



# INFORMATION REPORT

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	January 16, 2016
<b>SUBJECT/REPORT NO:</b>	Roads Asset Management Plan Update (PW17003) (City Wide)
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	Sam Sidawi (905) 546-2424, Extension 4479
<b>SUBMITTED BY:</b>	Gary Moore, P.Eng. Director, Engineering Services Public Works
<b>SIGNATURE:</b>	

## Council Direction:

N/A

## Information:

In 2015 Bill 6, Infrastructure for Jobs and Prosperity Act, was enacted by the Provincial government. One of the objectives of this legislation's is to have municipalities complete a long term infrastructure plan and ensure that these plans are updated on a regular basis. Regulation for this legislation is currently being finalized and is expected to be in place by the middle of 2017. The intent of this regulation is to create an asset management culture that will help optimize infrastructure investments throughout the province. City of Hamilton Staff participated on a committee that helped with the development of this regulation and as such are familiar with the requirements of this pending regulation.

Long term infrastructure plans are not new to the City of Hamilton. Previous State of the Infrastructure (SOTI) reports were developed dating back to 2004. Recently an update of the City's Public Works Asset Management Plan (AMP) was completed in 2014 and is available for review online. However, in order for future AMP plans to comply with the pending regulation, these plans must include up-to-date infrastructure asset inventory, levels of service analysis, lifecycle management strategy and a comprehensive financial strategy. An update of the AMP is currently underway and will include these elements. As part of this update Public Works staff will coordinate with Corporate Services staff the preparation of the AMP financial strategy.

One of the key elements of the AMP, asset inventory update, has been completed and the findings have been summarized. These findings were presented to the Public

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Works Committee on July 7th, 2016. The detailed information will be included in the finalized version of the City's 2016 State of the Infrastructure Report on Public Works Assets (SOTI).

Utilizing the latest SOTI update staff have been developing the lifecycle plans for key public works assets. It's staff's intent to have these plans completed by the spring of 2017. However, the lifecycle plans for the road network have been completed and the results summarized in this report.

A key predictor of lifecycle needs is the overall condition of the pavement. The overall condition index (OCI) of the roadways is based on a ratio of equal components of surface condition (SCI) and ride quality (IRI). The OCI value is expressed on a scale of 0 to 100, with 100 being a roadway in new condition. This index is used to determine the lifecycle rehabilitation needs of a road as follows;

- Greater than 60 - preventative maintenance such as crack sealing
- between 45 and 60 - minor rehabilitation such as shave and pave
- between 30 and 45 - major rehabilitation such as full surface removal and replacement
- below 30, in need of full reconstruction

Based on the analysis performed, the average condition or service level of the City's roadways is as follows:

Road Classification	Network %	Replacement Value (\$M)	Condition Index (OCI)
RHVP / LINC	2.1	\$86	77
Urban Arterial Major	14.9	\$762	63
Urban Arterial Minor	6.1	\$326	61
Urban Collector	12.7	\$731	58
Urban Local	30.4	\$1,763	59
Rural Arterial	2.8	\$56	66
Rural Collector	18.6	\$396	67
Rural Local	12.3	\$266	67
Average Network Condition			62

The recent SOTI update indicates that the roadway network value is approximately \$4.9B (exclusive of the value of bridge structures). Utilizing the updated SOTI results, staff have completed a lifecycle analysis for the City's road network. This analysis identifies the current rehabilitation needs as well as the projected future needs for the city's road network. The results, depicted in the following graph, indicate that the

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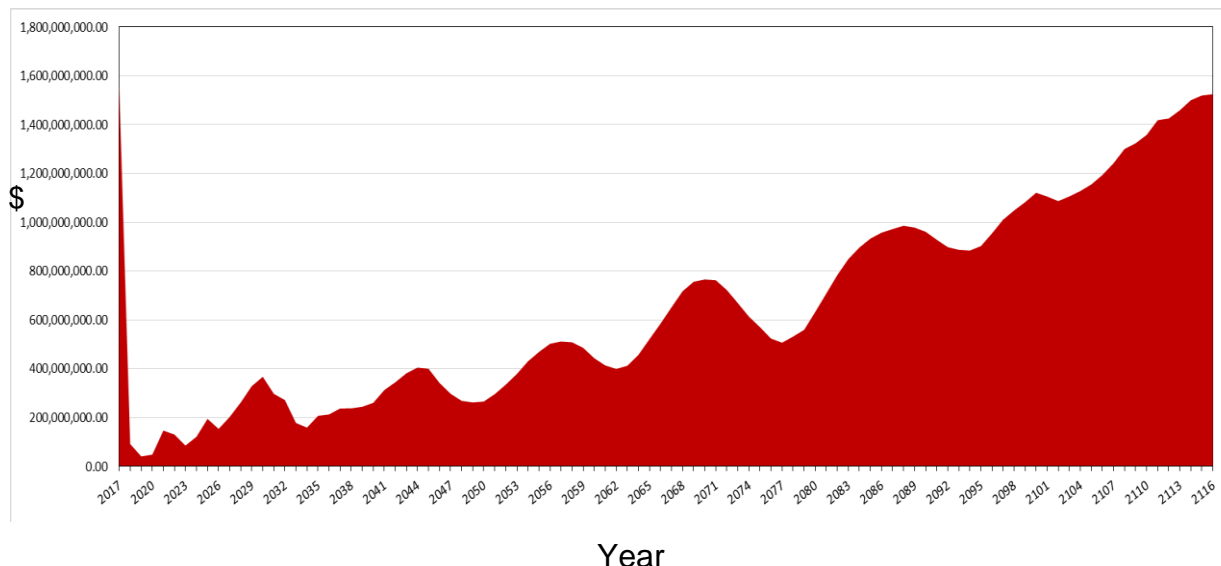
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estimated current backlog of rehabilitation needs is approximately \$1.5 billion. In addition and based on a total 10 years expenditure of \$255 million for road rehabilitation, an annual average funding deficit of approximately \$85 million exists.

Road Network 100 Year Lifecycle Needs



Recognizing the magnitude of the funding needs, additional analyses were completed to identify the outcome of various funding scenarios on the performance of the road network. The table below identifies the corresponding estimated road network OCI for these various funding scenarios. It should be noted that the OCI would only be achieved by following proper infrastructure management practises that address existing infrastructure needs. Enhancement or network expansion projects, such as urbanization or widening, are not included and must be addressed through additional capital funds.

2017 – 2026 Road Program Allocation	10 Year Funding Requirements (\$M)	OCI 2026	Service Loss
\$25.5M / year	\$255	54	-8
\$25.5 + \$3.25M / year	\$401	59	-3
Maintain OCI of 60	\$463	60	-2
Maintain OCI of 65	\$617	65	3
Need-Driven	\$1,357	81	19
Maintain Current OCI - 62	\$521	62.0	0

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The results of the analysis indicate that in order to maintain the current average condition rating of 62.0, over a ten year timeframe, an annual funding allocation of \$52.1M is required. On the other hand, the current funding allocation of \$25.5M for road rehabilitation will result in an overall network service level of 54.

It should be noted that rehabilitation of roads is completed on a coordinated basis for all assets within the road right of way (ROW). Given the magnitude of needs for all ROW assets, the co-ordination of infrastructure rehabilitation is critical. This co-ordination provides the maximum impact to service levels enhancement and optimizes the city's return on investment.

Staff will be bringing further Information Update reports summarizing the results of the AMP for all of the City's assets. However, the lifecycle analysis for roads does confirm that based on the current funding allocation, the overall service level will continue to decline.

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