



TOWNSHIP OF FRONTENAC ISLANDS

2022 ROAD NEEDS STUDY AND CONDITION ASSESSMENT

Executive Summary

The 2022 Township of Frontenac Islands Road Needs Study provides a summary of field surveys conducted on the road system during the spring and summer of 2022. The study identifies the road needs based on their condition at the time of assessment, anticipated time of need and proposed reconstruction or rehabilitation strategy.

Data collection and road ratings were done generally in accordance with the Ministry of Transportation (MTO) *Inventory Manual for Municipal Roads (1991)* (the “Manual”), Manual for Condition Rating of Surface-Treated Pavements (SP-021), Manual for Condition Rating of Flexible Pavements (SP-024), and Manual for Condition Rating of Gravel Surface Roads (SP-025). The 19991 Manual replaces the Municipal Roads Appraisal section of the *Municipal Roads and Railway Level Crossings (1988)* manual. SP-021, SP-024, and SP-025 provides technical guidance on how the roads are to be assessed and the Manual provides guidance on what that information represents, and it is to be interpreted. Summaries of this information are provided in the appendices of the report.

The purpose of the study is to provide an overview of the condition of the road system with each road section being evaluated on several factors which contribute to the overall condition of the system. The physical condition of the road is an empirical evaluation based on structural adequacy, current surface condition and improvement history. Surface conditions were evaluated using MTO manuals. This information was then used to calculate a Pavement Condition Index (PCI) value for hard topped roads and included as a prorated value out of 10 for inclusion in the Condition Rating formula of the Manual. PCI does not apply to gravel surfaced roads and the surface condition is an empirical valuation based on observations. The total performance of the system also considers drainage, geometrics, road classification, roadside environment and traffic volumes.

The elements used to determine the needs of the road network are rated as ‘Now’, ‘(1-5)’, ‘(6-10)’, and ‘Adeq’. A rating of ‘Now’ for any element means that the road section is currently below the minimum tolerable standard for that element, ‘(1-5)’ means that the road section is expected to fall below the minimum tolerable standard for that element within the 1-5 year time period, ‘(6-10)’ means that the road section is expected to fall below the minimum tolerable standard for that element within the 6-10 year period. A rating of ‘Adeq’ indicates the condition meets or exceeds the minimum tolerable standard for the 10 year period. The Township did not

provide any standards specific to Frontenac Islands so the characteristics of each section were reviewed against the minimum tolerable standards set out in the Manual.

The Manual states, *“The identification of a road need does not imply an unsafe condition but is intended to bring to the municipality’s attention the condition of each road, the type and the estimated cost of improvements to eliminate the need. In most cases where a need has been identified, an engineering strategy will be recommended to review, in detail, the extent of deterioration or damage and to more accurately assess the rehabilitation strategies and costs.”*

The recommendations of the study, in terms of the anticipated funding required for the road system, are based on generic reconstruction practices outlined in the Manual. These include general items typical of road reconstruction or resurfacing projects and do not necessarily consider the full width of the right-of-way. This is to say, non-typical items not directly related to the reconstruction of the road, such as sidewalks and utility relocations, are not accounted for in the cost estimates. Thus the need for more detailed engineering strategies prior to rehabilitation or reconstruction of road assets. It is also important to note that technology has changed

Traffic counts were not provided by the Township for this study. Accurate traffic volumes play an important role in classifying the roads and assessing their overall performance and identifying existing deficiencies. It is recommended that the Township implement an annual traffic counting program in order to ensure compliance with Ontario Regulation 239/02 (Minimum Maintenance Standards for Municipal Highways) with respect to patrolling and maintenance requirements.

The *Manual* notes that rural roads with an average annual daily traffic (AADT) volume of less than fifty (50) shall be considered adequate as Low Volume Roads, even if they have an identified need. These roads have been given proposed rehabilitation or reconstruction strategies, if warranted, for consideration by the Township. However, these deficiencies should be addressed with normal maintenance procedures outside of the annual capital construction program. The road network for the Township of Frontenac Islands includes approximately 66 km of rural road that have an estimated AADT of less than 50 vehicles per day. Annual traffic counts will ensure these marginal roads are given the proper classification. The section numbering in this study is broken down by location in the Township. Roads numbered from 0-2340 are located on Wolfe Island or Simcoe Island, with numbers in the 2000s being located within Marysville. Roads with section numbers in the 3000s are located on Howe Island.

A complete and thorough review of the geometrics of each road section is outside the scope of this review. It should also be noted that estimated costs for reconstruction or rehabilitation are based on improving the road section with its current horizontal and vertical alignment and are exclusive of land acquisition costs that may be associated with geometric improvements.

Benchmark costs are derived from unit price contracts within and around the Township. Specific items to be included in each rehabilitation or reconstruction strategy were determined from the Manual. Unit prices for the reconstruction and resurfacing include allowances for factors that may influence the cost of the project, such as terrain, roadside environment, and location.

The study indicates estimated total cost of improvements to the road network in the amount of \$46,763,000.00. Of the identified needs, \$18,781,000.00 is for roads that are already deficient ('NOW'), \$1,494,000.00 is for the 1-5 year horizon, and \$73,000.00 is for the 6-10 year horizon. The remaining \$22,388,000.00 is for low volume roads.

Based on the make-up of the township road network, recommendations for annual preservation programs have been developed as follows:

- \$68,000 annually on hot mix resurfacing based on a 15 year cycle
- \$780,000 annually on single surface treatment based on a 7 year cycle
- \$1,155,000 annually for gravel resurfacing based on a 3 year cycle
- \$1,000 annually for crack sealing

Total recommended annual preservation budget is \$2,004,000. This total excludes any capital reconstruction projects.

The following recommendations provided for consideration by the Township;

1. Implement an annual traffic counting program. Accurate traffic volumes ensure roads are classified, constructed and maintained properly. This will also assist in prioritizing needs and preparing capital and maintenance programs.
2. Review existing and/or prepare and implement a shoulder grading program (maintenance) to address surface water drainage deficiencies. This will allow proper drainage, reduce surface water infiltration into the road structure and prevent accelerated deterioration of road sections.

3. Review existing and/or prepare and implement a resurfacing program to ensure road assets, particularly recently reconstructed roads, reach their maximum service life.
4. Include curve widenings for horizontal curves on all future reconstruction and rehabilitation projects. This will minimize erosion of the shoulder and assist in reducing edge break on the inside of the curves, prolonging the surface life.
5. All horizontal curves should be demarcated with edge and centerline markings with the intention of providing increased direction for to users. This will assist in reducing shoulder loss and edge break.
6. Review substandard horizontal and vertical alignments with respect to existing warning signs, need for additional signage and possibly reduced speed limits.
7. Reconstruction projects should consider improvements to substandard horizontal and vertical alignments where possible.
8. Road sections should be kept to lengths less than 2.5km. It will give a more accurate representation of the condition of the road through the longer sections.

It is important that the Township develop, fund and implement programs that will encourage preservation of existing roads assets. These programs would be separate from capital projects and could include LCB resurfacing, crack sealing and chip or slurry sealing. Preservation programs such as these will renew the road network and assist in ensuring the maximum service life of the system is reached. Similarly, any road reconstruction projects should be designed in a manner conducive to rehabilitation

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Introduction

The Township of Frontenac Islands (the Township) retained the services of Jewell Engineering Inc. to carry out a Roads Inventory and Condition Assessment of the municipal road system. This study updates the most recent assessment completed in 2018 in order to provide the Township with a current evaluation of municipal road assets and allow municipal staff to develop short- and long-term capital and maintenance programs.

All of the Township's roads were reviewed and have been included in this report. The study will assist the Township of Frontenac Islands in identifying the physical and financial needs of the Township with respect to the road network road network and recommended improvements for a 10-year horizon.

Background

The municipal road system consists of approximately 187 centerline kilometers of hard topped (asphalt and surface treatment) and gravel roads built and maintained for the purposes of moving traffic, people, goods and services throughout the Township of Frontenac Islands.

The primary objectives of this study were to;

1. Provide an overview of the entire municipal road network and the individual sections that make up the system in a form that will allow the Municipality to objectively consider the needs of each section as identified in the assessment
2. Provide an assessment of the condition of the municipal road system through an established rating system and an evaluation of defined parameters for each of the sections of the road system
3. Provide recommended rehabilitation and reconstruction strategies for all road sections based on available information, Minimum Maintenance Standards, Municipal guidelines and standards, and current industry standards and methodologies
4. Provide the Township with options related to the management of the road system and allow municipal staff to develop short (Now), mid (1-5 years) and long (6-10 years) term capital and maintenance programs based on the needs of the road network and in the best interest of public health and safety
5. Provide cost estimates for the required rehabilitation or reconstruction of municipal assets based on appropriate benchmark costs

Traffic volumes for each road section were not provided by the Township and were estimated by Jewell Engineering Inc. based on discussions with the Township and historical estimates. It should be noted that discretion should be exercised in using these volumes to establish road classifications under Minimum Maintenance Standards. The Township will assume some risk in classifying roads based on theoretical traffic volumes.

Report Content and Scope

This report was prepared by Jewell Engineering Inc. for the Township of Frontenac Islands. Road assessments are based on the criteria prescribed in the Ministry of Transportation Inventory Manual for Municipal Roads (1991), Manual for Condition Rating of Surface-Treated Pavements (SP-021), Manual for Condition Rating of Flexible Pavements (SP-024), and Manual for Condition Rating of Gravel Surface Roads (SP-025).

The content of the report includes summaries of the data collected along with discussion and analyses of the same.

Study Methodology

The study objectives were met through the completion of the following steps;

- i. Field review and inventory of current road system
- ii. Preparation of preliminary condition assessment
- iii. Identification of the needs of the road system
- iv. Review and update of construction unit prices
- v. Preparation of final condition assessment report

Field Review and Inventory of Current Road System

Field review of the road network is a subjective process and may vary from person to person. Critical characteristics of the road are rated on a numeric scale out of 10, 15 or 25 depending on roadside environment and how important the feature is deemed to be as it relates to the performance of the road. To assist in mitigating the subjective nature of the evaluations, the Manual provides ranges for each condition rather than a specific value for a condition.

Point Ratings

The Manual uses six (6) categories to determine the timing of the needs of each road section. These include Geometrics, Structural Adequacy, Surface Type, Surface Width, Capacity and Drainage. Considered in conjunction with the field assessment and traffic volumes, these critical components assist in determining when and what strategy is to be implemented for each road section. Timing for rehabilitation or reconstruction strategies identify as 'ADEQ' (Adequate), 'NOW', '(1-5)' or '(6-10)'. For loose top roads, Structural Adequacy only identifies as either 'ADEQ' or 'NOW'.

Although a road section may have an identified need, the Manual suggests that rural road sections with an AADT of less than fifty (50) be considered adequate with normal maintenance procedures. For this reason, along with O. Reg 239/02, it is recommended that the Township undertake an annual traffic counting program to ensure roads are properly classified and maintained.

Time of Need (TON)

The identification of a need does not necessarily mean the road is unsafe but it is intended to draw the Municipality's attention to the condition. It should be understood that minimum standards in the Manual may not be consistent with minimum standards of the Township.

'ADEQ'

Road sections deemed Adequate have no identified needs. These roads are expected to meet or exceed the minimum tolerable standard for the 10 year study period.

'NOW'

Roads with an identified 'NOW' need essentially represent the municipal road infrastructure deficit. The existing condition is less than the minimum tolerable standard set out in the Manual. In theory, these road sections should undergo the suggested improvements immediately.

'(1-5)'

Road sections with an identified need and timing of '(1-5)' are expected to have a need that falls below the minimum tolerable standard within the next 5 years. The proposed improvements should be implemented within the 1 to 5-year horizon.

'(6-10)'

Road sections with an identified need and timing of '(6-10)' are expected to have a need that falls below the minimum tolerable standard within 10 years. The proposed improvements should be implemented within the 6 to 10-year horizon.

Condition Assessment

Drainage

Evaluation of drainage systems is largely based on historical data and the condition of any existing underground infrastructure. For the purpose of evaluation of the drainage systems, it has been assumed that all rural roads are intended to be drained via open ditch regardless of the lack of ditching.

Maintenance Demand

The *Manual* also includes a rating for the maintenance demand for each road section. While some road sections may require less maintenance, it is reasonable to assume all road sections require regular or average levels of maintenance. Therefore, the most points assigned to a road section for maintenance demand in this study is five (5), which is reflective of average maintenance requirements. Lesser points have been assigned to roads requiring increased levels of maintenance based on discussions with the Township.

Capacity and Level of Service

Capacity and Level of Service are related to the traffic volumes and the design hour volume (DHV). For rural road sections with a DHV of less than 1200, the level of service component is not applicable and the road section is instead reviewed based on the geometrics (horizontal and vertical alignment). Based on available information, there are no rural road sections within the Township network with a DHV greater than 1200.

For semi-urban and urban with a DHV less than 1200, the *Manual* assumes the level of service is adequate. Therefore, road sections meeting this criteria have been given the maximum allowable point rating for Level of Service.

Based on the foregoing, the Township road network is understood to have adequate capacity and the study does not provide further comment on Capacity.

Horizontal and Vertical Alignment

A complete analysis of the horizontal and vertical components of each rural road section is outside the scope of this study.

To minimize the Township's exposure to risk, road sections with substandard vertical and horizontal alignments should be considered for advanced warning signs.

Road Sections

Generally, a road network is composed of road sections that are consistent throughout their length based on characteristics such as surface type, roadside environment, or speed limit. Even with consistency in section attributes, it is reasonable to break longer road sections into shorter, more manageable, lengths. Long road sections are difficult to evaluate as the severity and density of distresses in the road can vary widely over a greater distance. Keeping an inventory of long road sections, reconstructed over several years, will result in differential deterioration of the road section. If the road is to be reviewed as one section, it may be deemed to meet minimum requirements when large sections do not. Likewise, a section may be deemed to be below minimum tolerable standards when large sections of the road are in good condition. The former puts the Township at risk while the latter may result in unnecessary expenditures or poor allocation of funds.

Although there is obvious merit in the economy of scale, annual budgetary constraints typically make it unlikely that road sections longer than 2.0 or 2.5km can be constructed over the course of one construction season depending on the complexity of the project. Long sections are usually associated with rural roads as semi-urban and urban sections are most often from intersection to intersection. However, this should be reviewed with each iteration of the study in light of the Township's annual capital budget and funding opportunities that may be available.

Right-of-Way Width

Right-of-way width is also a component of the review. Although the width of the existing rights-of-way were not measured, it is noted that several rural road allowances generally appeared to be insufficient, based on fence and utility installations, to accommodate a proper road cross section including roadside drainage. It is recommended that the Township implement a policy of acquiring a road widening as part of any application for consent if not in place already.

Types of Improvements

Determination of improvements to a road section is largely based on the performance of the road as a whole. Consideration must be given to existing drainage and the improvement history, specifically type and timing of recent improvements, of the road section when assessing the structural adequacy of the underlying road base and subbase. For this reason, it is important that the Township maintain accurate records of improvements made to any road section in their network which will assist in future assessments of the road network.

Structural problems would lean toward reconstruction or replacement strategies while age related distresses would be better suited to rehabilitation strategies. Proper assessment of the condition of the road is critical as determination of a suitable rehabilitation or reconstruction will ensure the Township is effectively distributing their financial resources.

Possible **maintenance** suggestions include:

- (SR) - Spot Repair in the Road
- (SD) - Spot Ditching

Possible **resurfacing** improvements include:

- (R1) - Basic Resurfacing, Single Lift of Hot Mix 50mm, Single Surface Treatment
- (R2) - Basic Resurfacing, Double Lift of Hot Mix 100mm, Double Surface Treatment
- (PR1) - Pulverize and Resurfacing (Rural) – Single Lift of Hot Mix or Surface Treatment
- (PR2) - Pulverizing and Resurfacing (Rural) – Double Lift of Hot Mix or Surface Treatment

Possible **reconstruction** improvements include:

- (BS) - Base and Surface (Rural & Semi-Urban)
- (RW) - Resurface and Widen
- (REC) - Reconstruction (Rural & Semi Urban)
- (RNS) - Reconstruction (Urban)
- (RSS) - Reconstruction Including Installation of Storm Sewers

Road Components

Pavement Structure

Roads are layered structures of selected and processed materials which have been designed to resist wear, support wheel loads and provide drainage. The conventional road structure consists of layers of subbase, base, and surface (*Figure 1*) which are placed on a subgrade to support traffic load and distribute it to the roadbed.

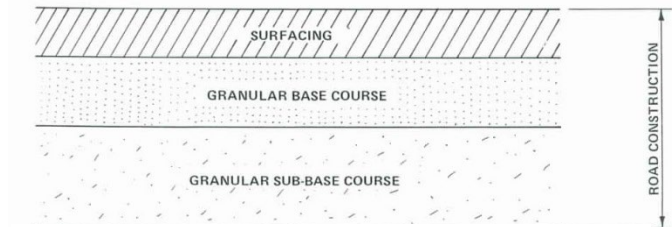


Figure 1 - Typical Pavement Structure (Ministry of Transportation Construction Manual)

The highest loading on a road section occurs at the point where vehicle tires contact the road surface. It is critical that the pavement be designed to effectively transmit the vehicle loads to the road subgrade and that the road subgrade is capable of handling the load being transferred (*Figure 2*). Therefore, materials with greater strength are required higher in the road structure (at the surface) with materials with lesser strength being used deeper (further from the surface) in the road structure. Extremely poor quality subgrade would require a larger depth of high strength material in the road structure.

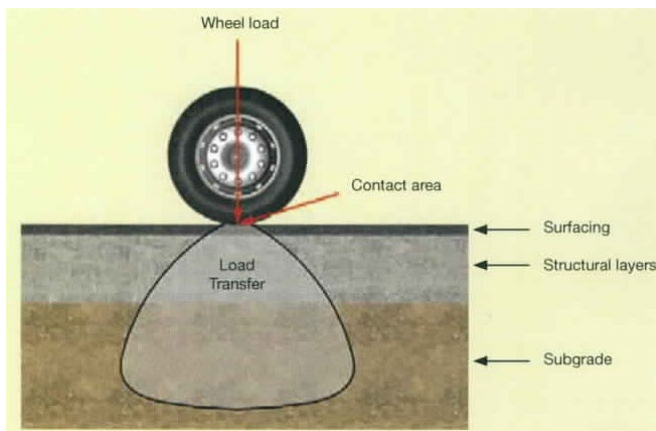


Figure 2 - Load Transfer (Wirtgen Cold Recycling Technology Manual)

Drainage

Road performance is determined, in large part, by drainage, both surface and internal. Surface drainage is influenced by the characteristics of the road such as crossfall and surface permeability. Internal drainage is affected by surface permeability, the granular materials used in the road structure, and crossfall of the subbase and base layers.

The two primary sources of water in a road structure are surface infiltration and groundwater. Surface infiltration occurs through cracks in the road surface as well as through granular shoulders.

Groundwater seepage into road subgrade can occur through the combination of a high water table and capillary action. The presence of water in a road structure can influence road performance by reducing the strength and durability of the materials.

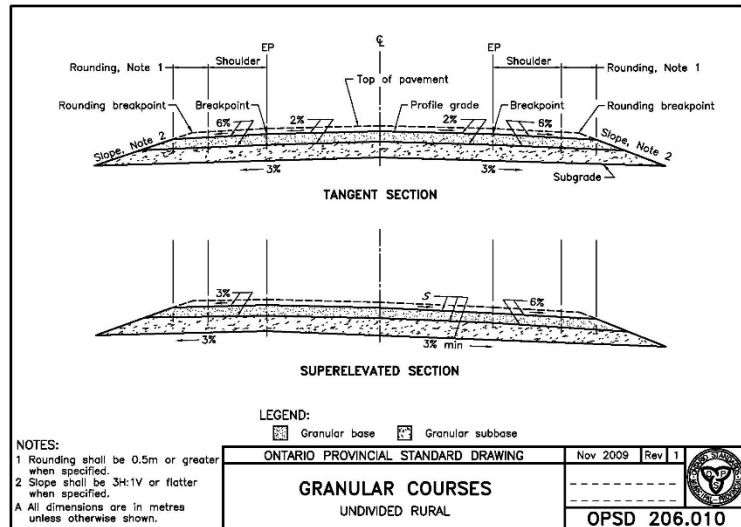


Figure 3 - Typical Crossfall for Granular Courses (Ontario Provincial Standards)

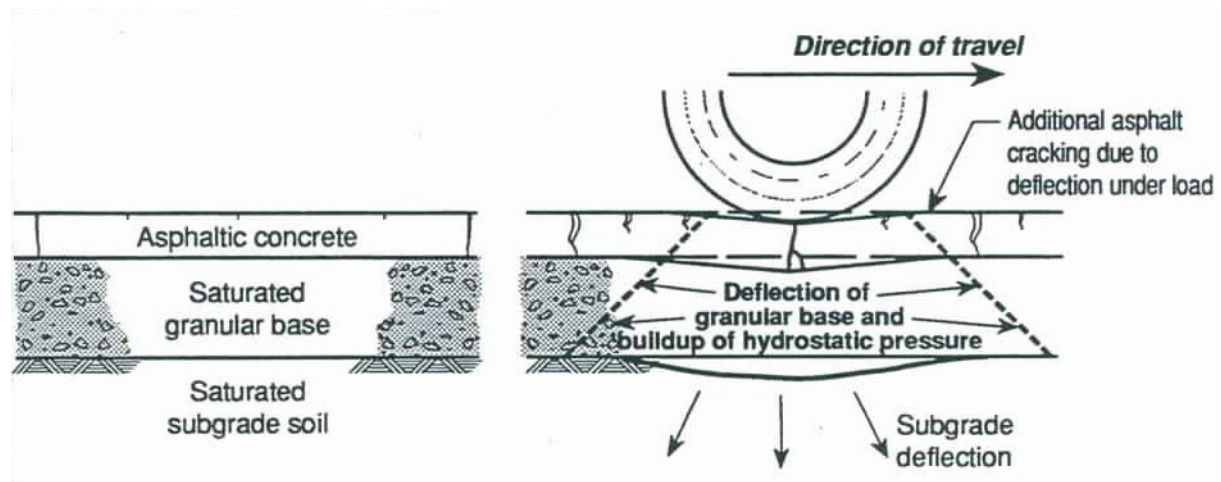


Figure 4- Influence of Saturated Granular Base & Subgrade on Flexible Pavement Performance under Dynamic Loading (Ministry of Transportation Pavement Design and Rehabilitation Manual (1990))

Service Life and Road Maintenance

Every road is designed to last for a specific number of years based on current and future traffic loading. The term 'Pavement Design' can be misleading as it includes more than just asphalt. A Pavement Design includes granular base, subbase, and subgrade. Good pavement designs also considers the average annual daily traffic and the percentage of heavy trucks using the road. Generally, it is accepted that properly constructed roadways, which include adequate base and subbase material, will have a life span of approximately 40 years with intermittent surface rehabilitation depending on the surface type. High class bitumen (HCB) or asphalt will provide a high riding quality for between 12 and 16 years before needing to be resurfaced. A road surface of Low Class Bitumen (LCB) or surface treatment will provide a high riding quality for 6 to 10 years before needing to be resurfaced.

The performance of LCB and HCB pavement types depends greatly on the traffic loading to which the roads are subjected. Road deterioration, pavement deterioration in particular, begins at a relatively slow pace for a newly constructed road. Over time, as the road is subjected to vehicular loading, distresses begin to manifest in the road surface. Distress in the road surface accelerates the deterioration as surface water penetrates more readily into the road base and subbase as shown in *Figure 4*.

Maintenance, Preservation and Rehabilitation

Road maintenance begins immediately after a road is constructed and takes one of three forms; preventive, routine or corrective. Figure 5 shows the typical deterioration of a pavement over its service life.

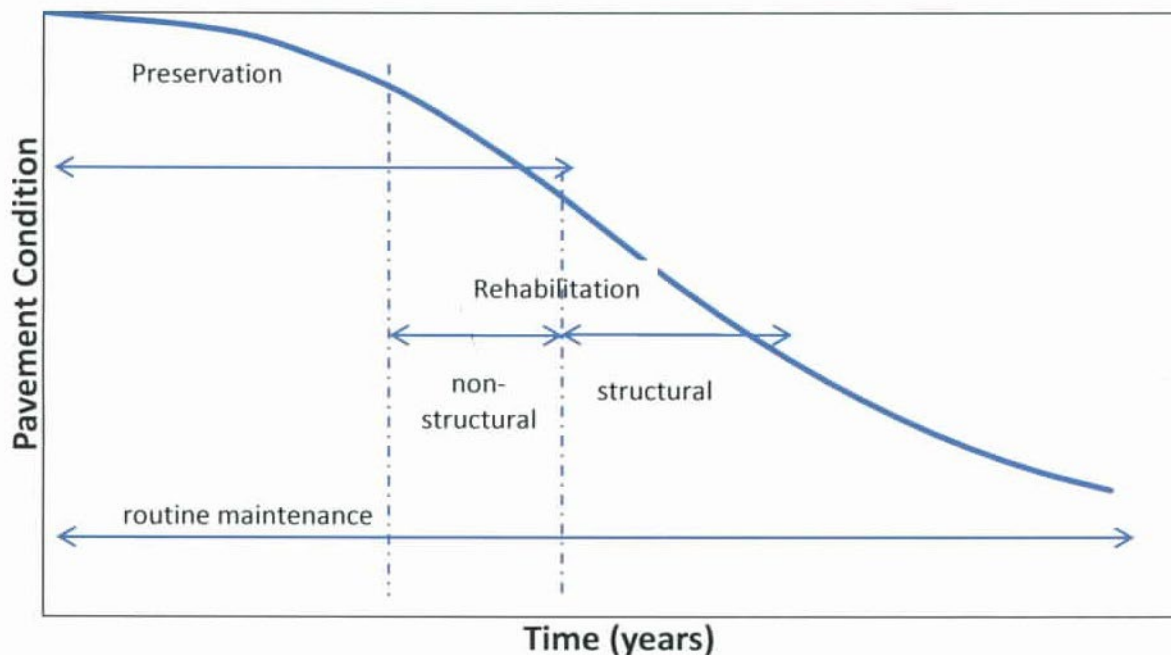


Figure 5- Typical Pavement Deterioration and Timing of Pavement Treatments (Transportation Association of Canada Pavement Asset Design and Management Guide)

Maintenance

General roadway maintenance considers road components with the right-of-way and includes activities such as shoulder grading, roadside mowing and erosion control. Completion of these tasks improve the performance of the pavement. Ideally, these activities are completed proactively in order to prevent problems from occurring.

Routine maintenance is generally considered a reactive process that includes inexpensive, localized work that can be completed by municipal forces. This would include such tasks as pothole repairs, drainage improvements, and shallow patching.

Preservation

Preservation activities include work such as crack sealing, functional milling and resurfacing, and microsurfacing and are generally expected to service the road for anywhere from five to ten years.

Rehabilitation

Rehabilitation strategies are required when additional preservation measures are no longer cost effective due to the pavement condition. These activities include resurfacing, cold in-place recycling and full depth reclamation.

Figure 6 illustrates the effectiveness of timely maintenance, preservation and rehabilitation to ensure road sections reach their maximum service life prior to needing a full depth reconstruction. It is also important to recognize that the service life (Time/Traffic) would be much shorter for an improperly constructed road as a result of accelerated deterioration due to an inadequate pavement design.

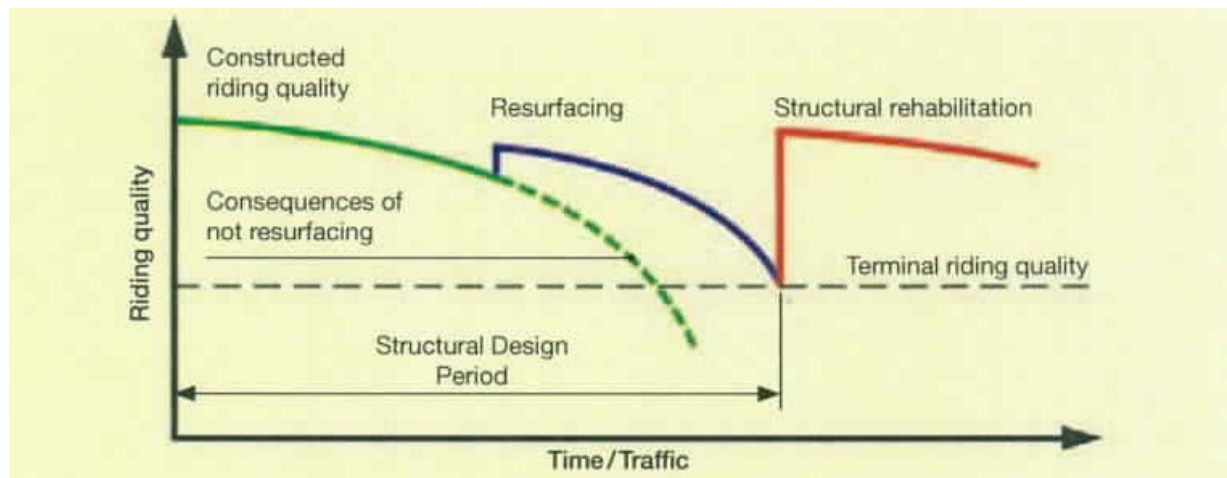


Figure 6 - Impact of Proper Maintenance on Road Service Life (Wirtgen Cold Recycling Technology Manual)

Road System Inventory and Classification

Roadside Environment

The road network within the Township of Frontenac Islands is considered a Semi-Urban and Rural lower tier road system. The Manual includes the following definitions for roadside environment;

Rural – Areas with sparse development or where development is less than 50% of the frontage, including developed areas extending less than 300 meters on one side or 200 meters on both sides and no curb and gutter.

Semi-Urban (Suburban) – Development exceeds 50% of the frontage for a minimum of 300 meters on one side or 200 meters on both sides

AND

No curbs and gutters, with or without storm/combination sewers or curb and gutter on one side only without storm/combination sewers

or

For subdivisions, the majority of the lot frontages are 30 meters or greater and the roads comply with minimum road standards.

Urban – Curb and gutters on both sides with or served by storm/combination sewers

or

Curb and gutter on one side with or served by storm/combination sewers

or

Reversed paved shoulders with or served by storm/combination sewers

or

For subdivisions, the majority of the lot frontages are less than 30 metres

The vast majority of roads within the road network are considered as having a Rural roadside environment.

Table 1 identifies the length of road by Roadside Environment.

Table 1 – Road Breakdown by Roadside Environment

Roadside Environment	Length (km)	Percentage of System
Rural (R)	189.94	97.70%
Semi-Urban (S)	3.20	1.65%
Urban (U)	1.26	0.65%
Total	194.40	100.00%

Surface Type

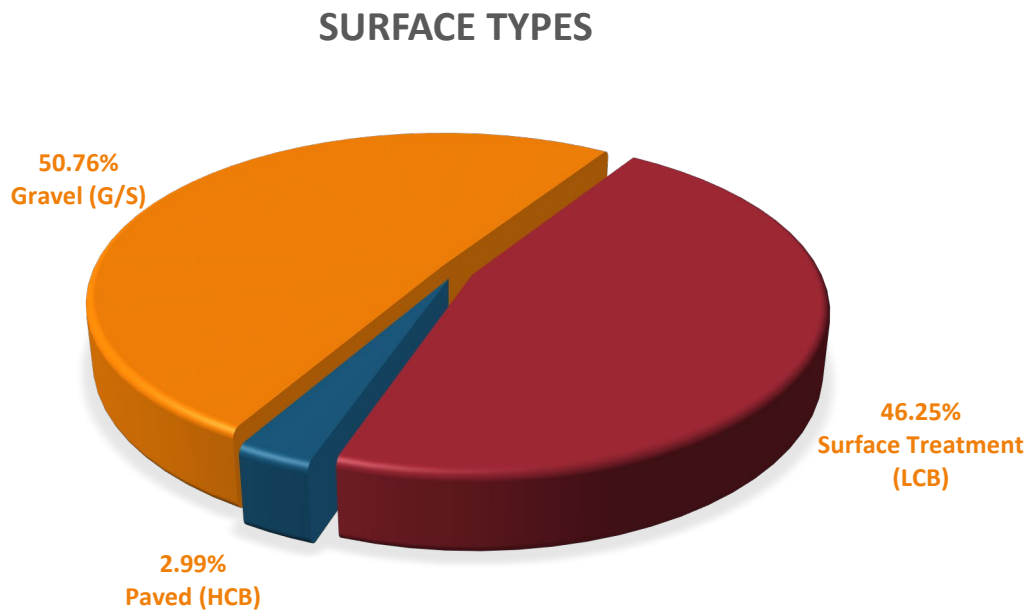
Road needs are also evaluated based on the surface type. Minimum tolerable standards are based on the traffic volume which serves as additional support for an annual traffic counting program. Roads with an AADT of less than 50 need only have an earth surface, a gravel or loose top surface is adequate for roads with an AADT between 50 and 399 and finally roads with an AADT equal to or greater than 400 should be LCB or better.

Many of the roads within the Township's road network exceed the minimum standard for road surface. Municipal surface types are commonly of a higher type than what the *Manual* recommends as a minimum. Rehabilitation or reconstruction costs are based on reinstatement to the current surface type and not the minimum requirements.

Table 2 breaks the road network into lengths by surface type.

Table 2 – Road Breakdown by Surface Type

Surface Type	Length (km)	Percentage of System
Gravel (G/S)	97.53	50.76%
Low Class Bituminous (LCB) (Surface Treated)	88.87	46.25%
High Class Bituminous (HCB) (Asphalt)	5.74	2.99%
Total	192.14	100.00%



Road Classifications

Road classifications by the Manual are based on the traffic volumes and the roadside environment for each road section. Rural roads are classified on traffic volumes while semi-urban and urban roads are classified on their primary function. However, most municipalities base their capital and maintenance operations on O. Reg 239/02, Minimum Maintenance Standards for Municipal Highways (MMS), which uses traffic volumes as well as the speed limit to classify each road section. During the completion of the study, all road sections were classified using both systems.

Posted maximum speeds limits were noted in the field review but not every road section had a posted maximum speed limit. As the Township of Frontenac Islands does not have any by-laws regarding the speed limits on roads without a posted speed limit, statutory speed limits were interpreted from the Highway Traffic Act (HTA) R.S.O. 1990.

Rural		Semi-Urban (Considers Roadside Environment, NOT AADT)	Urban (Considers Roadside Environment, NOT AADT)
Average Annual Daily Traffic (AADT)	Classification		
1-49	100	ALL (Alleyway)	ALL (Alleyway)
50-199	200	L/R (Local Residential)	L/R (Local Residential)
200-399	300	LCI (Local Commercial or Industrial)	LCI (Local Commercial or Industrial)
400-999	400		C/R (Collector Residential)
1000-1999	500	C/R (Collector Residential)	CCI (Collector Commercial or Industrial)
2000-2999	600		
3000-3999	700	CCI (Collector Commercial or Industrial)	ART (Arterial)
>4000	800		
4 or more lanes	4LN	ART (Arterial)	EXP (Expressway)
Rural Expressways	EXP		

Table 3 breaks the network into road classifications under the *Manual*.

Table 3 – Road Breakdown by Manual Class

Road Classification	Roadside Environment (CL km)			Total Length (CL km)	Percentage of System
	Rural	Semi-Urban	Urban		
100	72.68	0	0	72.68	37.83 %
200	59.74	0	0	59.74	31.10 %
300	38.22	0	0	38.22	19.89 %
400	14.86	0	0	14.86	7.73 %
500	2.20	0	0	2.20	1.14 %
600	0	0	0	0	0.00 %
L/R	0	2.98	0.10	3.08	1.60 %
C/R	0	0.20	1.16	1.36	0.71 %
Total	187.70	3.18	1.26	192.14	100.00%

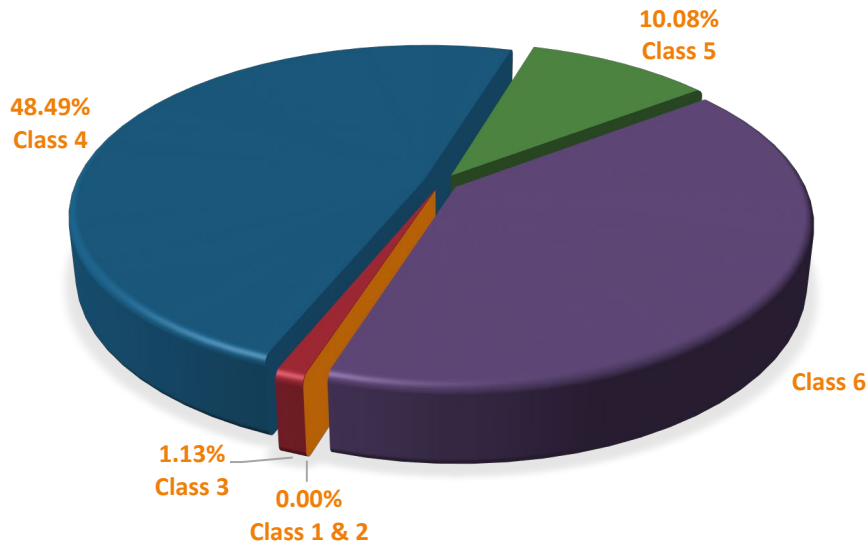
Average Annual Daily Traffic (number of motor vehicles)	Posted or Statutory Speed Limit (kilometers per hour)						
	91 - 100	81 - 90	71 - 80	61 - 70	51 - 60	41 - 50	1 - 40
53,000 or more	1	1	1	1	1	1	1
23,000 – 52,999	1	1	1	2	2	2	2
15,000 – 22,999	1	1	2	2	2	3	3
12,000 – 14,999	1	1	2	2	2	3	3
10,000 - 11,999	1	1	2	2	3	3	3
8,000 - 9,999	1	1	2	3	3	3	3
6,000 - 7,999	1	2	2	3	3	4	4
5,000 - 5,999	1	2	2	3	3	4	4
4,000 - 4,999	1	2	3	3	3	4	4
3,000 - 3,999	1	2	3	3	3	4	4
2,000 - 2,999	1	2	3	3	4	5	5
1,000 - 1,999	1	3	3	3	4	5	5
500 - 999	1	3	4	4	4	5	5
200 - 499	1	3	4	4	5	5	6
50 - 199	1	3	4	5	5	6	6
0 - 49	1	3	6	6	6	6	6

Table 4 breaks the network into road classifications under the MMS.

Table 4 – Road Breakdown by Class Minimum Maintenance Standards (MMS)

Road Classification	Length (km)	Percentage of System
1	0	0.00 %
2	0	0.00 %
3	2.20	1.13 %
4	93.15	48.49 %
5	19.35	10.08 %
6	77.44	40.30 %
Total	192.14	100.00%

NETWORK ROAD CLASSIFICATIONS - MMS



Road System Time of Need and Adequacy

Time of Need (TON)

The system adequacy is a reflection of the current state of the road network and serves as a benchmark on which to base future evaluations. Road sections with a rehabilitation or reconstruction strategy with a 'NOW' need are a representation of work that is currently required on the road system to address the existing needs of the system. Similarly, '1-5' and '6-10' represent the anticipated horizon that the needs of the road must be addressed.

Table 5 – Summary of Costs by Time of Need

Item	NOW	1-5	6-10	Total
Construction Needs	\$19,557,000	\$473,000	\$0.00	\$20,030,000
Resurfacing Needs	\$0.00	\$961,000	\$73,000	\$1,034,000
Total	\$19,557,000	\$1,434,000	\$73,000	\$21,064,000

Table 5a – Wolfe Island & Simcoe Island Summary of Costs by Time of Need

Item	NOW	1-5	6-10	Total
Construction Needs	\$19,557,000	\$473,000	\$0.00	\$20,030,000
Resurfacing Needs	\$0.00	\$787,000	\$73,000	\$860,000
Total	\$19,557,000	\$1,260,000	\$73,000	\$20,890,000

Table 5b – Howe Island Summary of Costs by Time of Need

Item	NOW	1-5	6-10	Total
Construction Needs	\$0.00	\$0.00	\$0.00	\$0.00
Resurfacing Needs	\$0.00	\$174,000	\$0.00	\$174,000
Total	\$0.00	\$174,000	\$0.00	\$174,000

The 'Manual' states that low volume rural roads with an AADT less than 50 shall be considered adequate with normal maintenance procedures. The Township road network currently includes 66.030km of rural road with an AADT less than 50, of which 37.54km have an identified need.

Low volume roads with identified needs have been excluded in the capital cost forecast but a summary of the costs to address the identified needs of these roads is provided in Table 6.

Table 6 – Summary of Costs for Low Volume Roads (AADT<50)

Item	Total
Construction Needs (Wolfe Island & Simcoe Island)	\$18,235,000
Construction Needs (Howe Island)	\$4,027,000
Total	\$22,262,000

The total cost of construction and resurfacing needs of the Township road network is approximately \$43,326,000.

System Adequacy

System adequacy is a comparison between the length of the road network without an identified 'NOW' need and the length of the entire network resulting in a rating out of 100. The road system adequacy is calculated as follows;

$$\text{System Adequacy} = \frac{\text{Total Length of Road (km)} - \text{Length of NOW Deficiencies}}{\text{Total Length of Road (km)}} \times 100$$

It should be noted that this calculation uses the total length of road within the network, including rural roads with an AADT < 50. However, the low volume rural roads are not considered in capital funding allocations. Using the length of low volume roads in the system adequacy calculation without considering their condition could be seen as a distortion of the overall system rating. Discretion should be exercised in the interpretation of this rating.

It is reasonable to consider a decrease in system adequacy over time would indicate that inappropriate strategies are being implemented and/or adequate funds are not being directed to the road network. Therefore, a review of historical system adequacy figures is a good indicator of the overall performance of the road program with due regard to the length of low volume roads. The 2013 system adequacy was 77.7% and the 2018 system adequacy was 77.8%

Based on the 2022 evaluation, the Township of Frontenac Islands road network has a System Adequacy of 80.6%. It is generally accepted that a lower tier municipality has a target of 60% system adequacy.

Road System Rating and Prioritization

Road System Rating

Road System Ratings are a basic measure of the importance of a road section relative to its condition and the traffic it serves. These are only two factors and many other factors need to be considered when rating the importance of one road section over another. However, the rating provides the Township with some insight into the importance of each road section. The evaluation for each road section includes a Priority Rating with a higher number representing a road considered to be of higher importance.

Findings

As indicated by the System Adequacy rating, the Township road network is generally in adequate condition. Some of the gravel roads have been recently resurfaced and paved roads recently reconstructed.

There were several needs that were consistent throughout the road network including;

- Minimal to no ditching
- Low shoulders against the edge of the travelled surface (hard topped roads)
- Potholes
- Moderate to severe surface cracking

Ditching

The topography of the islands are assumed to be the major reason there is minimal to no ditching on many rural road sections. Alligator cracking in hard topped roads is a good indication of movement in the road base, most likely as a result of poor drainage.

Low Shoulders Against the Travelled Edge (Hard Topped Roads)

Many hard topped roads throughout the road network had low shoulders against the travelled surface frequently or throughout the road section. This situation allows surface water to more readily infiltrate the road base and subbase, weakening the pavement structure, leading to edge break. While edge break is not considered to be a significant deficiency, if left unchecked, it can migrate into the travelled surface and accelerate the deterioration of the road.

Potholes

Several road sections have potholes. These are caused by water infiltrating the road or road base, then undergoing freeze/thaw cycles. The expansion of the water as it freezes pushes material away. In the case of paved and surface treated roads, the water will dislodge the aggregate from the road, exposing more area for water to pool before freezing again. Once a pothole has formed, they continue to grow because of the freeze/thaw cycle, and from vehicles breaking more aggregate loose as they pass over the potholes.

Cracks

Numerous roads in the Township had cracks. All types of cracks should be addressed, either with asphalt patches or crack sealing. A crack left open gives water a direct path to the road base, reducing the life of the road. The types of cracks seen on a road are indicative of the reason for the cracking. Both centerline cracks and longitudinal cracks indicate either water freezing in the road base, or poor construction methods. Whereas cracks in the wheel tracks indicate heavy loads on the road during the spring (when asphalt is weakest). Alligator cracks indicate a poor road base, either due to poor drainage, or insufficient road base construction. Transverse can be due to either frost in the road base, temperature changes causing expansion or contraction of the asphalt.

Recommendations

Based on the road inventory and condition assessment, Jewell Engineering Inc. puts forth the following recommendations for consideration by the Township;

1. Implement an annual traffic counting program. Accurate traffic volumes ensure roads are classified, constructed and maintained properly. This will also assist in prioritizing needs and preparing capital and maintenance programs.
2. Review existing and/or prepare and implement a shoulder grading program (maintenance) to address surface water drainage deficiencies. This will allow proper drainage, reduce surface water infiltration into the road structure and prevent accelerated deterioration of road sections.
3. Review existing and/or prepare and implement a resurfacing program to ensure road assets, particularly recently reconstructed roads, reach their maximum service life.
4. Include curve widenings for horizontal curves on all future reconstruction and rehabilitation projects. This will minimize erosion of the shoulder and assist in reducing edge break on the inside of the curves, prolonging the surface life.
5. All horizontal curves should be demarcated with edge and centerline markings with the intention of providing increased direction for to users. This will assist in reducing shoulder loss and edge break.

6. Review substandard horizontal and vertical alignments with respect to existing warning signs, need for additional signage and possibly reduced speed limits.
7. Reconstruction projects should consider improvements to substandard horizontal and vertical alignments where possible.
8. Road sections should be kept to lengths less than 2.5km. It will give a more accurate representation of the condition of the road through the longer sections.

It is important that the Township develop, fund and implement programs that will encourage preservation of existing roads assets. These programs would be separate from capital projects and could include LCB resurfacing, crack sealing and chip or slurry sealing. Preservation programs such as these will renew the road network and assist in ensuring the maximum service life of the system is reached. Similarly, any road reconstruction projects should be designed in a manner conducive to rehabilitation.

Statement of Limitations

This report has been prepared by Jewell Engineering Inc. on behalf of the Corporation of the Township of Frontenac Islands. Conclusions and recommendations in this report are based on observations in the field and available background information.

The report documents the road conditions observed on the specific days the roads were reviewed and should only be used as a guideline in preparing short- and long-term preservation, capital and maintenance programs. Costs are preliminary and based on the Inventory Manual and do not necessarily consider all aspects of rehabilitation or reconstruction. Additional detailed investigations and designs should be completed as necessary to support preservation, maintenance and/or capital works.

The report has been prepared for the express use of the Township of Frontenac Islands and any use by a third party is strictly prohibited.

APPENDIX A
Road Listing By Section



Township Frontenac Islands (By Section Number)

Section No.	Name	From	To	Length (km)
Howe Island				
3010	Howe Island Drive	Ferry Dock	Baseline Road	1.7
3020	Baseline Road	Howe Island Drive	980m West of Howe Island Drive	1
3025	Baseline Road	980m West of Howe Island Drive	West End	1
3030	Howe Island Drive	Baseline Road	Lighthouse Lane	1.3
3035	Lighthouse Lane	Howe Island Drive	South End	0.4
3040	Howe Island Drive	Lighthouse Lane	900m East of Lighthouse Lane	0.9
3045	Howe Island Drive	900m East of Lighthouse Lane	Lower Sideroad	1.7
3050	Howe Island Drive	Lower Sideroad	1.3km East of Lower Sideroad	0.9
3055	Howe Island Drive	1.3km East of Lower Sideroad	Fuller Road	3.8
3060	Howe Island Drive	Fuller Road	Driscoll Road	2.4
3070	Howe Island Drive	Driscoll Road	Ferry Dock	1.8
3080	Driscoll Road	Howe Island Drive	North End	1.7
3090	Fuller Road	Howe Island Drive	North End	2.2
3100	Lower Sideroad	Howe Island Drive	North Shore Road	3
3110	North Shore Road	Lower Sideroad	East End	3.6
3120	North Shore Road	800m west of Lower Side Road	Howe Island Drive	1.38
3130	Spithead Road	Howe Island Drive	Y' Junction	1.4
3140	Spithead Road	Spithead Road	Spithead Road	2.2
3160	Spithead Road	Westerly 'Y' Junction of Spithead Roads	West End	0.3

<i>Section No.</i>	<i>Name</i>	<i>From</i>	<i>To</i>	<i>Length (km)</i>
3170	Goodfriend Drive	Baseline Road west end	Baseline Road	1.66
				<i>Region Length 34.34</i>
<u>Simcoe Island</u>				
80	Nine Mile Point Road	School House Road	West End	3.56
85	Nine Mile Point Road	Ferry Dock	School House Road	2.26
				<i>Region Length 5.82</i>
<u>Wolfe Island</u>				
10	Highway 96	Hillcrest Road	White Lane	0.64
20	White Lane	Highway 96	South end	0.3
30	Highway 96	White Lane	5th Line Road	1
40	Highway 96	5th Line Road	4th Line Road	0.8
50	Highway 96	4th Line Road	3rd Line Road	1.7
60	Highway 96	3rd Line Road	2nd Line Road	1.4
70	Simcoe Island Street	Highway 96	Ferry Dock	0.2
90	Sandy Bay Road	Highway 96	Baseline Road	2.5
100	Baseline Road	2nd Line Road	3rd Line Road	1.3
110	3rd Line Road	Highway 96	Baseline Road	2.8
120	3rd Line Road	Baseline Road	South End	1.3
130	Baseline Road	3rd Line Road	4th Line Road	1.4
140	4th Line Road	Highway 96	1.05km south of Highway 96	1.05
145	4th Line Road	1.05km South of Highway 95	Baseline Road	2.2
150	4th Line Road	Baseline Road	Reed's Bay Road	2.4
160	Reed's Bay Road	4th Line Road	940m West of 4th Line Road	1.6

<i>Section No.</i>	<i>Name</i>	<i>From</i>	<i>To</i>	<i>Length (km)</i>
180	3rd Line Road	Reed's Bay Road	South End	0.7
190	4th Line Road	Reed's Bay Road	Highland Road	1.9
200	4th Line Road	Highland Road	South End	0.3
210	Highland Road	4th Line Road	5th Line Road	1.3
220	5th Line Road	Highland Road	Stevenson Lane	1.9
230	5th Line Road	Stevenson Lane	South End	0.2
240	5th Line Road	Highland Road	Reed's Bay Road	1.8
250	5th Line Road	Reed's Bay Road	Baseline Road	2.4
260	Baseline Road	4th Line Road	5th Line Road	1.3
270	5th Line Road	Baseline Road	Highway 96	2.8
280	Highway 95	900m South of Highway 96	Baseline Road	1.5
290	Baseline Road	5th Line Road	Highway 95	1.4
300	Baseline Road	Highway 95	7th Line Road	1.4
310	Highway 95	Baseline Road	Reed's Bay Road	2.4
320	Reed's Bay Road	4th Line Road	5th Line Road	1.2
330	Reed's Bay Road	5th Line Road	Highway 95	1.3
340	Reed's Bay Road	Highway 95	7th Line Road	1.4
350	Highway 95	Reed's Bay Road	Ridge Road	1.3
360	Ridge Road	5th Line Road	Highway 95	1.5
370	Highway 95	Ridge Road	Button Bay Road	2.4
380	Highway 95	Button Bay Road	Ferry Dock	2.17
390	7th Line Road	Short Road	South End	0.25
400	Button Bay Road	Bennet Road	Highway 95 (West)	0.88

<i>Section No.</i>	<i>Name</i>	<i>From</i>	<i>To</i>	<i>Length (km)</i>
410	Button Bay Road	Bennett Road	Highway 95 (South)	2.1
420	Short Road	Button Bay Road	7th Line Road	0.25
430	7th Line Road	Short Road	Bennett Road	0.6
440	Bennett Road	Button Bay Road	7th Line Road	0.8
450	Bennett Road	7th Line Road	8th Line Road	1.3
470	Bayview Lane	8th Line Road	West End	0.1
480	Bennett Road	8th Line Road	80m West of 9th Line Road	1.4
490	Bennett Road	80m West of 9th Line Road	9th Line Road	0.1
500	9th Line Road	Bennett Road	Carpenter Point Road	0.6
510	Carpenter Point Road	9th Line Road	Kyle Road	1.3
520	Carpenter Point Road	Kyle Road	East End	1.3
525	7th Line Road	Bennett Road	Reed's Bay Road	1.9
530	Kyle Road	Carpenter Point Road	Northeast End	0.6
535	7th Line Road	Reed's Bay Road	Baseline Road	2.4
540	7th Line Road	Baseline Road	150m South of Highway 96	1.8
550	Highway 96	420m East of 7th Line Road	8th Line Road	0.95
560	8th Line Road	Highway 96	Baseline Road	1.7
570	Baseline Road	7th Line Road	8th Line Road	1.4
580	Baseline Road	8th Line Road	9th Line Road	1.4
590	9th Line Road	Baseline Road	Wilmer Road	1.2
600	Wilmer Road	9th Line Road	East End	1
610	9th Line Road	Wilmer Road	Reed's Bay Road	1.2

<i>Section No.</i>	<i>Name</i>	<i>From</i>	<i>To</i>	<i>Length (km)</i>
620	9th Line Road	Reed's Bay Road	Carpenter Point Road	1.3
630	Reed's Bay Road	7th Line Road	8th Line Road	1.4
640	Reed's Bay Road	8th Line Road	9th Line Road	1.5
650	8th Line Road	Bennett Road	Reed's Bay Road	1.9
660	8th Line Road	Reed's Bay Road	Baseline Road	2.4
670	Highway 96	8th Line Road	Highway 7051	0.4
680	Highway 7051	Highway 96	Ferry Dock	2.2
690	Access Road	Joy Road	Highway 7051	0.2
700	Joy Road	Highway 7051	North End	0.6
710	Langdon Road	Joy Road	West End	0.6
720	Highway 96	Highway 7051	10th Line Road	2.6
730	10th Line Road	Highway 96	North End	1.78
740	10th Line Road	Highway 96	South End	1.2
750	Highway 96	10th Line Road	11th Line Road (North)	1.3
760	Highway 96	11th Line Road (North)	11th Line Road (South)	1.8
770	Highway 96	11th Line Road	13th Line Road	2.73
780	11th Line Road	Highway 96	South End	0.4
790	Highway 96	13th Line Road	South Shore	1.2
800	Highway 96	South Shore Road	Holiday Point Road	1.3
810	Highway 96	Holiday Point Road	14th Line Road	1.1
820	14th Line Road	Highway 96	South End	0.4
830	Highway 96	14th Line Road	15th Line Road (South)	1.3
835	Highway 96	15th Line Road (South)	16th Line Road	1.3

<i>Section No.</i>	<i>Name</i>	<i>From</i>	<i>To</i>	<i>Length (km)</i>
840	Highway 96	16th Line Road	Breaky's Bay Road	1.6
845	Highway 96	Breaky's Bay Road	17th Line Road (South)	1.5
850	17th Line Road	Highway 96	South End	0.1
855	17th Line Road	Highway 96	North End	1.06
860	Highway 96	17th Line (South)	19th Line Road	2.7
865	Highway 96	19th Line Road	East End	2.6
870	Leone's Cove Lane	Highway 96	South End	0.6
880	19th Line Road	Highway 96	South End	0.8
890	18th Line Road	Highway 96	Breaky's Bay Road	1.5
895	18th Line Road	Highway 96	South End	0.43
900	18th Line Road	Breaky's Bay Road	North End	0.5
910	Breaky's Bay Road	Highway 96	18th Line Road	1.4
920	McDonald Lane	Breaky's Bay Road	North End	1.4
930	16th Line Road	Highway 96	South End	1.1
940	16th Line Road	Highway 96	North End	0.8
950	15th Line Road	Highway 96	North End	0.29
955	15th Line Road	Highway 96	South End	0.52
960	Holiday Point Road	Helen's Road	East end	0.52
960	Holiday Point Road	Highway 96	Helen's Road	1.47
970	Helen's Road	Holiday Point Road	North End	0.7
980	Helen's Road	Holiday Point Road	South End	0.2
990	South Shore Road	12th Line Road	Highway 96	1.3
1000	12th Line Road	South Shore Road	Highway 96	1.2

<i>Section No.</i>	<i>Name</i>	<i>From</i>	<i>To</i>	<i>Length (km)</i>
1010	Hogan's Road	13th Line Road	East End	1.24
1020	13th Line Road	Highway 96	Oak Point Road	1.2
1030	13th Line Road	Oak Point Road	North End	0.35
1040	Oak Point Road	Highway 96	12th Line Road	1.35
1045	Oak Point Road	12th Line Road	13th Line Road	1.45
1050	12th Line Road	Highway 96	Oak Point Road	1.3
1060	12th Line Road	Oak Point Road	North End	0.8
1070	11th Line Road	Highway 96	North End	0.5
1080	Fawcett's Lane	11th Line Road	West End	0.1
1090	9th Line Road	Highway 96	North End	0.5
2020	Highway 96	Hillcrest Street	Highway 95	0.2
2030	Highway 96	Highway 95	Centre Street	0.2
2040	Highway 96	Centre Street	Victoria Street	0.2
2045	Highway 96	Victoria Street	St Lawrence Street	0.1
2050	Highway 96	St Lawrence Street	Cross Street	0.1
2060	Highway 96	Cross Street	Barrett Street	0.1
2065	Highway 96	Barrett Street	Going Street	0.1
2070	Highway 96	Going Street	7th Line Road	0.1
2080	Highway 96	7th Line Road	420m East of 7th Line Road	0.43
2090	7th Line Road	Highway 96	150m South of Highway 96	0.2
2100	Going Street	Highway 96	South End	0.25
2110	Lucinda Street	Going Street	Barrett Street	0.12
2120	Lucinda Street	Barrett Street	Cross Street	0.06

<i>Section No.</i>	<i>Name</i>	<i>From</i>	<i>To</i>	<i>Length (km)</i>
2130	Barrett Street	Highway 96	Lucinda Street	0.1
2140	Barrett Street	Lucinda Street	South End	0.05
2150	Cross Street	Highway 96	Lucinda Street	0.1
2160	Cross Street	Lucinda Street	South End	0.1
2170	St Lawrence Street	Highway 96	Eliza Street	0.2
2180	Eliza Street	St Lawrence Street	Division Street	0.3
2190	Victoria Street	Highway 96	Eliza Street	0.2
2200	Victoria Street	Eliza Street	South End	0.1
2210	Leander Street	Highway 96	Eliza Street	0.2
2220	Leander Street	Eliza Street	South End	0.05
2230	Centre Street	Ferry Dock	Highway 96	0.1
2240	Centre Street	Highway 96	Eliza Street	0.1
2250	Centre Street	Eliza Street	South End	0.05
2260	Division Street	Highway 96	North End	0.05
2270	Division Street	Highway 96	Eliza Street	0.05
2280	Division Street	Eliza Street	South End	0.2
2290	Hitchcock Road	Highway 96	South End	0.1
2300	Highway 95	Highway 96	260m South of Highway 96	0.26
2310	Highway 95	260m South of Highway 96	900m South of Highway 96	0.63
2320	Hillcrest Street	Highway 96	West End	0.2
2330	Allen Street	Hillcrest Street	Thunder Road	0.1
2340	Thunder Road	Allen Street	East End	0.1
3125	North Shore Road	Lower Sideroad	800m west of Lower Side Road	0.8

<i>Section No.</i>	<i>Name</i>	<i>From</i>	<i>To</i>	<i>Length (km)</i>
				Region Length 151.98
				Total Length 192.14

APPENDIX B
Road Conditions



Frontenac Islands (2022) Road Conditions

Name	From	To	Surface Condition	Surface Type	Surface Width	Structural Adequacy	Drainage
Highway 96	Hillcrest Road	White Lane	8	ADEQ	ADEQ	ADEQ	ADEQ
White Lane	Highway 96	South end	7	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	White Lane	5th Line Road	8	ADEQ	ADEQ	(6-10)	ADEQ
Highway 96	5th Line Road	4th Line Road	8	ADEQ	ADEQ	(6-10)	ADEQ
Highway 96	4th Line Road	3rd Line Road	7	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	3rd Line Road	2nd Line Road	6	ADEQ	ADEQ	(6-10)	ADEQ
Simcoe Island Street	Highway 96	Ferry Dock	10	ADEQ	NOW	ADEQ	ADEQ
Nine Mile Point Road	School House Road	West End	6	ADEQ	NOW	NOW	ADEQ
Nine Mile Point Road	Ferry Dock	School House Road	7	ADEQ	NOW	NOW	ADEQ
Sandy Bay Road	Highway 96	Baseline Road	4	ADEQ	ADEQ	ADEQ	(6-10)
Baseline Road	2nd Line Road	3rd Line Road	3	ADEQ	ADEQ	ADEQ	NOW
3rd Line Road	Highway 96	Baseline Road	2	ADEQ	NOW	NOW	(6-10)
3rd Line Road	Baseline Road	South End	2	ADEQ	ADEQ	NOW	NOW
Baseline Road	3rd Line Road	4th Line Road	8	ADEQ	ADEQ	ADEQ	(6-10)
4th Line Road	Highway 96	1.05km south of Highway 96	9	ADEQ	ADEQ	ADEQ	ADEQ
4th Line Road	1.05km South of Highway 95	Baseline Road	7	ADEQ	ADEQ	ADEQ	NOW
4th Line Road	Baseline Road	Reed's Bay Road	7	ADEQ	ADEQ	ADEQ	ADEQ
Reed's Bay Road	4th Line Road	940m West of 4th Line Road	4	ADEQ	ADEQ	NOW	ADEQ
3rd Line Road	Reed's Bay Road	South End	5	ADEQ	NOW	ADEQ	(6-10)
4th Line Road	Reed's Bay Road	Highland Road	6	ADEQ	ADEQ	ADEQ	(6-10)
4th Line Road	Highland Road	South End	9	ADEQ	NOW	ADEQ	(6-10)

Name	From	To	Surface Condition	Surface Type	Surface Width	Structural Adequacy	Drainage
Highland Road	4th Line Road	5th Line Road	6	ADEQ	ADEQ	ADEQ	ADEQ
5th Line Road	Highland Road	Stevenson Lane	6	ADEQ	ADEQ	ADEQ	ADEQ
5th Line Road	Stevenson Lane	South End	8	ADEQ	NOW	ADEQ	ADEQ
5th Line Road	Highland Road	Reed's Bay Road	7	ADEQ	NOW	ADEQ	(6-10)
5th Line Road	Reed's Bay Road	Baseline Road	6	ADEQ	ADEQ	ADEQ	(6-10)
Baseline Road	4th Line Road	5th Line Road	7	ADEQ	ADEQ	ADEQ	(6-10)
5th Line Road	Baseline Road	Highway 96	6	ADEQ	ADEQ	ADEQ	ADEQ
Highway 95	900m South of Highway 96	Baseline Road	6	ADEQ	ADEQ	NOW	ADEQ
Baseline Road	5th Line Road	Highway 95	8	ADEQ	ADEQ	ADEQ	ADEQ
Baseline Road	Highway 95	7th Line Road	7	ADEQ	ADEQ	ADEQ	ADEQ
Highway 95	Baseline Road	Reed's Bay Road	6	ADEQ	ADEQ	(1-5)	ADEQ
Reed's Bay Road	4th Line Road	5th Line Road	5	ADEQ	ADEQ	(1-5)	ADEQ
Reed's Bay Road	5th Line Road	Highway 95	6	ADEQ	ADEQ	(1-5)	ADEQ
Reed's Bay Road	Highway 95	7th Line Road	8	ADEQ	ADEQ	NOW	ADEQ
Highway 95	Reed's Bay Road	Ridge Road	6	ADEQ	ADEQ	(6-10)	ADEQ
Ridge Road	5th Line Road	Highway 95	5	ADEQ	ADEQ	ADEQ	(6-10)
Highway 95	Ridge Road	Button Bay Road	5	ADEQ	ADEQ	NOW	ADEQ
Highway 95	Button Bay Road	Ferry Dock	5	ADEQ	ADEQ	(1-5)	ADEQ
7th Line Road	Short Road	South End	7	ADEQ	NOW	NOW	(6-10)
Button Bay Road	Bennet Road	Highway 95 (West)	4	ADEQ	ADEQ	ADEQ	(6-10)
Button Bay Road	Bennett Road	Highway 95 (South)	5	ADEQ	NOW	ADEQ	(1-5)
Short Road	Button Bay Road	7th Line Road	7	ADEQ	ADEQ	ADEQ	ADEQ
7th Line Road	Short Road	Bennett Road	5	ADEQ	ADEQ	ADEQ	(1-5)
Bennett Road	Button Bay Road	7th Line Road	5	ADEQ	ADEQ	NOW	(6-10)

Name	From	To	Surface Condition	Surface Type	Surface Width	Structural Adequacy	Drainage
Bennett Road	7th Line Road	8th Line Road	4	ADEQ	NOW	ADEQ	(1-5)
Bayview Lane	8th Line Road	West End	5	ADEQ	NOW	ADEQ	ADEQ
Bennett Road	8th Line Road	80m West of 9th Line Road	5	ADEQ	NOW	ADEQ	(6-10)
Bennett Road	80m West of 9th Line Road	9th Line Road	4	ADEQ	ADEQ	NOW	ADEQ
9th Line Road	Bennett Road	Carpenter Point Road	5	ADEQ	ADEQ	NOW	ADEQ
Carpenter Point Road	9th Line Road	Kyle Road	7	ADEQ	ADEQ	(6-10)	ADEQ
Carpenter Point Road	Kyle Road	East End	2	ADEQ	ADEQ	NOW	ADEQ
7th Line Road	Bennett Road	Reed's Bay Road	7	ADEQ	NOW	ADEQ	ADEQ
Kyle Road	Carpenter Point Road	Northeast End	7	ADEQ	NOW	ADEQ	ADEQ
7th Line Road	Reed's Bay Road	Baseline Road	7	ADEQ	ADEQ	ADEQ	ADEQ
7th Line Road	Baseline Road	150m South of Highway 96	6	ADEQ	ADEQ	(1-5)	ADEQ
Highway 96	420m East of 7th Line Road	8th Line Road	10	ADEQ	ADEQ	ADEQ	ADEQ
8th Line Road	Highway 96	Baseline Road	7	ADEQ	ADEQ	(6-10)	ADEQ
Baseline Road	7th Line Road	8th Line Road	7	ADEQ	ADEQ	NOW	ADEQ
Baseline Road	8th Line Road	9th Line Road	4	ADEQ	ADEQ	NOW	ADEQ
9th Line Road	Baseline Road	Wilmer Road	6	ADEQ	ADEQ	(1-5)	ADEQ
Wilmer Road	9th Line Road	East End	6	ADEQ	ADEQ	NOW	(1-5)
9th Line Road	Wilmer Road	Reed's Bay Road	4	ADEQ	ADEQ	NOW	ADEQ
9th Line Road	Reed's Bay Road	Carpenter Point Road	5	ADEQ	ADEQ	NOW	ADEQ
Reed's Bay Road	7th Line Road	8th Line Road	7	ADEQ	NOW	NOW	ADEQ
Reed's Bay Road	8th Line Road	9th Line Road	7	ADEQ	NOW	NOW	(6-10)
8th Line Road	Bennett Road	Reed's Bay Road	7	ADEQ	ADEQ	NOW	ADEQ
8th Line Road	Reed's Bay Road	Baseline Road	6	ADEQ	ADEQ	NOW	(6-10)

Name	From	To	Surface Condition	Surface Type	Surface Width	Structural Adequacy	Drainage
Highway 96	8th Line Road	Highway 7051	9	ADEQ	ADEQ	ADEQ	ADEQ
Highway 7051	Highway 96	Ferry Dock	10	ADEQ	ADEQ	ADEQ	ADEQ
Access Road	Joy Road	Highway 7051	4	ADEQ	ADEQ	ADEQ	ADEQ
Joy Road	Highway 7051	North End	6	ADEQ	ADEQ	(1-5)	(6-10)
Langdon Road	Joy Road	West End	6	ADEQ	ADEQ	(6-10)	(6-10)
Highway 96	Highway 7051	10th Line Road	7	ADEQ	ADEQ	(1-5)	ADEQ
10th Line Road	Highway 96	North End	6	ADEQ	NOW	(1-5)	(6-10)
10th Line Road	Highway 96	South End	6	ADEQ	NOW	ADEQ	ADEQ
Highway 96	10th Line Road	11th Line Road (North)	6	ADEQ	ADEQ	(1-5)	ADEQ
Highway 96	11th Line Road (North)	11th Line Road (South)	8	ADEQ	ADEQ	(6-10)	ADEQ
Highway 96	11th Line Road	13th Line Road	8	ADEQ	ADEQ	(6-10)	ADEQ
11th Line Road	Highway 96	South End	5	ADEQ	NOW	ADEQ	ADEQ
Highway 96	13th Line Road	South Shore	7	ADEQ	ADEQ	(6-10)	ADEQ
Highway 96	South Shore Road	Holiday Point Road	8	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	Holiday Point Road	14th Line Road	8	ADEQ	ADEQ	ADEQ	(6-10)
14th Line Road	Highway 96	South End	8	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	14th Line Road	15th Line Road (South)	8	ADEQ	ADEQ	(6-10)	(6-10)
Highway 96	15th Line Road (South)	16th Line Road	9	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	16th Line Road	Breaky's Bay Road	10	ADEQ	ADEQ	ADEQ	NOW
Highway 96	Breaky's Bay Road	17th Line Road (South)	10	ADEQ	ADEQ	ADEQ	ADEQ
17th Line Road	Highway 96	South End	9	ADEQ	NOW	ADEQ	(6-10)
17th Line Road	Highway 96	North End	7	ADEQ	NOW	ADEQ	(6-10)
Highway 96	17th Line (South)	19th Line Road	8	ADEQ	ADEQ	(6-10)	ADEQ
Highway 96	19th Line Road	East End	9	ADEQ	ADEQ	ADEQ	ADEQ

Name	From	To	Surface Condition	Surface Type	Surface Width	Structural Adequacy	Drainage
Leone's Cove Lane	Highway 96	South End	5	ADEQ	NOW	ADEQ	ADEQ
19th Line Road	Highway 96	South End	9	ADEQ	NOW	ADEQ	ADEQ
18th Line Road	Highway 96	Breaky's Bay Road	7	ADEQ	NOW	ADEQ	ADEQ
18th Line Road	Highway 96	South End	8	ADEQ	NOW	ADEQ	ADEQ
18th Line Road	Breaky's Bay Road	North End	7	ADEQ	NOW	ADEQ	ADEQ
Breaky's Bay Road	Highway 96	18th Line Road	6	ADEQ	NOW	ADEQ	(1-5)
McDonald Lane	Breaky's Bay Road	North End	8	ADEQ	NOW	ADEQ	(1-5)
16th Line Road	Highway 96	South End	4	ADEQ	ADEQ	ADEQ	(6-10)
16th Line Road	Highway 96	North End	7	ADEQ	NOW	ADEQ	ADEQ
15th Line Road	Highway 96	North End	8	ADEQ	ADEQ	ADEQ	(6-10)
15th Line Road	Highway 96	South End	7	ADEQ	ADEQ	ADEQ	(6-10)
Holiday Point Road	Helen's Road	East end	5	ADEQ	ADEQ	(1-5)	(6-10)
Holiday Point Road	Highway 96	Helen's Road	5	ADEQ	ADEQ	(1-5)	(6-10)
Helen's Road	Holiday Point Road	North End	5	ADEQ	NOW	ADEQ	(1-5)
Helen's Road	Holiday Point Road	South End	9	ADEQ	NOW	ADEQ	ADEQ
South Shore Road	12th Line Road	Highway 96	5	ADEQ	NOW	ADEQ	(6-10)
12th Line Road	South Shore Road	Highway 96	5	ADEQ	NOW	ADEQ	ADEQ
Hogan's Road	13th Line Road	East End	5	ADEQ	NOW	ADEQ	ADEQ
13th Line Road	Highway 96	Oak Point Road	6	ADEQ	NOW	ADEQ	(6-10)
13th Line Road	Oak Point Road	North End	5	ADEQ	NOW	ADEQ	ADEQ
Oak Point Road	Highway 96	12th Line Road	10	ADEQ	ADEQ	ADEQ	ADEQ
Oak Point Road	12th Line Road	13th Line Road	10	ADEQ	ADEQ	ADEQ	ADEQ
12th Line Road	Highway 96	Oak Point Road	5	ADEQ	ADEQ	ADEQ	ADEQ
12th Line Road	Oak Point Road	North End	5	ADEQ	NOW	ADEQ	ADEQ

Name	From	To	Surface Condition	Surface Type	Surface Width	Structural Adequacy	Drainage
11th Line Road	Highway 96	North End	9	ADEQ	NOW	ADEQ	ADEQ
Fawcett's Lane	11th Line Road	West End	9	ADEQ	NOW	NOW	(6-10)
9th Line Road	Highway 96	North End	4	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	Hillcrest Street	Highway 95	6	ADEQ	ADEQ	(1-5)	ADEQ
Highway 96	Highway 95	Centre Street	7	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	Centre Street	Victoria Street	9	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	Victoria Street	St Lawrence Street	9	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	St Lawrence Street	Cross Street	9	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	Cross Street	Barrett Street	9	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	Barrett Street	Going Street	9	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	Going Street	7th Line Road	9	ADEQ	ADEQ	ADEQ	ADEQ
Highway 96	7th Line Road	420m East of 7th Line Road	10	ADEQ	ADEQ	ADEQ	ADEQ
7th Line Road	Highway 96	150m South of Highway 96	6	ADEQ	ADEQ	(6-10)	ADEQ
Going Street	Highway 96	South End	4	ADEQ	NOW	NOW	ADEQ
Lucinda Street	Going Street	Barrett Street	6	ADEQ	NOW	NOW	ADEQ
Lucinda Street	Barrett Street	Cross Street	6	ADEQ	NOW	NOW	ADEQ
Barrett Street	Highway 96	Lucinda Street	6	ADEQ	ADEQ	(1-5)	ADEQ
Barrett Street	Lucinda Street	South End	6	ADEQ	NOW	NOW	ADEQ
Cross Street	Highway 96	Lucinda Street	3	ADEQ	NOW	NOW	NOW
Cross Street	Lucinda Street	South End	3	ADEQ	NOW	NOW	ADEQ
St Lawrence Street	Highway 96	Eliza Street	6	ADEQ	ADEQ	(1-5)	ADEQ
Eliza Street	St Lawrence Street	Division Street	6	ADEQ	ADEQ	NOW	ADEQ
Victoria Street	Highway 96	Eliza Street	9	ADEQ	ADEQ	ADEQ	NOW

Name	From	To	Surface Condition	Surface Type	Surface Width	Structural Adequacy	Drainage
Victoria Street	Eliza Street	South End	9	ADEQ	ADEQ	ADEQ	NOW
Leander Street	Highway 96	Eliza Street	5	ADEQ	ADEQ	(1-5)	ADEQ
Leander Street	Eliza Street	South End	6	ADEQ	ADEQ	(1-5)	NOW
Centre Street	Ferry Dock	Highway 96	9	ADEQ	ADEQ	ADEQ	ADEQ
Centre Street	Highway 96	Eliza Street	6	ADEQ	NOW	(1-5)	ADEQ
Centre Street	Eliza Street	South End	5	ADEQ	NOW	(1-5)	ADEQ
Division Street	Highway 96	North End	6	ADEQ	ADEQ	ADEQ	ADEQ
Division Street	Highway 96	Eliza Street	9	ADEQ	ADEQ	ADEQ	ADEQ
Division Street	Eliza Street	South End	9	ADEQ	ADEQ	ADEQ	NOW
Hitchcock Road	Highway 96	South End	7	ADEQ	ADEQ	(1-5)	ADEQ
Highway 95	Highway 96	260m South of Highway 96	6	ADEQ	ADEQ	(1-5)	ADEQ
Highway 95	260m South of Highway 96	900m South of Highway 96	6	ADEQ	ADEQ	NOW	ADEQ
Hillcrest Street	Highway 96	West End	4	ADEQ	NOW	NOW	(6-10)
Allen Street	Hillcrest Street	Thunder Road	4	ADEQ	NOW	NOW	(6-10)
Thunder Road	Allen Street	East End	4	ADEQ	NOW	NOW	(6-10)
Howe Island Drive	Ferry Dock	Baseline Road	8	ADEQ	ADEQ	ADEQ	ADEQ
Baseline Road	Howe Island Drive	980m West of Howe Island Drive	5	ADEQ	ADEQ	(1-5)	(6-10)
Baseline Road	980m West of Howe Island Drive	West End	4	ADEQ	ADEQ	NOW	(6-10)
Howe Island Drive	Baseline Road	Lighthouse Lane	9	ADEQ	ADEQ	ADEQ	(6-10)
Lighthouse Lane	Howe Island Drive	South End	6	ADEQ	ADEQ	(1-5)	(6-10)
Howe Island Drive	Lighthouse Lane	900m East of Lighthouse Lane	10	ADEQ	ADEQ	ADEQ	(6-10)

Name	From	To	Surface Condition	Surface Type	Surface Width	Structural Adequacy	Drainage
Howe Island Drive	900m East of Lighthouse Lane	Lower Sideroad	9	ADEQ	ADEQ	ADEQ	(6-10)
Howe Island Drive	Lower Sideroad	1.3km East of Lower Sideroad	9	ADEQ	ADEQ	ADEQ	(6-10)
Howe Island Drive	1.3km East of Lower Sideroad	Fuller Road	9	ADEQ	ADEQ	ADEQ	(1-5)
Howe Island Drive	Fuller Road	Driscoll Road	6	ADEQ	ADEQ	(1-5)	ADEQ
Howe Island Drive	Driscoll Road	Ferry Dock	7	ADEQ	ADEQ	(1-5)	ADEQ
Driscoll Road	Howe Island Drive	North End	7	ADEQ	NOW	ADEQ	NOW
Fuller Road	Howe Island Drive	North End	3	ADEQ	NOW	NOW	NOW
Lower Sideroad	Howe Island Drive	North Shore Road	7	ADEQ	ADEQ	NOW	(1-5)
North Shore Road	Lower Sideroad	East End	5	ADEQ	ADEQ	(1-5)	(1-5)
North Shore Road	800m west of Lower Side Road	Howe Island Drive	3	ADEQ	ADEQ	NOW	ADEQ
North Shore Road	Lower Sideroad	800m west of Lower Side Road	8	ADEQ	ADEQ	ADEQ	ADEQ
Spithead Road	Howe Island Drive	Y' Junction	5	ADEQ	ADEQ	(1-5)	(1-5)
Spithead Road	Spithead Road	Spithead Road	9	ADEQ	ADEQ	ADEQ	ADEQ
Spithead Road	Westerly 'Y' Junction of Spithead Roads	West End	4	ADEQ	NOW	(1-5)	NOW
Goodfriend Drive	Baseline Road west end	Baseline Road	3	ADEQ	NOW	NOW	NOW

APPENDIX C
NOW Reconstruction Needs



NOW Reconstruction Needs All Roads

Sec. #	Name	From	To	Length	Priority Guide	Surf	Type of Improvement	Time of Improve	Total Cost
<u>Simcoe Island</u>									
85	Nine Mile Point Road	Ferry Dock	School House Road	2.260	70.7	G/S	REC	NOW	\$1,352,024.80
80	Nine Mile Point Road	School House Road	West End	3.560	75.4	G/S	REC	NOW	\$2,129,738.18
									\$3,481,762.98
<u>Wolfe Island</u>									
2340	Thunder Road	Allen Street	East End	0.100	2.7	LCB	REC	NOW	\$85,096.05
2220	Leander Street	Eliza Street	South End	0.050	5.7	LCB	REC	NOW	\$42,548.02
2140	Barrett Street	Lucinda Street	South End	0.050	8.3	LCB	REC	NOW	\$42,548.02
2120	Lucinda Street	Barrett Street	Cross Street	0.060	8.9	LCB	REC	NOW	\$51,057.63
2160	Cross Street	Lucinda Street	South End	0.100	10.6	LCB	REC	NOW	\$85,096.05
2330	Allen Street	Hillcrest Street	Thunder Road	0.100	10.7	LCB	REC	NOW	\$85,096.05
2250	Centre Street	Eliza Street	South End	0.050	13.3	LCB	REC	NOW	\$42,548.02
2110	Lucinda Street	Going Street	Barrett Street	0.120	13.3	LCB	REC	NOW	\$102,115.26
2320	Hillcrest Street	Highway 96	West End	0.200	21.4	LCB	REC	NOW	\$170,192.09
890	18th Line Road	Highway 96	Breaky's Bay Road	1.500	23.8	G/S	REC	NOW	\$897,361.59
730	10th Line Road	Highway 96	North End	1.780	24.8	LCB	REC	NOW	\$1,186,811.52
1000	12th Line Road	South Shore Road	Highway 96	1.200	27.3	G/S	REC	NOW	\$717,889.27
910	Breaky's Bay Road	Highway 96	18th Line Road	1.400	27.4	G/S	REC	NOW	\$837,537.49

Sec. #	Name	From	To	Length	Priority Guide	Surf	Type of Improvement	Time of Improve	Total Cost
855	17th Line Road	Highway 96	North End	1.060	28.2	G/S	REC	NOW	\$634,135.52
2100	Going Street	Highway 96	South End	0.250	28.3	LCB	REC	NOW	\$212,740.12
520	Carpenter Point Road	Kyle Road	East End	1.300	30.0	LCB	REC	NOW	\$866,772.46
180	3rd Line Road	Reed's Bay Road	South End	0.700	30.4	G/S	REC	NOW	\$418,768.74
2150	Cross Street	Highway 96	Lucinda Street	0.100	33.3	LCB	REC	NOW	\$85,096.05
2180	Eliza Street	St Lawrence Street	Division Street	0.300	34.4	LCB	REC	NOW	\$255,288.14
70	Simcoe Island Street	Highway 96	Ferry Dock	0.200	35.9	G/S	REC	NOW	\$119,648.21
2240	Centre Street	Highway 96	Eliza Street	0.100	39.6	LCB	REC	NOW	\$85,096.05
160	Reed's Bay Road	4th Line Road	940m West of 4th Line Road	1.600	52.5	LCB	REC	NOW	\$1,066,796.88
620	9th Line Road	Reed's Bay Road	Carpenter Point Road	1.300	57.3	LCB	REC	NOW	\$866,772.46
500	9th Line Road	Bennett Road	Carpenter Point Road	0.600	61.1	LCB	REC	NOW	\$400,048.83
580	Baseline Road	8th Line Road	9th Line Road	1.400	67.8	LCB	REC	NOW	\$933,447.27
610	9th Line Road	Wilmer Road	Reed's Bay Road	1.200	70.3	LCB	REC	NOW	\$800,097.66
370	Highway 95	Ridge Road	Button Bay Road	2.400	96.1	LCB	REC	NOW	\$2,640,973.10
280	Highway 95	900m South of Highway 96	Baseline Road	1.500	170.8	LCB	REC	NOW	\$1,650,608.19
2310	Highway 95	260m South of Highway 96	900m South of Highway 96	0.630	189.0	LCB	REC	NOW	\$693,255.44
				27.170					
					\$16,075,442.18				
					\$19,557,205.15				
					<i>Total All Regions</i>				

APPENDIX D
(1-5) Year Reconstruction Needs



1-5 Year Reconstruction Needs All Roads

Sec. #	Name	From	To	Length	Priority Guide	Surf	Type of Improvement	Time of Improvement	Total Cost
<u>Wolfe Island</u>									
2020	Highway 96	Hillcrest Street	Highway 95	0.200	87.3	HCB	REC	(1-5)	\$217,696.03
2170	St Lawrence Street	Highway 96	Eliza Street	0.200	20.8	LCB	REC	(1-5)	\$170,192.09
2290	Hitchcock Road	Highway 96	South End	0.100	11.2	LCB	REC	(1-5)	\$85,096.05
				0.500					\$472,984.17
				Total All Regions				\$472,984.17	

APPENDIX E
(1-5) Year Resurfacing Needs



1-5 Year Resurfacing Needs All Roads

Sec. #	Name	From	To	Length	Priority Guide	Surf	Type of Improvement	Time of Improvement	Total Cost
<u>Howe Island</u>									
3060	Howe Island Drive	Fuller Road	Driscoll Road	2.400	353.7	LCB	PR1	(1-5)	\$173,582.64
									\$173,582.64
<u>Wolfe Island</u>									
310	Highway 95	Baseline Road	Reed's Bay Road	2.400	418.3	LCB	PR1	(1-5)	\$173,582.64
590	9th Line Road	Baseline Road	Wilmer Road	1.200	257.5	LCB	PR1	(1-5)	\$75,368.46
380	Highway 95	Button Bay Road	Ferry Dock	2.170	244.1	LCB	PR1	(1-5)	\$136,291.30
960	Holiday Point Road	Highway 96	Helen's Road	1.470	191.3	LCB	PR1	(1-5)	\$92,326.37
330	Reed's Bay Road	5th Line Road	Highway 95	1.300	157.5	LCB	PR1	(1-5)	\$81,649.17
320	Reed's Bay Road	4th Line Road	5th Line Road	1.200	126.9	LCB	PR1	(1-5)	\$75,368.46
2300	Highway 95	Highway 96	260m South of Highway 96	0.260	102.7	HCB	R2	(1-5)	\$152,354.48
									\$786,940.88
									\$960,523.52
								Total All Regions	
				12.400					

APPENDIX F
(6-10) Year Resurfacing Needs



6-10 Year Resurfacing Needs All Roads

Sec. #	Name	From	To	Length	Priority Guide	Surf	Type of Improvement	Time of Improvement	Total Cost
Wolfe Island									
510	Carpenter Point Road	9th Line Road	Kyle Road	1.300	140.0	LCB	R1	(6-10)	\$72,792.72
				<u>1.300</u>					\$72,792.72
									\$72,792.72

APPENDIX G
Low Volume Road Needs



Low Volume Road Needs (AADT < 50)

Sec. #	Name	From	To	Length	Priority Guide	Surf	Type of Improvement	Time of Improvement	Total Cost
Howe Island									
3160	Spithead Road	Westerly 'Y' Junction of Spithead Roads	West End	0.300	25.7	LCB	REC	Maintenance	\$200,024.41
3080	Driscoll Road	Howe Island Drive	North End	1.700	13.6	G/S	REC	Maintenance	\$1,017,009.80
3170	Goodfriend Drive	Baseline Road west end	Baseline Road	1.660	11.1	G/S	REC	Maintenance	\$827,566.80
3025	Baseline Road	980m West of Howe Island Drive	West End	1.000	9.5	LCB	REC	Maintenance	\$666,748.05
3090	Fuller Road	Howe Island Drive	North End	2.200	9.0	G/S	REC	Maintenance	\$1,316,130.33
									\$4,027,479.40
Wolfe Island									
110	3rd Line Road	Highway 96	Baseline Road	2.800	24.7	G/S	REC	Maintenance	\$1,675,074.97
900	18th Line Road	Breaky's Bay Road	North End	0.500	23.5	G/S	REC	Maintenance	\$299,120.53
240	5th Line Road	Highland Road	Reed's Bay Road	1.800	18.7	G/S	REC	Maintenance	\$1,076,833.91
410	Button Bay Road	Bennett Road	Highway 95 (South)	2.100	18.2	G/S	REC	Maintenance	\$1,256,306.23
1060	12th Line Road	Oak Point Road	North End	0.800	17.4	G/S	REC	Maintenance	\$478,592.85
1010	Hogan's Road	13th Line Road	East End	1.240	16.3	G/S	REC	Maintenance	\$741,818.92
870	Leone's Cove Lane	Highway 96	South End	0.600	16.0	G/S	REC	Maintenance	\$358,944.64
1020	13th Line Road	Highway 96	Oak Point Road	1.200	14.6	G/S	REC	Maintenance	\$717,889.27
390	7th Line Road	Short Road	South End	0.250	14.5	G/S	REC	Maintenance	\$149,560.27

Sec. #	Name	From	To	Length	Priority Guide	Surf	Type of Improvement	Time of Improvement	Total Cost
630	Reed's Bay Road	7th Line Road	8th Line Road	1.400	14.5	G/S	REC	Maintenance	\$837,537.49
440	Bennett Road	Button Bay Road	7th Line Road	0.800	14.5	G/S	REC	Maintenance	\$478,592.85
920	McDonald Lane	Breaky's Bay Road	North End	1.400	13.9	G/S	REC	Maintenance	\$837,537.49
450	Bennett Road	7th Line Road	8th Line Road	1.300	13.4	G/S	REC	Maintenance	\$777,713.38
780	11th Line Road	Highway 96	South End	0.400	12.5	G/S	REC	Maintenance	\$239,296.42
740	10th Line Road	Highway 96	South End	1.200	11.9	G/S	REC	Maintenance	\$717,889.27
940	16th Line Road	Highway 96	North End	0.800	11.2	G/S	REC	Maintenance	\$478,592.85
990	South Shore Road	12th Line Road	Highway 96	1.300	10.8	G/S	REC	Maintenance	\$777,713.38
1030	13th Line Road	Oak Point Road	North End	0.350	10.7	G/S	REC	Maintenance	\$209,384.37
1070	11th Line Road	Highway 96	North End	0.500	9.9	G/S	REC	Maintenance	\$299,120.53
470	Bayview Lane	8th Line Road	West End	0.100	9.7	G/S	REC	Maintenance	\$59,824.11
525	7th Line Road	Bennett Road	Reed's Bay Road	1.900	9.2	G/S	REC	Maintenance	\$1,136,658.02
490	Bennett Road	80m West of 9th Line Road	9th Line Road	0.100	9.2	LCB	REC	Maintenance	\$66,674.80
980	Helen's Road	Holiday Point Road	South End	0.200	8.6	G/S	REC	Maintenance	\$119,648.21
895	18th Line Road	Highway 96	South End	0.430	8.6	G/S	REC	Maintenance	\$257,243.66
640	Reed's Bay Road	8th Line Road	9th Line Road	1.500	7.3	G/S	REC	Maintenance	\$897,361.59
530	Kyle Road	Carpenter Point Road	Northeast End	0.600	6.9	G/S	REC	Maintenance	\$358,944.64
1080	Fawcett's Lane	11th Line Road	West End	0.100	6.8	G/S	REC	Maintenance	\$59,824.11
970	Helen's Road	Holiday Point Road	North End	0.700	5.5	G/S	REC	Maintenance	\$418,768.74
480	Bennett Road	8th Line Road	80m West of 9th Line Road	1.400	5.5	G/S	REC	Maintenance	\$837,537.49

Sec. #	Name	From	To	Length	Priority Guide	Surf	Type of Improvement	Time of Improvement	Total Cost
850	17th Line Road	Highway 96	South End	0.100	5.1	G/S	REC	Maintenance	\$59,824.11
200	4th Line Road	Highland Road	South End	0.300	4.6	G/S	REC	Maintenance	\$179,472.32
120	3rd Line Road	Baseline Road	South End	1.300	4.3	G/S	REC	Maintenance	\$777,713.38
880	19th Line Road	Highway 96	South End	0.800	4.3	G/S	REC	Maintenance	\$478,592.85
230	5th Line Road	Stevenson Lane	South End	0.200	4.2	G/S	REC	Maintenance	\$119,648.21
				<hr/>					\$18,235,255.83
				<hr/>					
				<hr/>	37.330				
								<i>Total All Regions</i>	\$22,262,735.23

APPENDIX H
Minimum Maintenance Standard Classifications



MMS Classification

Sec. #	Name	From	To	Length	MMS Class	AADT	Year	Speed Limit
Howe Island								
3010	Howe Island Drive	Ferry Dock	Baseline Road	1.700	4	641		80
3020	Baseline Road	Howe Island Drive	980m West of Howe Island Drive	1.000	4	150		80
3025	Baseline Road	980m West of Howe Island Drive	West End	1.000	6	20		80
3030	Howe Island Drive	Baseline Road	Lighthouse Lane	1.300	4	450		80
3035	Lighthouse Lane	Howe Island Drive	South End	0.400	6	25		80
3040	Howe Island Drive	Lighthouse Lane	900m East of Lighthouse Lane	0.900	4	450		80
3045	Howe Island Drive	900m East of Lighthouse Lane	Lower Sideroad	1.700	5	450		60
3050	Howe Island Drive	Lower Sideroad	1.3km East of Lower Sideroad	0.900	5	300		60
3055	Howe Island Drive	1.3km East of Lower Sideroad	Fuller Road	3.800	4	300		80
3060	Howe Island Drive	Fuller Road	Driscoll Road	2.400	5	300		60
3070	Howe Island Drive	Driscoll Road	Ferry Dock	1.800	5	328		60
3080	Driscoll Road	Howe Island Drive	North End	1.700	6	20		80
3090	Fuller Road	Howe Island Drive	North End	2.200	6	10		80
3100	Lower Sideroad	Howe Island Drive	North Shore Road	3.000	5	50		60
3110	North Shore Road	Lower Sideroad	East End	3.600	6	100		50
3120	North Shore Road	800m west of Lower Side Road	Howe Island Drive	1.380	5	100		60
3130	Spithead Road	Howe Island Drive	Y' Junction	1.400	6	100		50

Sec. #	Name	From	To	Length	MMS Class	AADT	Year	Speed Limit
3140	Spithead Road	Spithead Road	Spithead Road	2.200	6	50		40
3160	Spithead Road	Westerly 'Y' Junction of Spithead Roads	West End	0.300	6	40		50
3170	Goodfriend Drive	Baseline Road west end	Baseline Road	1.660	6	10		20
<u>Simcoe Island</u>								
80	Nine Mile Point Road	School House Road	West End	3.560	4	100		80
85	Nine Mile Point Road	Ferry Dock	School House Road	2.260	4	100		80
<u>Wolfe Island</u>								
10	Highway 96	Hillcrest Road	White Lane	0.640	6	300		40
20	White Lane	Highway 96	South end	0.300	6	20		80
30	Highway 96	White Lane	5th Line Road	1.000	6	300		40
40	Highway 96	5th Line Road	4th Line Road	0.800	5	300		60
50	Highway 96	4th Line Road	3rd Line Road	1.700	5	300		60
60	Highway 96	3rd Line Road	2nd Line Road	1.400	5	300		60
70	Simcoe Island Street	Highway 96	Ferry Dock	0.200	4	100		80
90	Sandy Bay Road	Highway 96	Baseline Road	2.500	6	30		80
100	Baseline Road	2nd Line Road	3rd Line Road	1.300	6	30		80
110	3rd Line Road	Highway 96	Baseline Road	2.800	6	30		80
120	3rd Line Road	Baseline Road	South End	1.300	6	5		80
130	Baseline Road	3rd Line Road	4th Line Road	1.400	6	30		80
140	4th Line Road	Highway 96	1.05km south of Highway 96	1.050	6	5		80
145	4th Line Road	1.05km South of Highway 95	Baseline Road	2.200	6	5		80

Sec. #	Name	From	To	Length	MMS Class	AADT Year	Speed Limit
150	4th Line Road	Baseline Road	Reed's Bay Road	2.400	6	30	80
160	Reed's Bay Road	4th Line Road	940m West of 4th Line Road	1.600	4	100	80
180	3rd Line Road	Reed's Bay Road	South End	0.700	4	50	80
190	4th Line Road	Reed's Bay Road	Highland Road	1.900	6	30	80
200	4th Line Road	Highland Road	South End	0.300	6	10	80
210	Highland Road	4th Line Road	5th Line Road	1.300	6	30	80
220	5th Line Road	Highland Road	Stevenson Lane	1.900	6	30	80
230	5th Line Road	Stevenson Lane	South End	0.200	6	10	80
240	5th Line Road	Highland Road	Reed's Bay Road	1.800	6	40	80
250	5th Line Road	Reed's Bay Road	Baseline Road	2.400	4	50	80
260	Baseline Road	4th Line Road	5th Line Road	1.300	4	50	80
270	5th Line Road	Baseline Road	Highway 96	2.800	4	50	80
280	Highway 95	900m South of Highway 96	Baseline Road	1.500	4	717	80
290	Baseline Road	5th Line Road	Highway 95	1.400	4	50	80
300	Baseline Road	Highway 95	7th Line Road	1.400	4	50	80
310	Highway 95	Baseline Road	Reed's Bay Road	2.400	4	320	80
320	Reed's Bay Road	4th Line Road	5th Line Road	1.200	4	100	80
330	Reed's Bay Road	5th Line Road	Highway 95	1.300	4	100	80
340	Reed's Bay Road	Highway 95	7th Line Road	1.400	4	50	80
350	Highway 95	Reed's Bay Road	Ridge Road	1.300	4	400	80
360	Ridge Road	5th Line Road	Highway 95	1.500	6	10	80

Sec. #	Name	From	To	Length	MMS Class	AADT Year	Speed Limit
370	Highway 95	Ridge Road	Button Bay Road	2.400	4	400	80
380	Highway 95	Button Bay Road	Ferry Dock	2.170	4	139	80
390	7th Line Road	Short Road	South End	0.250	6	20	80
400	Button Bay Road	Bennet Road	Highway 95 (West)	0.880	6	30	80
410	Button Bay Road	Bennett Road	Highway 95 (South)	2.100	6	30	80
420	Short Road	Button Bay Road	7th Line Road	0.250	6	20	80
430	7th Line Road	Short Road	Bennett Road	0.600	6	20	80
440	Bennett Road	Button Bay Road	7th Line Road	0.800	6	20	80
450	Bennett Road	7th Line Road	8th Line Road	1.300	6	20	80
470	Bayview Lane	8th Line Road	West End	0.100	6	15	80
480	Bennett Road	8th Line Road	80m West of 9th Line Road	1.400	6	10	80
490	Bennett Road	80m West of 9th Line Road	9th Line Road	0.100	6	20	80
500	9th Line Road	Bennett Road	Carpenter Point Road	0.600	4	150	80
510	Carpenter Point Road	9th Line Road	Kyle Road	1.300	4	100	80
520	Carpenter Point Road	Kyle Road	East End	1.300	4	60	80
525	7th Line Road	Bennett Road	Reed's Bay Road	1.900	6	20	80
530	Kyle Road	Carpenter Point Road	Northeast End	0.600	6	15	80
535	7th Line Road	Reed's Bay Road	Baseline Road	2.400	4	50	80
540	7th Line Road	Baseline Road	150m South of Highway 96	1.800	4	50	80
550	Highway 96	420m East of 7th Line Road	8th Line Road	0.950	5	300	60
560	8th Line Road	Highway 96	Baseline Road	1.700	4	190	80

Sec. #	Name	From	To	Length	MMS Class	AADT Year	Speed Limit
570	Baseline Road	7th Line Road	8th Line Road	1.400	6	25	80
580	Baseline Road	8th Line Road	9th Line Road	1.400	4	150	80
590	9th Line Road	Baseline Road	Wilmer Road	1.200	4	150	80
600	Wilmer Road	9th Line Road	East End	1.000	6	5	80
610	9th Line Road	Wilmer Road	Reed's Bay Road	1.200	4	150	80
620	9th Line Road	Reed's Bay Road	Carpenter Point Road	1.300	4	150	80
630	Reed's Bay Road	7th Line Road	8th Line Road	1.400	6	20	80
640	Reed's Bay Road	8th Line Road	9th Line Road	1.500	6	10	80
650	8th Line Road	Bennett Road	Reed's Bay Road	1.900	6	10	80
660	8th Line Road	Reed's Bay Road	Baseline Road	2.400	4	50	80
670	Highway 96	8th Line Road	Highway 7051	0.400	4	968	80
680	Highway 7051	Highway 96	Ferry Dock	2.200	3	1284	80
690	Access Road	Joy Road	Highway 7051	0.200	6	25	80
700	Joy Road	Highway 7051	North End	0.600	4	75	80
710	Langdon Road	Joy Road	West End	0.600	4	50	80
720	Highway 96	Highway 7051	10th Line Road	2.600	4	539	80
730	10th Line Road	Highway 96	North End	1.780	4	50	80
740	10th Line Road	Highway 96	South End	1.200	6	20	80
750	Highway 96	10th Line Road	11th Line Road (North)	1.300	4	300	80
760	Highway 96	11th Line Road (North)	11th Line Road (South)	1.800	4	300	80
770	Highway 96	11th Line Road	13th Line Road	2.730	4	300	80

Sec. #	Name	From	To	Length	MMS Class	AADT Year	Speed Limit
780	11th Line Road	Highway 96	South End	0.400	6	25	80
790	Highway 96	13th Line Road	South Shore	1.200	4	300	80
800	Highway 96	South Shore Road	Holiday Point Road	1.300	4	300	80
810	Highway 96	Holiday Point Road	14th Line Road	1.100	4	300	80
820	14th Line Road	Highway 96	South End	0.400	6	25	80
830	Highway 96	14th Line Road	15th Line Road (South)	1.300	4	300	80
835	Highway 96	15th Line Road (South)	16th Line Road	1.300	4	300	80
840	Highway 96	16th Line Road	Breaky's Bay Road	1.600	4	300	80
845	Highway 96	Breaky's Bay Road	17th Line Road (South)	1.500	4	300	80
850	17th Line Road	Highway 96	South End	0.100	6	10	80
855	17th Line Road	Highway 96	North End	1.060	4	50	80
860	Highway 96	17th Line (South)	19th Line Road	2.700	4	300	80
865	Highway 96	19th Line Road	East End	2.600	4	300	80
870	Leone's Cove Lane	Highway 96	South End	0.600	6	40	20
880	19th Line Road	Highway 96	South End	0.800	6	10	80
890	18th Line Road	Highway 96	Breaky's Bay Road	1.500	4	50	80
895	18th Line Road	Highway 96	South End	0.430	6	20	80
900	18th Line Road	Breaky's Bay Road	North End	0.500	6	40	80
910	Breaky's Bay Road	Highway 96	18th Line Road	1.400	4	50	80
920	McDonald Lane	Breaky's Bay Road	North End	1.400	6	25	80
930	16th Line Road	Highway 96	South End	1.100	6	40	80

Sec. #	Name	From	To	Length	MMS Class	AADT Year	Speed Limit
940	16th Line Road	Highway 96	North End	0.800	6	25	80
950	15th Line Road	Highway 96	North End	0.290	6	10	80
955	15th Line Road	Highway 96	South End	0.520	6	10	80
960	Holiday Point Road	Helen's Road	East end	0.520	4	75	80
960	Holiday Point Road	Highway 96	Helen's Road	1.470	4	75	80
970	Helen's Road	Holiday Point Road	North End	0.700	6	10	80
980	Helen's Road	Holiday Point Road	South End	0.200	6	20	80
990	South Shore Road	12th Line Road	Highway 96	1.300	6	20	80
1000	12th Line Road	South Shore Road	Highway 96	1.200	4	50	80
1010	Hogan's Road	13th Line Road	East End	1.240	6	30	80
1020	13th Line Road	Highway 96	Oak Point Road	1.200	6	25	80
1030	13th Line Road	Oak Point Road	North End	0.350	6	20	80
1040	Oak Point Road	Highway 96	12th Line Road	1.350	4	50	80
1045	Oak Point Road	12th Line Road	13th Line Road	1.450	4	50	80
1050	12th Line Road	Highway 96	Oak Point Road	1.300	6	25	80
1060	12th Line Road	Oak Point Road	North End	0.800	6	30	80
1070	11th Line Road	Highway 96	North End	0.500	6	20	80
1080	Fawcett's Lane	11th Line Road	West End	0.100	6	10	80
1090	9th Line Road	Highway 96	North End	0.500	6	20	80
2020	Highway 96	Hillcrest Street	Highway 95	0.200	5	433	50
2030	Highway 96	Highway 95	Centre Street	0.200	5	1000	40

Sec. #	Name	From	To	Length	MMS Class	AADT Year	Speed Limit
2040	Highway 96	Centre Street	Victoria Street	0.200	5	1000	40
2045	Highway 96	Victoria Street	St Lawrence Street	0.100	5	1000	40
2050	Highway 96	St Lawrence Street	Cross Street	0.100	5	1000	50
2060	Highway 96	Cross Street	Barrett Street	0.100	5	1000	40
2065	Highway 96	Barrett Street	Going Street	0.100	5	1000	40
2070	Highway 96	Going Street	7th Line Road	0.100	5	800	40
2080	Highway 96	7th Line Road	420m East of 7th Line Road	0.430	5	800	50
2090	7th Line Road	Highway 96	150m South of Highway 96	0.200	4	150	80
2100	Going Street	Highway 96	South End	0.250	6	60	40
2110	Lucinda Street	Going Street	Barrett Street	0.120	6	30	40
2120	Lucinda Street	Barrett Street	Cross Street	0.060	6	20	40
2130	Barrett Street	Highway 96	Lucinda Street	0.100	6	50	40
2140	Barrett Street	Lucinda Street	South End	0.050	6	20	40
2150	Cross Street	Highway 96	Lucinda Street	0.100	6	50	40
2160	Cross Street	Lucinda Street	South End	0.100	6	20	40
2170	St Lawrence Street	Highway 96	Eliza Street	0.200	6	50	40
2180	Eliza Street	St Lawrence Street	Division Street	0.300	6	100	40
2190	Victoria Street	Highway 96	Eliza Street	0.200	6	100	40
2200	Victoria Street	Eliza Street	South End	0.100	6	100	40
2210	Leander Street	Highway 96	Eliza Street	0.200	6	50	40
2220	Leander Street	Eliza Street	South End	0.050	6	10	40

Sec. #	Name	From	To	Length	MMS Class	AADT Year	Speed Limit
2230	Centre Street	Ferry Dock	Highway 96	0.100	5	1500	40
2240	Centre Street	Highway 96	Eliza Street	0.100	6	100	40
2250	Centre Street	Eliza Street	South End	0.050	6	30	40
2260	Division Street	Highway 96	North End	0.050	6	30	40
2270	Division Street	Highway 96	Eliza Street	0.050	6	50	50
2280	Division Street	Eliza Street	South End	0.200	6	30	50
2290	Hitchcock Road	Highway 96	South End	0.100	6	40	40
2300	Highway 95	Highway 96	260m South of Highway 96	0.260	5	800	40
2310	Highway 95	260m South of Highway 96	900m South of Highway 96	0.630	5	800	50
2320	Hillcrest Street	Highway 96	West End	0.200	6	40	40
2330	Allen Street	Hillcrest Street	Thunder Road	0.100	6	20	50
2340	Thunder Road	Allen Street	East End	0.100	6	5	40
3125	North Shore Road	Lower Sideroad	800m west of Lower Side Road	0.800	5	100	60

192.140

APPENDIX I
Low Volume Roads



Rural Low Volume Roads AADT<50

Name	From	To	Section #	Length	Road Environment	Current AADT (EST#)
White Lane	Highway 96	South end	20	0.300	R	20
Sandy Bay Road	Highway 96	Baseline Road	90	2.500	R	30
Baseline Road	2nd Line Road	3rd Line Road	100	1.300	R	30
3rd Line Road	Highway 96	Baseline Road	110	2.800	R	30
3rd Line Road	Baseline Road	South End	120	1.300	R	5
Baseline Road	3rd Line Road	4th Line Road	130	1.400	R	30
4th Line Road	1.05km South of Highway 95	Baseline Road	145	2.200	R	5
4th Line Road	Baseline Road	Reed's Bay Road	150	2.400	R	30
4th Line Road	Reed's Bay Road	Highland Road	190	1.900	R	30
4th Line Road	Highland Road	South End	200	0.300	R	10
Highland Road	4th Line Road	5th Line Road	210	1.300	R	30
5th Line Road	Highland Road	Stevenson Lane	220	1.900	R	30
5th Line Road	Stevenson Lane	South End	230	0.200	R	10
5th Line Road	Highland Road	Reed's Bay Road	240	1.800	R	40
Ridge Road	5th Line Road	Highway 95	360	1.500	R	10
Button Bay Road	Bennet Road	Highway 95 (West)	400	0.880	R	30
Button Bay Road	Bennett Road	Highway 95 (South)	410	2.100	R	30
Short Road	Button Bay Road	7th Line Road	420	0.250	R	20
7th Line Road	Short Road	Bennett Road	430	0.600	R	20
7th Line Road	Short Road	South End	390	0.250	R	20

<i>Name</i>	<i>From</i>	<i>To</i>	<i>Section #</i>	<i>Length</i>	<i>Road Environment</i>	<i>Current AADT (EST#)</i>
Bennett Road	Button Bay Road	7th Line Road	440	0.800	R	20
Bennett Road	7th Line Road	8th Line Road	450	1.300	R	20
Bayview Lane	8th Line Road	West End	470	0.100	R	15
Bennett Road	8th Line Road	80m West of 9th Line Road	480	1.400	R	10
Bennett Road	80m West of 9th Line Road	9th Line Road	490	0.100	R	20
7th Line Road	Bennett Road	Reed's Bay Road	525	1.900	R	20
Kyle Road	Carpenter Point Road	Northeast End	530	0.600	R	15
Baseline Road	7th Line Road	8th Line Road	570	1.400	R	25
Wilmer Road	9th Line Road	East End	600	1.000	R	5
Reed's Bay Road	7th Line Road	8th Line Road	630	1.400	R	20
Reed's Bay Road	8th Line Road	9th Line Road	640	1.500	R	10
8th Line Road	Bennett Road	Reed's Bay Road	650	1.900	R	10
Access Road	Joy Road	Highway 7051	690	0.200	R	25
10th Line Road	Highway 96	South End	740	1.200	R	20
11th Line Road	Highway 96	South End	780	0.400	R	25
14th Line Road	Highway 96	South End	820	0.400	R	25
17th Line Road	Highway 96	South End	850	0.100	R	10
Leone's Cove Lane	Highway 96	South End	870	0.600	R	40
19th Line Road	Highway 96	South End	880	0.800	R	10
18th Line Road	Breaky's Bay Road	North End	900	0.500	R	40
McDonald Lane	Breaky's Bay Road	North End	920	1.400	R	25
16th Line Road	Highway 96	South End	930	1.100	R	40

<i>Name</i>	<i>From</i>	<i>To</i>	<i>Section #</i>	<i>Length</i>	<i>Road Environment</i>	<i>Current AADT (EST#)</i>
16th Line Road	Highway 96	North End	940	0.800	R	25
15th Line Road	Highway 96	North End	950	0.290	R	10
Helen's Road	Holiday Point Road	North End	970	0.700	R	10
Helen's Road	Holiday Point Road	South End	980	0.200	R	20
South Shore Road	12th Line Road	Highway 96	990	1.300	R	20
Hogan's Road	13th Line Road	East End	1010	1.240	R	30
13th Line Road	Highway 96	Oak Point Road	1020	1.200	R	25
13th Line Road	Oak Point Road	North End	1030	0.350	R	20
12th Line Road	Highway 96	Oak Point Road	1050	1.300	R	25
12th Line Road	Oak Point Road	North End	1060	0.800	R	30
11th Line Road	Highway 96	North End	1070	0.500	R	20
Fawcett's Lane	11th Line Road	West End	1080	0.100	R	10
9th Line Road	Highway 96	North End	1090	0.500	R	20
Baseline Road	980m West of Howe Island Drive	West End	3025	1.000	R	20
Lighthouse Lane	Howe Island Drive	South End	3035	0.400	R	25
Driscoll Road	Howe Island Drive	North End	3080	1.700	R	20
Fuller Road	Howe Island Drive	North End	3090	2.200	R	10
Spithead Road	Westerly 'Y' Junction of Spithead Roads	West End	3160	0.300	R	40
Goodfriend Drive	Baseline Road west end	Baseline Road	3170	1.660	R	10
4th Line Road	Highway 96	1.05km south of Highway 96	140	1.050	R	5
18th Line Road	Highway 96	South End	895	0.430	R	20

Name	From	To	Section #	Length	Road Environment	Current AADT (EST#)
15th Line Road	Highway 96	South End	955	0.520	R	10
				65.820		

APPENDIX J
Unit Price Schedule

Estimated 2022 Construction Unit Prices

Item	Description	Unit Price
1	Excavation	\$ 20.00 / m ³
2	Hot Mix	\$ 150.00 / tonne
3	Granular A	\$ 25.00 / tonne
4	Granular B	\$ 20.00 / tonne
5	Concrete Base Placed	\$ 225.00 / m ³
6	Curb And Gutter Removed	\$ 25.00 / m
7	Curb And Gutter Placed	\$ 125.00 / m
8	Subdrain Placed	\$ 30.00 / m
9	Storm Sewer Placed	\$ 325.00 / m
10	Catch Basin Leads Placed	\$ 250.00 / m
11	Manholes Removed	\$ 1,000.00 ea.
12	Manholes Placed	\$ 6,000.00 ea.
13	Catch Basins Removed	\$ 500.00 ea.
14	Catch Basins Placed	\$ 4,500.00 ea.
15	Adjust Manholes	\$ 1,200.00 ea.
16	Adjust Catch Basins	\$ 1,200.00 ea.
17	Asphalt Planing (Cross Fall Correction)	\$ 6.00 / m ²
18	In-Place Processing (Asphalt Pulverizing)	\$ 3.00 / m ²
19	Single Surface Treatment	\$ 5.00 / m ²
20	Double Surface Treatment	\$ 9.00 / m ²