TORONTO

REPORT FOR ACTION

Reducing the State of Good Repair Backlog and Enhancing Cycling Lane Maintenance

Date: October 22, 2020
To: Infrastructure and Environment Committee
From: General Manager, Transportation Services
Wards: All

SUMMARY

The purpose of this report is to provide an update on the plan to reduce the backlog of rehabilitation needs for local, collector and arterial roads, to discuss best practices in dealing with the management and repair of potholes, and the plan for the maintenance and refresh of cycle tracks.

Transportation Services is responsible for the planning, maintenance and operations of 5,600 km of roads. Local, collector and arterial roads make up 5,170 km of the road network. The remainder is comprised of expressways and laneways.

Each year, as part of the City's budget process, updates are provided detailing the asset value and backlog of State of Good Repair (SOGR) needs for all roadways. Every year these values continue to increase. Increases are tied to both the increasing costs to maintain and rehabilitate an ever-growing and complex network of roads combined with the long term underfunding of network needs.

The implementation of more extensive cycling infrastructure, including bicycle lanes and separated bicycle lanes (cycle tracks), is adding to the complexity of the road network while improving mobility options. This report includes a plan for the maintenance and refresh of new cycle tracks including pothole repairs and other activities (i.e., flexi-bollard replacement, precast concrete curb maintenance and refresh of pavement markings).

As reported as part of the 2020 City Budget, one of Transportation Services' Priority Actions is to develop an updated Local and Major Roads Asset Management Strategy to drive sustainable long-term investment in SOGR projects and reduce the backlog. This report provides the context and lays the groundwork for this aspect of the strategy with a more fully developed divisional asset management strategy for roads and bridges anticipated in 2021 in accordance with the City's Corporate Asset Management Policy

and as required by and in accordance with Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure.

RECOMMENDATIONS

The General Manager, Transportation Services recommends that:

1. The Infrastructure and Environment Committee receive this report for information.

FINANCIAL IMPACT

There are no current or future year financial impacts arising from the recommendation contained in this report.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial implications as identified in the Financial Impact section.

DECISION HISTORY

At its meeting on May 28, 2020, City Council requested the General Manager, Transportation Services to report to the September 22, 2020 meeting of the Infrastructure and Environment Committee on the plan for maintenance and refresh of the new cycle tracks and how it compares to the current system of maintenance and refresh of existing bike lanes.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.CC21.20

At its meeting on February 19, 2020, City Council adopted the 2020 Staff Recommended Operating Budget for Engineering and Construction Services that identified resource pressures resulting from increased capital program demands and a priority action to increase delivery capacity to accommodate City's municipal infrastructure capital program as detailed in the 2020 Staff Recommended Operating Budget Notes - Engineering and Construction Services:
http://www.toronto.ca/legdocs/mmis/2020/ex/bgrd/backgroundfile-145951.pdf

At its meeting on February 19, 2020, City Council adopted the Transportation Services 2020 Capital Budget that identified the worsening condition and growing backlog of local and major roads as detailed in the 2020 Staff Recommended Capital and Operating Budget Notes - Transportation Services:
https://www.toronto.ca/legdocs/mmis/2020/ex/bgrd/backgroundfile-145921.pdf

At its meeting on July 16, 2019 City Council requested the General Manager, Transportation Services to develop and implement a dedicated pavement condition inspection, repair and maintenance program that is specific to bicycle lanes, in order to ensure safe pavement conditions for these vulnerable road users.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.IE6.11

At its meeting on July 16, 2019 City Council requested the General Manager, Transportation Services to plan and design road reconstruction projects using a complete streets approach, including safety improvements such as vehicle lane width reductions, tightening curb radii, widening sidewalks and the potential for bicycle lanes, at the outset of all road reconstruction projects, in consultation with local councillors and stakeholders.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.IE6.8

As it's meeting of June 18, 2019, On June 18, 2019 City Council adopted the City's Corporate Asset Management Policy.
(http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.EX6.11

At its meeting of April 2, 2019, the Infrastructure and Environment Committee requested the General Manager, Transportation Services to report back on a plan to reduce the road resurfacing backlog on local, collector and arterial roads.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.IE3.3

At its meeting of March 7, 2019, City Council requested the General Manager, Transportation Services to report to the Infrastructure and Environment Committee on best practices in dealing with the management and repair of potholes on City streets and how present road repair and maintenance practices being used by the City demonstrate good value.
http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.EX2.5

COMMENTS

Our Road Network

Transportation Services is responsible for the operation and maintenance of the public road network that includes about 5,600 centreline-kilometres of roadways, with an estimated paved roadway surface area of 57.2 million square metres.

The road network consists of four different classes of roads:

- Expressways, generally four or more lanes wide, operate at higher speeds (i.e., 70-100 km/h), provide for longer distance movement and are limited access for motorized vehicles only.
- Major and minor arterial roads (known as Major roads) make up about one-third of the road network and are typically four or more lanes wide, carry significant vehicular traffic, operate at moderate speeds (i.e., 40-60 km/h) and provide network connectivity for people, transit and goods.

- Collector and local roads (known as Local roads) make up about two-thirds of the road network and are typically two lanes wide, operate at lower speeds (i.e., 30-40 km/h) and primarily provide access to property along with pedestrian and cycle movement.
- Laneways, provide local access to residential and commercial buildings and tend to be narrow in width with low operating speeds.

Table 1 below provides network asset details including the length and area of each of the road types and laneways along with the estimated replacement value which is detailed each year in the annual budget submission. These values do not account for items such as storm sewer drainage systems (owned and managed by Toronto Water), traffic signs and signals, street furniture and streetscape elements (e.g. paved boulevards, tree trenches, cycling bollards, etc.) and separated cycling facilities.

Table 1. Road Network Asset Statistics, 2020 Asset Values[1, 2]

Road Classification	Centreline-km	Lane-km	Paved Area (m2)	% of Network	Asset Replacement Value
Laneways	321	395	1,441,258	2.5%	$ 672,000,000
Local & Collector Roads	4,025	9,410	36,062,811	63.0%	$ 9,169,000,000
Minor & Major Arterial Roads	1,146	4,630	18,589,082	32.5%	$ 5,906,000,000
Expressways	105	311	1,135,407	2.0%	$ 1,442,000,000
Total	**5,597**	**14,746**	**57,228,558**	**100.0%**	**$ 17,190,000,000**

The expected service life of Major roads is about 75 years including two or three resurfacing interventions at years 25, 45 and 60 and then reconstruction after 75 years. These service life intervals equate to a resurfacing rate of 5% annually (1/20) and a reconstruction rate of 1.33% annually (1/75).

The expected service life of Local roads is about 100 years including three or four resurfacing interventions at years 30, 55, 75 and 90 and then reconstruction after 100 years. These service life intervals equate to a resurfacing rate of 4% annually (1/25) and a reconstruction rate of 1% annually (1/100).

Managing the Road Network Condition

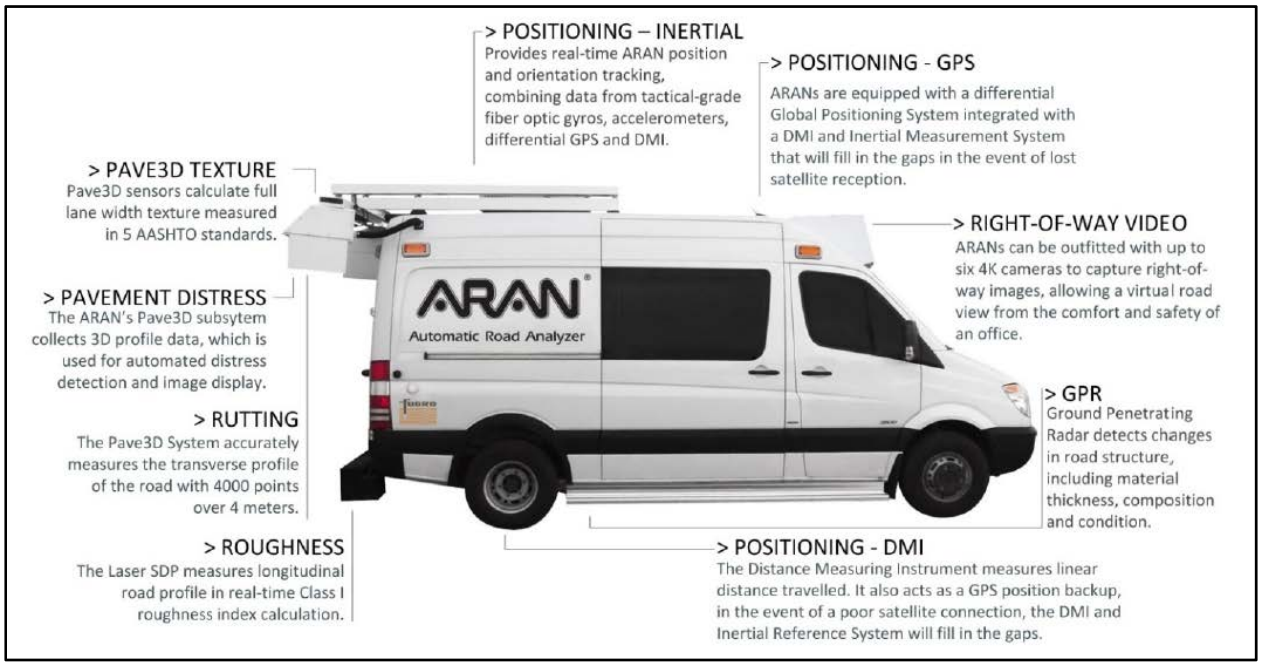
The City uses a pavement (road) management application, Roadmatrix, to database and analyze the road network. This contains details of various road attributes such as construction and rehabilitation history, pavement structure (i.e., how it was built) and road classification. Roadmatrix is a third-party software application developed by Stantec Consulting Ltd. and used by many municipal and provincial/state transportation agencies across North America.

1 Values and costs reported based on 2018 asset inventory with costs adjusted by 2%/annum.

2 Expressways exclude elevated expressways (i.e., FG Gardiner from Dufferin St to the Don Valley Parkway) and only represent on-grade sections.

The City also employs a vendor, Fugro, to collect pavement condition data using an Automatic Road Analyzer (ARAN) as illustrated in Figure 1. The ARAN collects pavement condition data, including cracks and ruts, using downward facing cameras and laser-based measurements. The data is then analyzed following the American Standard Testing System (ASTM) Standard D6433 "Standard Practice for Roads and Parking Lots Pavement Condition Index" resulting in a Pavement Condition Index (PCI) value calculated for each road section.

Figure 1. Fugro Automatic Road Analyzer



Operational activities, including the identification and recording of potholes and pavement markings and their repairs, is managed through the City's internally developed maintenance management system (TMMS), written documentation of patrol staff and comments inserted in the Service Requests (S/R's) when they are being completed and closed. The City's planned transition to an Electronic Work Management System (EWMS) will assist further in our efforts to manage our road condition and will improve customer service.

Road Network Conditions

Figure 2 shows ASTM's Standard PCI Rating Scale and Figure 3 illustrates the actual and forecast near-term pavement conditions, referred to as Pavement Quality Index (PQI), for the City's Major roads and Local roads, from 2015 to 2022 and shows an ongoing and predicted deterioration over time. This is a function of the age of the road network, which was mostly expanded from about the 1950's to 1980's, and of investment levels which have not kept pace with annual needs, resulting in an ever increasing backlog.

Figure 2. American Standard Testing Standard Pavement Condition Index Rating Scale[3]

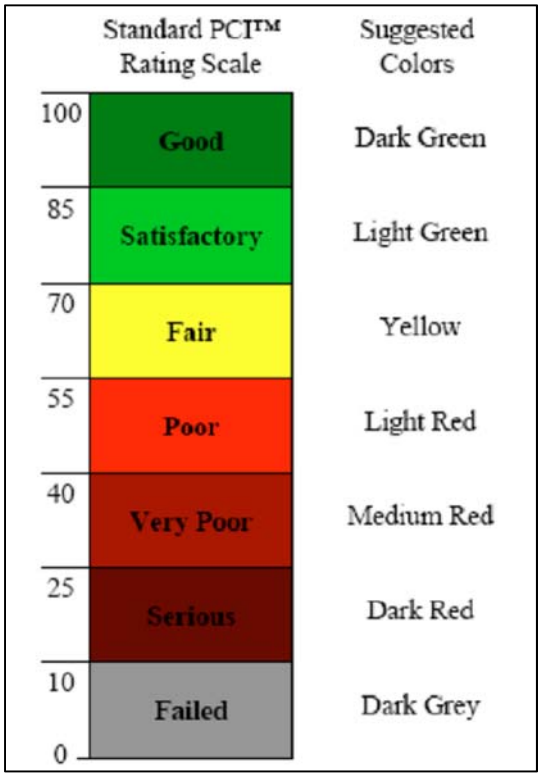
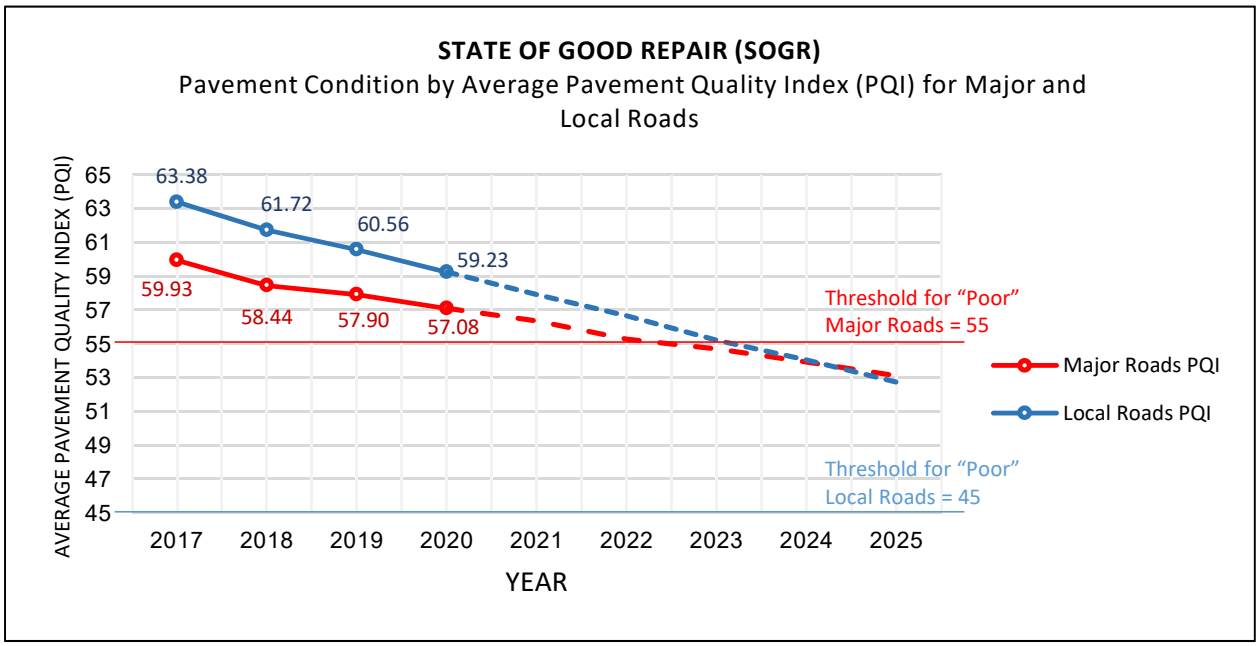


Figure 3. Pavement Quality Index Performance and Forecast, 2017-2025[4]



3 Reproduced from ASTM Standard D6433 "Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys"

Approximately 43% of Major Roads and 24% of Local Roads are in poor condition as illustrated in Figures 4 and 5, respectively. Based on currently approved ten year capital funding in the 2020 budget the percentage of Major Roads in poor condition is expected to increase from 43 per cent to 53 per cent by 2029 while the percentage of Local Roads in poor condition is expected to increase from 24 per cent to 44 per cent by 2029.

Figure 4. Major Road Conditions and Backlog Details, 2019 Data Analysis

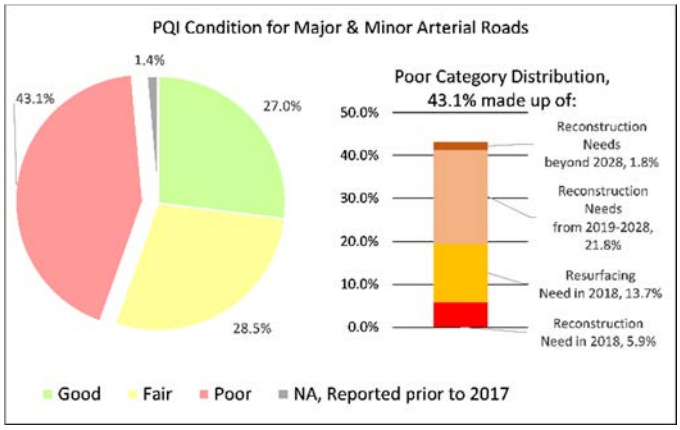
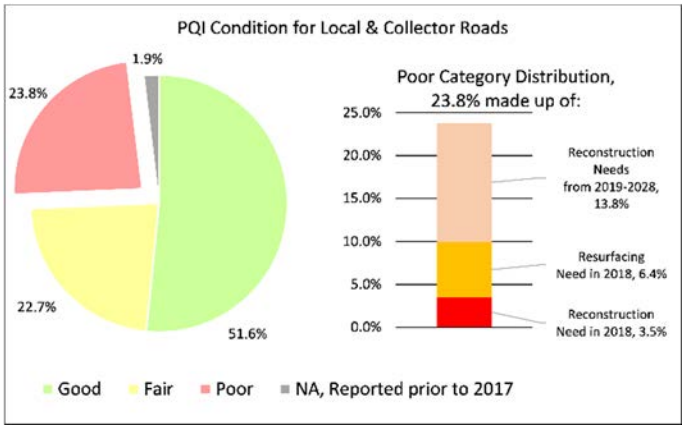


Figure 5. Local Road Conditions and Backlog Details, 2019 Data Analysis



Pavement condition (PCI) in designated cycling infrastructure is not currently collected. In general, however, surface conditions are typically similar to, or because of edge deterioration a little worse than, the condition of the adjacent curb lane where pavement condition is collected. Whether designated cycling infrastructure is present or not, poor pavement condition is a safety issue for vulnerable road users, such as cyclists.

Pavement Rehabilitation

Road maintenance and rehabilitation activities include work such as pothole repair, drainage maintenance, crack filling, surface sealing, texturization, resurfacing and reconstruction. The type of work undertaken is dependent on the extent and severity of pavement defects combined with the cost effectiveness of the required repairs. The cost effectiveness can affect the timing of the work. For example, there are roads in poor condition that may require reconstruction at a future date while, in the interim, they will continue to deteriorate and be maintained through reactive activities such as critical interim repairs, localized pothole filling, crack sealing and patching.

Within the Capital Program the two main categories of rehabilitation work are:

- Resurfacing - the replacement of old asphalt surface with new asphalt surface, including repairs of any damaged sidewalks and curbs.
- Reconstruction - the replacement of the entire road structure, including the asphalt and underlying support materials, repair, improvement, or replacement of road drainage, curbs, boulevards and sidewalks.

SOGR Funding and Backlog

Transportation Services' 2020 - 2029 Budget and Capital Plan represents an investment in infrastructure renewal totalling $5.030 billion over ten years. Of this, $602.2 million is planned for the Major Road Rehabilitation Program and the same amount, $602.2 million, is planned for Local Road Rehabilitation.

Attachment 1 provides a detailed breakdown of the SOGR funding and illustrates that with the planned level of funding the backlog for Major Roads will increase from $529.737 million at the end of 2019 to $1.599 billion by 2029 and the backlog for Local Roads will increase from $478.299 million at the end of 2019 to $1.827 billion by 2029. Attachment 2 provides details on the final budget (taking in-year adjustments into consideration), year-end actual spends and related rates of change and spending. This illustrates that the final adjusted annual budget is, on average, higher than the initial plan and that the spend rate is, on average, 85% of the final budget. The increased rates seen for 2019 and the projected 2020 spending has resulted from Transportation Services introducing new practices and budget management protocols to drive project delivery, reduce risk, and increase spend rates.

Engineering and Construction Services (ECS) is the primary delivery agent for Major and Local Road Rehabilitation projects. In 2019, ECS delivered $860 million in capital projects ($234 million more than in 2018, representing an increase of 37.4%). ECS continues to target spending at least 80% of its assigned capital program. As illustrated in Attachment 3, when combined with recent ECS actual spending, the delivery rates of Major and Local road programs are generally higher than overall actuals by ECS indicating that the delivery of these programs is contributing positively to ECS overall performance. Further, Transportation Services is targeting at least a 90% spend rate for Major roads and 95% for Local roads. This data indicates these programs are well positioned to increase project delivery as long as resource capacity, both funding and staffing, matches any increases to the plan.

At current funding levels, only around one-third of the rehabilitation needs for Major roads and Local roads can be addressed. Rehabilitation needs increase when roads are not maintained and repaired within a timeframe when the work would be effective. Missed opportunities to resurface a road may result in more costly rehabilitation work, including partial or full reconstruction being required much earlier in the overall life of the pavement than planned. As these interventions are more costly this may further increase the backlog value. Delaying necessary state of good repair resurfacing and reconstruction work also increases operational maintenance repair activities, including the need to fill potholes, and results in increased claims/liabilities.

Maintenance Needs & Potholes Repairs

Throughout the life of a road, ongoing wear and deterioration occurs. As pavements age the extent and severity of surface and underlying defects, such as cracking increases. While cracks are typically sealed as part of the Division's crack sealing contracts to mitigate the formation of potholes, potholes are created when water penetrates the top layer of asphalt through cracks and other deficiencies (e.g., curb-pavement edge, temporary utility cut repairs, etc.) in the road. After the moisture freezes and expands,

sections of the pavement are forced up. The weight of vehicles going over this section of road breaks the pavement and the asphalt is forced out. Potholes are more frequent in the spring, after the freeze/thaw action following winter. At other times of the year, potholes can also form at structurally deficient or deteriorated pavement locations when repetitive heavy traffic dislodges severely cracked pavement materials.

In order to be classified as a "pothole" the hole must be a minimum of 800 cm^2 x 8 cm deep, or about a letter size sheet of paper, on Majors/Minor Arterial roads and 1000 cm^2x 8 cm deep, or about the size of a legal sheet of paper, on Collector and Local roads.

Approximately 80% of potholes repaired are identified by City staff patrolling the roadways. The remaining 20% are identified through a Service Request submitted to 311 by a member of the public.

Under the Minimum Maintenance Standards (Ontario Regulation 239/02), the City is obligated to repair potholes as follows:

- Four (4) days to repair a pothole on an expressway or arterial road.
- Seven (7) days on average volume collector roads.
- Fourteen to Thirty (14-30) days on average traffic volume local roads.

Table 2 provides the total number of potholes repaired each year as well as the number completed between January 1 and July 20 each year. The latter representing about three-quarter of the total and related to repair completed during and for winter related conditions.

Table 2. Pothole Repair 5-Year Summary, 2016-2020

Year	# Potholes Filled (January 1 - October 21)	# Potholes Filled (January 1 - December 31)
2020	163,549	-
2019	172,696	197,549
2018	221,256	244,425
2017	193,395	214,177
2016	166,556	185,116

There are two types of asphalt mixes (hot and cold) used to repair potholes. The time of year and road/weather conditions determine the type of mix used to repair potholes. Hot mix asphalt is best used during mild weather as it may cure too fast during cold winter days, causing the asphalt to become brittle and break up faster, whereas cold mix is more pliable in colder temperatures and is best used during winter months. Generally, potholes are temporarily patched with cold mix asphalt to make the road safe and more permanent repairs are performed with hot asphalt when warmer conditions prevail.

Potholes are repaired following specific operating procedures, including the setup of a safe work zone that takes approximately 15-20 minutes per pothole. The approximate cost to repair a pothole is $25.00 based on a 5 year average.

Maintenance and Refresh of Cycling Infrastructure

Toronto's on-street cycling network, as of September 2020, consists of:

- 82 km of cycle tracks
- 243 km of bicycle lanes
- 12 km of contra-flow bicycle lanes
- 105 km of shared lane pavement markings
- 243 km of signed routes (no pavement markings)

Of the total on-street cycling network (685 lane km), 82 km are physically separated. There are also 346 centreline kilometres of multi-use trails.

Transportation Services Operations & Maintenance staff, currently patrol and undertake small repairs on separated and non-separated cycling infrastructure as part of their regular duties. For the separated bike lanes (cycle tracks), these include localized repairs to damaged bollards/curb stones but exclude the refresh or replacement of markings, affected by utility cut repair or localized road maintenance, which are generally completed as part of the City's durable pavement markings contract.

Recognizing the importance of separated cycling infrastructure in providing safe and reliable transportation options for people cycling, and building on more focused attention to this infrastructure in 2019/20 by our crews, starting in the Winter 2020/21, a dedicated crew will be assigned to patrol and undertake localized repairs and emergency work on separated cycling facilities. Routine and non-emergency bollard and curb work will be undertaken by contractors as part of the next bollards contract. For bike lanes on the roadway, Operations & Maintenance staff will continue to patrol and repair these as part of their regular duties.

Addressing the SOGR Backlog

In 2017, the Province enacted Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17), under the Infrastructure for Jobs and Prosperity Act, to support improvements in municipal asset management.
On June 18, 2019 the City's Corporate Asset Management Policy was approved by City Council (http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.EX6.11). Over the next several years, City divisions will be identifying and establishing best practices, processes and standards and support the development of asset management plans (AMP) in accordance with legislative requirements.

AMPs will provide a long-term plan developed for the management of physical assets that at a minimum complies with the requirements of the Act and the Regulation, and details the characteristics and conditions of the assets, the levels of service expected from the assets, financing and other strategies, and planned actions over the lifecycle of the assets to ensure assets are providing a specified level of service in the most cost-effective manner.

Addressing the backlog of road works will be a fundamental element of Transportation Services' Asset Management Plan (AMP). Many of the requirements for the AMP, as it relates to roads, have been identified and are well established, including the inventory, condition (ongoing, consistent and accurate assessment), needs identification, replacement costs, maintenance and repair activities, life-cycles, benchmarking, priorities and best practices. The challenge will be to connect the three key AMP strategies of (i) levels of service, (ii) life cycle and (iii) risk management. The Corporate Asset Management Framework shown in Figure 6 illustrates the interaction of these concepts.

Figure 6. Corporate Asset Management Framework

From a road asset management/backlog reduction perspective these strategies are described in greater detail below.

Level of Service Strategy

The level of service for roads is based on the average Pavement Condition Index (PCI). Typically a well-maintained, sustainable network would have an average PCI in the range of 70-75. As shown in Figure 3 the current PCI is about 58 and continuing to deteriorate steadily at about 1 point per year based on the current resources, funding available and the short-term (<10 year) needs projection. In order to slow down the rate of pavement condition deterioration each year (the annual backlog), Attachment 1 shows that a significant increase in annual funding would be required to improve the condition to a PCI of 70 enough funding to eliminate the existing accumulated backlog shown in Attachment 1would be required.

A key piece of the AMP will be determining the appropriate service level target for our network since the backlog is directly driven by the service level target. If the service level target is 70, then the work required (backlog) to bring the network up to this level

from its existing level is greater than maintaining it at the current level. The level of service target will also need to be determined in the context of other strategies, for example, level of service may be adjusted to reflect Road Classification (as it is for Operating Service Levels like pothole repair and winter maintenance), equity considerations and the multi-modal nature of the network. In this latter context, the Complete Streets Guidelines were developed to help manage the complex nature of street planning, design, operations and maintenance, so, it may also be considered to adjust the level of service depending on how the road serves all users including people who walk, bicycle, take transit or drive.

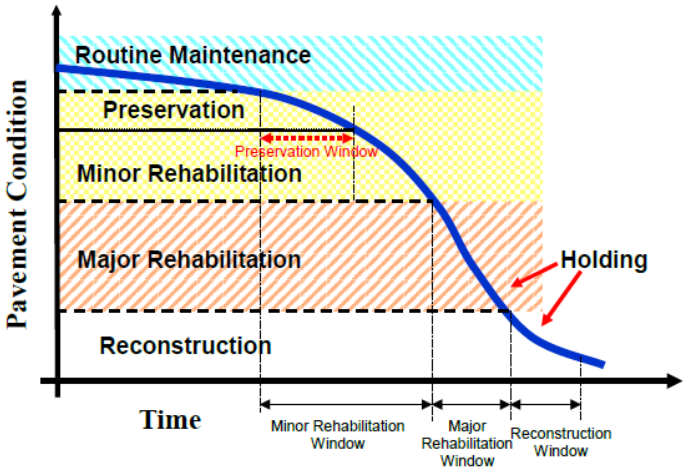
Further, given the construction disruption to roads caused by development activities and utilities some road backlog amount may be prudent, suggesting a lower level of service target is likely appropriate.

Life Cycle Strategy

Typical life cycles for pavements vary and are affected by many factors including road classification, pavement structure type, traffic volume and distribution, construction materials, practices and workmanship, and, the ability of the owner to perform maintenance and rehabilitation as needs emerge. Performance can also be impacted by utility work and private development activities.

Generally, experience indicates that properly maintained and rehabilitated City pavements will provide about 75 to 100 years of service when maintenance and repair work is performed as required. That means performing the right fix, at the right time, as illustrated in Figure 7.

Figure 7. Typical Pavement Performance Curve and Maintenance & Rehabilitation Activities



While maintenance work may be viewed as more reactive (e.g., pothole filling, utility cut repairs, etc.) there are also preventative maintenance activities (e.g., sealing pavement cracks, targeted patch repairs, ditch cleanout, adjusting catch basin frames, etc.). Performing both types of maintenance are critical to preserving and achieving or even extending the service life of the pavement structure.

When the time comes for more significant improvements, identifying needs and planning minor and major rehabilitation works in the capital program is focused on evidence-based data, as identified through pavement condition data collection. The overall condition in conjunction with the extent and severity of pavement distresses are the primary drivers to identify the type of work that is required. Additional detailed investigation and analysis during project planning and design is used to validate the work to be completed.

Risk Management Strategy

The Corporate Asset Management Policy describes the need to ensure the sustainability of municipal services through the effective stewardship of assets and the management of risk, while optimizing asset value. The road network presents significant risk to the corporation given the extensive use and reliance by the public each day for the transportation of people and goods through multi-modal means (i.e., walking, cycling, transit, emergency, freight and personal vehicles).

An increasing road rehabilitation backlog can cause several risks including:

- Increased maintenance needs (i.e., increase in potholes);
- Likelihood that missed opportunities to perform minor maintenance and rehabilitation will result in a greater volume of major rehabilitation needs along with higher cost repairs;
- Certainty that more costly interventions are also more disruptive to the public in terms of time required for construction;
- Potential for greater liability as the overall condition of the network worsens (Figure 3) coupled with the increasing multi-modal splits (i.e., increase in vulnerable road users); and
- Situations where State of Good Repair issues become Health and Safety issues.

To mitigate these risks several current strategies are in place as follows:

- Planning of work and resources to accomplish more projects faster to address needs;
- Consideration of, and bundling of work in, City contracts for cost efficiency and to reduce future disruption, including:
    - Projects within Transportation Services including Vision Zero improvements, Cycling Network Plan expansion, adding missing sidewalks, improving traffic signals by adding Audible Pedestrian Signals);
    - Projects with other City Divisions and ABCs, including Toronto Water, City Planning, TTC, etc.;
- Delivering works through large "mega" contracts to increase cost efficiency and reduce resource demands (i.e., support staff in PMMD, Legal, etc.); and
- Recognition of project complexity vs deliverability (i.e., stage gating approach).

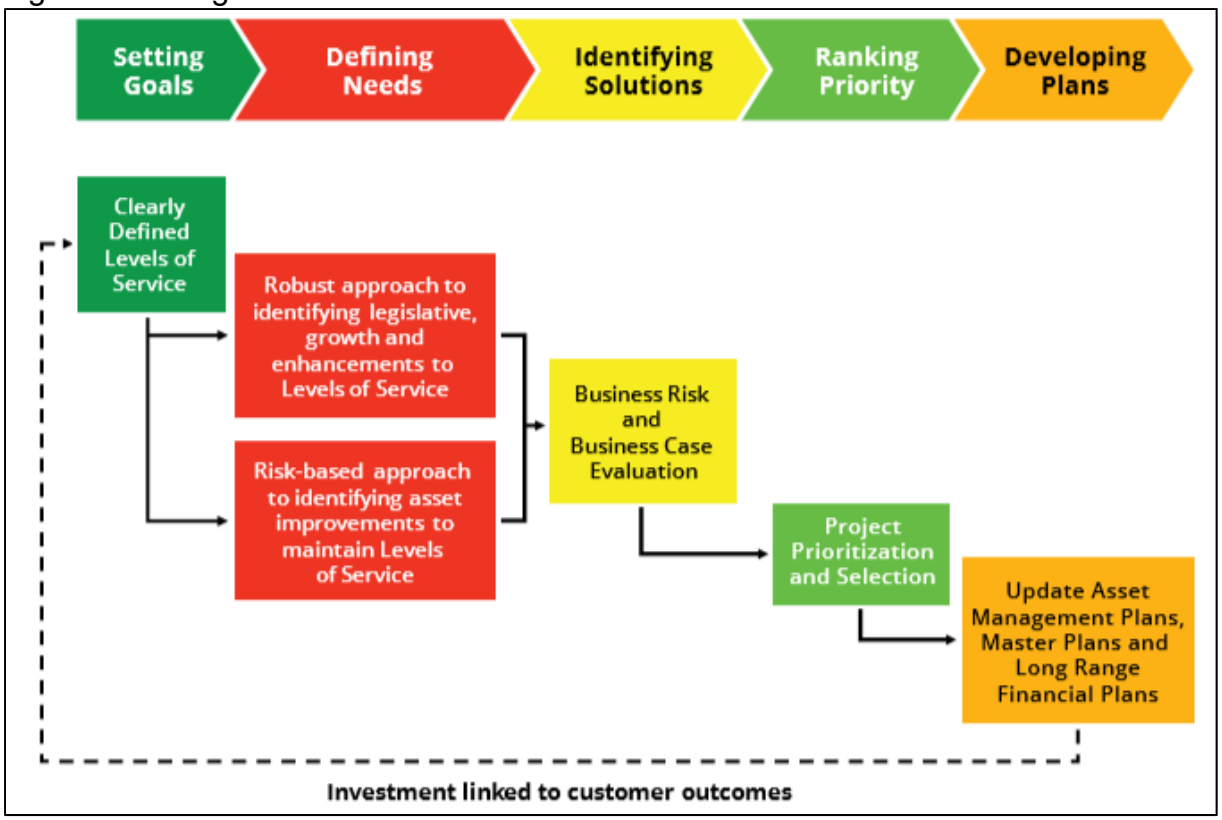
Further, the road network is also susceptible to other vulnerabilities and the impact of climate change so adaptation and mitigation actions also include implementing revised standards and specifications for pavement materials and the design methodology so that investment in roads improvements are more resilient.

There has always been a consideration in the budget process concerning impacts of capital on operating but there is a significant corollary consequence of capital improvements resulting from service improvements, legislated requirements and growth projects that can also add pressure to future SOGR programs. Recognizing the risk and capturing the cost impacts of non-SOGR capital projects on SOGR capital projects requires well established practices, communication and data management.

Tying the Strategies Together

Level of Service can be aligned to meet legislated or environmental requirements or to meet the City's service objectives. As shown in Figure 8, having clearly defined Levels of Service forms the basis for defining needs, establishing priorities and identifying investment requirements. Without clearly defined levels of service, there is a risk that investments will not achieve the desired service outcomes.

Figure 8 Linking Investments to Service Outcomes



As reported as part of the 2020 City Budget, one of Transportation Services' Priority Actions is to develop an updated Local and Major Roads Asset Management Plan to drive sustainable long-term investment in SOGR projects and reduce the backlog. It is expected that the Asset Management Plan will come forward to Council in 2021.

Ultimately, as part of this plan, answering what the acceptable level of service and associated costs that aligns with corporate objectives and within the risk tolerance of the City will be the goal. Given what we already know about our road network, it is expected that gradual and consistent increases in resources and funding for both repairs and

maintenance (i.e., Operating and Capital) will be needed to deal with the existing SOGR backlog and provide safe, reliable infrastructure over the long-term.

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SIGNATURE

Barbara Gray
General Manager, Transportation Services

ATTACHMENTS

Attachment 1: 2019-2029 SOGR Funding and Backlog for Major and Local Road Rehabilitation Programs ($000s)

Attachment 2: Annual Major and Local Transportation Capital Budgets and Spend Rates, 2015 to 2020

Attachment 3: Overall ECS Spending compared with Major and Local Roads, Actual and Forecast Expenditures