



INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	March 21, 2022
SUBJECT/REPORT NO:	Public Works Response and Actions to Roads Value for Money Audit - Cracked Sealing Process (PW22012) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
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SIGNATURE:	

COUNCIL DIRECTION

At the July 8, 2021 Audit Finance and Administration Committee meeting, the Roads Value for Money Audit Report (AUD21006) was presented. As part of the findings, Public Works staff were requested to investigate their Crack Sealing process and report back on the reasons the process was stopped, prioritization of the process going forward, and the funding required to perform the repairs.

An overall update on the Roads Value for Money Audit Report was provided through Report PW22007 at the General Issues Committee on February 17, 2022.

INFORMATION

Crack sealing is a roadway maintenance preservation technique to slow down the rate of deterioration and effectively increase the useful life of pavement. The process is performed by sealing cracks in the pavement surface to prevent water or other substances from entering and further damaging the roadway surface. Crack sealing is most effective when performed immediately after cracks appear and is not effective in

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addressing structural condition issues that are beyond minor surface pavement cracking.

Alternative techniques, such as surface and bonded wearing course treatments (overlays) are also used to improve the quality and extend the life of pavement. These treatments are generally used only on rural roads and are to improve pavement conditions, such as increased skid resistance and to fill cracks to protect/preserve the underlying pavement and base.

The determination of the appropriate preservation treatment, crack sealing for example, is based on factors such as location (rural vs. urban), traffic volume, pavement condition, and pavement age. Crack sealing is most effective in pavements three to seven years old, and not effective if the pavement has base failures, severe rutting or fatigue cracking.

When a roadway is resurfaced or reconstructed as part of the capital rehabilitation or replacement program, crack sealing is sometimes conducted as part of the two-year post-construction contractor warrantee obligations which is generally overseen by Engineering Services.

The Transportation Operations & Maintenance Division is responsible for overseeing roadway maintenance and utilizes crack sealing as a preventative maintenance technique, however it has not been a designated stand-alone program but rather a method that is leveraged as part of the overall roadway maintenance strategy.

Previously, crack sealing was included as part of a Roadway Maintenance capital preventative pavement maintenance budget which also included other preservation techniques such as surface and bonded wearing course treatments. Historically, annual funding was prioritized to other pavement preservation techniques over crack sealing partially because a dedicated crack sealing program was not formally established.

In reviewing records, it was found that the crack sealing program was paused in 2014. At the time, there was no defined process to determine specific locations for crack sealing, rather, it was left to the discretion of the Roadway Maintenance Operations Districts. Locations were identified requiring preventative maintenance; however, they did not fit the criteria for crack sealing and crack sealing wasn't a programmed activity. Crack sealing was viewed as a more disruptive treatment due to the dust created but technology has since improved and creates far less dust.

Between 2017 and 2019, a trial of a mastic crack sealing technique was conducted to determine its effectiveness. This process involves spreading mastic sealing into existing cracks, without routing the existing crack. While this did provide a temporary repair, it was determined to lack longevity when reviewed in subsequent years. There was

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another pause in crack sealing by Transportation Operations & Maintenance in 2020 due to resourcing and to complete the review of the trial results.

In 2021, a crack sealing contract was tendered and awarded by Transportation, Operations & Maintenance which was used to undertake of 18,000 linear meters of cracks sealing at a cost of \$100,000. For 2022, the funding allocation was increased to \$150,000 and funded from a newly created annual capital account designated specifically for crack sealing with the intention of having a year over year increase of 5%.

As a result of the Roads Value for Money Audit (AUD21006) report, specifically Recommendation 6 which outlined strategies developed by Public Works “to deploy more proactive management of road assets with greater emphasis on preservation” Transportation Operations & Maintenance is actively collaborated with the Engineering Services Division to fulfil this through the development of a pavement preservation strategy that will form part of the Transportation Quality Management System (TQMS) Operational Plan. This strategy is intended to be comprehensive and include crack sealing as a type of preservation treatment along with many other treatment options. The TQMS is a framework that documents processes, procedures, and responsibilities to safely, effectively and efficiently design, construct, maintain and operate the City’s transportation system while meeting applicable legislative and regulatory requirements.

Through the new procedure, locations for crack sealing will be formally identified and actioned. Candidate locations selected to receive crack sealing will typically consist of roadways that are three to seven years old, in non-residential locations, and based on Overall Condition Index (OCI) which indicates the general condition of a pavement section. A detailed assessment of the selected locations will be undertaken by Transportation Operations & Maintenance in the spring, following the winter thaw period, and in coordination with Engineering Services, confirm the candidates for crack sealing. The repairs will then be scheduled and implemented during ideal conditions in late summer and/or autumn.

Overall, crack sealing is a cost-effective preventative maintenance technique when applied in the correct circumstances. Going forward, the Public Works preservation approach being developed which will consider crack sealing and other treatments to jointly work to extend the life of pavement in a more sustainable method than previously.

APPENDICES AND SCHEDULES ATTACHED

N/A