

Municipality of Chatham-Kent
Engineering and Infrastructure Services
Engineering and Transportation Division

Information Report

To: Mayor and Members of Council

From: Brendan Falkner, P.Eng.
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Date: December 17, 2021

Subject: Road Ratings and Asset Management Software

This report is for the information of Council.

Background

Road condition ratings are needed for lifecycle budgeting and on-time asset management. Road condition ratings, combined with appropriate decision trees, allow administration to make cost effective decisions and spend the money in the right place at the right time. It was determined that due to the number of lane kilometers that Chatham-Kent has in inventory, that not only was an automated road analysis required for informed asset management, but analytic software specific to linear asset lifecycle management was also required. Having consistent, repeatable and accurate data collection assisted administration in decision making.

In 2015 a team was formed to review the need for a method to obtain road rating condition data. A Request for Proposal (RFP) was released and Fugro Roadware was selected to rate Chatham-Kent's paved road network. These rating were used by administration to develop maintenance lists for 2017 to 2020. During this time, it was determined that Chatham-Kent required additional management software due to the number of lane kilometers in the road network. An RFP was released in 2019 for vendors to submit proposals to meet Chatham-Kent's need. The RFP was awarded to StreetScan for the road assessment services and asset management software by Council in September 2019.

StreetScan was the only company that offered the full turn-key service that Engineering was looking for in terms of road assessment and for forecast/budgeting purposes. The forecast/budget tool allows for a maintenance strategy to be established from the data collected, combined with the appropriate decision trees. Decision trees are established based on the classification of a road network (arterial, collector or local) which have the appropriate treatments identified based on their current Pavement Condition Index (PCI).

From this a maintenance program can be established for various road maintenance contracts based on the current funds allocated to lifecycle roads. It should be noted that other factors are considered in the overall planning aspect, including condition of underground infrastructure, future development needs, public works input, all which must be considered. The forecast/budget tool also allows for quick analysis of lifecycle roads allocations in scenarios of increasing or conversely reducing the budget and its overall effect to the entire road network. The software visually places this data on a map so administration can see the overall effect of these changes while exploring different scenarios.

Having a systematic approach of rating roads and the storage of this data year over year, will allow administration to build degradation curves. With the lifecycle reserves being approximately 55% funded, it is crucial to ensure that lifecycle dollars are being spent in the right place at the right time.

Comments

StreetScan uses an automated vehicle to rate the paved and surface treated roads in Chatham-Kent. For the year 2020, this automated assessment was completed in the Spring. StreetScan coordinated with Chatham-Kent administration throughout the summer to complete data validation and quality control to ensure that the geometry of the road network and the ratings matched existing Chatham-Kent road centerline data. The final data was turned over to Engineering in November 2020.

The StreetScan software that administration utilizes uses four main components when generating rehabilitation plans: road rating data (PCI), decision trees, unit costs and available budget. Engineering staff has been working to fine tune these inputs to evaluate how each variable affects the maintenance lists that the software recommends.

When creating road maintenance lists for the various 2021 contracts, a hybrid of Chatham-Kent's old rating data and the new StreetScan generated lists were used. Engineering staff conducted field reviews of these segments, confirmed their ratings and adjusted the preliminary lists accordingly. Roads in close proximity to each other were grouped together in the same year to maximize value and achieve better unit prices. Public works supervisors, who travel all throughout Chatham-Kent on a daily basis, were consulted throughout this process. Engineering and Drainage staff were also consulted to ensure no other work was scheduled for these road segments in the next few years. Roads that required work by others were shuffled to later years' contracts.

Engineering staff is currently working on developing preliminary lists for 2022 to 2024 resurfacing contracts for all rural and urban areas. These preliminary lists have been circulated to Public Works, Drainage and Engineering staff for their review and comment.

Consultation

No other departments were consulted in the preparation of this report.

Financial Implications

There are no financial implications associated with this information report.

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Attachments: None

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