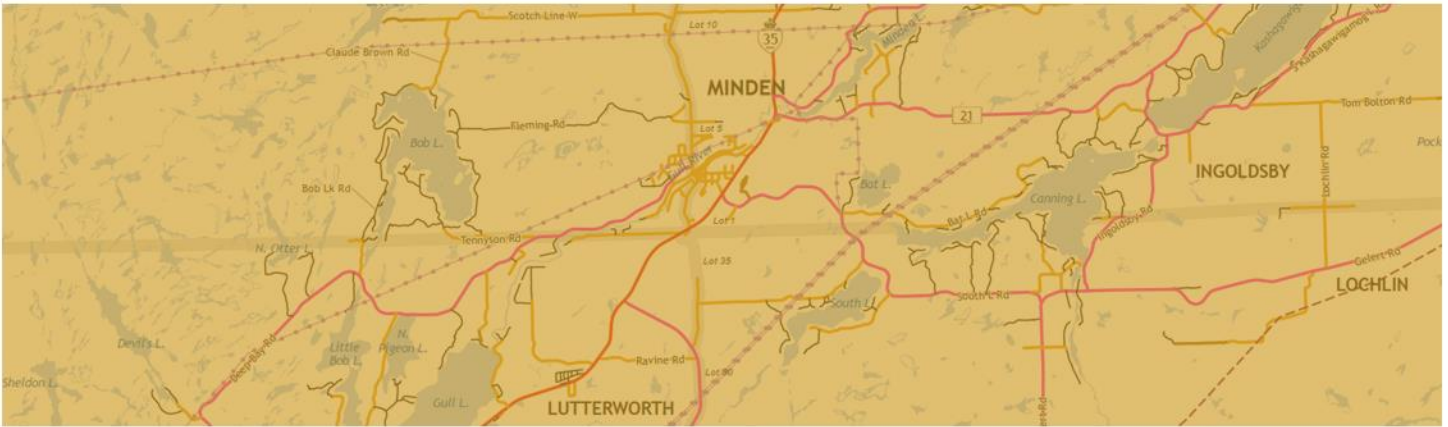




Enhancing our communities



Road Needs Study 2021

ROAD INVENTORY & ASSESSMENT

Township of Minden Hills

Document Control

File:

118086

Date:

December
3, 2021

Prepared by:

Tatham Engineering Limited
115 Sandford Fleming Drive,
Suite 200
Collingwood, Ontario L9Y 5A6
T 705-444-2565
tathameng.com

Prepared for:

Township of Minden Hills
7 Milne Street, PO Box 359
Minden, Ontario K0M 2K0

Authored by:	Reviewed by:
<h1>draft</h1>	
Mat MacLean B.Sc., CET Intermediate Technologist	Michael Cullip B.Eng & Mgmt, M.Eng, P.Eng. Vice President Head Office Operations

Disclaimer	Copyright
The information contained in this document is solely for the use of the Client identified on the cover sheet for the purpose for which it has been prepared and Tatham Engineering Limited undertakes no duty to or accepts any responsibility to any third party who may rely upon this document.	This document may not be used for any purpose other than that provided in the contract between the Owner/Client and the Engineer nor may any section or element of this document be removed, reproduced, electronically stored or transmitted in any form without the express written consent of Tatham Engineering Limited.

Issue	Date	Description
0	December 3, 2021	Draft for client review

Document Contents

1	Introduction	1
1.1	Overview	1
1.2	Purpose of Report	1
2	Road Inventory	3
2.1	Road Network	3
2.2	Inventory Procedure	3
3	Traffic Volumes & Operations	5
3.1	Existing Volumes	5
3.2	Future Volumes	7
3.3	Traffic Operations	9
4	Existing Road Conditions	10
4.1	Road Environment	10
4.2	Road Class	10
4.3	Maintenance Class	12
4.4	Surface Type	13
4.5	Surface Width	13
4.6	Surface Assessment	14
4.7	Road Drainage	20
5	Road Condition Appraisal & Needs Assessment	21
5.1	Surface Condition Needs	21
5.2	Surface Type Needs	25
5.3	Surface Width Needs	25
5.4	Shoulder Width Needs	26
5.5	Road Capacity Needs	27



5.6 Drainage Needs27

5.7 Multiple Needs28

6 Road Improvements 29

6.1 Improvement Strategies.....29

6.2 Improvement Recommendations.....30

6.3 Improvement Costs31

7 Priorities & Recommendations..... 34

7.1 Priority Rating.....34

7.2 Priority Guide Number.....34

7.3 Improvement Schedule.....35

8 Road Surface Management..... 37

8.1 Gravel vs Hard Surface37

8.2 Life-Cycle Cost Assessment.....38

8.3 Recommendations.....42

9 Summary..... 43

9.1 Road Network.....43

9.2 Road Surface Management43

9.3 Study Updates43



Tables

Table 1: Average Annual Daily Traffic Volumes - 2018.....	6
Table 2: Average Annual Daily Traffic Volumes - 2038.....	8
Table 3: Road Environment.....	10
Table 4: Road Class.....	11
Table 5: Maintenance Class.....	12
Table 6: Road Surface.....	13
Table 7: Surface Width.....	14
Table 8: Surface Distresses.....	14
Table 9: Ride Comfort Rating Scale.....	15
Table 10: Ride Comfort Rating.....	15
Table 11: Pavement Condition Index.....	17
Table 12: Road Drainage.....	20
Table 13: PCI Decision Matrix - Asphalt & Surface Treated Roads.....	22
Table 14: PCI Decision Matrix - Gravel Roads.....	22
Table 15: Surface Condition Needs.....	24
Table 16: Surface Type Requirements.....	25
Table 17: Surface Width Requirements.....	25
Table 18: Surface Width Needs.....	26
Table 19: Shoulder Width Needs.....	27
Table 20: Road Capacity.....	27
Table 21: Drainage Needs.....	28
Table 22: Multiple Deficiency Road Sections.....	28
Table 23: Unit Costs.....	32
Table 24: Improvement Cost Summary.....	33
Table 25: Life-Cycle Cost Assumptions - Gravel.....	39
Table 26: Life-Cycle Cost Assumptions - Surface Treatment.....	40
Table 27: Life-Cycle Cost Assumptions - Asphalt.....	40
Table 28: Life-Cycle Cost Assumptions - Unit Costs.....	41
Table 29: Life-Cycle Costs.....	41



Figures

Figure 1: Ride Comfort Rating by Road Length 16
Figure 2: Pavement Condition Index by Road Length..... 18
Figure 3: Pavement Condition Index by Road Surface 18
Figure 4: Road Improvement Recommendations by Road Length 31

Appendices

Appendix A: Road Inventory Forms
Appendix B: Traffic Data
Appendix C: Road Inventory
Appendix D: Road Standards
Appendix E: Road Deficiencies & Improvements
Appendix F: Road Priority Ratings
Appendix G: Road Priority Guide Numbers
Appendix H: Road Implementation Plan
Appendix I: Life-Cycle Costing



1 Introduction

1.1 OVERVIEW

Tatham Engineering Limited was initially retained by the Township of Minden Hills to complete the *Road Needs Study 2018* for the Township's road network. The associated road inventory reviews were updated in the summer of 2021, the results of which are document in this updated study, *Road Needs Study 2021*. The principal objectives of this study are:

- establish traffic volumes throughout the road network;
- inventory and evaluate the existing Township road network, and corresponding roadside safety devices (ie. regulatory signs, warning signs and guiderail);
- inventory and evaluate the existing Public Works facilities (eg. garages, sand/salt storage, other facilities);
- identify the need for improvements to the road network, appropriate rehabilitation or reconstruction strategies, and associated costs;
- identify the adequacy of the existing regulatory and warning signs in consideration of retroreflectivity;
- identify the need for improvements to the guiderail network, including recommendations for new installations to address roadside hazards;
- identify the need for improvements to the Public Works facilities;
- establish a simple mechanism to determine the annual works program for the Township road system; and
- provide the Township with a decision aid for budgeting purposes by outlining future capital needs.

All completed inventories and associated databases have been compiled in electronic form (Microsoft Excel) to enable quick and ready retrieval of the data. All of the data collected, and subsequent analyses and assessments, are provided in the electronic database.

1.2 PURPOSE OF REPORT

The purpose of this report is to document the existing Township's road network and the methodology employed to determine the existing conditions and needs (as evident during the field inspections of 2018 and 2021). Specifically:

- Chapter 2 reviews the road inventory procedures employed;



- Chapter 3 presents existing and future traffic volumes;
- Chapter 4 summarizes the key existing conditions;
- Chapter 5 identifies the road deficiencies;
- Chapter 6 addresses the road network needs and improvements;
- Chapter 7 establishes the road network priorities and recommendations;
- Chapter 8 provides a cost comparative of gravel, surface treated and asphalt road surfaces;
and
- Chapter 9 provides a summary to the report.



2 Road Inventory

2.1 ROAD NETWORK

All roads within the Township limits were inventoried with the exception of the following:

- private roads;
- County roads; and
- Provincial highways.

In total, 257 road sections were inventoried, accounting for 278.0 kilometres of roads within the Township limits (measured along the road centreline).

2.2 INVENTORY PROCEDURE

2.2.1 Inventory Manuals & Guidelines

To ensure compliance with the appropriate Ministry of Transportation of Ontario (MTO) and Ontario Good Roads Association (OGRA) guidelines, the inventories reflect procedures as outlined in the following manuals:

- *Pavement Condition Index (PCI) for Flexible Pavement*; Ministry of Transportation of Ontario (August 1986);
- *Manual for Condition Rating of Surface Treated Pavements - Distress Manifestations SP-021*, Ministry of Transportation (August 1989);
- *Flexible Pavement Condition Rating - Guidelines for Municipalities SP-022*, Ministry of Transportation (August 1989);
- *Manual for Condition Rating of Flexible Pavements - Distress Manifestations SP-024*, Ministry of Transportation (August 1989);
- *Manual for Condition Rating of Gravel Surface Roads - Distress Manifestations SP-025*, Ministry of Transportation (August 1989);
- *Inventory Manual for Municipal Roads*; Ministry of Transportation of Ontario (February 1991); and
- *Measuring the Condition of Municipal Roads*, Ontario Good Roads Association, (undated).

Where necessary, the above guidelines were modified to reflect engineering standards and practices employed by the Township.



2.2.2 Inventory & Appraisal Form

The road inventories were completed using a combined field inventory and appraisal form developed from procedures set forth in the previously noted inventory manuals and guidelines. For each road section, the following key elements were determined, largely from field inspection and review, and information otherwise contained within the Township's asset management database:

- identification (road name, starting point and end point);
- section identification number (as per the Township's asset management database);
- section length (as per the Township's asset management database);
- cross-section elements (number of lanes, overall platform width, surface type and width, shoulder type and width, drainage conditions, speed limit, and presence of sidewalks and curbs);
- geometric deficiencies (substandard horizontal and vertical curves);
- terrain conditions (rocky, flat, rolling, etc.);
- environment (rural, semi-urban or urban);
- ride comfort rating; and
- distress ratings (scores associated with the severity and density of the road surface distresses).

In addition to the above, additional comments with respect to the road environment, configuration, existing conditions or obvious issues were recorded.

To ensure consistency with the Township's asset management database, the road sections and reference numbers as per the database were employed. Where necessary, existing road sections were further sub-divided to ensure that each section maintained a relatively consistent cross-section or condition (eg. section 1000 subdivided into 1000A and 1000B). New road sections were also added and noted where such did not otherwise exist in the Township's database (eg. 9999A, 9999B, 9999C).

The corresponding road inventory forms are provided in Appendix A. As the types of distresses vary by road surface type (gravel, surface treated or asphalt), separate road inventory forms were prepared for each.



3 Traffic Volumes & Operations

3.1 EXISTING VOLUMES

3.1.1 Traffic Counts

Traffic volumes on the Township road network were determined through a data collection program completed as part of the *Road Needs Study 2018*, which consisted of the following:

- 61 intersection turning movement counts
 - 2 counts were completed during the AM peak hours (08:00 to 12:00)
 - 59 counts were completed during the PM peak hours (14:00 to 18:00)
- 94 automatic traffic counts
 - 81 counts were completed over a 24-hour period (00:00 to 24:00)
 - 13 counts were completed over a 72-hour period (00:00 to 24:00 for each of the 3 days)
 - 2 counts were completed over a 72-hour period and included speed data.

The counts were completed over the period October 2, 2018 to November 1, 2018 and thus are considered representative of average conditions. For all counts, vehicles were classified as cars (ie. passenger cars, pick-up trucks or motorcycles), light trucks (single unit) and heavy trucks (multiple units).

Based on the 24-hour automatic counts, relevant factors were determined to translate the 4-hour intersection count volumes to 24-hour volumes (and thus each intersection count provided data for 3 or 4 locations, depending on the number of legs at the intersection). Corresponding factors were determined for each intersection count location, based on those automatic counts in closest proximity.

A listing and mapping of the traffic count locations is provided in Appendix B, as are additional traffic count details and summaries.

3.1.2 Traffic Estimates

For those road sections where no data was available, traffic volumes were estimated based on the collected data and considering similarities in road function and location, and existing development levels along the road and the overall use of the road. In most instances, road sections on either side of a road section with a known traffic volume will have similar traffic levels, particularly in the case of major through roads.



For roads within built-up areas, as per industry standards and trip generation rates, a typical single unit home generates 1 trip during the peak hour or 10 trips per day (note: a round-trip constitutes 2 trips). For rural residential areas and cottage roads, a reduced number of 5 daily trips has been assumed. For seasonal roads, volumes reflect average conditions and the use of the road section throughout the remainder of the year (eg. outside of the summer season).

3.1.3 2018 Traffic Volumes

The corresponding traffic volumes for the subject road sections are provided in Appendix B, whereas a summary of the daily volumes is provided in Table 1. For the 72-hour counts, an average over the course of the 3-days was used to reflect daily volumes. In instances where a road section had multiple sources of traffic volumes (eg. counts completed at several intersections along it), the greatest volumes were employed.

Table 1: Average Annual Daily Traffic Volumes - 2018

AADT RANGE		ROAD SECTIONS		ROAD KILOMETRES	
		Number	Percent	Kilometres	Percent
AADT < 50		104	40%	87.4	32%
50 ≤ AADT < 200		107	42%	131.9	47%
200 ≤ AADT < 500		25	10%	46.7	17%
500 ≤ AADT < 1000		11	4%	5.4	2%
1000 ≤ AADT < 2000		4	2%	3.4	1%
2000 ≤ AADT		6	2%	3.2	1%
Total		257	100%	278.0	100%

As indicated:

- almost one-third of the road network serves less than 50 vehicles per day (32% by length);
- the majority serves in the order of 50 to 500 vehicles per day (64%); and
- a limited number of road sections serve more than 500 vehicles per day (4%).

The roads serving the greatest traffic volumes (greater than 2000 vehicles per day) include:

- Bobcaygeon Road - Highway 35 to Peck Street (AADT 3610 counted);
- Bobcaygeon Road - Peck Street to Water Street (AADT 2770 estimated);



- Bobcaygeon Road - Water Street to Fleming Road (AADT 3200 counted);
- Water Street - Bobcaygeon Road to St. Germaine Street (AADT 2620 counted);
- Water Street - St. Germaine Street to Golf Course Road (AADT 2810 counted); and
- Water Street - Golf Course Road to Highway 35 (AADT 3130 counted).

3.2 FUTURE VOLUMES

Traffic volumes for 5, 10 and 20-year planning horizons (2023, 2028 and 2038) have been projected based on the existing 2018 traffic volumes with consideration for future growth. Traffic volumes throughout the Township are anticipated to grow in concert with overall growth in the Township and the abutting development areas.

3.2.1 Historic Growth

Historic growth trends and patterns were identified from the traffic data information for Provincial highways Township. Based on MTO Average Annual Daily Traffic (AADT) volumes, the following annual growth rates were realized between the years 2011 to 2016 (2016 is the latest published data from MTO):

- Highway 35
 - 0.9% increase between County Road 121 and Newcastle Street;
 - 0.1% increase between Newcastle Street and Water Street;
 - 0.9% increase between Water Street and County Road 121; and
 - 1.5% increase between County Road 121 and Highway 118.
- Highway 118
 - 1.8% increase between Haliburton Road 7 and Highway 35; and
 - 1.7% increase between Highway 35 and Haliburton County/District of Muskoka boundary.

3.2.2 Population Projections

Further to consideration for historic growth, projections for future growth also consider population projections. Based on the Census data for the years 2011 and 2016, the population of the Township increased from 5655 to 6088 persons, which translates to an annual growth of 1.5%. As per the Township's Official Plan, an additional 500 to 800 residents are expected by 2032, which equates to 0.8% annual growth.



3.2.3 Future Traffic Volumes

It is expected that motorists will utilize the collector and arterial road networks for longer distance travel (Haliburton County roads are considered arterials), whereas local roads will be used for short distance travel and local development access. In this regard, the following have also been considered:

- 1% annual growth on local roads; and
- 2% annual growth on collector and arterial roads to reflect local and inter-regional travel and connectivity of these to the provincial highway network.

While the noted growth rates are in excess of the anticipated Township population increase and historic growth on Highways 35 and 118 through the area, such have been considered to reflect a conservative approach.

The noted growth rates were applied to the 2018 daily volumes to yield forecasts for 2023, 2018 and 2038. A summary of the 2038 (20-year) projections is provided in Table 2, whereas additional details for each road section and for each horizon year are provided in Appendix B.

Table 2: Average Annual Daily Traffic Volumes - 2038

AADT RANGE		ROAD SECTIONS		ROAD KILOMETRES	
		Number	Percent	Kilometres	Percent
AADT < 50		87	34%	67.5	24%
50 ≤ AADT < 200		94	37%	113.2	41%
200 ≤ AADT < 500		49	19%	77.5	28%
500 ≤ AADT < 1000		16	6%	12.9	5%
1000 ≤ AADT < 2000		5	2%	3.6	1%
2000 ≤ AADT		6	2%	3.2	1%
Total		257	100%	278.0	100%

In considering the 20-year projections, there are no new road sections that are expected to serve in excess of 2000 vehicles per day. In considering road sections serving between 50 and 500 vehicles per day, this has increased from 64% to 69% by length, whereas 7% will serve more than 500 vehicles per day (up from 4%).



3.3 TRAFFIC OPERATIONS

For planning purposes, the following road capacities are considered appropriate:

- local road: 400 vehicles per hour per lane (vphpl);
- collector road: 600 vphpl; and
- arterial road: 800 vphpl.

The varying capacities reflect the extent to which traffic operations are affected by operating speeds, the presence of driveways and intersections, traffic signals and other road users (with the greatest impacts occurring on local roads).

In considering daily operations, the above translate to the following daily lane capacities (employing a factor of 10):

- local road: 4000 vehicles per day per lane (vpdpl);
- collector road: 6000 vpdpl; and
- arterial road: 8000 vpdpl.

In this regard, a 2-lane collector road has a capacity of 12,000 vehicles per day, whereas a 2-lane arterial road has a capacity of 16,000 vehicles per day.

In considering the future projected volumes and the noted capacities, the resulting volume to capacity ratios (a measure of the degree to which the road capacity is utilized), are all acceptable. The greatest v/c ratio is 0.43, suggesting the corresponding road section is projected to operate at 43% capacity in 20 years. In this regard, there are no traffic operational issues anticipated on the Township road network.



4 Existing Road Conditions

A full road inventory presenting the existing road conditions is included in Appendix C, whereas summaries of select items (environment, classification, surface type, surface width and drainage) are presented below.

4.1 ROAD ENVIRONMENT

Road sections were categorized as rural, semi-urban or urban, recognizing that road cross sections and standards differ should improvements be required. The respective environments are described as follows:

- the rural environment is typical of areas with sparse development or where development accounts for less than 50% of the street frontage;
- the urban environment is defined as being where curb and gutters (or similar) are present (on one or both sides of the road) and a higher level of development is present; and
- the semi-urban environment has development exceeding 50% of the frontage but no curb and gutter.

A summary of the road environments is presented in Table 3. As noted, the majority of the roads are considered rural (97% by length).

Table 3: Road Environment

ENVIRONMENT	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
Rural	231	90%	269.5	97%
Semi-Urban	15	6%	4.2	1%
Urban	11	4%	4.3	2%
Total	257	100%	278.0	100%

4.2 ROAD CLASS

The classification of the road network was based on the role and function of the road and the need to provide a hierarchy of transportation routes within the Township, and with input from the Township with respect to the proposed collector and arterial road networks. In particular, the following classes have been considered:



- Local Roads
 - local roads are intended to provide access to abutting properties and to discourage through traffic
 - travel speeds and road capacity are typically lower on local roads, reflective of the number of driveways and access points
- Collector Roads
 - collector roads are intended to collect traffic from individual local roads and direct it to arterial roads, County roads or Provincial highways
 - direct access to abutting properties shall be minimized to the extent possible
- Arterial Roads
 - arterial roads are major transportation routes carrying heavy volumes of inter-municipal traffic and may require and/or be planned for up to 4 through lanes (ie. 2 per direction)
 - road width and intersection improvements shall be designed so as to encourage through traffic to use these routes rather than collector or local roads
 - direct access to abutting properties will generally not be permitted

A summary of the overall road class distribution through the Township is provided in Table 4.

Table 4: Road Class

CLASS	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
Local	249	97%	272.1	98%
Collector	8	3%	5.9	2%
Arterial	0	0%	0.0	0%
Total	257	100%	278.0	100%

All Township roads are considered local roads with the exception of the following, which are considered collector roads:

- Bobcaygeon Road - Highway 35 to Scotch Line Road (4 road sections);
- Newcastle Street - Highway 35 to Bobcaygeon Road (1 section); and
- Water Street - Highway 35 to Bobcaygeon Road (3 sections).



4.3 MAINTENANCE CLASS

The roads have also been classified in accordance with the *Ontario Regulation 239/02 Minimum Maintenance Standards*. The purpose of the regulation is to establish road classifications from which minimum road maintenance standards (related primarily to winter maintenance) can be established. Based on the average daily traffic volumes (ADT) and the posted speed limit, roads are classified into one of six classes, denoted simply as Class 1 through Class 6.

- A Class 1 road is typical of those with higher traffic volumes and/or speed limits (speed limit = 100 km/h regardless of ADT, or ADT > 8,000 and speed = 90 km/h or ADT > 23,000 and speed = 80 km/h), thus requiring a greater level of road maintenance.
- Alternatively, a Class 6 road is typical of low volume roads (ADT < 50 vehicles and speed ≤ 80 km/h; ADT < 200 vehicles and speed ≤ 50 km/h or ADT < 500 vehicles and speed ≤ 40 km/h) and thus does not warrant the same maintenance standards.

A summary of the road classification is provided in Table 5.

Table 5: Maintenance Class

CLASS	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
Class 1	0	0%	0.0	0%
Class 2	0	0%	0.0	0%
Class 3	0	0%	0.0	0%
Class 4	7	3%	4.9	2%
Class 5	39	15%	53.8	19%
Class 6	211	82%	219.3	79%
Total	257	100%	278.0	100%

As noted, all roads with an ADT of less than 50 and a speed limit of less than 80 km/h are considered Class 6 roads, meaning that there isn't a Minimum Maintenance Standard (ie. they are not subject to O.Reg. 239/02). In addition, the *Inventory Manual for Municipal Roads* deems the existing condition of rural roads with less than 50 AADT as being adequate (ie. addressed via routine maintenance only).



4.4 SURFACE TYPE

Surface type refers to the surface material of the individual road sections, including:

- gravel;
- surface treatment (ie. low class bituminous or LCB which consists of an application of emulsified or liquid asphalt and aggregate over an existing surface); and
- asphalt (ie. high class bituminous or HCB).

The distribution of road surface types is summarized in Table 6, with just over half (52%) being surface treated. The majority (59%) are hard surfaced (asphalt or surface treated).

Table 6: Road Surface

CLASS	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
Gravel	112	44%	113.0	41%
Surface Treated	103	40%	143.7	52%
Asphalt	42	16%	21.3	7%
Total	257	100%	278.0	100%

4.5 SURFACE WIDTH

Surface width refers to the driving width of the road. For hard surfaced roads, the width is the actual width as measured from edge of pavement to edge of pavement (excluding shoulders) or curb face to curb face. For gravel roads, the surface width corresponds to the overall platform width (edge of road to edge of road) given that gravel shoulders are not discernible from the travel road width for those 7.0 metres or less. For those wider than 7.0 metres, the additional width was assumed to be shoulder.

A summary of the existing surface width, by range, is provided in Table 7.



Table 7: Surface Width

SURFACE WIDTH	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Number	Percent
width < 4m	12	5%	11.4	4%
4m ≤ width < 5m	30	12%	22.3	8%
5m ≤ width < 6m	47	18%	35.6	13%
6m ≤ width < 7m	118	46%	153.8	55%
7m ≤ width < 8m	28	11%	44.6	16%
8m ≤ width	22	9%	10.3	4%
Total	257	100%	278.0	100%

4.6 SURFACE ASSESSMENT

4.6.1 Surface Distresses

As noted on the respective road inventory appraisal forms, the road condition surveys involved recording the severity and density (or extent) of a number of distresses for each road section, as noted in Table 8.

Table 8: Surface Distresses

CATEGORY	ASPHALT ROADS	SURFACE TREATED ROAD	GRAVEL ROADS
Surface Defects	ravelling	loss of cover aggregates	loose gravel
	flushing or bleeding	streaking	dust
	potholes	flushing	potholes
	pavement edge breaks	potholes	breakup
	manholes & catchbasins	pavement edge breaks	
Surface Deformations	rippling & shoving	rippling	washboard
	wheel track rutting	wheel track rutting	rutting
	distortion	distortion	flat / reverse crown
	utility trenches		distortion
Cracking	longitudinal	longitudinal	
	transverse	transverse	
	pavement edge	pavement edge	
	map alligator	alligator	



4.6.2 Ride Comfort Rating

Further to noting existing deficiencies, a Ride Comfort Rating (RCR) was also established for each road section. RCR is a subjective measure of the road section's ride comfort determined from a drive through of the section at posted speed and assigning a rating based on the scale shown in Table 9.

A summary of the resulting Ride Condition Ratings is provided in Table 10 and illustrated graphically in Figure 1. The average RCR is 6.2 whereas the weighted average (considering the length of each road section) is 6.0. In this respect, the overall road network is considered to have a ride surface between the fair and good categories.

Table 9: Ride Comfort Rating Scale

RCR		DESCRIPTION	
0 < RCR ≤ 2	Very Poor	uncomfortable with constant bumps or depressions	
2 < RCR ≤ 4	Poor	uncomfortable with frequent bumps or depressions	
4 < RCR ≤ 6	Fair	comfortable with intermittent bumps or depressions	
6 < RCR ≤ 8	Good	smooth with a few bumps or depressions	
8 < RCR ≤ 10	Excellent	very smooth road surface and ride	

Table 10: Ride Comfort Rating

RCR	ROAD SECTIONS		ROAD KILOMETRES		
	Number	Percent	Kilometres	Percent	
0 < RCR ≤ 2	Very Poor	8	3%	15.7	6%
2 < RCR ≤ 4	Poor	25	10%	28.1	10%
4 < RCR ≤ 6	Fair	105	41%	120.3	43%
6 < RCR ≤ 8	Good	95	37%	82.9	30%
8 < RCR ≤ 10	Excellent	24	9%	31.0	11%
Total		257	100%	278.0	100%



Figure 1: Ride Comfort Rating by Road Length

4.6.3 Pavement Condition Index

The Pavement Condition Index (PCI) rates the condition of the surface of the road section. It is a numerical rating based on a scale of 0 to 100, with

- 0 being the worst possible condition (eg. an impassable road); and
- 100 being the best possible condition (eg. a road in perfect condition).

The PCI is calculated as follows:

$$PCI = 100 \times (0.1 \times RCR)^{0.5} \times [(A - DMI) \div A] \times C + S$$

where

RCR = Ride Comfort Rating

DMI = Distress Manifestation Index

$$= \sum W_i \times (S_i + D_i)$$

W_i = weight associated with each individual distress i

S_i = severity associated with each individual distress i

D_i = density associated with each individual distress i

A = maximum value of DMI (153 for asphalt, 135 for surface treated and 96 for gravel)

C = constant (0.924)

S = constant (8.856)



The corresponding distress weights, severity rating (slight, moderate or severe) and density rating (intermittent, frequent or extensive) are noted on the road appraisal forms provided in Appendix A. The distress weights are based upon the significance of each distress. For example, rutting is a significant pavement distress and thus has a weight of 3 (the highest weight) whereas some types of cracking are considered lesser distresses with corresponding reduced weights of 1.0. In general, base related distresses are weighted more heavily than surface related distresses. Similarly, a distress with a high severity will have a greater assigned rating than that same distress of low severity.

In considering the severity of each distress, “slight” severity refers to a condition that is observable but requires little or no action. “Moderate” and “severe” severity levels should reflect differences in the magnitude of the repair work. For example, slight potholes may require manual patching, while severe potholes may require the road section to undergo a rehabilitation project.

A summary of the PCI ranges by road sections and road length is provided in Table 11 and illustrated graphically in Figure 2. The average PCI of the Township road network is 66 whereas the weighted average (weighted by length) is 62; the corresponding weighted averages for the asphalt, surface treated and gravel roads are 68, 61 and 62 respectively.

Table 11: Pavement Condition Index

PCI				ROAD SECTIONS		ROAD KILOMETRES		
				Number	Percent	Kilometres	Percent	
0	<	PCI	≤	10	1	0%	0.3	0%
10	<	PCI	≤	20	3	1%	12.0	4%
20	<	PCI	≤	30	5	2%	4.1	1%
30	<	PCI	≤	40	16	6%	22.7	8%
40	<	PCI	≤	50	26	10%	36.1	13%
50	<	PCI	≤	60	46	18%	54.1	19%
60	<	PCI	≤	70	52	20%	51.2	18%
70	<	PCI	≤	80	42	16%	37.5	13%
80	<	PCI	≤	90	50	19%	47.7	17%
90	<	PCI	≤	10	16	6%	12.3	4%
Total					257	100%	278.0	100%



Figure 2: Pavement Condition Index by Road Length

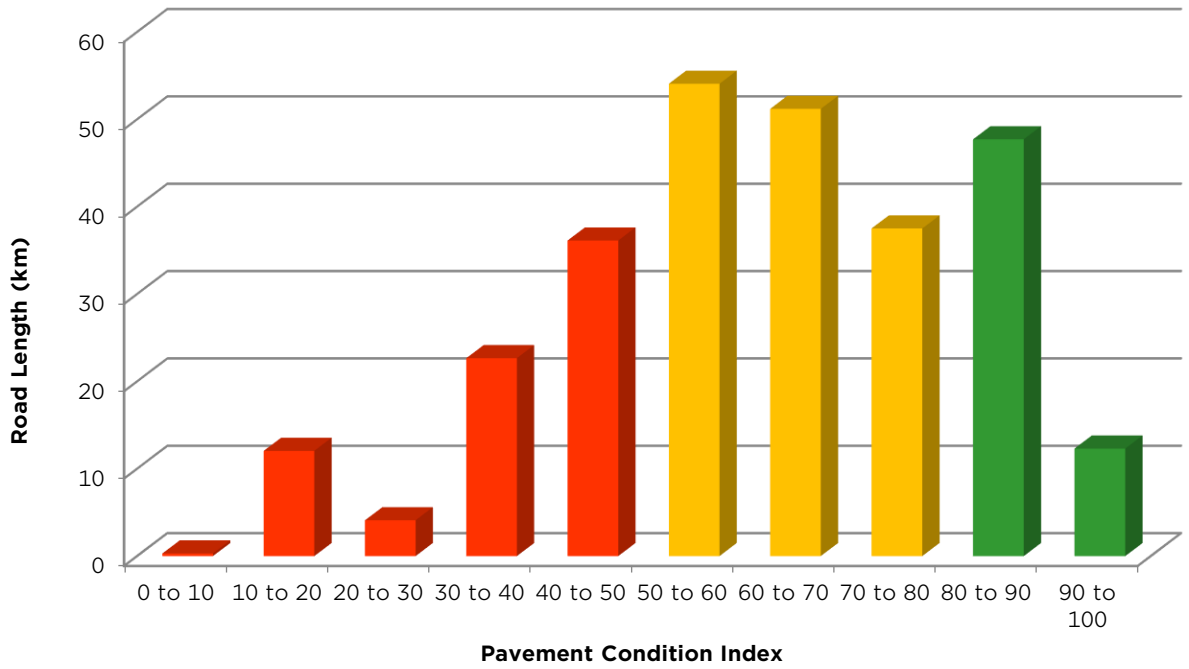


Figure 3: Pavement Condition Index by Road Surface

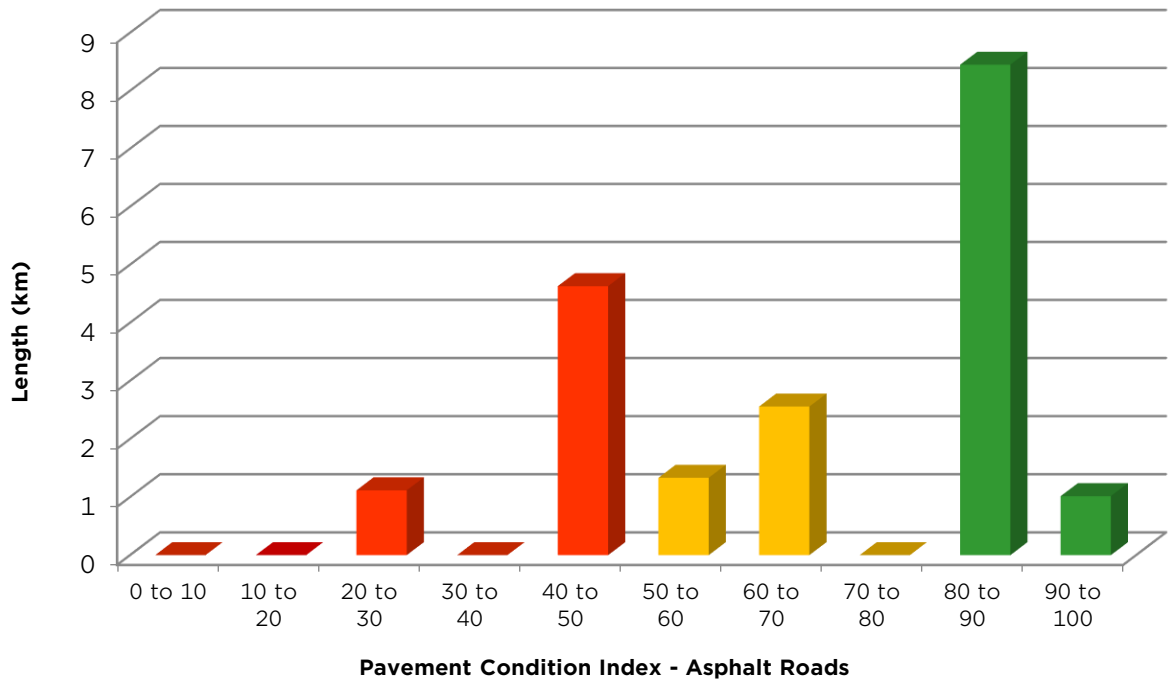
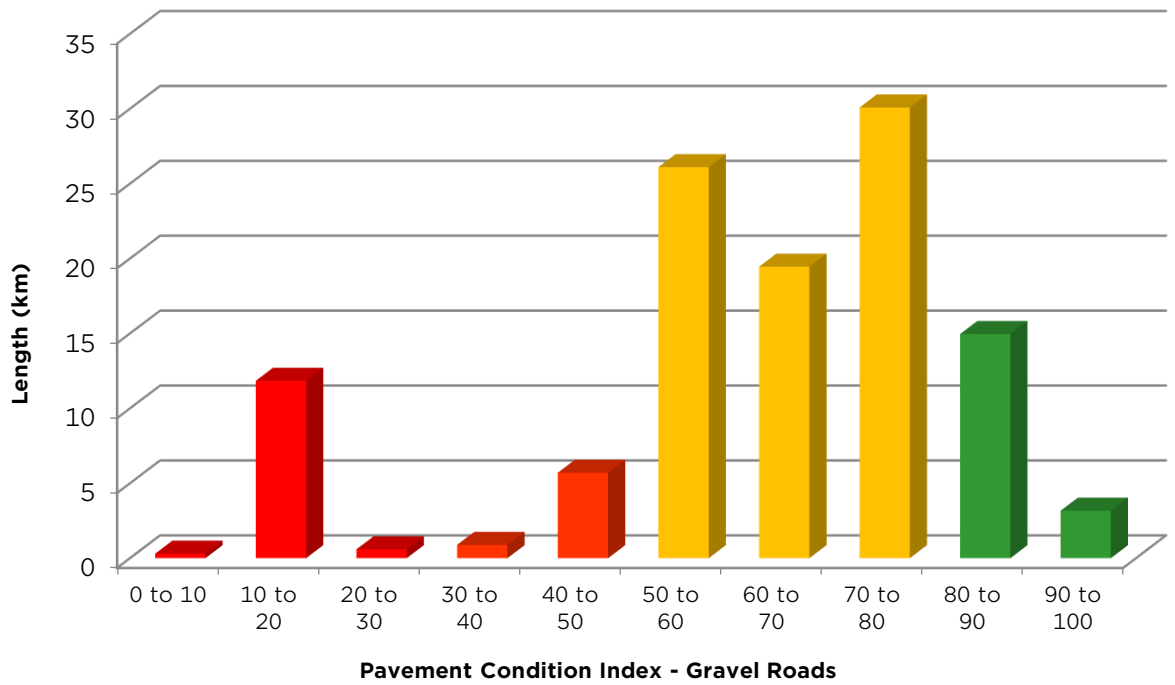
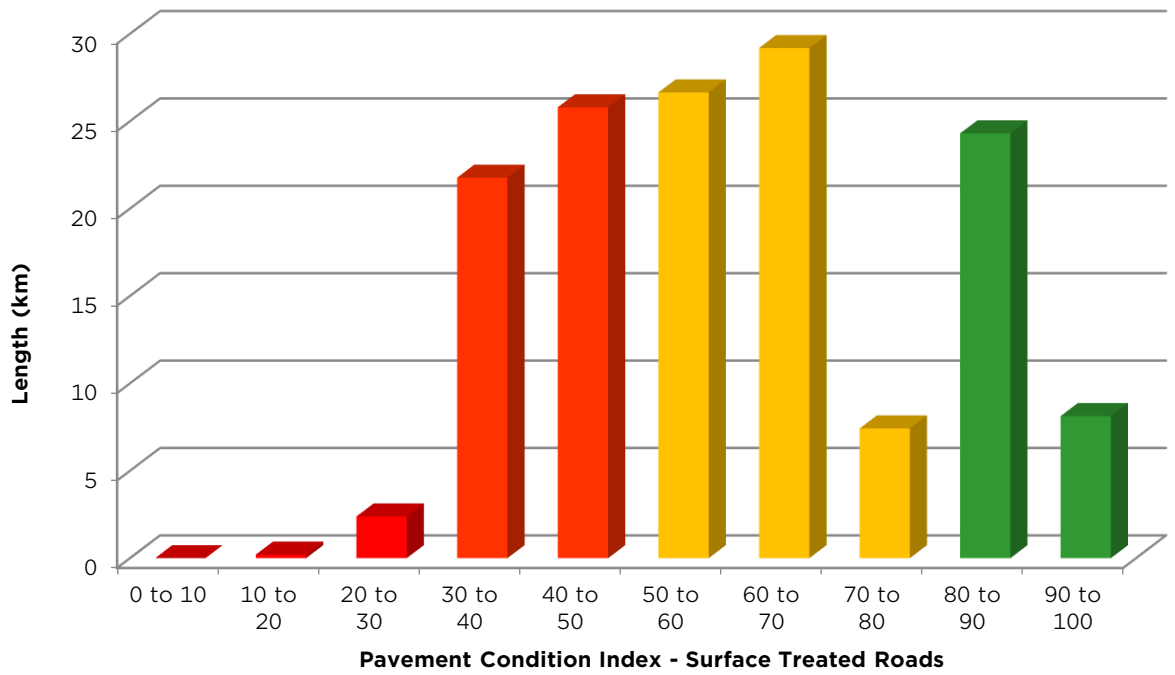


Figure 3: Pavement Condition Index by Road Surface (cont'd)



4.7 ROAD DRAINAGE

A number of road drainage systems were observed, as noted below and summarized in Table 12. As noted, the majority of the road sections (79% by length) have open ditches, reflective of the rural nature of the Township.

Table 12: Road Drainage

DRAINAGE	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
No Drainage	67	26%	53.9	19%
Open Ditch	178	69%	220.4	79%
Storm Sewer	10	4%	3.5	1%
Ditch & Storm Sewer	2	1%	0.2	<1%
Other	0	0%	0.0	0%
Total	257	100%	278.0	100%



5 Road Condition Appraisal & Needs Assessment

The need to improve an individual road section was determined by comparing the existing physical characteristics of the road network to minimum thresholds and/or minimum tolerable standards, as determined from:

- PCI decision matrices;
- the Inventory Manual for Municipal Roads; and/or
- typical Township road standards and general road guidelines.

Should the existing conditions not meet the minimum thresholds, or deviate from the standards, a need exists, otherwise the road is considered adequate.

Further to the Pavement Condition Index, which addresses the surface condition of the road segment (and thus inherently provides information on the road base), road needs were also considered in context of the following (which are elements of the previous Condition Rating methodology employed in the *Inventory Manual for Municipal Roads*):

- road geometrics (substandard horizontal and/or vertical curves);
- road and shoulder widths;
- road surface type;
- traffic operations; and
- roadside drainage.

A full listing of the road sections and identified deficiencies are noted in Appendix E, whereas additional details are provided in the following sections. It is noted that seasonal roads and rural road sections with an average annual daily traffic volume of less than 50 vehicles have not been considered for improvements, but rather are to be maintained at a tolerable standard through normal maintenance procedures (however, semi-urban and urban road sections with less than 50 vehicles per day have otherwise been considered for deficiencies). As such, not all deficient road sections require improvements.

5.1 SURFACE CONDITION NEEDS

Surface condition needs have been established following a review of available literature and PCI guidelines to reflect repairs and treatments of similar nature and scope, and the corresponding overall pavement condition. In consideration of the relative significance associated with the road



classifications (arterial vs collector vs local road), PCI decision matrices have been established for each road class and each surface type as noted in Table 13 and Table 14. As evident, a local road condition will deteriorate to a further point as compared to collector and arterial roads before improvements are required. This is intended to reflect the role and function of each road class and traffic volumes that they serve and the corresponding expected levels of service.

Table 13: PCI Decision Matrix - Asphalt & Surface Treated Roads

ROAD NEED	TIME OF NEED	PCI RANGE BY ROAD CLASS		
		Arterial	Collector	Local
Reconstruct	now	0-50	0-45	0-40
Rehabilitate	now	50-55	45-50	40-45
Resurface	1-5 years	55-75	50-70	45-70
Resurface	6-10 years	75-85	70-80	70-80
Adequate		85-100	80-100	80-100

Table 14: PCI Decision Matrix - Gravel Roads

ROAD NEED	TIME OF NEED	PCI RANGE BY ROAD CLASS		
		Arterial	Collector	Local
Reconstruct	now	0-30	0-25	0-20
Rehabilitate	now	30-50	25-45	20-40
Resurface	now	50-70	45-65	40-60
Adequate		70-100	65-100	60-100

5.1.1 Road Improvement Needs

As noted, a number of road improvement strategies have been considered in the PCI decision matrices, including:

- resurfacing to address minor structural deficiencies (all road classifications);
- rehabilitation to address more significant structural deficiencies; and
- full reconstruction to address major structural deficiencies (all road classifications).



Resurfacing

Resurfacing includes the overlaying of the existing paved surface with a single or double lift of asphalt or surface treatment depending on the appropriate Township standard and existing surface type, recognizing that the surface type should not be downgraded (ie. if the road is currently asphalt, any future works should also reflect an asphalt surface).

In the case of rural and semi-urban roads, it is assumed that the existing asphalt or surface treatment will be pulverized and regraded, an additional 100 mm of granular added followed by a new road surface. Additional granulars would also be applied to the gravel shoulders (if such exist). For urban roads, it assumed that the asphalt will be milled and removed, prior to new asphalt. In addition, 10% base repairs have been assumed.

Rehabilitation

Rehabilitation reflects roads with needs exceeding that of simple resurfacing, extending into road base issues. As such, it is assumed that 25% of the road base is to be replaced. For rehabilitation works, it is assumed that the existing road cross-section (ie. width of driving surface and shoulders) would be maintained.

Reconstruction

Reconstruction includes the full removal and replacement of the road, including the underlying base material. In the case of urban road sections, this will also include replacement of curb and gutter, in addition to adjustment of underground services.

For reconstruction of all roads (urban, semi-urban and rural roads), a minimum road width as per current Township standards has been assumed (the existing road width has been maintained if it exceeds the Township standard).

5.1.2 Time of Need

The time of need has been established based on the PCI decision matrices, road surface type, road classification and thresholds as noted in Table 13 and Table 14.

For the hard surfaced roads (asphalt and surface treated), the time of need reflects when the road would have to be reconstructed assuming continued deterioration. For example, an arterial road with a PCI of 60 is likely to require reconstruction within the next 1 to 5 provided no other works are undertaken. Resurfacing could be considered to extend the useful life of the road and defer the need for the future reconstruction (given that resurfacing will restore the PCI value).



Adequate

Roads with no identified needs are deemed adequate. Regular maintenance, including preventative maintenance measures, should be undertaken to prolong the adequate conditions.

Now Needs

Now needs represent construction improvements identified immediately, based on the road condition (not otherwise considering available funding and/or pavement management strategy).

1 to 5 Year Needs

1 to 5-year needs identify road sections where road improvements are anticipated within the next 5 years, based upon a review of their current condition. These roads are good candidates for other strategies that would extend the life of the road (depending on the other deficiencies if any), deferring the need to improve.

6 to 10 Year Needs

6 to 10-year needs identify road sections where improvements are anticipated within 6 to 10 years, based upon a review of their current condition. These roads are also good candidates for other strategies to extend the life of the road and defer the need for improvement.

5.1.3 Summary of Surface Condition Needs

The resulting road needs, as determined solely from the pavement condition indices (which are reflective of the road surface conditions) are summarized in Table 15.

Table 15: Surface Condition Needs

IMPROVEMENT	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
Reconstruct	22	9%	37.6	14%
Rehabilitate	12	5%	10.0	4%
Resurface	101	39%	121.0	43%
Adequate	122	47%	109.4	39%
Total	257	100%	278.0	100%

In considering the improvement needs (ie. resurface, rehabilitate or reconstruct), they amount to 135 road sections (53% of the total road sections) and 168.6 km (61% of the total road length).



5.2 SURFACE TYPE NEEDS

The required road surface types were determined based on the road class and relevant standards and road guidelines (the corresponding standards are provided in Appendix D) and are noted in Table 16.

Table 16: Surface Type Requirements

ROAD CLASS	RURAL & SEMI-URBAN		URBAN
Local Road	gravel	≤ 200 vehicles per day	asphalt
	surface treated	201 - 400 vehicles per day	
	asphalt	> 400 vehicles per day	
Collector Road	gravel	≤ 200 vehicles per day	asphalt
	surface treated	201 - 400 vehicles per day	
	asphalt	> 400 vehicles per day	
Arterial Road	asphalt		asphalt

It is noted that the above apply to new road construction. As per the *Inventory Manual for Municipal Roads*, the assessment of the existing road surface is based on a reduced minimum tolerable standard (gravel is suitable for up to 400 vehicles per day, surface treatment for up to 1000 vehicles per day, otherwise asphalt). All surface type needs are considered “now” needs.

In considering the “tolerable” standards, all existing surface types are considered appropriate

5.3 SURFACE WIDTH NEEDS

The required road surface width is based on road class and environment, as per the corresponding standards provided in Appendix D and summarized in Table 17.

Table 17: Surface Width Requirements

ROAD CLASS	RURAL	SEMI-URBAN	URBAN ¹
Local Road	3.5m lanes	3.5m lanes	4.0m lanes
Collector Road	3.5m lanes	3.5m lanes	4.0m lanes
Arterial Road	3.5m lanes	3.5m lanes	4.0m lanes

¹ the wider urban road widths accommodate on-street parking



In establishing road width deficiencies, a minimum tolerable standard has also been considered, as determined from MTO standards and in context of typical Township standards. For purposes of assessment, a minimum tolerable lane width of 3.0 metres has been assumed. Only when the road width is less than the minimum tolerable standard, is a road width deficiency noted. This recognizes that while a road's width may be less than the desired standard, it may provide adequate function and operations, and hence widening may not be required. All surface width needs are considered "now" needs.

The resulting road width needs are summarized in Table 18. It is noted that all surface width deficiencies are considered "Now" needs. As previously noted, for asphalt and surface treated roads, the existing width corresponds to the hard surface width (eg. edge of pavement to edge of pavement); for gravel roads, the road width is taken as the existing gravel width to a maximum of 7.0 metres (anything beyond 7.0 metres is considered as shoulder).

Table 18: Surface Width Needs

NEED	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
Now	90	35%	69.7	25%
Adequate	167	65%	208.3	75%
Total	257	100%	278.0	100%

5.4 SHOULDER WIDTH NEEDS

The required shoulder width requirements are detailed in the standards of Appendix D for rural and semi-urban roads (shoulders are not required on urban roads and thus not listed). In all cases, a 1.0 metre gravel shoulder has been adopted. As with the road width, a minimum tolerable shoulder width has been considered (0.5 metres in all cases), with deficiencies noted only when the existing shoulder width is less than the minimum tolerable width.

For gravel roads, shoulders are only assumed present on those roads having a platform width greater than 7.0 metres (up to 7.0 metres is considered the driving width, anything beyond is considered shoulder width). This reflects that gravel shoulders are not otherwise readily distinguishable from the gravel travel lanes and that with reduced gravel road widths, motorists will use the entire width as the lane. A summary of needs is provided in Table 19. All shoulder width needs are considered "now" needs.



Table 19: Shoulder Width Needs

NEED	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
Now	211	82%	243.3	88%
Adequate	46	18%	34.7	12%
Total	257	100%	278.0	100%

5.5 ROAD CAPACITY NEEDS

For planning purposes, the road capacities noted in Table 20 are considered appropriate.

Table 20: Road Capacity

ROAD CLASS	HOURLY CAPACITY PER LANE	DAILY CAPACITY PER 2 LANE ROAD
Local Road	400 vehicles	8,000 vehicles
Collector Road	600 vehicles	12,000 vehicles
Arterial Road	800 vehicles	16,000 vehicles

The varying capacities reflect the extent to which traffic operations are affected by operating speeds, the presence of driveways and intersections, traffic signals and other road users (with the greatest impacts occurring on local roads). In considering daily operations on 2-lane roads, the daily capacity of a single lane is assumed 10x the hourly capacity.

In considering the future projected volumes and the noted capacities, all of the Township roads will operate within the available capacity (the highest operating level is 29% of capacity based on 2018 operations; 43% of capacity based on 2038 operations). As such, there are no capacity needs.

5.6 DRAINAGE NEEDS

Drainage needs have been based on a visual inspection and in consideration of the ability of the roadside ditch (provided such is present) to adequately drain the road base and convey stormwater flows (including height of road grade, cross slope, ditch capacity and maintenance efforts required to maintain the ditches). A drainage need may occur on road sections that have otherwise been rated adequate or that have other identified needs.



A summary of the drainage needs is provided in Table 21. Any road section receiving a “poor” assessment (others being “good” or “fair”) is considered to have a drainage need - the time of need is “now”. It is anticipated that drainage will be addressed with other road improvements and/or through routine maintenance and thus improvements to address drainage deficiencies alone are not considered.

Table 21: Drainage Needs

NEED	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
Now	157	61%	174.3	63%
Adequate	100	39%	103.7	37%
Total	257	100%	278.0	100%

5.7 MULTIPLE NEEDS

All of the road sections inventoried have 1 or more deficiencies, considering surface condition, road geometrics, surface type, surface width, shoulder width, road capacity and drainage. A summary of the number of deficiencies is provided in Table 22 whereas a full listing of all deficiencies is provided in Appendix E.

Table 22: Multiple Deficiency Road Sections

NUMBER OF DEFICIENCIES	ROAD SECTIONS		ROAD KILOMETRES	
	Number	Percent	Kilometres	Percent
0	0	0%	0.0	0%
1	11	4%	5.9	2%
2	19	7%	6.5	2%
3	62	24%	68.2	25%
4	95	37%	94.4	34%
5	70	27%	103.1	37%
6	0	0%	0.0	0%
7	0	0%	0.0	0%
Total	257	100%	278.0	100%



6 Road Improvements

The need to improve an individual road section was determined by comparing the existing physical characteristics of the road network to the minimum tolerable standards, as defined in the *Inventory Manual for Municipal Roads* and/or established in conjunction with Township standards and relevant design guidelines. Should the existing conditions deviate from the standards, a need exists, otherwise the road is considered adequate.

6.1 IMPROVEMENT STRATEGIES

For each identified road improvement need, a corresponding improvement strategy was identified. In considering current Township practices, the following improvement strategies have been considered:

- | | |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R | <ul style="list-style-type: none"> ▪ resurface to address minor structural deficiencies or surface type deficiencies ▪ resurface with gravel, single surface treatment or one lift of asphalt, as dictated by the appropriate road standards ▪ applicable to urban roads only |
| PR | <ul style="list-style-type: none"> ▪ pulverize and resurface to address minor structural deficiencies or surface type deficiencies ▪ resurface with gravel, double surface treatment or asphalt, as dictated by the appropriate road standards ▪ applicable to rural and semi-urban roads only |
| WR | <ul style="list-style-type: none"> ▪ widen and resurface to address surface width deficiencies and/or capacity deficiencies ▪ resurface with gravel, double surface treatment or asphalt, as dictated by the appropriate road standards |
| BS | <ul style="list-style-type: none"> ▪ resurface or pulverize and resurface to address minor structural deficiencies or surface type deficiencies ▪ replace 25% of the road base to address structural deficiencies ▪ surface with gravel, double surface treatment or asphalt, as dictated by the appropriate road standards |
| REC | <ul style="list-style-type: none"> ▪ reconstruct to address major structural deficiencies ▪ surface with gravel, double surface treatment or asphalt, as dictated by the appropriate road standards |

Resurfacing strategies (including pulverization and resurfacing) include the overlaying of the existing surface with gravel, a single or double lift of asphalt or double lift of surface treatment, depending on the existing road surface and corresponding standard. For pulverization and resurfacing, it is assumed that a 100 mm lift of Granular A will be placed prior to finishing of the road surface. Scarifying and grading, in the case of existing gravel roads, would be used in place



of pulverization (the intent of which is to break up the existing gravel surface and renew it) with additional granular placed as noted. In addition, resurfacing applies to roads with an identified surface type need (ie. if the road is currently gravel but should be surface treated or asphalt based on the design standards, resurfacing has been recommended). Again, it is assumed that an additional lift of Granular A will be placed. With resurfacing strategies, the existing shoulder and road widths are maintained.

To address surface width deficiencies and/or capacity deficiencies, the road is to be widened. Gravel roads are to be widened to a gravel surface, provided this surface type is adequate, whereas hard top roads are to be widened and resurfaced with a new hard top surface. In the case of widening gravel roads, it is assumed that a new lift of Granular A will be placed over the entire road width to provide an upgraded driving surface. Widening would include a widening of the road surface and the shoulders to reflect current Township standards.

Reconstruction includes the full removal and replacement of the road, including the underlying granular material. In the case of urban road sections, this will also include replacement of curb and gutter, in addition to adjustment to underground services (referred to as reconstruct with nominal storm sewer). In some instances, reconstruction with storm sewers has also been considered, whereby storm sewers are to be introduced where they do not otherwise exist. With reconstruction, it is assumed the road is reinstated to Township standards with respect to road and shoulder widths (eg. widen as needed).

6.2 IMPROVEMENT RECOMMENDATIONS

The identified road deficiencies (should such exist) and resulting road improvement recommendations are listed in Appendix E by road section - where no improvements are required, no recommendations are otherwise provided. Figure 4 illustrates the resulting length of road requiring improvement by type of improvement. Overall, 44% of the current road network requires improvements, the predominant improvement is pulverize and resurface (94.5 km or 34%).

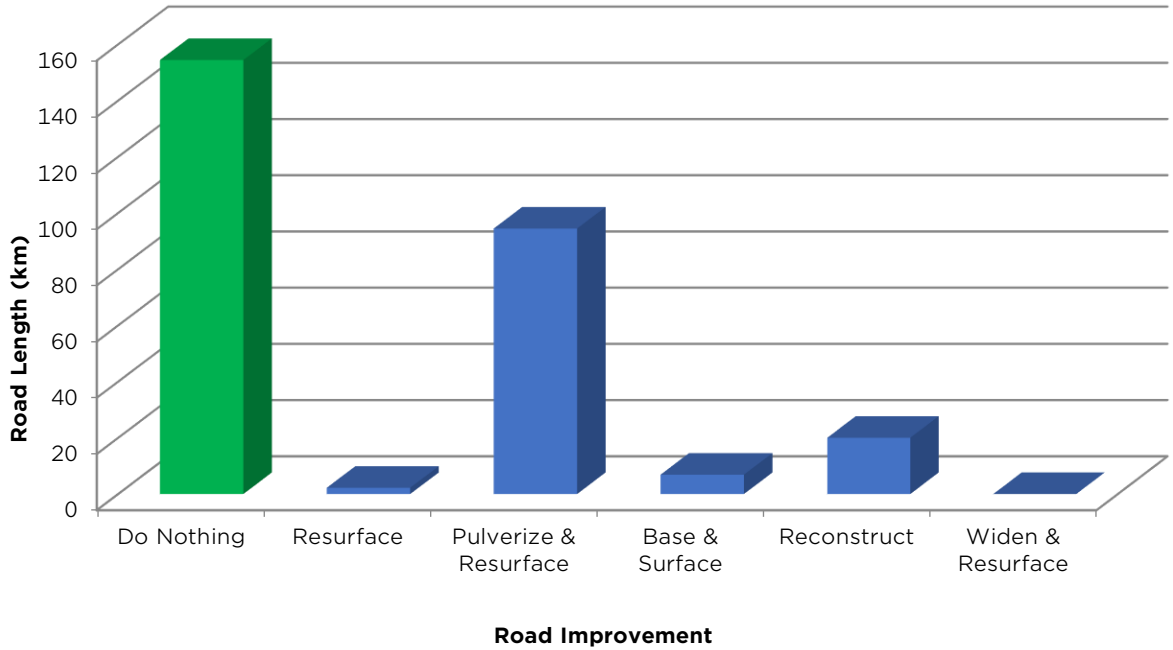
At this point, deficient road widths are only assumed to be addressed as part of the reconstruction program; resurfacing strategies will otherwise maintain existing road conditions. In this regard, there are no road sections identified solely requiring widening and resurfacing. This reflects the limited available budget that smaller municipalities typically have, and the fact that existing road width deficiencies are not considered critical in context of the traffic volumes and traffic operations.

Note that seasonal roads and rural roads serving less than 50 vehicles per day were not considered for improvements over and above those undertaken through normal maintenance. In



other words, any road improvements required for seasonal and low volume rural road sections are assumed to be addressed through the Township’s annual road maintenance program.

Figure 4: Road Improvement Recommendations by Road Length



For each identified road section deficiency, the time of need was also identified - now, within years 1 to 5, or within years 6 to 10 - which was based on minimum acceptable standards and a review of the required road improvements. These individual requirements were then reviewed to determine the timing of the recommended road section improvements, which are noted in the listings of Appendix E.

6.3 IMPROVEMENT COSTS

6.3.1 Benchmark Costs

Cost estimates to address the identified needs and implement the improvements have been based on the benchmark cost method as outlined in the *Inventory Manual for Municipal Roads* and in consideration of Township road standards and improvement strategies previously discussed. The benchmark costs consider all major cost items associated with road construction. Individual costs have been prepared specific to each improvement strategy based on the road environment and cross-section. As these elements can vary by road section, general benchmark costs cannot be determined; rather they are determined for each specific application.



6.3.2 Per Unit Costs

Per unit construction costs have been determined based on information obtained from recent projects/tender awards, supplemented with cost information from other road improvement projects within the area. The unit costs employed in this study are listed in Table 23.

Table 23: Unit Costs

ITEM	UNIT	COST	ITEM	UNIT	COST
Excavation & disposal	m ³	\$15	Storm sewer - 525mm	metre	\$475
Hot mix asphalt	tonne	\$135	Manhole - remove	each	\$1,000
Surface treatment - single	m ²	\$4	Manhole - place	each	\$10,000
Surface treatment - double	m ²	\$8	Manhole- adjust	each	\$1,000
Granular A	tonne	\$25	Catch basin - leads	m	\$325
Granular B	tonne	\$22	Catch basin - remove	each	\$755
Curb & gutter - remove	m	\$25	Catch basin - place	each	\$6,000
Curb & gutter - place	m	\$80	Catch basin - adjust	each	\$1,000
Sub drains	m	\$25	Asphalt pulverizing	m ²	\$4
Asphalt planning	m ²	\$5	Scarify & grade gravel road	m ²	\$4

6.3.3 Adjustment Factors

In addition to the basic construction costs developed from the above per unit costs, various adjustment factors have also been implemented in the overall benchmark cost development (as per MTO standards). These include:

- basic construction factor (to account for small construction items);
- engineering factor (to account for engineering design and construction supervision);
- contingency factor (to allow for unforeseen costs); and
- terrain and soil type factor (to account for the various terrains and presence of rock).

6.3.4 Estimated Road Improvement Costs

The resulting road improvement costs, which reflect the benchmark cost procedures, adjustment factors and recommended improvement strategies, are provided for each road section in the listings of Appendix E (improvements by road section), whereas a summary is provided in Table



24. In total, 91 of 257 road sections warrant improvements, amounting to 123.6 km (44%), with a total improvement cost value of \$29.9M.

Table 24: Improvement Cost Summary

NEED & IMPROVEMENT	ROAD SECTIONS	ROAD LENGTH (KM)	ROAD LENGTH (%)	COST
Do Nothing	166	154.4	56%	\$0
Resurface	6	2.2	1%	\$640,000
Pulverize & Resurface	68	94.5	34%	\$13,277,000
Base & Surface	5	6.9	2%	\$1,374,000
Reconstruction	12	20.0	7%	\$14,655,000
Widen & Resurface	not considered on its own due to budget limitations			
Total	257	278.0	100%	\$29,946,000



7 Priorities & Recommendations

Further to the identification of the road improvement needs and timing of such (ie. now, 1-5 years or 6-10 years), the improvements have been prioritized to provide the Township with a mechanism for implementation. The development of the road priority has considered the following:

- physical road condition (ie, pavement condition index);
- traffic volumes; and
- road improvement costs.

7.1 PRIORITY RATING

To assist in determining the relative importance and the benefit of improving an individual road section before another, each deficient section has been rated based on the Ministry of Transportation's priority rating scheme. This is an empirical approach, which considers not only the existing condition of the road section (as per the condition rating), but also the traffic volumes that it serves. In this regard, roads of equal condition are prioritized based on their traffic volumes, with priority given to those which serve the greater number of users. While a road may be in poor condition and hence have a low condition rating, it may not justify having priority if it serves lower traffic volumes.

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

where

Condition Rating = a score out of 100 to reflect the physical condition of the road section (PCI has been employed in lieu of the condition rating)

AADT = average annual daily traffic volume

The resulting priority ratings are provided in Appendix F for those road sections which have identified deficiencies requiring improvements (ranked highest to lowest).

7.2 PRIORITY GUIDE NUMBER

For practical purposes, consideration should also be given to the cost of improving the road section, which is the purpose of calculating a priority guide number (which reflects the cost to benefits). Although a road section may have a high priority rating indicative of poor conditions and/or high traffic volumes, the improvement costs per vehicle-kilometre of travel may be



substantial and thus not justified. For each road section with noted improvement costs, a priority guide number has been determined in accordance with the following MTO guidelines:

$$\text{Priority Guide Number} = \frac{100 - \text{Condition Rating}}{\text{Cost per Vehicle}\cdot\text{km (in cents)}}$$

where

$$\text{Condition Rating} = \text{a score out of 100 to reflect the physical condition of the road section (PCI has been employed in lieu of the condition rating)}$$

In considering the cost per vehicle kilometre (in cents), a 20-year period is considered for the construction type improvements whereas a 10-year period is considered for the resurfacing type improvements (indicative of the life span of each) as indicated below:

$$\text{Construction: Cost per Vehicle} \cdot \text{km} = \frac{\text{Cost per km (in cents)}}{\frac{(\text{Present AADT} + \text{Future AADT})}{2} \times (365 \text{ days/year}) \times 20 \text{ years}}$$

$$\text{Resurfacing: Cost per Vehicle} \cdot \text{km} = \frac{\text{Cost per km (in cents)}}{\frac{(\text{Present AADT} + \text{Future AADT})}{2} \times (365 \text{ days/year}) \times 10 \text{ years}}$$

The larger the priority guide number, the higher the priority of the section relative to its condition, the traffic it is serving and the cost of improving the section to provide the most service to traffic for the dollar expended. The resulting priority guide numbers are provided in Appendix G for those road sections which have identified deficiencies requiring improvements (ranked highest to lowest).

It is noted that the Priority Guide Number is premised on life cycle costing. Improvement needs are typically delayed on those sections that require reconstruction or major rehabilitation because the benefits for dollars spent are generally lower than maintenance candidates. After the relatively good roads are "saved", improvements are directed towards the poorer arterial and collector roads, and then to the local roads in need of major rehabilitation.

7.3 IMPROVEMENT SCHEDULE

7.3.1 Basis for Scheduling

It is recommended that the road improvements be prioritized in accordance with the Priority Guide Number, thus ensuring that the greatest benefits will be achieved for the improvement dollar expended (ie. improvements are implemented in accordance with the cost benefit assessment). This approach is counter to the typical "worst first" approach and seeks to



implement improvements aimed at extending the useful life of the road prior to a point at which full reconstruction is required.

In context of a limited road budget, those road sections with time of need in the 6-10 year period are considered of lesser priority and thus have been deferred in comparison to those road sections with needs in the now and 1 to 5 year periods (ie. improvements required in the “now” and “1-5 year” periods are identified and then further ranked based on the priority guide number).

The recommended ranking or ordering of road improvements is provided in Appendix H. It is noted that improvements related to deficient road widths only (ie. widen & resurface) are not considered as critical as the remaining improvements and thus these have not been considered, unless combined with another improvement strategy. **An annual budget of approximately \$3.0M has been assumed in establishing the year of implementation (which is based on the overall value of the 10-year needs and assuming a relatively equal spend each year).**

7.3.2 Other Considerations

This study has provided recommendations for the prioritization of road improvements based solely on the existing conditions at the time of the inventory and review. There are a number of additional factors that should also be considered to establish the Township’s annual improvement program. This includes consideration for the following:

1. Availability of funds. While a number of road sections have “now” needs, such cannot all be addressed in the first year and there will be carry over the following year.
2. Continuity of construction. If there are several consecutive road sections or several road sections within the same area, these should be considered together to yield maximize cost efficiencies and to reduce construction related impacts to area residents, regardless of the overall ranking.
3. Replacement of infrastructure. Infrastructure renewal should be considered in conjunction with the road works and vice versa to ensure roads that were recently repaired to not need to be disturbed to replace underground infrastructure.
4. Implications of development. If future development is likely to require road works (or servicing which in turn will require road works, it may be necessary to postpone or accelerate the works.
5. Reconstruction vs resurfacing. While the Priority Guide Number provides an overall order of the road improvement program, further consideration can be given to the timing of preservation and rehabilitation work. In some cases, it may be preferable to defer the full reconstruction of a higher priority road (eg. “let the bad roads fail”) in favour of resurfacing work on a lower priority road (eg. “keep the good roads good”).



8 Road Surface Management

Road authorities are often faced with the decision on the best approach to maintaining their gravel road network and at what point should improvements or upgrades be implemented (namely the introduction of a hard surface - ether surface treatment or asphalt). The purpose of this chapter is to review the most appropriate road surface management strategy for further consideration by the Township.

8.1 GRAVEL VS HARD SURFACE

The introduction of a hard surface to an otherwise gravel road has a number of advantages and disadvantages.

8.1.1 Advantages

Advantages to a hard surface include the following (many of which are difficult to associate a value to or may not provide a direct benefit to the Township):

- effectively waterproofs the road base, which can reduce the potential for load related damage of the road during inclement weather;
- reduces fugitive dust emissions (dust is a nuisance to road users and area residents, and can cause extra engine wear, oil consumption and maintenance costs);
- provides a smoother surface which is often less noisy and hence favoured to road users;
- improves winter surface as often snow and ice can be completely scraped from the road surface (albeit this may be offset by higher snow removal costs);
- offers higher skid resistance (offset by higher vehicle speeds);
- reduces vehicle maintenance costs (with gravel roads, there is greater rolling resistance and less traction which increases fuel consumption and can lead to additional tire wear and influences maintenance and repair expenses);
- improves vehicle and driver efficiency that reduces fuel costs;
- redistributes traffic away from other gravel roads (reducing maintenance requirements) as road users preferentially select paved roads; and
- possibly increases the tax base as real estate next to paved (but formerly gravel) roads increases in value and development increases (offset by problems that typically occur when rural areas are developed).



8.1.2 Disadvantages

Disadvantages of hard surface include:

- higher cost to implement as compared to a gravel surface;
- depending on the structure of the road base, hard surfaced roads may be more difficult and more expensive to maintain; and
- hard surfaces often result in increased traffic volumes and higher travel speeds (or at least the perception of such).

8.1.3 Decision Tools

There have been numerous studies, papers and models developed over the years that address the viability of paving gravel roads and seek to quantify the associated costs and benefits over the life of the road section. Decision aids or tools have been developed for many jurisdictions, several of which are premised strictly on road classification and function (eg. arterial roads are to be paved), or traffic volumes and vehicle composition (eg. roads serving more than 200 to 300 vehicles per day should be paved). Studies have indicated that beyond 200 to 300 vehicles per day, paving begins to become feasible as road maintenance costs rise in proportion and the economics of paving begin to match the cost of continued maintenance of the gravel.

In addition to an economic base, many of the decision aids include other non-economic factors that are more subjective and hence difficult to quantify. In consideration of the latter, the assessment presented herein is premised on the economics of implementing and maintaining a hard surface vs a gravel road over the corresponding horizon.

8.2 LIFE-CYCLE COST ASSESSMENT

A life-cycle cost assessment can include the costs expended by the Township to build and maintain the given road in addition to user costs relating to vehicle operations, accidents and delays (all of which are incurred by the user). For this study however, the focus is strictly on the costs to be borne by the Township.

8.2.1 General Approach

The general approach to the life-cycle cost assessment is premised on the following:

- a typical rural road section, 7.0 metres in width, 1.0 km in length with a gravel surface;
- consideration for a gravel surface, double surface treatment or 65mm of hot mix asphalt;
- a 60 year assessment period; and
- consideration for good, moderate and poor road bases which in turn dictate increased levels



of road maintenance and hence costs.

The last bullet recognizes that the condition of the road base may differ significantly between roads based on a number of factors (eg. initial construction, level of maintenance, roadside environment, traffic volumes, etc.) as exhibited through the findings of this study. As such, it may not be appropriate to apply a “blanket approach” across the Township’s road network. For those road sections with moderate or poor road bases, additional consideration would be prudent to ensuring an appropriate road base prior to the implementation of the hard surface, to fully realize the long-term benefits of such (upgrading the road base would obviously result in additional costs at the onset).

8.2.2 Gravel Roads

The assumptions considered for the implementation and maintenance of a rural gravel road are detailed in Table 25. As noted, with a moderate base, additional dust control, grading, maintenance gravel and spot gravel are required as compared to a good base.

Table 25: Life-Cycle Cost Assumptions - Gravel

ACTIVITY	GOOD BASE	MODERATE BASE	POOR BASE
Dust control	16,800 L per year	16,800 L per year	25,200 L per year
Grading	6 times per year	24 times per year	48 times per year
Maintenance gravel	50 mm depth every 3 years	50 mm depth every 3 years	50 mm depth every 3 years
Spot gravel	10 tonnes every 7 years	15 tonnes every 5 years	15 tonnes every 3 years

8.2.3 Surface Treated Roads

The assumptions considered for the implementation and maintenance of a surfaced treated road are detailed in Table 26. For a double surface treatment, the following life spans are assumed:

- 15 years for a good base;
- 10 years for a moderate base; and
- 5 years for a poor base.

The need for slurry seals, cold mix patch and spray patch is dependent on the respective time of need for the reapplication of the double surface treatment (such are limited with a poor road base in that the double surface treatment is applied every 5 years).



Table 26: Life-Cycle Cost Assumptions - Surface Treatment

ACTIVITY	GOOD BASE	MODERATE BASE	POOR BASE
Double surface treatment	15 year life every 15 years	10 year life every 10 years	5 year life every 5 years
Slurry seal	3 years after DST	3 years after DST	not required
Cold mix patch	1 tonne Years 5, 10, 20, 25, 35, 40, 50 & 55	3 tonnes Years 5, 15, 25, 35, 45, & 55	3 tonnes 3 years after DST
Spray patch	500 m ² 10 years after DST	500 m ² 5 years after DST	not required
Pulverize	in conjunction with DST application	in conjunction with DST application	in conjunction with DST application

8.2.4 Asphalt Roads

The assumptions considered for the implementation and maintenance of an asphalt road are detailed in Table 27. For an asphalt road (single lift of 65 mm depth), the following life spans are assumed (it is noted that the life spans are double that of the surface treated road and reflect a constant incremental change of 10 years between the good, moderate and poor road bases):

- 30 years for a good base;
- 20 years for a moderate base; and
- 10 years for a poor base.

Table 27: Life-Cycle Cost Assumptions - Asphalt

ACTIVITY	GOOD BASE	MODERATE BASE	POOR BASE
Asphalt	30 year life every 30 years	20 year life every 20 years	10 year life every 10 years
Crack seal	every 5 years (not Year 30)	every 5 years (not Years 20 or 40)	5 years after asphalt
Patch repair	500 m ² Years 15 & 45	500 m ² 10 years after asphalt	not required
Micro-surfacing	20 years after asphalt	15 years after asphalt	not required
Pulverize	in conjunction with asphalt paving	in conjunction with asphalt paving	in conjunction with asphalt paving



As the asphalt depth is only 65 mm, it is assumed that any repaving encompasses pulverizing the existing surface and placement of an additional 65 mm of asphalt (as opposed to mill and replace with 40 mm, which is difficult with only a single lift of asphalt).

As with the surface treated roads, the preventative measures including patch repair and micro-surfacing are not required with a poor road base given the frequency in which the road is to be repaved.

8.2.5 Unit Costs

The unit costs employed in the life-cycle costing are provided in Table 28.

Table 28: Life-Cycle Cost Assumptions - Unit Costs

ITEM	UNIT	COST	ITEM	UNIT	COST
Granular A	tonne	\$25	Pulverize	m ²	\$4
Double Surface Treatment	m ²	\$8	Grind	m ²	\$4
Slurry Seal	m ²	\$2.50	Asphalt	tonne	\$135
Spray Patch	m ²	\$3	Asphalt (65mm)	m ²	\$15
Micro-surfacing	m ²	\$6	Asphalt (40mm)	m ²	\$12
Patch Repair	m ²	\$45	Dust Control	L	\$0.10
Crack Seal	m	\$3	Grading	per km	\$75
Cold Mix Patch	tonne	\$190			

8.2.6 Life-Cycle Costs

The results of the life-cycle cost assessment are presented in Table 29, whereas detailed worksheets specific to each road surface type and road base condition (showing the expenditures over the 60 year life-cycle cost horizon) are provided in Appendix I.

Table 29: Life-Cycle Costs

ROAD SURFACE	GOOD BASE	MODERATE BASE	POOR BASE
Gravel	\$549,800	\$633,300	\$794,700
Surface Treated	\$413,520	\$621,420	\$1,014,840
Asphalt	\$404,000	\$606,000	\$816,000

life-cycle costs are over a 60-year period



As illustrated, for roads with good and moderate bases, the asphalt application provides the lowest total cost (all in 2021 dollars), albeit surface treatment is considered relatively comparable (within 2.5%). For those roads with a poor base, the gravel surface is the most cost effective (albeit only marginally better than asphalt).

8.3 RECOMMENDATIONS

In context of the life-cycle cost assessment, and in consideration of the other benefits that a hard surface road will provide (as detailed in Section 8.1 and including reduced user costs), it is recommended that a hard surface be considered for all gravel roads with a good or moderate base. For those with a poor base, base improvements should be considered prior to the implementation of a hard surface, otherwise a gravel surface is recommended.

Consideration should also be given to the volume of traffic that each road serves in confirming the most appropriate road surface (typically hard surface is reserved for those roads serving in excess of 200 to 300 vehicles per day) and also prioritizing such improvements (higher volume roads should be considered first).

Furthermore, recognizing that the decision to pave a gravel road may affect the public, public consultation is recommended to ensure such will be readily accepted. In most cases, the public will likely welcome the smoother riding surface, reduced dust and safer driving environment. However, paved surfaces are often thought to encourage higher travel speeds and increased traffic volumes (or at least there is often such a perception), which may not be amenable to all.



9 Summary

9.1 ROAD NETWORK

The purpose of the *Township of Minden Hills Road Needs Study 2021* is to provide the Township with an updated “road map” to maintaining the road network in good condition. In doing so, the study has determined traffic volumes on each inventoried road section, provided an inventory and assessment of existing conditions, and established the need for road works. In identifying maintenance needs, the Township should give due consideration to maintaining those roads that are currently in good condition, thereby deferring more costly improvements to a later date. While this deviates from the traditional “worst first” approach, in which money is spent on fixing those roads that are in poor condition, it will provide a more efficient and sustainable long-term program.

In implementing the recommended improvements, consideration should be given to the priority guide number, which not only reflects the need for the improvement and traffic volumes served by each road section, but also considers the associated costs and prioritizes the works based on the resulting benefit value (ie. the improvement which gives the most benefit for the dollar spent). In conjunction with this, the Township must also consider additional factors in determining the annual road program. Such factors might include external development pressures, continuity of construction, other infrastructure needs and available funds. Where possible, federal and provincial infrastructure programs should be explored as a source of funding, as should the Township’s Development Charges.

9.2 ROAD SURFACE MANAGEMENT

The upgrading of existing gravel roads to a hard surface (either surfaced treatment or asphalt) was reviewed considering common practice and typical costs with respect to road maintenance. In considering the anticipated life span of each road surface type, and the application of preventative measures during the assessment period (60 years), it was determined that a hard surface would be the most cost effective for those road surfaces with a good road base (with little cost differential between the surface treated and asphalt options). While there is less economic benefit for those roads with moderate road bases, a hard surface should nonetheless be considered in context of other benefits and cost savings that could be realized (namely user costs). For those roads with a poor road based, a gravel surface is considered appropriate.

9.3 STUDY UPDATES

To maintain the Road Needs Study and ensure accurate representation of existing conditions, major updates to the study should be undertaken on a 5-year basis.



Appendix A: Road Inventory Forms

Township of Minden Hills

Road Needs Study 2018

IDENTIFICATION

ASPHALT ROADS

Road Name	<input type="text"/>
From	<input type="text"/>
To	<input type="text"/>

Section	<input type="text"/>
Inspected By	K. Pelch
Inspected On	<input type="text"/>

ROAD INVENTORY

Length <input type="text"/> m	Platform Width <input type="text"/> m	Surface Width <input type="text"/> m	Shoulder Width <input type="text"/> m	No. of Lanes <input type="text"/>	Speed Limit <input type="text"/> km/h	Substandard Curves H: <input type="text"/> V: <input type="text"/>
2018 AADT <input type="text"/> vpd	2023 AADT <input type="text"/> vpd	2028 AADT <input type="text"/> vpd	2038 AADT <input type="text"/> vpd			
Road Classification <input type="text"/> local	<input type="text"/> collector	<input type="text"/> arterial	O.Reg 239/02 Class <input type="text"/>		Sidewalk even side <input type="text"/>	
Road Environment <input type="text"/> rural	<input type="text"/> semi-urban	<input type="text"/> urban	Maintenance <input type="text"/>		Sidewalk odd side <input type="text"/>	
Drainage <input type="text"/> no ditch	<input type="text"/> open ditch	<input type="text"/> storm sewer	<input type="text"/> sewer & ditch	<input type="text"/> other		
Drainage Assessment <input type="text"/> good	<input type="text"/> fair (minor improvements/maintenance required)		<input type="text"/> poor (major improvements/maintenance required)			
Terrain <input type="text"/> non-rocky flat	<input type="text"/> non-rocky rolling	<input type="text"/> non-rocky rugged	<input type="text"/> rocky flat	<input type="text"/> rocky rolling		
Surface Type <input type="text"/> earth/dirt	<input type="text"/> gravel	<input type="text"/> surface treated	<input type="text"/> asphalt	<input type="text"/> other		
Shoulder Type <input type="text"/> earth/dirt	<input type="text"/> gravel	<input type="text"/> surface treated	<input type="text"/> asphalt	<input type="text"/> concrete		
Curb Even Side <input type="text"/> no curb	<input type="text"/> barrier	<input type="text"/> mountable	<input type="text"/> asphalt	<input type="text"/> concrete		
Curb Odd Side <input type="text"/> no curb	<input type="text"/> barrier	<input type="text"/> mountable	<input type="text"/> asphalt	<input type="text"/> concrete		

Field Comments & Observations

<input type="text"/>
<input type="text"/>
<input type="text"/>
<input type="text"/>

Township of Minden Hills

Road Needs Study 2018

IDENTIFICATION

ASPHALT ROADS

Road Name

From

To

Section

Inspected By

Inspected On

SURFACE CONDITION NEEDS

Ride Comfort Rating (RCR) at posted speed										Distress Weight	Severity of Distress (Si)			Density of Distress (Di)			Distress Manifestation Index
1	2	3	4	5	6	7	8	9	10		Slight	Moderate	Severe	Intermittent	Frequent	Extensive	
very rough and bumpy		uncomfortable					smooth & pleasant						< 20%	20-50%	> 50%		
Defects, Deformations & Cracking										Wi	1	2	3	1	2	3	DMI
Surface Defects	1 Ravelling									3.0							
	2 Flushing or bleeding									1.5							
	3 Potholes									3.0							
	4 Pavement edge breaks									2.0							
	5 Manholes & catchbasins									1.0							
Surface Deformations	6 Rippling & shoving									1.0							
	7 Wheel track rutting									3.0							
	8 Distortion									3.0							
	9 Utility trenches									1.0							
Cracking	10 Longitudinal									1.0							
	11 Transverse									1.0							
	12 Pavement edge									1.0							
	13 Map									1.0							
	14 Alligator									3.0							
Ride Comfort Rating (RCR):										Distress Manifestation Index (DMI):			Pavement Condition Index (PCI):				

Field Comments & Recommendations

OVERALL ROAD ASSESSMENT & RECOMMENDATIONS

Road Condition	Geometrics	Surface Type	Surface Width	Shoulder Width	Road Capacity	Drainage
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="m"/>	<input type="text" value="m"/>	<input type="text"/>	<input type="text"/>
Maintenance Need & Timing	Improvement Recommendation			Improvement Time	Improvement \$\$	
<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>

Township of Minden Hills

Road Needs Study 2018

IDENTIFICATION

GRAVEL ROADS

Road Name	<input type="text"/>
From	<input type="text"/>
To	<input type="text"/>

Section	<input type="text"/>
Inspected By	<input type="text"/>
Inspected On	<input type="text"/>

ROAD INVENTORY

Length <input type="text"/> m	Platform Width <input type="text"/> m	Surface Width <input type="text"/> m	Shoulder Width <input type="text"/> m	No. of Lanes <input type="text"/>	Speed Limit <input type="text"/> km/h	Substandard Curves H: <input type="text"/> V: <input type="text"/>
2018 AADT <input type="text"/> vpd	2023 AADT <input type="text"/> vpd	2028 AADT <input type="text"/> vpd	2038 AADT <input type="text"/> vpd			
Road Classification <input type="text"/> local	<input type="text"/> collector	<input type="text"/> arterial	O.Reg 239/02 Class <input type="text"/>		Sidewalk even side <input type="text"/>	
Road Environment <input type="text"/> rural	<input type="text"/> semi-urban	<input type="text"/> urban	Maintenance <input type="text"/>		Sidewalk odd side <input type="text"/>	
Drainage <input type="text"/> no ditch	<input type="text"/> open ditch	<input type="text"/> storm sewer	<input type="text"/> sewer & ditch	<input type="text"/> other		
Drainage Assessment <input type="text"/> good	<input type="text"/> fair (minor improvements/maintenance required)		<input type="text"/> poor (major improvements/maintenance required)			
Terrain <input type="text"/> non-rocky flat	<input type="text"/> non-rocky rolling	<input type="text"/> non-rocky rugged	<input type="text"/> rocky flat	<input type="text"/> rocky rolling		
Surface Type <input type="text"/> earth/dirt	<input type="text"/> gravel	<input type="text"/> surface treated	<input type="text"/> asphalt	<input type="text"/> other		
Shoulder Type <input type="text"/> earth/dirt	<input type="text"/> gravel	<input type="text"/> surface treated	<input type="text"/> asphalt	<input type="text"/> concrete		
Curb Even Side <input type="text"/> no curb	<input type="text"/> barrier	<input type="text"/> mountable	<input type="text"/> asphalt	<input type="text"/> concrete		
Curb Odd Side <input type="text"/> no curb	<input type="text"/> barrier	<input type="text"/> mountable	<input type="text"/> asphalt	<input type="text"/> concrete		

Field Comments & Observations

<input type="text"/>
<input type="text"/>
<input type="text"/>
<input type="text"/>

Township of Minden Hills

Road Needs Study 2018

IDENTIFICATION

SURFACE TREATED ROADS

Road Name

Section

From

Inspected By

To

Inspected On

ROAD INVENTORY

Length

 m

Platform Width

 m

Surface Width

 m

Shoulder Width

 m

No. of Lanes

Speed Limit

 km/h

Substandard Curves

H:	V:
----	----

2018 AADT

 vpd

2023 AADT

 vpd

2028 AADT

 vpd

2038 AADT

 vpd

Road Classification

 local

 collector

 arterial

O.Reg 239/02

 Class

Sidewalk even side

Road Environment

 rural

 semi-urban

 urban

Maintenance

Sidewalk odd side

Drainage

 no ditch

 open ditch

 storm sewer

 sewer & ditch

 other

Drainage Assessment

 good

 fair (minor improvements/maintenance required)

 poor (major improvements/maintenance required)

Terrain

 non-rocky flat

 non-rocky rolling

 non-rocky rugged

 rocky flat

 rocky rolling

Surface Type

 earth/dirt

 gravel

 surface treated

 asphalt

 other

Shoulder Type

 earth/dirt

 gravel

 surface treated

 asphalt

 concrete

Curb Even Side

 no curb

 barrier

 mountable

 asphalt

 concrete

Curb Odd Side

 no curb

 barrier

 mountable

 asphalt

 concrete

Field Comments & Observations

Township of Minden Hills

Road Needs Study 2018

IDENTIFICATION

SURFACE TREATED ROADS

Road Name

Section

From

Inspected By

To

Inspected On

SURFACE CONDITION NEEDS

Ride Comfort Rating (RCR) at posted speed										Distress Weight	Severity of Distress (Si)			Density of Distress (Di)			Distress Manifestation Index	
1	2	3	4	5	6	7	8	9	10		Slight	Moderate	Severe	Intermittent	Frequent	Extensive		
very rough and bumpy			uncomfortable				smooth & pleasant						< 20%	20-50%	> 50%			
Defects, Deformations & Cracking										Wi	1	2	3	1	2	3	DMI	
Surface Defects	1 Loss of cover aggregate										3.0							
	2 Streaking										1.0							
	3 Flushing										2.0							
	4 Potholes										1.0							
	5 Pavement edge break										2.0							
Surface Deformations	6 Rippling										2.0							
	7 Wheel track rutting										3.0							
	8 Distortion										3.0							
	9 Longitudinal										1.0							
Cracking	10 Transverse										0.5							
	11 Pavement edge										1.0							
	12 Alligator										3.0							

Ride Comfort Rating (RCR):

Distress Manifestation Index (DMI):

Pavement Condition Index (PCI):

Field Comments & Recommendations

OVERALL ROAD ASSESSMENT & RECOMMENDATIONS

Road Condition

Geometrics

Surface Type

Surface Width

Shoulder Width

Road Capacity

Drainage

Maintenance Need & Timing

Improvement Recommendation

Improvement Time

Improvement \$\$

Appendix B: Traffic Data

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Capacity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
M063	Alexander Road	Blairhampton Road	Blairhampton Road	8000	40	1%	A	45	1%	45	1%	50	1%
M089	Alfred Road	Coxfarm Road	250m North of Coxfarm Road	8000	5	0%	A	10	0%	10	0%	10	0%
V009	Anson St	Peck St	960m South	8000	220	3%	A	250	3%	250	3%	300	4%
V042	Archie St	Candace St	Stouffer St	8000	40	1%	A	45	1%	45	1%	50	1%
S041	Bacon Road	CR 503	Conway Road	8000	135	2%	A	150	2%	150	2%	200	3%
S043	Bacon Road	Conway Road	430m West	8000	75	1%	A	80	1%	90	1%	100	1%
M072	Ball Road	CR 20	200m West of CR 20	8000	10	0%	A	15	0%	15	0%	15	0%
M023	Bat Lake Road	CR 16	4.7km East of CR 16	8000	195	2%	A	250	3%	250	3%	250	3%
M016	Beer Lake Road	Claude Brown Road	430m west of Claude Brown Road	8000	25	0%	A	30	0%	30	0%	35	0%
M017	Beer Lake Road	430m West of Claude Brown Road	1.4km West of Claude Brown Road	8000	10	0%	A	15	0%	15	0%	15	0%
M052	Ben Road	Reynolds Road	300m South of Reynolds Road	8000	10	0%	A	15	0%	15	0%	15	0%
M054	Bethel Road	CR 20	CR 21	8000	315	4%	A	350	4%	350	4%	400	5%
M019	Bingham Road	Scotch Line Road	2.2km North of Scotch Line Road	8000	55	1%	A	60	1%	70	1%	70	1%
M053A	Blairhampton Road	Highway 35	Duck Lake Road	8000	275	3%	A	300	4%	350	4%	350	4%
M053B	Blairhampton Road	Duck Lake Road	3.1km Easterly	8000	400	5%	A	450	6%	450	6%	500	6%
M053C	Blairhampton Road	3.1km Easterly	CR 21	8000	385	5%	A	450	6%	450	6%	500	6%
L044	Bob Lake Road	CR 2	Ralston Road	8000	25	0%	A	30	0%	30	0%	35	0%
M010A	Bobcaygeon Road	Scotch Line Road	Fleming Road	12000	1185	10%	A	1350	11%	1450	12%	1800	15%
V001	Bobcaygeon Road	Highway 35	Peck St	12000	3445	29%	A	3850	32%	4200	35%	5150	43%
V002	Bobcaygeon Road	Peck St	Water St	12000	2515	21%	A	2800	23%	3100	26%	3750	31%
V003	Bobcaygeon Road	Water Street	Fleming Road	12000	2495	21%	A	2800	23%	3050	25%	3750	31%
M008	Bobcaygeon Road	Highway 118	Plantation Road	8000	135	2%	A	150	2%	150	2%	200	3%
M009	Bobcaygeon Road	Plantation Road	2.9km S of Plantation	8000	300	4%	A	350	4%	350	4%	400	5%
M010B	Bobcaygeon Road	2.9km S of Plantation	Scotch Line Road	8000	610	8%	A	650	8%	700	9%	750	9%
V026	Booth St	Highway 35	Prince St	8000	770	10%	A	850	11%	900	11%	950	12%
L053	Boundary Road	CR 121	55m East of CR 121	8000	125	2%	A	150	2%	150	2%	200	3%
L009	Boundary Road	Davis Lake Road	Morgan Trail	8000	30	0%	A	35	0%	35	0%	40	1%
L010	Boundary Road	Davis Lake Road	to 55m West of CR 21	8000	45	1%	A	50	1%	50	1%	55	1%
M003	Boyd Road	Brady Lake Road	Whippoorwill Lane	8000	50	1%	A	55	1%	60	1%	65	1%

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Capacity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
M001	Brady Lake Road	Highway 118	Rugged Lane	8000	70	1%	A	80	1%	80	1%	90	1%
M001A	Brady Lake Road	Rugged Lane	One Mile Dr	8000	45	1%	A	50	1%	50	1%	55	1%
M002	Brady Lake Road	One Mile Dr	100m North of Viceroy Dr	8000	40	1%	A	45	1%	45	1%	50	1%
Z003	Brunswick Drive	Ramsey Road	Highway 35	4000	15	0%	A	20	1%	20	1%	20	1%
L003	Buller Road	Clear Lake Road	Spar Lake Road	8000	60	1%	A	70	1%	70	1%	80	1%
L004	Buller Road	Davis Lake Road	Clear Lake Road	8000	40	1%	A	45	1%	45	1%	50	1%
V043	Candace St	Stouffer St	150m South of Stouffer	8000	30	0%	A	35	0%	35	0%	40	1%
M090A	Canning Heights Road	Dugan Road	160 m West of Dugan Road	8000	30	0%	A	35	0%	35	0%	40	1%
M067A	Caribou Road	Cold Spring Road	1.4 km (W) of Cold Spring Road	8000	85	1%	A	90	1%	100	1%	110	1%
M067B	Caribou Road	CR 21	CR 21	8000	80	1%	A	90	1%	90	1%	100	1%
M067C	Caribou Road	CR 21	CR 21	8000	80	1%	A	90	1%	90	1%	100	1%
L025	Cecil Grant Dr	Highway 35	500m North of Highway 35	4000	10	0%	A	15	0%	15	0%	15	0%
S051A	Cemetery Road	CR 1	250m East of CR 1	8000	40	1%	A	45	1%	45	1%	50	1%
M035	Chambers Road	Highway 35	Maebar Road	8000	25	0%	A	30	0%	30	0%	35	0%
V014	Chandos St	60m South of Newcastle St	Prince St	8000	100	1%	A	110	1%	120	2%	130	2%
M027	Clarence Road	Highway 35	200m West of Highway 35	8000	30	0%	A	35	0%	35	0%	40	1%
M018	Claude Brown Road	Beer Lake Road	1.7km South of Beer Lake Road	8000	150	2%	A	200	3%	200	3%	200	3%
L005	Clear Lake Road	Buller Road	Highway 35	8000	120	2%	A	150	2%	150	2%	150	2%
M068	Cold Spring Road	Caribou Road	400m East	8000	10	0%	A	15	0%	15	0%	15	0%
M024	Colonial Road	CR 16	300m South of CR 16	8000	20	0%	A	25	0%	25	0%	25	0%
M074	Conestoga Road	CR 21	CR 18	8000	35	0%	A	40	1%	40	1%	45	1%
S042	Conway Road	Bacon Road	Embassy Drive	8000	105	1%	A	150	2%	150	2%	150	2%
L020	Country Road	Highway 35	500m North	8000	200	3%	A	250	3%	250	3%	250	3%
M080	Coxfarm Road	CR 21	1.3km North of CR 21	8000	145	2%	A	200	3%	200	3%	200	3%
M038	Crest Drive	Peterson Road	End of Road	8000	25	0%	A	30	0%	30	0%	35	0%
M040	Crooked House Road	Highway 118	390m East of Highway 118	8000	60	1%	A	70	1%	70	1%	80	1%
M041	Crooked House Road	390m East of Highway 118	1400m East of Highway 118	8000	40	1%	A	45	1%	45	1%	50	1%
M070	Curtiss Road	Bethel Road	450m North of Bethel Road	8000	50	1%	A	55	1%	60	1%	65	1%
S040	Dancey Road	CR 503	250m North	8000	10	0%	A	15	0%	15	0%	15	0%

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Capacity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
L006	Davis Lake Road	Buller Road	Highway 35	8000	205	3%	A	250	3%	250	3%	300	4%
L007	Davis Lake Road	Buller Road	Swinson Road	8000	70	1%	A	80	1%	80	1%	90	1%
L008	Davis Lake Road	Boundary Road	Swinson Road	8000	20	0%	A	25	0%	25	0%	25	0%
L028	Davis Lake Road	Miners Bay Road	Highway 35	8000	55	1%	A	60	1%	70	1%	70	1%
L038	Denna Lake Road	CR 121	230m West of Periwinkle Trail	8000	85	1%	A	90	1%	100	1%	110	1%
M071	Dennison Road	CR 20	1.6km East of CR 20	8000	55	1%	A	60	1%	70	1%	70	1%
L043	Devils Lake Road	CR 2	Boat Launch	8000	40	1%	A	45	1%	45	1%	50	1%
S039	Dexter Road	CR 503	260m West	8000	10	0%	A	15	0%	15	0%	15	0%
V047	Dick St	Parkside St	Prentice St	8000	115	1%	A	150	2%	150	2%	150	2%
M047	Duck Lake Road	3.0 km North of Bethel Road	Blairhampton Road	8000	200	3%	A	250	3%	250	3%	250	3%
M048	Duck Lake Road	Bethel Road	3.0km North of Bethel Road	8000	225	3%	A	250	3%	250	3%	300	4%
M090B	Dugan Road	CR 17	110m West of CR 17	8000	40	1%	A	45	1%	45	1%	50	1%
S038	Elm Road	Salerno Lake Road	100m South	8000	5	0%	A	10	0%	10	0%	10	0%
M095	Eric Potter Road	Soyers Lake Road	580m South of Soyers Lake d	8000	85	1%	A	90	1%	100	1%	110	1%
Z002	Fire Route 375	Country Road 503	700m West of County Road 503	4000	5	0%	A	10	0%	10	0%	10	0%
V050	Fleming Road	Bobcaygeon Road	450m East	8000	60	1%	A	70	1%	70	1%	80	1%
V048	Fleming Road	Bobcaygeon Road	Prentiskoka Heights Road	8000	375	5%	A	400	5%	450	6%	500	6%
V020	Floralan Park Dr	Prince St	End	8000	245	3%	A	300	4%	300	4%	300	4%
L042A	Forsters Road	CR 2	0.1km East of CR 2	8000	55	1%	A	60	1%	70	1%	70	1%
L042B	Forsters Road	0.1km East of CR 2	1.0km East of CR 2	8000	55	1%	A	60	1%	70	1%	70	1%
S022A	Francis Road	Sedgwick Road	300m South of Sedgwick Road	8000	45	1%	A	50	1%	50	1%	55	1%
S022B	Francis Road	300m South of Sedgwick Road	2.3km South of Sedgwick Road	8000	15	0%	A	20	0%	20	0%	20	0%
M026	Gainer Road	Highway 35	400m North of Highway 35	8000	50	1%	A	55	1%	60	1%	65	1%
S027	Geeza Road	CR 1	1.5km South of CR 1	8000	35	0%	A	40	1%	40	1%	45	1%
M085A	Godward Road	Shuylers Island Road	150m North of Shuyers Island Road	8000	20	0%	A	25	0%	25	0%	25	0%
V025	Golf Course Road	Water St	240m North of Water St	8000	200	3%	A	250	3%	250	3%	250	3%
M058	Grace Road	Soyers Lake Road	620m South of Soyers Lake Road	8000	10	0%	A	15	0%	15	0%	15	0%
L018	Green Gables Road	Highway 35	Highway 35	8000	140	2%	A	150	2%	200	3%	200	3%
S003	Hamilton Road	CR 16	1.8km South of CR 16	8000	185	2%	A	200	3%	250	3%	250	3%

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Capacity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
S037	Hancock Road	Salerno Lake Road	400m South of Salerno Lake Road	8000	10	0%	A	15	0%	15	0%	15	0%
L030	Hendersons Road	Highway 35	Highway 35	8000	10	0%	A	15	0%	15	0%	15	0%
V031	Highland Gate Bv	CR 2	360m West of CR 2 (end)	8000	405	5%	A	450	6%	450	6%	500	6%
L024	Hoffman Road	Pacific Road	175m North of Pacific Road	8000	10	0%	A	15	0%	15	0%	15	0%
S001	Hospitality Road	2.7km South of CR 16	Rice Road	8000	85	1%	A	90	1%	100	1%	110	1%
S002	Hospitality Road	CR 16	2.7km South of CR 16	8000	210	3%	A	250	3%	250	3%	300	4%
S049	Howland Junction Roa	CR 121	1.1km East of CR 121	8000	185	2%	A	200	3%	250	3%	250	3%
L026	Humphrey Road	Highway 35	55m North of Orchid Lane	8000	10	0%	A	15	0%	15	0%	15	0%
L035	Hunter Creek Road	Highway 35	Woodglade Lane	8000	155	2%	A	200	3%	200	3%	200	3%
Z001	Hyacinth Road	County Road 2	Mistivale Road	8000	40	1%	A	45	1%	45	1%	50	1%
V005	IGA Road	Bobcaygeon Road	100m East of Bobcaygeon Road	8000	1470	18%	A	1550	19%	1650	21%	1800	23%
L017	Info Centre Road	Highway 35	140m West	8000	70	1%	A	80	1%	80	1%	90	1%
V039	Invergordon Av	Bobcaygeon Road	Stouffer St	8000	415	5%	A	450	6%	500	6%	550	7%
V040	Invergordon Av	Stouffer St	200m East of Stouffer St	8000	80	1%	A	90	1%	90	1%	100	1%
L011	Iron Mine Road	Davis Lake Road	Landfill	8000	25	0%	A	30	0%	30	0%	35	0%
L012	Iron Mine Road	Landfill	Swinson Road	4000	20	1%	A	25	1%	25	1%	25	1%
S033	Irondale Road	CR 503	Line Dr Road	8000	225	3%	A	250	3%	250	3%	300	4%
S013B	Isaiah Hicks Road	Lochlin Road	550m East of Lochlin Road	8000	25	0%	A	30	0%	30	0%	35	0%
S048	Jopling Road	Ron Road	930m East of Ron Road	8000	10	0%	A	15	0%	15	0%	15	0%
M028A	Judge Jordan Road	Highway 35	Rusty Stream Lane	8000	60	1%	A	70	1%	70	1%	80	1%
M028B	Judge Jordan Road	Rusty Stream Lane	450m South of Rusty Stream Lane	8000	30	0%	A	35	0%	35	0%	40	1%
L057	KC Dam Road	Highway 35	130m South of Highway 35	8000	10	0%	A	15	0%	15	0%	15	0%
M059	Keewaydin Road	Soyers Lake Road	500m West of Soyers Lake Road	8000	25	0%	A	30	0%	30	0%	35	0%
M075	Kelson Road	CR 18	580m South of CR 18	8000	135	2%	A	150	2%	150	2%	200	3%
V033	Knob Hill Ct	Highland Gate Blvd	180m South of Highland Gate Blvd (end)	8000	130	2%	A	150	2%	150	2%	200	3%
L054	Laxton/Lutterworth Bc	Highway 35	135m East of Highway 35	8000	5	0%	A	10	0%	10	0%	10	0%
S034	Line Drive	Irondale Road	180m North of Irondale Road	4000	10	0%	A	15	0%	15	0%	15	0%
L046	Little Bob Lake Road	Rackety Trail Road	1.3km North of Rackety Trail Road	8000	45	1%	A	50	1%	50	1%	55	1%
M077	Lochlin Road	CR 1	Tom Bolton Road	8000	115	1%	A	150	2%	150	2%	150	2%

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Capacity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
M083	Lugers Road	Highway 35	CR 21	8000	65	1%	A	70	1%	80	1%	80	1%
L034	Lutterworth Pines Road	Highway 35	1114 Lutterworth Pines Road	8000	165	2%	A	200	3%	200	3%	250	3%
V015	Lyons St	Newcastle St	Prince St	8000	60	1%	A	70	1%	70	1%	80	1%
M037	Maebar Road	Highway 35	Highway 35	8000	65	1%	A	70	1%	80	1%	80	1%
S045	Mark Twain Road	CR 503	670m North of CR 503	8000	35	0%	A	40	1%	40	1%	45	1%
V034	McKay St	Bobcaygeon Road	Hospital	8000	1115	14%	A	1200	15%	1250	16%	1400	18%
V006	McKnight Dr	Anson St	Bobcaygeon Road	8000	195	2%	A	250	3%	250	3%	250	3%
V036	McLeod St	McPherson St	McKay St	8000	70	1%	A	80	1%	80	1%	90	1%
V038	McPherson St	McKay St	McLeod St	8000	70	1%	A	80	1%	80	1%	90	1%
S031	Milburn Road	6.5 km East of CR 1	CR 503	8000	70	1%	A	80	1%	80	1%	90	1%
S030	Milburn Road	CR 1	6.5km East of CR 1	8000	110	1%	A	150	2%	150	2%	150	2%
V011	Milne St	Newcastle St	Prince St	8000	735	9%	A	800	10%	850	11%	900	11%
M084	Minden Lake Road	Coxfarm Road	500m South of Coxfarm Road	8000	80	1%	A	90	1%	90	1%	100	1%
L027	Miners Bay Road	Highway 35	Highway 35	8000	80	1%	A	90	1%	90	1%	100	1%
L049	Mistivale Road	CR 2	630m South of CR 2	8000	65	1%	A	70	1%	80	1%	80	1%
L015	Moore Lake Estates Road	Highway 35	Highway 35	8000	195	2%	A	250	3%	250	3%	250	3%
M029	Mountain View Road	Highway 35	Twelve Mile Lake Road	8000	20	0%	A	25	0%	25	0%	25	0%
L047	Murdoch Road	CR 2	1.2km South of CR 2	8000	85	1%	A	90	1%	100	1%	110	1%
M093	Murdoch Road	1.2km South of CR 2	1.5km South of CR 2	4000	25	1%	A	30	1%	30	1%	35	1%
M069	Nesbitt Road	Bethel Road	1.0km North of Bethel Road	8000	55	1%	A	60	1%	70	1%	70	1%
V010	Newcastle St	Bobcaygeon Road	Highway 35	12000	1160	10%	A	1300	11%	1450	12%	1750	15%
S017	Nichols Road	CR 1	460m East of CR 1	8000	120	2%	A	150	2%	150	2%	150	2%
S016	Nichols Road	CR 1	340m West of CR 1	8000	60	1%	A	70	1%	70	1%	80	1%
M036	Omagaki Road	Highway 35	Chambers Road	8000	30	0%	A	35	0%	35	0%	40	1%
V030	Orde Connector	CR 2	Orde St	8000	180	2%	A	200	3%	200	3%	250	3%
V028	Orde St	Orde Connector	880m South of Orde Conn.	8000	75	1%	A	80	1%	90	1%	100	1%
V029	Orde St	Orde Connector	380m North of Orde Conn.	8000	130	2%	A	150	2%	150	2%	200	3%
M064	Osgoode Road	Blairhampton Road	140m East of Blairhampton Road	8000	15	0%	A	20	0%	20	0%	20	0%
M062	Osprey Road	CR 21	1.8km North of CR 21	8000	85	1%	A	90	1%	100	1%	110	1%

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Capacity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
L023	Pacific Road	Highway 35	70m South of Colby Lane	8000	35	0%	A	40	1%	40	1%	45	1%
L060	Pacific Road	70m South of Colby Lane	360m South of Colby Lane	4000	10	0%	A	15	0%	15	0%	15	0%
M092	Panorama Park Road	CR 16	800m North of CR 16	8000	110	1%	A	150	2%	150	2%	150	2%
V044	Parkside St	Bobcaygeon Road	Dick St	8000	520	7%	A	550	7%	600	8%	650	8%
V045	Parkside St	Dick St	Arena	8000	500	6%	A	550	7%	600	8%	650	8%
V007	Peck St	Bobcaygeon Road	Anson St	8000	145	2%	A	200	3%	200	3%	200	3%
M039	Peterson Road	Highway 118	Highway 118	8000	25	0%	A	30	0%	30	0%	35	0%
M006	Plantation Road	Bobcaygeon Road	Queens Line Road	8000	105	1%	A	150	2%	150	2%	150	2%
M007	Plantation Road	Queens Line Road	900m East of Queens Line Road	8000	60	1%	A	70	1%	70	1%	80	1%
M034	Pleasant Point Road	Red Umbrella Road	900m South of Red Umbrella Road	8000	30	0%	A	35	0%	35	0%	40	1%
S004	Porkys Road	CR 16	Scotts Dam Road	8000	65	1%	A	70	1%	80	1%	80	1%
V046	Prentice St	Bobcaygeon Road	Community Center	8000	260	3%	A	300	4%	300	4%	350	4%
V049	Prentiskoka Heights Rd	Fleming Road	Snow Plow Turn Around	8000	100	1%	A	110	1%	120	2%	130	2%
V016	Prince St	Water St	St. Germaine St	8000	940	12%	A	1000	13%	1050	13%	1150	14%
V017	Prince St	St. Germaine St	Floralan Park Dr	8000	745	9%	A	800	10%	850	11%	950	12%
V018	Prince St	Floralan Park Dr	Teasdale St	8000	125	2%	A	150	2%	150	2%	200	3%
S014	Pringle Road	CR 1	520m South of CR 1	8000	45	1%	A	50	1%	50	1%	55	1%
V012	Pritchard Lane	Milne St	St. Germaine St	8000	500	6%	A	550	7%	600	8%	650	8%
L052	Promenade Road	CR 121	CR 121	8000	25	0%	A	30	0%	30	0%	35	0%
M081	Puffer Road	CR 21	240m South of CR 21	8000	10	0%	A	15	0%	15	0%	15	0%
M004	Queens Line Road	Plantation Road	Highway 118	8000	120	2%	A	150	2%	150	2%	150	2%
L045	Rackety Trail Road	CR 2	3.7km South of CR 2	8000	135	2%	A	150	2%	150	2%	200	3%
L056	Ralston Road	Bob Lake Road	270m West of Bob Lake Road	8000	20	0%	A	25	0%	25	0%	25	0%
M025	Ransley Road	Highway 35	500m West of Highway 35	8000	20	0%	A	25	0%	25	0%	25	0%
M094	Raptor Road	Osprey Road	200m East	4000	5	0%	A	10	0%	10	0%	10	0%
L036	Ravine Road	Highway 35	500m East of Highway 35	8000	145	2%	A	200	3%	200	3%	200	3%
L037	Ravine Road	500m East of Highway 35	CR 121	8000	150	2%	A	200	3%	200	3%	200	3%
M032	Red Umbrella Road	Highway 35	600m North of Highway 35	8000	120	2%	A	150	2%	150	2%	150	2%
M033	Red Umbrella Road	600m North of Highway 35	950m North of Highway 35	8000	70	1%	A	80	1%	80	1%	90	1%

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Caracity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
V004	Renaissance St	Highway 35	165m South of Highway 35	8000	20	0%	A	25	0%	25	0%	25	0%
M051	Reynolds Road	80m West of Jamieson Dr	Duck Lake Road	8000	160	2%	A	200	3%	200	3%	200	3%
M050	Reynolds Road	CR 20	80m West of Jamieson Dr	8000	180	2%	A	200	3%	200	3%	250	3%
L039	Rice Road	CR 121	Hospitality Road	8000	110	1%	A	150	2%	150	2%	150	2%
L040	Rice Road	Hospitality Road	460m North of Hospitality Road	8000	35	0%	A	40	1%	40	1%	45	1%
S009	Ritchie Falls Road	CR 1	1.1km South of CR 1	8000	175	2%	A	200	3%	200	3%	250	3%
S010	Ritchie Falls Road	1.3 km South of CR 1	Bridge	8000	25	0%	A	30	0%	30	0%	35	0%
S011	Ritchie Falls Road	Bridge	End of Road	4000	30	1%	A	35	1%	35	1%	40	1%
M066	Robertson Road	CR 21	450m West of CR 21	8000	30	0%	A	35	0%	35	0%	40	1%
S046	Ron Road	CR 503	Thurston Road	8000	30	0%	A	35	0%	35	0%	40	1%
M096	Rotary Park Road	Highway 35	118 m West of Highway 35	8000	90	1%	A	100	1%	100	1%	110	1%
S036	Salerno Lake Road	Bumblebee Lane	Twist Lane	8000	65	1%	A	70	1%	80	1%	80	1%
S035	Salerno Lake Road	Irondale Road	Bumblebee Lane	8000	70	1%	A	80	1%	80	1%	90	1%
L058	Salisbury Road	Schaefers Road	60m East of Schaefers Road	8000	10	0%	A	15	0%	15	0%	15	0%
L032	Sandy Bay Road	Highway 35	60m North of Magistrate Dr	8000	70	1%	A	80	1%	80	1%	90	1%
L033	Sandy Bay Road	60m North of Magistrate Dr	Loyalist Dr	8000	35	0%	A	40	1%	40	1%	45	1%
M073	Sapling Road	CR 20	120m North of CR 20	4000	100	3%	A	110	3%	120	3%	130	3%
S025A	Sawdust Road	Sedgwick Road	240m South	8000	25	0%	A	30	0%	30	0%	35	0%
L041	Schaefers Road	CR 2	Sallsbury Road	8000	25	0%	A	30	0%	30	0%	35	0%
M013	Scotch Line Road	Highway 35	Bobcaygeon Road	8000	530	7%	A	600	8%	600	8%	650	8%
M014	Scotch Line Road	Bobcaygeon Road	Binghan Road	8000	280	4%	A	300	4%	350	4%	350	4%
M015	Scotch Line Road	Binghan Road	Claude Brown Road	8000	200	3%	A	250	3%	250	3%	250	3%
M012	Scotch Line Road	600m East of Highway 35	Arvids Lane	4000	10	0%	A	15	0%	15	0%	15	0%
M011	Scotch Line Road	Highway 35	600m East of Highway 35	8000	10	0%	A	15	0%	15	0%	15	0%
S006	Scotts Dam Road	CR 1	780m North of CR 1	8000	55	1%	A	60	1%	70	1%	70	1%
S020	Sedgwick Road	1.8km West of CR 1	2.1km West of CR 1	4000	10	0%	A	15	0%	15	0%	15	0%
S024	Sedgwick Road	200m East of Francis Road	430m East of Francis Road	8000	10	0%	A	15	0%	15	0%	15	0%
S018	Sedgwick Road	CR 1	1.4km West of CR 1	8000	115	1%	A	150	2%	150	2%	150	2%
S021	Sedgwick Road	CR 1	Francis Road	8000	60	1%	A	70	1%	70	1%	80	1%

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Capacity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
S023	Sedgwick Road	Francis Road	200m East of Francis Road	8000	10	0%	A	15	0%	15	0%	15	0%
S019	Sedgwick Road	1.4 km West of CR 1	1.8km West of CR 1	8000	10	0%	A	15	0%	15	0%	15	0%
L055	Shetland Road	Moore Lake Estates Road	230m South of Moore Lake Estates Road	8000	60	1%	A	70	1%	70	1%	80	1%
M049	Shuylers Island Road	Duck Lake Road	1.6km North of Duck Lake Road	8000	45	1%	A	50	1%	50	1%	55	1%
S005	Silverwood Road	Porkys Road	Hamlin Road	8000	50	1%	A	55	1%	60	1%	65	1%
S015	Snowdon Park Road	CR 1	720m North of CR 1	8000	5	0%	A	10	0%	10	0%	10	0%
M057	Soyers Lake Road	Eric Potters Road	Grace Road	8000	60	1%	A	70	1%	70	1%	80	1%
M055	Soyers Lake Road	Blairhampton Road	Alexander Road	8000	30	0%	A	35	0%	35	0%	40	1%
M056	Soyers Lake Road	Alexander Road	Grace Road	8000	35	0%	A	40	1%	40	1%	45	1%
L001	Spar Lake Road	Buller Road	1.4km North	8000	40	1%	A	45	1%	45	1%	50	1%
L002	Spar Lake Road	1.4km North	End of Road	8000	30	0%	A	35	0%	35	0%	40	1%
L050	Spring Valley Road	Highway 35	1.5km West of Highway 35	8000	305	4%	A	350	4%	350	4%	400	5%
L051	Spring Valley Road	1.5 km West of Highway 35	2.0km West of Highway 35	8000	50	1%	A	55	1%	60	1%	65	1%
V013	St Germaine St	Newcastle St	Prince St	8000	490	6%	A	550	7%	550	7%	600	8%
V019	St Germaine St	Prince St	Water St	8000	505	6%	A	550	7%	600	8%	650	8%
V027	St Germaine St	Water Tower	Newcastle St	8000	130	2%	A	150	2%	150	2%	200	3%
M085B	Stable Road	Shuylers Island Road	Wildflower Lane	8000	5	0%	A	10	0%	10	0%	10	0%
L029	Starlight Road	Highway 35	90m North of Highway 35	8000	5	0%	A	10	0%	10	0%	10	0%
V041	Stouffer St	Invergordon Ave	90m West of Candace St	8000	190	2%	A	200	3%	250	3%	250	3%
M005	Swan Road	Queens Line Road	800 m East of Queens Line Road	8000	80	1%	A	90	1%	90	1%	100	1%
L013	Swinson Road	Iron Mine Road	CR 121	8000	90	1%	A	100	1%	100	1%	110	1%
L014	Swinson Road	Iron Mine Road	Davis Lake Road	8000	95	1%	A	100	1%	110	1%	120	2%
M060	Tait Trail	Soyers Lake Road	42.5m South of Soyers Lake Road	4000	30	1%	A	35	1%	35	1%	40	1%
M031	Taylor Road	Twelve Mile Lake Road	Highway 35	8000	70	1%	A	80	1%	80	1%	90	1%
V021	Teasdale St	Prince St	Teasdale St (end)	8000	20	0%	A	25	0%	25	0%	25	0%
M021	Tennyson Road	CR 2	Lodge Lane	8000	215	3%	A	250	3%	250	3%	300	4%
M022	Tennyson Road	300m West of CR 2	Lodge Lane	8000	110	1%	A	150	2%	150	2%	150	2%
S047	Thurston Road	Ron Road	140m West of Ron Road	8000	15	0%	A	20	0%	20	0%	20	0%
M078	Tom Bolton Road	CR 18	Lochlin Road	8000	130	2%	A	150	2%	150	2%	200	3%

Minden Hills Road Needs Study 2021

Traffic Volumes

Asset ID	Road Name	From	To	Capacity (vpd)	2018 Horizon			2023 Horizon		2028 Horizon		2038 Horizon	
					Daily Volume	Volume to Capacity	Level of Service	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity	Daily Volume	Volume to Capacity
M078A	Tom Bolton Road	Lochlin Road	2100m East of Locklin	8000	100	1%	A	110	1%	120	2%	130	2%
M079	Tom Bolton Road	2.1 km East of Lochlin Road	Dysart Boundary	4000	25	1%	A	30	1%	30	1%	35	1%
M044	Tulip Road	Highway 118	4.1km East of Highway 118	8000	55	1%	A	60	1%	70	1%	70	1%
M045	Tulip Road	4.1km East of Highway 118	5.2km East of Highway 118	8000	30	0%	A	35	0%	35	0%	40	1%
M030	Twelve Mile Lake Road	Highway 35	Toboggan Hill Trail	8000	95	1%	A	100	1%	110	1%	120	2%
S050	Upper Dutch Line Road	CR 121	1.5km East of CR 121	8000	15	0%	A	20	0%	20	0%	20	0%
S026	Vick Road	CR 1	1.5km West of CR 1	8000	40	1%	A	45	1%	45	1%	50	1%
V035	Vintage Cr	McKay St	McKay St	8000	640	8%	A	700	9%	750	9%	800	10%
M046	Vocey Road	Blairhampton Road	Tulip Road	8000	35	0%	A	40	1%	40	1%	45	1%
S013A	Warder Road	Lochlin Road	650m West of Lochlin Road	8000	10	0%	A	15	0%	15	0%	15	0%
V022	Water St	Bobcaygeon Road	St Germaine St.	12000	2545	21%	A	2850	24%	3150	26%	3800	32%
V023	Water St	St Germaine St.	Golf Course Road	12000	2805	23%	A	3100	26%	3450	29%	4200	35%
V024	Water St	Golf Course Road	Highway 35	12000	3130	26%	A	3500	29%	3850	32%	4700	39%
M082	Welch Road	County Road 21	Deltra Drive	8000	55	1%	A	60	1%	70	1%	70	1%
L021	Wessell Road	Highway 35	900m South	8000	75	1%	A	80	1%	90	1%	100	1%
L022	Wessell Road	900m South of Highway 35	1500m South of Highway 35	8000	50	1%	A	55	1%	60	1%	65	1%
L059	Wessell Road	Cattle Gate Crossing	500m South of Cattle Gate	4000	30	1%	A	35	1%	35	1%	40	1%
S044	White Boundary Road	CR 503	1.3km East of CR 503	8000	15	0%	A	20	0%	20	0%	20	0%
S051B	White Boundary Road	1.3 km East of CR 503	7.3km East of CR 503	8000	20	0%	A	25	0%	25	0%	25	0%
M061A	Wigamog Road	CR 21	1.3km East of CR 21	8000	275	3%	A	300	4%	350	4%	350	4%
M061B	Wigamog Road	1.3km East of CR 21	Dysart Boundary	8000	250	3%	A	300	4%	300	4%	350	4%
M065	Wilma Road	CR 21	380m West of CR 21	8000	10	0%	A	15	0%	15	0%	15	0%
V037	Winchester St	McPherson St	McKay St	8000	145	2%	A	200	3%	200	3%	200	3%
M020	Winding Creek Road	Bobcaygeon Road	215m North	8000	55	1%	A	60	1%	70	1%	70	1%
V032	Windover Dr	Highland Gate Blvd	360m South	8000	170	2%	A	200	3%	200	3%	250	3%

Township of Minden Hills Road Needs Study

TMCs

Reference	Intersection	North Leg		South Leg		West Leg		East Leg	
1	Brady Lake Road & Boyd Road			Brady Lake Road	M001	Boyd Road	M003	Boyd Road	M003
2	Crest Road & Peterson Road			Crest Road	M038	Peterson Road	M039	Peterson Road	M039
3	Maeber Road & Chambers Road	Maeber Road	M037	Maeber Road	M037	Chambers Road	M035		
4	Voicey Road & Tulip Road			Voicey Road	M046	Tulip Road	M044	Tulip Road	M044
5	Voicey Road & Blairhampton Road	Voicey Road	M046	Duck Lake Road	M047	Blairhampton Road	M053A		
6	Alexander Road & Soyers Lake Road			Alexander Road	M063	Soyers Lake Road	M055	Soyers Lake Road	M056
7	Blairhampton Road & Osgoode Road	Blairhampton Road	M053C	Blairhampton Road	M053C			Osgoode Road	M064
8	Grace Road & Soyers Lake Road			Grace Road	M058	Soyers Lake Road	M056	Soyers Lake Road	M057
9	Soyers Lake Road & Eric Potter Road	Soyers Lake Road	M057			Eric Potter Road	M095	Eric Potter Road	M095
10	Duck Lake Road & Reynolds Road	Duck Lake Road	M047	Duck Lake Road	M048	Reynolds Road	M051		
11	Shuylers Island Road & Stable Road	Shuylers Island Road	M049	Shuylers Island Road	M049			Stable Road	M085B
12	Nesbitt Road & Bethel Road	Nesbitt Road	M069			Bethel Road	M054	Bethel Road	M054
13	Duck Lake Road & Bethel Road	Duck Lake Road	M048			Bethel Road	M054	Bethel Road	M054
14	Red Umbrella Road & Pleasant Point Road	Red Umbrella Road	M032	Red Umbrella Road	M032	Pleasant Point Road	M034		
15	Twelve Mile Lake Road & Taylor Road	Twelve Mile Lake Road	M030	Twelve Mile Lake Road	M030			Taylor Road	M031
16	Hwy 35 & Judge Jordan Road	Hwy 35		Hwy 35				Judge Jordan Road	M028A
17	Queens Line Road & Swan Road	Queens Line Road	M004	Queens Line Road	M004			Swan Road	M005
18	Bobcaygeon Road & Plantation Road	Bobcaygeon Road	M008	Bobcaygeon Road	M009			Plantation Road	M006
19	Bingham Road & Scotch Line Road	Bingham Road	M019			Scotch Line Road	M014	Scotch Line Road	M014
20	Bobcaygeon Road & Scotch Line Road	Bobcaygeon Road	M010B	Bobcaygeon Road	M010A			Scotch Line Road	M013
21	Bobcaygeon Road & Winding Creek Road	Bobcaygeon Road	M010A	Bobcaygeon Road	M010A	Winding Creek Road	M020		
22	Alfred Road & Coxfarm Road	Alfred Road	M089	Coxfarm Road	M080	Coxfarm Road	M080		
23	Lochlin Road & Tom Bolton Road			Lochlin Road	M077	Tom Bolton Road	M078	Tom Bolton Road	M078A
24	Lochlin Road & Warder Road	Lochlin Road	M077	Lochlin Road	M077	Warder Road	S013A	Isaiah Hicks Road	S013B
25	Scotts Dam Road & Porkys Road	Scotts Dam Road	M006	Scotts Dam Road	M006	Porkys Road	S004		
26	Cty Rd 1 & Nichols Road	Cty Rd 21		Cty Rd 21		Nichols Road	S016	Nichols Road	S017
27	Rice Road & Hospitality Road	Rice Road	L040	Rice Road	L039			Hospitality Road	S001
28	Lutterworth Pine Roads & Hwy 35			Lutterworth Pine Roads	L034	Hwy 35		Hwy 35	
29	Cty Rd 1 & Sedgwick Road	Cty Rd 21		Cty Rd 21		Sedgwick Road	S018	Sedgwick Road	S021
30	Francis Road & Sedgwick Road			Francis Road	S022A	Sedgwick Road	S021	Sedgwick Road	S023
31	Irondale Road & Salerno Lake Road	Irondale Road	S033			Salerno Lake Road	S035	Irondale Road	S033
32	Hancock Road & Salerno Lake Road			Hancock Road	S037	Salerno Lake Road	S036	Salerno Lake Road	S035
33	Rackety Trail Road & Little Bob Lake Road	Rackety Trail Road	L045	Rackety Trail Road	L045	Little Bob Lake Road	L046		
34	Hwy 35 & Davis Lake Road	Hwy 35		Hwy 35		Davis Lake Road	L028	Davis Lake Road	L006
35	Miners Bay Road & Hwy 35	Miners Bay Road	L027	Clear Lake Road	L005	Hwy 35		Hwy 35	
36	Country Road & Hwy 35	Country Road	L020	Green Gables Road	L018	Hwy 35		Hwy 35	
37	Hwy 35 & Info Centre Road	Hwy 35		Hwy 35		Info Centre Road	L017		
38	Shetland Road & Moore Lake Estates Road	Moore Lake Estates Road	L015	Shetland Road	L055	Moore Lake Estates Road	L015		
39	Spar Lake Road & Buller Road	Spar Lake Road	L001	Buller Road	-			Buller Road	L003
40	Clear Lake Road & Buller Road	Clear Lake Road	L005			Buller Road	L004	Buller Road	L004
41	Davis Lake Road & Buller Road	Davis Lake Road	L007	Davis Lake Road	L007	Buller Road	L004		
42	Davis Lake Road & Boundary Road	Davis Lake Road	L008			Boundary Road	L009	Boundary Road	L010
43	Iron Mine Road & Swinson Road	Iron Mine Road	L012	Iron Mine Road	L013	Swinson Road	L014		
44	Ron Road & Thurston Road			Ron Road	S046	Thurston Road	S047	Thurston Road	S047
45	Conway Road & Bacon Road			Conway Road	S042	Bacon Road	S043	Bacon Road	S041
46	Bobcaygeon Road & Fleming Road	Bobcaygeon Road	M010A	Bobcaygeon Road	V003	Fleming Road	V048	Fleming Road	V050

Township of Minden Hills Road Needs Study

TMCs

Reference	Intersection	North Leg		South Leg		West Leg		East Leg	
47	Dick Street & Prentice Street			Dick Street	V047	Prentice Street	V046	Prentice Street	V046
48	Bobcaygeon Road & Parkside Street	Bobcaygeon Road	V003	Bobcaygeon Road	V003			Parkside Street	V044
49	Vintage Court & McKay Street	Vintage Court	V035			McKay Street	V034	McKay Street	V034
50	Winchester Street & McPherson Street	Winchester Street	V037			McPherson Street	V038	McPherson Street	V038
51	Milne Street & Prince Street			Milne Street	V011	Prince Street	V016	Prince Street	V016
52	St Germaine Street & Water Street			St Germaine Street	V019	Water Street	V022	Water Street	V023
53	St Germaine Street & Newcastle Street	St Germaine Street	V013	St Germaine Street	V027	Newcastle Street	V010	Newcastle Street	V010
54	Chandos Street & Prince Street			Chandos Street	V014	Prince Street	V017	Prince Street	V017
55	Newcastle Street & Newcastle Street			Newcastle Street	V010	Newcastle Street	V010	Lyons Street	V015
56	Floralan Park Drive & Prince Street	Floralan Park Drive	V020	Booth Street	V026	Prince Street	V017	Prince Street	V018
57	Stouffer Street & Invergordon Avenue	Stouffer Street	V041	Invergordon Avenue	V039			Invergordon Avenue	V040
58	Windover Drive & Highland Gate Blvd			Windover Drive	V032	Highland Gate Blvd	V031	Highland Gate Blvd	V031
59	Orde Street & Orde Connector	Orde Street	V029	Orde Street	V028	Orde Connector	V030		
60	Anson Street & Peck Street			Anson Street	V009	Peck Street	V007	Peck Street	V007
61	Bobcaygeon Road & McKnight Drive	Bobcaygeon Road	V001	Bobcaygeon Road	V001	McKnight Drive	V006		

Township of Minden Hills Road Needs Study

ATRs

Reference	Street	Location			Duration (hrs)	Section	Surface
1	McKay Street	just	W	of Bobcaygeon Road	24	V034	asphalt
2	Bobcaygeon Road	just	N	of CR 2 (Deep Bay Road)	24	V003	asphalt
3	Invergordon Avenue	just	E	of Bobcaygeon Road	24	V039	asphalt
4	Water Street	just	E	of Bobcaygeon Road	24	V022	asphalt
5	Bobcaygeon Road	just	N	of Newcastle Street	24	V002	asphalt
6	Bobcaygeon Road	just	S	of Newcastle Street	24	V001	asphalt
7	Newcastle Street	just	E	of Bobcaygeon Road	24	V010	asphalt
8	Highland Gate Blvd	just	W	of CR 2 (Deep Bay Road)	24	V031	surface treated
9	Orde Connector	just	E	of CR 2 (Deep Bay Road)	24	V030	asphalt
10	Newcastle Street	just	W	of Hwy 35	24	V010	asphalt
11	Booth Street	just	W	of Hwy 35	24	V026	asphalt
12	Water Street	just	W	of Hwy 35	24	V024	asphalt
13	Panorama Park Road	just	N	of CR 16	24	M092	asphalt
14	Colonial Road	just	S	of CR 16	72	M024	gravel
15	IGA Road	just	W	of Bobcaygeon Road	24	V005	surface treated
16	Bobcaygeon Road	just	N	of Hwy 35	24	V001	asphalt
17	Renaissance Street	just	S	of Hwy 35	72	V004	gravel
18	Spring Valley Road	just	W	of Hwy 35	24	L050	surface treated
19	Crooked House Road	385m	E	of Hwy 118 (at the 90 degree bend)	24	M040	surface treated
20	Peterson Road	100m	W	of Crest Drive	72 + speed	M039	surface treated
21	Peterson Road	just	S	of Hwy 118	24	M039	surface treated
22	Maebar Road	just	W	of Hwy 35	24	M037	asphalt
23	Omagaki Road	just	W	of Hwy 35	24	M036	gravel
24	Omagaki Road	just	E	of Hwy 35	24	M036	gravel
25	Queens Line Road	just	S	of Hwy 118	24	M004	surface treated
26	Brady Lake Road	just	N	of Hwy 118	24	M001	surface treated
27	Bobcaygeon Road	just	S	of Hwy 118	24	M008	surface treated
28	Plantation Road	just	E	of Queens Line Road	72	M007	gravel
29	Mountain View Road	650m	E	of Hwy 35	72 + speed	M029	surface treated
30	Taylor Road	just	W	of Hwy 35	24	M031	surface treated
31	Dennison Road	just	E	of CR 20 (Horseshoe Lake Road)	24	M071	gravel
32	Red Umbrella Road	just	W	of Hwy 35	24	M032	surface treated
33	Blairhampton Road	just	W	of Hwy 21	24	M053C	surface treated
34	Wigamog Road	just	S	of Hwy 21	24	M061A	asphalt
35	Osprey Road	just	N	of Hwy 21	24	M062	surface treated
36	Caribou Road	just	S	of Hwy 21	24	M067B	surface treated
37	Cold Spring Road	just	E	of Caribou Road	72	M068	gravel
38	Caribou Road	just	E	of Hwy 21	24	M067A	surface treated
39	Bethel Road	just	W	of Hwy 21	24	M054	surface treated
40	Reynolds Road	just	E	of CR 20 (Horseshoe Lake Road)	24	M050	gravel
41	Shuylers Island Road	just	W	of Duck Lake Road	24	M049	gravel
42	Bethel Road	just	E	of CR 20 (Horseshoe Lake Road)	24	M054	surface treated
43	Scotch Line Road	just	W	of Hwy 35	24	M011	asphalt
44	Beer Lake Road	just	W	of Claude Brown Road	72	M023	surface treated
45	Bobcaygeon Road	400m	N	of Fleming Road	24	M010A	asphalt
46	Rotary Park Road	just	W	of Hwy 35	24	M096	surface treated

Township of Minden Hills Road Needs Study

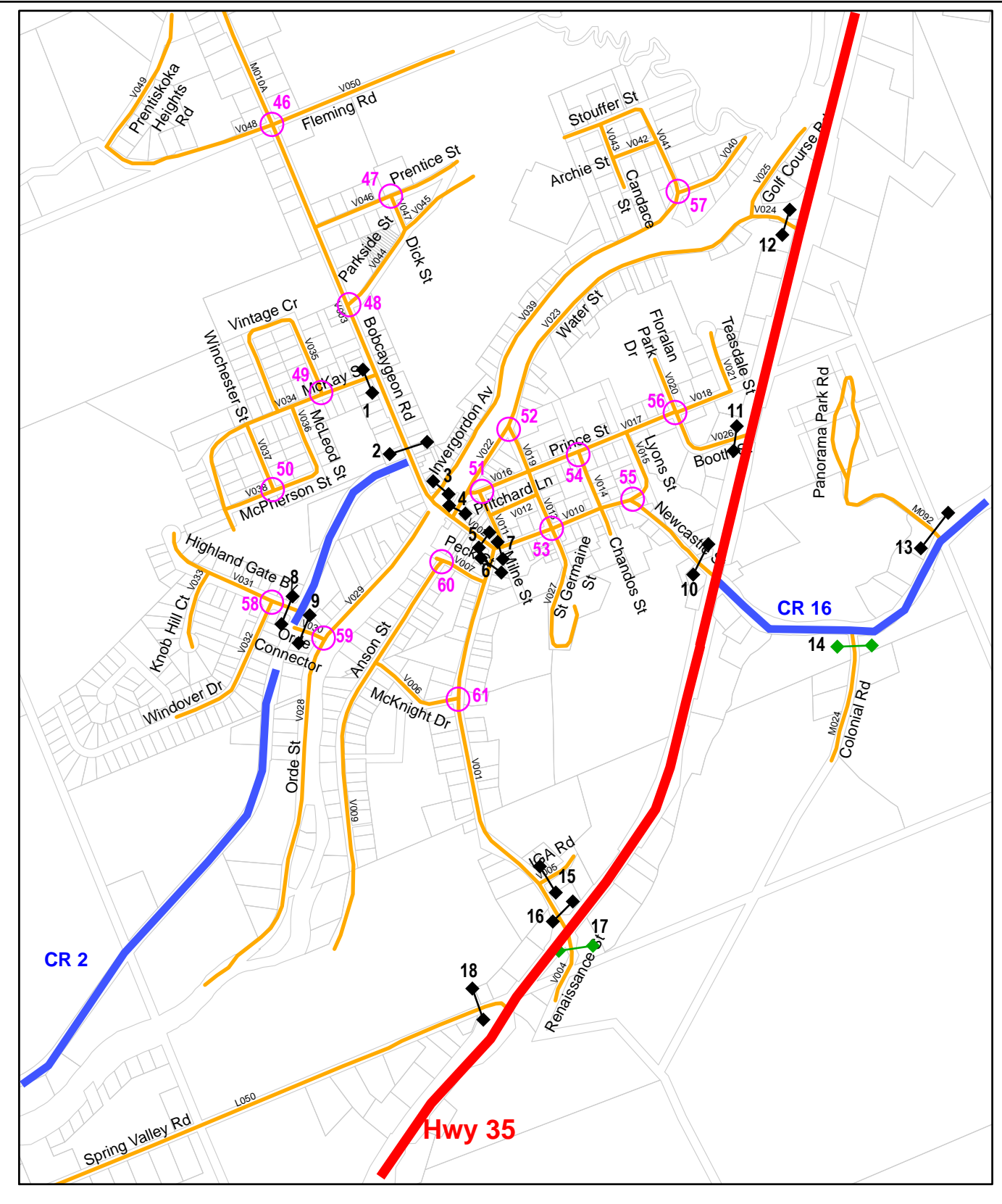
ATRs

Reference	Street	Location			Duration (hrs)	Section	Surface
47	Lugers Road	just	S	of Hwy 21	24	M083	surface treated
48	Welch Road	just	N	of Hwy 21	24	M082	gravel
49	Coxfarm Road	just	N	of Hwy 21	24	M080	surface treated
50	Conestoga Road	just	E	of CR 18 (Kashagawigamog Lake Road)	24	M074	gravel
51	Kelson Road	just	S	of CR 18 (Kashagawigamog Lake Road)	24	M075	surface treated
52	Tom Bolton Road	just	E	of CR 18 (Kashagawigamog Lake Road)	24	M078	surface treated
53	Pringle Road	just	S	of CR 1 (Gelert Road)	72	S014	gravel
54	Ritchie Falls Road	just	S	of CR 1 (Gelert Road)	24	S009	surface treated
55	Ritchie Falls Road			at Ritchie Falls	24	S010	gravel
56	Porkys Road	just	N	of CR 16 (S Lake Road)	24	s004	gravel
57	Snowdon Park Road	just	W	of CR 1 (Gelert Road)	24	S015	gravel
58	Hamilton Road	just	S	of CR 16 (S Lake Road)	24	S003	gravel
59	Hospitality Road	just	S	of CR 16 (S Lake Road)	24	S002	surface treated
60	Bat Lake Road	just	E	of CR 16 (S Lake Road)	24	M023	surface treated
61	Dugan Road	just	W	of CR 17	24	M090B	surface treated
62	Tennyson Road	just	W	of CR 2 (Deep Bay Road)	24	M021	surface treated
63	Mistivale Road	just	E	of CR 2 (Deep Bay Road)	24	L049	surface treated
64	Murdoch Road	just	S	of CR 2 (Deep Bay Road)	24	L047	gravel
65	Rackety Trail Road	just	S	of CR 2 (Deep Bay Road)	24	L045A	surface treated
66	Bob Lake Road	just	N	of CR 2 (Deep Bay Road)	24	L044	gravel
67	Sandy Bay Road	just	W	of Hwy 35	24	L032	surface treated
68	Hunter Creek Road	just	W	of Hwy 35	24	L035	surface treated
69	Ravine Road	just	E	of Hwy 35	24	L036	gravel
70	Denna Lake Road	just	W	of Hwy 121	24	L038	gravel
71	Vick Road	just	W	of CR 1 (Gelert Road)	24	S026	gravel
72	Milburn Road	just	E	of CR 1 (Gelert Road)	24	S030	gravel
73	Cemetery Road	just	E	of CR 1 (Gelert Road)	24	S051A	gravel
74	Sawdust Road	just	S	of Sedgwick Road	72	S025A	gravel
75	Milburn Road	just	W	of CR 503	24	S031	gravel
76	Irondale Road	just	S	of CR 503	24	S033	surface treated
77	Geeza Road	just	E	of CR 1 (Gelert Road)	72	S027	gravel
78	Devils Lake Road	just	E	of CR 2 (Deep Bay Road)	24	L043	gravel
79	Forsters Road	just	E	of CR 2 (Deep Bay Road)	72	L042	surface treated
80	Schaefers Road	just	E	of CR 2 (Deep Bay Road)	24	L041	gravel
81	Miners Bay Road	just	W	of Hwy 35	24	L027	surface treated
82	Humphrey Road	just	N	of Hwy 35	24	L026	gravel
83	Cecil Grant Drive	just	N	of Hwy 35	72	L025	gravel
84	Pacific Road	just	W	of Hwy 35	24	L023	surface treated
85	Wessell Road	just	S	of Hwy 35	72	L021	gravel
86	Iron Mine Road	just	E	of Davis Lake Road	72	L011	surface treated
87	Howland Road	just	E	of Hwy 121	24	S049	surface treated
88	Swinson Road	just	W	of Hwy 121	24	L013	asphalt
89	Boundary Road	just	W	of Hwy 121	24	L053	asphalt
90	Ron Road	just	N	of CR 503	24	S046	gravel
91	Mark Twain Road	just	N	of CR 503	24	S045	gravel
92	White Boundary Road	just	E	of CR 503	72	S044	gravel

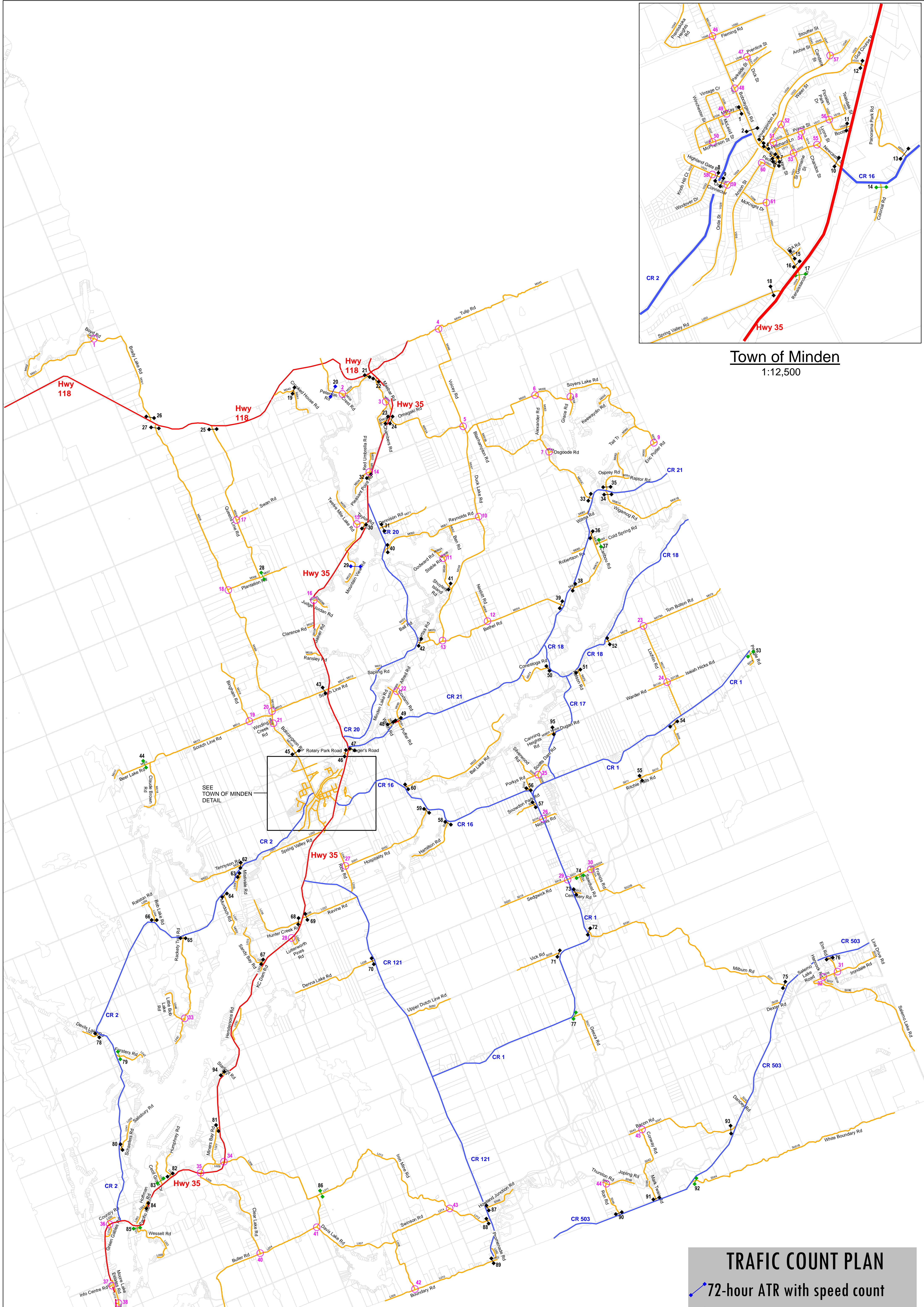
Township of Minden Hills Road Needs Study

ATRs

Reference	Street	Location	Duration (hrs)	Section	Surface
93	Bacon Road	just W of CR 503	24	S041	gravel
94	Starlight Road	just W of Hwy 35	24	L029	surface treated



Town of Minden
1:12,500



**Minden Hills
Roads Needs Study**
July 2018
1:50,000

TRAFFIC COUNT PLAN

- 72-hour ATR with speed count
- 72-hour ATR
- 24-hour ATR
- 4-hour intersection count

Appendix C: Road Inventory

Minden Hills Road Needs Study 2021

Master List - Road Sections & Existing Conditions

Asset ID	Road Name	From	To	Length (km)	Drainage	Roadside Environ	Road Class	O.Reg. Class	Lanes	Platform Width (m)	Surface Type	Surface Width (m)	Shoulder Type	Shoulder Width (m)	Posted Speed (km/h)	2018 AADT	PCI
M063	Alexander Road	Blairhampton Road	Blairhampton Road	1.6	open ditch	rural	local	6	2	6.5	gravel	6.5	earth/dirt		50	40	66
M089	Alfred Road	Coxfarm Road	250m North of Coxfarm Road	0.3	open ditch	rural	local	6	2	7.1	surface treated	6.5	earth/dirt	0.3	50	5	83
V009	Anson St	Peck St	960m South	1.0	open ditch	rural	local	5	2	7.4	surface treated	7	earth/dirt	0.2	50	220	58
V042	Archie St	Candace St	Stouffer St	0.1	no ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	40	58
S041	Bacon Road	CR 503	Conway Road	3.4	no ditch	rural	local	6	2	8.5	gravel	6.5	earth/dirt	1.0	50	135	85
S043	Bacon Road	Conway Road	430m West	0.4	no ditch	rural	local	6	2	5	gravel	5	earth/dirt		50	75	88
M072	Ball Road	CR 20	200m West of CR 20	0.2	open ditch	rural	local	6	2	6	gravel	4	earth/dirt	1.0	50	10	50
M023	Bat Lake Road	CR 16	4.7km East of CR 16	4.7	open ditch	rural	local	6	2	6.5	surface treated	6.3	earth/dirt	0.1	50	195	43
M016	Beer Lake Road	Claude Brown Road	430m west of Claude Brown Road	0.4	open ditch	rural	local	6	2	7	surface treated	5	earth/dirt	1.0	50	25	23
M017	Beer Lake Road	430m West of Claude Brown Road	1.4km West of Claude Brown Road	1.0	open ditch	rural	local	6	2	5	gravel	4.6	earth/dirt	0.2	50	10	47
M052	Ben Road	Reynolds Road	300m South of Reynolds Road	0.3	open ditch	rural	local	6	2	4.8	gravel	4.8	earth/dirt		50	10	75
M054	Bethel Road	CR 20	CR 21	5.2	open ditch	rural	local	5	2	7.2	surface treated	6.6	earth/dirt	0.3	50	315	48
M019	Bingham Road	Scotch Line Road	2.2km North of Scotch Line Road	2.2	open ditch	rural	local	6	2	7	gravel	6	earth/dirt	0.5	50	55	60
M053A	Blairhampton Road	Highway 35	Duck Lake Road	3.2	open ditch	rural	local	5	2	8	surface treated	8	earth/dirt		50	275	50
M053B	Blairhampton Road	Duck Lake Road	3.1km Easterly	3.2	open ditch	rural	local	5	2	7	surface treated	7	earth/dirt		50	400	49
M053C	Blairhampton Road	3.1km Easterly	CR 21	2.7	open ditch	rural	local	5	2	7	surface treated	7	earth/dirt		50	385	49
L044	Bob Lake Road	CR 2	Ralston Road	0.7	open ditch	rural	local	6	2	7.5	gravel	6.5	earth/dirt	0.5	50	25	70
M010A	Bobcaygeon Road	Scotch Line Road	Fleming Road	2.1	open ditch	rural	collector	4	2	8.4	asphalt	7.4	earth/dirt	0.5	50	1185	89
V001	Bobcaygeon Road	Highway 35	Peck St	0.9	no ditch	urban	collector	4	2	10.1	asphalt	9.1	asphalt	0.5	40	3445	88
V002	Bobcaygeon Road	Peck St	Water St	0.2	no ditch	urban	collector	5	2	12.7	asphalt	11.7		0.5	40	2515	89
V003	Bobcaygeon Road	Water Street	Fleming Road	1.0	no ditch	urban	collector	5	2	9.5	asphalt	8.5		0.5	40	2495	62
M008	Bobcaygeon Road	Highway 118	Plantation Road	5.8	open ditch	rural	local	6	2	7.4	surface treated	6.8	earth/dirt	0.3	50	135	31
M009	Bobcaygeon Road	Plantation Road	2.9km S of Plantation	2.9	open ditch	rural	local	5	2	7.4	surface treated	6.8	earth/dirt	0.3	50	300	54
M010B	Bobcaygeon Road	2.9km S of Plantation	Scotch Line Road	1.4	open ditch	rural	local	5	2	8.2	surface treated	7.6	earth/dirt	0.3	50	610	33
V026	Booth St	Highway 35	Prince St	0.2	open ditch	rural	local	5	2	10	asphalt	8	earth/dirt	1.0	50	770	90
L053	Boundary Road	CR 121	55m East of CR 121	0.1	open ditch	rural	local	6	2	8.1	gravel	6.1	gravel	1.0	50	125	54
L009	Boundary Road	Davis Lake Road	Morgan Trail	1.0	open ditch	rural	local	6	2	6.2	gravel	6.2	earth/dirt		50	30	72
L010	Boundary Road	Davis Lake Road	to 55m West of CR 21	2.8	open ditch	rural	local	6	2	6.3	gravel	5.9	earth/dirt	0.2	50	45	76
M003	Boyd Road	Brady Lake Road	Whippoorwill Lane	0.3	open ditch	rural	local	6	2	5.9	gravel	5.9	earth/dirt		50	50	74
M001	Brady Lake Road	Highway 118	Rugged Lane	2.8	open ditch	rural	local	6	2	7.6	asphalt	7	earth/dirt	0.3	50	70	82
M001A	Brady Lake Road	Rugged Lane	One Mile Dr	3.7	open ditch	rural	local	6	2	7.6	surface treated	7	earth/dirt	0.3	50	45	90
M002	Brady Lake Road	One Mile Dr	100m North of Viceroy Dr	0.9	no ditch	rural	local	6	2	6	gravel	6	earth/dirt		50	40	77
Z003	Brunswick Drive	Ramsey Road	Highway 35	0.1	open ditch	rural	local	6	1	4	gravel	4	earth/dirt		50	15	79
L003	Buller Road	Clear Lake Road	Spar Lake Road	4.7	open ditch	rural	local	6	2	7.3	surface treated	7.1	gravel	0.1	50	60	66
L004	Buller Road	Davis Lake Road	Clear Lake Road	2.0	open ditch	rural	local	6	2	6.1	surface treated	5.7	earth/dirt	0.2	50	40	67
V043	Candace St	Stouffer St	150m South of Stouffer	0.2	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	30	55
M090A	Canning Heights Road	Dugan Road	160 m West of Dugan Road	0.2	no ditch	rural	local	6	2	5.8	gravel	5.8	earth/dirt		50	30	39
M067A	Caribou Road	Cold Spring Road	1.4 km (W) of Cold Spring Road	1.4	open ditch	rural	local	6	2	7.1	surface treated	6.5	gravel	0.3	50	85	62
M067B	Caribou Road	CR 21	CR 21	0.8	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	80	62

Minden Hills Road Needs Study 2021

Master List - Road Sections & Existing Conditions

Asset ID	Road Name	From	To	Length (km)	Drainage	Roadside Environ	Road Class	O.Reg. Class	Lanes	Platform Width (m)	Surface Type	Surface Width (m)	Shoulder Type	Shoulder Width (m)	Posted Speed (km/h)	2018 AADT	PCI
M067C	Caribou Road	CR 21	CR 21	0.2	open ditch	rural	local	6	2	7.1	surface treated	6.5	gravel	0.3	50	80	62
L025	Cecil Grant Dr	Highway 35	500m North of Highway 35	0.8	no ditch	rural	local	6	1	3	gravel	3	earth/dirt		50	10	69
S051A	Cemetery Road	CR 1	250m East of CR 1	0.3	no ditch	rural	local	6	2	5.5	gravel	5.5	earth/dirt		50	40	68
M035	Chambers Road	Highway 35	Maebur Road	1.4	no ditch	rural	local	6	2	5.5	gravel	5.5	earth/dirt		40	25	80
V014	Chandos St	60m South of Newcastle St	Prince St	0.2	open ditch	semi-urban	local	6	2	8	surface treated	6	earth/dirt	1.0	50	100	16
M027	Clarence Road	Highway 35	200m West of Highway 35	0.2	open ditch	rural	local	6	2	4.6	gravel	4.6	earth/dirt		50	30	84
M018	Claude Brown Road	Beer Lake Road	1.7km South of Beer Lake Road	1.7	open ditch	rural	local	6	2	8	surface treated	6	earth/dirt	1.0	50	150	28
L005	Clear Lake Road	Buller Road	Highway 35	3.7	open ditch	rural	local	6	2	6.7	surface treated	6.5	earth/dirt	0.1	50	120	90
M068	Cold Spring Road	Caribou Road	400m East	0.4	open ditch	rural	local	6	2	4.4	gravel	4.4	earth/dirt		50	10	73
M024	Colonial Road	CR 16	300m South of CR 16	0.3	open ditch	rural	local	6	2	5.4	gravel	5	earth/dirt	0.2	50	20	69
M074	Conestoga Road	CR 21	CR 18	1.3	open ditch	rural	local	6	2	6.5	gravel	6.5	earth/dirt		50	35	72
S042	Conway Road	Bacon Road	Embassy Drive	1.9	no ditch	rural	local	6	2	6.7	gravel	6.5	earth/dirt	0.1	50	105	86
L020	Country Road	Highway 35	500m North	0.4	no ditch	rural	local	5	2	6.1	surface treated	5.3	earth/dirt	0.4	50	200	87
M080	Coxfarm Road	CR 21	1.3km North of CR 21	1.3	open ditch	rural	local	6	2	6.8	surface treated	6.8	earth/dirt		50	145	66
M038	Crest Drive	Peterson Road	End of Road	0.3	open ditch	rural	local	6	2	6	gravel	6	earth/dirt		50	25	92
M040	Crooked House Road	Highway 118	390m East of Highway 118	0.4	open ditch	rural	local	6	2	7.1	surface treated	6.5	gravel	0.3	50	60	88
M041	Crooked House Road	390m East of Highway 118	1400m East of Highway 118	1.1	open ditch	rural	local	6	2	7.1	surface treated	6.5	earth/dirt	0.3	50	40	81
M070	Curtiss Road	Bethel Road	450m North of Bethel Road	0.5	open ditch	rural	local	6	2	6.6	gravel	6	earth/dirt	0.3	50	50	75
S040	Dancey Road	CR 503	250m North	0.3	open ditch	rural	local	6	2	5.1	gravel	4.7	earth/dirt	0.2	50	10	86
L006	Davis Lake Road	Buller Road	Highway 35	4.8	open ditch	rural	local	5	2	7.1	surface treated	6.5	earth/dirt	0.3	50	205	54
L007	Davis Lake Road	Buller Road	Swinson Road	2.9	open ditch	rural	local	6	2	7.5	surface treated	6.5	earth/dirt	0.5	50	70	60
L008	Davis Lake Road	Boundary Road	Swinson Road	1.8	open ditch	rural	local	6	2	7.2	surface treated	7	earth/dirt	0.1	50	20	38
L028	Davis Lake Road	Miners Bay Road	Highway 35	0.3	open ditch	rural	local	6	2	6.9	surface treated	6.5	earth/dirt	0.2	50	55	57
L038	Denna Lake Road	CR 121	230m West of Periwinkle Trail	2.8	open ditch	rural	local	6	2	6.4	gravel	6	earth/dirt	0.2	50	85	72
M071	Dennison Road	CR 20	1.6km East of CR 20	1.7	open ditch	rural	local	6	2	5.7	gravel	5.7	earth/dirt		50	55	56
L043	Devils Lake Road	CR 2	Boat Launch	0.6	open ditch	rural	local	6	2	6.4	gravel	6	earth/dirt	0.2	50	40	80
S039	Dexter Road	CR 503	260m West	0.3	open ditch	rural	local	6	2	5	gravel	5	earth/dirt		50	10	82
V047	Dick St	Parkside St	Prentice St	0.1	no ditch	rural	local	6	2	8	asphalt	8	earth/dirt		50	115	59
M047	Duck Lake Road	3.0 km North of Bethel Road	Blairhampton Road	4.3	open ditch	rural	local	5	2	7.3	surface treated	6.7	earth/dirt	0.3	50	200	54
M048	Duck Lake Road	Bethel Road	3.0km North of Bethel Road	3.0	open ditch	rural	local	5	2	7.3	surface treated	6.7	earth/dirt	0.3	50	225	67
M090B	Dugan Road	CR 17	110m West of CR 17	0.1	open ditch	rural	local	6	2	4.3	surface treated	4.1	earth/dirt	0.1	50	40	43
S038	Elm Road	Salerno Lake Road	100m South	0.1	no ditch	rural	local	6	2	4.6	gravel	4.6	earth/dirt		50	5	77
M095	Eric Potter Road	Soyers Lake Road	580m South of Soyers Lake d	0.6	no ditch	rural	local	6	2	5	gravel	5	earth/dirt		50	85	64
Z002	Fire Route 375	Country Road 503	700m West of County Road 503	0.7	open ditch	rural	local	6	1	3.1	gravel	3.1	earth/dirt		50	5	56
V050	Fleming Road	Bobcaygeon Road	450m East	0.4	no ditch	rural	local	6	2	6.5	gravel	6.5	earth/dirt		50	60	78
V048	Fleming Road	Bobcaygeon Road	Prentiskoka Heights Road	0.4	open ditch	rural	local	5	2	8.8	asphalt	6.8	earth/dirt	1.0	50	375	93
V020	Floralan Park Dr	Prince St	End	0.1	open ditch	semi-urban	local	5	2	9	asphalt	7	earth/dirt	1.0	50	245	63
L042A	Forsters Road	CR 2	0.1km East of CR 2	0.1	no ditch	rural	local	6	2	6.6	surface treated	6	earth/dirt	0.3	50	55	61
L042B	Forsters Road	0.1km East of CR 2	1.0km East of CR 2	0.9	no ditch	rural	local	6	2	4	gravel	4	earth/dirt		50	55	48

Minden Hills Road Needs Study 2021

Master List - Road Sections & Existing Conditions

Asset ID	Road Name	From	To	Length (km)	Drainage	Roadside Environ	Road Class	O.Reg. Class	Lanes	Platform Width (m)	Surface Type	Surface Width (m)	Shoulder Type	Shoulder Width (m)	Posted Speed (km/h)	2018 AADT	PCI
S022A	Francis Road	Sedgwick Road	300m South of Sedgwick Road	0.3	open ditch	rural	local	6	2	6	surface treated	6	earth/dirt		50	45	62
S022B	Francis Road	300m South of Sedgwick Road	2.3km South of Sedgwick Road	2.0	no ditch	rural	local	6	2	5.4	gravel	5.4	earth/dirt		50	15	64
M026	Gainer Road	Highway 35	400m North of Highway 35	0.4	open ditch	rural	local	6	2	4.6	gravel	4.6	earth/dirt		50	50	66
S027	Geeza Road	CR 1	1.5km South of CR 1	1.5	open ditch	rural	local	6	2	6	gravel	6	earth/dirt		50	35	61
M085A	Godward Road	Shuylers Island Road	150m North of Shuyers Island Road	0.2	open ditch	rural	local	6	2	4.8	gravel	4.8	earth/dirt		50	20	81
V025	Golf Course Road	Water St	240m North of Water St	0.2	open ditch	rural	local	5	2	8.8	surface treated	6.8	earth/dirt	1.0	50	200	47
M058	Grace Road	Soyers Lake Road	620m South of Soyers Lake Road	0.6	open ditch	rural	local	6	2	6.3	surface treated	6.3	earth/dirt		50	10	67
L018	Green Gables Road	Highway 35	Highway 35	0.5	open ditch	rural	local	6	2	6.4	asphalt	6	earth/dirt	0.2	50	140	90
S003	Hamilton Road	CR 16	1.8km South of CR 16	1.8	open ditch	rural	local	6	2	6.2	gravel	6.2	earth/dirt		50	185	83
S037	Hancock Road	Salerno Lake Road	400m South of Salerno Lake Road	0.4	no ditch	rural	local	6	2	4.7	gravel	4.7	earth/dirt		50	10	69
L030	Hendersons Road	Highway 35	Highway 35	1.1	open ditch	rural	local	6	2	6.6	asphalt	5.6	earth/dirt	0.5	50	10	25
V031	Highland Gate Bv	CR 2	360m West of CR 2 (end)	0.4	open ditch	rural	local	5	2	9.6	surface treated	8	earth/dirt	0.8	50	405	91
L024	Hoffman Road	Pacific Road	175m North of Pacific Road	0.2	open ditch	rural	local	6	2	5.2	gravel	5.2	earth/dirt		50	10	88
S001	Hospitality Road	2.7km South of CR 16	Rice Road	0.7	open ditch	rural	local	6	2	7.6	surface treated	7.2	earth/dirt	0.2	50	85	74
S002	Hospitality Road	CR 16	2.7km South of CR 16	2.7	open ditch	rural	local	5	2	7.6	surface treated	7.2	earth/dirt	0.2	50	210	80
S049	Howland Junction Road	CR 121	1.1km East of CR 121	1.1	open ditch	rural	local	6	2	5.7	asphalt	5.7	earth/dirt		50	185	90
L026	Humphrey Road	Highway 35	55m North of Orchid Lane	0.9	no ditch	rural	local	6	2	6.4	gravel	6.4	earth/dirt		50	10	66
L035	Hunter Creek Road	Highway 35	Woodglade Lane	2.2	open ditch	rural	local	6	2	7.4	surface treated	6.8	earth/dirt	0.3	50	155	87
Z001	Hyacinth Road	County Road 2	Mistivale Road	0.3	open ditch	rural	local	6	2	6.9	surface treated	6.5	earth/dirt	0.2	30	40	90
V005	IGA Road	Bobcaygeon Road	100m East of Bobcaygeon Road	0.1	sewer & ditch	semi-urban	local	4	2	8.5	asphalt	8.5	asphalt		50	1470	100
L017	Info Centre Road	Highway 35	140m West	0.1	no ditch	rural	local	6	2	4.5	gravel	4.5	earth/dirt		50	70	85
V039	Invergordon Av	Bobcaygeon Road	Stouffer St	0.9	storm sewer	semi-urban	local	5	2	8.9	asphalt	8.9	earth/dirt		50	415	48
V040	Invergordon Av	Stouffer St	200m East of Stouffer St	0.2	open ditch	rural	local	6	2	5.6	surface treated	5.6	earth/dirt		50	80	40
L011	Iron Mine Road	Davis Lake Road	Landfill	0.5	open ditch	rural	local	6	2	6.4	surface treated	6	earth/dirt	0.2	50	25	62
L012	Iron Mine Road	Landfill	Swinson Road	5.8	no ditch	rural	local	6	1	2.9	gravel	2.9	earth/dirt		50	20	17
S033	Irondale Road	CR 503	Line Dr Road	1.9	open ditch	rural	local	5	2	8	surface treated	6	earth/dirt	1.0	50	225	70
S013B	Isaiah Hicks Road	Lochlin Road	550m East of Lochlin Road	0.6	no ditch	rural	local	6	2	5.7	gravel	5.7	earth/dirt		50	25	78
S048	Jopling Road	Ron Road	930m East of Ron Road	0.9	open ditch	rural	local	6	2	6.3	gravel	5.3	earth/dirt	0.5	50	10	76
M028A	Judge Jordan Road	Highway 35	Rusty Stream Lane	0.1	no ditch	rural	local	6	2	5.3	surface treated	5.3	earth/dirt		50	60	68
M028B	Judge Jordan Road	Rusty Stream Lane	450m South of Rusty Stream Lane	0.5	open ditch	rural	local	6	2	6.8	surface treated	6.8	earth/dirt		50	30	68
L057	KC Dam Road	Highway 35	130m South of Highway 35	0.1	no ditch	rural	local	6	2	6	surface treated	6	earth/dirt		50	10	40
M059	Keewaydin Road	Soyers Lake Road	500m West of Soyers Lake Road	0.5	open ditch	rural	local	6	2	6.6	surface treated	6	earth/dirt	0.3	50	25	43
M075	Kelson Road	CR 18	580m South of CR 18	0.6	open ditch	rural	local	6	2	8.1	surface treated	7.5	earth/dirt	0.3	50	135	66
V033	Knob Hill Ct	Highland Gate Blvd	180m South of Highland Gate Blvd (end)	0.2	open ditch	rural	local	6	2	9.6	surface treated	8	earth/dirt	0.8	50	130	85
L054	Laxton/Lutterworth Boun	Highway 35	135m East of Highway 35	0.1	open ditch	rural	local	6	2	4.3	gravel	4.3	earth/dirt		50	5	77
S034	Line Drive	Irondale Road	180m North of Irondale Road	0.2	no ditch	rural	local	6	1	3	gravel	3	earth/dirt		50	10	97
L046	Little Bob Lake Road	Rackety Trail Road	1.3km North of Rackety Trail Road	1.3	open ditch	rural	local	6	2	6.4	surface treated	6	earth/dirt	0.2	50	45	63
M077	Lochlin Road	CR 1	Tom Bolton Road	3.1	open ditch	rural	local	6	2	7.1	surface treated	6.5	earth/dirt	0.3	50	115	91
M083	Lugers Road	Highway 35	CR 21	0.2	no ditch	rural	local	6	2	6	surface treated	6	earth/dirt		50	65	26

Minden Hills Road Needs Study 2021

Master List - Road Sections & Existing Conditions

Asset ID	Road Name	From	To	Length (km)	Drainage	Roadside Environ	Road Class	O.Reg. Class	Lanes	Platform Width (m)	Surface Type	Surface Width (m)	Shoulder Type	Shoulder Width (m)	Posted Speed (km/h)	2018 AADT	PCI
L034	Lutterworth Pines Road	Highway 35	1114 Lutterworth Pines Road	0.6	open ditch	rural	local	6	2	7.7	surface treated	7.3	earth/dirt	0.2	50	165	85
V015	Lyons St	Newcastle St	Prince St	0.2	no ditch	semi-urban	local	6	2	7.6	surface treated	6	earth/dirt	0.8	50	60	32
M037	Maebar Road	Highway 35	Highway 35	1.2	open ditch	rural	local	6	2	6.2	surface treated	6.2	earth/dirt		50	65	50
S045	Mark Twain Road	CR 503	670m North of CR 503	0.7	no ditch	rural	local	6	2	5.1	gravel	5.1	earth/dirt		50	35	78
V034	McKay St	Bobcaygeon Road	Hospital	0.6	open ditch	semi-urban	local	4	2	6.5	asphalt	6.5	earth/dirt		50	1115	42
V006	McKnight Dr	Anson St	Bobcaygeon Road	0.2	open ditch	rural	local	6	2	7.5	surface treated	7.5	earth/dirt		50	195	48
V036	McLeod St	McPherson St	McKay St	0.2	open ditch	semi-urban	local	6	2	5.6	asphalt	5.6	earth/dirt		50	70	58
V038	McPherson St	McKay St	McLeod St	0.2	open ditch	semi-urban	local	6	2	6	asphalt	6	earth/dirt		50	70	66
S031	Milburn Road	6.5 km East of CR 1	CR 503	1.4	open ditch	rural	local	6	2	6.4	gravel	6.2	earth/dirt	0.1	50	70	58
S030	Milburn Road	CR 1	6.5km East of CR 1	6.5	open ditch	rural	local	6	2	6	gravel	5.6	earth/dirt	0.2	50	110	53
V011	Milne St	Newcastle St	Prince St	0.1	no ditch	urban	local	5	2	11.4	asphalt	11.4	asphalt		50	735	60
M084	Minden Lake Road	Coxfarm Road	500m South of Coxfarm Road	0.5	open ditch	rural	local	6	2	7.6	surface treated	6.6	earth/dirt	0.5	50	80	74
L027	Miners Bay Road	Highway 35	Highway 35	1.8	open ditch	rural	local	6	2	6.9	surface treated	6.5	earth/dirt	0.2	50	80	37
L049	Mistivale Road	CR 2	630m South of CR 2	0.6	open ditch	rural	local	6	2	6.9	surface treated	6.5	earth/dirt	0.2	50	65	56
L015	Moore Lake Estates Road	Highway 35	Highway 35	0.9	no ditch	rural	local	6	2	6.2	surface treated	6	earth/dirt	0.1	50	195	60
M029	Mountain View Road	Highway 35	Twelve Mile Lake Road	1.2	open ditch	rural	local	6	2	7.1	surface treated	6.5	earth/dirt	0.3	50	20	52
L047	Murdoch Road	CR 2	1.2km South of CR 2	1.2	open ditch	rural	local	6	2	6.4	gravel	6	earth/dirt	0.2	50	85	79
M093	Murdoch Road	1.2km South of CR 2	1.5km South of CR 2	0.3	open ditch	rural	local	6	1	4	gravel	4	earth/dirt		50	25	74
M069	Nesbitt Road	Bethel Road	1.0km North of Bethel Road	1.0	no ditch	rural	local	6	2	6.2	gravel	6.2	earth/dirt		50	55	78
V010	Newcastle St	Bobcaygeon Road	Highway 35	0.6	storm sewer	urban	collector	5	2	12	asphalt	10	asphalt	1.0	40	1160	69
S017	Nichols Road	CR 1	460m East of CR 1	0.5	no ditch	rural	local	6	2	7.4	surface treated	6.8	earth/dirt	0.3	50	120	64
S016	Nichols Road	CR 1	340m West of CR 1	0.3	no ditch	rural	local	6	2	5.4	gravel	5.4	earth/dirt		50	60	56
M036	Omagaki Road	Highway 35	Chambers Road	0.3	no ditch	rural	local	6	2	5.3	gravel	5.3	earth/dirt		40	30	78
V030	Orde Connector	CR 2	Orde St	0.1	open ditch	rural	local	6	2	8	asphalt	8	earth/dirt		50	180	80
V028	Orde St	Orde Connector	880m South of Orde Conn.	0.9	open ditch	rural	local	6	2	7.5	asphalt	6.5	earth/dirt	0.5	50	75	82
V029	Orde St	Orde Connector	380m North of Orde Conn.	0.4	no ditch	rural	local	6	2	7.5	asphalt	6.5	earth/dirt	0.5	50	130	83
M064	Osgoode Road	Blairhampton Road	140m East of Blairhampton Road	0.1	no ditch	rural	local	6	2	6.2	gravel	5.2	gravel	0.5	50	15	77
M062	Osprey Road	CR 21	1.8km North of CR 21	1.8	no ditch	rural	local	6	2	6.1	surface treated	6.1	earth/dirt		50	85	74
L023	Pacific Road	Highway 35	70m South of Colby Lane	0.4	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	35	59
L060	Pacific Road	70m South of Colby Lane	360m South of Colby Lane	0.3	no ditch	rural	local	6	1	3.6	gravel	3.6	earth/dirt		50	10	83
M092	Panorama Park Road	CR 16	800m North of CR 16	0.8	open ditch	rural	local	6	2	5.4	asphalt	5	earth/dirt	0.2	50	110	82
V044	Parkside St	Bobcaygeon Road	Dick St	0.2	storm sewer	semi-urban	local	5	2	9	asphalt	9	earth/dirt		50	520	94
V045	Parkside St	Dick St	Arena	0.2	storm sewer	rural	local	5	2	9	asphalt	9	earth/dirt		50	500	87
V007	Peck St	Bobcaygeon Road	Anson St	0.1	storm sewer	urban	local	6	2	8.6	asphalt	7		0.8	50	145	96
M039	Peterson Road	Highway 118	Highway 118	2.3	open ditch	rural	local	6	2	7.1	surface treated	6.5	earth/dirt	0.3	50	25	38
M006	Plantation Road	Bobcaygeon Road	Queens Line Road	1.1	open ditch	rural	local	6	2	7.3	asphalt	7	earth/dirt	0.2	50	105	88
M007	Plantation Road	Queens Line Road	900m East of Queens Line Road	0.9	open ditch	rural	local	6	2	6.3	gravel	6.3	earth/dirt		50	60	74
M034	Pleasant Point Road	Red Umbrella Road	900m South of Red Umbrella Road	0.9	open ditch	rural	local	6	2	5	gravel	5	earth/dirt		50	30	74
S004	Porkys Road	CR 16	Scotts Dam Road	0.8	open ditch	rural	local	6	2	6.8	gravel	6.8	earth/dirt		50	65	76

Minden Hills Road Needs Study 2021

Master List - Road Sections & Existing Conditions

Asset ID	Road Name	From	To	Length (km)	Drainage	Roadside Environ	Road Class	O.Reg. Class	Lanes	Platform Width (m)	Surface Type	Surface Width (m)	Shoulder Type	Shoulder Width (m)	Posted Speed (km/h)	2018 AADT	PCI
V046	Prentice St	Bobcaygeon Road	Community Center	0.4	open ditch	rural	local	5	2	6.4	asphalt	6.4	earth/dirt		50	260	61
V049	Prentiskoka Heights Road	Fleming Road	Snow Plow Turn Around	0.3	open ditch	rural	local	6	2	7.8	surface treated	6.8	earth/dirt	0.5	50	100	90
V016	Prince St	Water St	St. Germaine St	0.2	storm sewer	urban	local	5	2	9.3	asphalt	9	asphalt	0.2	50	940	50
V017	Prince St	St. Germaine St	Floralan Park Dr	0.4	open ditch	semi-urban	local	5	2	9	asphalt	7		1.0	50	745	43
V018	Prince St	Floralan Park Dr	Teasdale St	0.1	open ditch	semi-urban	local	6	2	8.1	asphalt	7.5	earth/dirt	0.3	50	125	47
S014	Pringle Road	CR 1	520m South of CR 1	0.5	no ditch	rural	local	6	2	5	gravel	5	earth/dirt		50	45	80
V012	Pritchard Lane	Milne St	St. Germaine St	0.1	storm sewer	urban	local	5	2	12.7	asphalt	12.7	asphalt		50	500	65
L052	Promenade Road	CR 121	CR 121	0.4	no ditch	rural	local	6	2	5	asphalt	5	earth/dirt		50	25	53
M081	Puffer Road	CR 21	240m South of CR 21	0.2	open ditch	rural	local	6	2	6.5	surface treated	5.5	earth/dirt	0.5	50	10	32
M004	Queens Line Road	Plantation Road	Highway 118	5.4	open ditch	rural	local	6	2	7.6	surface treated	7	earth/dirt	0.3	50	120	30
L045	Rackety Trail Road	CR 2	3.7km South of CR 2	3.7	open ditch	rural	local	6	2	6.6	surface treated	6	earth/dirt	0.3	50	135	66
L056	Ralston Road	Bob Lake Road	270m West of Bob Lake Road	0.3	no ditch	rural	local	6	2	5.2	gravel	4.8	earth/dirt	0.2	50	20	68
M025	Ransley Road	Highway 35	500m West of Highway 35	0.5	open ditch	rural	local	6	2	4.6	gravel	4.6	earth/dirt		50	20	57
M094	Raptor Road	Osprey Road	200m East	0.2	no ditch	rural	local	6	1	3	gravel	3	earth/dirt		50	5	47
L036	Ravine Road	Highway 35	500m East of Highway 35	0.5	open ditch	rural	local	6	2	6.6	gravel	6.2	earth/dirt	0.2	50	145	89
L037	Ravine Road	500m East of Highway 35	CR 121	1.3	open ditch	rural	local	6	2	6.6	gravel	6.2	earth/dirt	0.2	50	150	76
M032	Red Umbrella Road	Highway 35	600m North of Highway 35	0.6	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	120	72
M033	Red Umbrella Road	600m North of Highway 35	950m North of Highway 35	0.4	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	70	78
V004	Renaissance St	Highway 35	165m South of Highway 35	0.2	open ditch	rural	local	6	2	7.7	gravel	5.7	earth/dirt	1.0	50	20	57
M051	Reynolds Road	80m West of Jamieson Dr	Duck Lake Road	1.3	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	160	64
M050	Reynolds Road	CR 20	80m West of Jamieson Dr	2.2	no ditch	rural	local	6	2	4.8	gravel	4.8	earth/dirt		50	180	65
L039	Rice Road	CR 121	Hospitality Road	0.8	open ditch	rural	local	6	2	6.4	surface treated	6	earth/dirt	0.2	50	110	90
L040	Rice Road	Hospitality Road	460m North of Hospitality Road	0.5	open ditch	rural	local	6	2	5.3	gravel	4.7	earth/dirt	0.3	50	35	74
S009	Ritchie Falls Road	CR 1	1.1km South of CR 1	1.1	open ditch	rural	local	6	2	7.1	surface treated	6.5	earth/dirt	0.3	50	175	90
S010	Ritchie Falls Road	1.3 km South of CR 1	Bridge	1.5	open ditch	rural	local	6	2	7.2	gravel	7	earth/dirt	0.1	50	25	72
S011	Ritchie Falls Road	Bridge	End of Road	1.0	no ditch	rural	local	6	1	3.2	gravel	3.2	earth/dirt		50	30	67
M066	Robertson Road	CR 21	450m West of CR 21	0.5	no ditch	rural	local	6	2	5.5	gravel	5.5	earth/dirt		50	30	69
S046	Ron Road	CR 503	Thurston Road	1.1	open ditch	rural	local	6	2	6.22	gravel	6	earth/dirt	0.1	50	30	80
M096	Rotary Park Road	Highway 35	118 m West of Highway 35	0.1	open ditch	rural	local	6	2	5	surface treated	5	earth/dirt		50	90	76
S036	Salerno Lake Road	Bumblebee Lane	Twist Lane	3.2	open ditch	rural	local	6	2	6.5	gravel	6.5	earth/dirt		50	65	60
S035	Salerno Lake Road	Irondale Road	Bumblebee Lane	0.8	open ditch	rural	local	6	2	8.5	surface treated	6.5	earth/dirt	1.0	50	70	58
L058	Salisbury Road	Schaefers Road	60m East of Schaefers Road	0.1	open ditch	rural	local	6	2	6	gravel	6	earth/dirt		50	10	81
L032	Sandy Bay Road	Highway 35	60m North of Magistrate Dr	0.3	open ditch	rural	local	6	2	7.4	surface treated	6.8	earth/dirt	0.3	50	70	40
L033	Sandy Bay Road	60m North of Magistrate Dr	Loyalist Dr	1.2	no ditch	rural	local	6	2	5.2	gravel	5.2	earth/dirt		50	35	55
M073	Sapling Road	CR 20	120m North of CR 20	0.1	open ditch	rural	local	6	1	4	gravel	4	earth/dirt		50	100	55
S025A	Sawdust Road	Sedgwick Road	240m South	0.2	open ditch	rural	local	6	2	5	gravel	5	earth/dirt		50	25	74
L041	Schaefers Road	CR 2	Sallsbury Road	1.0	open ditch	rural	local	6	2	6.8	gravel	6.2	earth/dirt	0.3	50	25	72
M013	Scotch Line Road	Highway 35	Bobcaygeon Road	1.9	open ditch	rural	local	5	2	7.9	surface treated	7.3	earth/dirt	0.3	50	530	32
M014	Scotch Line Road	Bobcaygeon Road	Binghan Road	0.8	open ditch	rural	local	5	2	8.5	surface treated	6.5	earth/dirt	1.0	50	280	59

Minden Hills Road Needs Study 2021

Master List - Road Sections & Existing Conditions

Asset ID	Road Name	From	To	Length (km)	Drainage	Roadside Environ	Road Class	O.Reg. Class	Lanes	Platform Width (m)	Surface Type	Surface Width (m)	Shoulder Type	Shoulder Width (m)	Posted Speed (km/h)	2018 AADT	PCI
M015	Scotch Line Road	Binghan Road	Claude Brown Road	3.5	open ditch	rural	local	5	2	8.5	surface treated	6.5	earth/dirt	1.0	50	200	90
M012	Scotch Line Road	600m East of Highway 35	Arvids Lane	0.3	open ditch	rural	local	6	1	3.4	gravel	3.4	earth/dirt		50	10	69
M011	Scotch Line Road	Highway 35	600m East of Highway 35	0.6	open ditch	rural	local	6	2	5.6	gravel	5.6	earth/dirt		50	10	92
S006	Scotts Dam Road	CR 1	780m North of CR 1	0.8	open ditch	rural	local	6	2	5.6	surface treated	5.6	earth/dirt		50	55	44
S020	Sedgwick Road	1.8km West of CR 1	2.1km West of CR 1	0.3	no ditch	rural	local	6	1	2.8	gravel	2.8	earth/dirt		50	10	6
S024	Sedgwick Road	200m East of Francis Road	430m East of Francis Road	0.2	no ditch	rural	local	6	2	5	gravel	4.6	earth/dirt	0.2	50	10	57
S018	Sedgwick Road	CR 1	1.4km West of CR 1	1.4	open ditch	rural	local	6	2	7.1	surface treated	6.3	earth/dirt	0.4	50	115	56
S021	Sedgwick Road	CR 1	Francis Road	0.8	open ditch	rural	local	6	2	7	surface treated	6.4	earth/dirt	0.3	50	60	72
S023	Sedgwick Road	Francis Road	200m East of Francis Road	0.2	open ditch	rural	local	6	2	6	surface treated	5.6	earth/dirt	0.2	50	10	44
S019	Sedgwick Road	1.4 km West of CR 1	1.8km West of CR 1	0.4	open ditch	rural	local	6	2	5.3	gravel	5.3	earth/dirt		50	10	51
L055	Shetland Road	Moore Lake Estates Road	230m South of Moore Lake Estates Road	0.2	no ditch	rural	local	6	2	6.1	surface treated	6.1	earth/dirt		50	60	62
M049	Shuylers Island Road	Duck Lake Road	1.6km North of Duck Lake Road	1.6	open ditch	rural	local	6	2	4.8	gravel	4.8	earth/dirt		50	45	63
S005	Silverwood Road	Porkys Road	Hamlin Road	0.7	open ditch	rural	local	6	2	7	gravel	6	earth/dirt	0.5	50	50	90
S015	Snowdon Park Road	CR 1	720m North of CR 1	0.7	no ditch	rural	local	6	2	4.3	gravel	3.7	earth/dirt	0.3	50	5	38
M057	Soyers Lake Road	Eric Potters Road	Grace Road	4.2	open ditch	rural	local	6	2	6.3	surface treated	6.3	earth/dirt		50	60	50
M055	Soyers Lake Road	Blairhampton Road	Alexander Road	2.4	open ditch	rural	local	6	2	6.5	gravel	6.5	earth/dirt		50	30	60
M056	Soyers Lake Road	Alexander Road	Grace Road	1.4	no ditch	rural	local	6	2	4.8	gravel	4.8	earth/dirt		50	35	56
L001	Spar Lake Road	Buller Road	1.4km North	1.4	open ditch	rural	local	6	2	6.7	surface treated	6.5	earth/dirt	0.1	50	40	85
L002	Spar Lake Road	1.4km North	End of Road	1.4	no ditch	rural	local	6	2	4.1	gravel	4.1	earth/dirt		50	30	59
L050	Spring Valley Road	Highway 35	1.5km West of Highway 35	1.5	open ditch	rural	local	5	2	7.8	surface treated	7.2	earth/dirt	0.3	50	305	84
L051	Spring Valley Road	1.5 km West of Highway 35	2.0km West of Highway 35	0.5	open ditch	rural	local	6	2	5.6	gravel	5.2	earth/dirt	0.2	50	50	76
V013	St Germaine St	Newcastle St	Prince St	0.1	no ditch	semi-urban	local	5	2	7	asphalt	7	asphalt		50	490	62
V019	St Germaine St	Prince St	Water St	0.1	sewer & ditch	semi-urban	local	5	2	10	asphalt	8	earth/dirt	1.0	50	505	52
V027	St Germaine St	Water Tower	Newcastle St	0.4	open ditch	rural	local	6	2	8	surface treated	7	earth/dirt	0.5	50	130	52
M085B	Stable Road	Shuylers Island Road	Wildflower Lane	0.2	open ditch	rural	local	6	2	4.8	gravel	4.8	earth/dirt		50	5	84
L029	Starlight Road	Highway 35	90m North of Highway 35	0.1	no ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	5	30
V041	Stouffer St	Invergordon Ave	90m West of Candace St	0.4	open ditch	rural	local	6	2	6.8	surface treated	6.8	earth/dirt		50	190	50
M005	Swan Road	Queens Line Road	800 m East of Queens Line Road	0.8	open ditch	rural	local	6	2	6	gravel	6	earth/dirt		50	80	80
L013	Swinson Road	Iron Mine Road	CR 121	1.5	open ditch	rural	local	6	2	7.6	surface treated	7	earth/dirt	0.3	50	90	53
L014	Swinson Road	Iron Mine Road	Davis Lake Road	2.3	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	95	59
M060	Tait Trail	Soyers Lake Road	42.5m South of Soyers Lake Road	0.0	open ditch	rural	local	6	1	4	gravel	4	earth/dirt		50	30	66
M031	Taylor Road	Twelve Mile Lake Road	Highway 35	0.4	no ditch	rural	local	6	2	6	surface treated	6	earth/dirt		50	70	60
V021	Teasdale St	Prince St	Teasdale St (end)	0.1	open ditch	rural	local	6	2	6.4	surface treated	6	earth/dirt	0.2	50	20	34
M021	Tennyson Road	CR 2	Lodge Lane	0.3	open ditch	rural	local	5	2	8.2	asphalt	7.3	earth/dirt	0.5	50	215	91
M022	Tennyson Road	300m West of CR 2	Lodge Lane	1.5	open ditch	rural	local	6	2	7.5	surface treated	6.5	earth/dirt	0.5	50	110	91
S047	Thurston Road	Ron Road	140m West of Ron Road	0.1	no ditch	rural	local	6	2	5	gravel	5	earth/dirt		50	15	75
M078	Tom Bolton Road	CR 18	Lochlin Road	1.3	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	130	91
M078A	Tom Bolton Road	Lochlin Road	2100m East of Locklin	2.1	open ditch	rural	local	6	2	7.3	gravel	7.3	earth/dirt		50	100	92
M079	Tom Bolton Road	2.1 km East of Lochlin Road	Dysart Boundary	0.6	no ditch	rural	local	6	1	3	gravel	3	earth/dirt		50	25	21

Minden Hills Road Needs Study 2021

Master List - Road Sections & Existing Conditions

Asset ID	Road Name	From	To	Length (km)	Drainage	Roadside Environ	Road Class	O.Reg. Class	Lanes	Platform Width (m)	Surface Type	Surface Width (m)	Shoulder Type	Shoulder Width (m)	Posted Speed (km/h)	2018 AADT	PCI
M044	Tulip Road	Highway 118	4.1km East of Highway 118	4.1	open ditch	rural	local	6	2	6.7	gravel	6.7	earth/dirt		50	55	80
M045	Tulip Road	4.1km East of Highway 118	5.2km East of Highway 118	1.1	open ditch	rural	local	6	2	6.7	gravel	6.7	earth/dirt		50	30	68
M030	Twelve Mile Lake Road	Highway 35	Toboggan Hill Trail	2.3	open ditch	rural	local	6	2	6.5	surface treated	6.5	earth/dirt		50	95	61
S050	Upper Dutch Line Road	CR 121	1.5km East of CR 121	1.5	no ditch	rural	local	6	2	5.2	gravel	4.8	earth/dirt	0.2	50	15	52
S026	Vick Road	CR 1	1.5km West of CR 1	1.5	open ditch	rural	local	6	2	5.5	gravel	5.5	earth/dirt		50	40	52
V035	Vintage Cr	McKay St	McKay St	0.5	open ditch	semi-urban	local	5	2	6.2	asphalt	6.2	earth/dirt		50	640	44
M046	Voicey Road	Blairhampton Road	Tulip Road	3.6	open ditch	rural	local	6	2	6.6	gravel	6.6	earth/dirt		50	35	48
S013A	Warder Road	Lochlin Road	650m West of Lochlin Road	0.6	open ditch	rural	local	6	2	5.3	gravel	5.3	earth/dirt		50	10	63
V022	Water St	Bobcaygeon Road	St Germaine St.	0.2	storm sewer	urban	collector	4	2	11.2	asphalt	10	asphalt	0.6	50	2545	55
V023	Water St	St Germaine St.	Golf Course Road	0.8	storm sewer	urban	collector	4	2	9.4	asphalt	9	earth/dirt	0.2	50	2805	48
V024	Water St	Golf Course Road	Highway 35	0.1	storm sewer	urban	collector	4	2	13.2	asphalt	13.2			50	3130	84
M082	Welch Road	County Road 21	Deltra Drive	0.2	no ditch	rural	local	6	2	5.4	gravel	5.4	earth/dirt		50	55	86
L021	Wessell Road	Highway 35	900m South	0.9	no ditch	rural	local	6	2	6.5	gravel	6.5	earth/dirt		50	75	57
L022	Wessell Road	900m South of Highway 35	1500m South of Highway 35	0.6	no ditch	rural	local	6	2	6.5	gravel	6.5	earth/dirt		50	50	66
L059	Wessell Road	Cattle Grate Crossing	500m South of Cattle Grate	0.5	no ditch	rural	local	6	1	3	gravel	3	earth/dirt		50	30	56
S044	White Boundary Road	CR 503	1.3km East of CR 503	1.3	no ditch	rural	local	6	2	4.5	gravel	4.5	earth/dirt		50	15	76
S051B	White Boundary Road	1.3 km East of CR 503	7.3km East of CR 503	6.0	no ditch	rural	local	6	2	4.5	gravel	4.5	earth/dirt		50	20	17
M061A	Wigamog Road	CR 21	1.3km East of CR 21	1.3	open ditch	rural	local	5	2	6.5	surface treated	6.5	earth/dirt		50	275	90
M061B	Wigamog Road	1.3km East of CR 21	Dysart Boundary	1.6	open ditch	rural	local	5	2	6.5	surface treated	6.5	earth/dirt		50	250	63
M065	Wilma Road	CR 21	380m West of CR 21	0.4	open ditch	rural	local	6	2	5.9	gravel	5.3	earth/dirt	0.3	50	10	63
V037	Winchester St	McPherson St	McKay St	0.2	open ditch	semi-urban	local	6	2	6.1	asphalt	6.1	earth/dirt		50	145	56
M020	Winding Creek Road	Bobcaygeon Road	215m North	0.2	open ditch	rural	local	6	2	7.1	surface treated	6.5	earth/dirt	0.3	50	55	46
V032	Windover Dr	Highland Gate Blvd	360m South	0.4	open ditch	rural	local	6	2	8.5	asphalt	8.5	earth/dirt		50	170	94
				278.0													

Appendix D: Road Standards

Minden Hills Road Needs Study 2021 Standards, Guidelines & Assumptions

ROAD DESIGN STANDARDS

TOLERABLE STANDARDS

Environment	Road Class		Surface Type	Through Lane m	Shoulder Width m	Surface Course mm	Base Course mm	Asphalt Depth mm	Granular A Depth mm	Granular B Depth mm	Through Lane m	Shoulder Width m
Rural	local	R1	see note 1	3.5	1.0	65	0	65	150	300	3.0	0.5
	collector	R2	see note 1	3.5	1.0	65	0	65	150	300	3.0	0.5
	arterial	R3	asphalt	3.5	1.0	65	0	65	150	300	3.0	0.5
Semi-Urban	local	S1	see note 2	3.5	1.0	65	0	65	150	300	3.0	0.5
	collector	S2	see note 2	3.5	1.0	65	0	65	150	300	3.0	0.5
	arterial	S3	asphalt	3.5	1.0	65	0	65	150	300	3.0	0.5
Urban	local	U1	asphalt	4		40	50	90	150	300	3.0	
	collector	U2	asphalt	4		40	50	90	150	300	3.0	
	arterial	U3	asphalt	4		40	50	90	155	300	3.0	

1. For rural roads, surface type will be dependent upon the traffic volumes

0 ≤ AADT < 400	gravel
400 ≤ AADT < 1000	surface treated
1000 ≤ AADT	asphalt

2. For semi-urban roads, surface type will be dependent upon the traffic volumes

0 ≤ AADT < 400	gravel
400 ≤ AADT < 1000	surface treated
1000 ≤ AADT	asphalt

Appendix E: Road Deficiencies & Improvements

Road Section Identification																				Improvement				Priority Rating
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics		Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		PCI	Type	Time	Value	
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need						
M063	Alexander Road	Blairhampton Road	Blairhampton Road	1.6	40	Y	adequate		gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	66	maintenance only				
M089	Alfred Road	Coxfarm Road	250m North of Coxfarm Road	0.3	5	Y	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	adeq	83	maintenance only				
V009	Anson St	Peck St	960m South	1.0	220	adeq	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.30	adeq	open ditch	now	58	PR	1-5 years	\$140,000	34	
V042	Archie St	Candace St	Stouffer St	0.1	40	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	no ditch	now	58	maintenance only				
S041	Bacon Road	CR 503	Conway Road	3.4	135	Y	adequate		gravel	gravel	adeq	6.5	6	adeq	adeq	adeq	no ditch	adeq	85					
S043	Bacon Road	Conway Road	430m West	0.4	75	Y	adequate		gravel	gravel	adeq	5	6	1.00	0.50	adeq	no ditch	adeq	88					
M072	Ball Road	CR 20	200m West of CR 20	0.2	10	adeq	resurface	now	gravel	gravel	adeq	4	6	2.00	adeq	adeq	open ditch	now	50	maintenance only				
M023	Bat Lake Road	CR 16	4.7km East of CR 16	4.7	195	Y	rehabilitate	now	surface treated	gravel	adeq	6.3	6	adeq	0.40	adeq	open ditch	now	43	BS	now	\$803,000	45	
M016	Beer Lake Road	Claude Brown Road	430m west of Claude Brown Road	0.4	25	Y	reconstruct	now	surface treated	gravel	adeq	5	6	1.00	adeq	adeq	open ditch	now	23	maintenance only				
M017	Beer Lake Road	430m West of Claude Brown Road	1.4km West of Claude Brown Road	1.0	10	Y	resurface	now	gravel	gravel	adeq	4.6	6	1.40	0.30	adeq	open ditch	now	47	maintenance only				
M052	Ben Road	Reynolds Road	300m South of Reynolds Road	0.3	10	Y	adequate		gravel	gravel	adeq	4.8	6	1.20	0.50	adeq	open ditch	now	75	maintenance only				
M054	Bethel Road	CR 20	CR 21	5.2	315	Y	resurface	1-5 years	surface treated	gravel	adeq	6.6	6	adeq	0.20	adeq	open ditch	now	48	PR	1-5 years	\$757,000	45	
M019	Bingham Road	Scotch Line Road	2.2km North of Scotch Line Road	2.2	55	adeq	adequate		gravel	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	60					
M053A	Blairhampton Road	Highway 35	Duck Lake Road	3.2	275	adeq	resurface	1-5 years	surface treated	gravel	adeq	8	6	adeq	0.50	adeq	open ditch	now	50	PR	1-5 years	\$546,000	43	
M053B	Blairhampton Road	Duck Lake Road	3.1km Easterly	3.2	400	Y	resurface	1-5 years	surface treated	surface treated	adeq	7	6	adeq	0.50	adeq	open ditch	now	49	PR	1-5 years	\$843,000	47	
M053C	Blairhampton Road	3.1km Easterly	CR 21	2.7	385	Y	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.50	adeq	open ditch	now	49	PR	1-5 years	\$397,000	46	
L044	Bob Lake Road	CR 2	Ralston Road	0.7	25	Y	adequate		gravel	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	70	maintenance only				
M010A	Bobcaygeon Road	Scotch Line Road	Fleming Road	2.1	1185	adeq	adequate		asphalt	asphalt	adeq	7.4	6	adeq	adeq	adeq	open ditch	adeq	89					
V001	Bobcaygeon Road	Highway 35	Peck St	0.9	3445	adeq	adequate		asphalt	asphalt	adeq	9.1	6	adeq	adeq	adeq	no ditch	adeq	88					
V002	Bobcaygeon Road	Peck St	Water St	0.2	2515	adeq	adequate		asphalt	asphalt	adeq	11.7	6	adeq	adeq	adeq	no ditch	adeq	89					
V003	Bobcaygeon Road	Water Street	Fleming Road	1.0	2495	adeq	resurface	1-5 years	asphalt	asphalt	adeq	8.5	6	adeq	adeq	adeq	no ditch	adeq	62	R	1-5 years	\$259,000	53	
M008	Bobcaygeon Road	Highway 118	Plantation Road	5.8	135	Y	reconstruct	now	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	31	REC	now	\$4,056,000	50	
M009	Bobcaygeon Road	Plantation Road	2.9km S of Plantation	2.9	300	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	54	PR	1-5 years	\$414,000	39	
M010B	Bobcaygeon Road	2.9km S of Plantation	Scotch Line Road	1.4	610	adeq	reconstruct	now	surface treated	surface treated	adeq	7.6	6	adeq	0.20	adeq	open ditch	now	33	REC	now	\$1,109,000	68	
V026	Booth St	Highway 35	Prince St	0.2	770	adeq	adequate		asphalt	surface treated	adeq	8	6	adeq	adeq	adeq	open ditch	adeq	90					
L053	Boundary Road	CR 121	55m East of CR 121	0.1	125	adeq	resurface	now	gravel	gravel	adeq	6.1	6	adeq	adeq	adeq	open ditch	now	54	PR	now	\$4,000	33	
L009	Boundary Road	Davis Lake Road	Morgan Trail	1.0	30	Y	adequate		gravel	gravel	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	72	maintenance only				
L010	Boundary Road	Davis Lake Road	to 55m West of CR 21	2.8	45	Y	adequate		gravel	gravel	adeq	5.9	6	0.10	0.30	adeq	open ditch	adeq	76	maintenance only				
M003	Boyd Road	Brady Lake Road	Whippoorwill Lane	0.3	50	Y	adequate		gravel	gravel	adeq	5.9	6	0.10	0.50	adeq	open ditch	now	74	maintenance only				
M001	Brady Lake Road	Highway 118	Rugged Lane	2.8	70	Y	adequate		asphalt	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	adeq	82					
M001A	Brady Lake Road	Rugged Lane	One Mile Dr	3.7	45	Y	adequate		surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	adeq	90	maintenance only				
M002	Brady Lake Road	One Mile Dr	100m North of Viceroy Dr	0.9	40	Y	adequate		gravel	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	77	maintenance only				
Z003	Brunswick Drive	Ramsey Road	Highway 35	0.1	15	adeq	adequate		gravel	gravel	adeq	4	6	2.00	0.50	adeq	open ditch	now	79	maintenance only				
L003	Buller Road	Clear Lake Road	Spar Lake Road	4.7	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	7.1	6	adeq	0.40	adeq	open ditch	now	66	PR	1-5 years	\$708,000	22	
L004	Buller Road	Davis Lake Road	Clear Lake Road	2.0	40	Y	resurface	1-5 years	surface treated	gravel	adeq	5.7	6	0.30	0.30	adeq	open ditch	adeq	67	maintenance only				
V043	Candace St	Stouffer St	150m South of Stouffer	0.2	30	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	55	maintenance only				
M090A	Canning Heights Road	Dugan Road	160 m West of Dugan Road	0.2	30	Y	rehabilitate	now	gravel	gravel	adeq	5.8	6	0.20	0.50	adeq	no ditch	now	39	maintenance only				
M067A	Caribou Road	Cold Spring Road	1.4 km (W) of Cold Spring Road	1.4	85	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	62	PR	1-5 years	\$202,000	25	
M067B	Caribou Road	CR 21	CR 21	0.8	80	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	62	PR	1-5 years	\$116,000	25	
M067C	Caribou Road	CR 21	CR 21	0.2	80	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	62	PR	1-5 years	\$28,000	25	
L025	Cecil Grant Dr	Highway 35	500m North of Highway 35	0.8	10	Y	adequate		gravel	gravel	adeq	3	6	3.00	0.50	adeq	no ditch	now	69	maintenance only				
S051A	Cemetery Road	CR 1	250m East of CR 1	0.3	40	adeq	adequate		gravel	gravel	adeq	5.5	6	0.50	0.50	adeq	no ditch	now	68	maintenance only				
M035	Chambers Road	Highway 35	Maebar Road	1.4	25	adeq	adequate		gravel	gravel	adeq	5.5	6	0.50	0.50	adeq	no ditch	now	80	maintenance only				
V014	Chandos St	60m South of Newcastle St	Prince St	0.2	100	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	16	REC	now	\$120,000	58	
M027	Clarence Road	Highway 35	200m West of Highway 35	0.2	30	adeq	adequate		gravel	gravel	adeq	4.6	6	1.40	0.50	adeq	open ditch	adeq	84	maintenance only				
M018	Claude Brown Road	Beer Lake Road	1.7km South of Beer Lake Road	1.7	150	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	28	REC	now	\$1,219,000	54	
L005	Clear Lake Road	Buller Road	Highway 35	3.7	120	Y	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.40	adeq	open ditch	adeq	90					
M068	Cold Spring Road	Caribou Road	400m East	0.4	10	Y	adequate		gravel	gravel	adeq	4.4	6	1.60	0.50	adeq	open ditch	now	73	maintenance only				
M024	Colonial Road	CR 16	300m South of CR 16	0.3	20	adeq	adequate		gravel	gravel	adeq	5	6	1.00	0.30	adeq	open ditch	adeq	69	maintenance only				
M074	Conestoga Road	CR 21	CR 18	1.3	35	Y	adequate		gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	72	maintenance only				
S042	Conway Road	Bacon Road	Embassy Drive	1.9	105	Y	adequate		gravel	gravel	adeq	6.5	6	adeq	0.40	adeq	no ditch	now	86					
L020	Country Road	Highway 35	500m North	0.4	200	adeq	adequate		surface treated	gravel	adeq	5.3	6	0.70	0.10	adeq	no ditch	now	87					
M080	Coxfarm Road	CR 21	1.3km North of CR 21	1.3	145	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	adeq	66	PR	1-5 years	\$191,000	25	
M038	Crest Drive	Peterson Road	End of Road	0.3	25	adeq	adequate		gravel	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	adeq	92	maintenance only				
M040	Crooked House Road	Highway 118	390m East of Highway 118	0.4	60	adeq	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	adeq	88					

Road Section Identification																			Improvement				Priority Rating	
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics		Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		PCI	Type	Time		Value
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need						
M041	Crooked House Road	390m East of Highway 118	1400m East of Highway 118	1.1	40	Y	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	adeq	81	maintenance only				
M070	Curtiss Road	Bethel Road	450m North of Bethel Road	0.5	50	Y	adequate		gravel	gravel	adeq	6	6	adeq	0.20	adeq	open ditch	adeq	75	maintenance only				
S040	Dancey Road	CR 503	250m North	0.3	10	adeq	adequate		gravel	gravel	adeq	4.7	6	1.30	0.30	adeq	open ditch	now	86	maintenance only				
L006	Davis Lake Road	Buller Road	Highway 35	4.8	205	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	54	PR	1-5 years	\$687,000	36	
L007	Davis Lake Road	Buller Road	Swinson Road	2.9	70	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	60	PR	1-5 years	\$414,000	26	
L008	Davis Lake Road	Boundary Road	Swinson Road	1.8	20	Y	reconstruct	now	surface treated	gravel	adeq	7	6	adeq	0.40	adeq	open ditch	adeq	38	maintenance only				
L028	Davis Lake Road	Miners Bay Road	Highway 35	0.3	55	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	now	57	PR	1-5 years	\$49,000	27	
L038	Denna Lake Road	CR 121	230m West of Periwinkle Trail	2.8	85	Y	adequate		gravel	gravel	adeq	6	6	adeq	0.30	adeq	open ditch	now	72					
M071	Dennison Road	CR 20	1.6km East of CR 20	1.7	55	Y	resurface	now	gravel	gravel	adeq	5.7	6	0.30	0.50	adeq	open ditch	now	56	PR	now	\$113,000	28	
L043	Devils Lake Road	CR 2	Boat Launch	0.6	40	adeq	adequate		gravel	gravel	adeq	6	6	adeq	0.30	adeq	open ditch	adeq	80	maintenance only				
S039	Dexter Road	CR 503	260m West	0.3	10	Y	adequate		gravel	gravel	adeq	5	6	1.00	0.50	adeq	open ditch	adeq	82	maintenance only				
V047	Dick St	Parkside St	Prentice St	0.1	115	adeq	resurface	1-5 years	asphalt	gravel	adeq	8	6	adeq	0.50	adeq	no ditch	now	59	PR	1-5 years	\$26,000	29	
M047	Duck Lake Road	3.0 km North of Bethel Road	Blairhampton Road	4.3	200	Y	resurface	1-5 years	surface treated	gravel	adeq	6.7	6	adeq	0.20	adeq	open ditch	now	54	PR	1-5 years	\$630,000	36	
M048	Duck Lake Road	Bethel Road	3.0km North of Bethel Road	3.0	225	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.7	6	adeq	0.20	adeq	open ditch	adeq	67	PR	1-5 years	\$424,000	27	
M090B	Dugan Road	CR 17	110m West of CR 17	0.1	40	Y	rehabilitate	now	surface treated	gravel	adeq	4.1	6	1.90	0.40	adeq	open ditch	now	43	maintenance only				
S038	Elm Road	Salerno Lake Road	100m South	0.1	5	Y	adequate		gravel	gravel	adeq	4.6	6	1.40	0.50	adeq	no ditch	now	77	maintenance only				
M095	Eric Potter Road	Soyers Lake Road	580m South of Soyers Lake d	0.6	85	adeq	adequate		gravel	gravel	adeq	5	6	1.00	0.50	adeq	no ditch	now	64					
Z002	Fire Route 375	Country Road 503	700m West of County Road 503	0.7	5	adeq	resurface	now	gravel	gravel	adeq	3.1	6	2.90	0.50	adeq	open ditch	now	56	maintenance only				
V050	Fleming Road	Bobcaygeon Road	450m East	0.4	60	adeq	adequate		gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	no ditch	now	78					
V048	Fleming Road	Bobcaygeon Road	Prentiskoka Heights Road	0.4	375	Y	adequate		asphalt	gravel	adeq	6.8	6	adeq	adeq	adeq	open ditch	now	93					
V020	Floralan Park Dr	Prince St	End	0.1	245	adeq	resurface	1-5 years	asphalt	gravel	adeq	7	6	adeq	adeq	adeq	open ditch	adeq	63	PR	1-5 years	\$37,000	30	
L042A	Forsters Road	CR 2	0.1km East of CR 2	0.1	55	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	no ditch	now	61	PR	1-5 years	\$14,000	24	
L042B	Forsters Road	0.1km East of CR 2	1.0km East of CR 2	0.9	55	Y	resurface	now	gravel	gravel	adeq	4	6	2.00	0.50	adeq	no ditch	now	48	PR	now	\$44,000	32	
S022A	Francis Road	Sedgwick Road	300m South of Sedgwick Road	0.3	45	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	adeq	62	maintenance only				
S022B	Francis Road	300m South of Sedgwick Road	2.3km South of Sedgwick Road	2.0	15	Y	adequate		gravel	gravel	adeq	5.4	6	0.60	0.50	adeq	no ditch	now	64	maintenance only				
M026	Gainer Road	Highway 35	400m North of Highway 35	0.4	50	adeq	adequate		gravel	gravel	adeq	4.6	6	1.40	0.50	adeq	open ditch	now	66	maintenance only				
S027	Geeza Road	CR 1	1.5km South of CR 1	1.5	35	Y	adequate		gravel	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	now	61	maintenance only				
M085A	Godward Road	Shuylers Island Road	150m North of Shuylers Island Road	0.2	20	adeq	adequate		gravel	gravel	adeq	4.8	6	1.20	0.50	adeq	open ditch	now	81	maintenance only				
V025	Golf Course Road	Water St	240m North of Water St	0.2	200	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	adeq	adeq	open ditch	adeq	47	PR	1-5 years	\$35,000	42	
M058	Grace Road	Soyers Lake Road	620m South of Soyers Lake Road	0.6	10	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.50	adeq	open ditch	now	67	maintenance only				
L018	Green Gables Road	Highway 35	Highway 35	0.5	140	Y	adequate		asphalt	gravel	adeq	6	6	adeq	0.30	adeq	open ditch	adeq	90					
S003	Hamilton Road	CR 16	1.8km South of CR 16	1.8	185	adeq	adequate		gravel	gravel	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	83					
S037	Hancock Road	Salerno Lake Road	400m South of Salerno Lake Road	0.4	10	Y	adequate		gravel	gravel	adeq	4.7	6	1.30	0.50	adeq	no ditch	now	69	maintenance only				
L030	Hendersons Road	Highway 35	Highway 35	1.1	10	Y	reconstruct	now	asphalt	gravel	adeq	5.6	6	0.40	adeq	adeq	open ditch	now	25	maintenance only				
V031	Highland Gate Bv	CR 2	360m West of CR 2 (end)	0.4	405	adeq	adequate		surface treated	surface treated	adeq	8	6	adeq	adeq	adeq	open ditch	adeq	91					
L024	Hoffman Road	Pacific Road	175m North of Pacific Road	0.2	10	adeq	adequate		gravel	gravel	adeq	5.2	6	0.80	0.50	adeq	open ditch	now	88	maintenance only				
S001	Hospitality Road	2.7km South of CR 16	Rice Road	0.7	85	Y	resurface	6-10 years	surface treated	gravel	adeq	7.2	6	adeq	0.30	adeq	open ditch	adeq	74	PR	6-10 years	\$108,000	18	
S002	Hospitality Road	CR 16	2.7km South of CR 16	2.7	210	Y	resurface	6-10 years	surface treated	gravel	adeq	7.2	6	adeq	0.30	adeq	open ditch	adeq	80	PR	6-10 years	\$413,000	16	
S049	Howland Junction Road	CR 121	1.1km East of CR 121	1.1	185	adeq	adequate		asphalt	gravel	adeq	5.7	6	0.30	0.50	adeq	open ditch	adeq	90					
L026	Humphrey Road	Highway 35	55m North of Orchid Lane	0.9	10	Y	adequate		gravel	gravel	adeq	6.4	6	adeq	0.50	adeq	no ditch	now	66	maintenance only				
L035	Hunter Creek Road	Highway 35	Woodglade Lane	2.2	155	Y	adequate		surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	adeq	87					
Z001	Hyacinth Road	County Road 2	Mistivale Road	0.3	40	adeq	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	90	maintenance only				
V005	IGA Road	Bobcaygeon Road	100m East of Bobcaygeon Road	0.1	1470	adeq	adequate		asphalt	asphalt	adeq	8.5	6	adeq	0.50	adeq	sewer & ditch	adeq	100					
L017	Info Centre Road	Highway 35	140m West	0.1	70	adeq	adequate		gravel	gravel	adeq	4.5	6	1.50	0.50	adeq	no ditch	now	85					
V039	Invergordon Av	Bobcaygeon Road	Stouffer St	0.9	415	adeq	resurface	1-5 years	asphalt	surface treated	adeq	8.9	6	adeq	0.50	adeq	storm sewer	now	48	PR	1-5 years	\$324,000	48	
V040	Invergordon Av	Stouffer St	200m East of Stouffer St	0.2	80	Y	reconstruct	now	surface treated	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	40	REC	now	\$129,000	40	
L011	Iron Mine Road	Davis Lake Road	Landfill	0.5	25	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.30	adeq	open ditch	adeq	62	maintenance only				
L012	Iron Mine Road	Landfill	Swinson Road	5.8	20	Y	reconstruct	now	gravel	gravel	adeq	2.9	6	3.10	0.50	adeq	no ditch	now	17	maintenance only				
S033	Iroindale Road	CR 503	Line Dr Road	1.9	225	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	adeq	70	PR	1-5 years	\$258,000	24	
S013B	Isaiah Hicks Road	Lochlin Road	550m East of Lochlin Road	0.6	25	adeq	adequate		gravel	gravel	adeq	5.7	6	0.30	0.50	adeq	no ditch	now	78	maintenance only				
S048	Jopling Road	Ron Road	930m East of Ron Road	0.9	10	adeq	adequate		gravel	gravel	adeq	5.3	6	0.70	adeq	adeq	open ditch	now	76	maintenance only				
M028A	Judge Jordan Road	Highway 35	Rusty Stream Lane	0.1	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	5.3	6	0.70	0.50	adeq	no ditch	now	68	PR	1-5 years	\$11,000	20	
M028B	Judge Jordan Road	Rusty Stream Lane	450m South of Rusty Stream Lane	0.5	30	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	now	68	maintenance only				
L057	KC Dam Road	Highway 35	130m South of Highway 35	0.1	10	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	40	maintenance only				
M059	Keewaydin Road	Soyers Lake Road	500m West of Soyers Lake Road	0.5	25	Y	rehabilitate	now	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	open ditch	now	43	maintenance only				

Road Section Identification																				Improvement				Priority Rating
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics		Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		PCI	Type	Time	Value	
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need						
M075	Kelson Road	CR 18	580m South of CR 18	0.6	135	Y	resurface	1-5 years	surface treated	gravel	adeq	7.5	6	adeq	0.20	adeq	open ditch	adeq	66	PR	1-5 years	\$94,000	25	
V033	Knob Hill Ct	Highland Gate Blvd	180m South of Highland Gate Blvd (end)	0.2	130	adeq	adequate		surface treated	gravel	adeq	8	6	adeq	adeq	adeq	open ditch	adeq	85					
L054	Laxton/Lutterworth Boundar	Highway 35	135m East of Highway 35	0.1	5	adeq	adequate		gravel	gravel	adeq	4.3	6	1.70	0.50	adeq	open ditch	adeq	77	maintenance only				
S034	Line Drive	Irondale Road	180m North of Irondale Road	0.2	10	adeq	adequate		gravel	gravel	adeq	3	6	3.00	0.50	adeq	no ditch	now	97	maintenance only				
L046	Little Bob Lake Road	Rackety Trail Road	1.3km North of Rackety Trail Road	1.3	45	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.30	adeq	open ditch	now	63	maintenance only				
M077	Lochlin Road	CR 1	Tom Bolton Road	3.1	115	adeq	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	adeq	91					
M083	Lugers Road	Highway 35	CR 21	0.2	65	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	26	REC	now	\$138,000	47	
L034	Lutterworth Pines Road	Highway 35	1114 Lutterworth Pines Road	0.6	165	Y	adequate		surface treated	gravel	adeq	7.3	6	adeq	0.30	adeq	open ditch	adeq	85					
V015	Lyons St	Newcastle St	Prince St	0.2	60	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	no ditch	now	32	REC	now	\$109,000	43	
M037	Maebar Road	Highway 35	Highway 35	1.2	65	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	50	PR	1-5 years	\$160,000	32	
S045	Mark Twain Road	CR 503	670m North of CR 503	0.7	35	adeq	adequate		gravel	gravel	adeq	5.1	6	0.90	0.50	adeq	no ditch	adeq	78	maintenance only				
V034	McKay St	Bobcaygeon Road	Hospital	0.6	1115	adeq	rehabilitate	now	asphalt	asphalt	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	42	BS	now	\$182,000	67	
V006	McKnight Dr	Anson St	Bobcaygeon Road	0.2	195	adeq	resurface	1-5 years	surface treated	gravel	adeq	7.5	6	adeq	0.50	adeq	open ditch	now	48	PR	1-5 years	\$36,000	41	
V036	McLeod St	McPherson St	McKay St	0.2	70	adeq	resurface	1-5 years	asphalt	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	58	PR	1-5 years	\$37,000	27	
V038	McPherson St	McKay St	McLeod St	0.2	70	adeq	resurface	1-5 years	asphalt	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	adeq	66	PR	1-5 years	\$55,000	22	
S031	Milburn Road	6.5 km East of CR 1	CR 503	1.4	70	Y	resurface	now	gravel	gravel	adeq	6.2	6	adeq	0.40	adeq	open ditch	now	58	PR	now	\$101,000	27	
S030	Milburn Road	CR 1	6.5km East of CR 1	6.5	110	Y	resurface	now	gravel	gravel	adeq	5.6	6	0.40	0.30	adeq	open ditch	now	53	PR	now	\$434,000	33	
V011	Milne St	Newcastle St	Prince St	0.1	735	adeq	resurface	1-5 years	asphalt	asphalt	adeq	11.4	6	adeq	adeq	adeq	no ditch	now	60	R	1-5 years	\$46,000	42	
M084	Minden Lake Road	Coxfarm Road	500m South of Coxfarm Road	0.5	80	Y	resurface	6-10 years	surface treated	gravel	adeq	6.6	6	adeq	adeq	adeq	open ditch	adeq	74	PR	6-10 years	\$73,000	17	
L027	Miners Bay Road	Highway 35	Highway 35	1.8	80	adeq	reconstruct	now	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	37	REC	now	\$1,292,000	42	
L049	Mistvale Road	CR 2	630m South of CR 2	0.6	65	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	56	PR	1-5 years	\$89,000	28	
L015	Moore Lake Estates Road	Highway 35	Highway 35	0.9	195	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.40	adeq	no ditch	now	60	PR	1-5 years	\$114,000	32	
M029	Mountain View Road	Highway 35	Twelve Mile Lake Road	1.2	20	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	adeq	52	maintenance only				
L047	Murdoch Road	CR 2	1.2km South of CR 2	1.2	85	adeq	adequate		gravel	gravel	adeq	6	6	adeq	0.30	adeq	open ditch	now	79					
M093	Murdoch Road	1.2km South of CR 2	1.5km South of CR 2	0.3	25	Y	adequate		gravel	gravel	adeq	4	6	2.00	0.50	adeq	open ditch	now	74	maintenance only				
M069	Nesbitt Road	Bethel Road	1.0km North of Bethel Road	1.0	55	Y	adequate		gravel	gravel	adeq	6.2	6	adeq	0.50	adeq	no ditch	adeq	78					
V010	Newcastle St	Bobcaygeon Road	Highway 35	0.6	1160	adeq	resurface	1-5 years	asphalt	asphalt	adeq	10	6	adeq	adeq	adeq	storm sewer	adeq	69	R	1-5 years	\$180,000	37	
S017	Nichols Road	CR 1	460m East of CR 1	0.5	120	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	no ditch	adeq	64	PR	1-5 years	\$69,000	26	
S016	Nichols Road	CR 1	340m West of CR 1	0.3	60	adeq	resurface	now	gravel	gravel	adeq	5.4	6	0.60	0.50	adeq	no ditch	now	56	PR	now	\$22,000	28	
M036	Omagaki Road	Highway 35	Chambers Road	0.3	30	adeq	adequate		gravel	gravel	adeq	5.3	6	0.70	0.50	adeq	no ditch	adeq	78	maintenance only				
V030	Orde Connector	CR 2	Orde St	0.1	180	adeq	adequate		asphalt	gravel	adeq	8	6	adeq	0.50	adeq	open ditch	adeq	80					
V028	Orde St	Orde Connector	880m South of Orde Conn.	0.9	75	adeq	adequate		asphalt	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	adeq	82					
V029	Orde St	Orde Connector	380m North of Orde Conn.	0.4	130	adeq	adequate		asphalt	gravel	adeq	6.5	6	adeq	adeq	adeq	no ditch	adeq	83					
M064	Osgoode Road	Blairhampton Road	140m East of Blairhampton Road	0.1	15	Y	adequate		gravel	gravel	adeq	5.2	6	0.80	adeq	adeq	no ditch	now	77	maintenance only				
M062	Osprey Road	CR 21	1.8km North of CR 21	1.8	85	Y	resurface	6-10 years	surface treated	gravel	adeq	6.1	6	adeq	0.50	adeq	no ditch	adeq	74	PR	6-10 years	\$246,000	17	
L023	Pacific Road	Highway 35	70m South of Colby Lane	0.4	35	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	59	maintenance only				
L060	Pacific Road	70m South of Colby Lane	360m South of Colby Lane	0.3	10	adeq	adequate		gravel	gravel	adeq	3.6	6	2.40	0.50	adeq	no ditch	now	83	maintenance only				
M092	Panorama Park Road	CR 16	800m North of CR 16	0.8	110	Y	adequate		asphalt	gravel	adeq	5	6	1.00	0.30	adeq	open ditch	adeq	82	maintenance only				
V044	Parkside St	Bobcaygeon Road	Dick St	0.2	520	adeq	adequate		asphalt	surface treated	adeq	9	6	adeq	0.50	adeq	storm sewer	adeq	94					
V045	Parkside St	Dick St	Arena	0.2	500	adeq	adequate		asphalt	surface treated	adeq	9	6	adeq	0.50	adeq	storm sewer	adeq	87					
V007	Peck St	Bobcaygeon Road	Anson St	0.1	145	adeq	adequate		asphalt	asphalt	adeq	7	6	adeq	adeq	adeq	storm sewer	adeq	96					
M039	Peterson Road	Highway 118	Highway 118	2.3	25	Y	reconstruct	now	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	38	maintenance only				
M006	Plantation Road	Bobcaygeon Road	Queens Line Road	1.1	105	Y	adequate		asphalt	gravel	adeq	7	6	adeq	0.35	adeq	open ditch	now	88					
M007	Plantation Road	Queens Line Road	900m East of Queens Line Road	0.9	60	adeq	adequate		gravel	gravel	adeq	6.3	6	adeq	0.50	adeq	open ditch	now	74					
M034	Pleasant Point Road	Red Umbrella Road	900m South of Red Umbrella Road	0.9	30	adeq	adequate		gravel	gravel	adeq	5	6	1.00	0.50	adeq	open ditch	now	74	maintenance only				
S004	Porkys Road	CR 16	Scotts Dam Road	0.8	65	adeq	adequate		gravel	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	adeq	76					
V046	Prentice St	Bobcaygeon Road	Community Center	0.4	260	adeq	resurface	1-5 years	asphalt	gravel	adeq	6.4	6	adeq	0.50	adeq	open ditch	now	61	PR	1-5 years	\$85,000	32	
V049	Prentiskoka Heights Road	Fleming Road	Snow Plow Turn Around	0.3	100	adeq	adequate		surface treated	gravel	adeq	6.8	6	adeq	adeq	adeq	open ditch	now	90					
V016	Prince St	Water St	St. Germaine St	0.2	940	adeq	resurface	1-5 years	asphalt	asphalt	adeq	9	6	adeq	adeq	adeq	storm sewer	now	50	R	1-5 years	\$41,000	56	
V017	Prince St	St. Germaine St	Floralan Park Dr	0.4	745	adeq	rehabilitate	now	asphalt	surface treated	adeq	7	6	adeq	adeq	adeq	open ditch	now	43	BS	now	\$123,000	60	
V018	Prince St	Floralan Park Dr	Teasdale St	0.1	125	adeq	resurface	1-5 years	asphalt	gravel	adeq	7.5	6	adeq	0.20	adeq	open ditch	now	47	PR	1-5 years	\$41,000	38	
S014	Pringle Road	CR 1	520m South of CR 1	0.5	45	Y	adequate		gravel	gravel	adeq	5	6	1.00	0.50	adeq	no ditch	now	80	maintenance only				
V012	Pritchard Lane	Milne St	St. Germaine St	0.1	500	adeq	resurface	1-5 years	asphalt	asphalt	adeq	12.7	6	adeq	adeq	adeq	storm sewer	adeq	65	R	1-5 years	\$42,000	34	
L052	Promenade Road	CR 121	CR 121	0.4	25	Y	resurface	1-5 years	asphalt	gravel	adeq	5	6	1.00	0.50	adeq	no ditch	now	53	maintenance only				
M081	Puffer Road	CR 21	240m South of CR 21	0.2	10	adeq	reconstruct	now	surface treated	gravel	adeq	5.5	6	0.50	adeq	adeq	open ditch	adeq	32	maintenance only				

Road Section Identification																				Improvement				Priority Rating	
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics		Surface Condition			Surface Type			Surface Width			Shoulder	Capacity	Drainage		PCI	Type	Time		Value
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need							
M004	Queens Line Road	Plantation Road	Highway 118	5.4	120	Y	reconstruct	now	surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	now	30	REC	now	\$3,432,000	50		
L045	Rackety Trail Road	CR 2	3.7km South of CR 2	3.7	135	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	open ditch	adeq	66	PR	1-5 years	\$494,000	24		
L056	Ralston Road	Bob Lake Road	270m West of Bob Lake Road	0.3	20	Y	adequate		gravel	gravel	adeq	4.8	6	1.20	0.30	adeq	no ditch	now	68	maintenance only					
M025	Ransley Road	Highway 35	500m West of Highway 35	0.5	20	adeq	resurface	now	gravel	gravel	adeq	4.6	6	1.40	0.50	adeq	open ditch	adeq	57	maintenance only					
M094	Raptor Road	Osprey Road	200m East	0.2	5	Y	resurface	now	gravel	gravel	adeq	3	6	3.00	0.50	adeq	no ditch	now	47	maintenance only					
L036	Ravine Road	Highway 35	500m East of Highway 35	0.5	145	Y	adequate		gravel	gravel	adeq	6.2	6	adeq	0.30	adeq	open ditch	adeq	89						
L037	Ravine Road	500m East of Highway 35	CR 121	1.3	150	Y	adequate		gravel	gravel	adeq	6.2	6	adeq	0.30	adeq	open ditch	adeq	76						
M032	Red Umbrella Road	Highway 35	600m North of Highway 35	0.6	120	adeq	resurface	6-10 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	72	PR	6-10 years	\$84,000	20		
M033	Red Umbrella Road	600m North of Highway 35	950m North of Highway 35	0.4	70	adeq	resurface	6-10 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	78	PR	6-10 years	\$50,000	15		
V004	Renaissance St	Highway 35	165m South of Highway 35	0.2	20	adeq	resurface	now	gravel	gravel	adeq	5.7	6	0.30	adeq	adeq	open ditch	now	57	maintenance only					
M051	Reynolds Road	80m West of Jamieson Dr	Duck Lake Road	1.3	160	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	64	PR	1-5 years	\$188,000	27		
M050	Reynolds Road	80m West of Jamieson Dr	CR 20	2.2	180	Y	adequate		gravel	gravel	adeq	4.8	6	1.20	0.50	adeq	no ditch	now	65						
L039	Rice Road	CR 121	Hospitality Road	0.8	110	adeq	adequate		surface treated	gravel	adeq	6	6	adeq	0.30	adeq	open ditch	adeq	90						
L040	Rice Road	Hospitality Road	460m North of Hospitality Road	0.5	35	adeq	adequate		gravel	gravel	adeq	4.7	6	1.30	0.20	adeq	open ditch	adeq	74	maintenance only					
S009	Ritchie Falls Road	CR 1	1.1km South of CR 1	1.1	175	Y	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	adeq	90						
S010	Ritchie Falls Road	1.3 km South of CR 1	Bridge	1.5	25	Y	adequate		gravel	gravel	adeq	7	6	adeq	0.40	adeq	open ditch	now	72	maintenance only					
S011	Ritchie Falls Road	Bridge	End of Road	1.0	30	Y	adequate		gravel	gravel	adeq	3.2	6	2.80	0.50	adeq	no ditch	now	67	maintenance only					
M066	Robertson Road	CR 21	450m West of CR 21	0.5	30	Y	adequate		gravel	gravel	adeq	5.5	6	0.50	0.50	adeq	no ditch	adeq	69	maintenance only					
S046	Ron Road	CR 503	Thurston Road	1.1	30	Y	adequate		gravel	gravel	adeq	6	6	adeq	0.39	adeq	open ditch	now	80	maintenance only					
M096	Rotary Park Road	Highway 35	118 m West of Highway 35	0.1	90	adeq	resurface	6-10 years	surface treated	gravel	adeq	5	6	1.00	0.50	adeq	open ditch	adeq	76	PR	6-10 years	\$15,000	16		
S036	Salerno Lake Road	Bumblebee Lane	Twist Lane	3.2	65	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	60	PR	now	\$244,000	26		
S035	Salerno Lake Road	Irondale Road	Bumblebee Lane	0.8	70	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	adeq	58	PR	1-5 years	\$116,000	27		
L058	Salisbury Road	Schaefers Road	60m East of Schaefers Road	0.1	10	adeq	adequate		gravel	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	now	81	maintenance only					
L032	Sandy Bay Road	Highway 35	60m North of Magistrate Dr	0.3	70	Y	reconstruct	now	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	40	REC	now	\$223,000	39		
L033	Sandy Bay Road	60m North of Magistrate Dr	Loyalist Dr	1.2	35	Y	resurface	now	gravel	gravel	adeq	5.2	6	0.80	0.50	adeq	no ditch	now	55	maintenance only					
M073	Sapling Road	CR 20	120m North of CR 20	0.1	100	Y	resurface	now	gravel	gravel	adeq	4	6	2.00	0.50	adeq	open ditch	now	55	PR	now	\$6,000	31		
S025A	Sawdust Road	Sedgwick Road	240m South	0.2	25	adeq	adequate		gravel	gravel	adeq	5	6	1.00	0.50	adeq	open ditch	now	74	maintenance only					
L041	Schaefers Road	CR 2	Sallsbury Road	1.0	25	Y	adequate		gravel	gravel	adeq	6.2	6	adeq	0.20	adeq	open ditch	adeq	72	maintenance only					
M013	Scotch Line Road	Highway 35	Bobcaygeon Road	1.9	530	Y	reconstruct	now	surface treated	surface treated	adeq	7.3	6	adeq	0.20	adeq	open ditch	now	32	REC	now	\$1,789,000	66		
M014	Scotch Line Road	Bobcaygeon Road	Bingham Road	0.8	280	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	59	PR	1-5 years	\$105,000	35		
M015	Scotch Line Road	Bingham Road	Claude Brown Road	3.5	200	Y	adequate		surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	90						
M012	Scotch Line Road	600m East of Highway 35	Arvids Lane	0.3	10	adeq	adequate		gravel	gravel	adeq	3.4	6	2.60	0.50	adeq	open ditch	now	69	maintenance only					
M011	Scotch Line Road	Highway 35	600m East of Highway 35	0.6	10	Y	adequate		gravel	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	92	maintenance only					
S006	Scotts Dam Road	CR 1	780m North of CR 1	0.8	55	Y	rehabilitate	now	surface treated	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	44	BS	now	\$126,000	35		
S020	Sedgwick Road	1.8km West of CR 1	2.1km West of CR 1	0.3	10	adeq	reconstruct	now	gravel	gravel	adeq	2.8	6	3.20	0.50	adeq	no ditch	now	6	maintenance only					
S024	Sedgwick Road	200m East of Francis Road	430m East of Francis Road	0.2	10	Y	resurface	now	gravel	gravel	adeq	4.6	6	1.40	0.30	adeq	no ditch	adeq	57	maintenance only					
S018	Sedgwick Road	CR 1	1.4km West of CR 1	1.4	115	Y	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.10	adeq	open ditch	adeq	56	PR	1-5 years	\$197,000	31		
S021	Sedgwick Road	CR 1	Francis Road	0.8	60	Y	resurface	6-10 years	surface treated	gravel	adeq	6.4	6	adeq	0.20	adeq	open ditch	adeq	72	PR	6-10 years	\$114,000	17		
S023	Sedgwick Road	Francis Road	200m East of Francis Road	0.2	10	Y	rehabilitate	now	surface treated	gravel	adeq	5.6	6	0.40	0.30	adeq	open ditch	now	44	maintenance only					
S019	Sedgwick Road	1.4 km West of CR 1	1.8km West of CR 1	0.4	10	Y	resurface	now	gravel	gravel	adeq	5.3	6	0.70	0.50	adeq	open ditch	now	51	maintenance only					
L055	Shetland Road	Moore Lake Estates Road	230m South of Moore Lake Estates Road	0.2	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.1	6	adeq	0.50	adeq	no ditch	now	62	PR	1-5 years	\$31,000	24		
M049	Shuylers Island Road	Duck Lake Road	1.6km North of Duck Lake Road	1.6	45	Y	adequate		gravel	gravel	adeq	4.8	6	1.20	0.50	adeq	open ditch	adeq	63	maintenance only					
S005	Silverwood Road	Porkys Road	Hamlin Road	0.7	50	adeq	adequate		gravel	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	adeq	90	maintenance only					
S015	Snowdon Park Road	CR 1	720m North of CR 1	0.7	5	Y	rehabilitate	now	gravel	gravel	adeq	3.7	6	2.30	0.20	adeq	no ditch	now	38	maintenance only					
M057	Soyers Lake Road	Eric Potters Road	Grace Road	4.2	60	Y	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.50	adeq	open ditch	adeq	50	PR	1-5 years	\$590,000	32		
M055	Soyers Lake Road	Blairhampton Road	Alexander Road	2.4	30	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	60	maintenance only					
M056	Soyers Lake Road	Alexander Road	Grace Road	1.4	35	adeq	resurface	now	gravel	gravel	adeq	4.8	6	1.20	0.50	adeq	no ditch	now	56	maintenance only					
L001	Spar Lake Road	Buller Road	1.4km North	1.4	40	Y	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.40	adeq	open ditch	adeq	85	maintenance only					
L002	Spar Lake Road	1.4km North	End of Road	1.4	30	Y	resurface	now	gravel	gravel	adeq	4.1	6	1.90	0.50	adeq	no ditch	adeq	59	maintenance only					
L050	Spring Valley Road	Highway 35	1.5km West of Highway 35	1.5	305	adeq	adequate		surface treated	gravel	adeq	7.2	6	adeq	0.20	adeq	open ditch	now	84						
L051	Spring Valley Road	1.5 km West of Highway 35	2.0km West of Highway 35	0.5	50	Y	adequate		gravel	gravel	adeq	5.2	6	0.80	0.30	adeq	open ditch	adeq	76	maintenance only					
V013	St Germaine St	Newcastle St	Prince St	0.1	490	adeq	resurface	1-5 years	asphalt	surface treated	adeq	7	6	adeq	0.50	adeq	no ditch	now	62	PR	1-5 years	\$40,000	36		
V019	St Germaine St	Prince St	Water St	0.1	505	adeq	resurface	1-5 years	asphalt	surface treated	adeq	8	6	adeq	adeq	adeq	sewer & ditch	now	52	PR	1-5 years	\$37,000	46		
V027	St Germaine St	Water Tower	Newcastle St	0.4	130	adeq	resurface	1-5 years	surface treated	gravel	adeq	0.5	6	5.50	adeq	adeq	open ditch	adeq	52	PR	1-5 years	\$30,000	34		
M085B	Stable Road	Shuylers Island Road	Wildflower Lane	0.2	5	Y	adequate		gravel	gravel	adeq	4.8	6	1.20	0.50	adeq	open ditch	now	84	maintenance only					

Road Section Identification																				Improvement				Priority Rating
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics	Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		PCI	Type	Time	Value		
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need						
L029	Starlight Road	Highway 35	90m North of Highway 35	0.1	5	adeq	reconstruct	now	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	no ditch	now	30	maintenance only				
V041	Stouffer St	Invergordon Ave	90m West of Candace St	0.4	190	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	now	50	PR	1-5 years	\$57,000	39	
M005	Swan Road	Queens Line Road	800 m East of Queens Line Road	0.8	80	adeq	adequate		gravel	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	now	80					
L013	Swinson Road	Iron Mine Road	CR 121	1.5	90	Y	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	adeq	53	PR	1-5 years	\$219,000	32	
L014	Swinson Road	Iron Mine Road	Davis Lake Road	2.3	95	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	59	PR	1-5 years	\$329,000	28	
M060	Tait Trail	Soyers Lake Road	42.5m South of Soyers Lake Road	0.0	30	adeq	adequate		gravel	gravel	adeq	4	6	2.00	0.50	adeq	open ditch	now	66	maintenance only				
M031	Taylor Road	Twelve Mile Lake Road	Highway 35	0.4	70	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	60	PR	1-5 years	\$60,000	26	
V021	Teasdale St	Prince St	Teasdale St (end)	0.1	20	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	0.30	adeq	open ditch	now	34	maintenance only				
M021	Tennyson Road	CR 2	Lodge Lane	0.3	215	Y	adequate		asphalt	gravel	adeq	7.3	6	adeq	0.05	adeq	open ditch	now	91					
M022	Tennyson Road	300m West of CR 2	Lodge Lane	1.5	110	Y	adequate		surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	91					
S047	Thurston Road	Ron Road	140m West of Ron Road	0.1	15	adeq	adequate		gravel	gravel	adeq	5	6	1.00	0.50	adeq	no ditch	now	75	maintenance only				
M078	Tom Bolton Road	CR 18	Lochlin Road	1.3	130	adeq	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	91					
M078A	Tom Bolton Road	Lochlin Road	2100m East of Lochlin	2.1	100	Y	adequate		gravel	gravel	adeq	7.3	6	adeq	0.50	adeq	open ditch	now	92					
M079	Tom Bolton Road	2.1 km East of Lochlin Road	Dysart Boundary	0.6	25	Y	rehabilitate	now	gravel	gravel	adeq	3	6	3.00	0.50	adeq	no ditch	now	21	maintenance only				
M044	Tulip Road	Highway 118	4.1km East of Highway 118	4.1	55	Y	adequate		gravel	gravel	adeq	6.7	6	adeq	0.50	adeq	open ditch	now	80					
M045	Tulip Road	4.1km East of Highway 118	5.2km East of Highway 118	1.1	30	adeq	adequate		gravel	gravel	adeq	6.7	6	adeq	0.50	adeq	open ditch	now	68	maintenance only				
M030	Twelve Mile Lake Road	Highway 35	Toboggan Hill Trail	2.3	95	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	61	PR	1-5 years	\$321,000	27	
S050	Upper Dutch Line Road	CR 121	1.5km East of CR 121	1.5	15	Y	resurface	now	gravel	gravel	adeq	4.8	6	1.20	0.30	adeq	no ditch	now	52	maintenance only				
S026	Vick Road	CR 1	1.5km West of CR 1	1.5	40	Y	resurface	now	gravel	gravel	adeq	5.5	6	0.50	0.50	adeq	open ditch	now	52	maintenance only				
V035	Vintage Cr	McKay St	McKay St	0.5	640	adeq	rehabilitate	now	asphalt	surface treated	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	44	BS	now	\$140,000	57	
M046	Voiccy Road	Blairhampton Road	Tulip Road	3.6	35	adeq	resurface	now	gravel	gravel	adeq	6.6	6	adeq	0.50	adeq	open ditch	adeq	48	maintenance only				
S013A	Warder Road	Lochlin Road	650m West of Lochlin Road	0.6	10	adeq	adequate		gravel	gravel	adeq	5.3	6	0.70	0.50	adeq	open ditch	now	63	maintenance only				
V022	Water St	Bobcaygeon Road	St Germaine St.	0.2	2545	adeq	resurface	1-5 years	asphalt	asphalt	adeq	10	6	adeq	adeq	adeq	storm sewer	now	55	R	1-5 years	\$72,000	64	
V023	Water St	St Germaine St.	Golf Course Road	0.8	2805	adeq	rehabilitate	now	asphalt	asphalt	adeq	9	6	adeq	adeq	adeq	storm sewer	now	48	REC	now	\$1,039,000	76	
V024	Water St	Golf Course Road	Highway 35	0.1	3130	adeq	adequate		asphalt	asphalt	adeq	13.2	6	adeq	adeq	adeq	storm sewer	adeq	84					
M082	Weich Road	County Road 21	Deltra Drive	0.2	55	adeq	adequate		gravel	gravel	adeq	5.4	6	0.60	0.50	adeq	no ditch	now	86					
L021	Wessell Road	Highway 35	900m South	0.9	75	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	no ditch	now	57	PR	now	\$70,000	28	
L022	Wessell Road	900m South of Highway 35	1500m South of Highway 35	0.6	50	Y	adequate		gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	no ditch	now	66	maintenance only				
L059	Wessell Road	Cattle Gate Crossing	500m South of Cattle Gate	0.5	30	Y	resurface	now	gravel	gravel	adeq	3	6	3.00	0.50	adeq	no ditch	now	56	maintenance only				
S044	White Boundary Road	CR 503	1.3km East of CR 503	1.3	15	Y	adequate		gravel	gravel	adeq	4.5	6	1.50	0.50	adeq	no ditch	now	76	maintenance only				
S051B	White Boundary Road	1.3 km East of CR 503	7.3km East of CR 503	6.0	20	Y	reconstruct	now	gravel	gravel	adeq	4.5	6	1.50	0.50	adeq	no ditch	now	17	maintenance only				
M061A	Wigamog Road	CR 21	1.3km East of CR 21	1.3	275	Y	adequate		surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	90					
M061B	Wigamog Road	1.3km East of CR 21	Dysart Boundary	1.6	250	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	63	PR	1-5 years	\$222,000	30	
M065	Wilma Road	CR 21	380m West of CR 21	0.4	10	Y	adequate		gravel	gravel	adeq	5.3	6	0.70	0.20	adeq	open ditch	now	63	maintenance only				
V037	Winchester St	McPherson St	McKay St	0.2	145	adeq	resurface	1-5 years	asphalt	gravel	adeq	6.1	6	adeq	0.50	adeq	open ditch	adeq	56	PR	1-5 years	\$39,000	32	
M020	Winding Creek Road	Bobcaygeon Road	215m North	0.2	55	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	46	PR	1-5 years	\$30,000	33	
V032	Windover Dr	Highland Gate Blvd	360m South	0.4	170	adeq	adequate		asphalt	gravel	adeq	8.5	6	adeq	0.50	adeq	open ditch	adeq	94					
				278.0																		\$29,946,000		

PR - pulverize and resurface with 1 or 2 lifts
R - resurface with 1 or 2 lifts

REC - reconstruction
WR - road widening & resurface

Appendix F: Road Priority Ratings

Minden Hills Road Needs Study 2021

Priority Rating - Highest to Lowest Priority (By Time of Improvement)

Road Section Identification						System Deficiencies														Improvement				Priority Rating
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics	Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		PCI	Type	Time	Value		
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need						
Column1	Column2	Column3	Column4	Column5	Column6	Column62	Column7	Column8	Column9	Column92	Column10	Column11	Column112	Column12	Column122	Column13	Column132	Column14	Column16	Column163	Column162	Column17	Column18	
V023	Water St	St Germaine St.	Golf Course Road	0.8	2805	adeq	rehabilitate	now	asphalt	asphalt	adeq	9	6	adeq	adeq	adeq	storm sewer	now	48	REC	now	\$1,039,000	76	
M010B	Bobcaygeon Road	2.9km S of Plantation	Scotch Line Road	1.4	610	adeq	reconstruct	now	surface treated	surface treated	adeq	7.6	6	adeq	0.20	adeq	open ditch	now	33	REC	now	\$1,109,000	68	
V034	McKay St	Bobcaygeon Road	Hospital	0.6	1115	adeq	rehabilitate	now	asphalt	asphalt	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	42	BS	now	\$182,000	67	
M013	Scotch Line Road	Highway 35	Bobcaygeon Road	1.9	530	Y	reconstruct	now	surface treated	surface treated	adeq	7.3	6	adeq	0.20	adeq	open ditch	now	32	REC	now	\$1,789,000	66	
V017	Prince St	St. Germaine St	Floralan Park Dr	0.4	745	adeq	rehabilitate	now	asphalt	surface treated	adeq	7	6	adeq	adeq	adeq	open ditch	now	43	BS	now	\$123,000	60	
V014	Chandos St	60m South of Newcastle St	Prince St	0.2	100	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	16	REC	now	\$120,000	58	
V035	Vintage Cr	McKay St	McKay St	0.5	640	adeq	rehabilitate	now	asphalt	surface treated	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	44	BS	now	\$140,000	57	
M018	Claude Brown Road	Beer Lake Road	1.7km South of Beer Lake Road	1.7	150	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	28	REC	now	\$1,219,000	54	
M008	Bobcaygeon Road	Highway 118	Plantation Road	5.8	135	Y	reconstruct	now	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	31	REC	now	\$4,056,000	50	
M004	Queens Line Road	Plantation Road	Highway 118	5.4	120	Y	reconstruct	now	surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	now	30	REC	now	\$3,432,000	50	
M083	Lugers Road	Highway 35	CR 21	0.2	65	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	26	REC	now	\$138,000	47	
M023	Bat Lake Road	CR 16	4.7km East of CR 16	4.7	195	Y	rehabilitate	now	surface treated	gravel	adeq	6.3	6	adeq	0.40	adeq	open ditch	now	43	BS	now	\$803,000	45	
V015	Lyons St	Newcastle St	Prince St	0.2	60	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	no ditch	now	32	REC	now	\$109,000	43	
L027	Miners Bay Road	Highway 35	Highway 35	1.8	80	adeq	reconstruct	now	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	37	REC	now	\$1,292,000	42	
V040	Invergordon Av	Stouffer St	200m East of Stouffer St	0.2	80	Y	reconstruct	now	surface treated	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	40	REC	now	\$129,000	40	
L032	Sandy Bay Road	Highway 35	60m North of Magistrate Dr	0.3	70	Y	reconstruct	now	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	40	REC	now	\$223,000	39	
S006	Scotts Dam Road	CR 1	780m North of CR 1	0.8	55	Y	rehabilitate	now	surface treated	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	44	BS	now	\$126,000	35	
S030	Milburn Road	CR 1	6.5km East of CR 1	6.5	110	Y	resurface	now	gravel	gravel	adeq	5.6	6	0.40	0.30	adeq	open ditch	now	53	PR	now	\$434,000	33	
L053	Boundary Road	CR 121	55m East of CR 121	0.1	125	adeq	resurface	now	gravel	gravel	adeq	6.1	6	adeq	adeq	adeq	open ditch	now	54	PR	now	\$4,000	33	
L042B	Forsters Road	0.1km East of CR 2	1.0km East of CR 2	0.9	55	Y	resurface	now	gravel	gravel	adeq	4	6	2.00	0.50	adeq	no ditch	now	48	PR	now	\$44,000	32	
M073	Sapling Road	CR 20	120m North of CR 20	0.1	100	Y	resurface	now	gravel	gravel	adeq	4	6	2.00	0.50	adeq	open ditch	now	55	PR	now	\$6,000	31	
L021	Wessell Road	Highway 35	900m South	0.9	75	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	no ditch	now	57	PR	now	\$70,000	28	
M071	Dennison Road	CR 20	1.6km East of CR 20	1.7	55	Y	resurface	now	gravel	gravel	adeq	5.7	6	0.30	0.50	adeq	open ditch	now	56	PR	now	\$113,000	28	
S016	Nichols Road	CR 1	340m West of CR 1	0.3	60	adeq	resurface	now	gravel	gravel	adeq	5.4	6	0.60	0.50	adeq	no ditch	now	56	PR	now	\$22,000	28	
S031	Milburn Road	6.5 km East of CR 1	CR 503	1.4	70	Y	resurface	now	gravel	gravel	adeq	6.2	6	adeq	0.40	adeq	open ditch	now	58	PR	now	\$101,000	27	
S036	Salerno Lake Road	Bumblebee Lane	Twist Lane	3.2	65	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	60	PR	now	\$244,000	26	
V022	Water St	Bobcaygeon Road	St Germaine St.	0.2	2545	adeq	resurface	1-5 years	asphalt	asphalt	adeq	10	6	adeq	adeq	adeq	storm sewer	now	55	R	1-5 years	\$72,000	64	
V016	Prince St	Water St	St. Germaine St	0.2	940	adeq	resurface	1-5 years	asphalt	asphalt	adeq	9	6	adeq	adeq	adeq	storm sewer	now	50	R	1-5 years	\$41,000	56	
V003	Bobcaygeon Road	Water Street	Fleming Road	1.0	2495	adeq	resurface	1-5 years	asphalt	asphalt	adeq	8.5	6	adeq	adeq	adeq	no ditch	adeq	62	R	1-5 years	\$259,000	53	
V039	Invergordon Av	Bobcaygeon Road	Stouffer St	0.9	415	adeq	resurface	1-5 years	asphalt	surface treated	adeq	8.9	6	adeq	0.50	adeq	storm sewer	now	48	PR	1-5 years	\$324,000	48	
M053B	Blairhampton Road	Duck Lake Road	3.1km Easterly	3.2	400	Y	resurface	1-5 years	surface treated	surface treated	adeq	7	6	adeq	0.50	adeq	open ditch	now	49	PR	1-5 years	\$843,000	47	
V019	St Germaine St	Prince St	Water St	0.1	505	adeq	resurface	1-5 years	asphalt	surface treated	adeq	8	6	adeq	adeq	adeq	sewer & ditch	now	52	PR	1-5 years	\$37,000	46	
M053C	Blairhampton Road	3.1km Easterly	CR 21	2.7	385	Y	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.50	adeq	open ditch	now	49	PR	1-5 years	\$397,000	46	
M054	Bethel Road	CR 20	CR 21	5.2	315	Y	resurface	1-5 years	surface treated	gravel	adeq	6.6	6	adeq	0.20	adeq	open ditch	now	48	PR	1-5 years	\$757,000	45	
M053A	Blairhampton Road	Highway 35	Duck Lake Road	3.2	275	adeq	resurface	1-5 years	surface treated	gravel	adeq	8	6	adeq	0.50	adeq	open ditch	now	50	PR	1-5 years	\$546,000	43	
V011	Milne St	Newcastle St	Prince St	0.1	735	adeq	resurface	1-5 years	asphalt	asphalt	adeq	11.4	6	adeq	adeq	adeq	no ditch	now	60	R	1-5 years	\$46,000	42	
V025	Golf Course Road	Water St	240m North of Water St	0.2	200	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	adeq	adeq	open ditch	adeq	47	PR	1-5 years	\$35,000	42	
V006	McKnight Dr	Anson St	Bobcaygeon Road	0.2	195	adeq	resurface	1-5 years	surface treated	gravel	adeq	7.5	6	adeq	0.50	adeq	open ditch	now	48	PR	1-5 years	\$36,000	41	
M009	Bobcaygeon Road	Plantation Road	2.9km S of Plantation	2.9	300	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	54	PR	1-5 years	\$414,000	39	
V041	Stouffer St	Invergordon Ave	90m West of Candace St	0.4	190	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	now	50	PR	1-5 years	\$57,000	39	
V018	Prince St	Floralan Park Dr	Teasdale St	0.1	125	adeq	resurface	1-5 years	asphalt	gravel	adeq	7.5	6	adeq	0.20	adeq	open ditch	now	47	PR	1-5 years	\$41,000	38	
V010	Newcastle St	Bobcaygeon Road	Highway 35	0.6	1160	adeq	resurface	1-5 years	asphalt	asphalt	adeq	10	6	adeq	adeq	adeq	storm sewer	adeq	69	R	1-5 years	\$180,000	37	
L006	Davis Lake Road	Buller Road	Highway 35	4.8	205	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	54	PR	1-5 years	\$687,000	36	
V013	St Germaine St	Newcastle St	Prince St	0.1	490	adeq	resurface	1-5 years	asphalt	surface treated	adeq	7	6	adeq	0.50	adeq	no ditch	now	62	PR	1-5 years	\$40,000	36	
M047	Duck Lake Road	3.0 km North of Bethel Road	Blairhampton Road	4.3	200	Y	resurface	1-5 years	surface treated	gravel	adeq	6.7	6	adeq	0.20	adeq	open ditch	now	54	PR	1-5 years	\$630,000	36	
M014	Scotch Line Road	Bobcaygeon Road	Binghan Road	0.8	280	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	59	PR	1-5 years	\$105,000	35	
V027	St Germaine St	Water Tower	Newcastle St	0.4	130	adeq	resurface	1-5 years	surface treated	gravel	adeq	0.5	6	5.50	adeq	adeq	open ditch	adeq	52	PR	1-5 years	\$30,000	34	
V012	Pritchard Lane	Milne St	St. Germaine St	0.1	500	adeq	resurface	1-5 years	asphalt	asphalt	adeq	12.7	6	adeq	adeq	adeq	storm sewer	adeq	65	R	1-5 years	\$42,000	34	
V009	Anson St	Peck St	960m South	1.0	220	adeq	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.30	adeq	open ditch	now	58	PR	1-5 years	\$140,000	34	

Road Section Identification						System Deficiencies													Improvement				Priority Rating
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics	Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		PCI	Type	Time	Value	
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need					
Column1	Column2	Column3	Column4	Column5	Column6	Column62	Column7	Column8	Column9	Column92	Column10	Column11	Column112	Column12	Column122	Column13	Column132	Column14	Column16	Column163	Column162	Column17	Column18
M020	Winding Creek Road	Bobcaygeon Road	215m North	0.2	55	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	46	PR	1-5 years	\$30,000	33
V037	Winchester St	McPherson St	McKay St	0.2	145	adeq	resurface	1-5 years	asphalt	gravel	adeq	6.1	6	adeq	0.50	adeq	open ditch	adeq	56	PR	1-5 years	\$39,000	32
M037	Maebar Road	Highway 35	Highway 35	1.2	65	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	50	PR	1-5 years	\$160,000	32
V046	Prentice St	Bobcaygeon Road	Community Center	0.4	260	adeq	resurface	1-5 years	asphalt	gravel	adeq	6.4	6	adeq	0.50	adeq	open ditch	now	61	PR	1-5 years	\$85,000	32
L013	Swinson Road	Iron Mine Road	CR 121	1.5	90	Y	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	adeq	53	PR	1-5 years	\$219,000	32
M057	Soyers Lake Road	Eric Potters Road	Grace Road	4.2	60	Y	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.50	adeq	open ditch	adeq	50	PR	1-5 years	\$590,000	32
L015	Moore Lake Estates Road	Highway 35	Highway 35	0.9	195	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.40	adeq	no ditch	now	60	PR	1-5 years	\$114,000	32
S018	Sedgwick Road	CR 1	1.4km West of CR 1	1.4	115	Y	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.10	adeq	open ditch	adeq	56	PR	1-5 years	\$197,000	31
V020	Floralan Park Dr	Prince St	End	0.1	245	adeq	resurface	1-5 years	asphalt	gravel	adeq	7	6	adeq	adeq	adeq	open ditch	adeq	63	PR	1-5 years	\$37,000	30
M061B	Wigamog Road	1.3km East of CR 21	Dysart Boundary	1.6	250	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	63	PR	1-5 years	\$222,000	30
V047	Dick St	Parkside St	Prentice St	0.1	115	adeq	resurface	1-5 years	asphalt	gravel	adeq	8	6	adeq	0.50	adeq	no ditch	now	59	PR	1-5 years	\$26,000	29
L049	Mistivale Road	CR 2	630m South of CR 2	0.6	65	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	56	PR	1-5 years	\$89,000	28
L014	Swinson Road	Iron Mine Road	Davis Lake Road	2.3	95	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	59	PR	1-5 years	\$329,000	28
S035	Salerno Lake Road	Irondale Road	Bumblebee Lane	0.8	70	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	adeq	58	PR	1-5 years	\$116,000	27
V036	McLeod St	McPherson St	McKay St	0.2	70	adeq	resurface	1-5 years	asphalt	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	58	PR	1-5 years	\$37,000	27
M051	Reynolds Road	80m West of Jamieson Dr	Duck Lake Road	1.3	160	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	64	PR	1-5 years	\$188,000	27
M048	Duck Lake Road	Bethel Road	3.0km North of Bethel Road	3.0	225	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.7	6	adeq	0.20	adeq	open ditch	adeq	67	PR	1-5 years	\$424,000	27
L028	Davis Lake Road	Miners Bay Road	Highway 35	0.3	55	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	now	57	PR	1-5 years	\$49,000	27
M030	Twelve Mile Lake Road	Highway 35	Toboggan Hill Trail	2.3	95	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	61	PR	1-5 years	\$321,000	27
L007	Davis Lake Road	Buller Road	Swinson Road	2.9	70	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	60	PR	1-5 years	\$414,000	26
S017	Nichols Road	CR 1	460m East of CR 1	0.5	120	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	no ditch	adeq	64	PR	1-5 years	\$69,000	26
M031	Taylor Road	Twelve Mile Lake Road	Highway 35	0.4	70	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	60	PR	1-5 years	\$60,000	26
M080	Coxfarm Road	CR 21	1.3km North of CR 21	1.3	145	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	adeq	66	PR	1-5 years	\$191,000	25
M067A	Caribou Road	Cold Spring Road	1.4 km (W) of Cold Spring Road	1.4	85	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	62	PR	1-5 years	\$202,000	25
M067B	Caribou Road	CR 21	CR 21	0.8	80	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	62	PR	1-5 years	\$116,000	25
M067C	Caribou Road	CR 21	CR 21	0.2	80	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	62	PR	1-5 years	\$28,000	25
M075	Kelson Road	CR 18	580m South of CR 18	0.6	135	Y	resurface	1-5 years	surface treated	gravel	adeq	7.5	6	adeq	0.20	adeq	open ditch	adeq	66	PR	1-5 years	\$94,000	25
L045	Rackety Trail Road	CR 2	3.7km South of CR 2	3.7	135	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	open ditch	adeq	66	PR	1-5 years	\$494,000	24
S033	Irondale Road	CR 503	Line Dr Road	1.9	225	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	adeq	70	PR	1-5 years	\$258,000	24
L042A	Forsters Road	CR 2	0.1km East of CR 2	0.1	55	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	no ditch	now	61	PR	1-5 years	\$14,000	24
L055	Shetland Road	Moore Lake Estates Road	230m South of Moore Lake Estates	0.2	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.1	6	adeq	0.50	adeq	no ditch	now	62	PR	1-5 years	\$31,000	24
L003	Buller Road	Clear Lake Road	Spar Lake Road	4.7	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	7.1	6	adeq	0.40	adeq	open ditch	now	66	PR	1-5 years	\$708,000	22
V038	McPherson St	McKay St	McLeod St	0.2	70	adeq	resurface	1-5 years	asphalt	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	adeq	66	PR	1-5 years	\$55,000	22
M028A	Judge Jordan Road	Highway 35	Rusty Stream Lane	0.1	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	5.3	6	0.70	0.50	adeq	no ditch	now	68	PR	1-5 years	\$11,000	20
M032	Red Umbrella Road	Highway 35	600m North of Highway 35	0.6	120	adeq	resurface	6-10 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	72	PR	6-10 years	\$84,000	20
S001	Hospitality Road	2.7km South of CR 16	Rice Road	0.7	85	Y	resurface	6-10 years	surface treated	gravel	adeq	7.2	6	adeq	0.30	adeq	open ditch	adeq	74	PR	6-10 years	\$108,000	18
S021	Sedgwick Road	CR 1	Francis Road	0.8	60	Y	resurface	6-10 years	surface treated	gravel	adeq	6.4	6	adeq	0.20	adeq	open ditch	adeq	72	PR	6-10 years	\$114,000	17
M062	Osprey Road	CR 21	1.8km North of CR 21	1.8	85	Y	resurface	6-10 years	surface treated	gravel	adeq	6.1	6	adeq	0.50	adeq	no ditch	adeq	74	PR	6-10 years	\$246,000	17
M084	Minden Lake Road	Coxfarm Road	500m South of Coxfarm Road	0.5	80	Y	resurface	6-10 years	surface treated	gravel	adeq	6.6	6	adeq	adeq	adeq	open ditch	adeq	74	PR	6-10 years	\$73,000	17
S002	Hospitality Road	CR 16	2.7km South of CR 16	2.7	210	Y	resurface	6-10 years	surface treated	gravel	adeq	7.2	6	adeq	0.30	adeq	open ditch	adeq	80	PR	6-10 years	\$413,000	16
M096	Rotary Park Road	Highway 35	118 m West of Highway 35	0.1	90	adeq	resurface	6-10 years	surface treated	gravel	adeq	5	6	1.00	0.50	adeq	open ditch	adeq	76	PR	6-10 years	\$15,000	16
M033	Red Umbrella Road	600m North of Highway 35	950m North of Highway 35	0.4	70	adeq	resurface	6-10 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	78	PR	6-10 years	\$50,000	15
277.9																						\$29,946,000	

PR - pulverize and resurface with 1 or 2 lifts
R - resurface with 1 or 2 lifts

REC - reconstruction
WR - widen & resurface

Appendix G: Road Priority Guide Numbers

Minden Hills Road Needs Study 2021

Priority Guide Number - Highest to Lowest Priority (By Time of Improvement)

Road Section Identification						System Deficiencies													Improvement			Priority Rating	Priority Guide Number
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics	Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		Type	Time	Value		
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need					
V034	McKay St	Bobcaygeon Road	Hospital	0.6	1115	adeq	rehabilitate	now	asphalt	asphalt	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	BS	now	\$182,000	67	18
V022	Water St	Bobcaygeon Road	St Germaine St.	0.2	2545	adeq	resurface	1-5 years	asphalt	asphalt	adeq	10	6	adeq	adeq	adeq	storm sewer	now	R	1-5 years	\$72,000	64	16
V003	Bobcaygeon Road	Water Street	Fleming Road	1.0	2495	adeq	resurface	1-5 years	asphalt	asphalt	adeq	8.5	6	adeq	adeq	adeq	no ditch	adeq	R	1-5 years	\$259,000	53	15
V017	Prince St	St. Germaine St	Floralan Park Dr	0.4	745	adeq	rehabilitate	now	asphalt	surface treated	adeq	7	6	adeq	adeq	adeq	open ditch	now	BS	now	\$123,000	60	10
V023	Water St	St Germaine St.	Golf Course Road	0.8	2805	adeq	rehabilitate	now	asphalt	asphalt	adeq	9	6	adeq	adeq	adeq	storm sewer	now	REC	now	\$1,039,000	76	10
V035	Vintage Cr	McKay St	McKay St	0.5	640	adeq	rehabilitate	now	asphalt	surface treated	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	BS	now	\$140,000	57	10
V016	Prince St	Water St	St. Germaine St	0.2	940	adeq	resurface	1-5 years	asphalt	asphalt	adeq	9	6	adeq	adeq	adeq	storm sewer	now	R	1-5 years	\$41,000	56	7
M023	Bat Lake Road	CR 16	4.7km East of CR 16	4.7	195	Y	rehabilitate	now	surface treated	gravel	adeq	6.3	6	adeq	0.40	adeq	open ditch	now	BS	now	\$803,000	45	5
M053C	Blairhampton Road	3.1km Easterly	CR 21	2.7	385	Y	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$397,000	46	5
V010	Newcastle St	Bobcaygeon Road	Highway 35	0.6	1160	adeq	resurface	1-5 years	asphalt	asphalt	adeq	10	6	adeq	adeq	adeq	storm sewer	adeq	R	1-5 years	\$180,000	37	5
M010B	Bobcaygeon Road	2.9km S of Plantation	Scotch Line Road	1.4	610	adeq	reconstruct	now	surface treated	surface treated	adeq	7.6	6	adeq	0.20	adeq	open ditch	now	REC	now	\$1,109,000	68	4
M054	Bethel Road	CR 20	CR 21	5.2	315	Y	resurface	1-5 years	surface treated	gravel	adeq	6.6	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$757,000	45	4
M009	Bobcaygeon Road	Plantation Road	2.9km S of Plantation	2.9	300	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$414,000	39	4
M073	Sapling Road	CR 20	120m North of CR 20	0.1	100	Y	resurface	now	gravel	gravel	adeq	4	6	2.00	0.50	adeq	open ditch	now	PR	now	\$6,000	31	4
V011	Milne St	Newcastle St	Prince St	0.1	735	adeq	resurface	1-5 years	asphalt	asphalt	adeq	11.4	6	adeq	adeq	adeq	no ditch	now	R	1-5 years	\$46,000	42	4
M014	Scotch Line Road	Bobcaygeon Road	Binghan Road	0.8	280	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	PR	1-5 years	\$105,000	35	3
S030	Milburn Road	CR 1	6.5km East of CR 1	6.5	110	Y	resurface	now	gravel	gravel	adeq	5.6	6	0.40	0.30	adeq	open ditch	now	PR	now	\$434,000	33	3
M053A	Blairhampton Road	Highway 35	Duck Lake Road	3.2	275	adeq	resurface	1-5 years	surface treated	gravel	adeq	8	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$546,000	43	3
V027	St Germaine St	Water Tower	Newcastle St	0.4	130	adeq	resurface	1-5 years	surface treated	gravel	adeq	0.5	6	5.50	adeq	adeq	open ditch	adeq	PR	1-5 years	\$30,000	34	3
L053	Boundary Road	CR 121	55m East of CR 121	0.1	125	adeq	resurface	now	gravel	gravel	adeq	6.1	6	adeq	adeq	adeq	open ditch	now	PR	now	\$4,000	33	3
M013	Scotch Line Road	Highway 35	Bobcaygeon Road	1.9	530	Y	reconstruct	now	surface treated	surface treated	adeq	7.3	6	adeq	0.20	adeq	open ditch	now	REC	now	\$1,789,000	66	3
V025	Golf Course Road	Water St	240m North of Water St	0.2	200	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	adeq	adeq	open ditch	adeq	PR	1-5 years	\$35,000	42	3
V019	St Germaine St	Prince St	Water St	0.1	505	adeq	resurface	1-5 years	asphalt	surface treated	adeq	8	6	adeq	adeq	adeq	sewer & ditch	now	PR	1-5 years	\$37,000	46	3
M053B	Blairhampton Road	Duck Lake Road	3.1km Easterly	3.2	400	Y	resurface	1-5 years	surface treated	surface treated	adeq	7	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$843,000	47	3
V041	Stouffer St	Invergordon Ave	90m West of Candace St	0.4	190	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$57,000	39	3
V006	McKnight Dr	Anson St	Bobcaygeon Road	0.2	195	adeq	resurface	1-5 years	surface treated	gravel	adeq	7.5	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$36,000	41	3
L006	Davis Lake Road	Buller Road	Highway 35	4.8	205	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$687,000	36	3
M061B	Wigamog Road	1.3km East of CR 21	Dysart Boundary	1.6	250	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$222,000	30	3
M047	Duck Lake Road	3.0 km North of Bethel Road	Blairhampton Road	4.3	200	Y	resurface	1-5 years	surface treated	gravel	adeq	6.7	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$630,000	36	3
V013	St Germaine St	Newcastle St	Prince St	0.1	490	adeq	resurface	1-5 years	asphalt	surface treated	adeq	7	6	adeq	0.50	adeq	no ditch	now	PR	1-5 years	\$40,000	36	3
V039	Invergordon Av	Bobcaygeon Road	Stouffer St	0.9	415	adeq	resurface	1-5 years	asphalt	surface treated	adeq	8.9	6	adeq	0.50	adeq	storm sewer	now	PR	1-5 years	\$324,000	48	3
V009	Anson St	Peck St	960m South	1.0	220	adeq	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.30	adeq	open ditch	now	PR	1-5 years	\$140,000	34	2
L042B	Forsters Road	0.1km East of CR 2	1.0km East of CR 2	0.9	55	Y	resurface	now	gravel	gravel	adeq	4	6	2.00	0.50	adeq	no ditch	now	PR	now	\$44,000	32	2
L015	Moore Lake Estates Road	Highway 35	Highway 35	0.9	195	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.40	adeq	no ditch	now	PR	1-5 years	\$114,000	32	2
M048	Duck Lake Road	Bethel Road	3.0km North of Bethel Road	3.0	225	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.7	6	adeq	0.20	adeq	open ditch	adeq	PR	1-5 years	\$424,000	27	2
V012	Pritchard Lane	Milne St	St. Germaine St	0.1	500	adeq	resurface	1-5 years	asphalt	asphalt	adeq	12.7	6	adeq	adeq	adeq	storm sewer	adeq	R	1-5 years	\$42,000	34	2
S033	Irondale Road	CR 503	Line Dr Road	1.9	225	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	adeq	PR	1-5 years	\$258,000	24	2
V046	Prentice St	Bobcaygeon Road	Community Center	0.4	260	adeq	resurface	1-5 years	asphalt	gravel	adeq	6.4	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$85,000	32	2
L021	Wessell Road	Highway 35	900m South	0.9	75	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	no ditch	now	PR	now	\$70,000	28	2
M051	Reynolds Road	80m West of Jamieson Dr	Duck Lake Road	1.3	160	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$188,000	27	2
S016	Nichols Road	CR 1	340m West of CR 1	0.3	60	adeq	resurface	now	gravel	gravel	adeq	5.4	6	0.60	0.50	adeq	no ditch	now	PR	now	\$22,000	28	2
S006	Scotts Dam Road	CR 1	780m North of CR 1	0.8	55	Y	rehabilitate	now	surface treated	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	BS	now	\$126,000	35	2
S031	Milburn Road	6.5 km East of CR 1	CR 503	1.4	70	Y	resurface	now	gravel	gravel	adeq	6.2	6	adeq	0.40	adeq	open ditch	now	PR	now	\$101,000	27	2
S018	Sedgwick Road	CR 1	1.4km West of CR 1	1.4	115	Y	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.10	adeq	open ditch	adeq	PR	1-5 years	\$197,000	31	2
M071	Dennison Road	CR 20	1.6km East of CR 20	1.7	55	Y	resurface	now	gravel	gravel	adeq	5.7	6	0.30	0.50	adeq	open ditch	now	PR	now	\$113,000	28	1
M080	Coxfarm Road	CR 21	1.3km North of CR 21	1.3	145	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$191,000	25	1
S036	Salerno Lake Road	Bumblebee Lane	Twist Lane	3.2	65	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	PR	now	\$244,000	26	1
M018	Claude Brown Road	Beer Lake Road	1.7km South of Beer Lake Road	1.7	150	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	REC	now	\$1,219,000	54	1
L045	Rackety Trail Road	CR 2	3.7km South of CR 2	3.7	135	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	open ditch	adeq	PR	1-5 years	\$494,000	24	1

Road Section Identification						System Deficiencies													Improvement			Priority Rating	Priority Guide Number		
Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics	Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		Type	Time	Value				
						need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need							
V020	Floralan Park Dr	Prince St	End	0.1	245	adeq	resurface	1-5 years	asphalt	gravel	adeq	7	6	adeq	adeq	adeq	open ditch	adeq	PR	1-5 years	\$37,000	30	1		
S017	Nichols Road	CR 1	460m East of CR 1	0.5	120	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	no ditch	adeq	PR	1-5 years	\$69,000	26	1		
M008	Bobcaygeon Road	Highway 118	Plantation Road	5.8	135	Y	reconstruct	now	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	REC	now	\$4,056,000	50	1		
V014	Chandos St	60m South of Newcastle St	Prince St	0.2	100	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	REC	now	\$120,000	58	1		
V037	Winchester St	McPherson St	McKay St	0.2	145	adeq	resurface	1-5 years	asphalt	gravel	adeq	6.1	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$39,000	32	1		
S002	Hospitality Road	CR 16	2.7km South of CR 16	2.7	210	Y	resurface	6-10 years	surface treated	gravel	adeq	7.2	6	adeq	0.30	adeq	open ditch	adeq	PR	6-10 years	\$413,000	16	1		
M075	Kelson Road	CR 18	580m South of CR 18	0.6	135	Y	resurface	1-5 years	surface treated	gravel	adeq	7.5	6	adeq	0.20	adeq	open ditch	adeq	PR	1-5 years	\$94,000	25	1		
L013	Swinson Road	Iron Mine Road	CR 121	1.5	90	Y	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	adeq	PR	1-5 years	\$219,000	32	1		
M004	Queens Line Road	Plantation Road	Highway 118	5.4	120	Y	reconstruct	now	surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	now	REC	now	\$3,432,000	50	1		
L014	Swinson Road	Iron Mine Road	Davis Lake Road	2.3	95	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$329,000	28	1		
M030	Twelve Mile Lake Road	Highway 35	Toboggan Hill Trail	2.3	95	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$321,000	27	1		
M032	Red Umbrella Road	Highway 35	600m North of Highway 35	0.6	120	adeq	resurface	6-10 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	6-10 years	\$84,000	20	1		
M037	Maebar Road	Highway 35	Highway 35	1.2	65	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$160,000	32	1		
M067A	Caribou Road	Cold Spring Road	1.4 km (W) of Cold Spring Road	1.4	85	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$202,000	25	1		
V018	Prince St	Floralan Park Dr	Teasdale St	0.1	125	adeq	resurface	1-5 years	asphalt	gravel	adeq	7.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$41,000	38	1		
M020	Winding Creek Road	Bobcaygeon Road	215m North	0.2	55	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$30,000	33	1		
M067C	Caribou Road	CR 21	CR 21	0.2	80	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$28,000	25	1		
M057	Soyers Lake Road	Eric Potters Road	Grace Road	4.2	60	Y	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$590,000	32	1		
L049	Mistivale Road	CR 2	630m South of CR 2	0.6	65	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	PR	1-5 years	\$89,000	28	1		
M031	Taylor Road	Twelve Mile Lake Road	Highway 35	0.4	70	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	PR	1-5 years	\$60,000	26	1		
M067B	Caribou Road	CR 21	CR 21	0.8	80	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$116,000	25	1		
S035	Salerno Lake Road	Irondale Road	Bumblebee Lane	0.8	70	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	adeq	PR	1-5 years	\$116,000	27	1		
L007	Davis Lake Road	Buller Road	Swinson Road	2.9	70	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	PR	1-5 years	\$414,000	26	1		
L028	Davis Lake Road	Miners Bay Road	Highway 35	0.3	55	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	now	PR	1-5 years	\$49,000	27	1		
L055	Shetland Road	Moore Lake Estates Road	230m South of Moore Lake Estates	0.2	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.1	6	adeq	0.50	adeq	no ditch	now	PR	1-5 years	\$31,000	24	1		
V047	Dick St	Parkside St	Prentice St	0.1	115	adeq	resurface	1-5 years	asphalt	gravel	adeq	8	6	adeq	0.50	adeq	no ditch	now	PR	1-5 years	\$26,000	29	1		
L042A	Forsters Road	CR 2	0.1km East of CR 2	0.1	55	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	no ditch	now	PR	1-5 years	\$14,000	24	1		
V040	Invergordon Av	Stouffer St	200m East of Stouffer St	0.2	80	Y	reconstruct	now	surface treated	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	REC	now	\$129,000	40	1		
M083	Lugers Road	Highway 35	CR 21	0.2	65	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	REC	now	\$138,000	47	1		
M062	Osprey Road	CR 21	1.8km North of CR 21	1.8	85	Y	resurface	6-10 years	surface treated	gravel	adeq	6.1	6	adeq	0.50	adeq	no ditch	adeq	PR	6-10 years	\$246,000	17	1		
M096	Rotary Park Road	Highway 35	118 m West of Highway 35	0.1	90	adeq	resurface	6-10 years	surface treated	gravel	adeq	5	6	1.00	0.50	adeq	open ditch	adeq	PR	6-10 years	\$15,000	16	1		
M028A	Judge Jordan Road	Highway 35	Rusty Stream Lane	0.1	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	5.3	6	0.70	0.50	adeq	no ditch	now	PR	1-5 years	\$11,000	20	1		
L027	Miners Bay Road	Highway 35	Highway 35	1.8	80	adeq	reconstruct	now	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	REC	now	\$1,292,000	42	1		
V015	Lyons St	Newcastle St	Prince St	0.2	60	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	no ditch	now	REC	now	\$109,000	43	1		
S001	Hospitality Road	2.7km South of CR 16	Rice Road	0.7	85	Y	resurface	6-10 years	surface treated	gravel	adeq	7.2	6	adeq	0.30	adeq	open ditch	adeq	PR	6-10 years	\$108,000	18	1		
M084	Minden Lake Road	Coxfarm Road	500m South of Coxfarm Road	0.5	80	Y	resurface	6-10 years	surface treated	gravel	adeq	6.6	6	adeq	adeq	adeq	open ditch	adeq	PR	6-10 years	\$73,000	17	1		
L003	Buller Road	Clear Lake Road	Spar Lake Road	4.7	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	7.1	6	adeq	0.40	adeq	open ditch	now	PR	1-5 years	\$708,000	22	1		
V036	McLeod St	McPherson St	McKay St	0.2	70	adeq	resurface	1-5 years	asphalt	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	PR	1-5 years	\$37,000	27	1		
L032	Sandy Bay Road	Highway 35	60m North of Magistrate Dr	0.3	70	Y	reconstruct	now	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	REC	now	\$223,000	39	1		
S021	Sedgwick Road	CR 1	Francis Road	0.8	60	Y	resurface	6-10 years	surface treated	gravel	adeq	6.4	6	adeq	0.20	adeq	open ditch	adeq	PR	6-10 years	\$114,000	17	0		
M033	Red Umbrella Road	600m North of Highway 35	950m North of Highway 35	0.4	70	adeq	resurface	6-10 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	6-10 years	\$50,000	15	0		
V038	McPherson St	McKay St	McLeod St	0.2	70	adeq	resurface	1-5 years	asphalt	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$55,000	22	0		
278.0																					\$29,946,000				

PR - pulverize and resurface with 1 or 2 lifts
R - resurface with 1 or 2 lifts

REC - reconstruction
WR - widen & resurface

Appendix H: Road Implementation Plan

Rank	Year	Priority Guide Number	Road Section Identification						System Deficiencies												Improvement			Priority Rating				
			Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics			Surface Condition			Surface Type			Surface Width			Shoulder	Capacity	Drainage		Type	Time	Value	
									need	existing	need	existing	tolerable	need	existing	tolerable	need	existing	tolerable	need			existing					need
1	1	18	V034	McKay St	Bobcaygeon Road	Hospital	0.6	1115	adeq	rehabilitate	now	asphalt	asphalt	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	BS	now	\$182,000	67			
2	1	16	V022	Water St	Bobcaygeon Road	St Germaine St.	0.2	2545	adeq	resurface	1-5 years	asphalt	asphalt	adeq	10	6	adeq	adeq	adeq	storm sewer	now	R	1-5 years	\$72,000	64			
3	1	15	V003	Bobcaygeon Road	Water Street	Fleming Road	1.0	2495	adeq	resurface	1-5 years	asphalt	asphalt	adeq	8.5	6	adeq	adeq	adeq	no ditch	adeq	R	1-5 years	\$259,000	53			
4	1	10	V017	Prince St	St. Germaine St	Floralan Park Dr	0.4	745	adeq	rehabilitate	now	asphalt	surface treated	adeq	7	6	adeq	adeq	adeq	open ditch	now	BS	now	\$123,000	60			
5	1	10	V023	Water St	St Germaine St.	Golf Course Road	0.8	2805	adeq	rehabilitate	now	asphalt	asphalt	adeq	9	6	adeq	adeq	adeq	storm sewer	now	REC	now	\$1,039,000	76			
6	1	10	V035	Vintage Cr	McKay St	McKay St	0.5	640	adeq	rehabilitate	now	asphalt	surface treated	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	BS	now	\$140,000	57			
7	1	7	V016	Prince St	Water St	St. Germaine St	0.2	940	adeq	resurface	1-5 years	asphalt	asphalt	adeq	9	6	adeq	adeq	adeq	storm sewer	now	R	1-5 years	\$41,000	56			
8	1	5	M023	Bat Lake Road	CR 16	4.7km East of CR 16	4.7	195	Y	rehabilitate	now	surface treated	gravel	adeq	6.3	6	adeq	0.40	adeq	open ditch	now	BS	now	\$803,000	45			
9	1	5	M053C	Blairhampton Road	3.1km Easterly	CR 21	2.7	385	Y	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$397,000	46			
10	2	5	V010	Newcastle St	Bobcaygeon Road	Highway 35	0.6	1160	adeq	resurface	1-5 years	asphalt	asphalt	adeq	10	6	adeq	adeq	adeq	storm sewer	adeq	R	1-5 years	\$180,000	37			
11	2	4	M010B	Bobcaygeon Road	2.9km S of Plantation	Scotch Line Road	1.4	610	adeq	reconstruct	now	surface treated	surface treated	adeq	7.6	6	adeq	0.20	adeq	open ditch	now	REC	now	\$1,109,000	68			
12	2	4	M054	Bethel Road	CR 20	CR 21	5.2	315	Y	resurface	1-5 years	surface treated	gravel	adeq	6.6	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$757,000	45			
13	2	4	M009	Bobcaygeon Road	Plantation Road	2.9km S of Plantation	2.9	300	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$414,000	39			
14	2	4	M073	Sapling Road	CR 20	120m North of CR 20	0.1	100	Y	resurface	now	gravel	gravel	adeq	4	6	2.00	0.50	adeq	open ditch	now	PR	now	\$6,000	31			
15	2	4	V011	Milne St	Newcastle St	Prince St	0.1	735	adeq	resurface	1-5 years	asphalt	asphalt	adeq	11.4	6	adeq	adeq	adeq	no ditch	now	R	1-5 years	\$46,000	42			
16	2	3	M014	Scotch Line Road	Bobcaygeon Road	Binghan Road	0.8	280	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	PR	1-5 years	\$105,000	35			
17	2	3	S030	Milburn Road	CR 1	6.5km East of CR 1	6.5	110	Y	resurface	now	gravel	gravel	adeq	5.6	6	0.40	0.30	adeq	open ditch	now	PR	now	\$434,000	33			
18	3	3	M053A	Blairhampton Road	Highway 35	Duck Lake Road	3.2	275	adeq	resurface	1-5 years	surface treated	gravel	adeq	8	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$546,000	43			
19	3	3	V027	St Germaine St	Water Tower	Newcastle St	0.4	130	adeq	resurface	1-5 years	surface treated	gravel	adeq	0.5	6	5.50	adeq	adeq	open ditch	adeq	PR	1-5 years	\$30,000	34			
20	3	3	L053	Boundary Road	CR 121	55m East of CR 121	0.1	125	adeq	resurface	now	gravel	gravel	adeq	6.1	6	adeq	adeq	adeq	open ditch	now	PR	now	\$4,000	33			
21	3	3	M013	Scotch Line Road	Highway 35	Bobcaygeon Road	1.9	530	Y	reconstruct	now	surface treated	surface treated	adeq	7.3	6	adeq	0.20	adeq	open ditch	now	REC	now	\$1,789,000	66			
22	3	3	V025	Golf Course Road	Water St	240m North of Water St	0.2	200	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	adeq	adeq	open ditch	adeq	PR	1-5 years	\$35,000	42			
23	3	3	V019	St Germaine St	Prince St	Water St	0.1	505	adeq	resurface	1-5 years	asphalt	surface treated	adeq	8	6	adeq	adeq	adeq	sewer & ditch	now	PR	1-5 years	\$37,000	46			
24	4	3	M053B	Blairhampton Road	Duck Lake Road	3.1km Easterly	3.2	400	Y	resurface	1-5 years	surface treated	surface treated	adeq	7	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$843,000	47			
25	3	3	V041	Stouffer St	Invergordon Ave	90m West of Candace St	0.4	190	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$57,000	39			
26	3	3	V006	McKnight Dr	Anson St	Bobcaygeon Road	0.2	195	adeq	resurface	1-5 years	surface treated	gravel	adeq	7.5	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$36,000	41			
27	4	3	L006	Davis Lake Road	Buller Road	Highway 35	4.8	205	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$687,000	36			
28	3	3	M061B	Wigamog Road	1.3km East of CR 21	Dysart Boundary	1.6	250	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$222,000	30			
29	4	3	M047	Duck Lake Road	3.0 km North of Bethel Road	Blairhampton Road	4.3	200	Y	resurface	1-5 years	surface treated	gravel	adeq	6.7	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$630,000	36			
30	4	3	V013	St Germaine St	Newcastle St	Prince St	0.1	490	adeq	resurface	1-5 years	asphalt	surface treated	adeq	7	6	adeq	0.50	adeq	no ditch	now	PR	1-5 years	\$40,000	36			
31	4	3	V039	Invergordon Av	Bobcaygeon Road	Stouffer St	0.9	415	adeq	resurface	1-5 years	asphalt	surface treated	adeq	8.9	6	adeq	0.50	adeq	storm sewer	now	PR	1-5 years	\$324,000	48			
32	3	2	V009	Anson St	Peck St	960m South	1.0	220	adeq	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.30	adeq	open ditch	now	PR	1-5 years	\$140,000	34			
33	4	2	L042B	Forsters Road	0.1km East of CR 2	1.0km East of CR 2	0.9	55	Y	resurface	now	gravel	gravel	adeq	4	6	2.00	0.50	adeq	no ditch	now	PR	now	\$44,000	32			
34	4	2	L015	Moore Lake Estates Road	Highway 35	Highway 35	0.9	195	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.40	adeq	no ditch	now	PR	1-5 years	\$114,000	32			
35	5	2	M048	Duck Lake Road	Bethel Road	3.0km North of Bethel Road	3.0	225	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.7	6	adeq	0.20	adeq	open ditch	adeq	PR	1-5 years	\$424,000	27			
36	4	2	V012	Pritchard Lane	Milne St	St. Germaine St	0.1	500	adeq	resurface	1-5 years	asphalt	asphalt	adeq	12.7	6	adeq	adeq	adeq	storm sewer	adeq	R	1-5 years	\$42,000	34			
37	4	2	S033	Irondale Road	CR 503	Line Dr Road	1.9	225	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	adeq	PR	1-5 years	\$258,000	24			
38	5	2	V046	Prentice St	Bobcaygeon Road	Community Center	0.4	260	adeq	resurface	1-5 years	asphalt	gravel	adeq	6.4	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$85,000	32			
39	5	2	L021	Wessell Road	Highway 35	900m South	0.9	75	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	no ditch	now	PR	now	\$70,000	28			
40	5	2	M051	Reynolds Road	80m West of Jamieson Dr	Duck Lake Road	1.3	160	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$188,000	27			
41	5	2	S016	Nichols Road	CR 1	340m West of CR 1	0.3	60	adeq	resurface	now	gravel	gravel	adeq	5.4	6	0.60	0.50	adeq	no ditch	now	PR	now	\$22,000	28			
42	5	2	S006	Scotts Dam Road	CR 1	780m North of CR 1	0.8	55	Y	rehabilitate	now	surface treated	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	BS	now	\$126,000	35			
43	5	2	S031	Milburn Road	6.5 km East of CR 1	CR 503	1.4	70	Y	resurface	now	gravel	gravel	adeq	6.2	6	adeq	0.40	adeq	open ditch	now	PR	now	\$101,000	27			
44	5	2	S018	Sedgwick Road	CR 1	1.4km West of CR 1	1.4	115	Y	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.10	adeq	open ditch	adeq	PR	1-5 years	\$197,000	31			
45	5	1	M071	Dennison Road	CR 20	1.6km East of CR 20	1.7	55	Y	resurface	now	gravel	gravel	adeq	5.7	6	0.30	0.50	adeq	open ditch	now	PR	now	\$113,000	28			
46	5	1	M080	Coxfarm Road	CR 21	1.3km North of CR 21	1.3	145	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$191,000	25			
47	5	1	S036	Salerno Lake Road	Bumblebee Lane	Twist Lane	3.2	65	Y	resurface	now	gravel	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	PR	now	\$244,000	26			
48	5	1	M018	Claude Brown Road	Beer Lake Road	1.7km South of Beer Lake Road	1.7	150	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	REC	now	\$1,219,000	54			
49	6	1	L045	Rackety Trail Road	CR 2	3.7km South of CR 2	3.7	135	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	open ditch	adeq	PR	1-5 years	\$494,000	24			
50	6	1	V020	Floralan Park Dr	Prince St	End	0.1	245	adeq	resurface	1-5 years	asphalt	gravel	adeq	7	6	adeq	adeq	adeq	open ditch	adeq	PR	1-5 years	\$37,000	30			
51	6	1	S017	Nichols Road	CR 1	460m East of CR 1	0.5	120	Y	resurface	1-5 years	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	no ditch	adeq	PR	1-5 years	\$69,000	26			

Rank	Year	Priority Guide Number	Road Section Identification						System Deficiencies													Improvement			Priority Rating	
			Section	Road Name	From	To	Length (km)	2018 AADT	Geometrics	Surface Condition		Surface Type			Surface Width			Shoulder	Capacity	Drainage		Type	Time	Value		
									need	existing	need	existing	tolerable	need	existing	tolerable	need	need	need	existing	need					
52	7	1	M008	Bobcaygeon Road	Highway 118	Plantation Road	5.8	135	Y	reconstruct	now	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	REC	now	\$4,056,000	50	
53	6	1	V014	Chandos St	60m South of Newcastle St	Prince St	0.2	100	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	open ditch	now	REC	now	\$120,000	58	
54	6	1	V037	Winchester St	McPherson St	McKay St	0.2	145	adeq	resurface	1-5 years	asphalt	gravel	adeq	6.1	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$39,000	32	
55	6	1	S002	Hospitality Road	CR 16	2.7km South of CR 16	2.7	210	Y	resurface	6-10 years	surface treated	gravel	adeq	7.2	6	adeq	0.30	adeq	open ditch	adeq	PR	6-10 years	\$413,000	16	
56	6	1	M075	Kelson Road	CR 18	580m South of CR 18	0.6	135	Y	resurface	1-5 years	surface treated	gravel	adeq	7.5	6	adeq	0.20	adeq	open ditch	adeq	PR	1-5 years	\$94,000	25	
57	6	1	L013	Swinson Road	Iron Mine Road	CR 121	1.5	90	Y	resurface	1-5 years	surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	adeq	PR	1-5 years	\$219,000	32	
58	8	1	M004	Queens Line Road	Plantation Road	Highway 118	5.4	120	Y	reconstruct	now	surface treated	gravel	adeq	7	6	adeq	0.20	adeq	open ditch	now	REC	now	\$3,432,000	50	
59	9	1	L014	Swinson Road	Iron Mine Road	Davis Lake Road	2.3	95	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$329,000	28	
60	9	1	M030	Twelve Mile Lake Road	Highway 35	Toboggan Hill Trail	2.3	95	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$321,000	27	
61	9	1	M032	Red Umbrella Road	Highway 35	600m North of Highway 35	0.6	120	adeq	resurface	6-10 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	6-10 years	\$84,000	20	
62	9	1	M037	Maebar Road	Highway 35	Highway 35	1.2	65	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.2	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$160,000	32	
63	9	1	M067A	Caribou Road	Cold Spring Road	1.4 km (W) of Cold Spring Road	1.4	85	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$202,000	25	
64	9	1	V018	Prince St	Floralan Park Dr	Teasdale St	0.1	125	adeq	resurface	1-5 years	asphalt	gravel	adeq	7.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$41,000	38	
65	9	1	M020	Winding Creek Road	Bobcaygeon Road	215m North	0.2	55	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$30,000	33	
66	9	1	M067C	Caribou Road	CR 21	CR 21	0.2	80	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.20	adeq	open ditch	now	PR	1-5 years	\$28,000	25	
67	9	1	M057	Soyers Lake Road	Eric Potters Road	Grace Road	4.2	60	Y	resurface	1-5 years	surface treated	gravel	adeq	6.3	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$590,000	32	
68	9	1	L049	Mistivale Road	CR 2	630m South of CR 2	0.6	65	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	PR	1-5 years	\$89,000	28	
69	9	1	M031	Taylor Road	Twelve Mile Lake Road	Highway 35	0.4	70	adeq	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	PR	1-5 years	\$60,000	26	
70	9	1	M067B	Caribou Road	CR 21	CR 21	0.8	80	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	now	PR	1-5 years	\$116,000	25	
71	9	1	S035	Salerno Lake Road	Irondale Road	Bumblebee Lane	0.8	70	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	adeq	PR	1-5 years	\$116,000	27	
72	9	1	L007	Davis Lake Road	Buller Road	Swinson Road	2.9	70	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	adeq	adeq	open ditch	now	PR	1-5 years	\$414,000	26	
73	9	1	L028	Davis Lake Road	Miners Bay Road	Highway 35	0.3	55	Y	resurface	1-5 years	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	now	PR	1-5 years	\$49,000	27	
74	9	1	L055	Shetland Road	Moore Lake Estates Road	230m South of Moore Lake Estates Rd	0.2	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	6.1	6	adeq	0.50	adeq	no ditch	now	PR	1-5 years	\$31,000	24	
75	9	1	V047	Dick St	Parkside St	Prentice St	0.1	115	adeq	resurface	1-5 years	asphalt	gravel	adeq	8	6	adeq	0.50	adeq	no ditch	now	PR	1-5 years	\$26,000	29	
76	9	1	L042A	Forsters Road	CR 2	0.1km East of CR 2	0.1	55	Y	resurface	1-5 years	surface treated	gravel	adeq	6	6	adeq	0.20	adeq	no ditch	now	PR	1-5 years	\$14,000	24	
77	9	1	V040	Invergordon Av	Stouffer St	200m East of Stouffer St	0.2	80	Y	reconstruct	now	surface treated	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	REC	now	\$129,000	40	
78	9	1	M083	Lugers Road	Highway 35	CR 21	0.2	65	Y	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	0.50	adeq	no ditch	now	REC	now	\$138,000	47	
79	10	1	M062	Osprey Road	CR 21	1.8km North of CR 21	1.8	85	Y	resurface	6-10 years	surface treated	gravel	adeq	6.1	6	adeq	0.50	adeq	no ditch	adeq	PR	6-10 years	\$246,000	17	
80	10	1	M096	Rotary Park Road	Highway 35	118 m West of Highway 35	0.1	90	adeq	resurface	6-10 years	surface treated	gravel	adeq	5	6	1.00	0.50	adeq	open ditch	adeq	PR	6-10 years	\$15,000	16	
81	10	1	M028A	Judge Jordan Road	Highway 35	Rusty Stream Lane	0.1	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	5.3	6	0.70	0.50	adeq	no ditch	now	PR	1-5 years	\$11,000	20	
82	10	1	L027	Miners Bay Road	Highway 35	Highway 35	1.8	80	adeq	reconstruct	now	surface treated	gravel	adeq	6.5	6	adeq	0.30	adeq	open ditch	adeq	REC	now	\$1,292,000	42	
83	10	1	V015	Lyons St	Newcastle St	Prince St	0.2	60	adeq	reconstruct	now	surface treated	gravel	adeq	6	6	adeq	adeq	adeq	no ditch	now	REC	now	\$109,000	43	
84	10	1	S001	Hospitality Road	2.7km South of CR 16	Rice Road	0.7	85	Y	resurface	6-10 years	surface treated	gravel	adeq	7.2	6	adeq	0.30	adeq	open ditch	adeq	PR	6-10 years	\$108,000	18	
85	10	1	M084	Minden Lake Road	Coxfarm Road	500m South of Coxfarm Road	0.5	80	Y	resurface	6-10 years	surface treated	gravel	adeq	6.6	6	adeq	adeq	adeq	open ditch	adeq	PR	6-10 years	\$73,000	17	
86	10	1	L003	Buller Road	Clear Lake Road	Spar Lake Road	4.7	60	adeq	resurface	1-5 years	surface treated	gravel	adeq	7.1	6	adeq	0.40	adeq	open ditch	now	PR	1-5 years	\$708,000	22	
87	10	1	V036	McLeod St	McPherson St	McKay St	0.2	70	adeq	resurface	1-5 years	asphalt	gravel	adeq	5.6	6	0.40	0.50	adeq	open ditch	now	PR	1-5 years	\$37,000	27	
88	10	1	L032	Sandy Bay Road	Highway 35	60m North of Magistrate Dr	0.3	70	Y	reconstruct	now	surface treated	gravel	adeq	6.8	6	adeq	0.20	adeq	open ditch	now	REC	now	\$223,000	39	
89	10	0	S021	Sedgwick Road	CR 1	Francis Road	0.8	60	Y	resurface	6-10 years	surface treated	gravel	adeq	6.4	6	adeq	0.20	adeq	open ditch	adeq	PR	6-10 years	\$114,000	17	
90	10	0	M033	Red Umbrella Road	600m North of Highway 35	950m North of Highway 35	0.4	70	adeq	resurface	6-10 years	surface treated	gravel	adeq	6.5	6	adeq	0.50	adeq	open ditch	adeq	PR	6-10 years	\$50,000	15	
91	10	0	V038	McPherson St	McKay St	McLeod St	0.2	70	adeq	resurface	1-5 years	asphalt	gravel	adeq	6	6	adeq	0.50	adeq	open ditch	adeq	PR	1-5 years	\$55,000	22	
							278.0																		\$29,946,000	

PR - pulverize and resurface with 1 or 2 lifts
R - resurface with 1 or 2 lifts

REC - reconstruction
WR - road widening & resurface

Appendix I: Life-Cycle Costing

Minden Hills Road Needs Study 2021

Life Cycle Costing

Gravel Road

Good Base					
Year	Dust Control	Grading	Maintenance Gravel	Spot Gravel	Total Cost
0	\$ 1,680	\$ 450			\$ 2,130
1	\$ 1,680	\$ 450			\$ 2,130
2	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
3	\$ 1,680	\$ 450			\$ 2,130
4	\$ 1,680	\$ 450			\$ 2,130
5	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
6	\$ 1,680	\$ 450		\$ 250	\$ 2,380
7	\$ 1,680	\$ 450			\$ 2,130
8	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
9	\$ 1,680	\$ 450			\$ 2,130
10	\$ 1,680	\$ 450			\$ 2,130
11	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
12	\$ 1,680	\$ 450			\$ 2,130
13	\$ 1,680	\$ 450		\$ 250	\$ 2,380
14	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
15	\$ 1,680	\$ 450			\$ 2,130
16	\$ 1,680	\$ 450			\$ 2,130
17	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
18	\$ 1,680	\$ 450			\$ 2,130
19	\$ 1,680	\$ 450			\$ 2,130
20	\$ 1,680	\$ 450	\$ 21,000	\$ 250	\$ 23,380
21	\$ 1,680	\$ 450			\$ 2,130
22	\$ 1,680	\$ 450			\$ 2,130
23	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
24	\$ 1,680	\$ 450			\$ 2,130
25	\$ 1,680	\$ 450			\$ 2,130
26	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
27	\$ 1,680	\$ 450		\$ 250	\$ 2,380
28	\$ 1,680	\$ 450			\$ 2,130
29	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
30	\$ 1,680	\$ 450			\$ 2,130
31	\$ 1,680	\$ 450			\$ 2,130
32	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
33	\$ 1,680	\$ 450			\$ 2,130
34	\$ 1,680	\$ 450		\$ 250	\$ 2,380
35	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
36	\$ 1,680	\$ 450			\$ 2,130

Moderate Base					
Year	Dust Control	Grading	Maintenance Gravel	Spot Gravel	Total Cost
0	\$ 1,680	\$ 1,800			\$ 3,480
1	\$ 1,680	\$ 1,800			\$ 3,480
2	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
3	\$ 1,680	\$ 1,800			\$ 3,480
4	\$ 1,680	\$ 1,800		\$ 375	\$ 3,855
5	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
6	\$ 1,680	\$ 1,800			\$ 3,480
7	\$ 1,680	\$ 1,800			\$ 3,480
8	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
9	\$ 1,680	\$ 1,800		\$ 375	\$ 3,855
10	\$ 1,680	\$ 1,800			\$ 3,480
11	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
12	\$ 1,680	\$ 1,800			\$ 3,480
13	\$ 1,680	\$ 1,800			\$ 3,480
14	\$ 1,680	\$ 1,800	\$ 21,000	\$ 375	\$ 24,855
15	\$ 1,680	\$ 1,800			\$ 3,480
16	\$ 1,680	\$ 1,800			\$ 3,480
17	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
18	\$ 1,680	\$ 1,800			\$ 3,480
19	\$ 1,680	\$ 1,800		\$ 375	\$ 3,855
20	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
21	\$ 1,680	\$ 1,800			\$ 3,480
22	\$ 1,680	\$ 1,800			\$ 3,480
23	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
24	\$ 1,680	\$ 1,800		\$ 375	\$ 3,855
25	\$ 1,680	\$ 1,800			\$ 3,480
26	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
27	\$ 1,680	\$ 1,800			\$ 3,480
28	\$ 1,680	\$ 1,800			\$ 3,480
29	\$ 1,680	\$ 1,800	\$ 21,000	\$ 375	\$ 24,855
30	\$ 1,680	\$ 1,800			\$ 3,480
31	\$ 1,680	\$ 1,800			\$ 3,480
32	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
33	\$ 1,680	\$ 1,800			\$ 3,480
34	\$ 1,680	\$ 1,800		\$ 375	\$ 3,855
35	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
36	\$ 1,680	\$ 1,800			\$ 3,480

Poor Base					
Year	Dust Control	Grading	Maintenance Gravel	Spot Gravel	Total Cost
0	\$ 2,520	\$ 3,600			\$ 6,120
1	\$ 2,520	\$ 3,600			\$ 6,120
2	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
3	\$ 2,520	\$ 3,600			\$ 6,120
4	\$ 2,520	\$ 3,600			\$ 6,120
5	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
6	\$ 2,520	\$ 3,600			\$ 6,120
7	\$ 2,520	\$ 3,600			\$ 6,120
8	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
9	\$ 2,520	\$ 3,600			\$ 6,120
10	\$ 2,520	\$ 3,600			\$ 6,120
11	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
12	\$ 2,520	\$ 3,600			\$ 6,120
13	\$ 2,520	\$ 3,600			\$ 6,120
14	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
15	\$ 2,520	\$ 3,600			\$ 6,120
16	\$ 2,520	\$ 3,600			\$ 6,120
17	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
18	\$ 2,520	\$ 3,600			\$ 6,120
19	\$ 2,520	\$ 3,600			\$ 6,120
20	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
21	\$ 2,520	\$ 3,600			\$ 6,120
22	\$ 2,520	\$ 3,600			\$ 6,120
23	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
24	\$ 2,520	\$ 3,600			\$ 6,120
25	\$ 2,520	\$ 3,600			\$ 6,120
26	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
27	\$ 2,520	\$ 3,600			\$ 6,120
28	\$ 2,520	\$ 3,600			\$ 6,120
29	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
30	\$ 2,520	\$ 3,600			\$ 6,120
31	\$ 2,520	\$ 3,600			\$ 6,120
32	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
33	\$ 2,520	\$ 3,600			\$ 6,120
34	\$ 2,520	\$ 3,600			\$ 6,120
35	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
36	\$ 2,520	\$ 3,600			\$ 6,120

Minden Hills Road Needs Study 2021

Life Cycle Costing

Gravel Road

Good Base					
Year	Dust Control	Grading	Maintenance Gravel	Spot Gravel	Total Cost
37	\$ 1,680	\$ 450			\$ 2,130
38	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
39	\$ 1,680	\$ 450			\$ 2,130
40	\$ 1,680	\$ 450			\$ 2,130
41	\$ 1,680	\$ 450	\$ 21,000	\$ 250	\$ 23,380
42	\$ 1,680	\$ 450			\$ 2,130
43	\$ 1,680	\$ 450			\$ 2,130
44	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
45	\$ 1,680	\$ 450			\$ 2,130
46	\$ 1,680	\$ 450			\$ 2,130
47	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
48	\$ 1,680	\$ 450		\$ 250	\$ 2,380
49	\$ 1,680	\$ 450			\$ 2,130
50	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
51	\$ 1,680	\$ 450			\$ 2,130
52	\$ 1,680	\$ 450			\$ 2,130
53	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
54	\$ 1,680	\$ 450			\$ 2,130
55	\$ 1,680	\$ 450		\$ 250	\$ 2,380
56	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
57	\$ 1,680	\$ 450			\$ 2,130
58	\$ 1,680	\$ 450			\$ 2,130
59	\$ 1,680	\$ 450	\$ 21,000		\$ 23,130
Total	\$ 100,800	\$ 27,000	\$ 420,000	\$ 2,000	\$ 549,800
Applications	60	360	20	8	

Moderate Base					
Year	Dust Control	Grading	Maintenance Gravel	Spot Gravel	Total Cost
37	\$ 1,680	\$ 1,800			\$ 3,480
38	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
39	\$ 1,680	\$ 1,800		\$ 375	\$ 3,855
40	\$ 1,680	\$ 1,800			\$ 3,480
41	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
42	\$ 1,680	\$ 1,800			\$ 3,480
43	\$ 1,680	\$ 1,800			\$ 3,480
44	\$ 1,680	\$ 1,800	\$ 21,000	\$ 375	\$ 24,855
45	\$ 1,680	\$ 1,800			\$ 3,480
46	\$ 1,680	\$ 1,800			\$ 3,480
47	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
48	\$ 1,680	\$ 1,800			\$ 3,480
49	\$ 1,680	\$ 1,800		\$ 375	\$ 3,855
50	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
51	\$ 1,680	\$ 1,800			\$ 3,480
52	\$ 1,680	\$ 1,800			\$ 3,480
53	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
54	\$ 1,680	\$ 1,800		\$ 375	\$ 3,855
55	\$ 1,680	\$ 1,800			\$ 3,480
56	\$ 1,680	\$ 1,800	\$ 21,000		\$ 24,480
57	\$ 1,680	\$ 1,800			\$ 3,480
58	\$ 1,680	\$ 1,800			\$ 3,480
59	\$ 1,680	\$ 1,800	\$ 21,000	\$ 375	\$ 24,855
Total	\$ 100,800	\$ 108,000	\$ 420,000	\$ 4,500	\$ 633,300
Applications	60	1440	20	12	

Poor Base					
Year	Dust Control	Grading	Maintenance Gravel	Spot Gravel	Total Cost
37	\$ 2,520	\$ 3,600			\$ 6,120
38	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
39	\$ 2,520	\$ 3,600			\$ 6,120
40	\$ 2,520	\$ 3,600			\$ 6,120
41	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
42	\$ 2,520	\$ 3,600			\$ 6,120
43	\$ 2,520	\$ 3,600			\$ 6,120
44	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
45	\$ 2,520	\$ 3,600			\$ 6,120
46	\$ 2,520	\$ 3,600			\$ 6,120
47	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
48	\$ 2,520	\$ 3,600			\$ 6,120
49	\$ 2,520	\$ 3,600			\$ 6,120
50	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
51	\$ 2,520	\$ 3,600			\$ 6,120
52	\$ 2,520	\$ 3,600			\$ 6,120
53	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
54	\$ 2,520	\$ 3,600			\$ 6,120
55	\$ 2,520	\$ 3,600			\$ 6,120
56	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
57	\$ 2,520	\$ 3,600			\$ 6,120
58	\$ 2,520	\$ 3,600			\$ 6,120
59	\$ 2,520	\$ 3,600	\$ 21,000	\$ 375	\$ 27,495
Total	\$ 151,200	\$ 216,000	\$ 420,000	\$ 7,500	\$ 794,700
Applications	60	2880	20	20	

Notes

- 1. Number of times dust control is applied per year 1 time
16,800 L per year
- 2. Number of times road is graded per year 6 times
- 3. Maintenance gravel to be applied every 3 years
50 mm depth
- 4. Spot gravel to be applied every 7 years
10 tonnes

Notes

- 1. Number of times dust control is applied per year 1 time
16,800 L per year
- 2. Number of times road is graded per year 24 times
- 3. Maintenance gravel to be applied every 3 years
50 mm depth
- 4. Spot gravel to be applied every 5 years
15 tonnes

Notes

- 1. Number of times dust control is applied per year 1 time
25,200 L per year
- 2. Number of times road is graded per year 48 times
- 3. Maintenance gravel to be applied every 3 years
50 mm depth
- 4. Spot gravel to be applied every 3 years
15 tonnes

Minden Hills Road Needs Study 2021

Good Base						
Year	Surface Treatment	Slurry Seal	Cold Mix Patch	Spray Patch Gravel	Pulverize	Total Cost
0	\$ 56,000				\$ 28,000	\$ 84,000
1						\$ -
2						\$ -
3		\$ 17,500				\$ 17,500
4						\$ -
5			\$ 190			\$ 190
6						\$ -
7						\$ -
8						\$ -
9						\$ -
10			\$ 190	\$ 1,500		\$ 1,690
11						\$ -
12						\$ -
13						\$ -
14						\$ -
15	\$ 56,000				\$ 28,000	\$ 84,000
16						\$ -
17						\$ -
18		\$ 17,500				\$ 17,500
19						\$ -
20			\$ 190			\$ 190
21						\$ -
22						\$ -
23						\$ -
24						\$ -
25			\$ 190	\$ 1,500		\$ 1,690
26						\$ -
27						\$ -
28						\$ -
29						\$ -
30	\$ 56,000				\$ 28,000	\$ 84,000
31						\$ -
32						\$ -
33		\$ 17,500				\$ 17,500
34						\$ -
35			\$ 190			\$ 190
36						\$ -
37						\$ -
38						\$ -
39						\$ -
40			\$ 190	\$ 1,500		\$ 1,690
41						\$ -
42						\$ -
43						\$ -
44						\$ -
45	\$ 56,000				\$ 28,000	\$ 84,000

Moderate Base						
Year	Surface Treatment	Slurry Seal	Cold Mix Patch	Spray Patch Gravel	Pulverize	Total Cost
0	\$ 56,000				\$ 28,000	\$ 84,000
1						\$ -
2						\$ -
3		\$ 17,500				\$ 17,500
4						\$ -
5			\$ 570	\$ 1,500		\$ 2,070
6						\$ -
7						\$ -
8						\$ -
9						\$ -
10	\$ 56,000				\$ 28,000	\$ 84,000
11						\$ -
12						\$ -
13		\$ 17,500				\$ 17,500
14						\$ -
15			\$ 570	\$ 1,500		\$ 2,070
16						\$ -
17						\$ -
18						\$ -
19						\$ -
20	\$ 56,000				\$ 28,000	\$ 84,000
21						\$ -
22						\$ -
23		\$ 17,500				\$ 17,500
24						\$ -
25			\$ 570	\$ 1,500		\$ 2,070
26						\$ -
27						\$ -
28						\$ -
29						\$ -
30	\$ 56,000				\$ 28,000	\$ 84,000
31						\$ -
32						\$ -
33		\$ 17,500				\$ 17,500
34						\$ -
35			\$ 570	\$ 1,500		\$ 2,070
36						\$ -
37						\$ -
38						\$ -
39						\$ -
40	\$ 56,000				\$ 28,000	\$ 84,000
41						\$ -
42						\$ -
43		\$ 17,500				\$ 17,500
44						\$ -
45			\$ 570	\$ 1,500		\$ 2,070

Poor Base						
Year	Surface Treatment	Slurry Seal	Cold Mix Patch	Spray Patch Gravel	Pulverize	Total Cost
0	\$ 56,000				\$ 28,000	\$ 84,000
1						\$ -
2						\$ -
3			\$ 570			\$ 570
4						\$ -
5	\$ 56,000				\$ 28,000	\$ 84,000
6						\$ -
7						\$ -
8			\$ 570			\$ 570
9						\$ -
10	\$ 56,000				\$ 28,000	\$ 84,000
11						\$ -
12						\$ -
13			\$ 570			\$ 570
14						\$ -
15	\$ 56,000				\$ 28,000	\$ 84,000
16						\$ -
17						\$ -
18			\$ 570			\$ 570
19						\$ -
20	\$ 56,000				\$ 28,000	\$ 84,000
21						\$ -
22						\$ -
23			\$ 570			\$ 570
24						\$ -
25	\$ 56,000				\$ 28,000	\$ 84,000
26						\$ -
27						\$ -
28			\$ 570			\$ 570
29						\$ -
30	\$ 56,000				\$ 28,000	\$ 84,000
31						\$ -
32						\$ -
33			\$ 570			\$ 570
34						\$ -
35	\$ 56,000				\$ 28,000	\$ 84,000
36						\$ -
37						\$ -
38			\$ 570			\$ 570
39						\$ -
40	\$ 56,000				\$ 28,000	\$ 84,000
41						\$ -
42						\$ -
43			\$ 570			\$ 570
44						\$ -
45	\$ 56,000				\$ 28,000	\$ 84,000

Minden Hills Road Needs Study 2021

Life Cycle Costing

Surface Treated Road

Good Base						
Year	Surface Treatment	Slurry Seal	Cold Mix Patch	Spray Patch Gravel	Pulverize	Total Cost
46						\$ -
47						\$ -
48		\$ 17,500				\$ 17,500
49						\$ -
50			\$ 190			\$ 190
51						\$ -
52						\$ -
53						\$ -
54						\$ -
55			\$ 190	\$ 1,500		\$ 1,690
56						\$ -
57						\$ -
58						\$ -
59						\$ -
Total	\$ 224,000	\$ 70,000	\$ 1,520	\$ 6,000	\$ 112,000	\$ 413,520
Applications	4	4	8	4	4	

Notes

1. Double surface treatment applied every 15 years
2. Slurry seal applied in year 3 and every 15 years
3. Cold mix patch applied every 5 years
4. Spray patch applied every 1 tonne
5. Pulverize prior to each new surface treatment application 500 m²

Moderate Base						
Year	Surface Treatment	Slurry Seal	Cold Mix Patch	Spray Patch Gravel	Pulverize	Total Cost
46						\$ -
47						\$ -
48						\$ -
49						\$ -
50	\$ 56,000				\$ 28,000	\$ 84,000
51						\$ -
52						\$ -
53		\$ 17,500				\$ 17,500
54						\$ -
55			\$ 570	\$ 1,500		\$ 2,070
56						\$ -
57						\$ -
58						\$ -
59						\$ -
Total	\$ 336,000	\$ 105,000	\$ 3,420	\$ 9,000	\$ 168,000	\$ 621,420
Applications	6	6	6	6	6	

Notes

1. Double surface treatment applied every 10 years
2. Slurry seal applied in year 3 and every 10 years
3. Cold mix patch applied every 10 years
4. Spray patch applied every 3 tonnes
5. Pulverize prior to each new surface treatment application 500 m²

Poor Base						
Year	Surface Treatment	Slurry Seal	Cold Mix Patch	Spray Patch Gravel	Pulverize	Total Cost
46						\$ -
47						\$ -
48			\$ 570			\$ 570
49						\$ -
50	\$ 56,000				\$ 28,000	\$ 84,000
51						\$ -
52						\$ -
53			\$ 570			\$ 570
54						\$ -
55	\$ 56,000				\$ 28,000	\$ 84,000
56						\$ -
57						\$ -
58			\$ 570			\$ 570
59						\$ -
Total	\$ 672,000	\$ -	\$ 6,840	\$ -	\$ 336,000	\$ 1,014,840
Applications	12	0	12	0	12	

Notes

1. Double surface treatment applied every 5 years
2. Slurry seal not required
3. Cold mix patch applied every 5 years
4. Spray patch not required 3 tonnes
5. Pulverize prior to each new surface treatment application

Minden Hills Road Needs Study 2021

Good Base						
Year	Asphalt	Crack Seal	Patch Repair	Micro Surfacing	Pulverize	Total Cost
0	\$ 105,000				\$ 28,000	\$ 133,000
1						\$ -
2						\$ -
3						\$ -
4						\$ -
5		\$ 900				\$ 900
6						\$ -
7						\$ -
8						\$ -
9						\$ -
10		\$ 900				\$ 900
11						\$ -
12						\$ -
13						\$ -
14						\$ -
15		\$ 900	\$ 22,500			\$ 23,400
16						\$ -
17						\$ -
18						\$ -
19						\$ -
20		\$ 900		\$ 42,000		\$ 42,900
21						\$ -
22						\$ -
23						\$ -
24						\$ -
25		\$ 900				\$ 900
26						\$ -
27						\$ -
28						\$ -
29						\$ -
30	\$ 105,000				\$ 28,000	\$ 133,000
31						\$ -
32						\$ -
33						\$ -
34						\$ -
35		\$ 900				\$ 900
36						\$ -
37						\$ -
38						\$ -
39						\$ -
40		\$ 900				\$ 900
41						\$ -
42						\$ -
43						\$ -

Moderate Base						
Year	Asphalt	Crack Seal	Patch Repair	Micro Surfacing	Pulverize	Total Cost
0	\$ 105,000				\$ 28,000	\$ 133,000
1						\$ -
2						\$ -
3						\$ -
4						\$ -
5		\$ 1,500				\$ 1,500
6						\$ -
7						\$ -
8						\$ -
9						\$ -
10		\$ 1,500	\$ 22,500			\$ 24,000
11						\$ -
12						\$ -
13						\$ -
14						\$ -
15		\$ 1,500		\$ 42,000		\$ 43,500
16						\$ -
17						\$ -
18						\$ -
19						\$ -
20	\$ 105,000				\$ 28,000	\$ 133,000
21						\$ -
22						\$ -
23						\$ -
24						\$ -
25		\$ 1,500				\$ 1,500
26						\$ -
27						\$ -
28						\$ -
29						\$ -
30		\$ 1,500	\$ 22,500			\$ 24,000
31						\$ -
32						\$ -
33						\$ -
34						\$ -
35		\$ 1,500		\$ 42,000		\$ 43,500
36						\$ -
37						\$ -
38						\$ -
39						\$ -
40	\$ 105,000				\$ 28,000	\$ 133,000
41						\$ -
42						\$ -
43						\$ -

Poor Base						
Year	Asphalt	Crack Seal	Patch Repair	Micro Surfacing	Pulverize	Total Cost
0	\$ 105,000				\$ 28,000	\$ 133,000
1						\$ -
2						\$ -
3						\$ -
4						\$ -
5		\$ 3,000				\$ 3,000
6						\$ -
7						\$ -
8						\$ -
9						\$ -
10	\$ 105,000				\$ 28,000	\$ 133,000
11						\$ -
12						\$ -
13						\$ -
14						\$ -
15		\$ 3,000				\$ 3,000
16						\$ -
17						\$ -
18						\$ -
19						\$ -
20	\$ 105,000				\$ 28,000	\$ 133,000
21						\$ -
22						\$ -
23						\$ -
24						\$ -
25		\$ 3,000				\$ 3,000
26						\$ -
27						\$ -
28						\$ -
29						\$ -
30	\$ 105,000				\$ 28,000	\$ 133,000
31						\$ -
32						\$ -
33						\$ -
34						\$ -
35		\$ 3,000				\$ 3,000
36						\$ -
37						\$ -
38						\$ -
39						\$ -
40	\$ 105,000				\$ 28,000	\$ 133,000
41						\$ -
42						\$ -
43						\$ -

Minden Hills Road Needs Study 2021

Good Base						
Year	Asphalt	Crack Seal	Patch Repair	Micro Surfacing	Pulverize	Total Cost
44						\$ -
45		\$ 900	\$ 22,500			\$ 23,400
46						\$ -
47						\$ -
48						\$ -
49						\$ -
50		\$ 900		\$ 42,000		\$ 42,900
51						\$ -
52						\$ -
53						\$ -
54						\$ -
55		\$ 900				\$ 900
56						\$ -
57						\$ -
58						\$ -
59						\$ -
Total	\$ 210,000	\$ 9,000	\$ 45,000	\$ 84,000	\$ 56,000	\$ 404,000
Applications	2	10	2	2	2	

Notes

- 1. Asphalt treatment applied every 30 years
- 2. Crack seal applied every 5 years 300 m
- 3. Patch repair completed every 15 years 500 m²
- 4. Microsurfacing applied every 20 years
- 6. Pulverize prior to repaving

Moderate Base						
Year	Asphalt	Crack Seal	Patch Repair	Micro Surfacing	Pulverize	Total Cost
44						\$ -
45		\$ 1,500				\$ 1,500
46						\$ -
47						\$ -
48						\$ -
49						\$ -
50		\$ 1,500	\$ 22,500			\$ 24,000
51						\$ -
52						\$ -
53						\$ -
54						\$ -
55		\$ 1,500		\$ 42,000		\$ 43,500
56						\$ -
57						\$ -
58						\$ -
59						\$ -
Total	\$ 315,000	\$ 13,500	\$ 67,500	\$ 126,000	\$ 84,000	\$ 606,000
Applications	3	9	3	3	3	

Notes

- 1. Asphalt treatment applied every 20 years
- 2. Crack seal applied every 5 years 500 m
- 3. Patch repair completed every 10 years 500 m²
- 4. Microsurfacing applied every 10 years
- 6. Pulverize prior to repaving

Poor Base						
Year	Asphalt	Crack Seal	Patch Repair	Micro Surfacing	Pulverize	Total Cost
44						\$ -
45		\$ 3,000				\$ 3,000
46						\$ -
47						\$ -
48						\$ -
49						\$ -
50	\$ 105,000				\$ 28,000	\$ 133,000
51						\$ -
52						\$ -
53						\$ -
54						\$ -
55		\$ 3,000				\$ 3,000
56						\$ -
57						\$ -
58						\$ -
59						\$ -
Total	\$ 630,000	\$ 18,000	\$ -	\$ -	\$ 168,000	\$ 816,000
Applications	6	6	0	0	6	

Notes

- 1. Asphalt treatment applied every 10 years
- 2. Crack seal applied every 5 years 1000 m
- 3. Patch repair not needed
- 4. Microsurfacing not required
- 6. Pulverize prior to repaving