

**Operational Services Report to
Infrastructure and Planning Committee
2024 October 16**

**ISC: UNRESTRICTED
IP2024-1043**

Pavement Quality Level of Service

PURPOSE

This report is in response to Motion EC2023-0608 and provides a recommended pavement quality level of service and the additional annual investment required. In its current state, the pavement quality in Calgary is 38 per cent in good condition and decreasing annually. Citizen surveys show that this decrease in road condition is impacting satisfaction. This report outlines a strategy to address current and future pavement quality that will lead to significant cost savings and improved road conditions, enhancing the overall service experience for Calgarians.

PREVIOUS COUNCIL DIRECTION

On May 23, 2023, Council passed motion EC 2023-0608 (Attachment 1). The motion led to the following initiatives:

- Review opportunities to allocate an appropriate funding increase for the surface overlay program to help reduce seasonal street repairs and improve mobility for all modes such as vehicles, bicycles, and transit buses.
- Report back through budget deliberations with a recommended Pavement Quality Index and minimum annual capital budget to achieve an established Pavement Quality Index for the City of Calgary.

Recent Council investments include:

- \$30 million of additional funding to enable pavement rehabilitation in conjunction with 5A projects (2024 to 2026).
- \$8.9 million from the Winter Maintenance reserve for pavement rehabilitation (2025 and 2026).

RECOMMENDATIONS

That the Infrastructure and Planning Committee recommends that Council:

1. Direct Administration to establish a pavement quality level of service target for Calgary's road network where arterial, collector and local roads are in good condition at 60 per cent, 54 per cent, and 42 per cent respectively in 10 years.
2. Review corresponding financial investment requirements, to be considered during budget deliberations in November 2024.

CHIEF ADMINISTRATIVE OFFICER/GENERAL MANAGER COMMENTS

The quality of roads is important to citizens and businesses. This provides clear direction for Administration to address issues with the quality of our roads. I concur with this report.

HIGHLIGHTS

- Calgarians consistently rank the transportation system as a top priority. The Spring 2024 survey revealed "infrastructure, traffic, and roads" as their leading issue. In an August 2024 pavement quality survey, 83 per cent of respondents supported increased funding for road improvements.

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- Calgary's road network, valued at \$15 billion, spanning over 17,000 lane kms and growing, is under increasing pressure from rising traffic volumes and decreasing pavement quality. Our current budget averages \$47.8M annually, significantly lower than other cities, including Edmonton, which has an inventory of approximately 13,000 lane kms and a \$158.8M annual budget for Neighbourhood renewal.
- Despite recent funding boosts from Council, financial support has not kept pace with the demands of our expanding infrastructure. As pavement quality deteriorates, failure to achieve an acceptable level of service will lead to future repairs requiring more reconstruction as opposed to repaving, which will result in reconstruction costs five to seven times more than traditional paving and repair programs.
- Intervention is necessary to prevent costly future reconstruction. We propose establishing a pavement quality level of service target for Calgary's road network where arterial, collector and local roads are in good condition at 60 per cent, 54 per cent and 42 per cent respectively in 10 years.
- This recommendation would be achieved in phases; The City would first address the urgent backlog of deferred reconstruction and major repaving work using additional funding of \$14.45M in 2025 and \$14.45M in 2026 from the Mid-Cycle adjustment and an additional \$35.8 million in requested funding in 2026. By prioritizing these repairs, we can avoid an estimated \$600 million in future costs and lay the groundwork for a more sustainable road network.
- An additional \$18 million will be required above the proposed 2026 budget of \$98 million for 2027 and beyond to reach the recommended level of service by 2034.
- This strategy focuses on fiscal responsibility and enhanced road quality, ensuring long-term savings and improved service for all Calgarians. By taking these steps, we can ensure that our transportation network meets the needs of a growing population while maintaining safety and efficiency on our roads.

DISCUSSION

Road Network and Condition

The City of Calgary manages approximately 17,000 lane kilometers of roadway comprised of arterial (31 per cent, 5,375 lane km), collector (20 per cent, 3,382, lane km), and local roads (49 per cent, 8,326 lane km). The current assessed condition of Calgary's road network is 38 per cent good, 36 per cent fair, and 26 per cent poor.

The Canadian municipal average of roads in good condition is 60 per cent, which also aligns with Calgarian's expectations in a recent pavement quality survey (see Attachment 2). On an average weekday, Calgarians make approximately 3.8 million vehicle trips across the road network. Over 1 million daily trips are made on roads in poor condition, significantly impacting user experience and increasing vehicle wear and tear. At current funding levels, forecasts show good condition roads will drop to 26 per cent by 2034.

Road Deterioration

At the current funding level, the road network will deteriorate by 3.2 per cent annually and increase the number of vehicles travelling on poor roads to 2 million daily trips by 2034. Several factors impact road deterioration. Wear and tear from increased traffic and heavier vehicles contribute to roadway degradation. Road quality is also impacted by the weakening

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of road base from water leaks and excavation of roads to facilitate both utility repairs and new utility construction.

Calgary's freeze-thaw cycles impact the service life of roads and contribute to the formation of potholes and pavement cracks. When comparing pothole data from January through September 2023 with the same period in 2024, there was an approximate 52 per cent increase in the number of reported potholes through 311. Crews have also filled approximately 25 per cent more potholes in 2024 over the same period (30,830 in 2024 through Oct 8. vs 24,628 during the same period in 2023). This increase in pothole 311 service requests and maintenance repair work highlight how Calgary's road network conditions continue to deteriorate.

Road Repair Strategies

Implementing the right roadway repairs at the right time is the most cost-effective and efficient approach to maintain a resilient road network. This requires adequate funding levels and leads to long-term cost savings as repairs are not deferred.

Immediate repair of defects like potholes and cracks are proven cost-effective methods of maintaining road functionality and slowing deterioration. As the pavement degrades, The City's surface overlay program (repaving) replaces the top layer of asphalt, rejuvenating the road and extending its life. Severely deteriorated roads often require complete reconstruction.

Road reconstruction impacts roadway users much more heavily as the scope is more complex, requiring more significant traffic detours. Additionally, reconstruction costs five to seven times more than repaving.

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Establishing a pavement quality level of service for Calgary's \$15 billion road network will help improve the user and passenger experience, enhance safety, minimize future costs and establish clear parameters for roadway repairs.

We engaged with Toronto Metropolitan University (see Attachment 2) to analyze Calgary's roadway data, condition and deterioration rates and provide recommendations for an acceptable pavement quality level of service.

Several level of service options and their corresponding annual funding were determined and analyzed, resulting in our recommendations of a phased approach.

Municipal Standard Level of Service

To increase all roads to 60 per cent good condition, which is the current Canadian municipal standard (average) and aligns with Calgarian sentiment, a \$132M annual investment through 2034 would be required. This means an additional \$80 million in annual funding would be required.

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Recommended Level of Service

The recommended level of service is for Calgary's arterial roads to be 60 per cent good condition, collector roads to be 54 per cent good and local roads to be 42 per cent good by 2034. To achieve this, 2025 and 2026 will focus on repairing all deferred reconstruction and major repaving work that requires immediate attention. This will also allow time to build up funding and construction capacity. By focusing our repairs on this inventory of roads over the next two years, The City could avoid an estimated \$600 million in future costs and successfully position our road repair programs for the future.

The additional funding request put forward in the Mid-Cycle adjustment of \$14.45 million in 2025 and \$14.45 million in 2026 means that an additional \$35.8 million will be required in 2026. For budget 2027 and beyond, an incremental increase of \$18 million annually would be required above the proposed \$98 million budget from 2026. This ensures the road network condition continues to improve, and repairs outpace deterioration.

Moving Forward

It's important to note that budget decisions over the next decade will greatly affect our ability to meet the recommended level of service. The funding allocated in the coming years will directly influence our progress. We will ensure transparency and accountability by providing regular updates through mid-cycle adjustments and performance management reporting. By prioritizing these financial commitments, we can collectively work towards enhancing the quality of our road network for the benefit of all Calgarians.

EXTERNAL ENGAGEMENT AND COMMUNICATION

- | | |
|---|---|
| <input checked="" type="checkbox"/> Public engagement was undertaken | <input checked="" type="checkbox"/> Dialogue with interested parties was undertaken |
| <input checked="" type="checkbox"/> Public/interested parties were informed | <input type="checkbox"/> Public communication or engagement was not required |

To determine Calgarian's sentiment on the present state of roadways and understand level of service expectations, an online survey was conducted with members of the Citizens' View panel, from August 6 to 21, 2024. The survey was distributed to 4,000 participants and garnered 1,720 completions. Survey results are summarized as follows:

- Less than one-half of respondents are satisfied with roadway surface conditions in Calgary, and the vast majority feel that improving them should be a priority for The City.
- Respondent preferences are, on average, for 65 per cent of roads to be in 'good' condition.
- 83 per cent of respondents said The City should accommodate additional funding needed to improve roadway surface conditions.
- Around one-half would be supportive of a small increase to their property tax bill to improve conditions.

In a comparative analysis between 2023 and 2024 highlighted that there was a 21 per cent increase in customer service requests (311s) concerning pavement condition (12,532 in 2023 to 15,201 in 2024).

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Meetings with Councillors and the Mayor's Office were completed in July-September 2024. Feedback from these engagements were incorporated into the final recommendation.

IMPLICATIONS

Social

Setting a level of service for pavement quality will enable equitable service delivery for Calgarians and supports active transportation modes for all users. A reliable road network impacts all Calgarian's from the ride quality of a transit user to cyclists using facilities within the road right-of-way.

Environmental

Designing new roads and rehabilitating existing roads to support environmentally friendly vehicles is critical to reducing emissions. Reusing pavement materials in the form of reclaimed asphalt pavement in repairs can also minimize environmental impacts.

Economic

Investing in road assets ensures our goods movement corridors are reliable thereby supporting our local and regional economies. High quality roadways also support the livelihood of Calgarians, allowing them to get to their places of work safely.

Service and Financial Implications

Since 2011, the road network has grown an average of 1.1 per cent annually (approximately 170 lane kms) from 14,870 lane kms, to the current number of 17,000 (increase of approximately 2,130 lane kms). The annual budget has fluctuated with an average of approximately \$40 million per year over the last 3 budget cycles (see Attachment 2). It should be noted that from 2023-2026 Council has allocated an average annual budget of \$47.8M, which has helped to slow the rate of road deterioration.

Council budget decisions over time will impact the ability to achieve the recommended level of service target for pavement quality. Any changes to funding levels will directly affect the target level of service in the stated time frame.

RISKS

Increased Deterioration: Poor condition roads will continue to increase annually, leading to more lane kilometers falling into disrepair. Good condition roads will decline annually, further degrading the network.

Higher Future Repair Costs: Without timely repairs, roads will fall below the reconstruction threshold, requiring costly reconstruction instead of more affordable repaving. This will increase long-term expenses, potentially missing the opportunity to avoid \$600 million over the next two years.

Deferred Maintenance Backlog: The backlog of deferred reconstruction and repaving will continue to grow, worsening existing road quality issues and delaying essential repairs.

Decline in Service Levels: The user and passenger experience will worsen as road quality degrades, leading to more complaints and dissatisfaction from Calgarians.

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Safety Concerns: Delayed repairs and increased deterioration could lead to more safety hazards for road users, potentially increasing accident rates or causing disruptions.

Funding: Should funding increases not occur as recommended, the target level of service may not be achieved in 10 years and will take longer to reach.

ATTACHMENTS

1. Previous Council Direction
2. Background Report
3. Presentation

Department Circulation

General Manager/Director	Department	Approve/Consult/Inform
Doug Morgan	Operational Services	Approve
Michael Thompson	Infrastructure Services	Consult
Carla Male	Corporate Planning & Financial Services	Consult
Troy McLeod	Mobility	Approve
Ryan Vanderputten	Capital Priorities and Investment	Consult
Kerensa Fromherz	Public Spaces Delivery	Consult

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