



Council Report

Report Number: ENG2022-031

Meeting Date: September 27, 2022

Title: **Update of Roads Needs Information and Roads 5 Year Plan (2023-2027)**

Description: The results of the updated Roads needs study that examined the overall condition of the City's road network, and the revised Roads 5 year plan is presented here for council's endorsement.

Author and Title: Michael Farquhar, Manager of Technical Services Engineering and Corporate Assets

Recommendation(s):

That Report ENG2022-031, Update of Roads Needs Information and Roads 5 Year Plan presentation, be received; and

THAT staff update the plan annually based on capital project approvals and in accordance with the Asset Management Plan.

Department Head: _____

Financial/Legal/HR/Other: _____

Chief Administrative Officer: _____

Background:

Roads Needs Study

The City of Kawartha Lakes (CKL) Roads Needs Study was initiated in 2021 through a request for proposal process (RFP 2021-40-CP) which was approved by Council. The Consultant that was selected for the study was DM Wills of Peterborough. DM Wills was also the consultant that was successful in the RFP process and completed the previous 2016 roads needs assessment. This process has been followed for the past 2 roads needs studies in 2011 and 2016. The City undertakes this assessment of its road network every five years. The terms of reference for the study were as summarized below:

- The assessment and review of the condition of the 2,704 km's of road network within the City;
- To provide unit costs for improvements to the road sections;
- To prioritize rehabilitation and replacement needs as "Now", "1-5 year" and "6-10 year";
- To provide a life cycle costing analysis, identifying road sections for preventative maintenance that would extend the overall life of the road network; and
- To update GIS roads database with the collected information.

Throughout 2021, DM Wills undertook a process of condition evaluating the City's network of maintained roads. These findings are attached in Appendix A - 2021 Roads Needs Study.

The findings of the previous 2016 Roads Needs Study was presented to Council at the April 11, 2017 Council meeting through report ENG2017-005 and received through Council resolution CR2017-305, outlining the overall network deficiencies and annual spending requirements to maintain the current adequacy of the road network.

Highlights from the previous study illustrated the following information about the City's 2698 lane kilometres of road network

- Summary of road network base on surface type

Gravel -895 lane km

Surface treated – 949 lane km

Hot mix – 854 lane km

- Summary of road side environment

126 km Urban
265 km Semi-Urban
2307 km Rural

- Identified needs

There were \$74 million worth of "Now" and 1-5 structural needs identified in the 2016 study

Overall surface condition rating for road network of 7.6/10.

Roads 5-year Plan 2018-2022

The previous "Five Year Roads Plan" was initially approved and adopted by City Council at the May 16, 2017 Regular Council meeting through Report ENG2017-005. At this meeting the following resolution was passed.

CR2017-424

Moved By Councillor Stauble

Seconded By Councillor Strangway

RESOLVED THAT Report ENG2017-005, **Proposed Roads 5 Year Plan (2018-2022)**, be received;

THAT Appendices A, B, C (i.e., the Roads 5-Year Capital Plan) to Report ENG2017-005 be adopted as a guide for planning and prioritizing capital projects within the programs Urban/Rural reconstruction, Urban Arterial Resurfacing and Rural Resurfacing on an annual basis from 2018 to 2022; and

THAT staff update the plan annually based on capital project approvals and in accordance with the Asset Management Plan.

CARRIED

The previous Plan utilized criteria for the prioritizing of the needs identified in the 2016 Roads Needs Study for implementation in the 2018-2022 5-year Plan:

1. Joint projects, taking into consideration the road section and priority of underground infrastructure coordination (i.e. water waste water replacements);
2. Life cycle initiatives for prolonging the operating life of a road section;
3. Resolving operational and maintenance demands within a road section;
4. Boundary road sections in keeping with established agreements (bordering Municipalities; and
5. Existing Council resolutions and priorities for various road sections.

The previous plan reviewed the identified needs outlined in the road needs study with regard to the previous identified capital programs and made recommendations for annual spending amounts within the plan in order to maintain the roads adequacy level for the network as presented in Report ENG2017-005.

The Plan had proposed a sustained annual program funding over 5 years of approximately \$5 - 6 million per year for Urban/Rural reconstruction, \$5.8 – 6 million for Urban/Arterial resurfacing and \$3.7 - 4 million for Rural resurfacing. Over the 5-year period the costs were estimated to be within these ranges and to total approximately \$74 million of the Now needs and 1 - 5 year needs identified in the roads needs study.

In 2020 Council was presented with an update to the plan put in place in 2017 at the March 10th Committee of the Whole:

CW2020-072

Moved By Councillor Elmslie

Seconded By Councillor Seymour-Fagan

That Report ENG2020-003, Update of the Roads 5 Year Plan, be received;
and,

That this recommendation be forwarded to the agenda for the next Council meeting for adoption.

Carried

Where it was then received at the March 19 2020 Regular council meeting through

CR2020-072 That Report ENG2020-003, **Update of the Roads 5 Year Plan**, be received.
Carried

Report ENG2020-03 is attached as Appendix B to this report.

This report had updated Council on the objectives that had be met between the years 2018-2020 within the identified capital reconstruction and resurfacing programs within the previous 5 year roads plan. The 2020 update also outlined spending to date on the plan between years 2018-2020 and projected costs for the years 2021 and 2022. This can be seen in Tables 1 and 2 of report ENG2020-003 in Appendix B, which had shown project costs of \$18,394,794.00 for 2021 and \$17,389,287.00 for 2022. The actual approved spending for 2021 and 2022 for these programs was \$15,849,000 and \$17,627,000 for a total combined approved spending of \$88,758,418.00 for the aforementioned reconstruction and resurfacing programs over the years 2018-2022. This value surpassed the identified "Now" and "1-5" years needs identified estimated cost of \$74 million, due to yearly increased costs, accelerated (added) road segments to the yearly budget through Council resolutions and Downtown reconstruction priorities.

Rationale:

2021 Roads Needs Study

As stated in the background of this report the 2021 Roads needs study was undertaken by the City's consultant DM Wills. This study surveyed 2704 km's of existing road network (increase of 6 km from 2016 study due to road assumptions) collecting data during the field reviews which was used to develop a prioritized listing of the road network needs, the results of which are documented in Appendix A.

The procedure utilized to complete the study was in accordance with the Ministry of Transportation's Inventory Manual for Municipal Roads (February 1991).

Additionally, field reviews for the purpose of Pavement Condition Index (PCI) were undertaken in accordance with:

- MTO Manual for Condition Rating of Flexible Pavements, SP-024.
- MTO Manual for Condition Rating of Surface-Treated Roads, SP-021.

Based on the above methodology the finding can be summarized as following:

“As stated in the summary of the Study the two primary indicators of the relative health of a road are the structural adequacy and surface condition ratings. The current average structural adequacy rating for the City’s road network is 14.3/20, slightly better than 2016’s 13.5/20. The current average surface condition rating for the City’s road network is 7.6/10, which is equal to 2016’s 7.6/10”.

The Study then categorized the identified needs into “NOW” needs “1-5” year needs and “6-10” year needs based on the structural and surface conditions of the network as it pertained to Hard topped roads .

As stated in the study “based on the City’s road network of 2704 km, 6.0% (158 km) of the road network has a Structural “NOW” need, 12.4% (334 km) has a Structural “1-5” year need, and 14.2% (383 km) of the road network has a Structural “6-10” year need”.

“In 2016, the City had 326 km of road with a Structural “NOW” need, 342 km with a “1-5” year need, and 430 km of road with a “6-10” year need. This suggests that the City has made steady inroads into improving its road network over the last 5 years”.

Based on these findings the Study identifies \$116.4 million worth of capital improvements for “Now” needs and 1-5 year needs. These identified road segments can be seen in Appendix C Roads Needs 2021 condition mapping. The Map identifies the road segments that are rated as a “Now” “1-5” and “6-10” year needs.

It should be noted that a structural “NOW” need does not explicitly mean that work must be undertaken on the road immediately (although this may be so in some cases). A structural “NOW” need means that a significant portion of the road is showing distress of the road bed and requires significant intervention i.e. reconstruction or major rehabilitation to renew it service life. A structural “1-5” year need is expected to become a “NOW” need in the next five years, and a “6-10” year need is expected to become a “NOW” need in the next 10 years.

Note that many “6-10” year reconstruction needs may be deferred by timely resurfacing, extending their service lives. As highlighted above, the City has a portion of their roads (14.2%) with a “6-10” Year Structural Need.

Roads 5-year plan 2023-2027

The approach to developing the proposed 5-year plan took the same steps that has been done in the 2017 report to Council. The Roads needs study was used as a guideline for developing the five-year plan based on the identified Now, 1-5 and 6-10 year needs as to be addressed in the yearly capital programs of Urban/Rural Reconstruction, Urban/Arterial resurfacing and Rural Resurfacing. This plan does not deal with the resurfacing needs of gravel roads. Those needs are addressed in the current 10-year Gravel capital plan

This Plan utilized past criteria from the previous roads Five Year Capital Plan. They are as follows.

1. Projects taking into consideration the road section and priority of underground infrastructure coordination (water waste water) underground infrastructure and recommendations through EA studies;
2. Life cycle initiatives for prolonging the operating life of a road section;
3. Resolving operational and maintenance demands within a road section;
4. Boundary road sections in keeping with established agreements;
5. Existing Council resolutions and priorities for various road sections (Attached as Appendix D);
6. Carryover road segments from previous plan; and
7. Tracked condition complaints from residents.

The purpose of this plan attached to this report is to present to Council a roadmap for the next 5 years for the resurfacing and reconstruction of road sections prioritized in Appendix E based upon sustained annual program funding of approximately \$5 – 9.5 million per year for Urban/Rural reconstruction, \$6–7.5 million for Urban/Arterial resurfacing and \$5-6.5 million for Rural resurfacing. Over the 5-year period the costs are estimated to be within these ranges and to total approximately \$116 million worth of the Now needs, and 1 - 5 year needs identified in the roads needs study.

This document is intended as a guide for Council and staff for coordination and setting priorities over the next 5 years as well as to inform the Asset Management Plan. Some priorities could change year to year which will be updated in the Plan. Situations that could cause this to happen would be re-coordination of infrastructure projects, requests from Boundary Municipalities, and amendments to the yearly funding model based on changes to the Asset Management Plan. Based on those changes the Roads 5-year plan would be reviewed and amended. These changes will be reported annually during the budget process.

In addition to the mentioned capital programs above the City also has a program known as Life Cycle extension which has been utilized for mostly localized repairs to hard topped

roads based on spring break up priorities identified by Public Works, Council resolutions, and preventative maintenance applications aimed at needs identified within the 6-10 year needs. As part of this program, Engineering coordinates with Public Works on road segments that are operationally difficult to maintain and are outside of the given plan and yearly budget. This is done by pulverizing the road segment and maintaining as a gravel road segment until it can be resurfaced in a future capital year.

The estimated average total cost of this program over 5 years is \$10,165,000.

Other Alternatives Considered:

The baseline funding for this plan was based on the recommendations made in the Roads Needs Study presented to Council in this report. An alternative consideration would be to change this funding level. If considered it would be addressed in the Asset Management Plan.

Alignment to Strategic Priorities

This project relates to Goal 2 and Goal 3 by maintaining and improving efficiency of the City's existing infrastructure:

1. An Exceptional Quality of Life
2. A Vibrant and Growing Economy

Financial/Operation Impacts:

The funding model for this 5-year plan for Urban/Rural Reconstruction, Urban/ Arterial Resurfacing and Rural Resurfacing will be addressed in the Asset Management Plan, and each individual budget year for approval

Consultations:

Engineering and Corporate Assets

Public Works

*The plan is reviewed within the individual budgeting year and additional consultation will happen departments those given years based on any changes in priority

Attachments:

Appendix A 2021 Roads needs study



City of Kawartha
Lakes RNS Report.pdf

Appendix B Report ENG2020-003



Appendix B Report
ENG2020-003.pdf

Appendix C 2021 Roads Needs network map



Roads Needs 2021
network condition r

Appendix D Council Resolutions



Appendix D Council
resolutions.pdf

Appendix E Roads 5 year plan



Appendix E Roads 5
year plan.pdf

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