COUNCIL REPORT

Meeting Date:	November 18, 2024
Department:	Engineering and Public Works
Report No.:	EPW-2024-76
Submitted by:	Mark Ortiz, Director of Engineering and Public Works
Approved by:	Trisha McKibbin, Chief Administrative Officer
SUBJECT:	**10-Year Road Needs Study**

RECOMMENDATION:
THAT: Council receive report EPW-2024-76 - 10-Year Road Needs Study for information.

BACKGROUND:

The purpose of this Roads Needs Study is to assess the current condition of the municipal road network and to establish a long-term plan for the infrastructure improvements and related financial investment required to maximize road life and ensure a safe and reliable road network.

Without timely and adequate maintenance, roads deteriorate rapidly, leading to higher costs for repairs and potentially unsafe conditions. This study, using condition assessment processes developed by the Ministry of Transportation of Ontario, provides a comprehensive inventory and evaluates the roads against established standards. It will guide the Municipality in planning its five- and ten-year action programs within both the operating and capital budgets, prioritizing essential road improvements and maintenance needs.

On May 21, 2024, Council awarded the contract for the Road Needs Study to B.M. Ross and Associates Limited. This decision was based on the Consultant's technical expertise, cost-effective and thorough proposal, and their commitment to completing the study within a practical timeframe. Additionally, B.M. Ross's familiarity with the Municipality's road network, having conducted the previous Road Needs Study in 2015, further supported the recommendation by Staff.

Key deliverables for this project include:

- A Road Inventory with detailed inspection appraisal sheets for each road section, covering a total of 255 km.

- A comprehensive Road Condition and Needs Assessment Report, including recommendations for repairs and maintenance strategies to reduce future costs. The findings are presented in both tabular format and on maps.

The previous Road Needs Study was completed in 2015. It is recommended to complete Road Needs Study every five years.

In 2021, StreetScan completed a Pavement Condition Survey on behalf of the County, collecting road condition data using laser technology and compiling results using industry standard pavement distress protocols. The road sections were scored from 0 to 100 based off the pavement surface deficiencies.

Although Pavement Condition Surveys provide useful information on the condition of pavement surfaces, they differ from more detailed Road Needs Studies in several distinct ways:

- Road Needs Study uses Ministry of Transportation Ontario Inventory Manual (IM) methodology
- Pavement Condition Surveys uses Pavement Condition Index (PCI) methodology
- PCI **only** scores the pavement surface
- The IM study provides detailed measurements of 6 key aspects of the condition of the road allowance necessary for planning:
    - Geometry
    - Surface Width
    - Surface Type
    - Structural Adequacy (distress)
    - Drainage
    - Capacity (traffic volumes)

The specific details provided in a Road Needs Study are required to make appropriate engineering and longer-term planning decisions.

COMMENTS:

The Road Needs Study provides a detailed evaluation of the Municipality's hard-surfaced roads, presenting a strategic plan for maintenance and improvement over the next decade. Covering 255 km, the study includes condition assessments for each road section. Based on these findings, B.M. Ross has developed a prioritized plan to address maintenance and rehabilitation, ensuring infrastructure longevity.

The study reveals that, while much of the road network is in fair to good condition, certain areas require attention to prevent further deterioration. Implementing the recommendations will help the Municipality optimize infrastructure investments, reduce long-term repair costs, and maintain road safety standards.

The report also highlights the importance of regular maintenance to extend the lifespan of road assets. Roads with higher traffic volumes and lower condition scores have been prioritized for early rehabilitation or reconstruction, while roads in better condition will receive preventive maintenance treatments, such as single-surface tar and chip.

A comparison of the 2024 Road Needs Study with the 2015 study shows a decline in the average road condition rating, suggesting that maintenance has not kept pace with the network's growth:

Surface Type	2015 Average Rating	2024 Average Rating
LCB	7.9	7.3
HCB	8.4	8.1
Average (all types)	**8.2**	**7.7**

The addition of new roads over the past decade should in fact improve the average rating. However, the decrease of 0.5 points indicates insufficient maintenance of existing roads, underscoring the need for increased funding as the network expands.

Historically, the Municipality has not allocated sufficient funding to adequately maintain road infrastructure. The following table compares the recommended funding levels identified in the 2015 Road Needs Study through to 2024 compared to the actual budget spent.

2015 Road Needs Study Recommended Investment vs Actual			
Year	**2015 Road Needs Study Recommended Investment**	**2016-2024 Actuals**	
		Road Resurfacing Program	**Capital Road Reconstruction**
2016	$274,000	$650,852	
2017	$1,885,000	$700,729	
2018	$3,811,000	$550,949	
2019	$2,849,000	$1,119,850	
2020	$3,176,000	$473,388	
2021 - 2024	$15,537,000	$3,145,479	$5,029,100
Totals	**$27,532,000**	**$6,641,247**	**$5,029,100**
		Actuals vs. Recommended =	**($15,861,653)**

When accounting for all roads completed either through the Road Resurfacing Program or as independent Capital Road Reconstructions, a net infrastructure deficit of $15,861,653 remains since 2016.

In the last 10 years, significant Capital Road Reconstruction projects included:

- Princess Street from Maitland Terrace to Caradoc Street S
- McKellar Street from Metcalfe Street W to Dell Drive
- Ellor Street from Clarence Street to 325 Ellor Street

- McEvoy Road from Glengyle Drive to Adelaide Road + Inadale Drive from McEvoy Road to Adelaide Road
- Drury Lane from Albert Street to Saulsbury Street + Anderson Street
- Queen Street from Carroll Street E to English Street

Some roads in the Road Needs Studies were addressed through larger Capital Road Reconstruction projects which often include upgrades to other infrastructure such as watermains, wastewater, and storm sewers. For example, Queen Street, McKellar Street, and Drury Lane were originally earmarked in the 2015 study but were completed as standalone projects outside the Road Resurfacing Program.

Moving forward, the Municipality will continue the practice of integrating full reconstructions, aligning underground infrastructure upgrades with road surface improvements. These will be designated as Special Projects in the Engineering and Public Works Capital budget. As funds are allocated to these projects, the budget for the Asphalt Resurfacing Capital program will be adjusted accordingly.

Alignment with Water & Wastewater Infrastructure Plan

Staff have been actively working to align road resurfacing projects identified in the Road Needs Study with required water and wastewater infrastructure projects. This integrated approach uses the new Water and Wastewater Master Plan to guide decisions, ensuring that infrastructure upgrades are synchronized across departments for timing, maximum efficiency and cost-effectiveness.

The Public Works and Environmental Services have collaborated to prioritize road resurfacing projects that coincide with essential water and wastewater upgrades. By assessing the age of water and wastewater infrastructure and identifying sections with recurring breaks or repairs, Staff are focused on creating a more integrated, long-term plan with the Municipality's investment in road infrastructure. This alignment reduces the need for rework and minimizes disruptions to residents, as it allows both road and underground improvements to be completed simultaneously.

Staff recommend that Council endorse the Road Needs Study to enable its use as a key tool in future road infrastructure planning. This report is a draft, and the next steps involve Council's feedback and revisions to finalize the study.

CONSULTATION:

- B.M. Ross and Associates
- Director of Finance/Treasurer
- Manger of Public Works
- Manager of Environmental Services

FINANCIAL IMPLICATIONS:

The Engineering and Public Works 10-year plan for road resurfacing projects identifies an average annual investment of approximately $6,796,700, with a total of $67,966,700 over the next decade. This funding will cover Capital improvements for approximately 145.6 km of low-class bitumen (LCB) roads and 42 km of high-class bitumen (HCB) roads.

Notably, there are no gravel roads included in the plan, focusing resources on maintaining and upgrading paved surfaces. Gravel road maintenance will continue to be funded through the operating budget.

The year 2029 is expected to incur significantly higher costs, with a total projected expense of $14.2M. This peak is due to an anticipated increase in road reconstruction needs, with 24.8 km of LCB and 8.2 km of HCB requiring upgrades. This includes converting Glengyle Drive from tar and chip to asphalt anticipated to cost approximately $2.4M.

It is important to note that the scope, timing and cash flow of specific road projects and the overall road program in general may change through the forecast period of this Study. The schedule of projects and expenditures included are highly dependent on resources, funding availability and potential changes in existing road conditions (ie. Advanced deterioration, emergency repairs etc.).

The annual investment represents an ideal level of funding needed to continually improve overall road conditions in the Municipality over the 10-year forecast and maintain a high level of service.

In addition to road resurfacing, the municipality will incur additional costs for water, wastewater, and storm infrastructure improvements aligned with these road projects. Integrating these systems with road reconstruction projects reduces the frequency of construction work, ensures the reliability and longevity of water and wastewater infrastructure and minimizes disruptions to residents while maximizing overall cost efficiency. However, this integration does raise the immediate project costs as it involves comprehensive work on both surface and underground assets.

The funding breakdown for full road reconstruction projects is as follows:

- **40%** for road surface improvements (funded by taxation),
- **20%** for stormwater infrastructure (funded by taxation),
- **20%** for water infrastructure (funded by user fees), and
- **20%** for wastewater infrastructure (funded by user fees).

Year	Capital Improvements by Current Surface			Total Cost
	Gravel (km)	LCB (km)	HCB (km)	
2025	0.0	4.7	3.4	$ 4,186,700
2026	0.0	20.6	3.6	$ 8,569,500
2027	0.0	18.8	3.2	$ 5,061,700
2028	0.0	19.5	3.9	$ 8,338,100
2029	0.0	24.8	8.2	$ 14,216,000
2030	0.0	22	4.5	$ 8,354,800
2031	0.0	11	7.3	$ 7,578,600
2032	0.0	9.6	4.3	$ 7,323,800
2033	0.0	7.1	2.8	$ 3,033,500
2034	0.0	7.5	0.8	$ 1,254,000
Total	0 km	145.6 km	42 km	$ 67,966,700
Average	0 km/yr	14.6 km/yr	4.2 km/yr	$ 6,796,700/yr

Values in the table include road sections that are planned for full reconstruction in the 10-year capital plan, including:

- Ellor Street from Fraser Street to Carroll Street E ($527,200)
- High Street E from Queen Street to York Street ($1,120,000)
- Richmond Street from Albert Street to Metcalfe Street W ($372,200)
- Oxford Street from Albert Street to Metcalfe Street W ($628,700)
- Adelaide Street from Metcalfe Street W to Burns Street + Maitland Terrace ($1,385,200)
- Downtown Revitalization ($428,600)
- Glengyle Drive Pulverize and Pave + Edge Widening ($2,401,400)
- McKellar Street Phase II ($974,900)
- Pannell Lane from Drury Lane to Head Street N ($1,169,300)

These projects will be considered Special Projects and may include full upgrades to meet the urban standards. The estimates provided are the probable cost identified in the Road Needs Study and includes only road infrastructure, not water, wastewater, and storm infrastructure that may be required as part of the project.

ALTERNATIVE(S) TO THE RECOMMENDATION:

1. Council to provide direction.

STRATEGIC PLAN ALIGNMENT:

This matter is in accord with the following strategic priorities:

> **Local Infrastructure:** The continued focus on timely infrastructure upgrades supports the Corporate Mission for local infrastructure by effective, financially responsible and well-maintained infrastructure networks.

ATTACHMENTS:

- Road Needs Study - DRAFT
- B.M. Ross Road Needs Study Presentation