7	14	73
396	KIPLING WEST RD	ISLAND RD	SUNNY RIDGE RD	1.61	100	G - Gravel (100mm)	\$50	8	16	73
457	LEDUC RD	HIGHWAY 539	HIGHWAY 575	4.00	100	G - Gravel (100mm)	\$123	7	14	73
667	POIRIER RD	AVENUE DU LAC	EUGENE RD	3.14	150	G - Gravel (100mm)	\$97	8	16	75
200	DOKIS RESERVE RD	TRAILS END RD	EAST END	13.56	150	G - Gravel (100mm)	\$418	7	14	75
780	SANDY FALLS RD	HIGHWAY 17	1.4 KM NORTH OF HIGHWAY 17	1.39	49	G - Gravel (100mm)	\$43	6	11	70

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
550	MICHEL RD	CHRETIEN RD	CLAUDE RD	2.94	49	G - Gravel (100mm)	\$91	6	12	70
781	SANDY FALLS RD	1.4 KM NORTH OF HIGHWAY 17	NORTH END	1.24	49	G - Gravel (100mm)	\$38	6	11	70
178	DEER LAKE RD	KIPLING WEST RD	NORTH END	1.29	49	G - Gravel (100mm)	\$40	6	12	70
21	ANDRE-LYNE RD	LECLAIR RD	NORTH END	0.59	49	G - Gravel (100mm)	\$18	6	12	70
341	HECTOR RD	HIGHWAY 539A	NORTH END	0.11	49	G - Gravel (100mm)	\$3	6	12	70
96	CACHE BAY RD	PINE ST	CRAIG ST	0.06	1800	Preventative Maintenance	-	9	18	86
508	MAIN ST	ETHEL ST	NORTH END	0.07	400	G - Gravel (100mm)	\$2	8	16	80
423	LALANDE RD	DELORME RD	FORT RD	1.76	400	ST1 - Single Surface Treatment	\$74	8	15	80
830	SUNNYRIDGE RD	NORLAND RD	KIPLING EAST RD	0.48	100	G - Gravel (100mm)	\$15	8	16	74
410	LAC CLAIR RD	STEWART RD	LAFOND RD	3.57	100	G - Gravel (100mm)	\$110	7	14	74
411	LAC CLAIR RD	LAFOND RD	1.8KM NORTH OF LAFOND RD	1.83	100	G - Gravel (100mm)	\$56	7	14	74
124	CHEBOGAN RD	TOMIKO RD	PINE RIDGE RD	0.69	49	G - Gravel (100mm)	\$21	6	12	71
649	PATENAUDE RD	LAROCQUE ST	NORTH END	0.17	49	G - Gravel (100mm)	\$5	8	16	71
558	MILLRAND RD	CLAUDE RD	WEST END	1.60	49	G - Gravel (100mm)	\$49	6	12	71
724	REMILLARD RD	HIGHWAY 539	WEST END	1.01	49	G - Gravel (100mm)	\$31	6	12	71
24	ARCAND RD	HIGHWAY 17	LEVAC RD	1.15	49	G - Gravel (100mm)	\$35	6	12	71
125	CHEBOGAN RD	PINE RIDGE RD	WEST END	0.53	49	G - Gravel (100mm)	\$16	6	12	71
166	CRYSTAL FALLS RD	LAPOINTE RD	RICHER RD	0.51	150	G - Gravel (100mm)	\$16	7	14	76
820	STEWART RD	HIGHWAY 17	LAC CLAIR RD	0.68	150	G - Gravel (100mm)	\$21	7	14	76

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
167	CRYSTAL FALLS RD	SHORELINE RD	LAPOINTE RD	1.19	150	G - Gravel (100mm)	\$37	7	14	76
168	CRYSTAL FALLS RD	RICHER RD	TOMIKO RD	0.36	150	G - Gravel (100mm)	\$11	7	14	76
900	WILLIAM ST	MAIN ST	LEVESQUE ST	0.10	1600	Preventative Maintenance	-	9	18	86
420	LAFRENIERE RD	DUCK CREEK RD	COURCHESNE RD	0.86	75	G - Gravel (100mm)	\$27	8	16	73
594	NIPISSING ST	RAILWAY ST	SALTER ST	0.10	4000	Preventative Maintenance	-	10	19	89
786	SECOND ST	KING ST	MAIN ST	0.10	400	Preventative Maintenance	-	8	16	81
474	LEVESQUE ST	FOURTH ST	JANEN ST	0.09	400	RO1 - Hot Mix Overlay, 1 Lift	\$19	8	15	81
713	RAILWAY ST	ARTHUR ST	MICHAUD ST	0.10	400	ST1 - Single Surface Treatment	\$4	8	15	81
644	PARKER ST	MARKET ST	RUSSELL ST	0.10	400	Preventative Maintenance	-	8	16	81
480	LEVESQUE ST	MARKET ST	RUSSELL ST	0.10	400	Preventative Maintenance	-	8	16	81
714	RAILWAY ST	LILLIE ST	ARTHUR ST	0.10	400	ST1 - Single Surface Treatment	\$4	8	15	81
481	LEVESQUE ST	MARKET ST	NORTH END	0.21	400	Preventative Maintenance	-	8	16	81
637	PARK ST	SOUTHVIEW CR	THIRD ST	0.18	200	RO1 - Hot Mix Overlay, 1 Lift	\$39	8	15	78
22	ARBOUR RD	EUGENE RD	BROUILLETTE RD	0.54	49	G - Gravel (100mm)	\$17	6	12	72
535	MCDONALD RD	OLD HIGHWAY 17	WEST END	3.21	49	G - Gravel (100mm)	\$99	6	12	72
747	ROY RD	347 M SOUTH OF MAGEAU ST	QUESNEL RD	0.48	100	G - Gravel (100mm)	\$15	7	14	75
748	ROY RD	186 M SOUTH OF MAGEAU ST	347 M SOUTH OF MAGEAU ST	0.16	100	G - Gravel (100mm)	\$5	7	14	75

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
749	ROY ST	MAGEAU ST	186 M SOUTH OF MAGEAU ST	0.19	100	G - Gravel (100mm)	\$6	7	14	75
831	SUNNYRIDGE RD	KIPLING EAST RD	KIPLING WEST RD	1.14	100	G - Gravel (100mm)	\$35	8	16	75
412	LAC CLAIR RD	1.8KM NORTH OF LAFOND RD	SOUTHSHORE RD	3.63	100	G - Gravel (100mm)	\$112	7	14	75
428	LAPLAGE RD	RIVIERE VEUVE RD	RAINVILLE RD	0.15	150	G - Gravel (100mm)	\$5	7	14	77
430	LAPLAGE RD	RAINVILLE RD	PAKE RD	1.66	150	G - Gravel (100mm)	\$51	7	14	77
201	DOKIS RESERVE RD	BOUNDARY	TRAILS END RD	5.40	150	G - Gravel (100mm)	\$166	7	14	77
319	GLENROCK RD	MARLEAU RD	SOUTH END	0.72	75	G - Gravel (100mm)	\$22	7	14	74
511	MALETTE RD	MARLEAU RD	SOUTH END	0.76	75	G - Gravel (100mm)	\$24	7	14	74
813	ST MARY'S RD	MUSKOSUNG LAKE RD	EAST END	1.35	49	G - Gravel (100mm)	\$42	7	14	74
665	PLANTE RD	HIGHWAY 64	WEST END	2.50	75	G - Gravel (100mm)	\$77	7	14	74
440	LAROCQUE ST	PATENAUE RD	CAYOUEITE RD	1.75	75	G - Gravel (100mm)	\$54	8	16	74
253	EUGENE RD	HIGHWAY 64	164M SOUTH OF HIGHWAY 64	0.16	350	G - Gravel (100mm)	\$5	8	16	81
256	EUGENE RD	164M SOUTH OF HIGHWAY 64	RAINVILLE RD	1.66	350	G - Gravel (100mm)	\$51	8	16	81
98	CACHE BAY RD	DOVERCOURT RD	RIVER ST	0.28	2000	Preventative Maintenance	-	9	18	88
99	CACHE BAY RD	TORONTO ST	DOVERCOURT RD	0.13	2000	Preventative Maintenance	-	9	18	88
601	NORTH & SOUTH RD	OLD HIGHWAY 17	MCDONALD RD	0.87	49	G - Gravel (100mm)	\$27	8	16	73
653	PERCH LAKE RD	DAOUST RD	WEST END	1.03	49	G - Gravel (100mm)	\$32	7	14	73
313	GIROUX RD	HIGHWAY 17	NORTH END	0.54	49	G - Gravel (100mm)	\$17	6	12	73

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
847	THIBEAULT RD	HIGHWAY 17	STEWART RD	1.41	49	G - Gravel (100mm)	\$44	6	12	73
551	MICHEL RD	HIGHWAY 64	CHRETIEN RD	5.60	49	G - Gravel (100mm)	\$172	7	14	73
386	KING ST	QUEEN ST	FRONT ST	0.12	3215	RO1 - Hot Mix Overlay, 1 Lift	\$27	8	15	89
706	RAILWAY ST	MICHAUD ST	118 M EAST OF MICHAUD ST	0.12	200	ST1 - Single Surface Treatment	\$5	8	15	79
426	LAPLAGE RD	O'BRIEN RD	BOUFFARD RD	0.39	100	G - Gravel (100mm)	\$12	7	14	76
427	LAPLAGE RD	GABRIEL RD	ALFRED RD	0.11	100	G - Gravel (100mm)	\$3	7	14	76
235	EAST RD	2.6 KM EAST OF FRYER'S RD	PERCH LAKE RD	0.68	100	G - Gravel (100mm)	\$21	7	14	76
236	EAST RD	FRYER'S RD	2.6 KM EAST OF FRYER'S RD	2.66	100	G - Gravel (100mm)	\$82	7	14	76
322	GOLF COURSE RD	HIGHWAY 17	VETERANS RD	0.06	100	G - Gravel (100mm)	\$2	7	14	76
409	LAC CLAIR RD	SOUTHSHORE RD	NORTHSHORE RD	2.81	100	G - Gravel (100mm)	\$86	7	14	76
323	GOLF COURSE RD	VETERANS RD	SALTER ST	0.14	100	G - Gravel (100mm)	\$4	7	14	76
431	LAPLAGE RD	PAKE RD	O'BRIEN RD	0.85	100	G - Gravel (100mm)	\$26	7	14	76
432	LAPLAGE RD	BOUFFARD RD	GABRIEL RD	0.91	100	G - Gravel (100mm)	\$28	7	14	76
111	CARRIE ST	JOHN ST	WILLIAM ST	0.12	400	Preventative Maintenance	-	8	16	82
378	KING ST	RAILWAY ST	SOUTH END	0.18	400	Preventative Maintenance	-	8	16	82
112	CARRIE ST	QUEEN ST	HIGHWAY 17	0.13	400	Preventative Maintenance	-	8	16	82
113	CARRIE ST	WILLIAM ST	QUEEN ST	0.12	400	Preventative Maintenance	-	8	16	82
100	CACHE BAY RD	CRAIG ST	LORNE ST	0.12	1800	Preventative Maintenance	-	9	18	88
379	KING ST	JOHN ST	WILLIAM ST	0.12	3000	RO1 - Hot Mix Overlay, 1 Lift	\$27	8	15	89
382	KING ST	WILLIAM ST	QUEEN ST	0.12	3000	RO1 - Hot Mix Overlay, 1 Lift	\$26	8	15	89

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
821	STEWART RD	LEBLANC RD	HIGHWAY 64	1.64	150	G - Gravel (100mm)	\$50	8	16	78
328	GOULARD RD	COURSOL RD	EVANSVILLE DR	1.30	1089	Preventative Maintenance	-	9	18	86
137	CLARK ST	JOHN ST	WILLIAM ST	0.13	800	Preventative Maintenance	-	9	17	85
520	MARKET ST	HOLDITCH ST	KING ST	0.10	800	Preventative Maintenance	-	9	18	85
523	MARKET ST	KING ST	MAIN ST	0.10	800	Preventative Maintenance	-	9	18	85
859	THIRD ST	BELANGER AV	AUBIN ST	0.06	800	Preventative Maintenance	-	9	18	85
860	THIRD ST	AUBIN ST	CHOLETTE AV	0.16	800	Preventative Maintenance	-	9	18	85
73	BLAKE RD	ALOUETTE RD	SOUTH END	0.90	49	G - Gravel (100mm)	\$28	7	14	74
664	PIQUETTE RD	HIGHWAY 64	NORTH & SOUTH RD	9.73	49	G - Gravel (100mm)	\$300	7	14	74
117	CAYOUE RD	LAROCQUE ST	EAST END	2.91	49	G - Gravel (100mm)	\$90	7	14	74
539	MEMQUISIT RD	BOUNDARY	MODESTO RD	0.52	49	G - Gravel (100mm)	\$16	8	16	74
101	CACHE ST	HAY ST	BAIN AV	0.10	1000	Preventative Maintenance	-	9	18	86
102	CACHE ST	BAIN AV	WATERFRONT DR	0.10	1000	Preventative Maintenance	-	9	18	86
105	CACHE ST	ANDERSON ST	HAY ST	0.12	1000	Preventative Maintenance	-	9	18	86
321	GOLF COURSE RD	LABELLE RD	GOULARD RD	0.51	100	G - Gravel (100mm)	\$16	7	14	77
314	GIROUX-VEZINA RD	HIGHWAY 64	LABOND RD	0.58	100	G - Gravel (100mm)	\$18	7	14	77
57	BEAR LAKE RD	LAKEVIEW RD	SUNNY RIDGE RD	2.36	100	G - Gravel (100mm)	\$73	7	14	77
10	ALOUETTE RD	EUGENE RD	GAGNON RD	1.14	100	G - Gravel (100mm)	\$35	7	14	77

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
121	CHAMPAGNE RD	QUESNEL RD	NORTH END	0.90	100	G - Gravel (100mm)	\$28	7	14	77
315	GIROUX-VEZINA RD	NEEDS RD	HIGHWAY 539	0.19	100	G - Gravel (100mm)	\$6	7	14	77
324	GOLF COURSE RD	HIGHWAY 17	LABELLE RD	0.94	100	G - Gravel (100mm)	\$29	7	14	77
655	PIERRE RD	DUTRISAC RD	WEST END	0.94	100	G - Gravel (100mm)	\$29	7	14	77
449	LEBLANC RD	DRIVE IN RD	STEWART RD	1.63	100	G - Gravel (100mm)	\$50	7	14	77
879	VACHON RD	DRIVE IN RD	STEWART RD	1.63	100	G - Gravel (100mm)	\$50	7	14	77
11	ALOUETTE RD	GAGNON RD	ST. JEAN RD	0.46	100	G - Gravel (100mm)	\$14	7	14	77
71	BETTY RD	HIGHWAY 64	WEST END	3.97	100	G - Gravel (100mm)	\$122	7	14	77
316	GIROUX-VEZINA RD	LABLOND RD	GIBBONS RD	1.71	100	G - Gravel (100mm)	\$53	7	14	77
317	GIROUX-VEZINA RD	GIBBONS RD	BELLEFEUILLE RD	1.51	100	G - Gravel (100mm)	\$46	7	14	77
318	GIROUX-VEZINA RD	BELLEFEUILLE RD	NEEDS RD	1.62	100	G - Gravel (100mm)	\$50	7	14	77
393	KIPLING EAST RD	PARADIS RD	HIGHWAY 575	3.39	100	G - Gravel (100mm)	\$104	7	14	77
302	GAUTHIER RD	HIGHWAY 17	BEAUDRY RD	2.51	100	G - Gravel (100mm)	\$77	7	14	77
707	RAILWAY ST	118 M EAST OF MICHAUD ST	EAST END	0.20	200	G - Gravel (100mm)	\$6	8	16	80
308	GINGRAS AV	HIGHWAY 64	DEBEAU ST	0.15	200	RO1 - Hot Mix Overlay, 1 Lift	\$33	8	15	80
419	LAFRENIERE RD	COURCHESNE RD	HIGHWAY 64	1.64	75	G - Gravel (100mm)	\$50	8	16	76
610	O'BRIEN RD	LAPLAGE RD	RIDDLE RD	0.64	75	G - Gravel (100mm)	\$20	7	14	76
221	DUCK CREEK RD	LAFRENIERE RD	SOUTH END	5.90	75	G - Gravel (100mm)	\$182	7	14	76
797	SHUSWAP RD	GIDEON RD	LEMIEUX RD	0.18	150	G - Gravel (100mm)	\$5	8	16	79

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
506	MAIN ST	RUSSELL ST	JOHN ST	0.13	1200	Preventative Maintenance	-	9	18	87
509	MAIN ST	MARKET ST	RUSSELL ST	0.10	1200	Preventative Maintenance	-	9	18	87
145	COMEAU RD	EUGENE RD	GERARD RD	0.10	49	G - Gravel (100mm)	\$3	7	14	75
260	FILLIATRAULT RD	LABROSSE RD	LIONEL RD	0.24	49	G - Gravel (100mm)	\$7	7	14	75
837	TEAL RD	PARK RD	78M SOUTH OF PARK RD	0.08	49	G - Gravel (100mm)	\$2	7	14	75
838	TEAL RD	283M SOUTH OF PARK RD	SOUTH END	0.21	49	G - Gravel (100mm)	\$6	7	14	75
839	TEAL RD	78M SOUTH OF PARK RD	INTERSECTION WITH LAKE ACCESS	0.14	49	G - Gravel (100mm)	\$4	7	14	75
635	PARK RD	TEAL RD	TEAL RD	0.06	49	G - Gravel (100mm)	\$2	7	14	75
108	CARMEN RD	NORTH & SOUTH RD	EAST END	0.55	49	G - Gravel (100mm)	\$17	7	14	75
840	TEAL RD	148M SOUTH OF PARK RD	283M SOUTH OF PARK RD	0.14	49	G - Gravel (100mm)	\$4	7	14	75
841	TEAL RD	PARK RD	148M SOUTH OF PARK RD	0.15	49	G - Gravel (100mm)	\$5	7	14	75
636	PARK RD	WATERFRONT DR	TEAL RD	0.05	49	G - Gravel (100mm)	\$1	7	14	75
80	BOULAY RD	HIGHWAY 17	NORTH END	0.39	49	G - Gravel (100mm)	\$12	7	14	75
146	COMEAU RD	GERARD RD	EAST END	0.85	49	G - Gravel (100mm)	\$26	7	14	75
261	FILLIATRAULT RD	LIONEL RD	NORTH END	0.60	49	G - Gravel (100mm)	\$19	7	14	75
300	GAREAU RD	PRESQU'ILE RD	EAST END	0.97	100	G - Gravel (100mm)	\$30	8	16	78
320	GOEGAN RD	RAINVILLE RD	NORTH END	0.26	100	G - Gravel (100mm)	\$8	8	16	78
398	KIPLING WEST RD	HIGHWAY 539	DEER LAKE RD	3.54	100	G - Gravel (100mm)	\$109	8	16	78

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
301	GAREAU RD	HIGHWAY 575	PRESQU'ILE RD	0.87	100	G - Gravel (100mm)	\$27	8	16	78
27	ARTHUR ST	QUEEN ST	HIGHWAY 17	0.13	800	Preventative Maintenance	-	9	18	86
850	THIRD ST	ROY ST	VICTORIA ST	0.08	800	Preventative Maintenance	-	9	18	86
210	DRIVE IN RD	LARONDE RD	SANDHILL RD	0.29	800	Preventative Maintenance	-	9	18	86
854	THIRD ST	MAGEAU ST	ROY ST	0.10	800	Preventative Maintenance	-	9	18	86
327	GOULARD RD	EVANSVILLE DR	GOLF COURSE RD	1.00	800	Preventative Maintenance	-	9	18	86
418	LAFRENIERE RD	HIGHWAY 64	DUCK CREEK RD	4.16	75	G - Gravel (100mm)	\$128	8	16	77
12	ALOUETTE RD	ST. JEAN RD	PELLERIN RD	0.43	75	G - Gravel (100mm)	\$13	7	14	77
13	ALOUETTE RD	PELLERIN RD	ARGO RD	1.43	75	G - Gravel (100mm)	\$44	7	14	77
14	ALPHONSE RD	HIGHWAY 539A	WEST END	1.40	75	G - Gravel (100mm)	\$43	7	14	77
251	EUGENE RD	POIRIER RD	ALOUETTE RD	0.04	200	ST1 - Single Surface Treatment	\$2	8	16	81
559	MONTREAL ST	PINE ST	LISGAR ST	0.14	200	ST1 - Single Surface Treatment	\$6	8	16	81
662	PINE ST	CACHE BAY RD	OTTAWA ST	0.14	200	Preventative Maintenance	-	8	16	81
663	PINE ST	MONTREAL ST	CEDAR GROVE DR	0.07	200	Preventative Maintenance	-	8	16	81
643	PARKER ST	MARKET ST	NORTH END	0.11	200	Preventative Maintenance	-	8	16	81
863	TOMIKO RD	DANIS RD	CHEBOGAN RD	0.38	200	G - Gravel (100mm)	\$12	8	16	81
864	TOMIKO RD	CRYSTAL FALLS RD	DANIS RD	2.09	200	G - Gravel (100mm)	\$64	8	16	81
85	BRIDGE ST	MONTREAL ST	OTTAWA ST	0.10	150	RO1 - Hot Mix Overlay, 1 Lift	\$22	8	15	80

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
270	FORT RD	LALANDE RD	SOUTH END	1.57	150	ST1 - Single Surface Treatment	\$66	8	15	80
590	NIPISSING ST	FIRST ST	SECOND ST	0.14	2000	Preventative Maintenance	-	10	19	89
652	PERCH LAKE RD	EAST RD	DAOUST RD	0.29	49	G - Gravel (100mm)	\$9	7	14	76
572	MUNROE RD	MARIER RD	WEST END	1.01	49	G - Gravel (100mm)	\$31	7	14	76
576	MUSKY ISLAND RD	HIGHWAY 64	BOUNDARY	0.92	49	G - Gravel (100mm)	\$28	7	14	76
882	VICTORIA ST	THIRD ST	SOUTH END	0.04	49	G - Gravel (100mm)	\$1	7	14	76
825	ST-JEAN BAPTISTE ST	DUBEAU ST	WEST END	0.06	49	G - Gravel (100mm)	\$2	7	14	76
447	LEBLANC RD	STEWART RD	NORTH END	0.82	49	G - Gravel (100mm)	\$25	7	14	76
571	MUNROE RD	HIGHWAY 539	MARIER RD	0.13	49	G - Gravel (100mm)	\$4	7	14	76
203	DOUGLAS RD	HIGHWAY 64	EAST END	1.02	49	G - Gravel (100mm)	\$31	7	14	76
296	GABRIEL RD	LAPLAGE RD	WEST END	0.20	49	G - Gravel (100mm)	\$6	7	14	76
344	HILLMAN RD	OLD AUBIN RD	EAST END	1.65	49	G - Gravel (100mm)	\$51	7	14	76
471	LEVESQUE ST	LEVIS ST	PAIEMENT CT	0.07	400	Preventative Maintenance	-	9	17	84
472	LEVESQUE ST	AUBREY ST	SOUTH END	0.02	400	Preventative Maintenance	-	9	17	84
475	LEVESQUE ST	JANEN ST	LEVIS ST	0.03	400	Preventative Maintenance	-	9	17	84
477	LEVESQUE ST	PAIEMENT CT	AUBREY ST	0.02	400	Preventative Maintenance	-	9	17	84
777	SANDHILL RD	TAMERACK AV	WEST END	0.19	45	G - Gravel (100mm)	\$6	7	14	76
394	KIPLING WEST RD	DEER LAKE RD	POINT RD	0.72	100	G - Gravel (100mm)	\$22	8	16	79
164	CRAIG ST	CACHE BAY RD	NORTH END	0.07	100	G - Gravel (100mm)	\$2	8	16	79
181	DEER LAKE RD	PINE POULTRY RD	KIPLING WEST RD	3.26	100	G - Gravel (100mm)	\$100	8	16	79

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
736	RIVIERE VEUVE RD	LAPLAGE RD	WEST END	0.98	75	G - Gravel (100mm)	\$30	8	16	78
737	RIVIERE VEUVE RD	LAPLAGE RD	EAST END	1.29	75	G - Gravel (100mm)	\$40	8	16	78
672	PRINCIPAL ST E	HIGHWAY 64	DUBEAU ST	0.15	400	Preventative Maintenance	-	8	16	85
807	SPRINGER ST	JB ALAIN ST	PARK ST	0.08	200	Preventative Maintenance	-	8	16	82
808	SPRINGER ST	PARK ST	DESGROSEILLIER S ST	0.10	200	Preventative Maintenance	-	8	16	82
878	VACHON RD	STEWART RD	NORTH END	0.54	49	G - Gravel (100mm)	\$17	7	14	77
41	AYOTTE RD	HIGHWAY 539A	EAST END	0.23	49	G - Gravel (100mm)	\$7	7	14	77
81	BOURBONNAIS RD	HIGHWAY 539	SOUTH END	0.55	49	G - Gravel (100mm)	\$17	7	14	77
845	THIBEAULT RD	STEWART RD	NORTH END	0.32	49	G - Gravel (100mm)	\$10	7	14	77
265	FLORAL ST	BRIDGE ST	NORTH END	0.15	49	G - Gravel (100mm)	\$4	7	14	77
399	KIRKPATRICK RD	HIGHWAY 17	OLD HIGHWAY 17	0.05	49	G - Gravel (100mm)	\$2	7	14	77
271	FORTIER ST	HIGHWAY 64	SOUTH END	0.12	49	G - Gravel (100mm)	\$4	7	14	77
213	DU MOULIN RD	ST. JOSEPH RD	SOUTH END	1.00	49	G - Gravel (100mm)	\$31	7	14	77
846	THIBEAULT RD	LEVAC RD	HIGHWAY 17	0.18	49	G - Gravel (100mm)	\$5	7	14	77
59	BEAR LAKE RD	SUNNY RIDGE RD	WEST END	1.05	49	G - Gravel (100mm)	\$32	7	14	77
79	BOUFFARD RD	LAPLAGE RD	EAST END	0.97	49	G - Gravel (100mm)	\$30	7	14	77
148	CORBETT RD	HIGHWAY 539	EAST END	0.86	49	G - Gravel (100mm)	\$26	8	16	77
538	MEMQUISIT RD	MODESTO RD	EAST END	2.76	49	G - Gravel (100mm)	\$85	8	16	77
634	PARADIS RD	KIPLING EAST RD	NORTH END	2.11	49	G - Gravel (100mm)	\$65	8	16	77

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
819	STEWART RD	VACHON RD	LEBLANC RD	0.80	150	G - Gravel (100mm)	\$25	8	16	81
822	STEWART RD	THIBEAULT RD	VACHON RD	0.83	150	G - Gravel (100mm)	\$26	8	16	81
823	STEWART RD	LAC CLAIR RD	THIBEAULT RD	1.63	150	G - Gravel (100mm)	\$50	8	16	81
567	MOREAU ST	HIGHWAY 64	EAST END	0.37	100	G - Gravel (100mm)	\$11	8	16	80
537	MCKEE CRES	FOURTH ST	NORTH END	0.04	100	RO1 - Hot Mix Overlay, 1 Lift	\$10	8	15	80
56	BAYVIEW CT	SECOND ST	NORTH END	0.11	100	RO1 - Hot Mix Overlay, 1 Lift	\$23	8	15	80
40	AVENUE DU LAC	POIRIER RD	SOUTH END	3.27	100	G - Gravel (100mm)	\$101	8	16	80
785	SECOND ST	PARKER ST	NIPISSING ST	0.06	400	Preventative Maintenance	-	9	18	85
787	SECOND ST	LEVESQUE ST	PARKER ST	0.10	400	Preventative Maintenance	-	9	18	85
478	LEVESQUE ST	THIRD ST	FOURTH ST	0.26	400	Preventative Maintenance	-	9	17	85
479	LEVESQUE ST	RAILWAY ST	SALTER ST	0.10	400	Preventative Maintenance	-	9	17	85
788	SECOND ST	MAIN ST	LEVESQUE ST	0.10	400	Preventative Maintenance	-	9	18	85
650	PEMBROKE ST	SPRING ST	BAY ST	0.11	400	Preventative Maintenance	-	9	18	85
651	PEMBROKE ST	HIGHWAY 17	SPRING ST	0.18	400	Preventative Maintenance	-	9	18	85
139	CLARK ST	WILLIAM ST	QUEEN ST	0.11	400	Preventative Maintenance	-	9	17	85
482	LEVESQUE ST	FIRST ST	SOUTH END	0.08	400	Preventative Maintenance	-	9	17	85
789	SECOND ST	RIVER ST	KING ST	0.22	400	Preventative Maintenance	-	9	18	85
140	CLARK ST	QUEEN ST	HIGHWAY 17	0.14	400	Preventative Maintenance	-	9	17	85
448	LEBLANC RD	BAY ST	HIGHWAY 17	0.69	727	Preventative Maintenance	-	9	17	87
307	GINGRAS AV	HIGHWAY 64	RACETTE RD	0.14	49	RO1 - Hot Mix Overlay, 1 Lift	\$31	8	15	78

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
441	LAROCQUE ST	CAYOUEITE RD	EAST END	1.64	49	G - Gravel (100mm)	\$51	8	16	78
460	LEMIEUX RD	PRANG'S LN	EAST END	0.76	49	G - Gravel (100mm)	\$23	8	16	78
402	LABROSSE RD	FILLITRAULT RD	EAST END	2.14	49	G - Gravel (100mm)	\$66	8	16	78
688	PUTNAM RD	HIGHWAY 539	SOUTH END	1.88	49	G - Gravel (100mm)	\$58	8	16	78
602	NORTH & SOUTH RD	MCDONALD RD	PIQUETTE RD	3.18	49	G - Gravel (100mm)	\$98	8	16	78
445	LEBLANC RD	DELORME RD	BAY ST	1.40	650	Preventative Maintenance	-	9	17	87
793	SHUSWAP RD	LEMIEUX RD	SOLID ROCK RD	0.51	75	G - Gravel (100mm)	\$16	8	16	80
165	CROSBY RD	RAINVILLE RD	NORTH END	0.70	75	G - Gravel (100mm)	\$22	8	16	80
172	DANIS RD	LAFRAMBOISE RD	CEDAR LANE	0.77	49	G - Gravel (100mm)	\$24	8	16	80
794	SHUSWAP RD	SOLID ROCK RD	TIMBER LN	0.66	75	G - Gravel (100mm)	\$20	8	16	80
795	SHUSWAP RD	TIMBER LN	AUSTDAL RD	0.17	75	G - Gravel (100mm)	\$5	8	16	80
796	SHUSWAP RD	AUSTDAL RD	NORTH END	0.13	75	G - Gravel (100mm)	\$4	8	16	80
557	MILLRAND RD	HIGHWAY 64	CHRETIEN RD	5.49	75	G - Gravel (100mm)	\$169	8	16	80
170	CRYSTAL FALLS RD	TOMIKO RD	DUBUC RD	1.54	75	G - Gravel (100mm)	\$47	8	16	80
173	DANIS RD	CEDAR LANE	NORTH END	2.22	49	G - Gravel (100mm)	\$68	8	16	80
174	DANIS RD	TOMIKO RD	LAFRAMBOISE RD	2.03	49	G - Gravel (100mm)	\$63	8	16	80
746	ROSE ST	JACQUES ST	FORGET AVE	0.22	100	ST1 - Single Surface Treatment	\$9	8	16	81
458	LEGAULT RD	COURSOL RD	EAST END	0.39	100	G - Gravel (100mm)	\$12	8	16	81
570	MOUSTIK RD	HIGHWAY 17	OLD HIGHWAY 17	0.24	100	G - Gravel (100mm)	\$7	8	16	81

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
715	RAINVILLE RD	CROSBY RD	CROSBY RD	0.47	100	G - Gravel (100mm)	\$14	8	16	81
716	RAINVILLE RD	CROSBY RD	LAPLAGE RD	0.26	100	G - Gravel (100mm)	\$8	8	16	81
526	MARLEAU RD	GLENROCK RD	MALETTE RD	0.37	100	G - Gravel (100mm)	\$11	8	16	81
495	LORNE ST	CACHE BAY RD	OTTAWA ST	0.10	100	Preventative Maintenance	-	8	16	81
395	KIPLING WEST RD	OLD NORTH RD	ISLAND RD	0.83	100	G - Gravel (100mm)	\$26	8	16	81
717	RAINVILLE RD	GEOGON RD	CROSBY RD	0.62	100	G - Gravel (100mm)	\$19	8	16	81
719	RAINVILLE RD	EUGENE RD	SAVIGNAC RD	1.50	100	G - Gravel (100mm)	\$46	8	16	81
186	DENIS ST	DUPRAS ST	JACQUES ST	0.33	100	ST1 - Single Surface Treatment	\$14	8	16	81
527	MARLEAU RD	NIPISSING ST	GLENROCK RD	0.93	100	G - Gravel (100mm)	\$29	8	16	81
721	RAINVILLE RD	SAVIGNAC RD	GEOGON RD	1.97	100	G - Gravel (100mm)	\$61	8	16	81
817	ST-AMOUR RD	CARTIER ST	OLD HIGHWAY 17	0.80	100	G - Gravel (100mm)	\$24	8	16	81
597	NIPISSING ST	SECOND ST	THIRD ST	0.13	1200	Preventative Maintenance	-	10	19	89
252	EUGENE RD	ARBOUR RD	SOUTH END	0.09	49	G - Gravel (100mm)	\$3	8	16	79
815	ST. JEAN RD	ALOUETTE RD	SOUTH END	1.02	49	G - Gravel (100mm)	\$31	8	16	79
459	LEMIEUX RD	SHUSWAP RD	PRANG'S LN	2.08	49	G - Gravel (100mm)	\$64	8	16	79
603	NORTH & SOUTH RD	PIQUETTE RD	DALCOURT RD	2.34	49	G - Gravel (100mm)	\$72	8	16	79
762	SABOURIN RD	HIGHWAY 64	DE L'ETANG RD	1.43	150	ST1 - Single Surface Treatment	\$60	8	15	83
434	LAROCQUE ST	GAGNE ST	GERALD ST	0.04	200	Preventative Maintenance	-	9	18	84
435	LAROCQUE ST	ROBIDAS ST	ROBIDAS ST	0.05	200	Preventative Maintenance	-	9	18	84

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
68	BELISLE ST	BELANGER ST	DESGROSEILLIER S ST	0.15	200	Preventative Maintenance	-	9	17	84
69	BELISLE ST	DESGROSEILLIER S ST	DESGROSEILLIER S ST	0.04	200	Preventative Maintenance	-	9	17	84
436	LAROCQUE ST	GERALD ST	ROBIDAS ST	0.12	200	Preventative Maintenance	-	9	18	84
437	LAROCQUE ST	JARBEAU RD	GAGNE ST	0.17	200	Preventative Maintenance	-	9	18	84
439	LAROCQUE ST	HIGHWAY 64	JARBEAU RD	0.20	200	Preventative Maintenance	-	9	18	84
156	COURSOL RD	HIGHWAY 17	SALTER RD	0.25	1000	Preventative Maintenance	-	10	19	89
525	MARLEAU RD	MALETTE RD	LAC DEUX MILLES RD	1.66	75	G - Gravel (100mm)	\$51	8	16	81
790	SHORELINE RD	TOMIKO RD	COYOTE BAY RD	0.12	49	G - Gravel (100mm)	\$4	8	16	81
555	MILLRAND RD	CHRETIEN RD	NORTH & SOUTH RD	1.22	75	G - Gravel (100mm)	\$38	8	16	81
556	MILLRAND RD	NORTH & SOUTH RD	CLAUDE RD	1.67	75	G - Gravel (100mm)	\$51	8	16	81
528	MARLEAU RD	NIPISSING ST	EAST END	0.80	75	G - Gravel (100mm)	\$25	8	16	81
2	ADELARD ST	HIGHWAY 539A	WEST END	0.47	75	G - Gravel (100mm)	\$14	8	16	81
791	SHORELINE RD	COYOTE BAY RD	HYDRO DAM RD	1.49	49	G - Gravel (100mm)	\$46	8	16	81
800	SMILIE RD	BAY ST	DELMORE RD	0.60	100	G - Gravel (100mm)	\$19	8	16	82
613	OLD HWY 17 RD	MCDONALD RD	KIRKPATRICK RD	0.16	100	G - Gravel (100mm)	\$5	8	16	82
86	BRIDGE ST	BRIDGE ST (BEND)	FLORAL ST	0.08	100	G - Gravel (100mm)	\$2	8	16	82
87	BRIDGE ST	FLORAL ST	MONTREAL ST	0.10	100	G - Gravel (100mm)	\$3	8	16	82
742	ROBICHAUD RD	COUSOL RD	PERRIN RD	0.05	100	G - Gravel (100mm)	\$2	8	16	82

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
614	OLD HWY 17 RD	ST-AMOUR RD	MCDONALD RD	5.19	100	G - Gravel (100mm)	\$160	8	16	82
88	BRIDGE ST	HIGHWAY 17	BRIDGE ST (BEND)	0.16	100	G - Gravel (100mm)	\$5	8	16	82
857	THIRD ST	RIVER ST	KING ST	0.22	800	Preventative Maintenance	-	10	20	89
306	GIGNAC RD	HIGHWAY 539	SOUTH END	0.83	49	G - Gravel (100mm)	\$25	8	16	80
600	NORTH & SOUTH RD	DALCOURT RD	MILLRAND RD	1.70	49	G - Gravel (100mm)	\$52	8	16	80
198	DOCK RD	93M SOUTH OF WATERFRONT DR	SOUTH END	0.25	49	G - Gravel (100mm)	\$8	8	16	80
199	DOCK RD	WATERFRONT DR	93M SOUTH OF WATERFRONT DR	0.09	49	G - Gravel (100mm)	\$3	8	16	80
183	DELORME RD	SMILIE RD	EAST END	0.37	49	G - Gravel (100mm)	\$11	8	16	80
489	LIONEL RD	FILLITRAULT RD	NORTH END	0.50	49	G - Gravel (100mm)	\$15	8	16	80
718	RAINVILLE RD	LAPLAGE RD	EAST END	1.41	49	G - Gravel (100mm)	\$43	8	16	80
343	HILLMAN RD	HIGHWAY 64	OLD AUBIN RD	0.25	49	G - Gravel (100mm)	\$8	8	16	80
468	LEVERT DR	HIGHWAY 64	DE L'ETANG DR	1.59	49	G - Gravel (100mm)	\$49	8	16	80
259	FILION RD	MUSKOSUNG LAKE RD	WEST END	0.96	49	G - Gravel (100mm)	\$30	8	16	80
657	PIKE LAKE RD	HIGHWAY 64	EAST END	3.30	49	G - Gravel (100mm)	\$102	8	16	80
745	ROCHON RD	HIGHWAY 539	WEST END	2.40	49	G - Gravel (100mm)	\$74	8	16	80
444	LAURIN RD	HIGHWAY 575	EAST END	1.35	49	G - Gravel (100mm)	\$42	8	16	80
469	LEVERT DR	DE L'ETANG DR	EAST END	2.22	49	G - Gravel (100mm)	\$68	8	16	80
811	ST LAURENT ST	PAQUETTE ST	EAST END	0.09	49	ST1 - Single Surface Treatment	\$4	8	16	81

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
266	FORGET AV	DUPRAS ST	ROSE ST	0.12	150	Preventative Maintenance	-	9	17	84
267	FORGET AV	ROSE ST	NADEAU ST	0.16	150	Preventative Maintenance	-	9	17	84
268	FORGET AV	NADEAU ST	HIGHWAY 539A	0.05	150	Preventative Maintenance	-	9	17	84
52	BAY ST	LEBLANC RD	SMILIE RD	0.53	150	Preventative Maintenance	-	9	17	84
53	BAY ST	SMILIE RD	VILLENEUVE CT	0.41	150	Preventative Maintenance	-	9	17	84
269	FORGET AV	HIGHWAY 539A	DUPRAS ST	0.50	150	Preventative Maintenance	-	9	17	84
500	MAIN ST	RAILWAY ST	SALTER ST	0.09	1200	Preventative Maintenance	-	10	19	90
582	NIPISSING ST	FOURTH ST	LEVIS ST	0.12	800	Preventative Maintenance	-	10	19	89
584	NIPISSING ST	LEVIS ST	AUBREY ST	0.09	800	Preventative Maintenance	-	10	19	89
585	NIPISSING ST	THIRD ST	FOURTH ST	0.26	800	Preventative Maintenance	-	10	19	89
708	RAILWAY ST	PARKER ST	NIPISSING ST	0.06	800	Preventative Maintenance	-	10	19	89
711	RAILWAY ST	MAIN ST	LEVESQUE ST	0.10	800	Preventative Maintenance	-	10	19	89
592	NIPISSING ST	ETHEL ST	NORTH END	0.13	200	Preventative Maintenance	-	9	17	85
778	SANDHILL RD	CACHE BAY RD	TAMERACK AV	0.06	200	Preventative Maintenance	-	9	18	85
484	LEVESQUE ST	SALTER ST	FIRST ST	0.12	200	Preventative Maintenance	-	9	17	85
387	KING ST	THIRD ST	MORRISON CT	0.09	200	Preventative Maintenance	-	9	17	85
400	LABELLE RD	GOLF COURSE RD	EAST END	0.78	75	G - Gravel (100mm)	\$24	8	16	82
577	NADEAU ST	FORGET AVE	NORTH END	0.19	49	ST1 - Single Surface Treatment	\$8	8	16	81

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
176	DE LA MONTEE RD	HIGHWAY 575	SOUTH END	1.35	49	G - Gravel (100mm)	\$42	8	16	81
579	NEEDS RD	GIROUX-VEZINA RD	NORTH END	0.28	49	G - Gravel (100mm)	\$9	8	16	81
599	NORLAND RD	SUNNY RIDGE RD	WEST END	2.02	49	G - Gravel (100mm)	\$62	8	16	81
792	SHORELINE RD	HYDRO DAM RD	EAST END	1.56	49	G - Gravel (100mm)	\$48	8	16	81
55	BAY ST	LEBLANC RD	WEST END	1.09	49	G - Gravel (100mm)	\$34	8	16	81
703	QUESNEL RD	DUTRISAC RD	EAST END	1.53	45	G - Gravel (100mm)	\$47	8	16	81
689	QUEEN ST	PARKER ST	NIPISSING ST	0.06	1600	Preventative Maintenance	-	8	16	91
692	QUEEN ST	LEVESQUE ST	PARKER ST	0.10	1600	Preventative Maintenance	-	8	16	91
622	OTTAWA ST	IMPERIAL ST	ABITIBI ST	0.22	1600	Preventative Maintenance	-	8	16	91
623	OTTAWA ST	BRIDGE ST	HIGHWAY 17	0.16	1600	Preventative Maintenance	-	8	16	91
353	IMPERIAL ST	CACHE BAY RD	OTTAWA ST	0.10	1600	Preventative Maintenance	-	8	16	91
626	OTTAWA ST	ABITIBI ST	BRIDGE ST	0.15	1600	Preventative Maintenance	-	8	16	91
712	RAILWAY ST	KING ST	MAIN ST	0.10	1000	Preventative Maintenance	-	10	19	90
31	ARTHUR ST	MACKIE ST	MARKET ST	0.13	800	Preventative Maintenance	-	10	20	90
32	ARTHUR ST	RUSSELL ST	JOHN ST	0.13	800	Preventative Maintenance	-	10	20	90
33	ARTHUR ST	MARKET ST	RUSSELL ST	0.10	800	Preventative Maintenance	-	10	20	90
257	EVANSVILLE DR	EGANSVILLE DR	EGANSVILLE DR	1.52	150	ST1 - Single Surface Treatment	\$64	8	16	85
429	LAPLAGE RD	LECLAIR RD	RIVIERE VEUVE RD	3.08	150	G - Gravel (100mm)	\$95	9	18	85
258	EVANSVILLE DR	GOULARD RD	EGANSVILLE DR	1.43	150	ST1 - Single Surface Treatment	\$60	8	16	85

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
442	LARONDE RD	CACHE BAY RD	SOUTH END	0.22	49	G - Gravel (100mm)	\$7	8	16	82
654	PERRIN RD	ROBICHAUD RD	SOUTH END	0.11	49	G - Gravel (100mm)	\$3	8	16	82
814	ST. JACQUES CRT	DOVERCOURT RD	WEST END	0.13	49	G - Gravel (100mm)	\$4	8	16	82
147	CONCORD RD	FORT RD	EAST END	0.35	49	G - Gravel (100mm)	\$11	8	16	82
680	PRINCIPAL ST E	HIGHWAY 64	RACETTE RD	0.10	1372	RO1 - Hot Mix Overlay, 1 Lift	\$23	8	15	91
28	ARTHUR ST	RAILWAY ST	SALTER ST	0.10	200	Preventative Maintenance	-	9	18	86
835	TAMERACK AV	SANDHILL RD	BALSAM CT	0.09	200	Preventative Maintenance	-	9	18	86
836	TAMERACK AV	BALSAM CT	CEDAR GROVE RD	0.53	200	Preventative Maintenance	-	9	18	86
229	DUPRAS ST	DENIS ST	JACQUES ST	0.22	100	Preventative Maintenance	-	9	17	84
230	DUPRAS ST	FORGET AVE	DENIS ST	0.07	100	Preventative Maintenance	-	9	17	84
502	MAIN ST	SALTER ST	FIRST ST	0.13	800	Preventative Maintenance	-	10	19	90
849	THIRD ST	DEMERS ST	MAGEAU ST	0.10	800	Preventative Maintenance	-	10	20	90
853	THIRD ST	VICTORIA ST	RIVER ST	0.12	800	Preventative Maintenance	-	10	20	90
678	PRINCIPAL ST E	RACETTE RD	CHAMPLAIN ST	0.13	1200	RO1 - Hot Mix Overlay, 1 Lift	\$28	8	15	91
473	LEVESQUE ST	SECOND ST	THIRD ST	0.12	400	Preventative Maintenance	-	10	19	89
513	MAPLE ST	LAC CLAIR RD	DES PINS RD	0.15	150	Preventative Maintenance	-	9	18	86
514	MAPLE ST	DES PINS RD	DES CEDRES RD	0.11	150	Preventative Maintenance	-	9	18	86
414	LACHANCE RD	COURSOL RD	RIVET ST	0.32	150	Preventative Maintenance	-	9	18	86

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
415	LACHANCE RD	RIVET ST	EAST END	0.09	150	Preventative Maintenance	-	9	18	86
806	SPRINGER ST	PARK ST	EAST END	0.12	100	Preventative Maintenance	-	9	17	85
824	ST-JEAN BAPTISTE ST	DUBEAU ST	DES ERABLES ST	0.20	100	Preventative Maintenance	-	9	18	85
3	ALAIN CT	THIRD ST	NORTH END	0.13	100	Preventative Maintenance	-	9	18	85
656	PIETTE ST	CARTIER ST	COTE ST	0.35	100	Preventative Maintenance	-	9	17	85
673	PRINCIPAL ST E	CHAMPLAIN ST	PAQUETTE RD	0.04	1000	RO1 - Hot Mix Overlay, 1 Lift	\$10	8	15	91
709	RAILWAY ST	LEVESQUE ST	PARKER ST	0.10	400	Preventative Maintenance	-	10	19	89
191	DES ERABLES ST	ST JEAN BAPTISTE RD	NORTH END	0.04	100	Preventative Maintenance	-	9	18	86
192	DES ERABLES ST	ST JEAN BAPTISTE RD	PRINCIPAL ST E	0.08	100	Preventative Maintenance	-	9	18	86
193	DES ERABLES ST	PRINCIPAL ST E	GINGRAS AV	0.16	100	Preventative Maintenance	-	9	18	86
243	ERANA MINE RD	HIGHWAY 539A	EAST END	1.13	49	G - Gravel (100mm)	\$35	9	18	84
115	CARTIER ST	PRINCIPAL ST W	ST ARMOUR RD	0.14	200	Preventative Maintenance	-	9	18	88
580	NICHOLSON RD	ROBERTS RD	NORTH END	0.61	75	G - Gravel (100mm)	\$19	9	18	85
234	DUTRISAC RD	QUESNEL RD	GARDEN VILLAGE RD	1.69	1000	Preventative Maintenance	-	9	18	91
685	PRINCIPAL ST W	PAQUETTE RD	PILON ST	0.03	800	RO1 - Hot Mix Overlay, 1 Lift	\$6	8	15	91
196	DESGROSEILLIERS ST	SALTER ST	SPRINGER ST	0.17	100	Preventative Maintenance	-	10	19	86
615	OLD HWY 17 RD	KIRKPATRICK RD	NORTH & SOUTH RD	2.34	100	G - Gravel (100mm)	\$72	9	18	86

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
616	OLD HWY 17 RD	NORTH & SOUTH RD	MOUSTIK RD	0.81	100	G - Gravel (100mm)	\$25	9	18	86
674	PRINCIPAL ST E	HERITAGE CR	TELESPHORES ST	0.03	200	Preventative Maintenance	-	10	19	88
675	PRINCIPAL ST E	HERITAGE CR	HERITAGE CR	0.10	200	Preventative Maintenance	-	10	19	88
677	PRINCIPAL ST E	TELESPHORES ST	EAST END	0.02	200	Preventative Maintenance	-	10	19	88
494	LISGAR ST	SIMCOE ST	CACHE BAY RD	0.10	200	Preventative Maintenance	-	10	19	88
90	BURNHAM RD	HIGHWAY 539A	EAST END	0.09	49	G - Gravel (100mm)	\$3	9	18	85
735	RIVIERE ST	HIGHWAY 64	WEST END	0.28	75	G - Gravel (100mm)	\$9	10	19	86
544	MICHAUD ST	BOURGAULT ST	NORTH ST	0.11	400	Preventative Maintenance	-	10	20	90
546	MICHAUD ST	NORTH ST	ETHEL ST	0.14	400	Preventative Maintenance	-	10	20	90
683	PRINCIPAL ST W	PILON ST	BEAUDIN ST	0.11	600	RO1 - Hot Mix Overlay, 1 Lift	\$25	8	15	91
561	MONTREAL ST	BRIDGE ST	SOUTH END	0.16	100	Preventative Maintenance	-	10	19	87
299	GARDEN VILLAGE RD	DUTRISAC RD	COCKBURN RD	1.48	200	Preventative Maintenance	-	9	18	89
545	MICHAUD ST	RAILWAY ST	SALTER ST	0.11	200	Preventative Maintenance	-	10	19	89
206	DOVERCOURT RD	CACHE BAY RD	NORTH END	0.47	200	Preventative Maintenance	-	10	19	89
123	CHATEAU TR	RUSSELL ST	WEST END	0.10	200	Preventative Maintenance	-	10	20	89
738	ROBERGE RD	LECLAIR RD	SOUTH END	2.82	49	G - Gravel (100mm)	\$87	9	18	86
617	OLD HWY 17 RD	MOUSTIK RD	WEST END	1.74	49	G - Gravel (100mm)	\$54	9	18	86

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
658	PILON ST	PRINCIPAL ST W	SOUTH END	0.07	100	Preventative Maintenance	-	10	19	88
388	KING ST	SECOND ST	THIRD ST	0.12	200	Preventative Maintenance	-	10	19	90
381	KING ST	HIGHWAY 17	RAILWAY ST	0.15	400	Preventative Maintenance	-	10	19	91
66	BELANGER ST	BELISLE ST	THIRD ST	0.27	200	Preventative Maintenance	-	10	20	90
67	BELANGER ST	SALTER RD	BELISLE ST	0.11	200	Preventative Maintenance	-	10	20	90
499	MAGEAU ST	THIRD ST	ROY ST	0.45	200	Preventative Maintenance	-	10	20	90
627	OTTAWA ST	SPRING ST	BAY ST	0.11	200	Preventative Maintenance	-	10	20	90
805	SPRING ST	OTTAWA ST	PEMBROKE ST	0.10	200	Preventative Maintenance	-	10	20	90
391	KING ST	CAMERON CT	ALEXE ST	0.24	200	Preventative Maintenance	-	10	20	90
4	ALEXE ST	KING ST	MATHIEU ST	0.26	200	Preventative Maintenance	-	10	20	90
5	ALEXE ST	MATHIEU ST	SOUTH END	0.15	200	Preventative Maintenance	-	10	20	90
532	MATHIEU ST	ALEXE ST	NIPISSING ST	0.21	200	Preventative Maintenance	-	10	20	90
844	TELESPHORE ST	PRINCIPAL ST E	GINGRAS AV	0.12	100	Preventative Maintenance	-	10	19	89
216	DUBEAU ST	HIGHWAY 17	NORTH END	0.16	100	Preventative Maintenance	-	10	19	89
49	BALSAM CT	TAMERACK AV	SOUTH END	0.24	100	Preventative Maintenance	-	10	19	89
881	VERCHERES ST	HIGHWAY 64	DUBEAU ST	0.14	200	Preventative Maintenance	-	10	19	91
233	DUTRISAC RD	GARDEN VILLAGE RD	PROMENADE DU LAC	0.26	400	Preventative Maintenance	-	10	19	92
804	SPRING ST	PEMBROKE ST	RAMSAY ST	0.09	100	Preventative Maintenance	-	10	20	90

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
723	RAMSAY ST	SPRING ST	SOUTH END	0.08	49	Preventative Maintenance	-	10	20	89
648	PARKER ST	SECOND ST	NORTH END	0.08	49	Preventative Maintenance	-	10	19	89
892	WILLIAM ST	RIVER ST	HOLDITCH ST	0.14	49	Preventative Maintenance	-	10	19	90
547	MICHAUD ST	QUEEN ST	HIGHWAY 17	0.13	1187	Preventative Maintenance	-	9	18	95
38	AURELE ST	PRINCIPAL ST W	SOUTH END	0.11	49	Preventative Maintenance	-	10	19	91
542	MICHAUD ST	WILLIAM ST	QUEEN ST	0.12	1000	Preventative Maintenance	-	9	18	95
543	MICHAUD ST	JOHN ST	WILLIAM ST	0.12	1000	Preventative Maintenance	-	9	18	95
50	BAY ST	OTTAWA ST	PEMBROKE ST	0.10	150	Preventative Maintenance	-	10	20	93
51	BAY ST	PEMBROKE ST	EAST END	0.10	150	Preventative Maintenance	-	10	20	93
504	MAIN ST	QUEEN ST	HIGHWAY 17	0.13	1284	Preventative Maintenance	-	9	18	96
345	HOLDITCH ST	MACKIE ST	MARKET ST	0.13	1200	Preventative Maintenance	-	9	18	96
503	MAIN ST	WILLIAM ST	QUEEN ST	0.11	1200	Preventative Maintenance	-	9	18	96
347	HOLDITCH ST	RUSSELL ST	JOHN ST	0.12	1200	Preventative Maintenance	-	9	18	96
507	MAIN ST	JOHN ST	WILLIAM ST	0.12	1200	Preventative Maintenance	-	9	18	96
351	HOLDITCH ST	MARKET ST	RUSSELL ST	0.10	1200	Preventative Maintenance	-	9	18	96
693	QUEEN ST	HOLDITCH ST	KING ST	0.10	2000	Preventative Maintenance	-	10	19	99
346	HOLDITCH ST	QUEEN ST	HIGHWAY 17	0.12	2000	Preventative Maintenance	-	10	19	99
696	QUEEN ST	MAIN ST	LEVESQUE ST	0.10	2000	Preventative Maintenance	-	10	19	99

Sect. No.	Road Name	From	To	Length (km)	AADT	Preliminary Improvement Type Recommendation	Cost (x1000)	Surface Condition	Structural Adequacy	Condition Rating
350	HOLDITCH ST	WILLIAM ST	QUEEN ST	0.12	2000	Preventative Maintenance	-	10	19	99
893	WILLIAM ST	KING ST	MAIN ST	0.10	1600	Preventative Maintenance	-	10	19	99
894	WILLIAM ST	HOLDITCH ST	KING ST	0.10	1600	Preventative Maintenance	-	10	19	99
697	QUEEN ST	RIVER ST	HOLDITCH ST	0.13	1600	Preventative Maintenance	-	10	19	99
348	HOLDITCH ST	JOHN ST	WILLIAM ST	0.12	1200	Preventative Maintenance	-	10	19	99
699	QUEEN ST	KING ST	MAIN ST	0.10	1200	Preventative Maintenance	-	10	19	99
541	MICHAUD ST	RUSSELL ST	JOHN ST	0.13	1000	Preventative Maintenance	-	10	19	99
548	MICHAUD ST	ETHEL ST	RUSSELL ST	0.38	1000	Preventative Maintenance	-	10	19	99
497	MACKIE ST	HODITCH ST	KING ST	0.10	800	Preventative Maintenance	-	10	20	100

Notes:

1. Priorities in descending order. The higher the priority rating the greater the need.
2. Rehabilitation strategy to be confirmed by geotechnical investigations at detail design.

6.3 Preservation Management

Preservation techniques seal the surface as to prevent water infiltration into the granular base. Route and Seal is used on HCB pavements to seal individual cracks. Slurry Seal / Microsurfacing is used on LCB and HCB pavements to seal large areas, although wide / active cracks will reflect through the treatment. An annual preservation management budget has been estimated as follows:

Slurry Seal / Microsurfacing

- 73.4 km of paved roads (HCB).
- 45.0 km of surface treated roads (LCB).
- Assume that slurry seal / microsurfacing will be applied, on average, once per resurfacing cycle.
- 10.1 km of road to preserve per year (3.7 km HCB and 6.4 km of LCB).
- **Annual budget \$222,705** (25.8 km x \$22,000 / km **Slurry Sealing / Microsurfacing**).

6.4 Road Maintenance

Preventative road and roadside maintenance is critical to prolonging the useful service life of a road and maximizing the capital investment. A continuous road and roadside maintenance program is recommended to reduce the road degradation rates. Ditch cleanout and clearing of vegetation from the right-of-way should be carried out on a regular basis. This can either be accomplished through dedicated internal Municipality forces or sub-contracting to private contractors. Consideration may be given to a dedicated capital program of ditch cleanout and clearing, to ensure resources are dedicated to these important activities.

7.0 O. Reg. 588/17 Reporting Requirements

This study meets the reporting requirements under Table 4 of O. Reg. 588/17. For convenience, all items required under Table 4 are presented below, with the exception of mapping.

Table 11 – Road Class Density

Class	Lane-kilometres	Lane-kilometres / Municipal Area*
Arterial	0.00	0.00
Collector Roads	52.11	0.03
Local Roads	1045.25	0.53
All	1097.36	0.56

*Municipal area taken as 1956.27 km²

The average PCI for hard top surfaces in the Municipality is 74.8.

The average surface condition of unpaved roads is 7.1 as per the inventory Manual. This would broadly translate into a road with “good” rating.

Descriptions that illustrate the different levels of road pavement condition are presented in the tables below:

Table 12 - Qualitative Descriptions of PCI for HCB Roads²

PCI Range	Qualitative Description
90 - 100	Pavement is in excellent condition with few cracks. The Ride Condition Rating is excellent with few areas of very slight to slight distortion.
75 - 90	The pavement is in good condition with frequent very slight or slight cracking. The Ride Condition Rating is good with a few slightly rough and uneven sections.
65 - 75	The pavement is in fairly good condition with slight cracking, slight or very slight distortion and a few areas of slight alligating. The Ride Condition Rating is fairly good with intermittent rough and uneven sections.
50 - 65	The pavement is in fair condition with intermittent moderate and frequent slight cracking, and with intermittent slight or moderate alligating and distortion. The Ride Condition Rating is fair and the surface is slightly rough and uneven.
40 - 50	The pavement is in poor to fair condition with frequent moderate cracking and distortion, and intermittent moderate alligating. The Ride Condition Rating is poor to fair and the surface is moderately rough and uneven.
30 - 40	The pavement is in poor to fair condition with frequent moderate alligating and extensive moderate cracking and distortion. The Ride Condition Rating is poor to fair and the surface is moderately rough and uneven.
20 - 30	The pavement is in poor condition with moderate alligating and extensive severe cracking and distortion. The Ride Condition Rating is poor and the surface is very rough and uneven.
0 - 20	The pavement is in poor to very poor condition with extensive severe cracking, alligating and distortion. The Ride Condition Rating is very poor and the surface is very rough and uneven.

² Adapted from Table B-1 of the MTO's Manual for Condition Rating of Flexible Pavements, SP-024.

Table 13 - Qualitative Descriptions of PCI for LCB Roads³

PCI Range	Qualitative Description
80 - 100	Pavement is in excellent condition with just a few bumps or depressions from slight surface deformation. No surface defects such as streaking, potholes or cracking distresses. The Ride Condition Rating is very good.
60 - 79	Pavement is in good condition with just a few bumps or depressions from slight to moderate surface deformation. Intermittent slight to moderate surface defects and/or cracking distresses. The Ride Condition Rating is good.
40 - 59	Pavement is in fair condition with intermittent to frequent bumps or depressions from slight to moderate surface deformation. Intermittent to frequent moderate surface defects and/or cracking distresses. The Ride Condition Rating is fair.
20 - 39	Pavement is in poor condition with frequent bumps or depressions from moderate surface deformation. Frequent moderate to severe surface defects and/or cracking distresses. Localized slight to moderate alligating may be present indicating pavement structural failure. The Ride Condition Rating is poor.
0 - 19	Pavement is in very poor condition with extensive bumps or depressions from moderate to severe surface deformation. Extensive to severe surface defects and/or cracking distresses. Frequent slight to moderate alligating may be present, indicating pavement structural failure. The Ride Condition Rating is very poor.

Table 14 - Qualitative Descriptions of Surface Condition for Gravel Roads⁴

Surface Condition	Qualitative Description
10	If the section affords a fully adequate standard of service, with no annoyance or discomfort. Gravel roads rarely score a "10" rating due to their inherent roughness.
7 - 9	If it is possible to maintain the lesser of the Minimum Tolerable Average Operating Speed or the legal Speed Limit with only a noticeable amount of annoyance to the driver due to sway, vibration or steering effort, but with no noticeable feeling of hazard.

³ Adapted from Table B-1 of the MTO's Manual for Condition Rating of Surface-Treated Roads, SP-021.

⁴ Adapted from Item 83 from the MTO's Ministry of Transportation's Inventory Manual for Municipal Roads (February 1991).

4 - 6	If maintaining even the lesser of the Minimum Tolerable Average Speed or the legal Speed Limit results in either a “tug-of-war” with a too-steep crown, or a feeling that the car is taking undue punishment.
1 - 3	If the surface irregularities are so severe that a driver will tend to reduce speed considerably, possibly even steering an irregular course, or if the crown is so steep as to be hazardous in winter.

7.1 Replacement Cost

In conjunction with this Road Needs Study Report, a replacement cost for the road asset was calculated based strictly on roadbed materials i.e. sub-base, base and surface. Road design standards noted in **Table 8** were used to estimate the existing depth of road bed materials for the purpose of the replacement cost calculation.

The total replacement cost for the Municipality’s road infrastructure is approximately \$160.5 M.

Note this cost represents the theoretical road bed materials costs only and does not include items such as removal of the existing road bed, installation of signs, pavement markings, lighting, drainage infrastructure, property etc.

8.0 Summary

D.M. Wills Associates (Wills) undertook a review of the Municipality of West Nipissing (Municipality) existing road network to assess its physical condition and confirm various road attributes. Data collected as a result of the field review was used to develop a prioritized listing of the road network needs based primarily on condition and traffic volumes.

Wills undertook the field study in April and May of 2023. A visual assessment of each road within the Municipality was undertaken to assess the current condition of the road.

Two primary indicators of the relative health of a road are the structural adequacy and surface condition ratings. The current average structural adequacy rating for the Municipality’s road network is 13.8/20. The current average surface condition rating for the Municipality’s road network is 7.0/10.

2% (12.1 km) of the road network has a Structural “NOW” need, 4% (24.5 km) has a Structural “1-5” year need, and 6% (34.0 km) of the road network has a Structural “6-10” year need.

Preservation Management

In addition to addressing currently deficient roads (i.e. capital reconstruction), a dedicated preservation management approach is required, **and perhaps even more importantly**, to “keep the good roads good”; the fundamental principle being that it costs much less to maintain a good road than it does to let it fail and then reconstruct it,

from a life cycle cost perspective. Ultimately, the goal of preservation management is to extend the useful life of a road and road network, maximizing the Municipality's investment over the road life-cycle.

Road resurfacing is an effective way of extending the overall life of the pavement structure and therefore a road resurfacing program is highly recommended. Roads with a structural adequacy of 12/20 or greater are included as candidates for potential resurfacing. Preliminary recommendations and prioritization for road resurfacing are based on condition rating and traffic demands on each road section, as per the Inventory Manual. A road with higher traffic volumes and fair structural adequacy is given priority over a road with moderate traffic and good structural adequacy score, in an attempt to intervene and extend the life of the road before it deteriorates to a level that can no longer be resurfaced (i.e. more expensive reconstruction is required). Specific resurfacing treatment recommendations must be assessed through further field investigation and detail design effort, prior to selecting and implementing the resurfacing strategy.

Based on typical degradation rates for gravel roads, surface treatment, and hot mix, a total resurfacing program, (hot mix, surface treatment and gravel) is estimated at \$4,472,100 per year.

Further to the recommendations above with respect to resurfacing, it is also recommended that regular maintenance in the form of roadside ditch cleanout and clearing be undertaken as a critical component to preservation management in order to extend the useful service life of the existing roads.

Capital Improvements

Preliminary recommendations and prioritization for planned capital improvements i.e. reconstruction, have been developed based on the condition rating and traffic demands on each road section, as per the Inventory Manual. Those roads identified as having a "NOW", 1 – 5 year, or 6 – 10 year need have been included in the capital improvement plan for reconstruction.

A total length of 70.6 km of roads were identified as having structural needs in the "NOW", 1 – 5 or 6-10 year periods. The estimated cost to improve these roads is approximately \$18.2 M.


A fully funded 10 year plan following the recommendations in this report includes \$4.5 M/year for resurfacing needs and \$1.8 M/year for the capital needs over ten years.

An additional length of approximately 62 km of road is identified as having inadequate surface widths. Generally, provided no operational or safety concerns are identified, roads with surface width deficiencies are typically addressed / considered at the next full reconstruction cycle.

The time of inspection plays a significant role in assessing a road's condition. The field work for this study was carried out in April and May of 2023.

We trust the above and attached information will be of benefit to the Municipality and appreciate the opportunity to assist the Municipality in developing its road improvement plan.

Respectfully submitted,



Eric St. Pierre, P.Eng
Transportation Engineer



Turner Kuhlmeier, E.I.T.
Transportation Engineering Intern

Statement of Limitations

This report has been prepared by D.M. Wills Associates on behalf of the Municipality of West Nipissing. The conclusions and recommendations in this report are based on available background documentation and discussions with applicable Municipality staff at the time of preparation.

The report is intended to document the 2023 Roads Needs Study Report findings and assist the Municipality in developing budgetary plans for investment into their road network.

Any use which a third party makes of this report, other than as a Road Needs Study Report is the responsibility of such third parties. D.M. Wills Associates Limited accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or action taken based on using this report for purposes other than as a summary of the 2023 Road Needs Study Report findings.

Appendix A

Unit Price Form

ROAD IMPROVEMENT COSTS

West Nipissing [NOT UPDATED]

Unit Costs	Units	Unit Cost
Granular A	t	\$25.00
Granular B	t	\$20.00
Hot Mix	t	\$250.00
Earth Excavation	m3	\$20.00
Asphalt Removal	m2	\$8.00
Asphalt Removal - Partial Depth	m2	\$4.00
Removal of Concrete Curb & Gutter	m	\$30.00
Concrete Curb & Gutter	m	\$175.00
In-Place Full Depth Reclamation	m2	\$2.50
Surface Treatment - Single	m2	\$5.00
Surface Treatment - Double	m2	\$8.00
Granular A Conversion	2.2	t/m3
Granular B Conversion	2	t/m3
Hot Mix Conversion	2.45	t/m3

Gravel (100mm)								
Item	Width - m	Depth - mm	Conversion Factor	Unit		Quantity	Unit Cost	Cost/km (x 1000)
Granular A	7.0	100	2.2	t		1540	\$25.00	\$ 39
							G	39

Frost Heave Treatment								
Item	Width - m	Depth - mm	Conversion Factor	Unit		Quantity	Unit Cost	Cost/50m Digout (x 1000)
Earth Excavation	8.0	800		m3		320	\$20.00	\$ 6
Granular A	7.0	150	2.2	t		115.5	\$25.00	\$ 3
Granular B	8.0	650	2	t		520	\$20.00	\$ 10
							FT	20

Surface Treatment - Rural/Semi Urban - Single [ST1]								
Item	Width - m	Depth - mm	Conversion Factor	Unit		Quantity	Unit Cost	Cost/km (x 1000)
Surface Treatment - Single (Overlay)	7.0			m2		7000	\$5.00	\$ 35
							ST1	35

Surface Treatment - Rural/Semi Urban - Double [ST2]								
Item	Width - m	Depth - mm	Conversion Factor	Unit		Quantity	Unit Cost	Cost/km (x 1000)
Surface Treatment - Double (Overlay)	7.0			m2		7000	\$8.00	\$ 56
							ST2	56

Surface Treatment - Rural/Semi Urban - Double with Removal of Existing [ST2R]								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Surface Treatment - Double	7.0			m2		7000	\$8.00	\$ 56
Removal Asphalt Pavement	7.0	16		m2		7000	\$8.00	\$ 56
							ST2R	112

Surface Treatment - Rural/Semi Urban - Double with Granular Base [ST2A]								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Surface Treatment - Double	7.0			m2		7000	\$8.00	\$ 56
Granular A	7.0	150	2.2	t		2310	\$25.00	\$ 58
							ST2A	114

Surface Treatment - Rural/Semi Urban - Double with Pulverization and Granular Base [ST2PA]								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Surface Treatment - Double	7.0			m2		7000	\$8.00	\$ 56
Granular A	7.0	150	2.2	†		2310	\$25.00	\$ 58
Pulverizing	7.0			m2		7000.0	\$2.50	\$ 18
Minor Items @ 25%								\$ 4
							ST2PA	136

Surface Treatment - Rural/Semi Urban - Widening and Double with Pulverization and Granular Base [ST2PAW]								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Surface Treatment - Double	7.0			m2		7000	\$8.00	\$ 56
Granular A	7.0	150	2.2	†		2310	\$25.00	\$ 58
Pulverizing	7.0			m2		7000.0	\$2.50	\$ 18
Earth Excavation	2	450		m3		900	\$20.00	\$ 18
Granular B	1	450	2	†		900	\$20.00	\$ 18
Minor Items @ 25%								\$ 13
							ST2PAW	181

Resurfacing - Rural/Semi Urban Single Lift Overlay [RO1]								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction **	Quantity	Unit Cost	Cost/km (x 1000)
Hot Mix	3	50	2.45	†	74	441	\$250.00	\$ 110
Granular A	1.5	50	2.2	†		165	\$25.00	\$ 4
Minor Items @ 15%								\$ 17
							RO1	132

Resurfacing - Rural/Semi Urban - Double Lift Overlay [RO2]								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction **	Quantity	Unit Cost	Cost/km (x 1000)
Hot Mix	3	90	2.45	†	66	728	\$250.00	\$ 182
Granular A	1.5	90	2.2	†		297	\$25.00	\$ 7
Minor Items @ 15%								\$ 28
							RO2	218

Resurfacing - Urban - Single Lift Mill and Pave [RMP1]								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Hot Mix	4.25	50	2.45	†		521	\$250.00	\$ 130
Remove Curb and Gutter				m		200	\$30.00	\$ 6.00
Curb and Gutter - 20%				m		200	\$175.00	\$ 35.00
Milling	4.25			m2		4250	\$4.00	\$ 17.00
Minor Items @ 25%								\$ 47
							RMP1	235

Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Hot Mix	4.25	90	2.45	t		937	\$250.00	\$ 234
Remove Curb and Gutter				m		200	\$30.00	\$ 6.00
Curb and Gutter - 20%				m		200	\$175.00	\$ 35.00
Milling	4.25			m2		4250	\$4.00	\$ 17.00
Minor Items @ 25%								\$ 73
							RMP2	365

Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Hot Mix	3	50	2.45	†		367.5	\$250.00	\$ 92
Granular A	1.5	50	2.2	†		165	\$25.00	\$ 4
Pulverize	3			m2		3000	\$2.50	\$ 7.50
Minor Items @ 25%								\$ 26
							PP1	129

<i>Item</i>	<i>Width - m</i>	<i>Depth - mm</i>	<i>Conversion Factor</i>	<i>Unit</i>	<i>Crossfall Correction</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Cost/km (x 1000)</i>
Hot Mix	3	90	2.45	t		661.5	\$250.00	\$ 165
Granular A	1.5	90	2.2	t		297	\$25.00	\$ 7
Pulverize	3			m2		3000	\$2.50	\$ 8
Minor Items @ 25%								\$ 45
							PP2	225

Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction **	Quantity	Unit Cost	Cost/km (x 1000)
Earth Excavation	2	600		m3		1200	\$20.00	\$ 24
Granular A	5	150	2.2	†		1650	\$25.00	\$ 41
Granular B	5	450	2	†		4500	\$20.00	\$ 90
Hot Mix	8	50	2.45	†	196	1176	\$250.00	\$ 294
Milling	4			m2		4000	\$4.00	\$ 16
Minor Items @ 25%								\$ 116
							RW1	582

Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Earth Excavation	2	600		m3		1200	\$20.00	\$ 24
Granular A	5	150	2.2	†		1650	\$25.00	\$ 41
Granular B	5	450	2	†		4500	\$20.00	\$ 90
Hot Mix	8	90	2.45	†	353	2117	\$250.00	\$ 529
Milling	4			m2		4000	\$4.00	\$ 16
Minor Items @ 25%								\$ 175
							RW2	876

Gravel Road Widening								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Earth Excavation	2	600		m3		1200	\$20.00	\$ 24
Granular A	1	150	2.2	†		330	\$25.00	\$ 8
Granular B	1	450	2	†		900	\$20.00	\$ 18
Minor Items @ 25%								\$ 13
							GW	63

Rural: Full Excavation and Reconstruction - Gravel (6 m surface width)								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Earth Excavation	5	600		m3		3000	\$20.00	\$ 60
Granular A	3	150	2.2	†		990	\$25.00	\$ 25
Granular B	5	450	2	†		4500	\$20.00	\$ 90
Minor Items @ 25%								\$ 44
							Recon G	218

Rural: Full Excavation and Reconstruction - 1 Lift								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Asphalt Removal - Full Depth	3			m2		3000	\$8.00	\$ 24
Earth Excavation	5	600		m3		3000	\$20.00	\$ 60
Granular A	4	150	2.2	†		1320	\$25.00	\$ 33
Granular B	5	450	2	†		4500	\$20.00	\$ 90
Hot Mix	3	50	2.45	†		368	\$250.00	\$ 92
Minor Items @ 25%								\$ 75
							Recon 1R	374

Semi-Urban: Full Excavation and Reconstruction - 1 Lift								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Asphalt Removal - Full Depth	3			m2		3000	\$8.00	\$ 24
Earth Excavation	5	600		m3		3000	\$20.00	\$ 60
Granular A	4	150	2.2	†		1320	\$25.00	\$ 33
Granular B	5	450	2	†		4500	\$20.00	\$ 90
Hot Mix	3	50	2.45	†		368	\$250.00	\$ 92
Minor Items @ 25%								\$ 75
							Recon 1S	374

Semi-Urban: Full Excavation and Reconstruction - 2 Lift								
Item	Width - m	Depth - mm	Conversion Factor	Unit	Crossfall Correction	Quantity	Unit Cost	Cost/km (x 1000)
Asphalt Removal - Full Depth	3			m2		3000	\$8.00	\$ 24
Earth Excavation	5	600		m3		3000	\$20.00	\$ 60
Granular A	4	150	2.2	†		1320	\$25.00	\$ 33
Granular B	5	450	2	†		4500	\$20.00	\$ 90
Hot Mix	3	90	2.45	†		662	\$250.00	\$ 165
Minor Items @ 25%								\$ 93
							Recon 2S	465

Urban: Full Excavation and Reconstruction - 2 Lift

<i>Item</i>	<i>Width - m</i>	<i>Depth - mm</i>	<i>Conversion Factor</i>	<i>Unit</i>	<i>Crossfall Correction</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Cost/km (x 1000)</i>
Asphalt Removal - Full Depth	4.25			m2		4250	\$8.00	\$ 34
Earth Excavation	5.5	750		m3		4125	\$20.00	\$ 83
Granular A	4.5	150	2.2	t		1485	\$25.00	\$ 37
Granular B	5.5	600	2	t		6600	\$20.00	\$ 132
Hot Mix	4.25	90	2.45	t		937	\$250.00	\$ 234
Remove Curb and Gutter				m		1000	\$30.00	\$ 30.00
Curb and Gutter				m		1000	\$175.00	\$ 175.00
Minor Items @ 25%								\$ 130
							Recon 2U	855

Rout and Seal

<i>Item</i>				<i>Unit</i>		<i>Quantity</i>	<i>Unit Cost</i>	<i>Cost/km (x 1000)</i>
Rout and Seal				m		1000	\$4.00	\$ 4
							RS	4

Slurry Seal

<i>Item</i>	<i>Width - m</i>			<i>Unit</i>		<i>Quantity</i>	<i>Unit Cost</i>	<i>Cost/km (x 1000)</i>
Slurry Seal	7			m2		7000	\$3.15	\$ 22
							SS	22

Microsurfacing

<i>Item</i>	<i>Width - m</i>			<i>Unit</i>		<i>Quantity</i>	<i>Unit Cost</i>	<i>Cost/km (x 1000)</i>
Microsurfacing	7			m2		7000	\$6.00	\$ 42
							MS	42

Appendix B

Guiderail Memo

Memo

To:	Municipality of West Nipissing
From:	Eric St. Pierre, P.Eng.
Date:	November 13, 2023
Project Name:	2023 Road Needs Study
Project Number:	22-4839
Subject:	Guiderail Inventory

1.0 Purpose

As an add-on to the general Road Needs Study, Wills inventoried West Nipissing's freestanding guiderail systems. Guiderail systems attached to structures were not included as they are covered under West Nipissing's OSIM reporting.

Specifically, the inventory process captured the following items:

- Mapping as captured by a handheld GPS and presented in a shapefile compatible with West Nipissing's GIS,
- Length, as measured by a measuring wheel,
- Guiderail properties such as type, post and offset block material, end treatments, offset and recovery zone width, and mounting height,
- General condition of the rail / cable and posts, and
- General hazard identification (i.e. hazards were not delineated or analysed beyond identification).

2.0 Summary Table

The summary table included in the next page summarizes the free-standing guiderail inventory within West Nipissing.

Guiderail Summary Table

ID and Street Name	Length (m)	System Condition	End Treatment (Start - End)	Mounting Height (mm)	Offset (m)	Recovery (m)	Hazard	Comments
GR1 Lalande Road	70	SBGR Steel Posts - Good Plastic Offset Blocks Rail - Good	Fish Tail - Fish Tail	773	1.2	0	Water	Some minor collision/snow plow damage
GR2 Bay St	8	SBGR Wood Posts - Good Wood Offset Blocks Rail - Good	Fish Tail - Fish Tail	503	1	0.3	Electrical Box	Missing o/s block
GR3 Second St	19.8	SBGR Steel Posts - Poor No Offset Blocks Rail - Poor	Fish Tail - Fish Tail	527	1.2	0	Steep Grade / Embankment	Very poor condition
GR4 Quesnel Road	119.5	SBGR Wood Posts - Good Wood Offset Blocks Rail - Good	Turndown - Fish Tail	635	1.5	0	Water	75% of length is new, rest has low mounting heigh & poor condition.
GR5 Goulard Rd	52.8	SBGR Wood Posts - Good Wood Offset Blocks Rail - Good	Fish Tail - Fish Tail	743	1.8	0	Water	
GR6 Cache Bay Rd	46	SBGR Wood Posts - Poor No Offset Blocks Rail - Poor	Fish Tail - Fish Tail	743	1.1	0.5	Retaining Wall / Vertical Drop	

ID and Street Name	Length (m)	System Condition	End Treatment (Start - End)	Mounting Height (mm)	Offset (m)	Recovery (m)	Hazard	Comments
GR7 Cache St	6.8	SBGR Wood Posts - Poor No Offset Blocks Rail - Poor	None	793	1.7	1	Utility Pole / Electrical Box	
GR8 Des Erables St	4.1	SBGR Wood Posts - Poor No Offset Blocks Rail - Poor	None	700	1.5	0	No Hazard	Guiderail does not protect a hazard – it prevents access to Highway 17.
GR9 Labrosse Road	131	3CGR Wood Posts - Good Cable - Good	Turndown - Turndown	623	1.2	0.5	Water	1 broken post, loose cables
GR10 Adelard St	28.7	SBGRWood Posts - PoorWood Offset BlocksRail - Fair	Fish Tail - Fish Tail	493	1.6	0	Water	rotted posts, twisted o/s blocks, section is protecting cul-de-sac from water.
GR11 Millrand Rd	34.5	SBGR Wood Posts - Poor Wood Offset Blocks Rail - Poor	Turndown - Turndown	317	0.5	0	Water	several broken/felled posts, very low mounting height
GR12 Old Aubin Rd	81	SBGR Steel Posts - Good Wood Offset Blocks Rail - Good	Turndown - Turndown	757	1.2	1	Fill Slope / Highway 64	
GR13 King St	58.2	SBGR Steel Posts - Good No Offset Blocks Rail - Good	Fish Tail - Fish Tail	723	0	0	Steep Grade / Embankment	

ID and Street Name	Length (m)	System Condition	End Treatment (Start - End)	Mounting Height (mm)	Offset (m)	Recovery (m)	Hazard	Comments
GR14 King St	16.2	SBGR Wood Posts - Good No Offset Blocks Rail - Good	Fish Tail - Fish Tail	720	0	2	Water	
GR15 King St	8.5	SBGR Wood Posts - Good No Offset Blocks Rail - Good	Fish Tail - Fish Tail	667	0	2	Water	

SBGR: Steel Beam Guide Rail

3CGR: 3-Cable Guide Rail

14 systems are steel beam guiderail, built to a pre-type M standard. End treatments are either not present, or obsolete (i.e. the turndown and fishtail end treatments. Mounting Heights are inconsistent, and generally low.

One system, GR8 on Des Erables St, does not protect a hazard and instead functions as a fence preventing access to Highway 11 from the local street.

1 system is 3 cable guiderail. Although used for decades in Ontario, 3-cable guiderail is no longer specified by the MTO. Furthermore, 3-cable guiderail requires a wide recoverable zone behind the guiderail to take advantage of its inherent flexibility. As only 0.5m is available behind the existing cable guiderail, Wills recommends that it is eventually replaced by a Steel Beam Guiderail.

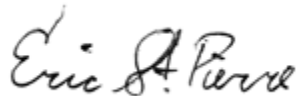
Of 685 m of free-standing guiderail in West Nipissing, 140 m are in poor condition.

3.0 Recommendations

Given the absence of standard end treatments, variable mounting heights and age of the systems, it is recommended that all existing systems and their hazards are reviewed in detail to:

- Confirm that the severity of the hazard is greater than the severity of the guide rail system, as per an accepted engineering methodology, such as the Roadside Design Manual,
- Identify if the hazard can be removed (through slope flattening, utility pole relocation, etc), and
- If a new system is installed, determine the length of need.

Respectfully submitted,



Eric St. Pierre, P.Eng

Transportation Engineer



Turner Kuhlmeier, E.I.T.

Transportation E.I.T.