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# ***City of Saskatoon*** Roads Maintenance Program Audit – Update/Dashboard

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*SPCF Public Meeting*

*November 7, 2016*



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# *Background*

## *Roads Maintenance Program Audit*

The Roadways audit project was initially presented to SPCF in February and March of 2016. The intent of the project was to determine whether those divisions which act as custodians of the roadways and are entrusted with executing on spending are achieving economy, efficiency and effectiveness in the manner in which they are operating. Within the report were 8 specific findings and recommendations. In a document named “Administration Response and Timelines – PwC Roads Maintenance Program Value for Money Report” dated April 4, 2016, the City of Saskatoon Administration provided detailed responses and timelines for full implementation to each of the 8 recommendations. Note that 1 of the 8 items is complete and the remaining 7 items are on-track.

## *Internal Audit Services Agreement*

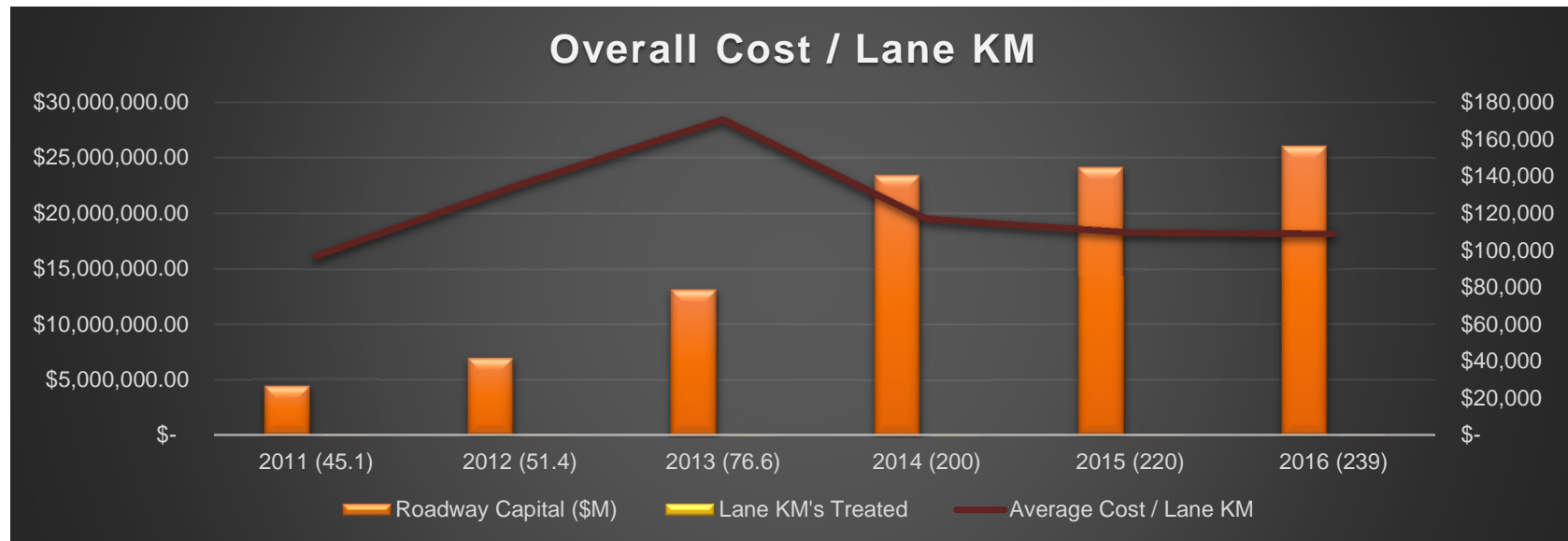
The Internal Audit Services Agreement dated January 1, 2015 between the City of Saskatoon (the “City”) and PricewaterhouseCoopers LLP (“PwC”) requires that PwC provide “tracking of management’s remediation effort on previously reported findings”. This Update/Dashboard document satisfies that requirement as well as provides updates on key efficiency, effectiveness and economy findings initially reported for 2015 in the March 2016 report.

# Economy

## Is Spending Providing Highest Potential Value?

### Major Projects Capital Roadway Funding and Lane KM Treated (2011-2016)

The following chart illustrates the total spending from 2011 to 2016 as well the cost per lane kilometre of the treatments. Note that 2016 figures represent forecasts based on actuals as of October 20, 2016.



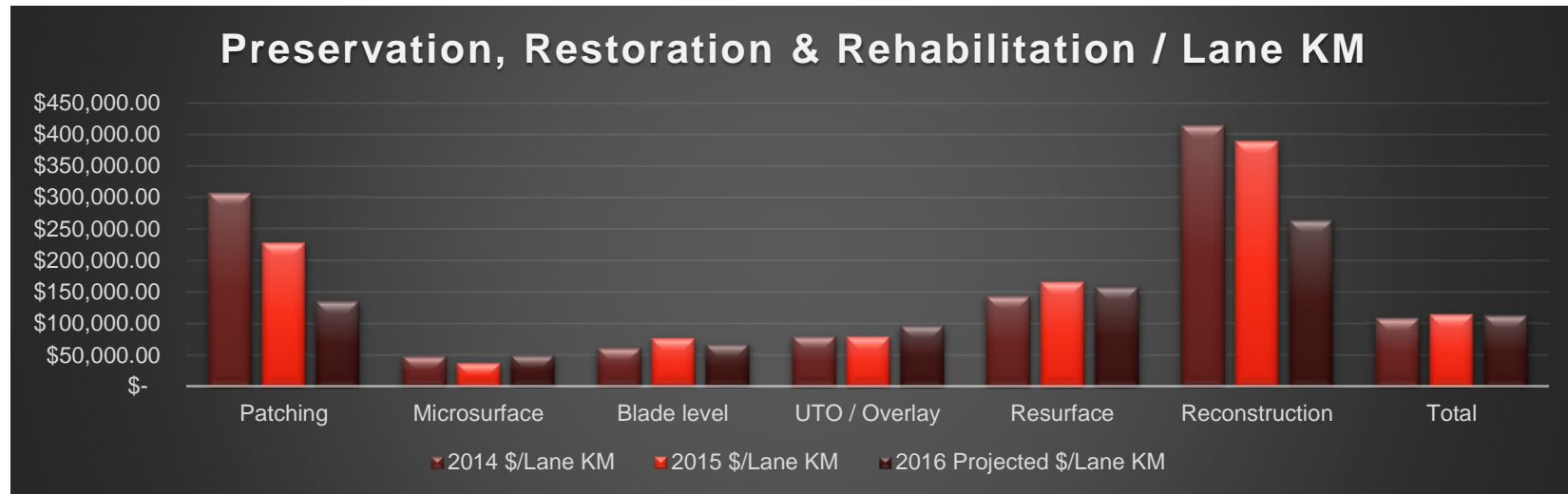
As of October 20, 2016, the forecast for the full 2016 year was to complete 239 lane KM's at a cost of approximately \$26.04 million. At this rate, the projected cost per lane KM is approximately \$109,000, which is slightly less than the \$110,000 for 2015 and the \$117,000 in 2014. Overall, the cost per lane KM has decreased significantly since 2012 and 2013. The report in March 2016 indicated that the City's trends in cost per lane KM were within reasonable parameters when compared to comparable municipalities reporting in the Municipal Benchmarking Network Canada (MBNCanada) Performance Measurement Reports. The most recently available MBNCanada Performance Measurement Report is for 2014.

# Efficiency

## Is the Roadways Program Operating Efficiently?

### Road Preservation, Restoration and Rehabilitation Spending (2014-2016)

The following chart highlights work undertaken by Major Projects for roadway treatment and compares the years 2014 through 2016, which represent the years of significant investment. Note that 2016 figures represent forecasts based on actuals as of October 20, 2016. Note also that certain less significant treatments unique to only one fiscal year (i.e. paver lay) were excluded from the analysis.



On a total basis, the results when comparing 2014 to 2015 were consistent, suggesting that efficiency was maintained year-over-year in the first two years of significant roadways investment. All else being equal, if the costs per lane KM had been exactly the same in 2015 as in 2014, the cost of treating the 2015 suite of lane kilometres would have been approximately \$0.2 million or 1% less. On a total basis, the same consistency exists when comparing 2015 to 2016, suggesting that efficiency has been maintained across the 3-year period from 2014 to 2016. All else being equal, if the costs per lane KM had been exactly the same in 2016 as in 2015, the cost of treating the 2016 suite of lane kilometres would have been approximately \$0.3 million or 1% more.

Note that significant efficiencies appear to have been achieved from 2014 to 2016 in patching and reconstruction. These efficiencies have less of an impact on the total cost per lane kilometre of the program as although they are the most expensive treatments on a per lane KM basis, they also represent a relatively insignificant portion of the total lane KM's treated each year (less than 10%).

# *Effectiveness*

## Is the Road Program Meeting Goals and Objectives?

### *Condition Ratings*

Condition ratings are perhaps the most crucial measure when assessing the effectiveness of the Road Maintenance Program. There have been no updates in this area since the initial PwC report was released in March 2016. In 2014, a full condition assessment of the entire paved roadway network within the City was undertaken. The target city wide rating cycle for all paved roadways in Saskatoon is every four years. A total of 64.9% of the City's roadways were scored within the highest 2 categories of the Pavement Condition Index (PCI). The condition ratings for Saskatoon compare favourably with data available from MBNCanada Performance Measurement Reports from 2008 through 2014, which identify the % of paved lane KM where the condition rating is "good" to "very good". The MBNCanada single-tier (municipalities responsible for maintaining all types of roads, including arterial, collector and local roads and, in some cases, expressways and laneways) median increased from 51% to 54% over the period from 2008 to 2014. Calgary is an example of a leading municipality in terms of condition ratings with a measure of 81% in 2014.

# Updates to Recommendations and Timeline

## Administration Response and Timelines

In a document named “Administration Response and Timelines – PwC Roads Maintenance Program Value for Money Report” dated April 4, 2016, the City of Saskatoon Administration provided detailed responses and timelines for full implementation to each of the 8 recommendations identified by PwC in its report. A specific follow-up report on the status of all audit recommendations is now required, which is outlined below. Note that 1 of the 8 items is complete and the remaining 7 items are on-track.

## Summary of Recommendations, Responses, and Implementation Timelines

Summarised Response	Initial Timeline for Full Implementation	Updates to Timeline for Implementation	Status
1) PwC recommends that administration implement activity-based budgeting using detailed inventory unit costs to develop annual spring/summer road maintenance budget.			
Administration agrees. Activity based budgeting (“ABB”) will also require documented levels of service.	<p>Winter service levels were updated and approved in 2015. Levels of service are currently being developed and will be submitted to Committee and Council throughout 2016 and 2017, with the final item submitted by August 2017.</p> <p>For the next 5 year period, Roadways will use existing systems to achieve this objective. A portion of the 2017 operating budget will be developed using ABB and for the 2018 budget, the entire Roadways budget will be activity based.</p>	<p>Roadways and Operations has been tracking job numbers and activities in Timberline.</p> <p>Winter Levels of Service have been refined and updated for the winter of 2016/17. The city is piloting tracking systems for automating the capture of winter maintenance activities to support winter activity based budgeting.</p> <p>Major Projects conducts annual asset inspections that are currently used to build annual preservation programs. For the 2018 budget cycle, Roadways and Operations will develop needs based budgets and planned maintenance activities for each asset group based on these inspections.</p> <p>Roadways and Operations is using existing systems for capturing activities and associated costs. In the summer of 2017, activities will be tracked and entered to develop accurate costs and quantities to enable needs based models for 2018.</p>	<b>ON-TRACK</b>

- 2) PwC recommends that spending decisions be reviewed in a holistic manner and that adequate levels of work be coordinated with the desired level of service to ensure adequate planning from the onset.

<p>Administration agrees. Program specific levels of service will enable the operations to determine the correct labour, equipment and materials resourcing requirements to achieve adequate work levels.</p>	<p>By October of 2017, a formal process will be developed which will outline how in-year budget adjustments are made considering budget status and documented service levels.</p>	<p>Roadways and Operations is investigating Decision Analyses models for integration into in-year budget adjustment decisions. These models will use historical information to assess financial risk distributions and guide decision making to inform the administration on the lowest risk alternatives for reducing budgets, and the highest opportunity alternatives for allocating cost savings.</p> <p>A formal process to inform and track in-year adjustments will be developed for October 2017.</p>	<p><b>ON-TRACK</b></p>
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- 3) PwC recommends that a formal detailed activity-based annual maintenance plan be developed which factors in new roads as far in advance as possible and contains an appropriate mix of strategic preventative maintenance and anticipated reactive maintenance.

<p>Administration agrees. A formal maintenance plan is currently being developed to determine the best practices of what, where and when roadway treatments are most effective for longevity, efficiency and effectiveness.</p>	<p>A proactive maintenance strategy is underway through the development of defined levels of services. In concert with the timelines for documented service levels and ABB methodology, the 2017 budget will be partially (approximately 50%) activity based. For 2018, the entire budget will be activity based and all maintenance activities related to preservation of assets will be coordinated.</p>	<p>Roadways and Operations will be using inspection data to develop needs based budgets and maintenance plans by asset group for the 2018 summer season. This will incorporate summer levels of service and basic safe operating requirements for each infrastructure type. Major Projects incorporates activity based maintenance planning into their annual preservation program based on inspection data.</p>	<p><b>ON-TRACK</b></p>
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- 4) PwC recommends that Public Works and Major Projects increase their formal level of communication and the synchronization of their planning and reporting to reduce inefficiencies relating to planning and coordination and redundancies of work performed.

<p>Administration agrees. The action plan is to work closely together to create mutually beneficial programs using the network condition data and historical treatment data that was collected as a driver for both programs.</p>	<p>Major Projects and Public Works currently meet regularly to discuss and develop proactive maintenance and preservation initiatives and plans. The groups will continue to communicate and work together with the ultimate goal to create mutually beneficial programs and reduce inefficiencies that might exist between the two programs.</p>	<p>This item has been achieved and is being sustained through regular meetings between functional groups.</p>	<p><b>COMPLETE</b></p>
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- 5) PwC recommends that any future ERP system implemented allows for a completely integrated solution to allow Public Works to adequately track their activities, costs, time spent on projects and any other relevant details.

<p>Administration agrees. Tracking of maintenance costs, along with the locations treated, needs to be integrated into a common system, allowing for more information to be better utilised as a decision making tool or trigger when selecting roads for surface treatment.</p>	<p>An ERP evaluation project is currently underway. Monthly project status updates continue, helping ensure coordination and awareness. At time, an implementation date of May 2021 is estimated for Roadways. In the interim, existing systems will be used to satisfy this recommendation, along with increased formal coordination.</p>	<p>An ERP evaluation project is currently underway. Monthly project status updates continue, helping ensure coordination and awareness. At this time, an implementation date of May 2021 is estimated for Roadways. In the interim, existing systems will be used to satisfy this recommendation, along with increased formal coordination.</p>	<p><b>ON-TRACK</b></p>
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- 6) PwC recommends that prioritized, proactive full life cycle planning begin to be implemented on a go-forward basis for new roadways infrastructure in which the scope of Public Works and Major Projects scope of responsibilities for maintenance, preservation and rehabilitation is further defined.

<p>Administration agrees.</p>	<p>An Asset Management Plan is being developed to document and identify the groups responsible for each component of the life cycle of the asset from planning to salvage. The next step will be to develop a life cycle plan for our roadway assets and implement a proactive asset management plan by utilizing the appropriate treatments to extend the life cycle of the infrastructure in a cost effective manner. Although interim reports will be brought forward, this is a significant undertaking and is expected to be fully complete by September 2018.</p>	<p>This item is progressing and we are on track to have these tasks implemented by the end of 2018.</p>	<p><b>ON-TRACK</b></p>
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- 7) PwC recommends that Public Works maintain sufficient engineering technologists to ensure all projects are being reviewed for quality.

<p>Administration agrees. Engineering technologists have been hired as temporary inspectors in recent years to</p>	<p>Two engineering technologist 12-month temporary postings are currently in place with an additional two 6-month temporary postings to be hired in May 2016. This is the</p>	<p>Engineering technologists have been in place for most of 2016 and have been integrated into program design and execution within Roadway and Operations. Technical staff have been performing ongoing QA/QC</p>	<p><b>ON-TRACK</b></p>
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achieve this objective. Going forward, these positions will be expanded to ensure that quality control (QC) and quality assurance (QA) continue to be a primary focus. The inclusion of QA and QC into the tender process is currently in development and will be included in the 2016 spring tenders.

second year in which technologists have been used in this capacity. The summer 2016 positions will be focused on QA and QC, as well as project management and coordination of the Utility Cut Program.

Transportation & Utilities will be evaluating the impact of these temporary positions and expects to bring forward a staffing request in the 2017 budget.

for new and existing programs.

In conjunction with the completion of Job Safety Hazard Assessments, Roadways and Operations will be creating Standard Operating Procedures for key work activities. This will capture best practices from both the quality and safety perspectives. Ongoing review and update of these procedures will support continuous quality improvement.

- 8) PwC recommends that vendor pre-qualification criterion be drafted to ensure that vendors of the desired quality be awarded the respective tenders.

Administration agrees. An information report will be submitted in Q1 2016 providing an update on the changes being made for 2016. Best practices will be followed, including implementation of a system that measures and pre-qualifies contractors based on financial, quality, safety and delivery performance metrics.

In both the 2015 and 2016 construction seasons, more extensive use of RFP's and pre-qualification processes was used. Examples include water main lining (2015) and the Broadway construction work (2016), which both were procured using a prequalification process.

A report to Committee will be brought forward by June 2016 which will provide information on a broader prequalification process, and will provide an update on an RFP to be issued seeking a formal prequalification system and process. This system is expected to be in place for the 2017 season for priority contracts.

During the 2016 construction season a manual prequalification RFQ process was used on strategic or high risk projects. In June 2016 a report to Council was brought forward and approved. Manual prequalification via RFQ will continue to be used into the 2017 season. The RFP has been written and is expected to be issued in Q4 2016 and will be phased in over 2017 and continue rollout through to 2020.

**ON-TRACK**

