



2021 Division Road North
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Date: January 8, 2019
To: Mayor and Council
Author: Tim Del Greco, Manager of Municipal Services
RE: 2018 Road Conditions Assessment
Report No.: MS 2019 - 03

AIM

To provide Council the results of the latest road conditions assessment.

BACKGROUND

In September of 2018, StreetScan was contracted by the Town of Kingsville to assess the physical conditions of all municipal roads. The assessment was completed using a vehicle outfitted with a number of sensors and cameras that are capable of identifying road distress. Examples of distress captured by the sensors include cracking, raveling, rutting, depressions, potholes, weathering, and patches. The data collected from the sensors was used to create a Pavement Condition Index (PCI) for each roadway. The PCI ranges from 0 (the worst condition) to 100 (the best possible condition).

The following table illustrates the amount of distress and suggested maintenance for various PCI values:

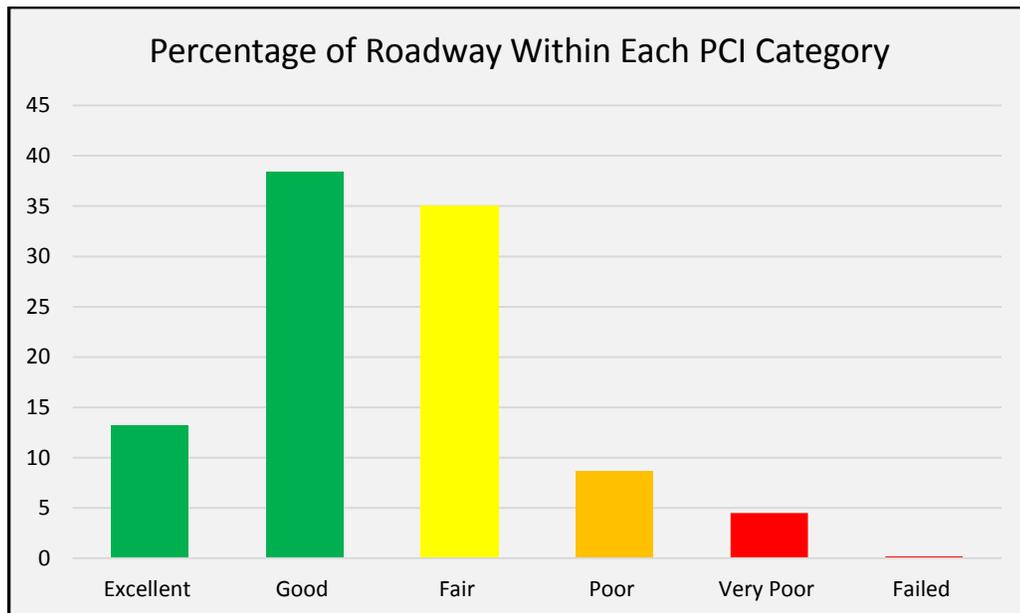
PCI Label	PCI Range	Description of Distresses	Approx. % of Segment Covered by Distresses	Suggested Maintenance
Excellent	85-100	No major distresses. Possibly some crack seal in place.	0-5%	No maintenance required.
Good	70-85	Recent crack seal starting to fail, longitudinal + transverse cracks, some recent and clean patches.	5-10%	Preventive maintenance including patches, crack seal, chip seal, slurry seal, or micro surface.
Fair	55-70	Moderate to severe block cracking, alligator cracking, potholes, and aging patches.	10-25%	Mill and overlay at depths ranging 1-2”.
Poor	40-55	Increased quantity of alligator cracking, block cracking, potholes, and patches.	25-50%	Mill and overlay at depths ranging 2-4”.

Very Poor	20-40	Severe alligator cracking. Failed patches, large quantity of deep and/or wide potholes.	50-75%	Reconstruction of street is required.
Failed	0-20	Ride quality is severely affected by deep and dense potholes, failed patches, and alligator cracking.	75-100%	Reconstruction of street required, replacement of base.

DISCUSSION

The road assessment was completed and submitted to the Town in December of 2018. The Kingsville Road Network was determined to be in “fair” condition with an average PCI of 68.8. The percentage of roadway within each PCI category is as follows:

PCI Label	PCI range	Number of KM's	%
Excellent	85-100	30.4	13.2
Good	70-85	88.3	38.4
Fair	55-70	80.4	35
Poor	40-55	20.1	8.7
Very Poor	20-40	10.4	4.5
Failed	0-20	0.4	0.2
Total		230	100



An aerial map as well as an alphabetical listing of each roadway and corresponding PCI value can be seen in Appendices A and B respectively.

The software included with the latest assessment is able to suggest a prioritization of road repair using a formula based on two important criteria, that being the condition of the road (PCI) and traffic volume. Appendix C includes a listing of road segments with the highest priority for repair per this calculation. In 2019, Municipal Services will update the 5 Year Plan for capital road repair taking into consideration this priority ranking. Other factors such as new development, increased traffic volumes, network improvements as identified

in the Kingsville Transportation Master Plan, and condition of underground services will also be considered when developing this 5 Year Plan. Presentation of this plan to Council can be expected in the third quarter of 2019.

2019 Capital Road Works

Considering the timing of the latest road assessment in relation to preparation of the 2019 Budget, Municipal Services will be recommending road repair based on a high priority ranking with minimal engineering and pre-design required. Therefore, revisions to capital road works in the first draft of the 2019 Capital Budget should be expected.

Olinda Sideroad

A petition from residents of Olinda Sideroad was received in November of 2018 requesting rehabilitation of this roadway. The petition specifies concerns relating to drainage, rutting, and crowning of the roadway.

Olinda Sideroad from County Road 34 to Road 6 East is a rural road with a surface treated pavement (tar and chip). The annual average daily traffic is 354 vehicles and considered to be low volume. Per the 2018 road conditions assessment, this section of road has an average PCI of 65 and is not identified as a high priority for rehabilitation. The crown of the road is not ideal and does exceed the recommended 2-3% of grade.

Comparable data of other roads within the Kingsville Road Network demonstrates higher priorities for repair. As a result, there are no immediate or short term plans to rehabilitate Olinda Sideroad. However, during review and revision of the 5 Year Plan for capital road repair, Olinda Sideroad will be given due consideration for inclusion.

Public Works has committed to investigating and addressing issues with drainage and minor surface distress following the winter season.

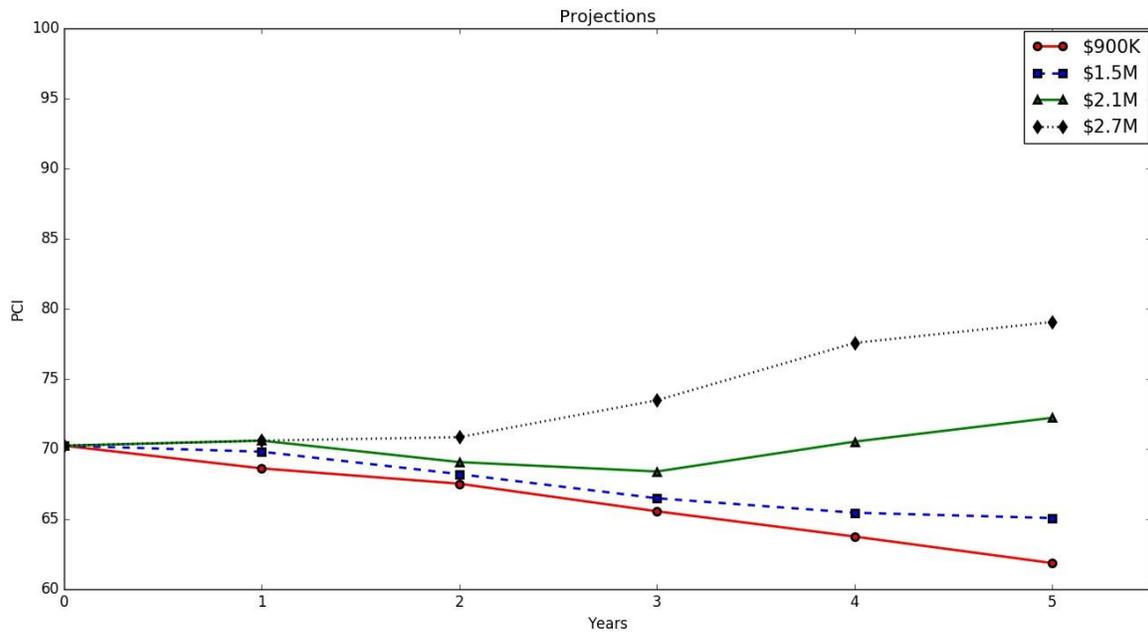
LINK TO STRATEGIC PLAN

To become a leader in sustainable infrastructure renewal and development.

FINANCIAL CONSIDERATIONS

As part of the latest assessment, StreetScan has completed a projection of future PCI values vs dollars spent per year on road repair. These projections are based on pavement deterioration rates, annual budgets, and the anticipated cost of repairs. Figure 1 below illustrates four different scenarios. The red line, which is representative of the Town's historical annual budget (approximately \$900K), shows a continued decline in road conditions and PCI value. The green line, which represents an annual budget of \$2.1M, predicts sustainability of our road network over a five year period at a PCI value of 70.

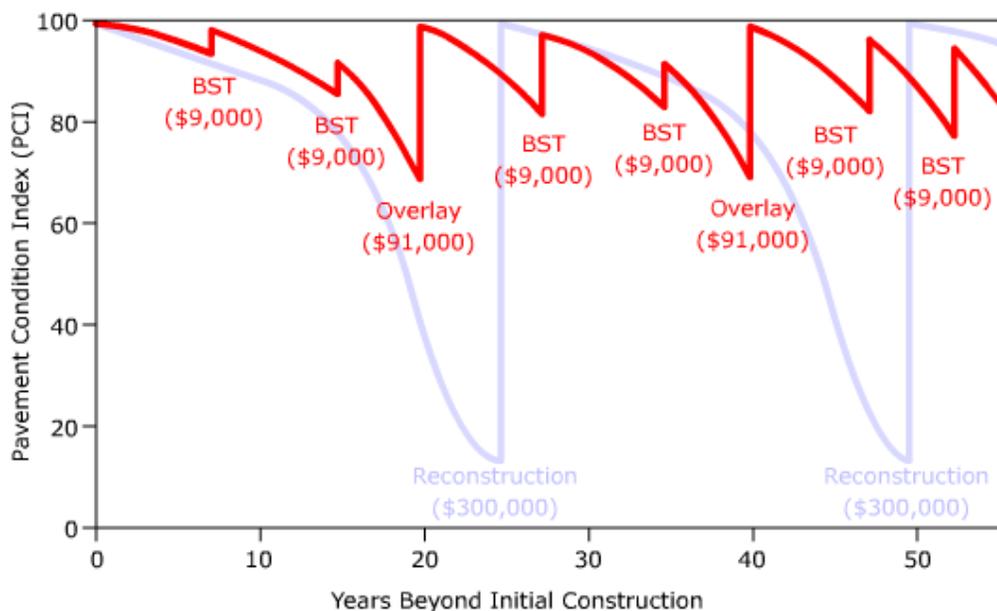
Figure 1: Projected PCI vs Varying Budgets



In addition to sustainability, increased spending is more economical in the long term as full road reconstruction is exponentially more expensive than maintenance and repair. This concept is further illustrated in Figure 2 below.

Therefore, allocating increased funding to road repair and rehabilitation should be given due consideration during budgetary deliberations. As such, the revised 5 Year Plan will include annual recommendations for capital road repair that are of higher value in comparison to previous years.

Figure 2: Effects of Maintenance and Repair on a Pavement Life Cycle Comparison Based on Cost Per Mile of a Two Lane Road



No Maintenance
Total cost = \$600,000 per lane mile

Maintenance
Total cost = \$276,000 per lane mile

CONSULTATIONS

StreetScan
Municipal Services

RECOMMENDATION

That Council:

Receive the 2018 Kingsville Road Conditions Assessment as completed by StreetScan;

And that Council receive the information relating to a request for rehabilitation of Olinda Sideroad.

Tim Del Greco

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G. A. Plancke

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