

Memo

To: Dave Cosgrove, Town of Lyons Director of Parks & Public Works

Date: March 10th, 2023

From: Justin Doles, PE
Town Engineer and Project Manager

RE: McConnell Drive Pavement Rehabilitation Recommendation

The purpose of this memo is to provide a recommendation for the distressed asphalt pavement on McConnell Drive from 2nd Avenue to Bohn Court. This is the stretch of roadway in front of the Lyons Middle Senior High School.

In 2019, the Town of Lyons (Town) hired Capital Asset & Pavement Services, Inc. (CAPS) to provide an assessment of the existing pavements and provide recommendations for future pavement maintenance and rehabilitation. CAPS performed its visual inspection of the pavements in November 2019.

From this inspection, CAPS produced a *Pavement Management Budget Options Report* and submitted it to the Town in March 2020. This report provided a Pavement Condition Index (PCI) of all inspected streets to assist the Town with identifying street preservation and rehabilitation priorities. In general, a street that has a PCI of over 70 is in "Good" condition and can remain in "Good" condition for a longer period if relatively inexpensive preventative maintenance treatments (crack, chip, and slurry sealing) are used.

However, if the PCI falls below 70, more expensive rehabilitation treatments such as a mill and overlay are required, and if the PCI falls below 40, increasingly expensive treatments such as full-depth reclamation or complete reconstruction are required. During the 2019 inspections, CAPS rated this section of pavement on McConnell Drive as a 36 with a remaining life of 2.2 years. The CAPS report recommended a full-depth reclamation (4" HMA/6" ABC) to be completed in 2023.

Based on observations by Town staff for this portion of McConnell Drive, it appeared that full-depth reclamation might not be warranted and that a mill and overlay with full-depth reclamation in isolated areas would be sufficient.

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TO THE ROCKIES

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Most of the pavement in this section seems to fit the definition of "Block Cracking - High Severity" according to the CDOT Pavement Distress Manual. The recommended treatment in the manual for this condition is a mill and overlay. The isolated highly deteriorated portions likely classify as "Fatigue Cracking - High Severity". Full-depth reclamation is recommended in the manual for this condition.

In order to further understand the Pavement condition, Town staff performed pavement coring in four locations on March 8, 2023, on this section of McConnell Drive. Two were taken from the block cracking areas and two were taken from the fatigue cracking areas. Pictures of the cores are shown below.



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Picture of Core Samples. Left to right - Block Cracking section near 2nd Ave, block cracking section 200' north of Bohn Ct, fatigue cracking section near southernmost school crosswalk, fatigue cracking section near northernmost school crosswalk (bottom 2" of this core disintegrated)

For the blocked cracked areas, the cores show that these areas have an approximate pavement thickness of seven inches and the lower sections of pavement are in good condition. This further indicates that a mill and overlay would be an adequate treatment for this condition. The milling would remove the worn upper layer and there is a stable foundation layer for the new pavement overlay.

The cores show that the fatigue cracked areas have an approximate pavement thickness of four inches and the pavement material is fatigued and fractured throughout the entire core. It is unknown why those pavement areas are thinner, but it is likely the reason why the pavement in these areas is so highly distressed. The asphalt and aggregate base in these areas will have to be removed, excavated to low enough to all for a full pavement section, and rebuilt with new aggregate base and asphalt.

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It is recommended that this section of McConnell drive be included in the 2023 pavement maintenance and rehabilitation program if there is a sufficient budget for the program. The section is approximately 1,200 feet long and 40 feet wide for a total of 5,300 square yards. It is assumed that approximately 10% of the section will require full-depth reclamation or 530 square yards.

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