

2021 Roads Needs Study and 5 year plan

September 27, 2022



Background

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.

RNS Methodology

- MTO Inventory Manual for Municipal Roads (1991)
- Visual inspection of entire 2,704 km road network
- Holistic approach vs. just surface condition
 - Road base*
 - Surface condition
 - Surface widths*
 - Surface type*
 - Drainage
 - Alignment
 - Maintenance demand
- ***Critical Deficiencies identified**
 - (Now, 1-5, 6-10 years)
- Overall Condition Rating assigned for each road



Royal Oak Road
(Rural Local class Hi-float road)



Cedar Tree road
Rural Local class
gravel road

RNS Methodology Cont'd

- Roads classified by:
 - Roadside Environment:
 - Rural,
 - Semi-Urban,
 - Urban
 - Class
 - Local
 - Collector
 - Arterial
- Roads prioritized based on Condition Rating and Volume.
- Updated Traffic Volumes from previous study based on an assumed growth rate



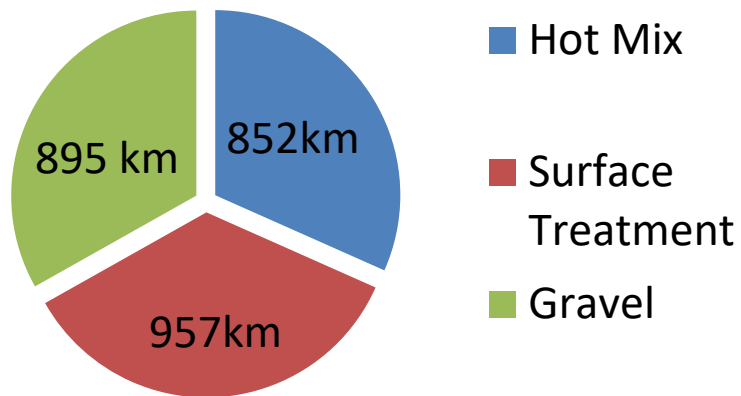
CKL 10 ,Rural /Arterial
with Paved shoulder



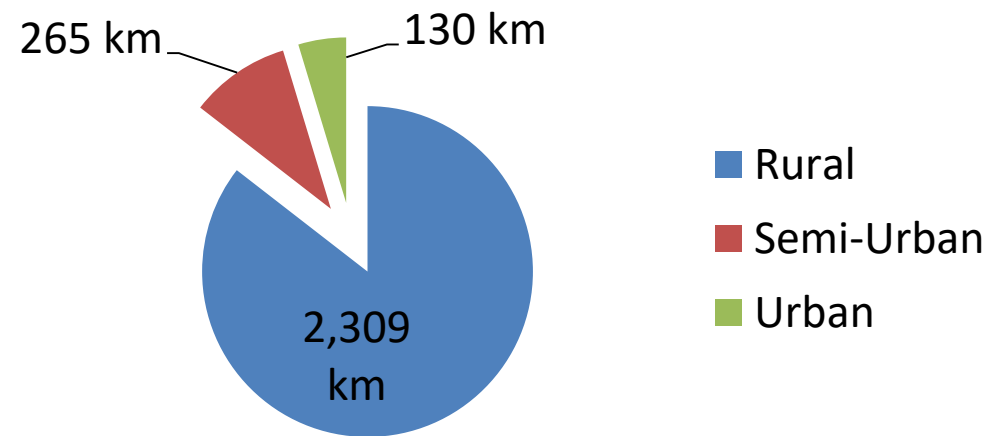
Kent St, Urban/
Arterial

Summary of Road Network

Road Surface Type



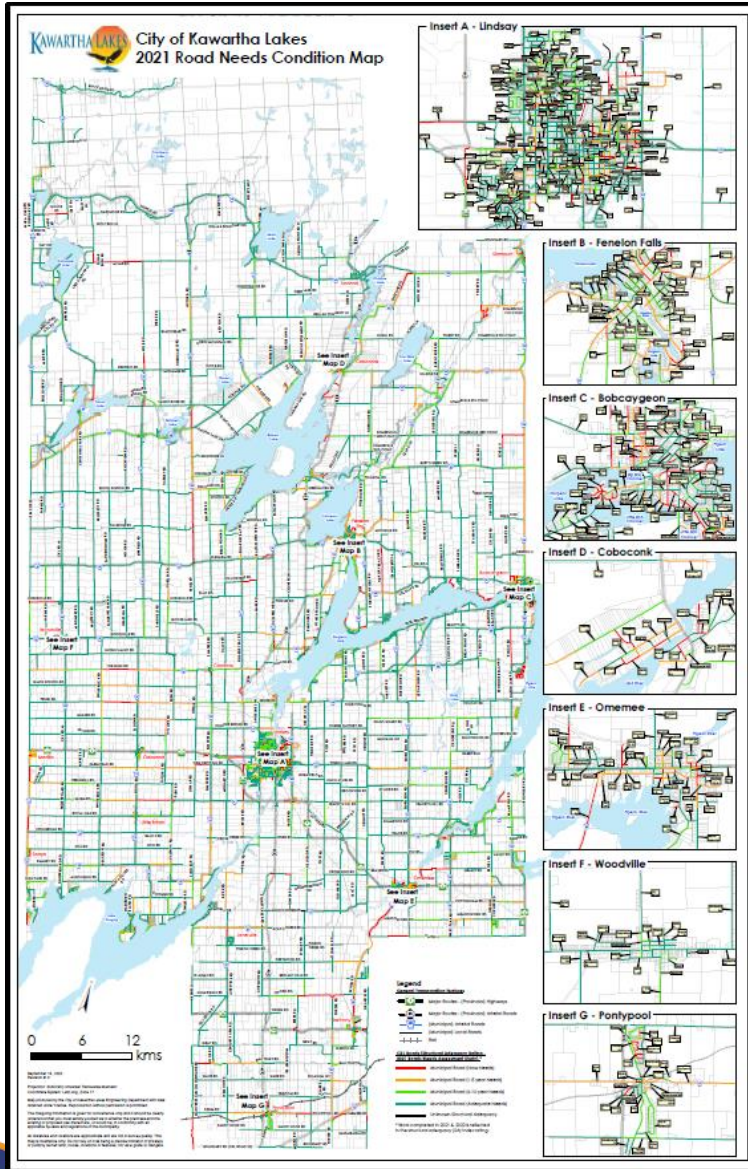
Road Side Environment



Summary of Findings

- Two (2) 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.
- 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. (this pertains to hard top and asphalt roads)
- 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.
- These needs equated to just over 116 million

Road Network Deficiency Map



The Road network deficiencies for "Now", "1-5" and "6-10" as ID in the 2021 Roads needs study have been map for visual purposes and provided to Council .

Below is link where they can be viewed.

https://www.google.com/maps/d/edit?mid=1Dxt7TXhxoF48ULgzAJrj2jNyoO_q3Vc&usp=sharing

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.

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

Roads 5 Year Plan 2023-2027

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

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.

Preventive Maintenance

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, This is done with the following types of treatments

- Localized asphalt overlays.
- Slurry seals
- Micro resurfacing



Preventive Maintenance

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.



Questions ?

