

ROAD NEEDS STUDY



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Prepared for:

Township of Norwich
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Norwich, Ontario
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Executive Summary

McIntosh Perry was retained by the Township of Norwich in 2015 to prepare a Road Needs Study to assist in infrastructure management and budgeting. In 2017, McIntosh Perry was contacted and requested to prepare an update to the 2015 report, extending the original proposed Ten Year Plan to a Twenty Year Plan. This report has been prepared as an update to the previous prepared report, building upon and updating the previous recommendations based on works completed to date and changes made to forecasted budgets.

The Township of Norwich's Road Network includes a single earth road, loose top, surface treated and hot-mix paved roads with varying traffic volumes. Presented in this report are recommended Twenty Year Plans for the Township's loose top and hard surface roads. These plans have been developed based on forecast budget values provided by Township staff. These plans are intended to be a tool for Municipal Staff and Council during decision making.

It is important to note that despite the Municipality's intent to spend nearly \$28 million during the next twenty years, it appears that the road system condition will continue to deteriorate without a greater financial commitment (Section 6.3). Not only is the current quality of the roads at stake, but the loss of the underlying gravel base in the pavement structure is also threatened by inadequate spending levels for road restoration and maintenance.

The proposed hard surface Twenty Year Plan was developed using the following key criteria, given the limited available resources:

- Higher traffic roads are given priority over lower traffic volume roads;
- A balanced approach at maintaining not only the Township's rural roads, but also the Township's urban roads;
- For asphalt roads: overlay projects provide the best value for dollar, followed by pulverize and pave/partial depth reconstruction and lastly, full depth reconstruction;
- For surface treated: single surface treatment provides the best value for dollar, followed by partial depth reconstruction works and finally full depth reconstruction as this provides the best value with limited funding available, and
- Projects that are geographically close to each other are planned in the same year where feasible.

It is integral that the Township continue to upgrade their high volume surface treated roads and maintain their road infrastructure. Timely rehabilitation remains the most cost-efficient strategy for the Municipality and its ratepayers. A proactive approach including regular condition rating assessment studies will provide meaningful management information for decision making.

Included in this report is a recommendation for a Twenty Year Plan based on the level of spending available to the Township.

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

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1.0 PREAMBLE

McIntosh Perry Consulting Engineers (McIntosh Perry) was retained by the Township of Norwich in 2015 to complete a Road Needs Study. In 2017, McIntosh Perry was contacted by the Township and requested to update and extend the previous prepared Ten Year Plan. Updates included accounting for adjustments made to the plan based on works completed, while the Township also desired that the previous Ten Year Plan be extended to twenty years. Minor adjustments were also made to the inventory, generally limited to boundary roads. A full re-assessment of the condition of the roads was not completed as part of this report, and as such, it remains recommended that a complete update be undertaken in 2020 to re-assess the condition of the road inventory and review and update the proposed capital spending plan as needed based on updated conditions. This will also allow the Township to better assess the rate of deterioration of the roads and may result in re-organization of the Twenty Year Plan to push over projects that are not deteriorating as quickly as anticipated, or expedite projects that have deteriorated faster than anticipated.

2.0 INTRODUCTION

The Township recognizes that in order to sustain services for its residents and for the competitiveness of its businesses, agriculture and industry, it must manage the Municipality's assets cost effectively. For this reason, the Municipality has initiated a Road Needs Study. The Study will provide the Municipality with a capital plan in order to manage the road network over the next twenty years.

The purpose of the Road Needs Study is to inventory and assess the road network within the Municipality from which a financial program for capital improvements can be derived. This report should be read in conjunction with the Township's Asset Management Plan as well as any proposed plans for capital expenditure, such as reports prepared for the watermain and sewers maintained by the County.

The Road Needs Study will:

- Inform Council on the existing conditions and needs of their road system;
- Formulate the most cost-effective long term construction strategy within current/proposed budgetary limitations;
- Provide a projection of the future adequacy of the road systems, and
- Provide a suggested year by year work plan for Council (extending twenty years).

The study contains the following:

- Updates to the number of kilometers within the Municipality's Road System;
- Identifies and itemizes the existing condition of the roadways;
- Details recommended improvements to deficient roadways;
- Formulates cost-effective long-term capital construction policies within limited budgetary expenditures;
- A complete up-to-date detailed map and table of the Township's roadway systems for future reference;

- Itemizes a year by year “suggested” work plan for the Township to use as a frame of reference for future resource allocations, and
- Recommended twenty year Capital Improvement Plan using current budget expenditures.

Some of the major benefits of conducting a Road Needs Study are:

A. Systematic Approach

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

B. Long Term Strategy

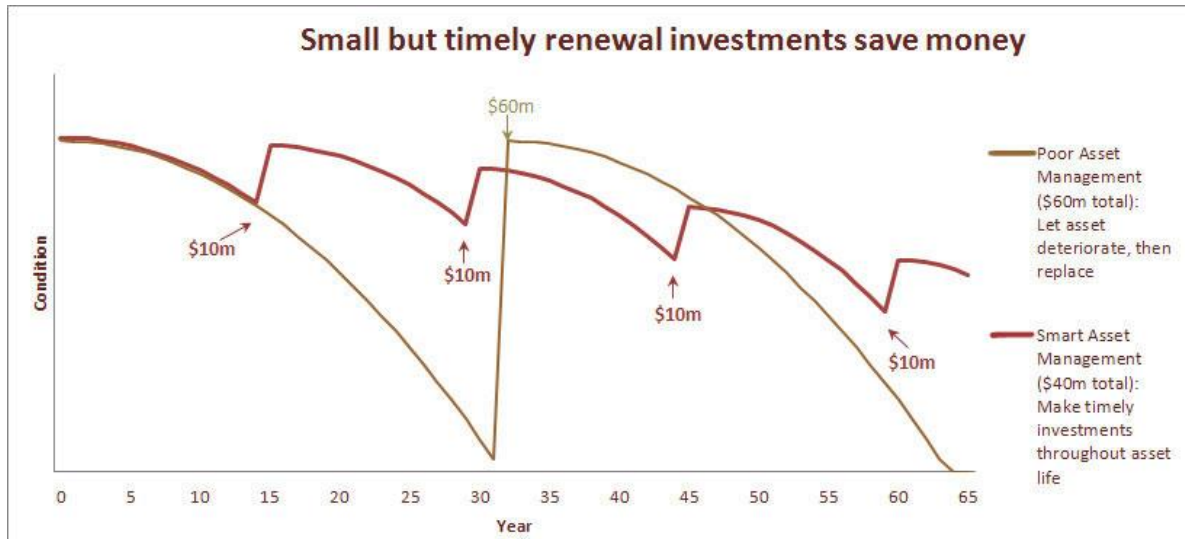
- Tax dollars will be spent strategically;
- Twenty Year Plan spans between terms of Council, and
- In the long run, saves Council and staff time in formulating capital program each year.

C. Benchmark

- Can project future adequacy of the road system;
- Can compare with other Municipalities, and
- Justification for tax increase and/or shifting priorities to address spending shortfalls.

This Road Needs Study and the associated Twenty Year Plan have been developed with an emphasis on timely capital repairs in order to best preserve the asset, while maintaining the desired levels of service to the public. The plan takes a long view perspective on managing the asset through life cycle cost analysis in which timely rehabilitation can save money in the long term. For example, Figure 1 shows two ways to manage an asset. The first option is to allow the asset to deteriorate until it needs to be replaced, while the second option shows timely rehabilitation. At the end of the 64-year life cycle, Option 1 costs \$120 million (the initial investment plus the cost to replace the asset) and Option 2 costs \$100 million. Note that the asset’s condition in Option 2 is in far better shape than in Option 1.

FIGURE 1 – LIFE-CYCLE OF TWO RENEWAL OPTIONS



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

3.0 STUDY METHODOLOGY

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

1. All road sections are listed and their condition rating by road type:
 - a. Earth Roads (Listed in inventory but not rated. Typically, these roads have little or no maintenance, and are only used seasonally);
 - b. Gravel Roads;
 - c. Surface Treated or Low Class Bituminous (LCB) Roads, and
 - d. Hot Mix Paved or High Class Bituminous (HCB) Roads.

2. Future condition ratings are calculated for each road and from this, predicted capital expenditures can be produced. Newly reconstructed roads have a 10 point condition rating, and roads requiring partial reconstruction are assigned 3 points. Roads should not be allowed to go below 3 points due to the severity of the road conditions, e.g. very poor ride, difficult to maintain, usually a safety hazard.

Traffic volumes within the Township of Norwich vary significantly. Based on the variance in traffic volumes, different longevity considerations were applied to the road network dependent on the noted traffic volumes. It has been assumed that where traffic volumes are less than 600 AADT (annual average daily traffic), asphalt roads will need to be reconstructed in thirty years. For traffic volumes between 600 and 999 AADT, roads will need to be reconstructed every twenty-two years. And finally, where traffic volumes are greater than 1000 AADT, the asphalt road will need to be reconstructed every fourteen years. Note that one cannot perpetually resurface and at some point the road must be reconstructed. It has been assumed that a surface treated road has a life expectancy of approximately fifteen years before reconstruction is required.

The above noted life cycle assumptions should not have a great impact on the overall assessment of the road network, but some roads may experience slower or faster rates of deterioration. The capital program may need to be adjusted (e.g. A street scheduled for reconstruction in year 10 may have to be moved up in the capital program and vice versa, a street scheduled for year 3 could be pushed back since its condition has not deteriorated as fast as earlier predicted) to account for this and other factors such as variations in pavement structure, sub-surface conditions, drainage, and truck traffic.

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

The condition rating for each road type will decrease every year unless maintenance and/or rehabilitation are performed. For gravel roads it is assumed that the condition of the road will be maintained with regular gravel resurfacing. As noted above, hard surface roads with no maintenance and/or rehabilitation (which is not recommended) will need reconstruction within fifteen years for surface treated roads and every fourteen to thirty years (depending on AADT) for asphalt roads. The following calculations show the rate of deterioration of the three surface types:

Asphalt (AADT <600):	$\frac{10 \text{ point condition rating} - 3 \text{ point condition rating}}{30 \text{ year life cycle for reconstructing}}$	=	0.23/year
Asphalt (AADT 601<999):	$\frac{10 \text{ point condition rating} - 3 \text{ point condition rating}}{22 \text{ year life cycle for reconstructing}}$	=	0.32/year
Asphalt (AADT >1000):	$\frac{10 \text{ point condition rating} - 3 \text{ point condition rating}}{14 \text{ year life cycle for reconstructing}}$	=	0.50/year
Surface Treatment:	$\frac{10 \text{ point condition rating} - 3 \text{ point condition rating}}{15 \text{ year life cycle for reconstructing}}$	=	0.47/year
Gravel:	No change in rating with regular maintenance.		

Based on the foregoing discussion, Table 1 provides an example of how the condition rating is forecasted for each surface type. In this example, it is assumed that for each road type the road was reconstructed in 2015.

Table 1: Forecasting Condition Rating Example

SURFACE TYPE	2015	2016	2017	2018	2019	2020
GRAVEL ¹	10.00	10.00	10.00	10.00	10.00	10.00
SURFACE TREATMENT	10.00	9.53	9.07	8.60	8.13	7.67
ASPHALT (AADT<600)	10.00	9.77	9.53	9.30	9.07	8.83
ASPHALT (AADT 601<999)	10.00	9.68	9.36	9.05	8.73	8.41
ASPHALT (AADT >1000)	10.00	9.50	9.00	8.50	8.00	7.50

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

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

Table 2: Average Condition Rating by Surface Type Example

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

$$\text{Average Condition Rating} = \frac{28.00}{6.00} = 4.67$$

By combining the three surface types an overall condition rating can be calculated for the total Municipal system. Table 3 is a measure of the condition of the road system.

Table 3: System Condition

AVERAGE CONDITION RATING	SYSTEM CONDITION
8 to 10	Good structural condition.
	Some local improvements may be needed.
5 to 7	Average structural condition.
	Some continued improvement may be needed.
Less than 5	Poor structural condition.
	Substantial improvement needed throughout total road system.

- The above noted analysis will determine if or when a road requires improvements within the next twenty years.
- In developing the priority of road improvements, the first consideration for the available funds is for asphalt resurfacing projects, i.e. those road sections with a study year condition rating of 5. This will

upgrade those roads at a reasonable cost that if not improved, will continue to deteriorate to a point where only major and costly improvements will restore the structural strength of the road.

If funds are available after addressing the needs of the roads with a condition rating of 5, they should be applied to the road improvements that would provide the best cost/benefit return. The method used in this study reviews the cost of reconstruction versus the AADT.

As an example, if one street is a Dead End and one street is a minor collector, and both cost the same per kilometer to reconstruct, then the minor collector would be selected over the dead end, since it serves more commuters.

Other factors that may have to be considered are safety, truck traffic, development, economics, social implications, and scheduling construction with other infrastructure works, e.g. County projects. It is understood that underground services (sewers and watermain) are maintained by the County. In preparing this report, attempts were made to obtain the County's plans for proposed underground service replacement works within the Municipality's boundary (i.e. within Norwich, Otterville, Burgessville, Springford and Eastwood), however the plan was not made available. As such, the Township should be advised that the Twenty Year Plan may require adjustments to capital spending projects to accommodate works proposed by the County. Should the County's plan become available at a later date, the Municipality should consider accommodating the proposed works when revisiting the Twenty Year Plan and preparing a fully updated Road Needs Study in 2020.

Similar to the above note regarding the County's plan, we understand that for many of the boundary roads, costs are shared with the neighbouring municipalities. Should the neighbouring municipalities have works scheduled in their capital plans, this work should be incorporated into the fully updated Road Needs Study in 2020.

6. To determine the cost of construction, benchmark costs are used and are associated with the type of capital improvement. Average unit costs have been developed based on local construction costs.

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

This report presents historical information with no adjustment for inflation. For future capital expenditures, the report presents cost estimates in 2015 dollars. At the time of budgeting, the Municipality should adjust capital expenditure by an appropriate cost of inflation.

7. The Twenty Year Plan presented in this report is a tool for Municipal Staff and Council in preparing their capital planning. As mentioned above, there may be other factors that must be considered and/or adjusted in order to reflect changes not foreseen at the time of writing this report.

8. It should be noted that per discussions with the Township, we understand that given their underlying sandy soils, full depth reconstruction projects are rarely undertaken for rural roads within the Township. As such, while the deterioration of a condition rating may demonstrate that the road is expected to be rated as a 2, at the direction of Township staff and in consultation with McIntosh Perry's geotechnical specialists, these roads have generally been specified for partial depth reconstruction. Partial depth reconstruction would generally include the placement of 150mm of Granular 'A' and reinstatement of the asphalt surface; but unlike full depth reconstruction, would not include full removal and reinstatement of the existing Granular 'B' subbase.

4.0 ROAD STANDARDS

Most municipalities in Ontario either adopt or utilize the following manuals in developing their design and construction standards:

- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads;
- Ontario Provincial Standards (OPS) for Roads and Municipal Services;
- Ontario Traffic Manual, and
- Ministry of Transportation of Ontario, Drainage Management Manual.

Ministry of Transportation of Ontario's Directive B-36, October 1985, applied to municipalities that were applying for subsidies. This directive no longer applies, but its brief format is easy to use and is summarized on the following page. It is McIntosh Perry's recommendation that these standards be followed.

Table 4: Geometric Design Standards for Rural Two-Lane Roads

DESIGN YEAR AADT	DESIGN SPEED (Km/hr)	MAX. GRADE (%)	WIDTH (m)	
			LANE	SHOULDER ³
2,000 to 1,000	90	6-8	3.25	2.00
	80	6-8	3.25	2.00
	70	6-12	3.00	1.00
	60	6-12	3.00	1.00
1,000 to 400	80	8	3.25 ¹	1.00 ²
	70	12	3.00	1.00 ²
	60	12	3.00	1.00 ²
	50	12	3.00	1.00 ²
Less than 400	80	8	3.25 ¹	1.00 ²
	70	12	3.00	1.00 ²
	60	12	3.00	1.00 ²
	50	12	2.75	1.00 ²

¹A 3.0m lane width may be acceptable where type size and volume of trucks are not significant.

²0.5m shoulders permitted where there is no foreseeable possibility of the road being paved within a 20-year period.

Note: 1.0m shoulder must be used where guide rail is installed.

³Shoulder width may be reduced by 0.5m if paved. Shoulder width does not incl. rounding (0.5m).

Table 5: Alignment Standards

DESIGN SPEED	MINIMUM ¹ CURVE RADIUS	MINIMUM STOPPING DISTANCE	MINIMUM ² CREST CURVE	MINIMUM ² SAG CURVE	MINIMUM ³ SAG CURVE ILLUMINATED AREAS
(Km/hr)	(m)	(m)	K (m)	K (m)	K (m)
40	55	45	4	8	4
50	90	65	8	12	5
60	130	85	15	18	8
70	190	110	25	25	12
80	250	135	35	30	15
90	340	160	50	40	20

¹Minimum curve radius based on maximum super elevation of 0.06 m/m.

²Minimum curve parameter based on stopping distance

³Minimum curve parameter based on comfort criteria. Utilize in illuminated areas only when stopping sight distance requirements are met.

Table 6: Geometric Design Standards for Two-Lane Urban Roads

DESIGN YEAR	DESIGN SPEED	LANE WIDTH	PARKING LANE WIDTH	MIN. CURB TO CURB DISTANCE	MAXIMUM GRADE
AADT	(Km/hr)	(m)	(m)	(m)	(%)
2,000 to 1,000	60-70	3.25	2.50 - 3.00	9.5	6 - 12
	50	3.00	2.50 - 3.00	9.0	8 - 12
Less than 1,000	40-50	2.75 - 3.00	2.50 - 3.00	8.5	8 - 12

Note: The desirable minimum sidewalk width is 1.5m

Table 7 shows the recommended surface type based on AADT.

Table 7: Surface Type Standards for Rural Roads

AADT AT TIME OF CONSTRUCTION	SURFACE TYPE ¹
0 - 400	Gravel
400 - 700	Low Class Bituminous ²
700 - 1,000	50mm of Hot Mix

¹The grade upon which the surface type is to be applied is assumed to be structurally adequate. Typically, the base is 150mm Granular 'A' and 300mm Granular 'B', Type II.

²Apply surface treatment 0.25m wider than lane width, e.g. for 3.0m lane width, apply 3.25m wide.

Table 8 lists other criteria that should be reviewed when selecting road surface type. Urban roads are typically constructed as asphalt roads, however rural roads have various options depending on various factors. These factors have been summarized in the following table.

Table 8: Suitability of Surface Type for Rural Roads

PARAMETER	GRAVEL	SURFACE TREATMENT	ASPHALT
AADT			
0 - 400	X	X	X
400 - 1,000		X	X
1,000 - 2,000			X
Above 2,000			X
TRUCK TRAFFIC			
0 - 5%	X	X	X
5 - 15%		X	X
Above 15%			X
HIGHWAY CLASSIFICATION			
Local	X	X	X
Collector			X
Arterial			X
Urban			X
ADJACENT LAND USES			
Agricultural	X		X
Commercial			X
Forestry	X	X	X
Industrial			X
Institutional			X
RESIDENTIAL			
5+ Acre Lots	X	X	X
CLUSTER DEVELOPMENT OF 2 - 5 ACRE LOTS			
Front Yard Set Back 15m of less			X
Front Yard Set Back 15m of more		X	X
2 Acre Lot Subdivisions			X

5.0 BENCHMARK COSTS

Benchmark costs are costs associated with capital improvements to the Township's roads. These costs can also be for new road construction or capital expenditure to improve a road to a higher standard. For example, upgrading a gravel road to a surface treated or paved road. Average unit costs have been developed based on local construction costs.

The estimated cost for identified improvements to the Township's Road System are calculated on an approximate basis, using average benchmark costs for various items. These costs have been averaged using unit cost information obtained locally. Unit prices are shown in Table 9 below and costs are summarized by construction type in Tables 10, 11 and 12. These costs are based on 2015 dollars, with input from the Township's Public Works Department and adjustments should be made for inflation for each budget year.

Table 9: Unit Prices

ITEM	2015 unit price	
Earth Excavation, Grading	\$ 13.00	per cubic metre
Earth Excavation, Ditching	\$ 20.00	per metre
Road Widening per Shoulder	\$ 35.00	per metre
Removal – Pulverize	\$ 1.60	per square metre
Removal – Asphalt	\$ 5.50	per square metre
Removal – Mill Wear Course	\$ 5.50	per square metre
Removal – Concrete Curb	\$ 7.50	per metre
Removal – Concrete Sidewalk	\$ 22.00	per square metre
Remove and Replace 16m x 600mm Diameter CSP	\$ 6,550.00	each
Granular A	\$ 16.00	per tonne
Granular B	\$ 15.00	per tonne
Single Surface Treatment (SST)	\$ 4.00	per square metre
Double Surface Treatment (DST)	\$ 8.00	per square metre
Asphalt – Wear Course	\$ 120.00	per tonne
Asphalt – Base Course	\$ 120.00	per tonne
Rout & Seal	\$ 3.00	per metre
Rejuvenating Oil	\$ 2.00	per square metre
Microfil	\$ 11.00	per metre
Micro-Surfacing	\$ 5.50	per metre
Ultrathin Resurfacing (scratch coat & surface coat)	\$ 7.00	per metre
Thin Overlays	\$ 12.00	per square metre
Dense Graded Cold Mix	\$ 14.00	per square metre
RAP Cold Mix	\$ 8.00	per square metre
Tack Coat	\$ 1.35	per square metre
Iron Adjustment	\$ 650.00	each
Concrete Sidewalk	\$ 120.00	per square metre
Concrete Barrier Curb	\$ 98.00	per metre
Topsoil & Sod	\$ 19.00	per square metre
Topsoil & Seed	\$ 7.00	per square metre

Table 10: Surface Treatment or Low Cost Bituminous (LCB)

CODE	DESCRIPTION	UNIT PRICE (\$ per km)
LCB-R1	Resurfacing Single surface treatment 6.0m wide	\$32,145
LCB-R2	Partial Depth Reconstruction Pulverize or scarify, 50-150mm G.A., double surface treatment, 10% spot drainage improvements, culvert replacement & 10% contingency	\$134,000
LCB-R3	Full Depth Reconstruction Earth exc., 150mm G.A., 300mm G.B., DST, culvert replacement, engineering, geotechnical and 10% contingency	\$559,000

Table 11: Asphalt or High Cost Bituminous (HCB) Rural Roads

CODE	DESCRIPTION	UNIT PRICE (\$ per km)
HCB-R1	Resurfacing 40mm lift of HL3 asphalt by 6.0m and 10% contingency	\$81,000
HCB-R2	Pulverize and Pave (1 Lift) Pulverize, 50mm lift of HL4 asphalt, shouldering, 10% spot drainage improvements, culvert replacement & 10% contingency	\$100,000
HCB-R3	Pulverize and Pave (2 Lifts) Pulverize, 90mm (2 lifts) of HL4 asphalt, shouldering, 10% spot drainage improvements, culvert replacement & 10% contingency	\$201,000
HCB-R4	Partial Depth Reconstruction Pulverize, 50-150mm G.A., 50mm lift of HL4 asphalt, shouldering, 10% spot drainage improvements, culvert replacement & 10% contingency	\$177,000
HCB-R5	Full Depth Reconstruction Remove asphalt, earth exc., 150mm G.A., 450mm G.B., 50mm Lift of HL4 asphalt, shouldering, culvert replacement, engineering, geotechnical and 10% contingency	\$628,000
HCB-R6	Micro surfacing A slurry composed of polymer modified emulsion, aggregate (often premium friction resistant), and cement	\$36,000

Table 12: Asphalt or High Cost Bituminous (HCB) Urban Roads

CODE	DESCRIPTION	UNIT PRICE (\$ per km)
HCB-U1	Resurfacing 40mm Lift of HL3 asphalt by 8.5m wide, adjust iron, milling and 10% contingency	\$161,000
HCB-U2	Pulverize and Pave - With Sidewalk and Curb Pulverize asphalt, 10% sidewalk and curb repairs, 50mm lift of HL4 asphalt, adjust iron and 10% contingency	\$195,000
HCB-U3	Pulverize and Pave - With Sidewalk, No Curb Pulverize asphalt, 10% sidewalk repairs, 50mm lift of HL4 asphalt, adjust iron and 10% contingency	\$184,000
HCB-U4	Pulverize and Pave - No Sidewalk or Curb Pulverize asphalt, 50mm lift of HL4 asphalt, adjust iron and 10% contingency	\$160,000
HCB-U5	Pulverize and Pave - No Sidewalk or Curb - 2 Lifts Pulverize asphalt, 40mm lift of HL3 asphalt, 50mm lift of HL4 asphalt, adjust iron and 10% contingency	\$270,000
HCB-U6	Full Depth Reconstruction - With Sidewalk and Curb Remove asphalt, sidewalk and curb, earth exc., 150mm G.A., 450mm G.B., 50mm lift of asphalt, adjust iron, sidewalk, curb, tie-in driveways and lawns, geotechnical, engineering and 10% contingency	\$1,325,000
HCB-U7	Full Depth Reconstruction - With Sidewalk, No Curb Remove asphalt and sidewalk, earth exc., 150mm G.A., 450mm G.B., 50mm lift of asphalt, adjust iron, sidewalk, tie-in driveways and lawns, geotechnical, engineering and 10% contingency	\$1,055,000
HCB-U8	Full Depth Reconstruction - No Sidewalk or Curb Remove asphalt, earth exc., 150mm G.A., 450mm G.B., 50mm lift of asphalt, adjust iron, tie-in driveways and lawns, geotechnical, engineering and 10% contingency	\$782,000
HCB-U9	Full Depth Reconstruction - With Sidewalk Both Sides (No Curb) Remove asphalt and sidewalk, earth exc., 150mm G.A., 450mm G.B., 50mm lift of asphalt, adjust iron, sidewalk, tie-in driveways and lawns, geotechnical, engineering and 10% contingency	\$1,597,000

6.0 HISTORICAL CAPITAL SPENDING

Roads Needs Studies typically consider maintenance and capital budgets separately. Maintenance activities are routinely performed and maintain the road at the current level of service. Capital expenses improve Township assets (i.e. road structure, bridges, etc.) and replace major pieces of equipment. The Township's equipment and maintenance needs have been reviewed separately by the Township as part of their Asset Management Plan, and as such, this report focusses solely on capital expenditures relating to the roads. The Twenty Year Plan for 2016 through 2035 has been developed only for roads. Historical capital spending for the previous five (5) years is summarized below:

Table 13: 2011 to 2015 Budgets

CATEGORY	2011	2012	2013	2014	2015
ROAD CONSTRUCTION	\$769,000	\$787,000	\$910,000	\$1,200,000	\$947,000

Gravel resurfacing only temporarily adds strength to the road structure, but over time the material is lost to the roadside through winter plowing, traffic, etc. To replace the loss of gravel, material is added bi-annually or every five years. The historical gravel resurfacing budget has been approximately \$267,665. Spending levels for gravel roads are lower than what one would normally expect given the number of lane kilometres of gravel roads, however the overall condition rating for loose top roads within the Township is adequate. At this time, we are not recommending any changes to the gravel resurfacing program but would suggest that the budget be re-evaluated in five years when the next study is completed.

The operational and maintenance budget should be adjusted each year to account for growth and inflation. Note that the right type of growth can produce efficiencies in providing services. For example, densification where there is adequate infrastructure.

Capital spending values forecasted for the next twenty years were provided by the Township's Treasurer and have been used in developing the Twenty Year Plan as discussed in the following section of this report. Budgets were instructed as follows:

Table 14: 2016 to 2035 Budgets

CATEGORY	2016	2017	2018	2019	2020
CAPITAL	\$1,266,750*	\$622,510	\$1,097,380	\$1,012,100	\$914,240**

CATEGORY	2021	2022	2023	2024	2025
CAPITAL	\$960,300	\$851,000	\$924,260	\$784,600	\$978,470**

CATEGORY	2026	2027	2028	2029	2030
CAPITAL	\$1,150,000	\$1,200,000	\$1,250,000	\$1,300,000	\$1,400,000**

CATEGORY	2031	2032	2033	2034	2035
CAPITAL	\$1,400,000	\$1,450,000	\$1,500,000	\$1,500,000	\$1,550,000**

*Proposed spending in 2016 includes a budget of \$876,750 + \$390,000 carried from 2015 for John Street, Norwich which was delayed in 2015 and scheduled for 2016 construction.

** Includes \$25,000 budget for updating the Road Needs Study.

In addition to the above noted budgets, the Township has a healthy reserve available to draw upon for capital projects, as needed. When preparing the Twenty Year Capital Plan, the Township's reserves were drawn upon where required to allow for larger projects to be completed in some cases, where the annual budget would have prevented or limited such projects.

7.0 TWENTY YEAR CAPITAL PLAN FOR ROADS

This section has three sub-sections. The first deals with the existing condition of the road network. The second presents a recommended Twenty Year Capital Plan for Roads, and the last section analyzes the adequacy of current spending levels on the road system.

7.1 Condition of Existing Road System

Table 15 presents the length and weighted average condition rating for Gravel Roads, Low Class Bituminous and High Class Bituminous in 2015. Forty-two percent (42%) or 151.10 km of the Township's roads are gravel and have an overall average condition rating of 6.53. For gravel roads, the condition rating should be between 6.0 and 7.0. As such, the condition of the gravel roads is satisfactory and the Municipality's goal should be to maintain this rating.

The optimum overall condition rating for Low Class Bituminous (LCB or surface treatment) roads based on available pavement preservation treatments and lifecycle analysis is between 6.0 and 6.5. Similarly, for High Class Bituminous (HCB or asphalt) the optimum condition rating is between 6.5 and 7.0. Based on the foregoing, for hard surface roads, a blended average condition rating should be between 6.3 and 6.8. A rating below the above mentioned ranges is an indication that the hard surfaced roads are underfunded. The Township's current blended average weighted condition rating for all LCB and HCB roads is 5.47. As ratings drop below a 5.0, it is likely the Township will receive complaints due to a noticeable decrease in level of service.

Table 15: 2015 Weighted Average Condition Rating

CATEGORY	2015	
	Km	CR
EARTH	0.70	-
GRAVEL	151.40	6.53
LOW CLASS BITUMINOUS	80.55	3.86
HIGH CLASS BITUMINOUS	130.98	6.46
ALL HARD SURFACE ROADS	211.53	5.47

The following bar charts summarize the overall percentage of roads based on their existing condition where "Very Poor" represents a condition rating equal to or less than 2, "Poor" is a condition rating of 3 or 4, "Fair" is a condition rating of 5 or 6, "Good" is a condition rating of 7 or 8 and "Excellent" is a condition rating greater than 8.

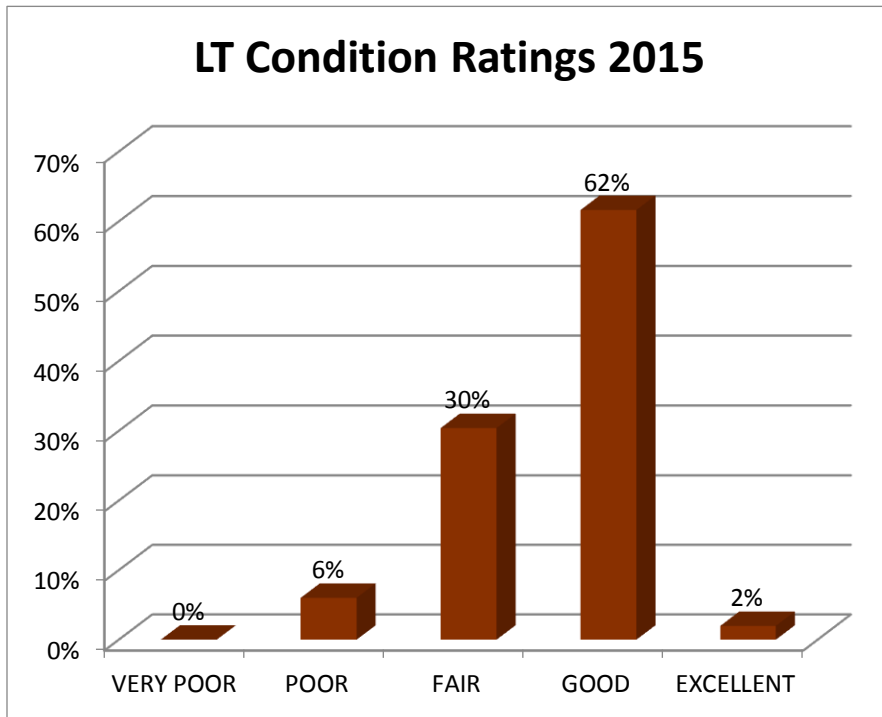


Chart 1 (Left): Loose Top Condition Rating. Sixty-four (64%) percent of the gravel roads have a condition rating of a 7 or higher. This suggests the Township’s gravel roads are generally being well maintained.

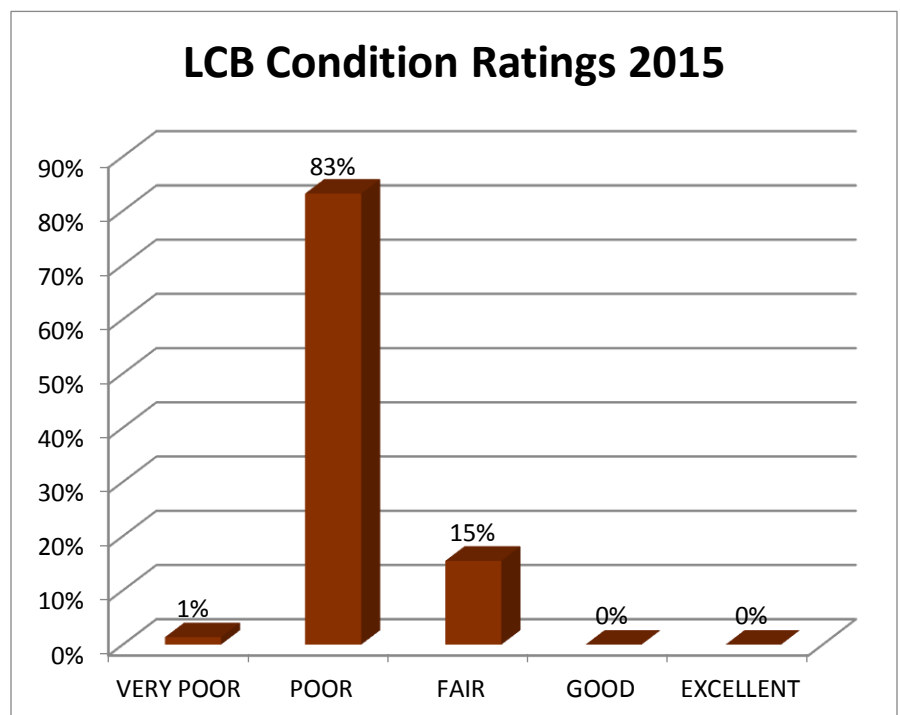


Chart 2 (Right): LCB Condition Rating. Eighty-four (84%) percent of the surface treated roads have a condition rating of a 4 or lower. This suggests that the Township’s surface treated roads require increased capital spending.

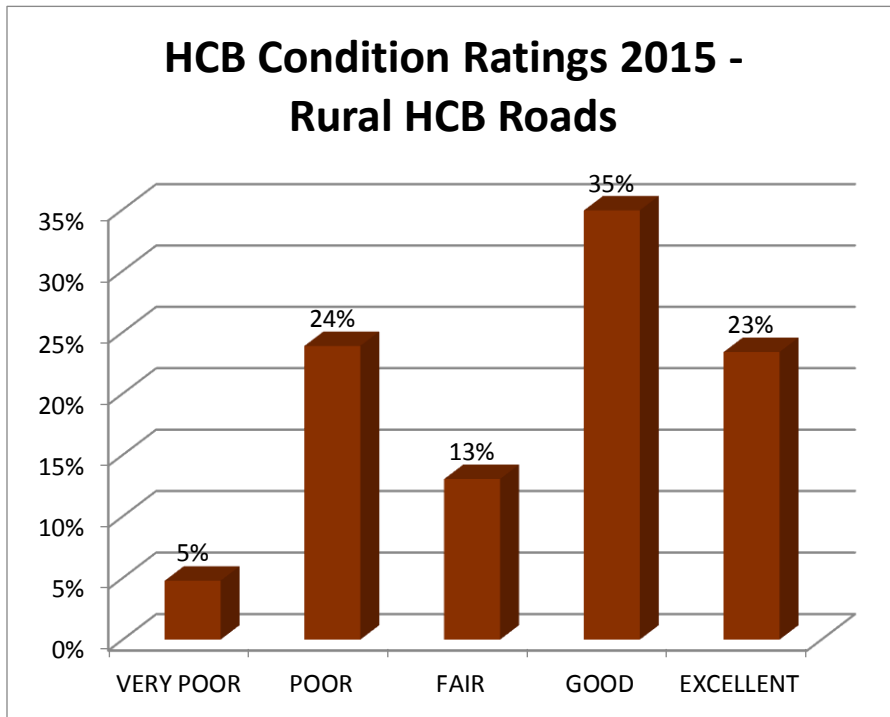


Chart 3 (Left): HCB Condition Rating – Rural Roads (Excludes roads in Norwich, Burgessville, Otterville, Springford and Eastwood). Forty-two (42%) percent of the Township’s rural roads have a condition rating less than the desired optimum condition rating.

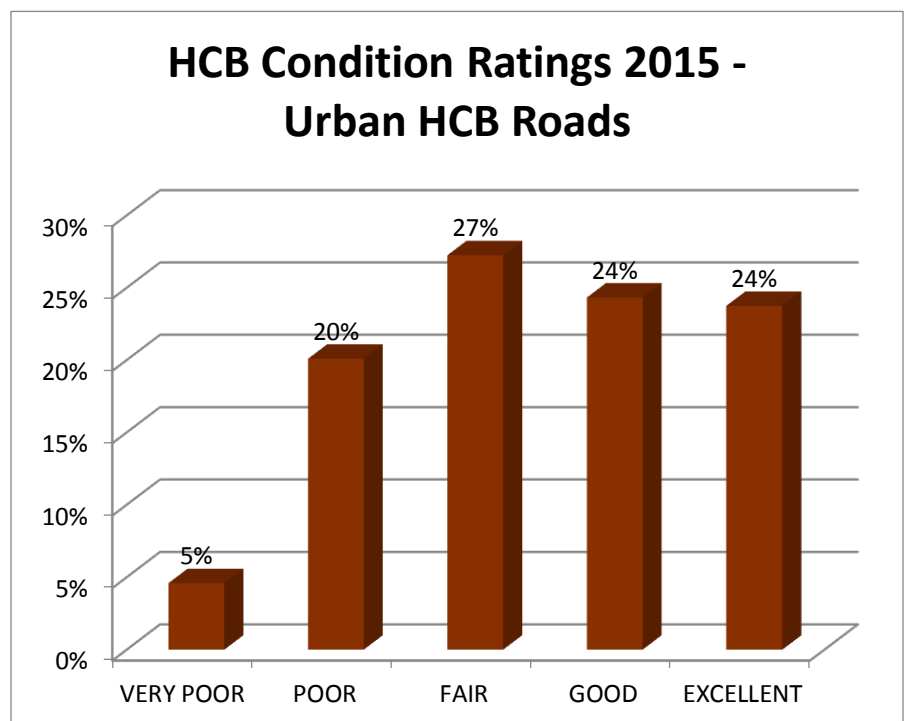


Chart 4 (Right): HCB Condition Rating – Urban Roads (Includes roads in Norwich, Burgessville, Otterville, Springford and Eastwood). Fifty-two (52%) percent of the Township’s town roads have a condition rating less than the desired optimum condition rating.

Appendix A provides a complete assessment of each road segment. Maps 1 and 2 provide an overview of the surface type of the existing roads, while maps 3 and 4 provide a depiction of the now deficient roads (i.e. rating <5).

7.2 Twenty Year Capital Plan

The Twenty Year Program for hard surface roads is summarized on the following pages and is generally based on the annual spending levels outlined in Table 14. As the 2015 and 2016 works have already been completed, this are not reflected in the updated plan below.

A life cycle analysis was used to predict the year of resurfacing or reconstruction for Hot Mix and Surface Treated Roads. Due to spending constraints, the following strategy was developed in an effort to best allocate limited resources:

- Higher traffic roads are given priority over lower traffic volume roads;
- For asphalt roads, overlay projects provides the best value for the dollars spent followed by Pulverize and Pave/Partial Depth Reconstruction and then lastly, Full Depth Reconstruction (*i.e. Overlay > Partial Depth > Full Depth Reconstruction*);
- For surface treated roads: Roads requiring Partial Depth Reconstruction are given priority over Full Depth Reconstruction, since this provides the best value with limited funds available, and
- Projects that are geographically close to each other are planned in the same year where feasible. This is more cost effective.

Please note that roads with higher than average traffic volumes or with large volume of truck traffic may deteriorate at a faster rate, and the Township should be prepared to adjust the program accordingly. The figures are in 2015 dollars (\$1,000's), so the Municipality should account for construction inflation each budget year.

A summary of the effect on the condition ratings has been provided in Appendix C while maps 5 and 6 in Appendix D provide a visual of the proposed Twenty Year Program. A table outlining the Twenty Year Plan in order of road section numbers has been enclosed in Appendix B.

Similarly, a Twenty Year Program for the loose top roads has been provided in Table 16 and recommends resurfacing every four years. Dollar figures have been developed as a percentage of the historical gravel resurfacing budget value based on the length of the road. For example:

Section 003 – Towerline Road, 3.30 km

Total lane kilometres of work proposed in 2018: 28.70 km

Percentage = $3.30 \text{ km} / 28.70 \text{ km} = 11.50\%$

Percentage of budget = $11.50\% \times \$267,665 = \$30,776$

A map (Map 7) depicting the Twenty Year Gravel Roads Program has been provided in Appendix D.

2017			
Section Number	Road Name	Cost	Proposed Work
002	Subway Line	100,000	Pulverize and Pave
070	Cornell Road	100,000	Pulverize and Pave
071	Cornell Road	260,000	Pulverize and Pave
087	Subway Line	30,000	Pulverize and Pave
125	Zenda Line	65,000	50% Share of SWOX Works
127	Middletown Line	48,220	Single Surface Treatment
129	Middletown Line	19,290	Single Surface Treatment

2018			
Section Number	Road Name	Cost	Proposed Work
046	Quaker Street	60,000	Pulverize and Pave
053	Airport Road	60,000	Pulverize and Pave
088	Greenly Line	30,000	Pulverize and Pave
106A	Slant Road	230,000	Pulverize and Pave
106B	Slant Road	230,000	Pulverize and Pave
106C	Slant Road	123,900	Partial Depth Reconstruction
218	Jerdon Street	32,200	Overlay
228B	Phebe Steet Norwich	81,000	Pulverize & Pave - 2 Lifts
244	Palmer St E Norwich	51,000	Pulverize & Pave - 1 Lift
259	Wellington Street Otterville	64,000	Pulverize & Pave - 1 Lift
277A	Church Street Springford	12,120	Overlay
277B	Wood St W Springford	12,960	Overlay

2019			
Section Number	Road Name	Cost	Proposed Work
072	Cornell Road	250,000	Pulverize and Pave
131	Furnace Road	174,200	Partial Depth Reconstruction (LCB)
205	Mary Street Norwich	16,100	Overlay
207B	South Court St E Norwich	48,300	Overlay
209	Elgin Street Norwich	16,100	Overlay
229	Spring Street	96,600	Overlay
241B	Cook Street Norwich	316,500	Full Depth Reconstruction
246	Bailey Street Norwich	16,100	Overlay
256A	Mill Street	32,200	Overlay

2020			
Section Number	Road Name	Cost	Proposed Work
119A	Middletown Line	283,200	Partial Depth Reconstruction
240	Victoria St Norwich	422,000	Full Depth Reconstruction
235A	Victoria St Norwich	56,350	Overlay
256C	Queen Street Otterville	64,000	Pulverize and Pave - 1 Lift
258	Albert Street Otterville	48,000	Pulverize and Pave - 1 Lift

2021			
Section Number	Road Name	Cost	Proposed Work
009	Old Stage Road	81,000	Overlay
010	Old Stage Road	81,000	Overlay
011	Old Stage Road	307,800	Overlay
073	New Road	291,600	Overlay
119B	Middletown Line	283,200	Partial Depth Reconstruction
137	Summerville Line	140,000	Pulverize and Pave

2022			
Section Number	Road Name	Cost	Proposed Work
090	Middletown Line	113,400	Overlay
091	Middletown Line	105,300	Overlay
051A	Airport Road	218,700	Overlay
051B	Airport Road	72,900	Overlay
225	Florence St Norwich	316,500	Full Depth Reconstruction
280	East Street Eastwood	64,000	Pulverize and Pave - 1 Lift

2023			
Section Number	Road Name	Cost	Proposed Work
016A	Old Stage Road	40,500	Overlay
046	Quaker Street	48,600	Overlay
070	Cornell Road	81,000	Overlay
071	Cornell Road	210,600	Overlay
127	Middletown Line	150,000	Pulverize and Pave
129	Middletown Line	60,000	Pulverize and Pave
272	McNab Street Burgessville	64,400	Overlay
273B	Nichol Lane Burgessville	16,100	Overlay
105A	Middletown Line	280,000	Pulverize and Pave

2024			
Section Number	Road Name	Cost	Proposed Work
045B	Quaker Street	210,000	Pulverize and Pave
053	Airport Road	48,600	Overlay
128	Zenda Line	132,750	Partial Depth Reconstruction – Split 50/50 with SWOX Twp
216	South Street Norwich	32,200	Overlay
219	Robson Street Norwich	16,100	Overlay
222A	Pitcher Street Norwich	32,200	Overlay
105B	Middletown Line	320,000	Pulverize and Pave

2025			
Section Number	Road Name	Cost	Proposed Work
031	Beaconsfield Road	145,800	Overlay
032	Beaconsfield Road	145,800	Overlay
072	Cornell Road	202,500	Overlay
214B	Carman Street	397,500	Full Depth Reconstruction
214C	Carman Street	43,470	Overlay

2026			
Section Number	Road Name	Cost	Proposed Work
050	Pleasant Valley Road	495,800	Partial Depth Reconstruction - LCB
083	Mall Road	185,850	Partial Depth Reconstruction - Split 50/50 with Norfolk Township
084	Mall Road	274,350	Partial Depth Reconstruction - Split 50/50 with Norfolk Township
250	Irving Drive Norwich	32,200	Overlay
254C	Bond Street Otterville	19,640	Overlay
254D	Cedar Street Otterville	19,640	Overlay
270	Main Street N. Burgessville	48,300	Overlay
271	Main Street S. Burgessville	64,400	Overlay

2027			
Section Number	Road Name	Cost	Proposed Work
043	Quaker Street	654,900	Partial Depth Reconstruction
075	New Road	495,800	Partial Depth Reconstruction - LCB
222B	Pitcher Street Norwich	132,500	Full Depth Reconstruction
222C	Pitcher Street Norwich	39,000	Pulverize and Pave
222D	Pitcher Street Norwich	8,050	Overlay
222E	Pitcher Street Norwich	66,250	Full Depth Reconstruction
239	Albert Street Norwich	479,100	Full Depth Reconstruction

2028			
Section Number	Road Name	Cost	Proposed Work
009	Old Stage Road	100,000	Pulverize and Pave
010	Old Stage Road	100,000	Pulverize and Pave
011	Old Stage Road	380,000	Pulverize and Pave
109	Middletown Line	300,900	Partial Depth Reconstruction
119A	Middletown Line	129,600	Overlay
119B	Middletown Line	129,600	Overlay
220	Dufferin Street Norwich	112,700	Overlay
242	Avery's Lane Norwich	48,000	Pulverize and Pave

2029			
Section Number	Road Name	Cost	Proposed Work
105A	Middletown Line	226,800	Overlay
105B	Middletown Line	259,200	Overlay
116	Base Line	650,000	Pulverize and Pave
250A	North Street West Otterville	64,400	Overlay
250B	Grove Street Otterville	16,100	Overlay
251A	Maple Street Otterville	16,100	Overlay
273C	Burgess Street Burgessville	106,200	Partial Depth Reconstruction
224	Marshall Drive	80,500	Overlay

2030			
Section Number	Road Name	Cost	Proposed Work
035B	New Durham Road	637,200	Partial Depth Reconstruction
044	Quaker Street	307,800	Overlay
045A	Quaker Street	113,400	Overlay
214A	Carman Street Norwich	32,200	Overlay
230A	Centre Street Norwich	32,000	Pulverize and Pave
230B	Centre Street Norwich	156,400	Full Depth Reconstruction
230C	Centre Street Norwich	32,000	Pulverize and Pave
234A	Washington Street Norwich	32,200	Overlay
254B	John Street Otterville	14,900	Pulverize and Pave
262	John Street Otterville	147,200	Pulverize and Pave

2031			
Section Number	Road Name	Cost	Proposed Work
076	New Road	194,700	Partial Depth Reconstruction
133	Base Line	531,000	Partial Depth Reconstruction
212A	Front Street	156,400	Full Depth Reconstruction - Road Only
212B	Front Street	93,840	Full Depth Reconstruction - Road Only
212C	Front Street	28,800	Pulverize and Pave - Road Only
215A	Palmer Street West Norwich	319,400	Full Depth Reconstruction
215B	Palmer Street West Norwich	319,400	Full Depth Reconstruction

2032			
Section Number	Road Name	Cost	Proposed Work
053	Airport Road	106,200	Partial Depth Reconstruction
091	Middletown Line	130,000	Pulverize and Pave
217	South Street	32,200	Overlay
106A	Slant Road	407,100	Partial Depth Reconstruction
106B	Slant Road	407,100	Partial Depth Reconstruction
106C	Slant Road	70,000	Pulverize and Pave
206	South Court St W Norwich	397,600	Full Depth Reconstruction
207A	South Court Street E Norwich	159,700	Full Depth Reconstruction

2033			
Section Number	Road Name	Cost	Proposed Work
052	Airport Road	690,300	Partial Depth Reconstruction
082	Mall Road	327,450	Partial Depth Reconstruction - Split 50/50 with Norfolk Township
107	Base Line	550,000	Pulverize and Pave
138	Base Line	177,000	Partial Depth Reconstruction
255C	Mill Street West Otterville	48,300	Overlay
264	James Street Otterville	128,800	Overlay
265	Otterview Drive Otterville	32,200	Overlay
277C	Wood Street East Springford	57,530	Partial Depth Reconstruction
277D	Water Street Springford	44,780	Partial Depth Reconstruction

2034			
Section Number	Road Name	Cost	Proposed Work
051A	Airport Road	270,000	Pulverize and Pave
051B	Airport Road	159,300	Partial Depth Reconstruction
070	Cornell Road	177,000	Partial Depth Reconstruction
071	Cornell Road	460,200	Partial Depth Reconstruction
201A	Brock Street West	312,800	Full Depth Reconstruction - Road Only
201B	Brock Street West	137,150	Full Depth Reconstruction
237A	Washington Street Norwich	159,700	Full Depth Reconstruction
237B	Washington Street Norwich	159,700	Full Depth Reconstruction

2035			
Section Number	Road Name	Cost	Proposed Work
031	Beaconsfield Road	180,000	Pulverize and Pave
032	Beaconsfield Road	180,000	Pulverize and Pave
33B	Beaconsfield Road	30,000	Pulverize and Pave
046	Quaker Street	106,200	Partial Depth Reconstruction
090	Middletown Line	140,000	Pulverize and Pave
203A	North Court Street West	633,000	Full Depth Reconstruction
203B	North Court Street West	55,200	Pulverize and Pave
204	North Court Street East	64,400	Pulverize and Pave
213A	Church Street Norwich	137,150	Full Depth Reconstruction
213B	Church Street Norwich	52,750	Full Depth Reconstruction
255A	Pine Street Otterville	16,100	Overlay
255B	Cherry Street Otterville	16,100	Overlay

2036			
Section Number	Road Name	Cost	Proposed Work
045B	Quaker Street	170,100	Overlay
072	Cornell Road	442,500	Partial Depth Reconstruction
084	Mall Road	125,550	Overlay
210A	Elgin Street East Norwich	558,950	Full Depth Reconstruction
210B	Elgin Street West Norwich	239,550	Full Depth Reconstruction
247	Lossing Drive Norwich	32,200	Overlay
249	Carroll Street Norwich	16,100	Overlay
249B	Cayley Street Norwich	32,200	Overlay
251	Poldon Drive Norwich	96,600	Overlay
252A	Church Street Otterville	265,000	Full Depth Reconstruction
266	River Oaks Drive Otterville	57,960	Overlay

Table 16: Loose Top Roads - Twenty Year Program

20-Year Plan for Gravel Roads (\$1,000s)

Section #	Length (km)	Road Name	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
003	3.30	Towerline Road	\$ -	\$ 30.78	\$ -	\$ -	\$ -	\$ 30.78	\$ -	\$ -	\$ -	\$ 30.78	\$ -	\$ -	\$ -	\$ 30.78	\$ -	\$ -	\$ -	\$ 30.78	\$ -	\$ -
005	1.70	Pattullo Avenue	\$ -	\$ -	\$ -	\$ 14.63	\$ -	\$ -	\$ -	\$ 14.63	\$ -	\$ -	\$ -	\$ 14.63	\$ -	\$ -	\$ -	\$ 14.63	\$ -	\$ -	\$ -	\$ 14.63
006	1.80	Pattullo Avenue	\$ -	\$ 16.79	\$ -	\$ -	\$ -	\$ 16.79	\$ -	\$ -	\$ -	\$ 16.79	\$ -	\$ -	\$ -	\$ 16.79	\$ -	\$ -	\$ -	\$ 16.79	\$ -	\$ -
007	1.80	Pattullo Avenue	\$ -	\$ 16.79	\$ -	\$ -	\$ -	\$ 16.79	\$ -	\$ -	\$ -	\$ 16.79	\$ -	\$ -	\$ -	\$ 16.79	\$ -	\$ -	\$ -	\$ 16.79	\$ -	\$ -
013A	0.80	Oxford Centre Road	\$ -	\$ -	\$ 7.36	\$ -	\$ -	\$ -	\$ 7.36	\$ -	\$ -	\$ -	\$ 7.36	\$ -	\$ -	\$ -	\$ 7.36	\$ -	\$ -	\$ -	\$ 7.36	\$ -
014	3.30	Oxford Centre Road	\$ -	\$ -	\$ 30.35	\$ -	\$ -	\$ -	\$ 30.35	\$ -	\$ -	\$ -	\$ 30.35	\$ -	\$ -	\$ -	\$ 30.35	\$ -	\$ -	\$ -	\$ 30.35	\$ -
015	3.50	Oxford Centre Road	\$ -	\$ -	\$ 32.19	\$ -	\$ -	\$ -	\$ 32.19	\$ -	\$ -	\$ -	\$ 32.19	\$ -	\$ -	\$ -	\$ 32.19	\$ -	\$ -	\$ -	\$ 32.19	\$ -
016B	3.10	Old Stage Road	\$ -	\$ -	\$ -	\$ 26.68	\$ -	\$ -	\$ -	\$ 26.68	\$ -	\$ -	\$ -	\$ 26.68	\$ -	\$ -	\$ -	\$ 26.68	\$ -	\$ -	\$ -	\$ 26.68
017	3.50	Firehall Road	\$ -	\$ 32.64	\$ -	\$ -	\$ -	\$ 32.64	\$ -	\$ -	\$ -	\$ 32.64	\$ -	\$ -	\$ -	\$ 32.64	\$ -	\$ -	\$ -	\$ 32.64	\$ -	\$ -
019	3.70	Firehall Road	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84
020	3.90	Old Stage Road	\$ -	\$ -	\$ -	\$ 33.57	\$ -	\$ -	\$ -	\$ 33.57	\$ -	\$ -	\$ -	\$ 33.57	\$ -	\$ -	\$ -	\$ 33.57	\$ -	\$ -	\$ -	\$ 33.57
021A	3.80	Curries Road	\$ 28.57	\$ -	\$ -	\$ -	\$ 28.57	\$ -	\$ -	\$ -	\$ 28.57	\$ -	\$ -	\$ -	\$ 28.57	\$ -	\$ -	\$ -	\$ 28.57	\$ -	\$ -	\$ -
022	1.80	Gunn's Hill Road	\$ -	\$ -	\$ -	\$ 15.49	\$ -	\$ -	\$ -	\$ 15.49	\$ -	\$ -	\$ -	\$ 15.49	\$ -	\$ -	\$ -	\$ 15.49	\$ -	\$ -	\$ -	\$ 15.49
023	3.40	Gunn's Hill Road	\$ 25.56	\$ -	\$ -	\$ -	\$ 25.56	\$ -	\$ -	\$ -	\$ 25.56	\$ -	\$ -	\$ -	\$ 25.56	\$ -	\$ -	\$ -	\$ 25.56	\$ -	\$ -	\$ -
024	3.40	Gunn's Hill Road	\$ -	\$ 31.71	\$ -	\$ -	\$ -	\$ 31.71	\$ -	\$ -	\$ -	\$ 31.71	\$ -	\$ -	\$ -	\$ 31.71	\$ -	\$ -	\$ -	\$ 31.71	\$ -	\$ -
025	3.60	Gunn's Hill Road	\$ -	\$ 33.57	\$ -	\$ -	\$ -	\$ 33.57	\$ -	\$ -	\$ -	\$ 33.57	\$ -	\$ -	\$ -	\$ 33.57	\$ -	\$ -	\$ -	\$ 33.57	\$ -	\$ -
026	1.80	Substation Road	\$ -	\$ -	\$ 16.56	\$ -	\$ -	\$ -	\$ 16.56	\$ -	\$ -	\$ -	\$ 16.56	\$ -	\$ -	\$ -	\$ 16.56	\$ -	\$ -	\$ -	\$ 16.56	\$ -
027	3.60	Substation Road	\$ -	\$ -	\$ 16.56	\$ -	\$ -	\$ -	\$ 16.56	\$ -	\$ -	\$ -	\$ 16.56	\$ -	\$ -	\$ -	\$ 16.56	\$ -	\$ -	\$ -	\$ 16.56	\$ -
028	3.60	Substation Road	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -
029	1.80	Substation Road	\$ 13.53	\$ -	\$ -	\$ -	\$ 13.53	\$ -	\$ -	\$ -	\$ 13.53	\$ -	\$ -	\$ -	\$ 13.53	\$ -	\$ -	\$ -	\$ 13.53	\$ -	\$ -	\$ -
030	1.80	Substation Road	\$ 13.53	\$ -	\$ -	\$ -	\$ 13.53	\$ -	\$ -	\$ -	\$ 13.53	\$ -	\$ -	\$ -	\$ 13.53	\$ -	\$ -	\$ -	\$ 13.53	\$ -	\$ -	\$ -
033A	3.30	Beaconsfield Road	\$ -	\$ 30.78	\$ -	\$ -	\$ -	\$ 30.78	\$ -	\$ -	\$ -	\$ 30.78	\$ -	\$ -	\$ -	\$ 30.78	\$ -	\$ -	\$ -	\$ 30.78	\$ -	\$ -
034	3.60	Beaconsfield Road	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -
035A	3.60	Beaconsfield Road	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -
036	3.70	Evergreen Street	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84
041	3.70	Evergreen Street	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84	\$ -	\$ -	\$ -	\$ 31.84
047	3.00	Quaker Street	\$ -	\$ -	\$ 27.59	\$ -	\$ -	\$ -	\$ 27.59	\$ -	\$ -	\$ -	\$ 27.59	\$ -	\$ -	\$ -	\$ 27.59	\$ -	\$ -	\$ -	\$ 27.59	\$ -
048A	0.80	Caley Road	\$ 6.01	\$ -	\$ -	\$ -	\$ 6.01	\$ -	\$ -	\$ -	\$ 6.01	\$ -	\$ -	\$ -	\$ 6.01	\$ -	\$ -	\$ -	\$ 6.01	\$ -	\$ -	\$ -
049	3.70	Pleasant Valley Road	\$ -	\$ 34.51	\$ -	\$ -	\$ -	\$ 34.51	\$ -	\$ -	\$ -	\$ 34.51	\$ -	\$ -	\$ -	\$ 34.51	\$ -	\$ -	\$ -	\$ 34.51	\$ -	\$ -
054	3.60	Maple Dell Road	\$ -	\$ -	\$ 33.11	\$ -	\$ -	\$ -	\$ 33.11	\$ -	\$ -	\$ -	\$ 33.11	\$ -	\$ -	\$ -	\$ 33.11	\$ -	\$ -	\$ -	\$ 33.11	\$ -
055	3.90	Maple Dell Road	\$ -	\$ -	\$ 35.87	\$ -	\$ -	\$ -	\$ 35.87	\$ -	\$ -	\$ -	\$ 35.87	\$ -	\$ -	\$ -	\$ 35.87	\$ -	\$ -	\$ -	\$ 35.87	\$ -
056	3.60	Maple Dell Road	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -	\$ 27.07	\$ -	\$ -	\$ -
059	3.80	Milldale Road	\$ 28.57	\$ -	\$ -	\$ -	\$ 28.57	\$ -	\$ -	\$ -	\$ 28.57	\$ -	\$ -	\$ -	\$ 28.57	\$ -	\$ -	\$ -	\$ 28.57	\$ -	\$ -	\$ -
060	1.50	Milldale Road	\$ 11.28	\$ -	\$ -	\$ -	\$ 11.28	\$ -	\$ -	\$ -	\$ 11.28	\$ -	\$ -	\$ -	\$ 11.28	\$ -	\$ -	\$ -	\$ 11.28	\$ -	\$ -	\$ -
066	3.60	Ninth Road	\$ -	\$ -	\$ -	\$ 30.98	\$ -	\$ -	\$ -	\$ 30.98	\$ -	\$ -	\$ -	\$ 30.98	\$ -	\$ -	\$ -	\$ 30.98	\$ -	\$ -	\$ -	\$ 30.98
093A	1.50	Cedar Line	\$ 11.28	\$ -	\$ -	\$ -	\$ 11.28	\$ -	\$ -	\$ -	\$ 11.28	\$ -	\$ -	\$ -	\$ 11.28	\$ -	\$ -	\$ -	\$ 11.28	\$ -	\$ -	\$ -
095A	0.50	Vandecar Line	\$ -	\$ -	\$ -	\$ 4.30	\$ -	\$ -	\$ -	\$ 4.30	\$ -	\$ -	\$ -	\$ 4.30	\$ -	\$ -	\$ -	\$ 4.30	\$ -	\$ -	\$ -	\$ 4.30
095B	2.40	Vandecar Line	\$ -	\$ -	\$ -	\$ 20.66	\$ -	\$ -	\$ -	\$ 20.66	\$ -	\$ -	\$ -	\$ 20.66	\$ -	\$ -	\$ -	\$ 20.66	\$ -	\$ -	\$ -	\$ 20.66
096A	1.10	Cedar Line	\$ 8.27	\$ -	\$ -	\$ -	\$ 8.27	\$ -	\$ -	\$ -	\$ 8.27	\$ -	\$ -	\$ -	\$ 8.27	\$ -	\$ -	\$ -	\$ 8.27	\$ -	\$ -	\$ -
097A	1.30	Oriel Line	\$ -	\$ -	\$ 11.96	\$ -	\$ -	\$ -	\$ 11.96	\$ -	\$ -	\$ -	\$ 11.96	\$ -	\$ -	\$ -	\$ 11.96	\$ -	\$ -	\$ -	\$ 11.96	\$ -
097B	1.30	Oriel Line	\$ -	\$ -	\$ 11.96	\$ -	\$ -	\$ -	\$ 11.96	\$ -	\$ -	\$ -	\$ 11.96	\$ -	\$ -	\$ -	\$ 11.96	\$ -	\$ -	\$ -	\$ 11.96	\$ -
100A	1.00	Vandecar Line	\$ -	\$ -	\$ -	\$ 8.61	\$ -	\$ -	\$ -	\$ 8.61	\$ -	\$ -	\$ -	\$ 8.61	\$ -	\$ -	\$ -	\$ 8.61	\$ -	\$ -	\$ -	\$ 8.61
100B	2.00	Vandecar Line	\$ -	\$ -	\$ -	\$ 17.21	\$ -	\$ -	\$ -	\$ 17.21	\$ -	\$ -	\$ -	\$ 17.21	\$ -	\$ -	\$ -	\$ 17.21	\$ -	\$ -	\$ -	\$ 17.21
101	1.60	Zenda Line	\$ -	\$ 14.92	\$ -	\$ -	\$ -	\$ 14.92	\$ -	\$ -	\$ -	\$ 14.92	\$ -	\$ -	\$ -	\$ 14.92	\$ -	\$ -	\$ -	\$ 14.92	\$ -	\$ -
103	3.40	McCready Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
104A	2.70	Zenda Line	\$ -	\$ 25.18	\$ -	\$ -	\$ -	\$ 25.18	\$ -	\$ -	\$ -	\$ 25.18	\$ -	\$ -	\$ -	\$ 25.18	\$ -	\$ -	\$ -	\$ 25.18	\$ -	\$ -
111	1.70	Hanner Line	\$ 12.78	\$ -	\$ -	\$ -	\$ 12.78	\$ -	\$ -	\$ -	\$ 12.78	\$ -	\$ -	\$ -	\$ 12.78	\$ -	\$ -	\$ -	\$ 12.78	\$ -	\$ -	\$ -
114	4.80	Pick Line	\$ -	\$ -	\$ 44.15	\$ -	\$ -	\$ -	\$ 44.15	\$ -	\$ -	\$ -	\$ 44.15	\$ -	\$ -	\$ -	\$ 44.15	\$ -	\$ -	\$ -	\$ 44.15	\$ -

7.3 Overall Weighted Average Condition Rating

The current spending levels demonstrate that the overall condition rating of the Township's roads will continue to deteriorate over the next twenty years, suggesting there remains a shortfall in the Township's budget to maintain their current infrastructure. This is evidence that the Township's roads are underfunded, particularly as the current level of service does not yet meet the preferred level of service (i.e. rating of >6 for LCB, and >6.5 for HCB).

Table 17 shows the overall weighted average condition rating by year after applying the proposed capital works shown on the previous 6 pages. It is further evident that the Municipality's roads are underfunded.

Table 17: Weighted Average Condition Rating Summary

CATEGORY	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
CONDITION RATING (OVERALL)	5.91	5.81	5.69	5.60	5.49	5.38	5.34	5.28	5.30	5.30	5.25
CONDITION RATING (HARD SURFACE ONLY)	5.47	5.30	5.08	4.94	4.73	4.56	4.48	4.39	4.41	4.41	4.32
CONDITION RATING (GRAVEL ONLY)	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53

2035	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
CONDITION RATING (OVERALL)	5.31	5.34	5.32	5.36	5.40	5.38	5.38	5.54	5.52	5.45	5.25
CONDITION RATING (HARD SURFACE ONLY)	4.44	4.48	4.45	4.53	4.58	4.54	4.56	4.82	4.79	4.68	4.33
CONDITION RATING (GRAVEL ONLY)	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53

ROAD NEEDS STUDY



APPENDIX A
2015 ROAD APPRAISALS

McINTOSH PERRY

Section #	Length (km)	AADT	Current Surface Type	Condition Rating	Road Name	From	To
001 ^s	0.50	30	HCB	8	Old Highway 2	Highway 2	Dead End
002	1.00	589	LCB	5	Subway Line	Highway 2	Oxford 55
003	3.30	101	LT	7	Towerline Road	Oxford 55	Muir Line
005	1.70	119	LT	7	Pattullo Avenue	Middletown Line	1.7km West of Middletown Line
006	1.80	122	LT	7	Pattullo Avenue	Oxford 14	Oxford 55
007	1.80	122	LT	7	Pattullo Avenue	Oxford 55	Muir Line
008	1.20	151	LCB	4	Horn Road	Sweaburg Road	Old Stage Road
009	1.00	1253	HCB	8	Old Stage Road	Sweaburg Road	Horn Road
010	1.00	1253	HCB	8	Old Stage Road	Horn Road	Oxford 59
011	3.80	445	HCB	7	Old Stage Road	Oxford 59	Middletown Line
013A	0.80	38	LT	7	Oxford Centre Road	Dead End	0.3km West of Middletown Line
013B	0.30	38	HCB	6	Oxford Centre Road	0.3km West of Middletown Line	Middletown Line
014	3.30	78	LT	6	Oxford Centre Road	Middletown Line	Oxford 14
015	3.50	56	LT	7	Oxford Centre Road	Oxford 14	Oxford 55
016A	0.50	86	HCB	7	Old Stage Road	Middletown Line	0.5km East of Middletown Line
016B	3.10	86	LT	7	Old Stage Road	0.5km East of Middletown Line	0.3km West of Oxford 14
016C	0.30	86	HCB	2	Old Stage Road	0.3km West of Oxford 14	Oxford 14
017	3.50	49	LT	7	Firehall Road	Oxford 59	Middletown Line
019	3.70	49	LT	8	Firehall Road	Middletown Line	Oxford 14
020	3.90	125	LT	7	Old Stage Road	Oxford 14	Muir Line
021A	3.80	136	LT	6	Curries Road	Oxford 14	Muir Line
021B	1.80	307	HCB	3	Curries Road	Cedar Line	Oxford 59
022	1.80	73	LT	5	Gunn's Hill Road	Cedar Line	Oxford 59
023	3.40	155	LT	7	Gunn's Hill Road	Oxford 59	Middletown Line
024	3.40	77	LT	7	Gunn's Hill Road	Middletown Line	Oxford 14
025	3.60	52	LT	7	Gunn's Hill Road	Oxford 14	Muir Line
026	1.80	118	LT	6	Substation Road	Cedar Line	Oxford 59
027	3.60	92	LT	7	Substation Road	Oxford 59	Middletown Line
028	3.60	119	LT	5	Substation Road	Middletown Line	Oxford 14
029	1.80	116	LT	8	Substation Road	Oxford 14	Vandecar Line
030	1.80	116	LT	8	Substation Road	Vandecar Line	Muir Line
031	1.80	812	HCB	8	Beaconsfield Road	Zenda Line	Cedar Line
032	1.80	812	HCB	8	Beaconsfield Road	Cedar Line	Oxford 59
033A	3.30	149	LT	7	Beaconsfield Road	Oxford 59	0.3km West of Middletown Line
033B	0.30	149	HCB	10	Beaconsfield Road	0.3km West of Middletown Line	Middletown Line
034	3.60	89	LT	8	Beaconsfield Road	Middletown Line	Oxford 14
035A	3.60	65	LT	8	Beaconsfield Road	Oxford 14	Muir Line
035B	3.60	1086	HCB	5	New Durham Road	Oxford 59	Muir Line
036	3.70	82	LT	7	Evergreen Street	Zenda Line	Oxford 13
037	3.70	127	LCB	5	Evergreen Street	Oxford 13	Middletown Line
038	3.60	298	HCB	5	Evergreen Street	Middletown Line	Oxford 59
041	3.70	130	LT	6	Evergreen Street	Oxford 59	Base Line
042A	0.20	158	LT	7	11th Concession Road	Base Line	Twp Boundary

Section #	Length (km)	AADT	Current Surface Type	Condition Rating	Road Name	From	To
042B	0.20	158	LCB	5	Hatchley Road	Base Line	Twp Boundary
042C	0.20	158	LT	8	13th Concession Road	Base Line	Twp Boundary
043	3.70	235	HCB	2	Quaker Street	Zenda Line	Oxford 13
044	3.80	235	HCB	10	Quaker Street	Oxford 13	Middletown Line
045A	1.40	796	HCB	10	Quaker Street	Middletown Line	1.4 East of Middletown Line
045B	2.10	796	HCB	6	Quaker Street	1.4 East of Middletown Line	Oxford 59
046	0.60	1832	HCB	4	Quaker Street	Oxford 59	Slant Road
047	3.00	95	LT	10	Quaker Street	Slant Road	Base Line
048A	0.80	224	LT	6	Caley Road	Hamner Line	0.6km West of Windham Line
048B	0.60	224	LCB	3	Caley Road	0.6km West of Windham Line	Windham Line
049	3.70	127	LT	6	Pleasant Valley Road	Zenda Line	Oxford 13
050	3.70	439	LCB	3	Pleasant Valley Road	Oxford 13	Middletown Line
051A	2.70	1804	LCB	3	Airport Road	Middletown Line	0.9km West of Oxford 59
051B	0.90	1804	HCB	9	Airport Road	0.9km West of Oxford 59	Oxford 59
052	3.90	1247	HCB	8	Airport Road	Oxford 59	Base Line
053	0.60	1247	HCB	4	Airport Road	Base Line	Windham Line
054	3.60	34	LT	7	Maple Dell Road	Zenda Line	Oxford 13
055	3.90	171	LT	7	Maple Dell Road	Oxford 13	Middletown Line
056	3.60	130	LT	7	Maple Dell Road	Middletown Line	Oxford 59
057	4.50	271	LCB	3	Maple Dell Road	Oxford 59	Windham Line
058	3.60	564	HCB	8	Milldale Road	Zenda Line	Oxford 13
059	3.80	107	LT	8	Milldale Road	Oxford 13	Middletown Line
060	1.50	169	LT	8	Milldale Road	Middletown Line	Pick Line
061	2.00	189	LCB	4	Milldale Road	Pick Line	Oxford 59
062A	0.50	51	LT	6	Vanash Road	Oxford 59	Dead End
062B	0.15	32	LCB	5	7th Road	Oxford 59	Dead End
062C	0.30	5	LT	7	Oddy Road	Oxford 59	Dead End
063	3.80	82	LCB	4	Milldale Road	Oxford 59	Base Line
064	3.70	63	LCB	5	Ninth Road	Zenda Line	Oxford 13
066	3.60	35	LT	8	Ninth Road	Oxford 13	Middletown Line
067	1.70	167	LCB	3	Ninth Road	Cornell Road	Oxford 59
068	1.60	192	LT	7	Ninth Road	Dead End	Base Line
069	1.00	192	LCB	3	Ninth Road	Base Line	Twp Boundary
070	1.00	1753	HCB	5	Cornell Road	Oxford 13	Oatman Line
071	2.60	1753	HCB	4	Cornell Road	Oatman Line	Middletown Line
072	2.50	1753	HCB	5	Cornell Road	Middletown Line	Dover Street
073	3.60	740	HCB	7	New Road	Zenda Line	Oxford 13
074	3.60	291	LCB	4	New Road	Middletown Line	Oxford 59

Section #	Length (km)	AADT	Current Surface Type	Condition Rating	Road Name	From	To
074B	1.60	291	LCB	4	Middletown Line	New Road	Potters Road
075	3.70	231	LCB	4	New Road	Oxford 59	Base Line
076	1.10	634	LCB	4	New Road	Base Line	Twp Boundary
077	0.15	30	LT	7	Cecilia Street	Dead End	Base Line
078*	1.90	1874	HCB	8	Mall Road	Westtown Line	1.9km West of Oxford 13
079*	1.90	1874	LCB	4	Mall Road	1.9km West of Oxford 13	Oxford 13
080	1.60	776	LCB	4	Mall Road	Oxford 13	1.6km East of Oxford 13
081	1.60	776	LCB	4	Mall Road	1.6km East of Oxford 13	Middletown Line
082**	3.70	1223	LCB	3	Mall Road	Middletown Line	Summerville Line
083**	2.10	1027	LCB	4	Mall Road	Summerville Line	Oxford 59
084**	3.10	1066	HCB	3	Mall Road	Oxford 59	Twp Boundary
085	1.60	432	LCB	4	Summerville Line	Potters Road	Mall Road
086	1.20	426	HCB	4	Base Line	Wendy's Road	Mall Road
087	0.30	409	LCB	5	Subway Line	Oxford 55	Towerline Road
088	0.30	295	HCB	4	Greenly Line	Pattullo Ave	Oxford 59
090	1.40	994	HCB	8	Middletown Line	Pattullo Ave	Oxford Centre Road
091	1.30	994	HCB	7	Middletown Line	Oxford Centre Road	Firehall Road
092A	0.80	19	HCB	2	Old 14 Line	Oxford Centre Road	0.8km south of Oxford Centre Road
092B	0.50	19	LT	7	Old 14 Line	0.8km south of Oxford Centre Road	Firehall Road
093A ^{&}	1.50	176	LT	7	Cedar Line	Sweaburg Road	0.4km North of Curries Road
093B ^{&}	0.40	176	HCB	4	Cedar Line	0.4km North of Curries Road	Curries Road
094A	1.50	351	HCB	7	Middletown Line	Firehall Road	1.5km South of Firehall Road
094B	1.40	351	HCB	9	Middletown Line	1.5km South of Firehall Road	Gunn's Hill Road
095A	0.50	30	LT	5	Vandecar Line	Old Stage Road	0.5km South of Old Stage Road
095B	2.40	30	LT	7	Vandecar Line	0.5km South of Old Stage Road	Gunn's Hill Road
096A ^{&}	1.10	106	LT	4	Cedar Line	Curries Road	Gunn's Hill Road
096B***	1.30	106	LT	4	Cedar Line	Gunn's Hill Road	Substation Road
097A	1.30	13	LT	6	Oriel Line	Curries Road	Gunn's Hill Road
097B	1.30	13	LT	5	Oriel Line	Gunn's Hill Road	Substation Road
098***	1.90	154	LT	4	Cedar Line	Substation Road	Beaconsfield Road
099	3.50	620	HCB	9	Middletown Line	Gunn's Hill Road	Beaconsfield Road
100A	1.00	28	LT	5	Vandecar Line	Gunn's Hill Road	Substation Road
100B	2.00	28	LT	7	Vandecar Line	Substation Road	Beaconsfield Road
101 ^{&}	1.60	400	LT	6	Zenda Line	Beaconsfield Road	Salford Road
102A	0.20	698	HCB	9	Middletown Line	Beaconsfield Road	0.2km South of Beaconsfield Road
102B	1.10	698	HCB	8	Middletown Line	0.2km South of Beaconsfield Road	0.3km North of Oxford 59
103	3.40	27	LT	6	McCready Line	Beaconsfield Road	Evergreen Street
104A ^{&}	2.70	400	LT	6	Zenda Line	Salford Road	0.5km North of Quaker Street
104B ^{&}	0.50	400	HCB	3	Zenda Line	0.5km North of Quaker Street	Quaker Street
105A	2.80	1641	HCB	8	Middletown Line	0.4km South of Oxford 59	Quaker Street
105B	3.20	1641	HCB	8	Middletown Line	Quaker Street	Airport Road
106A	2.30	1119	LCB	4	Slant Road	New Durham Road	Evergreen Street

Section #	Length (km)	AADT	Current Surface Type	Condition Rating	Road Name	From	To
106B	2.30	1119	LCB	4	Slant Road	Evergreen Street	0.7km North of Quaker Street
106C	0.70	1119	HCB	4	Slant Road	0.7km North of Quaker Street	Quaker Street
107	5.50	1230	HCB	9	Base Line	New Durham Road	Norwich Road
108***	3.20	187	LT	5	Zenda Line	Quaker Street	Pleasant Valley Road
109	1.70	1712	HCB	4	Middletown Line	Airport Road	Maple Dell Road
110	0.40	400	LCB	4	Utility Line	Quaker Street	Oxford 59
111	1.70	69	LT	6	Hanmer Line	Norwich Road	Airport Road
112	0.80	316	LCB	4	Windham Line	Caley Road	Airport Road
113***	1.60	229	LT	4	Zenda Line	Pleasant Valley Road	Maple Dell Road
114	4.80	51	LT	6	Pick Line	Norwich Road	Milldale Road
115	1.60	99	LCB	3	Hanmer Line	Airport Road	Maple Dell Road
116	6.50	1131	HCB	10	Base Line	Norwich Road	Otterville Road
117*	0.70	504	LCB	4	Windham Line	Airport Road	Maple Dell Road
118***	1.60	229	LT	4	Zenda Line	Maple Dell Road	Milldale Road
119A	1.60	1374	HCB	4	Middletown Line	Maple Dell Road	Milldale Road
119B	1.60	1374	HCB	4	Middletown Line	Milldale Road	Otterville Road
121*	4.00	504	LCB	4	Windham Line	Maple Dell Road	Otterville Road
122***	1.60	229	LT	4	Zenda Line	Milldale Road	Otterville Road
123A	1.10	128	LCB	4	Pick Line	Milldale Road	0.3km North of North Street West
123B	0.30	128	HCB	4	Pick Line	0.3km North of North Street West	North Street West
124	1.60	134	LCB	4	Csont Line	Milldale Road	Otterville Road
125***	1.50	771	HCB	3	Zenda Line	Otterville Road	Ninth Road
127	1.50	683	LCB	5	Middletown Line	Otterville Road	Ninth Road
128 ^{&}	1.50	771	HCB	3	Zenda Line	Ninth Road	New Road
129	0.60	683	LCB	5	Middletown Line	Ninth Road	Cornell Road
130	1.30	25	LT	6	Middletown Line	Cornell Road	New Road
131	1.30	228	LCB	5	Furnace Road	Cornell Road	New Road
132A	2.00	602	LCB	4	Coal Line	Cornell Road	New Road
132B	0.40	602	HCB	7	Coal Line	New Road	Oxford 59
133	3.00	765	HCB	3	Base Line	Otterville Road	New Road
134 ^{&}	0.40	15	LCB	3	Zenda Line	New Road	0.4km South of New Road
135	1.70	157	LCB	3	Rock Mill Line	Oxford 13	Potters Road
136	2.30	16	LT	7	Neidert Line	Potters Road	Middletown Line
137	1.40	631	LCB	4	Summerville Line	Oxford 59	Potters Road
138	1.00	599	HCB	4	Base Line	New Road	Wendy's Road
139*	1.20	504	LCB	4	Windham Line	New Road	Wendy's Road
140 ^{&}	1.10	263	LCB	2	Westown Line	Potters Road	Mall Road
141	1.60	182	LCB	4	Middletown Line	Potters Road	Mall Road
142	0.20	64	LT	6	Pleasant Valley Road	0.2km East of Zenda Line	Zenda Line
143	0.20	97	LT	8	Old School Line	0.2km North of Gunn's Hill Road	Gunn's Hill Road
144	0.70	4	Earth	0	Oatman Line	Ninth Road	Oxford 13
145	0.20	104	LCB	3	Second Road	Base Line	New Durham Road
146	0.30		LT	7	Jones Line	Oxford 13	Maple Dell Road

Section #	Length (km)	AADT	Current Surface Type	Condition Rating	Road Name	From	To
NORWICH							
201A	0.40		HCB	3	Brock Street West	Dead End	Washington Street
201B	0.13		HCB	3	Brock Street West	Washington Street	Stover Street N (Oxford 59)
202A	0.15		HCB	6	Brock Street East	Stover Street N (Oxford 59)	Victoria Street
202B	0.10		HCB	10	Brock Street East	Victoria Street	Poldon Drive
203A	0.60		HCB	3	North Court Street West	Centre Street	Clyde Street
203B	0.30		HCB	8	North Court Street West	Clyde Street	Stover Street N (Oxford 59)
204	0.35		HCB	8	North Court Street East	Stover Street N (Oxford 59)	Lossing Drive
205	0.10		HCB	6	Mary Street	Spring Street	Centre Street
206	0.30		HCB	4	South Court Street West	Clyde Street	Stover Street N (Oxford 59)
207A	0.10		HCB	3	South Court Street East	Stover Street N (Oxford 59)	Albert Street
207B	0.30		HCB	6	South Court Street East	Albert Street	Dead End
208	0.10		HCB	5	Elgin Street East	George Street	Cook Street
209	0.10		HCB	6	Elgin Street	Centre Street	Spring Street
210A	0.35		HCB	3	Elgin Street East	Cook Street	Washington Street
210B	0.15		HCB	7	Elgin Street West	Washington Street	Clyde Street
211	0.20		HCB	5	George Street	Main Street East	Dead End
212A	0.20		HCB	6	Front Street	Avery's Lane	Church Street
212B	0.12		HCB	2	Front Street	Church Street	Pitcher Street
212C	0.18		HCB	9	Front Street	Pitcher Street	Stover Street S (Oxford 59)
213A	0.13		HCB	6	Church Street	Main Street West	Tidey Street
213B	0.05		HCB	4	Church Street	Tidey Street	Dead End
213C	0.12		HCB	7	Tidey Street	Church Street	Pitcher Street
213D	0.18		HCB	5	Tidey Street	Pitcher Street	Stover Street S (Oxford 59)
214A	0.20	316	HCB	9	Carman Street	Stover Street S (Oxford 59)	Pitcher Street
214B	0.30	316	HCB	4	Carman Street	Pitcher Street	Avery's Lane
214C	0.27	316	HCB	6	Carman Street	Avery's Lane	Marshall Drive
215A	0.20		HCB	5	Palmer Street West	Stover Street S (Oxford 59)	Pitcher Street
215B	0.20		HCB	4	Palmer Street West	Pitcher Street	Dufferin Street
216	0.20		HCB	7	South Street	Dufferin Street	Pitcher Street
217	0.20		HCB	9	South Street	Pitcher Street	Stover Street S (Oxford 59)
218	0.20		HCB	6	Jerdon Street	Pitcher Street	Stover Street S (Oxford 59)
219	0.10		HCB	7	Robson Street	Dufferin Street	Stover Street S (Oxford 59)
220	0.70	379	HCB	8	Dufferin Street	Robson Street	Carman Street
222A	0.20		HCB	7	Pitcher Street	Jerdon Street	Palmer Street West
222B	0.10		HCB	3	Pitcher Street	Palmer Street West	Carman Street
222C	0.20		HCB	6	Pitcher Street	Carman Street	Tidey Street

Section #	Length (km)	AADT	Current Surface Type	Condition Rating	Road Name	From	To
222D	0.05		HCB	9	Pitcher Street	Tidey Street	Front Street
222E	0.05		HCB	4	Pitcher Street	Front Street	Main Street West
223	0.40		HCB	5	Otter Street	Jerdon Street	Dead End
224	0.50		HCB	8	Marshall Drive	Cayley Street	Dead End
225	0.30	316	HCB	3	Florence Street	Main Street West	Carman Street
228A	0.10		HCB	7	Sutton Street	Main Street East	Dead End
228B	0.30		HCB	6	Phebe Street	Main Street East	Dead End
229	0.60		HCB	7	Spring Street	Main Street West	Dead End
230A	0.20	392	HCB	6	Centre Street	Dead End	North Court Street West
230B	0.20	392	HCB	3	Centre Street	North Court Street West	Elgin Street
230C	0.20	392	HCB	7	Centre Street	Elgin Street	Main Street West
231	0.50	303	HCB	9	Clyde Street	Main Street West	Brock Street West
232	0.50		HCB	2	John Street	Dead End	Elgin Street
233	0.20		HCB	8	John Street	Elgin Street	Main Street West
234A	0.20		HCB	10	Washington Street	North Street West	Brock Street West
234B	0.10		HCB	5	Washington Street	Dead End	North Street West
235A	0.35		HCB	7	Victoria Street	North Court Street East	North Street East
235B	0.25		HCB	10	North Street	Washington Street	Poldon Drive
236	0.20		HCB	8	Washington Street	Brock Street West	South Court Street West
237A	0.10		HCB	4	Washington Street	Main Street West	Elgin Street
237B	0.10		HCB	7	Washington Street	Elgin Street	South Court Street West
238	0.40		HCB	10	Albert Street	Dead End	North Court Street East
239	0.30		HCB	3	Albert Street	South Court Street East	Main Street East
240	0.40		HCB	2	Victoria Street	North Court Street East	Main Street East
241A	0.10	276	HCB	9	Cook Street	North Court Street East	South Court Street East
241B	0.30	276	HCB	2	Cook Street	South Court Street East	Main Street East
242	0.30		HCB	7	Avery's Lane	Main Street West	Carman Street
243	0.30		HCB	9	Moore Crescent	Marshall Drive	Cayley Street
244	0.20		HCB	5	Palmer Street E.	Stover Street S (Oxford 59)	Dead End
245	0.10		LT	7	Union Street	Stover Street S (Oxford 59)	Dead End
246	0.10		HCB	7	Bailey Street	Spring Street	Centre Street
247	0.20	311	HCB	9	Lossing Drive	North Court Street East	Dead End
249	0.10		HCB	9	Carroll Street	Marshall Drive	Florence Street
249B	0.20		HCB	9	Cayley Street	Carman Street	Dead End
249C	0.10	311	HCB	5	Pollard Street	Mashall Drive	Dead End
250	0.20		HCB	8	Irving Drive	Cayley Street	Dead End
251	0.60	311	HCB	9	Poldon Drive	Lossing Drive	Dead End
252		311	HCB	0	Bushel Court (not assumed)		

Section #	Length (km)	AADT	Current Surface Type	Condition Rating	Road Name	From	To
OTTERVILLE							
250A	0.40	88	HCB	9	North Street West	Church Street (Pick Line)	Dead End
250B	0.10		HCB	9	Grove Street	North Street West	Main Street West
251A	0.10		HCB	9	Maple Street	North Street West	Main Street West
252A	0.20	344	HCB	3	Church Street	Main Street West	0.2km North of Main Street West
253	0.20		HCB	3	North Street West + Bullock Street	Main Street West	Paxton Street
254A	0.08		HCB	2	Paxton Street	Main Street West	North Street
254B	0.08		HCB	6	John Street	North Street East	Main Street East
254C	0.12		HCB	8	Bond Street	North Street East	Main Street East
254D	0.12		HCB	8	Cedar Street	North Street East	Main Street East
254E	0.12		HCB	5	York Street	North Street East	Main Street East
254F	0.77	140	HCB	5	North Street East	Paxton Street	York Street
255A	0.10		HCB	9	Pine Street	Main Street West	Mill Street West
255B	0.10		HCB	9	Cherry Street	Main Street West	Mill Street West
255C	0.30		HCB	9	Mill Street West	Cherry Street	Otterview Drive
256A	0.20		HCB	6	Mill Street	John Street	Dover Street
256B	0.10		HCB	3	Mill Street	Dover Street	Albert Street
256C	0.40		HCB	5	Queen Street	John Street	Albert Street
257	0.30		HCB	3	Oxford Street	Mill Street East	Wellington Street
258	0.30		HCB	5	Albert Street	Mill Street East	Norfolk Street
259	0.40		HCB	3	Wellington Street	John Street	Dead End
260	0.30		HCB	5	Norfolk Street	Dover Street	Dead End
261	1.20	815	HCB	10	Dover Street (incl. John to Cornell Road)	Cornell Road	Main Street West
262	0.80	684	HCB	6	John Street	Dover Street	Main Street West
263A	0.30		HCB	5	Mill Street	John Street	Buchan Street
263B	0.10		HCB	5	Buchan Street	Mill Street East	Main Street East
264	0.80		HCB	9	James Street	Main Street West	Dead End
265	0.20	401	HCB	9	Otterview Drive	Main Street West	Dead End
266	0.36		HCB	10	River Oaks Drive	Dover Street	Dead End

Section #	Length (km)	AADT	Current Surface Type	Condition Rating	Road Name	From	To
BURGESSVILLE							
270	0.30		HCB	8	Middletown Line (Main Street) N.	0.3km North of Oxford 59	Oxford 59
271	0.40		HCB	8	Middletown Line (Main Street) S.	Oxford 59	0.4km South of Oxford 59
272	0.40	63	HCB	7	McNab Street	Main Street North	Smith's Lane
273B	0.10		HCB	7	Nichol Lane	McNab Line	Oxford 59
273C	0.60	174	HCB	3	Burgess Street	Oxford 59	Dead End
274	0.10		LT	7	Smith's Lane	McNab Line	Oxford 59
275A	0.20	110	HCB	3	Deer Crescent	Oxford 59	0.1km North of Oxford 59
275B	0.60	110	HCB	8	Deer Crescent	0.1km North of Oxford 59	0.1km North of Oxford 59
276	0.10		HCB	8	Snyder Court	Deer Crescent	Dead End
21C	0.34		HCB	4	Kitchen Court (off of Curries Road)	Curried Road	Dead End
SPRINGFORD							
277A	0.16	156	HCB	5	Church Street	Otterville Road	Wood Street West
277B	0.16	156	HCB	5	Wood Street West	Church Street	Oxford 13
277C	0.33		HCB	5	Wood Street East	Oxford 13	Dead End
277D	0.25		HCB	5	Water Street	Otterville Road	Dead End
278	0.30	182	HCB	7	Son's Street	Oxford 13	Dead End
EASTWOOD							
279A	0.10		HCB	4	Main Street	Hwy 2	John Street
279B	0.20		HCB	3	John Street	Dead End	Dead End
280	0.40		HCB	5	East Street	Hwy 2	Oxford 55

SUMMARY	
Roads identified above with a "s" represent boundary roads maintained by Oxford County.	
Roads identified above with a "*" represent boundary roads maintained by Norfolk Township. Costs for capital projects are shared 50/50. Resurfacing of surface treated roads is considered maintenance works and paid solely by Norfolk Township.	
Roads identified above with a "**" represent boundary roads maintained by Norwich Township. Costs for capital projects are shared 50/50. Resurfacing of surface treated roads is considered maintenance works and paid solely by Norwich Township.	
Roads identified above with a "***" represent boundary roads maintained by SWOX Township. Costs for all capital projects are shared 50/50.	
Roads identified above with a "&" represent boundary roads maintained by Norwich Township. Costs for all capital projects are shared 50/50 with SWOX Township.	

ROAD NEEDS STUDY



APPENDIX B
PROPOSED HARD SURFACE TWENTY YEAR PLAN

Twenty Year Capital Plan (\$1,000s)

Section #	Length (km)	Road Name	Proposed Treatment	2016 Spending	2017 Spending	2018 Spending	2019 Spending	2020 Spending	2021 Spending	2022 Spending	2023 Spending	2024 Spending	2025 Spending	2026 Spending	2027 Spending	2028 Spending	2029 Spending	2030 Spending	2031 Spending	2032 Spending	2033 Spending	2034 Spending	2035 Spending	2036 Spending
002	1.00	Subway Line	Pulverize and Pave		\$ 100.00																			
009	1.00	Old Stage Road	Overlay, Pulverize and Pave						\$ 81.00							\$ 100.00								
010	1.00	Old Stage Road	Overlay, Pulverize and Pave						\$ 81.00							\$ 100.00								
011	3.80	Old Stage Road	Overlay, Pulverize and Pave						\$ 307.80							\$ 380.00								
016A	0.50	Old Stage Road	Overlay								\$ 40.50													
031	1.80	Beaconsfield Road	Overlay, Pulverize and Pave										\$ 145.80										\$ 180.00	
032	1.80	Beaconsfield Road	Overlay, Pulverize and Pave										\$ 145.80										\$ 180.00	
033B	0.30	Beaconsfield Road	Pulverize and Pave																				\$ 30.00	
035B	3.60	New Durham Road	Partial Depth Reconstruction														\$ 637.20							
043	3.70	Quaker Street	Partial Depth Reconstruction												\$ 654.90									
044	3.80	Quaker Street	Overlay														\$ 307.80							
045A	1.40	Quaker Street	Overlay														\$ 113.40							
045B	2.10	Quaker Street	Pulverize and Pave, Overlay									\$ 210.00												\$ 170.10
046	0.60	Quaker Street	Pulverize and Pave, Overlay, Partial Reconstruction			\$ 60.00					\$ 48.60												\$ 106.20	
050	3.70	Pleasant Valley Road	Partial Depth Reconstruction (Leave as LCB)											\$ 495.80										
051A	2.70	Airport Road	Partial Depth Reconstruction, Overlay, Pulverize and Pave	\$ 477.90						\$ 218.70													\$ 270.00	
051B	0.90	Airport Road	Overlay, Partial Depth Reconstruction							\$ 72.90													\$ 159.30	
052	3.90	Airport Road	Partial Depth Reconstruction																		\$ 690.30			
053	0.60	Airport Road	Pulverize and Pave, Overlay, Partial Reconstruction			\$ 60.00						\$ 48.60								\$ 106.20				
070	1.00	Cornell Road	Pulverize and Pave, Overlay, Partial Reconstruction		\$ 100.00						\$ 81.00												\$ 177.00	
071	2.60	Cornell Road	Pulverize and Pave, Overlay, Partial Reconstruction		\$ 260.00						\$ 210.60												\$ 460.20	
072	2.50	Cornell Road	Pulverize and Pave, Overlay, Partial Reconstruction				\$ 250.00						\$ 202.50											\$ 442.50
073	3.60	New Road	Overlay						\$ 291.60															
075	3.70	New Road	Partial Depth Reconstruction (Leave as LCB)												\$ 495.80									
076	1.10	New Road	Partial Depth Reconstruction															\$ 194.70						
082**	3.70	Mall Road	Single Surface Treatment, Partial Depth Reconstruction - Costs Split 50/50 with Norfolk Twp	\$ 118.94																		\$ 327.45		
083**	2.10	Mall Road	Partial Depth Reconstruction - Costs Split 50/50 with Norfolk Twp											\$ 185.85										
084**	3.10	Mall Road	Partial Depth Reconstruction, Overlay - Costs Split 50/50 with Norfolk Twp											\$ 274.35										\$ 125.55
087	0.3	Subway Line	Pulverize and Pave		\$ 30.00																			
088	0.30	Greenly Line	Pulverize and Pave			\$ 30.00																		
090	1.40	Middletown Line	Overlay, Pulverize and Pave							\$ 113.40													\$ 140.00	
091	1.30	Middletown Line	Overlay, Pulverize and Pave							\$ 105.30											\$ 130.00			
105A	2.80	Middletown Line	Pulverize and Pave, Overlay								\$ 280.00						\$ 226.80							
105B	3.20	Middletown Line	Pulverize and Pave, Overlay									\$ 320.00					\$ 259.20							
106A	2.30	Slant Road	Pulverize and Pave, Partial Reconstruction			\$ 230.00															\$ 407.10			
106B	2.30	Slant Road	Pulverize and Pave, Partial Reconstruction			\$ 230.00															\$ 407.10			
106C	0.70	Slant Road	Partial Depth Reconstruction, Pulverize and Pave			\$ 123.90															\$ 70.00			
107	5.50	Base Line	Pulverize and Pave																		\$ 550.00			
109	1.70	Middletown Line	Pulverize and Pave, Partial Reconstruction	\$ 170.00												\$ 300.90								
116	6.50	Base Line	Pulverize and Pave														\$ 650.00							
119A	1.60	Middletown Line	Partial Depth Reconstruction, Overlay					\$ 283.20								\$ 129.60								
119B	1.60	Middletown Line	Partial Depth Reconstruction, Overlay						\$ 283.20							\$ 129.60								
125***	1.50	Zenda Line	Pulverize and Pave		\$ 65.00																			
127	1.50	Middletown Line	Single Surface Treatment, Pulverize and Pave		\$ 48.22						\$ 150.00													
128*	1.50	Zenda Line	Partial Depth Reconstruction - Costs Split 50/50 with SWOX Twp									\$ 132.75												
129	0.60	Middletown Line	Single Surface Treatment, Pulverize and Pave		\$ 19.29						\$ 60.00													
131	1.30	Furnace Road	Partial Depth Reconstruction (Leave as LCB)				\$ 174.20																	
132A	2.00	Coal Line	Single Surface Treatment	\$ 64.29																				
132B	0.40	Coal Line	Completed in conjunction with 132A																					
133	3.00	Base Line	Partial Depth Reconstruction																\$ 531.00					
137	1.40	Summerville Line	Single Surface Treatment, Pulverize and Pave	\$ 45.00					\$ 140.00															
138	1.00	Base Line	Partial Depth Reconstruction																		\$ 177.00			

Section #	Length (km)	Road Name	Proposed Treatment	2016 Spending	2017 Spending	2018 Spending	2019 Spending	2020 Spending	2021 Spending	2022 Spending	2023 Spending	2024 Spending	2025 Spending	2026 Spending	2027 Spending	2028 Spending	2029 Spending	2030 Spending	2031 Spending	2032 Spending	2033 Spending	2034 Spending	2035 Spending	2036 Spending
NORWICH																								
201A	0.40	Brock Street West	Full Depth Reconstruction - Road Only																			\$ 312.80		
201B	0.13	Brock Street West	Full Depth Reconstruction (Incl. S/W)																			\$ 137.15		
203A	0.60	North Court Street West	Full Depth Reconstruction (Incl. S/W)																				\$ 633.00	
203B	0.30	North Court Street West	Pulverize and Pave																				\$ 55.20	
204	0.35	North Court Street East	Pulverize and Pave																				\$ 64.40	
205	0.10	Mary Street	Urban Overlay				\$ 16.10																	
206	0.30	South Court Street West	Full Depth Reconstruction (Incl. S/W)																			\$ 397.60		
207A	0.10	South Court Street East	Full Depth Reconstruction (Incl. S/W)																			\$ 159.70		
207B	0.30	South Court Street East	Urban Overlay				\$ 48.30																	
209	0.10	Elgin Street	Urban Overlay				\$ 16.10																	
210A	0.35	Elgin Street East	Full Depth Reconstruction (Incl. S/W)																					\$ 558.95
210B	0.15	Elgin Street West	Full Depth Reconstruction (Incl. S/W)																					\$ 239.55
212A	0.20	Front Street	Full Depth Reconstruction - Road Only																			\$ 156.40		
212B	0.12	Front Street	Full Depth Reconstruction - Road Only																			\$ 93.84		
212C	0.18	Front Street	Pulverize and Pave - Road Only																			\$ 28.80		
213A	0.13	Church Street	Full Depth Reconstruction (Incl. S/W)																				\$ 137.15	
213B	0.05	Church Street	Full Depth Reconstruction (Incl. S/W)																				\$ 52.75	
214A	0.20	Carman Street	Urban Overlay																			\$ 32.20		
214B	0.30	Carman Street	Full Depth Reconstruction (Curb + S/W)									\$ 397.50												
214C	0.27	Carman Street	Urban Overlay									\$ 43.47												
215A	0.20	Palmer Street West	Full Depth Reconstruction (Incl. S/W)																			\$ 319.40		
215B	0.20	Palmer Street West	Full Depth Reconstruction (Incl. S/W)																			\$ 319.40		
216	0.20	South Street	Urban Overlay									\$ 32.20												
217	0.20	South Street	Urban Overlay																			\$ 32.20		
218	0.20	Jerdon Street	Urban Overlay			\$ 32.20																		
219	0.10	Robson Street	Urban Overlay									\$ 16.10												
220	0.70	Dufferin Street	Urban Overlay													\$ 112.70								
222A	0.20	Pitcher Street	Urban Overlay									\$ 32.20												
222B	0.10	Pitcher Street	Full Depth Reconstruction (Incl. S/W)												\$ 132.50									
222C	0.20	Pitcher Street	Pulverize and Pave												\$ 39.00									
222D	0.05	Pitcher Street	Overlay												\$ 8.05									
222E	0.05	Pitcher Street	Full Depth Reconstruction (Incl. S/W)												\$ 66.25									
224	0.50	Marshall Drive	Urban Overlay														\$ 80.50							
225	0.30	Florence Street	Full Depth Reconstruction (Incl. S/W)						\$ 316.50															
228B	0.30	Phebe Street	Pulverize and Pave - 2 Lifts			\$ 81.00																		
229	0.60	Spring Street	Urban Overlay				\$ 96.60																	
230A	0.20	Centre Street	Pulverize and Pave																			\$ 32.00		
230B	0.20	Centre Street	Full Depth Reconstruction (Road Only)																			\$ 156.40		
230C	0.20	Centre Street	Pulverize and Pave																			\$ 32.00		
232	0.50	John Street	Carried over from 2015	\$ 390.00																				
235A	0.35	Victoria Street	Urban Overlay					\$ 56.35																
236	0.20	Washington Street	Urban Overlay																			\$ 32.20		
237A	0.10	Washington Street	Full Depth Reconstruction (Incl. S/W)																			\$ 159.70		
237B	0.10	Washington Street	Full Depth Reconstruction (Incl. S/W)																			\$ 159.70		
239	0.30	Albert Street	Full Depth Reconstruction (Incl. S/W)												\$ 479.10									
240	0.40	Victoria Street	Full Depth Reconstruction (Incl. S/W)					\$ 422.00																
241A	0.10	Cook Street	Full Depth Reconstruction (Incl. S/W)																					
241B	0.30	Cook Street	Full Depth Reconstruction (Incl. S/W)				\$ 316.50																	
242	0.30	Avery's Lane	Pulverize and Pave - Road Only													\$ 48.00								
244	0.20	Palmer Street E.	Pulverize and Pave (Incl. cul-de-sac) - 1 Lift			\$ 51.00																		
246	0.10	Bailey Street	Urban Overlay				\$ 16.10																	
247	0.20	Lossing Drive	Urban Overlay																					\$ 32.20
249	0.10	Carroll Street	Urban Overlay																					\$ 16.10
249B	0.20	Cayley Street	Urban Overlay																					\$ 32.20
250	0.20	Irving Drive	Urban Overlay										\$ 32.20											
251	0.60	Poldon Drive	Urban Overlay																					\$ 96.60

Section #	Length (km)	Road Name	Proposed Treatment	2016 Spending	2017 Spending	2018 Spending	2019 Spending	2020 Spending	2021 Spending	2022 Spending	2023 Spending	2024 Spending	2025 Spending	2026 Spending	2027 Spending	2028 Spending	2029 Spending	2030 Spending	2031 Spending	2032 Spending	2033 Spending	2034 Spending	2035 Spending	2036 Spending	
OTTERVILLE																									
250A	0.40	North Street West	Urban Overlay														\$ 64.40								
250B	0.10	Grove Street	Urban Overlay														\$ 16.10								
251A	0.10	Maple Street	Urban Overlay														\$ 16.10								
252A	0.20	Church Street	Full Depth Reconstruction (Incl. S/W)																					\$ 265.00	
254B	0.08	John Street	Pulverize and Pave															\$ 14.90							
254C	0.12	Bond Street	Urban Overlay											\$ 19.64											
254D	0.12	Cedar Street	Urban Overlay											\$ 19.64											
255A	0.10	Pine Street	Urban Overlay																					\$ 16.10	
255B	0.10	Cherry Street	Urban Overlay																					\$ 16.10	
255C	0.30	Mill Street West	Urban Overlay																				\$ 48.30		
256A	0.20	Mill Street	Urban Overlay				\$ 32.20																		
256C	0.40	Queen Street	Pulverize and Pave - 1 Lift					\$ 64.00																	
258	0.30	Albert Street	Pulverize and Pave - 1 Lift					\$ 48.00																	
259	0.40	Wellington Street	Pulverize and Pave - 1 Lift			\$ 64.00																			
262	0.80	John Street	Pulverize and Pave															\$ 147.20							
264	0.80	James Street	Urban Overlay																				\$ 128.80		
265	0.20	Otterview Drive	Urban Overlay																				\$ 32.20		
266	0.36	River Oaks Drive	Urban Overlay																					\$ 57.96	
BURGESSVILLE																									
270	0.30	Middletown Line (Main Street)	Urban Overlay											\$ 48.30											
271	0.40	Middletown Line (Main Street)	Urban Overlay											\$ 64.40											
272	0.40	McNab Street	Urban Overlay							\$ 64.40															
273B	0.10	Nichol Lane	Urban Overlay								\$ 16.10														
273C	0.60	Burgess Street	Full Depth Reconstruction - Maintain Rural Cross-section														\$ 106.20								
SPRINGFORD																									
277A	0.16	Church Street	Overlay			\$ 13.12																			
277B	0.16	Wood Street West	Overlay			\$ 12.96																			
277C	0.33	Wood Street East	Partial Depth Reconstruction																				\$ 57.53		
277D	0.25	Water Street	Partial Depth Reconstruction																				\$ 44.78		
EASTWOOD																									
280	0.40	East Street	Pulverize and Pave - 1 Lift					\$ 64.00																	
UPDATE ROAD NEEDS STUDY																									
							\$ 25.00						\$ 25.00					\$ 25.00						\$ 25.00	
Total Spending				\$ 1,266.13	\$ 622.50	\$ 988.18	\$ 966.10	\$ 898.55	\$ 1,184.60	\$ 890.80	\$ 951.20	\$ 791.85	\$ 960.07	\$ 1,140.18	\$ 1,875.60	\$ 1,300.80	\$ 1,419.30	\$ 1,530.30	\$ 1,643.54	\$ 1,709.90	\$ 2,056.36	\$ 1,835.85	\$ 1,635.90	\$ 2,036.71	
Weighted Condition Rating				5.30	5.09	4.95	4.74	4.56	4.48	4.39	4.41	4.41	4.32	4.44	4.48	4.45	4.53	4.58	4.54	4.56	4.82	4.79	4.68	4.33	

ROAD NEEDS STUDY



APPENDIX C FORECAST CONDITION RATING BY YEAR

Condition Rating Forecast by Year - High Class Bituminous Surface (HCB)

Section #	Length (km)	AADT	Road Name	Surface Type	2015 Condition Rating	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
001 ^s	0.50	30	Old Highway 2	HCB	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	3.57	3.33	3.10	
002	1.00	589	Subway Line	-	-		8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	3.57	
009	1.00	1253	Old Stage Road	HCB	8	7.50	7.00	6.50	6.00	5.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	
010	1.00	1253	Old Stage Road	HCB	8	7.50	7.00	6.50	6.00	5.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	
011	3.80	445	Old Stage Road	HCB	7	6.77	6.53	6.30	6.07	5.83	8.00	7.77	7.53	7.30	7.07	6.83	6.60	8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	
013B	0.30	38	Oxford Centre Road	HCB	6	5.77	5.53	5.30	5.07	4.83	4.60	4.37	4.13	3.90	3.67	3.43	3.20	2.97	2.73	2.50	2.27	2.03	2.00	2.00	2.00	2.00	
016A	0.50	86	Old Stage Road	HCB	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	8.63	8.40	8.17	7.93	7.70	7.47	7.23	7.00	6.77	6.53	6.30	6.07	5.83	5.60	
016C	0.30	86	Old Stage Road	HCB	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
021B	1.80	307	Curries Road	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
031	1.80	812	Beaconsfield Road	HCB	8	7.68	7.36	7.05	6.73	6.41	6.09	5.77	5.45	5.14	8.32	8.00	7.68	7.36	7.05	6.73	6.41	6.09	5.77	5.45	8.00	7.68	
032	1.80	812	Beaconsfield Road	HCB	8	7.68	7.36	7.05	6.73	6.41	6.09	5.77	5.45	5.14	8.32	8.00	7.68	7.36	7.05	6.73	6.41	6.09	5.77	5.45	8.00	7.68	
033B	0.30	149	Beaconsfield Road	HCB	10	9.77	9.53	9.30	9.07	8.83	8.60	8.37	8.13	7.90	7.67	7.43	7.20	6.97	6.73	6.50	6.27	6.03	5.80	5.57	8.00	7.77	
035B	3.60	1086	New Durham Road	HCB	5	4.50	4.00	3.50	3.00	2.50	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	9.00	8.50	8.00	7.50	7.00	6.50	6.00	
038	3.60	298	Evergreen Street	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
043	3.70	235	Quaker Street	HCB	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	9.00	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	
044	3.80	235	Quaker Street	HCB	10	9.77	9.53	9.30	9.07	8.83	8.60	8.37	8.13	7.90	7.67	7.43	7.20	6.97	6.73	10.00	9.77	9.53	9.30	9.07	8.83	8.60	
045A	1.40	796	Quaker Street	HCB	10	9.68	9.36	9.05	8.73	8.41	8.09	7.77	7.45	7.14	6.82	6.50	6.18	5.86	5.55	8.73	8.41	8.09	7.77	7.45	7.14	6.82	
045B	2.10	796	Quaker Street	HCB	6	5.68	5.36	5.05	4.73	4.41	4.09	3.77	3.45	8.00	7.68	7.36	7.05	6.73	6.41	6.09	5.77	5.45	5.14	4.82	4.50	7.68	
046	0.60	1832	Quaker Street	HCB	4	3.50	3.00	8.00	7.50	7.00	6.50	6.00	9.00	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	9.00	8.50	
051A	2.7	1804	Airport Road	-	-	9.00	8.50	8.00	7.50	7.00	6.50	9.50	9.00	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	8.00	7.50	7.00	
051B	0.90	1804	Airport Road	HCB	9	8.50	8.00	7.50	7.00	6.50	6.00	9.00	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	9.00	8.50	8.00	
052	3.90	1247	Airport Road	HCB	8	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	3.00	2.50	2.00	2.00	2.00	2.00	2.00	2.00	9.00	8.50	8.00	7.50	
053	0.60	1247	Airport Road	HCB	4	3.50	3.00	8.00	7.50	7.00	6.50	6.00	5.50	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	9.00	8.50	8.00	7.50	7.00	
058	3.60	564	Milldale Road	HCB	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	3.57	3.33	3.10	
070	1.00	1753	Cornell Road	HCB	5	4.50	8.00	7.50	7.00	6.50	6.00	5.50	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	9.00	8.50	8.00	
071	2.60	1753	Cornell Road	HCB	4	3.50	8.00	7.50	7.00	6.50	6.00	5.50	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	9.00	8.50	8.00	
072	2.50	1753	Cornell Road	HCB	5	4.50	4.00	3.50	8.00	7.50	7.00	6.50	6.00	5.50	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	9.00	
073	3.60	740	New Road	HCB	7	6.68	6.36	6.05	5.73	5.41	8.59	8.27	7.95	7.64	7.32	7.00	6.68	6.36	6.05	5.73	5.41	5.09	4.77	4.45	4.14	3.82	
076	1.10	634	New Road	LCB	-															9.00	8.68	8.36	8.05	7.73	7.41	7.09	
078*	1.90	1874	Mall Road	HCB	8	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	3.00	2.50	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
082**	3.70	1223	Mall Road	LCB	-																		9.00	8.50	8.00	7.50	
083**	2.10	1027	Mall Road	LCB	-											9.00	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	
084**	3.10	1066	Mall Road	HCB	3	2.50	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	9.00	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	7.50	
086	1.20	426	Base Line	HCB	4	3.77	3.53	3.30	3.07	2.83	2.60	2.37	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
087	0.3	409	Subway Line	-	-		8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	3.57	
088	0.30	295	Greenly Line	HCB	4	3.77	3.53	8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	
090	1.40	994	Middletown Line	HCB	8	7.68	7.36	7.05	6.73	6.41	6.09	9.27	8.95	8.64	8.32	8.00	7.68	7.36	7.05	6.73	6.41	6.09	5.77	5.45	8.00	7.68	
091	1.30	994	Middletown Line	HCB	7	6.68	6.36	6.05	5.73	5.41	5.09	8.27	7.95	7.64	7.32	7.00	6.68	6.36	6.05	5.73	5.41	8.00	7.68	7.36	7.05	6.73	
092A	0.80	19	Old 14 Line	HCB	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
093B ^s	0.40	176	Cedar Line	HCB	4	3.77	3.53	3.30	3.07	2.83	2.60	2.37	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
094A	1.50	351	Middletown Line	HCB	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	5.13	4.90	4.67	4.43	4.20	3.97	3.73	3.50	3.27	3.03	2.80	2.57	2.33	2.10	
094B	1.40	351	Middletown Line	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	5.27	5.03	4.80	4.57	4.33	4.10	
099	3.50	620	Middletown Line	HCB	9	8.68	8.36	8.05	7.73	7.41	7.09	6.77	6.45	6.14	5.82	5.50	5.18	4.86	4.55	4.23	3.91	3.59	3.27	2.95	2.64	2.32	
102A	0.20	698	Middletown Line	HCB	9	8.68	8.36	8.05	7.73	7.41	7.09	6.77	6.45	6.14	5.82	5.50	5.18	4.86	4.55	4.23	3.91	3.59	3.27	2.95	2.64	2.32	
102B	1.10	698	Middletown Line	HCB	8	7.68	7.36	7.05	6.73	6.41	6.09	5.77	5.45	5.14	4.82	4.50	4.18	3.86	3.55	3.23	2.91	2.59	2.27	2.00	2.00	2.00	
104B ^s	0.50	400	Zenda Line	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
105A	2.80	1641	Middletown Line	HCB	8	7.50	7.00	6.50	6.00	5.50	5.00	4.50	8.00	7.50	7.00	6.50	6.00	5.50	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	
105B	3.20	1641	Middletown Line	HCB	8	7.50	7.00	6.50	6.00	5.50	5.00	4.50	8.00	7.50	7.00	6.50	6.00	9.00	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	
106A	2.3	1119	Slant Road	-	-		8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	3.00	2.50	2.00	2.00	9.00	8.50	8.00	7.50	7.00		
106B	2.3	1119	Slant Road	-	-		8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	3.00	2.50	2.00	2.00	9.00	8.50	8.00	7.50	7.00		
106C	0.70	1119	Slant Road	LCB	4	3.50	3.00	9.00	8.50	8.00	7.50	7.00	6.50	6.00	5.50	5.00	4.50	4.00	3.50	3.00	2.50	8.00	7.50	7.00	6.50	6.00	
107	5																										

Section #	Length (km)	AADT	Road Name	Surface Type	2015 Condition Rating	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
NORWICH																										
201A	0.40		Brock Street West	HC	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77	9.53
201B	0.13		Brock Street West	HC	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77	9.53
202A	0.15		Brock Street East	HC	6	5.77	5.53	5.30	5.07	4.83	4.60	4.37	4.13	3.90	3.67	3.43	3.20	2.97	2.73	2.50	2.27	2.03	2.00	2.00	2.00	2.00
202B	0.10		Brock Street East	HC	10	9.77	9.53	9.30	9.07	8.83	8.60	8.37	8.13	7.90	7.67	7.43	7.20	6.97	6.73	6.50	6.27	6.03	5.80	5.57	5.33	5.10
203A	0.60		North Court Street West	HC	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77
203B	0.30		North Court Street West	HC	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	3.57	8.00	7.77
204	0.35		North Court Street East	HC	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	3.57	8.00	7.77
205	0.10		Mary Street	HC	6	5.77	5.53	5.30	8.57	8.33	8.10	7.87	7.63	7.40	7.17	6.93	6.70	6.47	6.23	6.00	5.77	5.53	5.30	5.07	4.83	4.60
206	0.30		South Court Street West	HC	4	3.77	3.53	3.30	3.07	2.83	2.60	2.37	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77	9.53	9.30	9.07
207A	0.10		South Court Street East	HC	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77	9.53	9.30	9.07
207B	0.30		South Court Street East	HC	6	5.77	5.53	5.30	8.57	8.33	8.10	7.87	7.63	7.40	7.17	6.93	6.70	6.47	6.23	6.00	5.77	5.53	5.30	5.07	4.83	4.60
208	0.10		Elgin Street East	HC	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
209	0.10		Elgin Street	HC	6	5.77	5.53	5.30	8.57	8.33	8.10	7.87	7.63	7.40	7.17	6.93	6.70	6.47	6.23	6.00	5.77	5.53	5.30	5.07	4.83	4.60
210A	0.35		Elgin Street East	HC	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00
210B	0.15		Elgin Street West	HC	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	5.13	4.90	4.67	4.43	4.20	3.97	3.73	3.50	3.27	3.03	2.80	2.57	2.33	10.00
211	0.20		George Street	HC	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
212A	0.20		Front Street	HC	6	5.77	5.53	5.30	5.07	4.83	4.60	4.37	4.13	3.90	3.67	3.43	3.20	2.97	2.73	2.50	10.00	9.77	9.53	9.30	9.07	8.83
212B	0.12		Front Street	HC	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77	9.53	9.30	9.07	8.83
212C	0.18		Front Street	HC	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	8.00	7.77	7.53	7.30	7.07	6.83
213A	0.13		Church Street	HC	6	5.77	5.53	5.30	5.07	4.83	4.60	4.37	4.13	3.90	3.67	3.43	3.20	2.97	2.73	2.50	2.27	2.03	2.00	2.00	10.00	9.77
213B	0.05		Church Street	HC	4	3.77	3.53	3.30	3.07	2.83	2.60	2.37	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77
213C	0.12		Tidey Street	HC	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	5.13	4.90	4.67	4.43	4.20	3.97	3.73	3.50	3.27	3.03	2.80	2.57	2.33	2.10
213D	0.18		Tidey Street	HC	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
214A	0.20	316	Carman Street	HC	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	9.00	8.77	8.53	8.30	8.07	7.83	7.60
214B	0.30	316	Carman Street	HC	4	3.77	3.53	3.30	3.07	2.83	2.60	2.37	2.13	2.00	10.00	9.77	9.53	9.30	9.07	8.83	8.60	8.37	8.13	7.90	7.67	7.43
214C	0.27	316	Carman Street	HC	6	5.77	5.53	5.30	5.07	4.83	4.60	4.37	4.13	3.90	7.17	6.93	6.70	6.47	6.23	6.00	5.77	5.53	5.30	5.07	4.83	4.60
215A	0.20		Palmer Street West	HC	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	10.00	9.77	9.53	9.30	9.07	8.83	
215B	0.20		Palmer Street West	HC	4	3.77	3.53	3.30	3.07	2.83	2.60	2.37	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77	9.53	9.30	9.07	8.83
216	0.20		South Street	HC	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	5.13	8.40	8.17	7.93	7.70	7.47	7.23	7.00	6.77	6.53	6.30	6.07	5.83	5.60
217	0.20		South Street	HC	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	5.27	8.53	8.30	8.07	7.83	7.60
218	0.20		Jerdon Street	HC	6	5.77	5.53	8.80	8.57	8.33	8.10	7.87	7.63	7.40	7.17	6.93	6.70	6.47	6.23	6.00	5.77	5.53	5.30	5.07	4.83	4.60
219	0.10		Robson Street	HC	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	5.13	8.40	8.17	7.93	7.70	7.47	7.23	7.00	6.77	6.53	6.30	6.07	5.83	5.60
220	0.70	379	Dufferin Street	HC	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	8.47	8.23	8.00	7.77	7.53	7.30	7.07	6.83	6.60
222A	0.20		Pitcher Street	HC	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	5.13	8.40	8.17	7.93	7.70	7.47	7.23	7.00	6.77	6.53	6.30	6.07	5.83	5.60
222B	0.10		Pitcher Street	HC	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77	9.53	9.30	9.07	8.83	8.60	8.37	8.13	7.90
222C	0.20		Pitcher Street	HC	6	5.77	5.53	5.30	5.07	4.83	4.60	4.37	4.13	3.90	3.67	3.43	8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90
222D	0.05		Pitcher Street	HC	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	9.70	9.47	9.23	9.00	8.77	8.53	8.30	8.07	7.83	7.60
222E	0.05		Pitcher Street	HC	4	3.77	3.53	3.30	3.07	2.83	2.60	2.37	2.13	2.00	2.00	2.00	10.00	9.77	9.53	9.30	9.07	8.83	8.60	8.37	8.13	7.90
223	0.40		Otter Street	HC	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
224	0.50		Marshall Drive	HC	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	8.23	8.00	7.77	7.53	7.30	7.07	6.83	6.60
225	0.30	316	Florence Street	HC	3	2.77	2.53	2.30	2.07	2.00	2.00	10.00	9.77	9.53	9.30	9.07	8.83	8.60	8.37	8.13	7.90	7.67	7.43	7.20	6.97	6.73
228A	0.10		Sutton Street	HC	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	5.13	4.90	4.67	4.43	4.20	3.97	3.73	3.50	3.27	3.03	2.80	2.57	2.33	2.10
228B	0.30		Phebe Street	HC	6	5.77	5.53	9.00	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	5.27	5.03	4.80
229	0.60		Spring Street	HC	7	6.77	6.53	6.30	9.57	9.33	9.10	8.87	8.63	8.40	8.17	7.93	7.70	7.47	7.23	7.00	6.77	6.53	6.30	6.07	5.83	5.60
230A	0.20	392	Centre Street	HC	6	5.77	5.53	5.30	5.07	4.83	4.60	4.37	4.13	3.90	3.67	3.43	3.20	2.97	2.73	8.00	7.77	7.53	7.30	7.07	6.83	6.60

Section #	Length (km)	AADT	Road Name	Surface Type	2015 Condition Rating	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
OTTERVILLE																											
250A	0.40	88	North Street West	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	9.23	9.00	8.77	8.53	8.30	8.07	7.83	7.60	
250B	0.10		Grove Street	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	9.23	9.00	8.77	8.53	8.30	8.07	7.83	7.60	
251A	0.10		Maple Street	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	9.23	9.00	8.77	8.53	8.30	8.07	7.83	7.60	
252A	0.20	344	Church Street	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	
253	0.20		North Street West + Bullock Street	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
254A	0.08		Paxton Street	HCB	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
254B	0.08		John Street	HCB	6	5.77	5.53	5.30	5.07	4.83	4.60	4.37	4.13	3.90	3.67	3.43	3.20	2.97	2.73	8.00	7.77	7.53	7.30	7.07	6.83	6.60	
254C	0.12		Bond Street	HCB	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	8.93	8.70	8.47	8.23	8.00	7.77	7.53	7.30	7.07	6.83	6.60	
254D	0.12		Cedar Street	HCB	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	8.93	8.70	8.47	8.23	8.00	7.77	7.53	7.30	7.07	6.83	6.60	
254E	0.12		York Street	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
254F	0.77	140	North Street East	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
255A	0.10		Pine Street	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	5.27	5.03	4.80	4.57	7.83	7.60	
255B	0.10		Cherry Street	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	5.27	5.03	4.80	4.57	7.83	7.60	
255C	0.30		Mill Street West	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	5.27	5.03	8.30	8.07	7.83	7.60	
256A	0.20		Mill Street	HCB	6	5.77	5.53	5.30	8.57	8.33	8.10	7.87	7.63	7.40	7.17	6.93	6.70	6.47	6.23	6.00	5.77	5.53	5.30	5.07	4.83	4.60	
256B	0.10		Mill Street	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
256C	0.40		Queen Street	HCB	5	4.77	4.53	4.30	4.07	8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	
257	0.30		Oxford Street	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
258	0.30		Albert Street	HCB	5	4.77	4.53	4.30	4.07	8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	
259	0.40		Wellington Street	HCB	3	2.77	2.53	8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	
260	0.30		Norfolk Street	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
261	1.20	815	Dover Street (incl. John to Cornell Road)	HCB	10	9.68	9.36	9.05	8.73	8.41	8.09	7.77	7.45	7.14	6.82	6.50	6.18	5.86	5.55	5.23	4.91	4.59	4.27	3.95	3.64	3.32	
262	0.80	684	John Street	HCB	6	5.68	5.36	5.05	4.73	4.41	4.09	3.77	3.45	3.14	2.82	2.50	2.18	2.00	2.00	8.00	7.68	7.36	7.05	6.73	6.41	6.09	
263A	0.30		Mill Street	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
263B	0.10		Buchan Street	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
264	0.80		James Street	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	5.27	5.03	8.30	8.07	7.83	7.60	
265	0.20	401	Otterview Drive	HCB	9	8.77	8.53	8.30	8.07	7.83	7.60	7.37	7.13	6.90	6.67	6.43	6.20	5.97	5.73	5.50	5.27	5.03	8.30	8.07	7.83	7.60	
266	0.36		River Oaks Drive	HCB	10	9.77	9.53	9.30	9.07	8.83	8.60	8.37	8.13	7.90	7.67	7.43	7.20	6.97	6.73	6.50	6.27	6.03	5.80	5.57	5.33	8.60	
BURGESSVILLE																											
270	0.30		Middletown Line (Main Street) N.	HCB	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	8.93	8.70	8.47	8.23	8.00	7.77	7.53	7.30	7.07	6.83	6.60	
271	0.40		Middletown Line (Main Street) S.	HCB	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	8.93	8.70	8.47	8.23	8.00	7.77	7.53	7.30	7.07	6.83	6.60	
272	0.40	63	McNab Street	HCB	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	8.63	8.40	8.17	7.93	7.70	7.47	7.23	7.00	6.77	6.53	6.30	6.07	5.83	5.60	
273B	0.10		Nichol Lane	HCB	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	8.63	8.40	8.17	7.93	7.70	7.47	7.23	7.00	6.77	6.53	6.30	6.07	5.83	5.60	
273C	0.60	174	Burgess Street	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	10.00	9.77	9.53	9.30	9.07	8.83	8.60	8.37	
275A	0.20	110	Deer Crescent	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
275B	0.60	110	Deer Crescent	HCB	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	3.57	3.33	3.10	
276	0.10		Snyder Court	HCB	8	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	4.50	4.27	4.03	3.80	3.57	3.33	3.10	
277C	0.33		Wood Street East	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	9.00	8.77	8.53	8.30		
277D	0.25		Water Street	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	3.37	3.13	2.90	2.67	2.43	2.20	2.00	2.00	2.00	2.00	9.00	8.77	8.53	8.30		
278	0.30	182	Son's Street	HCB	7	6.77	6.53	6.30	6.07	5.83	5.60	5.37	5.13	4.90	4.67	4.43	4.20	3.97	3.73	3.50	3.27	3.03	2.80	2.57	2.33	2.10	
EASTWOOD																											
279A	0.10		Main Street	HCB	4	3.77	3.53	3.30	3.07	2.83	2.60	2.37	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
279B	0.20		John Street	HCB	3	2.77	2.53	2.30	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
280	0.40		East Street	HCB	5	4.77	4.53	4.30	4.07	3.83	3.60	8.00	7.77	7.53	7.30	7.07	6.83	6.60	6.37	6.13	5.90	5.67	5.43	5.20	4.97	4.73	
Weighted Average Condition Rating - HCB					6.46	6.27	6.14	6.02	5.84	5.67	5.59	5.48	5.51	5.51	5.38	5.33	5.23	5.21	5.35	5.46	5.41	5.46	5.77	5.75	5.62	5.15	
Total Kilometres - HCB					130.98	133.28	134.58	139.18	139.18	139.18	140.58	140.58	142.68	142.68	142.68	144.78	144.78	144.78	144.78	144.78	144.78	145.88	145.88	149.58	149.58	149.58	149.58

Condition Rating Forecast by Year - Low Class Bitumous Surface (LCB)

Section #	Length (km)	AADT	Road Name	Surface Type	2015 Condition Rating	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
002	1.00	589	Subway Line	LCB	5	4.53																				
008	1.20	151	Horn Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
037	3.70	127	Evergreen Street	LCB	5	4.53	4.07	3.60	3.13	2.67	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
042B	0.20	158	Hatchley Road	LCB	5	4.53	4.07	3.60	3.13	2.67	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
048B	0.60	224	Caley Road	LCB	3	2.53	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
050	3.70	439	Pleasant Valley Road	LCB	3	2.53	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	9.00	8.53	8.07	7.60	7.13	6.67	6.20	5.73	5.27	4.80	4.33
051A	2.70	1804	Airport Road	LCB	3																					
057	4.50	271	Maple Dell Road	LCB	3	2.53	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
061	2.00	189	Milldale Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
062B	0.15	32	7th Road	LCB	5	4.53	4.07	3.60	3.13	2.67	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
063	3.80	82	Milldale Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
064	3.70	63	Ninth Road	LCB	5	4.53	4.07	3.60	3.13	2.67	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
067	1.70	167	Ninth Road	LCB	3	2.53	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
069	1.00	192	Ninth Road	LCB	3	2.53	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
074	3.60	291	New Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
074B	1.60	291	Middletown Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
075	3.70	231	New Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	9.00	8.53	8.07	7.60	7.13	6.67	6.20	5.73	5.27	4.80
076	1.10	634	New Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
079*	1.90	1874	Mall Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
080	1.60	776	Mall Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
081	1.60	776	Mall Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
082**	3.70	1223	Mall Road	LCB	3	4.53	4.07	3.60	3.13	2.67	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
083**	2.10	1027	Mall Road	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
085	1.60	432	Summerville Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
087	0.30	409	Subway Line	LCB	5	4.53																				
106A	2.30	1119	Slant Road	HCB	4	3.53	3.07																			
106B	2.30	1119	Slant Road	HCB	4	3.53	3.07																			
110	0.40	400	Utility Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
112	0.80	316	Windham Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
115	1.60	99	Hanmer Line	LCB	3	2.53	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
117*	0.70	504	Windham Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
121*	4.00	504	Windham Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
123A	1.10	128	Pick Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
124	1.60	134	Csont Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
127	1.50	683	Middletown Line	LCB	5	4.53	6.07	5.60	5.13	4.67	4.20	3.73														
129	0.60	683	Middletown Line	LCB	5	4.53	6.07	5.60	5.13	4.67	4.20	3.73														
131	1.30	228	Furnace Road	LCB	5	4.53	4.07	3.60	3.13	2.67	2.20	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
132A	2.00	602	Coal Line	LCB	4	5.53	5.07	4.60	4.13	3.67	3.20	2.73	2.27	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
132B	0.40	602	Coal Line	HCB	7	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68	8.68
134*	0.40	602	Coal Line	LCB	7	6.53	6.07	5.60	5.13	4.67	4.20	3.73	3.27	2.80	2.33	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
135	1.70	157	Rock Mill Line	LCB	3	2.53	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
137	1.40	631	Summerville Line	LCB	4	5.53	5.07	4.60	4.13	3.67																
139*	1.20	504	Windham Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
140*	1.10	263	Westtown Line	LCB	2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
141	1.60	182	Middletown Line	LCB	4	3.53	3.07	2.60	2.13	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
145	0.20	104	Second Road	LCB	3	2.53	2.07	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

Weighted Average Condition Rating - LCB
Total Kilometres - LCB

3.88	3.66	3.24	2.87	2.62	2.43	2.29	2.22	2.15	2.13	2.12	2.50	2.85	2.79	2.73	2.67	2.62	2.56	2.53	2.46	2.41	2.34
80.55	78.25	76.95	72.35	72.35	72.35	70.95	70.95	68.85	68.85	68.85	66.75	66.75	66.75	66.75	66.75	65.65	65.65	61.95	61.95	61.95	61.95

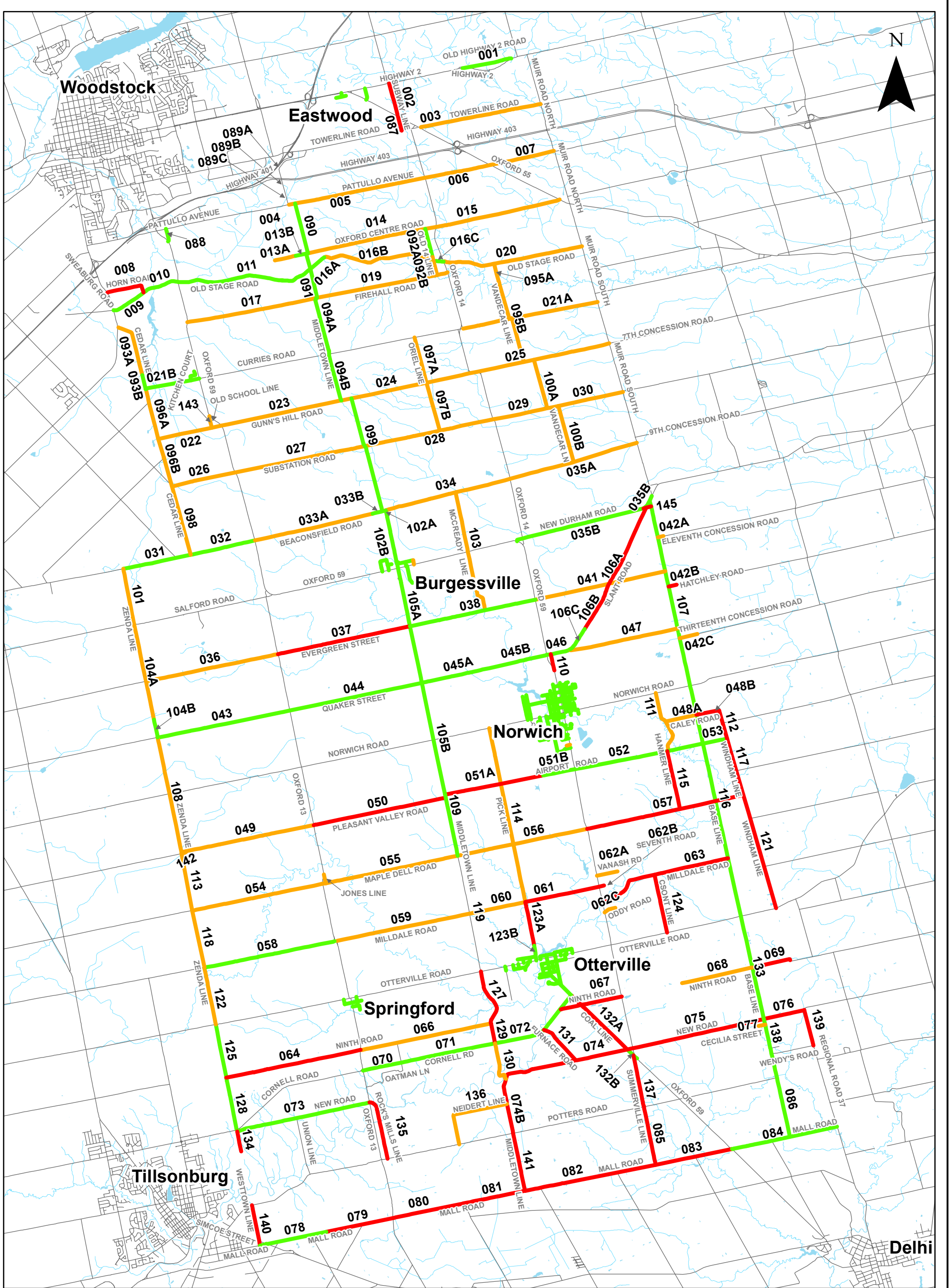
Weighted Average Condition Rating - HCB + LCB
Total Kilometres - HCB + LCB

5.48	5.30	5.09	4.95	4.74	4.56	4.48	4.39	4.41	4.41	4.32	4.44	4.48	4.45	4.53	4.58	4.54	4.56	4.82	4.79	4.68	4.33
211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53	211.53

ROAD NEEDS STUDY



**APPENDIX D
MAPS**

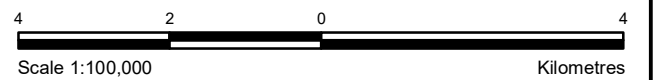


LEGEND

- Gravel (LT)
- Asphalt (HCB)
- Surface Treatment (LCB)
- Road (not maintained by Norwich Township)
- Norwich Township
- Waterbody
- Watercourse

REFERENCE

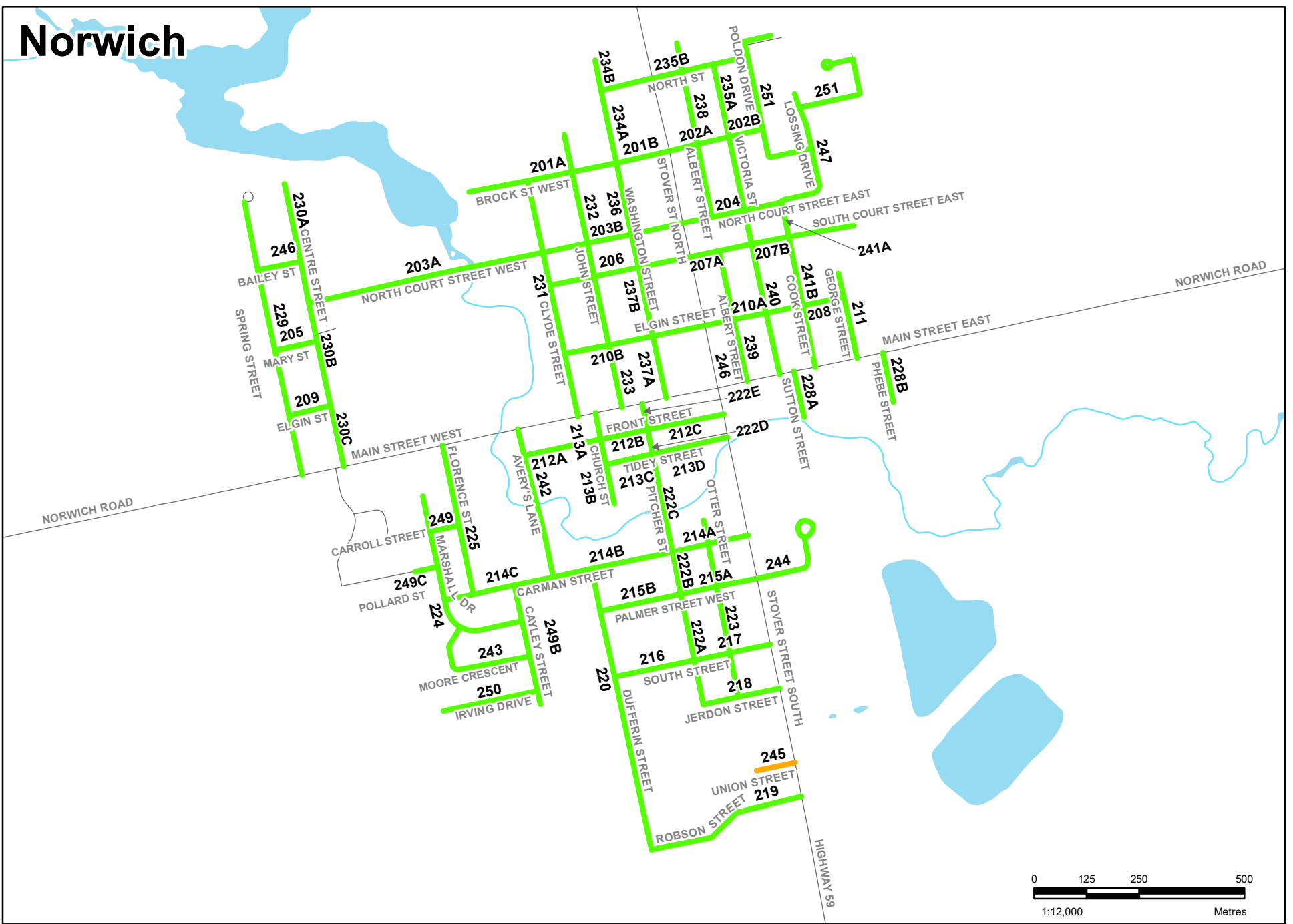
OBM data provided by the Ontario Ministry of Natural Resources, 2015.



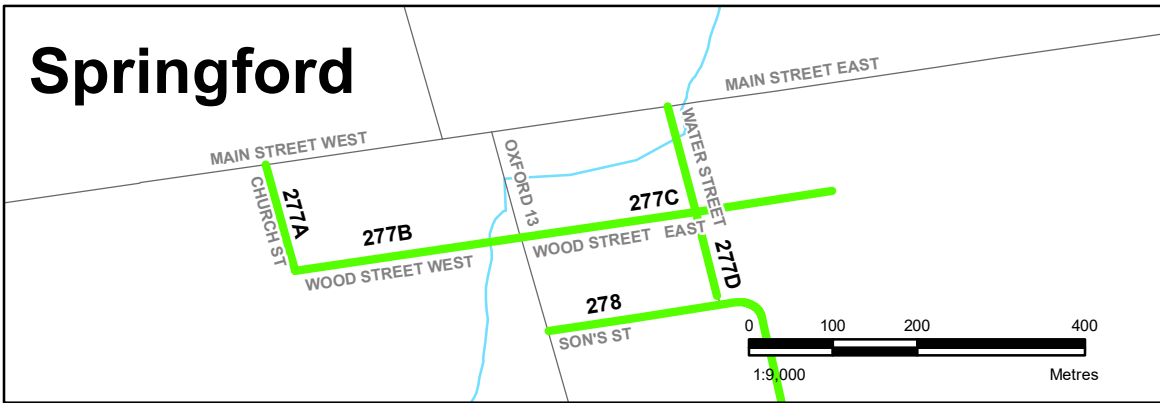
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PROJECT:	ROAD NEEDS STUDY	
TITLE:	SURFACE TYPE MAP	
	PROJECT NO: PM15-9590	FIGURE:
	Date: Sep. 13, 2017	1
	Checked By: MS	

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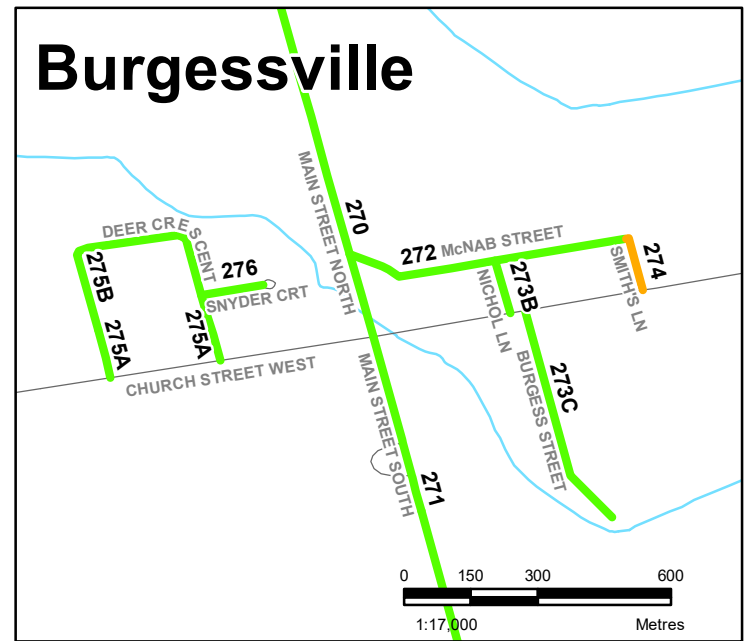
Norwich



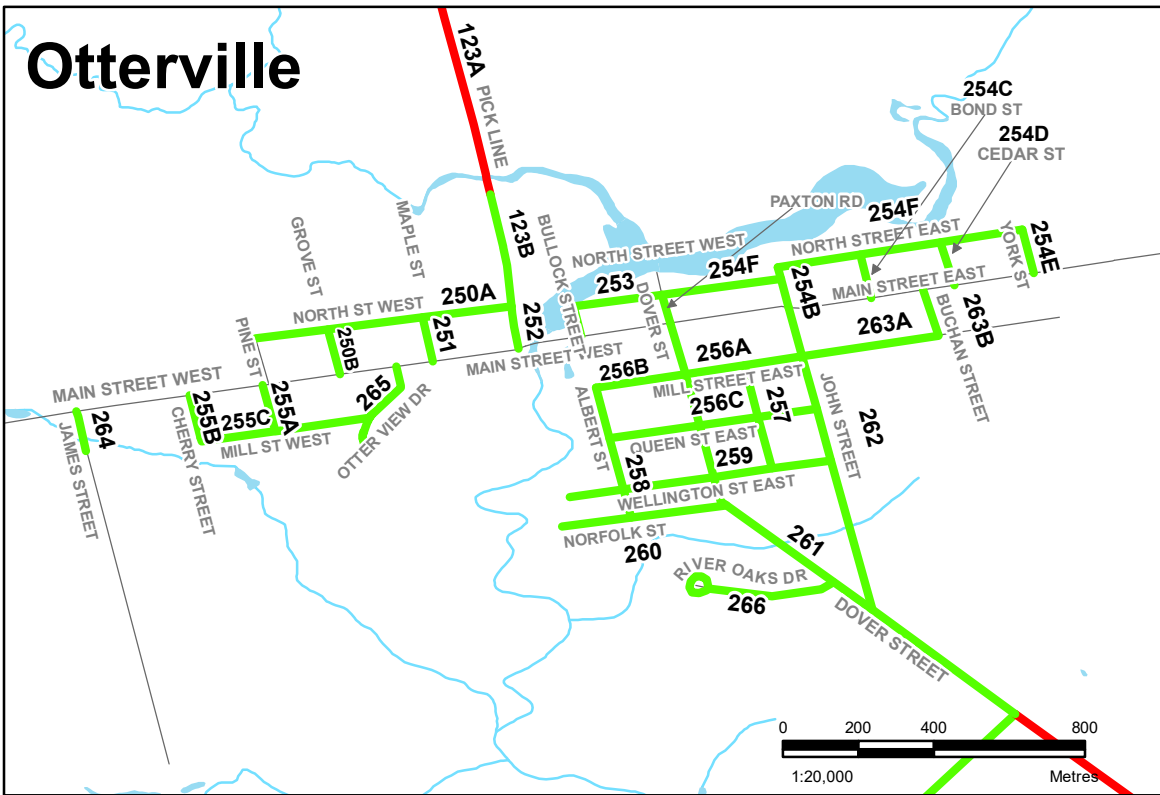
Springford



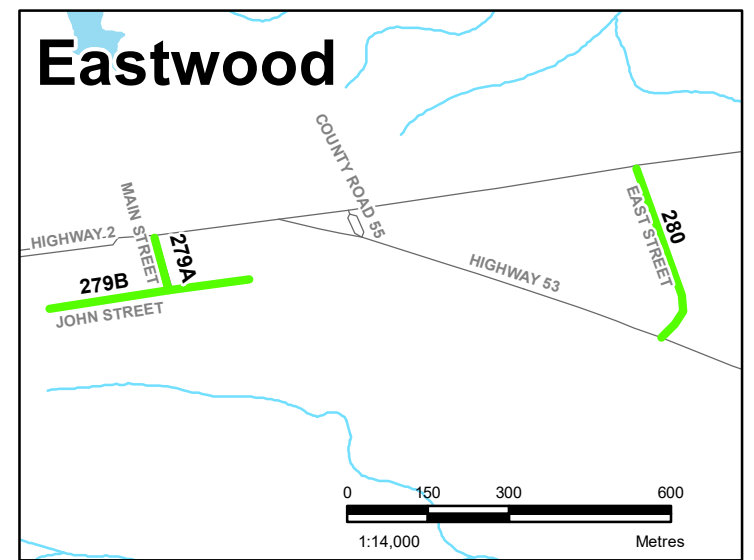
Burgessville



Otterville



Eastwood



- LEGEND**
- Road (not maintained by Norwich Township)
 - CurrentSurfaceType
 - Gravel (LT)
 - Asphalt (HCB)
 - Surface Treatment (LCB)
 - Norwich Township
 - Waterbody
 - Watercourse

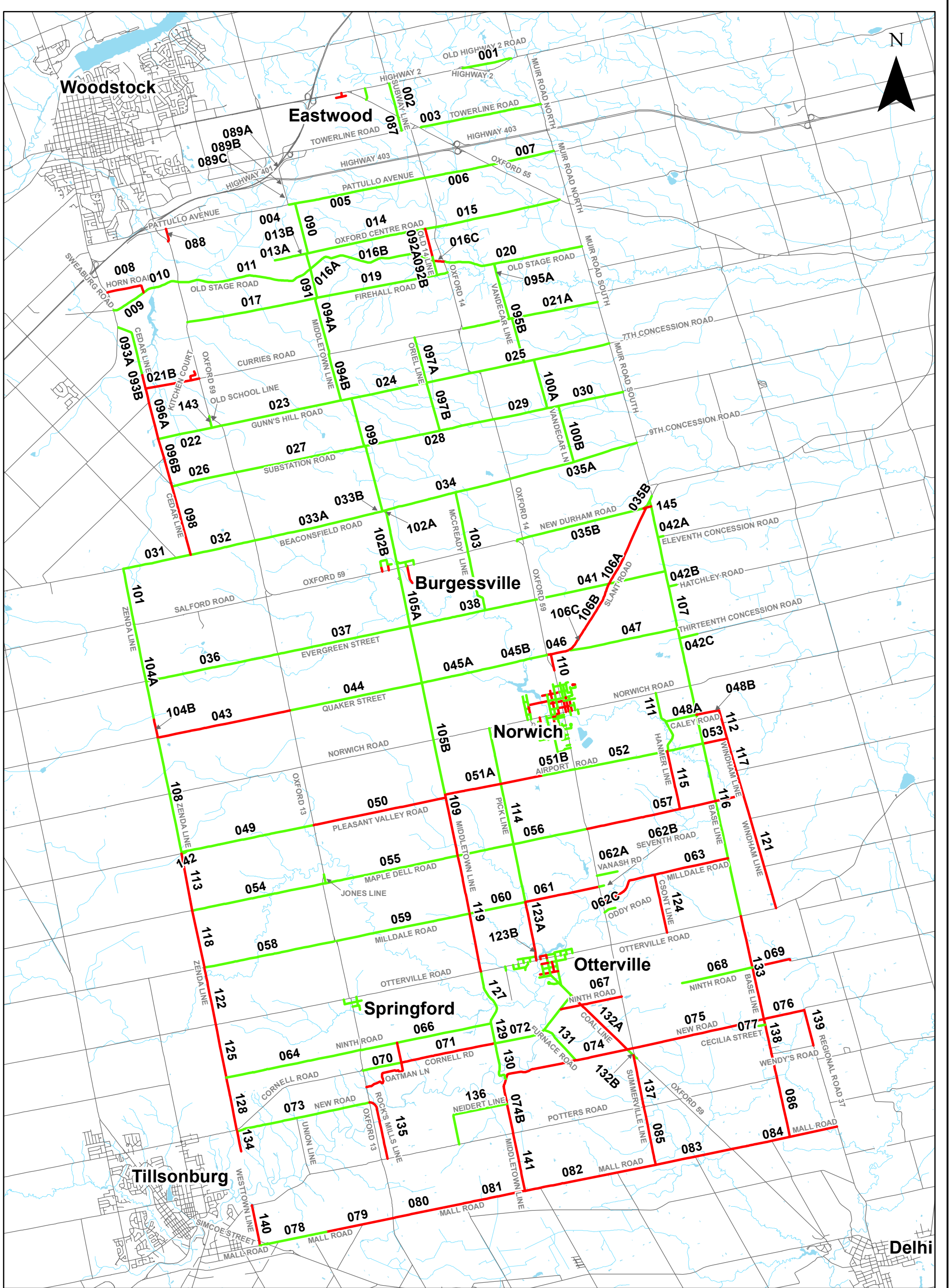
REFERENCE

OBM data provided by the Ontario Ministry of Natural Resources, 2015.



CLIENT:	NORWICH TOWNSHIP	
PROJECT:	ROAD NEEDS STUDY	
TITLE:	SURFACE TYPE MAP	
	PROJECT NO: PM15-9590	FIGURE:
	Date	Sep. 13, 2017
	GIS	SK/JD
Checked By	MS	2

115 Walgreen Rd., RR#3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742

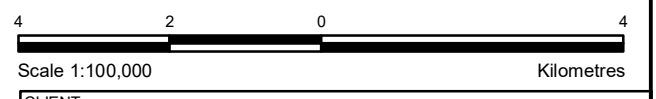


LEGEND

- Deficient (Condition Rating <5)
- Sufficient (Condition Rating >=5)
- Road (not maintained by Norwich Township)
- Norwich Township
- Waterbody
- Watercourse

REFERENCE

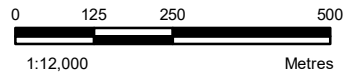
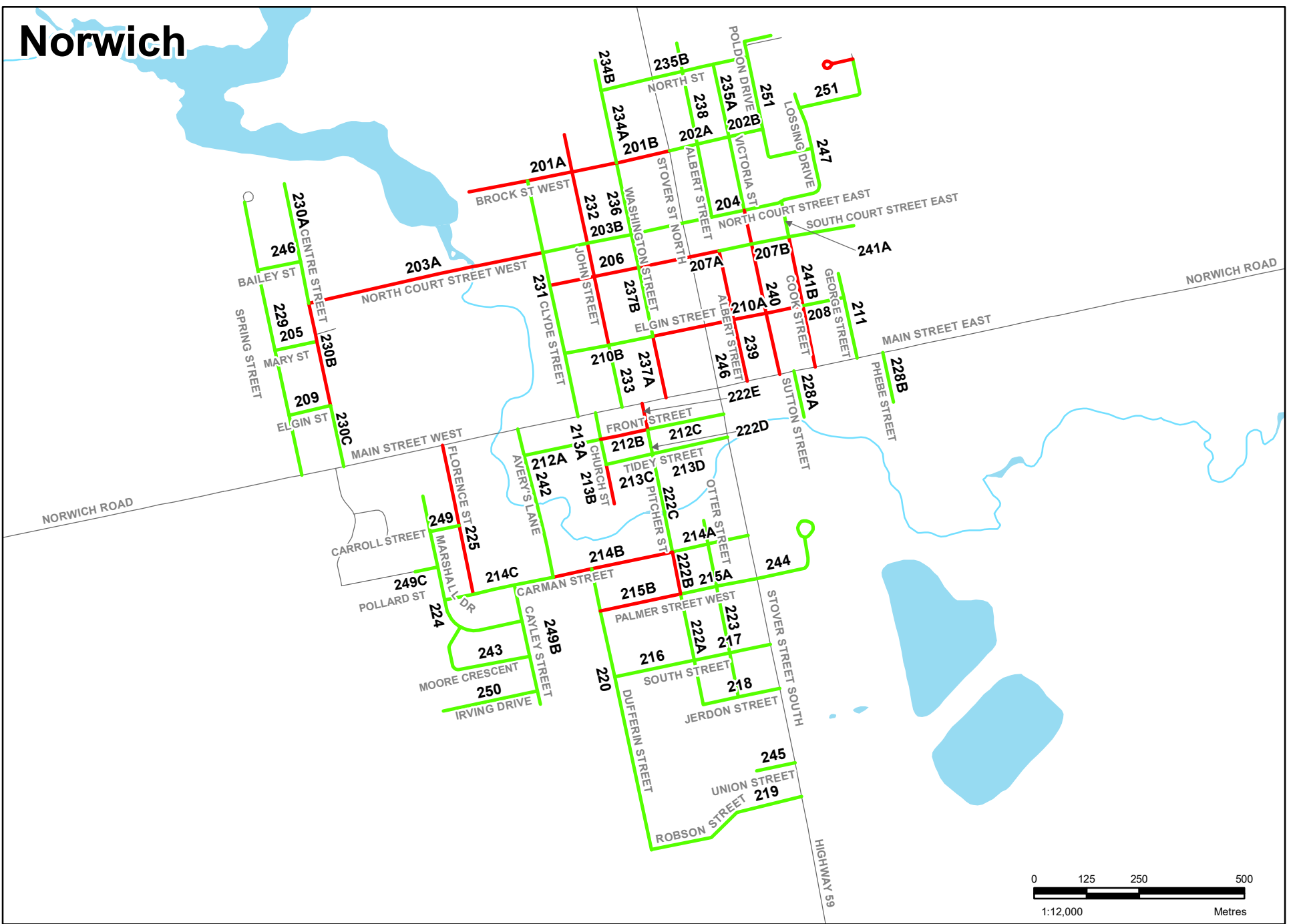
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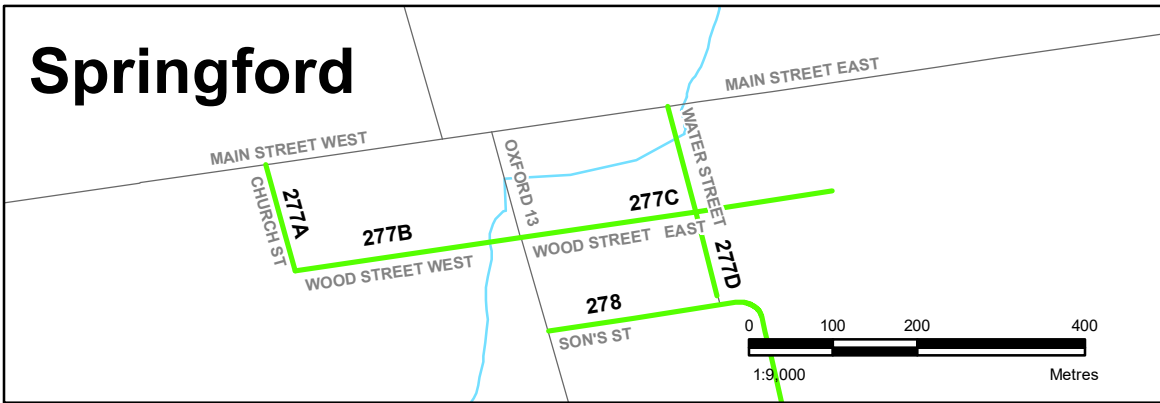
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PROJECT:	ROAD NEEDS STUDY		
TITLE:	NOW DEFICIENT ROADS		
	PROJECT NO: PM15-9590	FIGURE:	3
	Date	Sep. 13, 2017	
	Checked By	MS	

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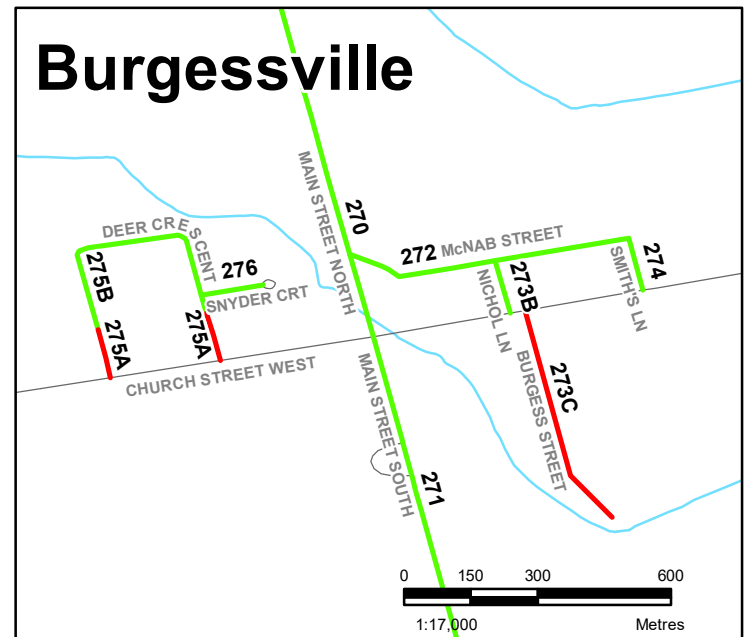
Norwich



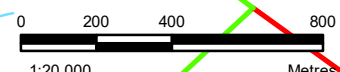
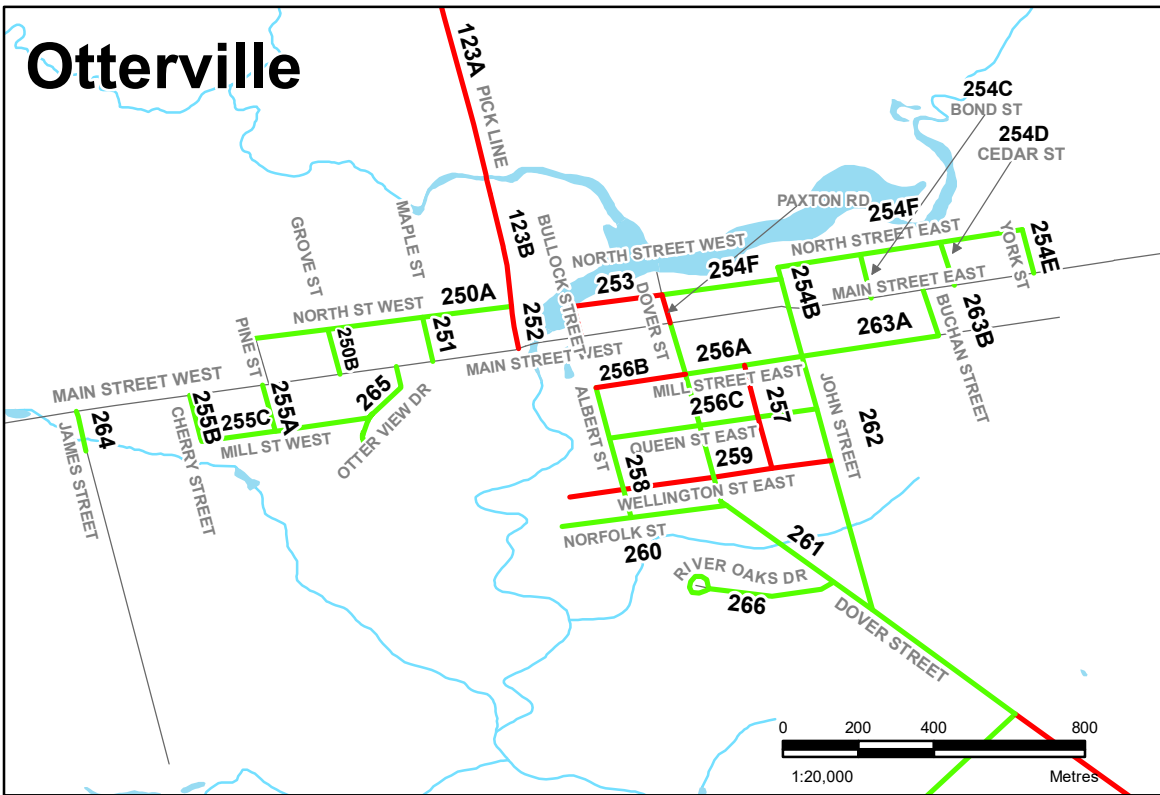
Springford



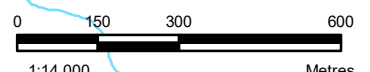
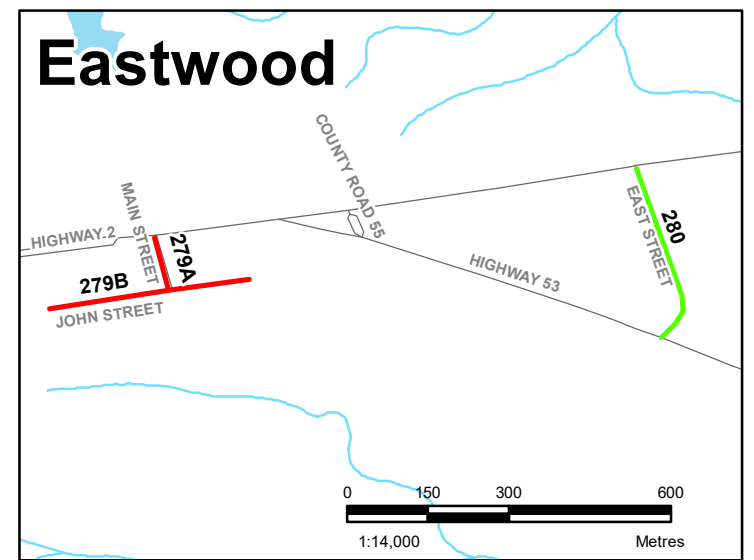
Burgessville



Otterville



Eastwood



LEGEND

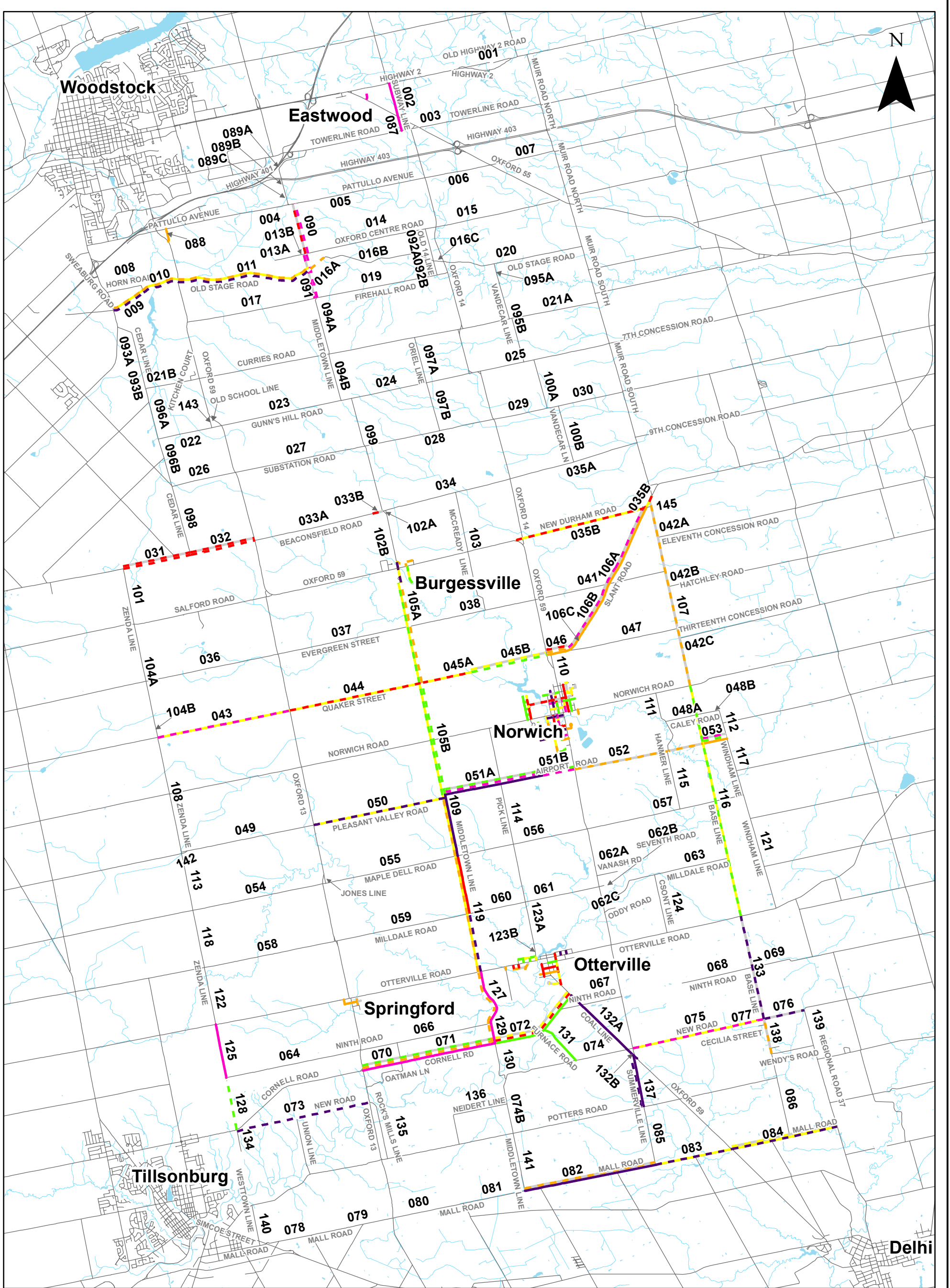
- Deficient (Condition Rating < 5)
- Sufficient (Condition Rating >= 5)
- Road (not maintained by Norwich Township)
- Norwich Township
- Waterbody
- Watercourse



REFERENCE

OBM data provided by the Ontario Ministry of Natural Resources, 2015.

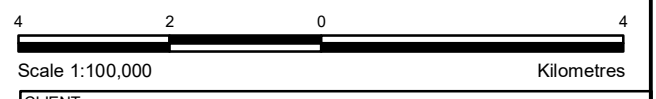
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PROJECT:	ROAD NEEDS STUDY		
TITLE:	NOW DEFICIENT ROADS		
	PROJECT NO:	PM15-9590	FIGURE:
	Date	Sep. 13, 2017	4
	GIS	SK/JD	
Checked By	MS		



LEGEND

Year 1 - 2016	Year 8 - 2023	Year 15 - 2030	Road (not maintained by Norwich Township)
Year 2 - 2017	Year 9 - 2024	Year 16 - 2031	Norwich Township
Year 3 - 2018	Year 10 - 2025	Year 17 - 2032	Waterbody
Year 4 - 2019	Year 11 - 2026	Year 18 - 2033	Watercourse
Year 5 - 2020	Year 12 - 2027	Year 19 - 2034	
Year 6 - 2021	Year 13 - 2028	Year 20 - 2035	
Year 7 - 2022	Year 14 - 2029	Year 21 - 2036	

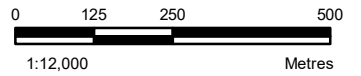
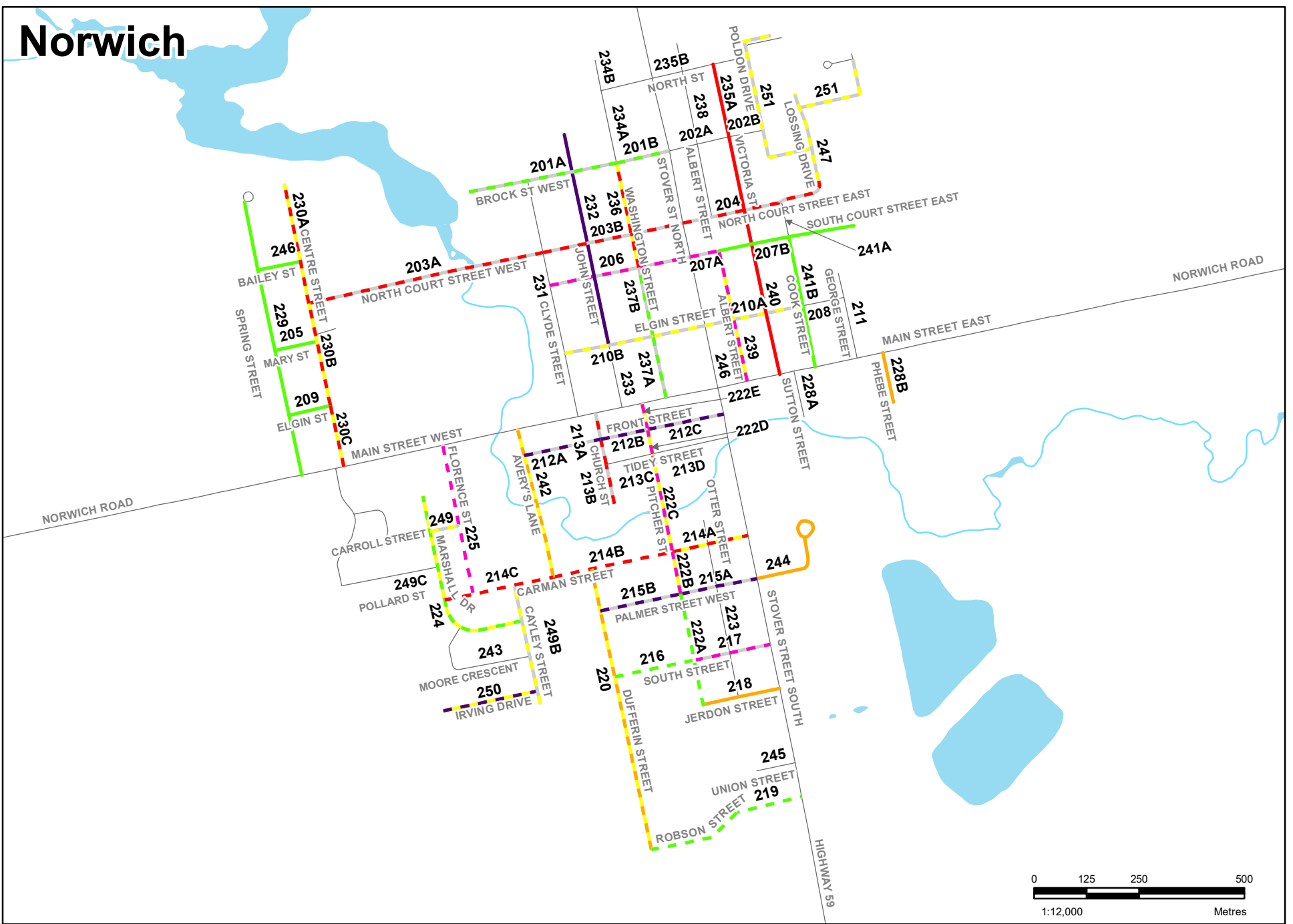
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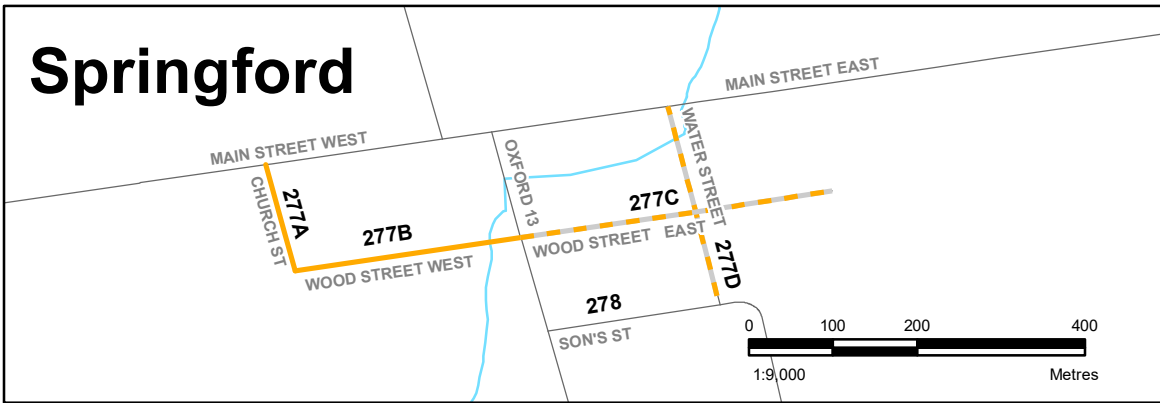
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PROJECT:	ROAD NEEDS STUDY	
TITLE:	TWENTY YEAR PLAN	
	PROJECT NO: PM15-9590	FIGURE:
	Date: Sep. 13, 2017	5
	GIS: SK/JD	
Checked By: MS		

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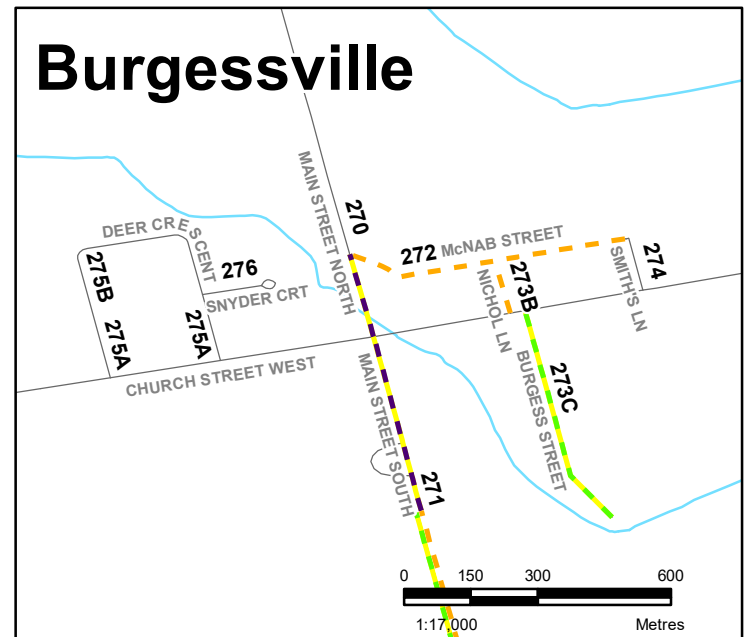
Norwich



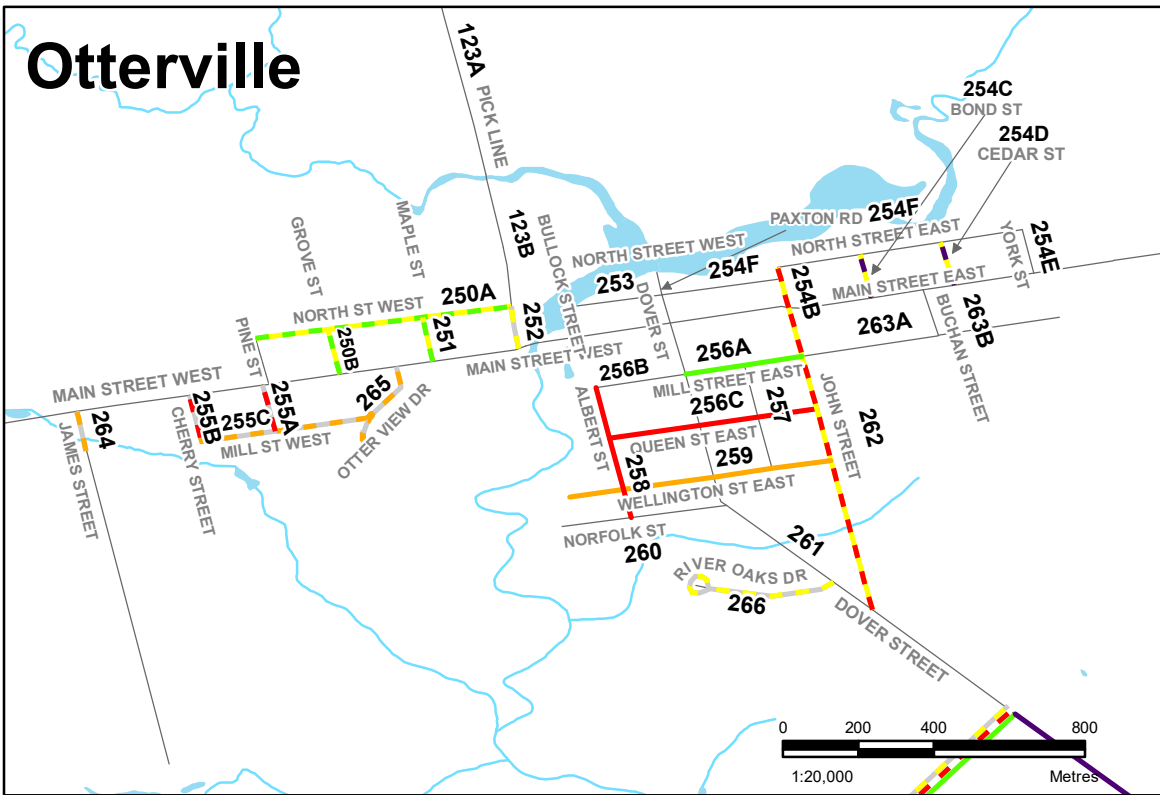
Springford



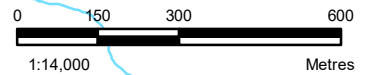
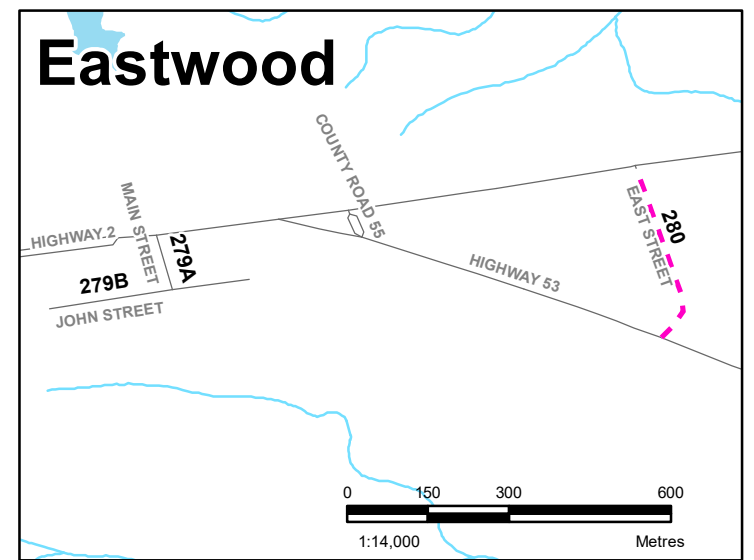
Burgessville



Otterville



Eastwood



LEGEND

- Year 1 - 2016
- Year 2 - 2017
- Year 3 - 2018
- Year 4 - 2019
- Year 5 - 2020
- Year 6 - 2021
- Year 7 - 2022
- Year 8 - 2023
- Year 9 - 2024
- Year 10 - 2025
- Year 11 - 2026
- Year 12 - 2027
- Year 13 - 2028
- Year 14 - 2029
- Year 15 - 2030
- Year 16 - 2031
- Year 17 - 2032
- Year 18 - 2033
- Year 19 - 2034
- Year 20 - 2035
- Year 21 - 2036
- Road (not maintained by Norwich Township)
- Norwich Township
- Waterbody
- Watercourse

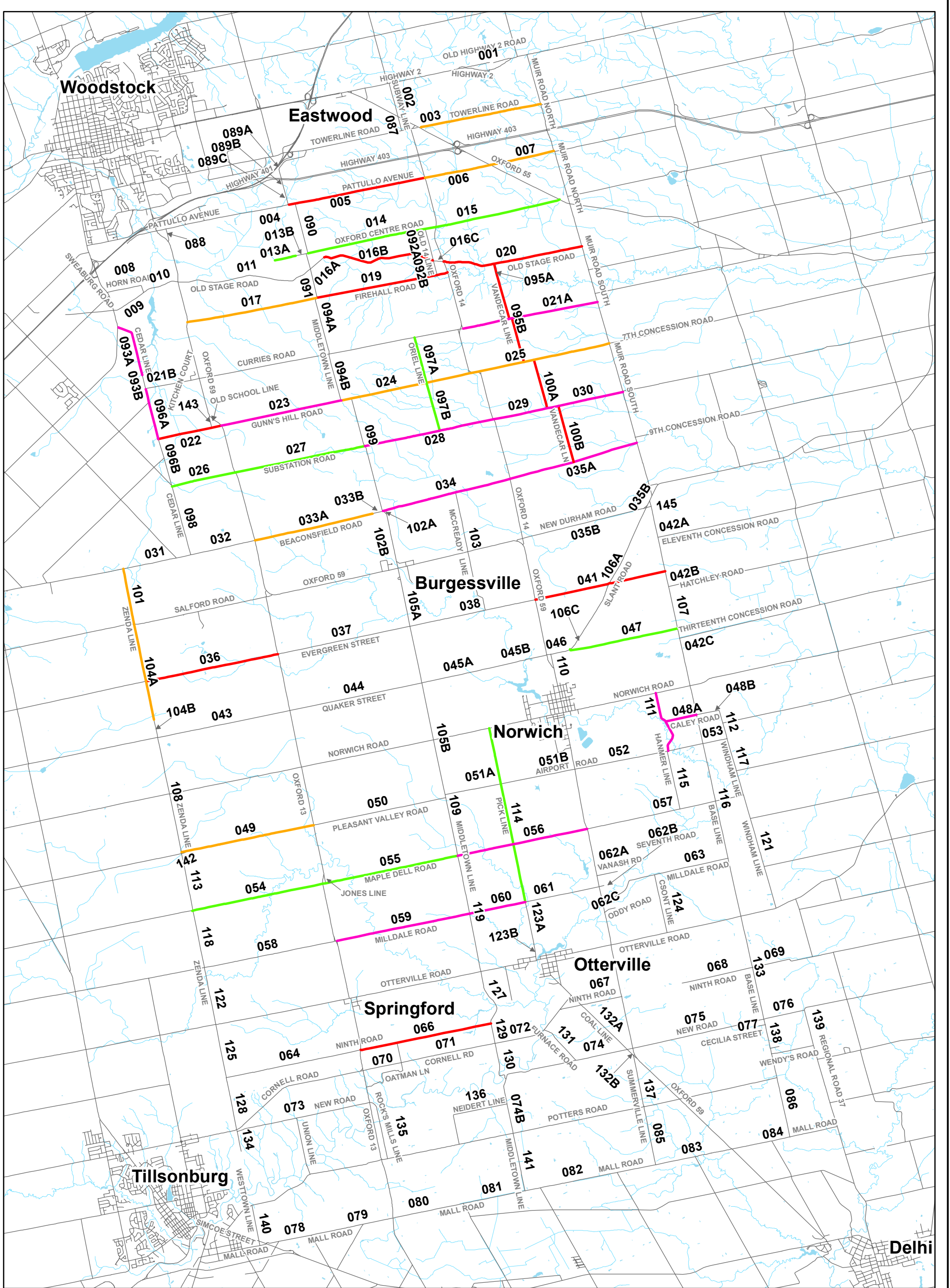
REFERENCE

OBM data provided by the Ontario Ministry of Natural Resources, 2015.



CLIENT:	NORWICH TOWNSHIP	
PROJECT:	ROAD NEEDS STUDY	
TITLE:	TWENTY YEAR PLAN	
	PROJECT NO: PM15-9590	FIGURE:
	Date	Sep. 13, 2017
	GIS	SK/JD
Checked By	MS	6

115 Walgreen Rd., RR#3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742

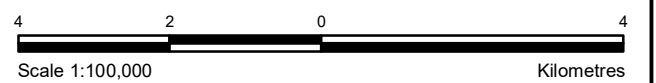


LEGEND

- Year 2 - 2017, Year 6 - 2021, Year 10 - 2025, Year 14 - 2029, & Year 18 - 2033
- Year 3 - 2018, Year 7 - 2022, Year 11 - 2023, Year 15 - 2030, & Year 19 - 2034
- Year 4 - 2019, Year 8 - 2023, Year 12 - 2027, Year 16 - 2031, & Year 20 - 2035
- Year 5 - 2020, Year 9 - 2024, Year 13 - 2028, Year 17 - 2032, & Year 21 - 2036
- Road (not maintained by Norwich Township)
- Norwich Township
- Waterbody
- Watercourse

REFERENCE

OBM data provided by the Ontario Ministry of Natural Resources, 2015.



CLIENT:	NORWICH TOWNSHIP		
PROJECT:	ROAD NEEDS STUDY		
TITLE:	TWENTY YEAR PLAN FOR GRAVEL ROADS		
	PROJECT NO: PM15-9590	FIGURE:	7
	Date	Sep. 13, 2017	
	GIS	SK/JD	
Checked By	MS		

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