



## Town of Niagara-on-the-Lake

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**REPORT #:** OPS-24-004 **COMMITTEE DATE:** 2024-04-16  
**REPORT TO:** COTW-General **DUE IN COUNCIL:** 2024-04-30  
**SUBJECT:** 2023 State of the Infrastructure and Asset Management Plan for Roads

### 1. RECOMMENDATION

It is respectfully recommended that:

- 1.1 The report titled '2023 State of the Infrastructure and Asset Management Plan for Roads' be received; and
- 1.2 Staff be directed to consider the funding recommendations included in the '2023 State of the Infrastructure and Asset Management Plan for Roads' in future (2025 and beyond) capital and operating budget submissions.

### 2. EXECUTIVE SUMMARY

- The State of the Infrastructure (SOTI) and Asset Management Plan for Roads study identifies the condition of each road asset by its time of need and recommended maintenance, rehabilitation, and reconstruction treatment.
- The SOTI provides the current replacement costs for each road asset.
- The SOTI provides recommendations for improvement and associated costing on deficient assets.
- The SOTI supports the asset management plan.

### 3. PURPOSE

The purpose of this report is to advise Council of the completion of the 2023 State of the Infrastructure (SOTI) and Asset Management Plan for Roads study that was conducted in the spring/summer of 2023. The study identifies the condition of each road asset by its time of need and recommended maintenance, rehabilitation, and reconstruction treatment. The study provides an overview of the physical and financial needs of the road system in its entirety as well as by road section.

### 4. BACKGROUND

In August 2012, the Province of Ontario introduced a requirement for an Asset Management Plan (AMP) as a prerequisite for municipalities seeking funding assistance for capital projects from the Province. To qualify for future infrastructure grants, an AMP had to be developed and approved by Council. Council approved the Town of Niagara-on-the-Lake AMP as per reports CS-14-045 and CS-15-026.

The Town of Niagara-on-the-Lake AMP addresses various asset groups including roads. A key component of the AMP is a “State of the Infrastructure” review of the asset or asset group. The 2023 SOTI review conducted by *4 Roads Management Services Inc.* reviewed the road system and provided recommendations related to budget and road asset programming.

The scope of the State of the Infrastructure Report included the following:

- Review and rate condition of the assets with the Town of Niagara-on-the-Lake road system
- Develop current replacement costs for each road asset
- Review and develop recommendations for improvements and associated costing on deficient assets
- Develop recommendations for annual budgets based on current costs for amortization/capital depreciation and major program areas based on updated unit costs provided by the Town
- Analyze the effect of current and recommended budgets on overall system performance
- Develop a 10-year work plan
- Provide Level of Service recommendations
- Provide Asset Management Strategy recommendations

The State of the Infrastructure and Asset Management Plan for Roads study was initiated in 2023 to align with O. Reg 588/17 which requires data current within two years of an Asset Management Plan being updated. The Town of Niagara-on-the-Lake has typically conducted a State of the Infrastructure and Asset Management Plan for Roads study every 5 years to meet the requirements of the Asset Management Plan and to be eligible for available grants

## **5. DISCUSSION / ANALYSIS**

In preparation of the study, the Town of Niagara-on-the-Lake Operations Department provided updated traffic information. Accurate and current traffic counts are critical in managing a road system and decision making. Traffic counts establish maintenance classifications for Minimum Maintenance Standards (MMS) purposes, as per Ontario Regulation 239/02 (*Minimum Maintenance Standards for Municipal Roads*), as well as determining appropriate geometry, structure, and cross-section when the road is rehabilitated or reconstructed.

Data collection and road ratings were guided by the Ministry of Transportation Ontario (MTO) *Inventory Manual for Municipal Roads* from 1991 (*Inventory Manual or IM*).

Road conditions are evaluated during a field inspection. The ratings are either as a stand-alone value or incorporated into calculations performed by the software. The ratings or calculations then classify the road section as a “Now”, “1 to 5”, or “6 to 10” year need for maintenance, rehabilitation, or reconstruction in critical areas. The Time of Need is a prediction of the time until the road requires reconstruction, *not the time frame until action is required*. Generally, the closer the timeline to reconstruction, the greater the deterioration of the road.

“NOW” – needs represent road sections that require reconstruction or major rehabilitation.

“1 to 5” – identifies road sections where reconstruction is anticipated within the next five years, based upon a review of the current condition. These roads can be good candidates for resurfacing treatments that would extend the life of the road (depending on any other deficiencies), thus deferring the need to reconstruct.

“6 to 10” – identifies road sections where reconstruction improvements are anticipated within the six to ten years, based upon a review of their current condition. These roads can be good candidates for resurfacing treatments that would extend the life of the road (depending on any other deficiencies), thus deferring the need to reconstruct.

“ADEQ” – identifies road sections that do not have reconstruction or resurfacing needs, although minor maintenance such as crack sealing or spot drainage may be required.

At the time of the study being completed, it was determined that approximately 34.5% (78.24 km) of the road system required resurfacing (hot mix asphalt or surface treatment).

The full report, *2023 State of the Infrastructure and Asset Management Plan for Roads Report*, is attached as Appendix I.

## 6. STRATEGIC PLAN

The content of this report supports the following Strategic Plan initiatives:

### Pillar

3. Enrich Community Assets, Environment, & Infrastructure

### Priority

3.3 Infrastructure

### Action

3.3 a) Infrastructure Investment (Physical & Green)

## 7. OPTIONS

7.1 **Option 1:** Council receive the report and refers to the study and its recommendations for consideration in future capital and operating budgets implementation and funding (for 2025 and beyond). **(Recommended)**

7.2 **Option 2:** Council does not receive the report. *(Not Recommended)*

## 8. FINANCIAL IMPLICATIONS

The State of the Infrastructure and Asset Management Plan for Roads study makes budgetary recommendations; a summary is provided below.

Recommended funding for the road system should include sufficient capital expenditures that allow for the replacement of infrastructure as the end of design life is approached, in addition to sufficient funding for maintenance, to ensure that the full life expectancy may be realized.

Development and growth are not considered in the scope of this review as they are typically funded from development charges.

The estimated cost to replace the road system to its current standard is **\$426,520,900**. (This amount does not include bridges, culverts, cross culverts less than 3m, sidewalks and street lighting). In simple terms, this equates to an annualized capital replacement of **\$8,530,400** based on a 50-year period. This would represent the Long-Term Sustainable funding level. Currently, the annual roads capital program that deals with replacement needs targets a level of approximately **\$1.7 million** from various funding sources. These sources include the Capital Levy, Federal Gas Tax Fund, and Ontario Community Infrastructure Fund.

The typical design life for a road structure is 50 years before reconstruction/replacement. A 50-year life cycle can only be achieved if maintenance and preservation treatments such as crack sealing and hot mix asphalt overlays are delivered at the appropriate time. Inadequate maintenance and preservation will result in premature failure and increased life cycle costs, accelerating the need for replacement.

The study looked at different maintenance programs and their associated funding levels to optimize the asset life span. A recommended annual preservation budget, which makes the right investments at the right time to maximize an asset's life and sustain it over the short term, was developed in the following areas:

<u>Maintenance Activity</u>	<u>Recommended Annual Preservation Budget</u>	<u>Actual Annual Budget (2023)</u>	<u>Actual Annual Budget (2024)</u>	<u>Funding Source</u>
Hot Mix Resurfacing*	\$2,004,400	\$579,510	\$579,510	Capital
Surface Treatment Resurfacing	\$470,600	\$185,000	\$200,000	Operating
Gravel Road Resurfacing	\$119,800	\$30,000	\$35,000	Operating
Crack Sealing	\$63,700	\$30,000	\$25,000	Capital/ Operating

\* - The actual annual budget for Hot Mix Resurfacing has typically been funded using Federal Gas Tax Funding and can vary from year to year based on competing needs of available funding related to the Roads Capital Budget. Proposed road reconstructions, bridge/culvert replacements and new sidewalk installations when planned to proceed in any given year will directly impact the Town's ability to carry out a Hot Mix Resurfacing program to the degree recommended until an annual preservation budget to ensure that the full life expectancy of the asset is achieved.

Current annual funding levels are insufficient to sustain the system over time.

## **9. ENVIRONMENTAL IMPLICATIONS**

Undertaking maintenance activities and required improvements at appropriate times through an asset's lifecycle can defer the need for a full replacement of the asset requiring intensive reconstruction methods that impacts the environment.

## **10. COMMUNICATIONS**

Subject to Council approval, the report and its recommendations will be considered by staff for inclusion in the development of the 2025 Roads Capital and Roads Operating Budget for future budget deliberations.

## **11. CONCLUSION**

Based on the 2023 State of the Infrastructure and Asset Management Plan for Roads study, the opinion of the consultant is that the Town's existing funding level is insufficient to sustain the road system long term. Implementation of a pavement strategy based on the study, and reduction of the funding gap by increasing the annual preservation budget will allow the Town to maintain and extend the life span of road assets. This will reduce the need to reconstruct roads sooner than expected.

## **12. PREVIOUS REPORTS**

- OPS-21-002 – State of the Infrastructure and Asset Management Plan for Roads
- OPS-19-015 – 2014 State of the Infrastructure – Roads
- PW-05-014 – Roads Needs Study

## **13. APPENDICES**

- **Appendix I** – 2023 State of the Infrastructure and Asset Management Plan for Roads Report

Respectfully submitted:

**Prepared by:**



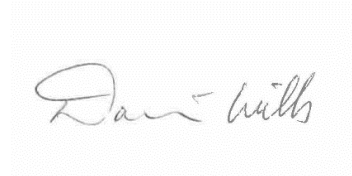
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