

## **Background**

At the request of the Operations Committee on March 18, 2019, staff was directed to prepare a report which outlines the impacts and benefits of redirecting money allocated for local roads projects to large spreader laid asphalt patches.

This report will provide a brief overview of the history and reasons for of the funding of these programs, the methods of the selection, and the impact of the funding on the assets.

### **Local Roads:**

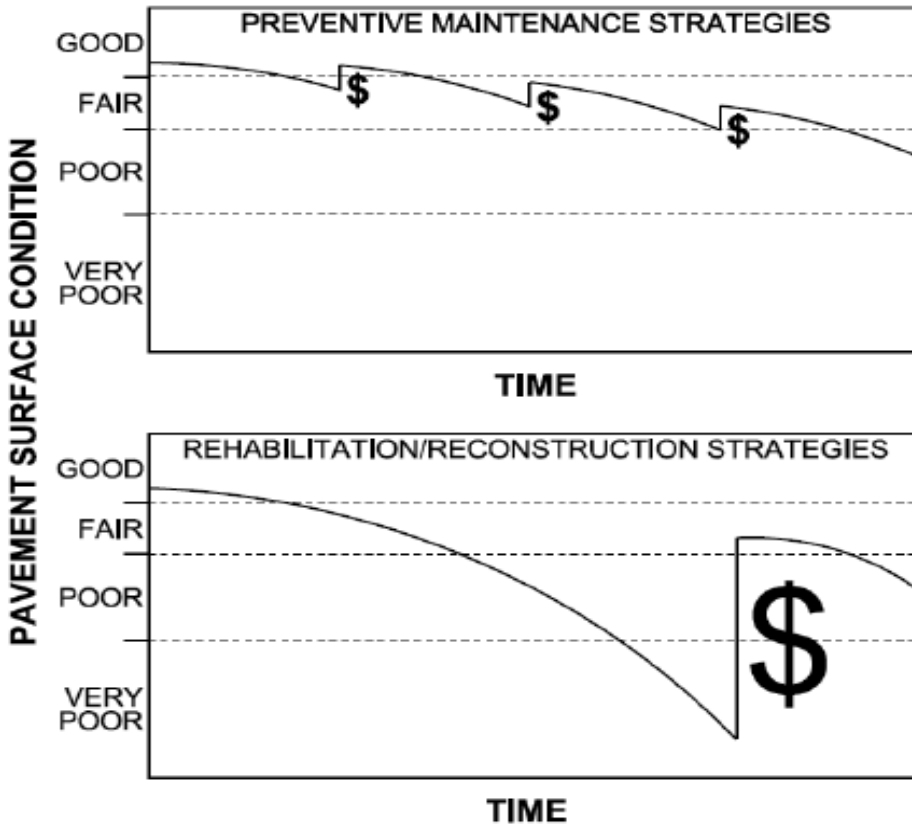
Capital project funding allocation under the previous envelope budgeting process was presented and adopted by council through a report prepared for the Priorities Committee dated February 26, 2009 and updated through a report prepared for the Operations Committee dated September 9, 2015. These reports set the target expenditure on local roads at 20% of the roads capital budget. The average annual expenditure on preventative maintenance strategies of local asphalt roads over the last several years has been approximately \$5 million. In preparation of the 2019 capital infrastructure plan, approximately \$5.1 million is allocated to local asphalt road projects which includes \$2.3 million for local road asset projects and \$2.8 million for local road and water/wastewater projects.

Funds were allocated to rehabilitation of local roads to maintain the local road pavement management program which prevents increased deterioration of the City's local road network. Roads selected under this program are roads that are in a condition such that maximum benefit from the program funding is achieved, i.e. the right treatment at the right time. The result of this strategy is that roads that have deteriorated significantly and require extensive repairs are not selected because this is not the most efficient use of the available funding. The Pavement Management Strategies indicated on the following page graphically demonstrates the two funding strategies. The upper graph represents the benefit of using pavement management strategies compared to the lower graph which demonstrates the higher costs of replacing the asset when it is not maintained.

The Average Network Condition – Local Roads graph on the following page was included in a presentation to the Operations Committee on September 9, 2015. This graph demonstrates the effect of various levels of funding of the local road network over time. In 2016 the average PCI of the local road network was measured to be 43. This value is slightly lower than that predicted from the graph but demonstrates that our pavement management program has provided us with a reasonable method of prediction of the road system condition based on annual funding.

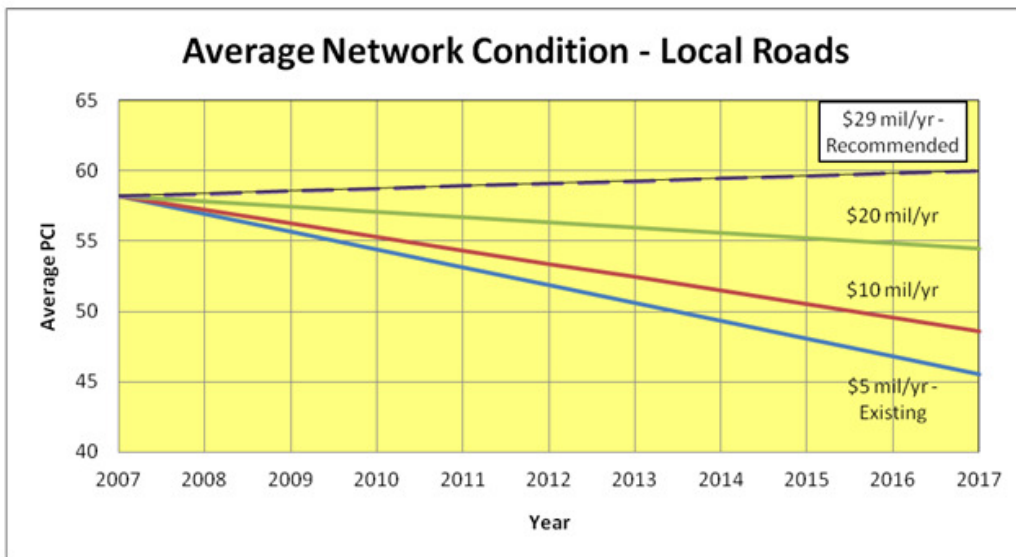
The annual recommended investment in local roads indicated on the graph is \$29 million. This aligns closely with our current estimation. For additional information on funding of the roads program, please refer to Appendix A, KPMG Report dated July 10, 2012 titled Financial Planning for Municipal Roads, Structures and Related Infrastructure.

## PAVEMENT MANAGEMENT STRATEGIES



### Notes:

Graph Source: VTrans Pavement Management Annual Report 2009.  
 Each \$1 spent during the first 40% drop in quality will cost \$4 to \$5 if delayed until the pavement loses 80% of its original quality (Source: World Bank).



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## **Spreader Laid Asphalt Patches:**

The work completed under the Spreader Laid Patches contract has been considered a maintenance activity with Roads Operations staff selecting the patch locations in areas that have required significant maintenance resources. In many instances, the areas selected would be sections of road that have deteriorated beyond the point where effective pavement management treatments would be considered economically efficient. In these cases, the spreader laid patches are considered to be a temporary treatment until such time funding becomes available to repair the road surface and substructure.

The work of this contract could potentially be used for resurfacing of sections of road which would significantly benefit from this type of treatment. For example, in areas where maintenance staff have noted surface asphalt delamination that has not yet been measured by the pavement management program, the asphalt could be repaired to significantly extend the life of the road if the road substructure is in good condition. Although City staff do not currently have detailed information on the performance of spreader laid patches we have observed an above average patch performance in areas of native granular soils such as sections of MR80 and Capreol Road.

The current proposed funding in 2019 for large asphalt patches is \$5.1 million which is approximately double the maximum program funding provided in recent years.

## **Funding Allocation for Local Roads and Spreader Laid Patches:**

It is difficult to prioritize between the local roads pavement management program and the spreader laid patches contract. Funds spent on the local roads will save future expenditures on more costly local road construction projects. Funds spent on spreader laid patches will provide a shorter term benefit in providing smoother driving surfaces but will not necessarily realize the benefit of constructing the right treatment at the right time.

It would be our recommendation at this time to continue with the proposed local road program in 2019. This work is aligned with the program that has been in progress for several years and has demonstrated that the pavement management program results generally support the predicted condition of the network. Funds spent in 2019 to reduce future spending on our roads assets is an efficient use of our funds.

The \$5.1 million currently proposed in 2019 for the spreader laid patches is significantly more than proposed in previous years. It would be our recommendation to maintain this funding to enable staff and contractors to execute this relatively large program as proposed. When the spreader laid patches contract is complete, we can reassess the execution of the contract, the condition of the high maintenance areas, our ability to potentially use these funds for surface improvements where the road substructure is sound and determine if increasing the funding of this program is an efficient use of our road network funds.