Fleet Services Operational Review

Phase One: Lengthy Downtime Requires Immediate Attention

April 26, 2019

Beverly Romeo-Beehler, CPA, CMA, B.B.A., JD, ICD.D, CFF
Auditor General

AUDITOR GENERAL TORONTO

Table of Contents

Executive Summary

Staff rely on City vehicles to perform many services

The City's Fleet Services maintains a fleet of just under 5,000 vehicles and equipment with a value of approximately $330 million. The City's fleet delivers various services to Torontonians, such as picking up garbage, repairing roads and infrastructure, and maintaining the City's parks and recreational facilities.

The City's Fleet Services Division is tasked with the important responsibility of keeping City vehicles in good condition, to enable staff to carry out their duties.

Phase One of the audit focuses on vehicle maintenance

The Auditor General's 2018 Audit Work Plan included an operational review of Fleet Services. The current Phase One of the audit focuses on vehicle maintenance performed at Fleet Services' nine garages as well as by contracted external vendors.

Our findings for Phase One are presented in two separate reports:

- This report focuses on downtime reduction, a critical factor in keeping City vehicles on the road on a day-to-day basis
- A separate report looks into vehicle usage.

Phase Two will focus on asset management and other aspects of fleet management.

Vehicles are serviced both internally and externally

Most light duty vehicle services contracted out in 2017

In October 2017, Fleet Services completed the initial implementation of its Alternate Service Delivery Model, resulting in the contracting out of most light duty vehicle services. Other units remain primarily serviced in-house.

It is not uncommon that when a major shift in strategy occurs, the division will encounter challenges in areas such as logistics, change management, and legacy processes. This audit looks into the state of Fleet Services' operations approximately a year and a half into the implementation of its Alternate Service Delivery Model, and presents findings to help management continue to improve its processes and achieve its target mode of operations.

Our key findings are summarized below:

Persistent and problematic downtime

Downtime is the amount of time a vehicle is out of service due to maintenance or repair. Downtime impacts the availability of vehicles and equipment in a fleet. It provides an indication of overall readiness and effectiveness of fleet operations.

According to the American Public Works Association, *"the rate of fleet availability or downtime is perhaps the king of all fleet program performance measures."*

We compared the City fleet's downtime against targets established by Fleet Services and observed the following gaps:

Comparison of 2018 Actual and Target Downtimes by Vehicle Type

Light	Medium	Heavy
• Target: 6-8 days	• Target: 14-23 days	• Target: 31-48 days
• Actual: 22 days	• Actual: 38 days	• Actual: 51 days

At least 15% of vehicles out of service daily

The impact of downtime can be assessed by looking at the number of vehicles that are out of service on any given day. We analyzed data for the first two months of 2019 and found that there were, on average, 724 vehicles and equipment, or 15 per cent of total fleet, out of service daily:

Vehicles Out of Service, Daily Average January 1 - February 28, 2019

Unit Type	Number of Units*	Units Out of Service due to Maintenance **	% of Units Out of Service due to Maintenance
	A	b	c = b/a
Light Duty	1,874	241	13%
Medium Duty	546	113	21%
Heavy Duty	672	207	31%
Equipment	1,598	163	10%
Total	**4,690**	**724**	**15%**

* Include active and redeployed units, and units flagged for disposal
** Excludes new vehicles being prepared for service and sweepers (seasonal maintenance)

Every day at least $68 million in investment not used

Over the sample period, at least one in seven vehicles or equipment, totalling $68 million in assets value, was not used in any given day due to maintenance or repair. In particular, on average one in three heavy duty City vehicles were out of service daily.

Parts delays contributed to longer downtime for maintenance done at City garages

Fleet Services purchases $6 million in parts per year from a parts supplier

Fleet Services purchases $6 million in parts per year for work performed at its nine garages from a parts supplier. Fleet Services has been acquiring the parts from the same supplier since 2012. The supplier has staffed parts rooms at each of the four main garages.

In its contract with the City, the parts supplier agreed to the following:

Contract required 85% of part requests fulfilled at the point of purchase

- 85 per cent of parts supplied at the point of purchase
- 10 per cent of parts supplied within 24 hours of ordering
- 5 per cent of parts supplied within 48 hours.

Actual fill rate was only 21 per cent at the point of purchase

We reviewed data from M5, the City's fleet management database, and found that only 21 per cent of parts requested were fulfilled at the point of purchase — significantly below the contracted requirement of 85 per cent. Thirty-nine per cent of requests took more than 48 hours to fulfill.

We recognize that the M5 Parts Request Module was implemented in July 2018, and there could be fine-tuning of data in subsequent months. However, in our view, the extent of the discrepancy observed is so significant that it points to issues beyond system fine-tuning.

We identified the following factors contributing to or exacerbating this issue:

City of New York found similar issues with the supplier's fill rate

- The supplier's self-reported fill rates to the City were calculated using a different methodology than that stipulated in the contract, showing that they were meeting or exceeding the required fill rate. The Comptroller of the City of New York highlighted similar issues with the same supplier, which also provides parts to the City of New York.

- There was insufficient validation and follow up by Fleet Services management on the supplier's calculations.

- Management did not consistently monitor parts usage data to update the supplier's stocked items.

- The (dis)incentive specified in the City's contract with the parts supplier is not sufficient; the supplier must pay only $6,000 per year if it fails to meet fill rates.

The lengthy times to fulfill parts requests meant that Fleet Services mechanics were frequently delayed from completing their work, which added to vehicle downtime.

Repair quality issues with certain vehicle types

24% of repair 'comebacks' for Class 8 vehicles within 60 days

A common performance indicator for maintenance quality is the number of 'comebacks', or work which has to be repeated within a short period of time.

We found that heavy duty vehicles had a high percentage of repeat work for both 2017 and 2018. Class 8 vehicles (garbage packers, tractor trailers, sewer trucks) in particular performed the worst, with a 24 per cent repeat rate in 2018 within 60-days. On average, Class 8 vehicles required 16 work orders a year, averaging more than once a month in visits to garages.

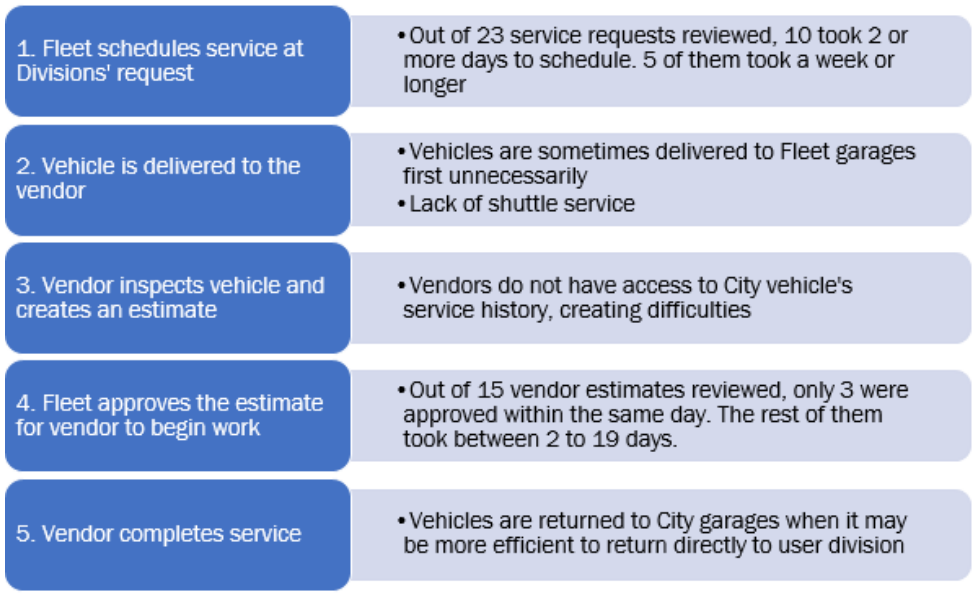
Inefficient scheduling and work order approval process for contracted services

Fleet Services has contracted external vendors to perform a portion of the maintenance work, including tows, body work, overflow work at the garages, and repairs requiring specialized equipment and technical know-how. Since 2017, this was expanded to include the majority of services for non-specialized light duty vehicles.

Inefficiencies in the contracted services process

We identified inefficiencies in the process which contributed to a longer downtime for vehicles serviced externally. The figure below provides a summary of the inefficiencies noted:

Process outline and inefficiencies noted for external vehicle services



With the increased amount of vehicle services outsourced, it is important for Fleet Services to streamline the process to get City vehicles back on the road as quickly as possible.

Parts warranties are not adequately managed

Fleet Services needs to administer parts warranties more effectively to ensure that the City is not paying for parts that are under warranty and associated labour costs.

Fleet Services claimed parts warranty for $72,000, just above 10% of the $680,000 total purchases that failed within warranty terms

We reviewed M5 data for the years 2016 to 2018 and identified approximately $680,000 worth of parts that failed within their warranty terms. However, based on billing data, Fleet's total warranty claim for the same period was only $72,000, or just above 10 per cent of the total value of the warrantable parts. Warranty claims are likely being missed due to the following reasons:

- Lack of dedicated resources to monitor and pursue claims
- Responsibility for initiating warranty claims is left to the supplier instead of Fleet Services.

Fleet Services does not claim labour cost

In addition to the cost of parts, when parts fail within warranty terms, the City also incurs labour costs to remove the defective parts and install the replacement parts. Fleet Services currently does not pursue labour cost claims for prematurely failed parts.

At least $1.2 million in foregone warranty savings over the past three years

Assuming Fleet Services was able to successfully claim warranties for 80 per cent of the parts, including 50 per cent of its hourly labour rate, it could have potentially recovered $1.2 million over the last three years, or $400,000 per year. This amount may be understated as it is possible that not all warranty information has been entered into M5 by the supplier's staff in accordance with the contract.

Conclusion

We recognize that Fleet Services Division is still in the early stages of its Alternate Service Delivery model, and is still in the process of fine-tuning its implementation. We have observed some continuous process improvements made during the audit.

The City fleet is faced with the issues of lengthy downtime and a high number of unplanned repairs. These affect the availability and reliability of City vehicles used to deliver essential services and meet operational needs.

14 recommendations to help reduce vehicle downtime and improve operational effectiveness and efficiency

The implementation of the 14 recommendations in this report will help reduce vehicle downtime, strengthen the parts warranty administration, and improve the efficiency and cost effectiveness of Fleet Services Division's vehicle maintenance operations.

We express our appreciation for the co-operation and assistance we received from management and staff of Fleet Services Division, as well as other operating divisions that provided information to us throughout the audit.

Background

What makes up the City's fleet?

The City of Toronto maintains a fleet of just under 5,000 vehicles and equipment with a value of approximately $330 million. The City fleet is highly diverse, with more than 900 different makes and models to meet a wide range of program and service needs. Some examples are shown in Figure 1 below:

Figure 1: Examples of City Vehicles by Weight

Note: Vehicles and Equipment maintained by Fleet Services as of February 28, 2019

These units are used by various City divisions and agencies to deliver programs and services to Torontonians, including:

Staff rely on City vehicles to perform many services

- Picking up garbage
- Repairing roads and infrastructure
- Salting streets during the winter
- Maintaining parks, recreational facilities, and green space
- Enforcing bylaws
- Carrying out inspections
- Delivering books and materials to the City's libraries

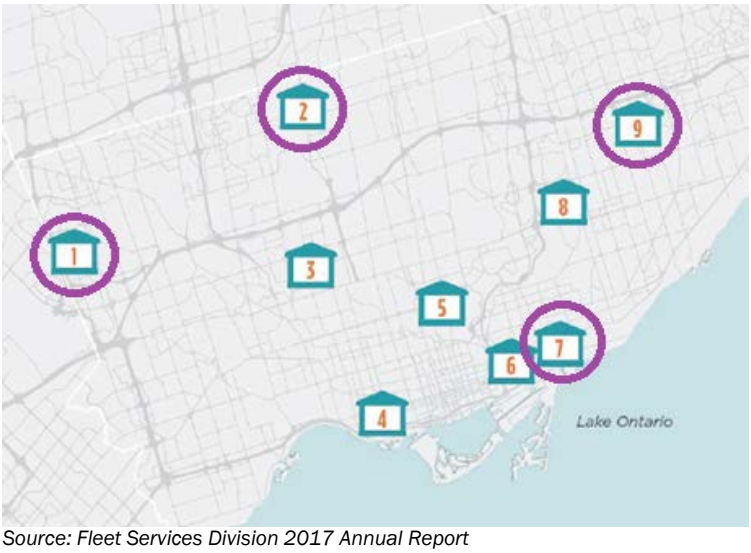
These crucial City services rely on the continuous availability of vehicles and equipment. The City's Fleet Services Division is tasked with the important responsibility of keeping these units on the road so that frontline staff can carry out their duties.

Maintaining the City's vehicles

Fleet Services performs maintenance at 9 garages across the City

Fleet Services provides full fleet management for most City divisions and some City agencies[1], with a 2018 budget of 185 staff members and $57.5 million in gross expenditures. Fleet Services maintains four district garages (circled) and five smaller satellite garages across the City, shown in Figure 2:

Figure 2: Fleet Services Garage Locations



Source: Fleet Services Division 2017 Annual Report

Most light duty vehicle services contracted out in 2017

In October 2017, Fleet Services completed the initial implementation of its Alternate Service Delivery Model[2], resulting in the contracting out of light duty vehicle services. Other units remain primarily serviced in-house. Figure 3 below provides an overview:

Figure 3: Who Services the City's Fleet?

[1] The Toronto Transit Commission and Toronto Police Service manage their fleets independently from the City. In addition, Toronto Paramedic Services, Fire Services, Toronto Zoo, and Exhibition Place maintain their respective fleets to varying degrees.

[2] The staff report can be found at: https://www.toronto.ca/legdocs/mmis/2016/gm/bgrd/backgroundfile-94260.pdf

Outsourcing light duty vehicles was meant to allow Fleet staff to specialize in medium and heavy duty units. Fleet Services' goal was to improve service delivery for both streams and reduce overall vehicle downtime.

The importance of reducing downtime

Downtime is the amount of time a vehicle is out of service due to maintenance and repair, and is a key performance measure used by fleet operations. Downtime can be measured on a per-event basis (how long it takes to service and return a vehicle), or availability (portion of the year that the unit is available for service). According to the American Public Works Association[3], *"the rate of fleet availability or downtime is perhaps the king of all fleet program performance measures."*

Vehicle downtime has significant impact on services

When vehicles go out of service, operations are affected in various ways:

- Divisions have to operate at reduced capacity, or incur overtime to maintain required service levels
- Staff double up in one vehicle, reducing their coverage and efficiency
- Some groups choose to keep a number of spare vehicles. This mitigates the impact of units going out of service, but at the cost of higher capital and ongoing costs
- Downtime results in lost productivity and delays in delivering City programs and services.

Fleet Services made improving downtime one of the key goals of its Alternate Service Delivery model. This audit looks into the state of operations approximately a year and a half into its implementation.

Our audit focus

Downtime reduction is the primary focus of this audit phase

Our audit is divided into two phases. This phase, Phase One, focuses on vehicle maintenance. In particular, we have made downtime reduction the primary focus due to the need for immediate action, and the critical role it plays in keeping City vehicles on the road on a day-to-day basis.

Phase Two will focus on asset management and other aspects of fleet management.

[3] A not-for-profit professional association of public works agencies and private companies that promotes professional excellence

Audit Results

This section of the report contains the findings from our audit work followed by specific recommendations.

A. Lengthy Downtime Requires Immediate Attention

Current state of downtime

Despite some reductions, downtime remains high

From 2015 to 2018, Fleet Services achieved some improvement with heavy duty vehicles; however, the overall downtime remains high and is far from meeting its delivery targets. In particular, there has been no discernable improvement with medium duty vehicles, which have, on average, been out of service for over a month and a half out of the year. This is shown in Table 1 below:

Table 1: Average Downtime in Business Days Per Year

Vehicle Type	2015	2016	2017	2018	2018 Downtime Expressed in Months	Divisional Target Downtime
Light Duty (Sedans, Minivans, SUVs, Pickups, Cargo Vans)	25	21	22	22	Approx. 1 month	6 – 8 days
Medium Duty (Cube Vans, Dump Trucks, Utility Trucks /Vans)	38	32	32	38	Over 1.5 months	14 – 23 days
Heavy Duty (Mini Packers, Aerial Trucks, Bus, Tractor Trailers, Garbage Trucks, Sewer Trucks)	69	48	50	51	Over 2 months	31 – 48 days

Figures 4 to 6 depict the difference between the actual length of downtime and Fleet's targets by vehicle type:

Figure 4: Light Duty Vehicle Downtime, 2015 - 2018

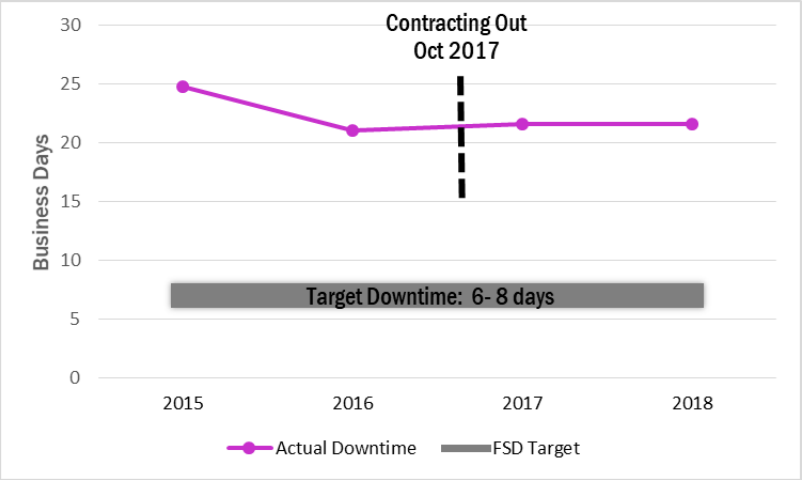


Figure 5: Medium Duty Vehicle Downtime, 2015 - 2018

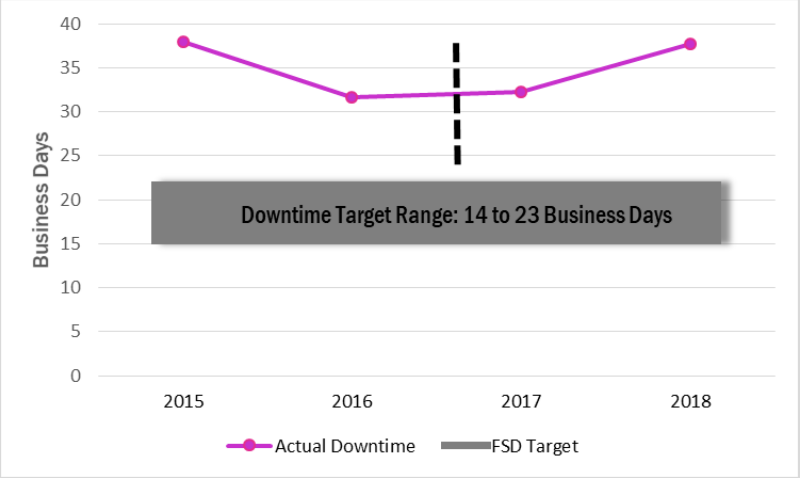
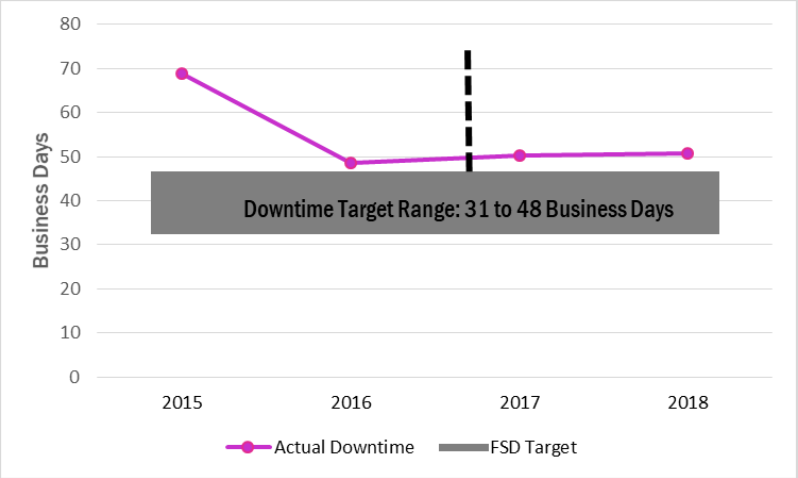


Figure 6: Heavy Duty Vehicle Downtime, 2015 - 2018



Vehicle availability

Fleet Services' 2019 budget notes[4] included the following comments under its *"Our experience and Success"* section: *"Fleet Availability - Exceeded the 90% service standard to clients over the past three years with an overall fleet availability rate of more than 91%."*

90% availability service standard is not necessarily a good performance

Ninety per cent availability may appear to be a good performance but it is not so if we take a closer look at it. Here is why:

- Light duty vehicles are sedans and pickups similar to vehicles used by average Torontonians for commuting. Ninety per cent availability means vehicles are down 10 per cent of the time, or slightly more than one month out of the year. This is far from the industry standard of three to four days per year[5], as well as the target set by Fleet Services – six to eight days per year.

- Annual downtime is a product of downtime per maintenance event, multiplied by the number of events per year. The City's light duty vehicles average 3.5 maintenance events per year, with each event lasting 6.5 business days.

- Fleet's 91 per cent reported availability is skewed by the large number of light duty vehicles which are easier to maintain. Medium and heavy duty vehicles, many of which are critical to City operations, are only available 85 and 80 per cent of the time, respectively.

Number of vehicles out of service

At least 15% of vehicles out of service daily

The impact of downtime can be assessed by looking at the number of vehicles out of service on any given day. We analyzed data for the first two months of 2019 and found that there were on average 724 vehicles and equipment, or 15 per cent of total units, out of service daily (Table 2). In particular, one-fifth of the medium and one-third of the heavy duty vehicles were out of service daily in January and February 2019. These are vehicles that provide essential services such as garbage pick-up, road repairs and winter maintenance.

[4] See https://www.toronto.ca/legdocs/mmis/2019/bu/bgrd/backgroundfile-123821.pdf
[5] See https://www.toronto.ca/legdocs/mmis/2016/cc/bgrd/backgroundfile-97003.pdf, page 8. Industry standards for downtime for medium and heavy duty vehicles are not known.

Table 2: Vehicles Out of Service, Daily Average January 1 - February 28, 2019

Unit Type	Number of Units*	Units Out of Service due to Maintenance **	% of Units Out of Service due to Maintenance
	a	b	c = b/a
Light Duty	1,874	241	13%
Medium Duty	546	113	21%
Heavy Duty	672	207	31%
Equipment	1,598	163	10%
Total	**4,690**	**724**	**15%**

* Include active and redeployed units and units flagged for disposal
** Excludes new vehicles being prepared for service and sweepers which are scheduled for maintenance in winter

Pick-up delays contribute to additional vehicles out of service

Additionally, a number of vehicles had their service completed but were not picked up by user divisions. We estimate this would cause up to an additional 200 vehicles or 5 per cent of total fleet out of service daily. Therefore, the true number of vehicles out of service daily lies somewhere between 15 to 20 per cent.

Every day at least $68 million in vehicle investment not used

Over the sample period, at least one in seven vehicles or equipment, totalling $68 million in vehicle investment, was not used in any given day due to maintenance or repair.

In addition to lost productivity and delays in delivering City programs and services, sidelined vehicles add more demand on other vehicles in the fleet, increasing their wear and tear. Sidelined operators also add more demand on the rest of the team, potentially increasing the need for overtime.

Management suggested that divisions can stagger or spread out their shifts to reduce the number of vehicles needed at a given time. This is not always feasible. For example, Transportation Division Field Investigators and Maintenance Patrollers are required to work during the daytime in order to be able to patrol the roads effectively.

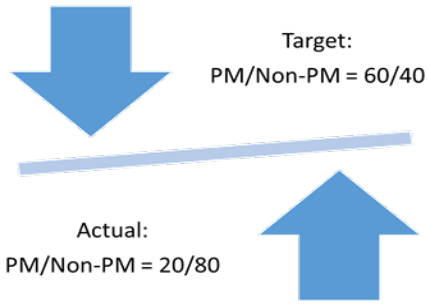
Preventive maintenance ratio

Regular preventive maintenance helps keep vehicles in healthy condition

The effectiveness of a fleet maintenance program can also be measured by the preventive maintenance ratio, which is the amount of preventive maintenance as a percentage of all vehicle services. Sufficient and regular preventive maintenance helps keep vehicles in healthy condition, identifies issues earlier, and reduces costs in the long-run.

In addition to reducing downtime, Fleet Services implemented the Alternate Service Delivery model to improve its preventive maintenance ratio. In 2015, its ratio was 20 per cent for preventive maintenance to 80 per cent non-preventive maintenance (PM/Non-PM ratio 20:80). The target was 60:40 with the new model (Figure 7).

Figure 7: Target and Actual Preventive Maintenance Ratio



Fleet Services adjusted its preventive maintenance intervals in early 2018 in order to reduce unnecessary services and costs. We analyzed maintenance data from 2015 to 2018, and found that the PM ratio has not improved.

The following sections B and C of this report discuss specific issues observed with internal and external services respectively. Most of these items relate to inefficiencies which add to downtime.

Recommendations:

1. **City Council request the General Manager, Fleet Services Division, to take the necessary steps to shorten vehicle and equipment downtime and achieve the downtime target set out in the Division's 2016 Alternate Service Delivery model report.**

2. **City Council request the General Manager, Fleet Services Division, to take steps to improve its preventive maintenance ratio to reduce overall fleet maintenance cost.**

B. Improving Internal Maintenance Services

Following the implementation of the Alternate Service Delivery model in 2017, City garages focus on maintenance work for medium and heavy duty vehicles. The downtime of these types of vehicles is significant, ranging from over 1.5 months to slightly over two months on average. We have identified several areas that can assist Fleet Services in reducing downtime and improving overall efficiencies. These are discussed in the following sections.

B.1 Strengthen Parts Management

B.1.1 Delay in Fulfilling Parts Requests

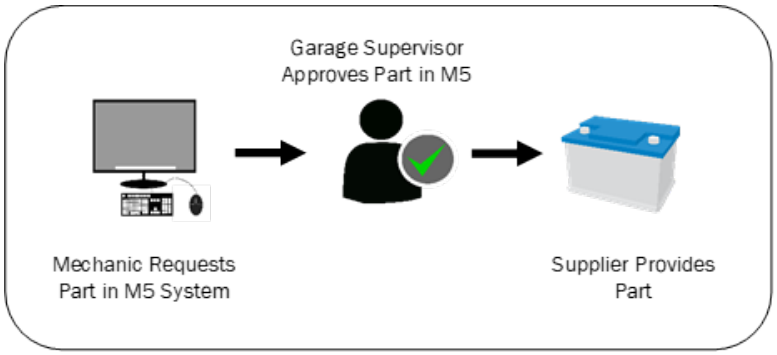
Parts supply process at Fleet Services

Fleet Services purchases $6 million in parts per year from the parts supplier

Fleet Services purchases $6 million in parts per year from a parts supplier who has been on contract with the City since 2012. The supplier operates a parts room at each of the City's four main garages. Ensuring a timely and uninterrupted parts supply is critical to shortening vehicle service turnaround time.

Figure 8 illustrates the process of City mechanics requesting and receiving parts:

Figure 8: Vehicle Parts Supply Process



Contract requirements

Contract requires parts supplier immediately supply 85% of parts requested

In its contract with the City, the parts supplier agreed to have parts available at the following rates, known as fill rates:

- 85 per cent of parts supplied at the point of purchase (i.e., immediately)
- 10 per cent of parts supplied within 24 hours of ordering
- 5 per cent of parts supplied within 48 hours.

Based on the contract, fill rate is to be calculated using data in the FleetFocus (M5) system. Parts supplier should also provide monthly reports to management on the actual fill rates.

Parts supplier is not meeting fill rates

Using M5 data provided by management, we calculated the time taken for the supplier to fulfill the 43,587 parts requested between August and December 2018[6]. The results are shown in Table 3 below:

[6] Most requests made before August 2018 were done using paper forms and had not been tracked. August 2018 was the first full month where parts requests were tracked and timestamped in M5.

Table 3: Analysis of Parts Supplier's Fill Rates, August to December 2018*

Fill Rate	No. of Part Requests	No. of Parts	Actual Fill Rate Based on No. of Parts	Contracted Fill Rate
Within 1 Hour	3,196	9,023	21%	85%
Within 1-24 Hours	3,635	15,318	35%	10%
Within 24-48 Hours	902	2,195	5%	5%
Exceeding 48 Hours	2,724	17,051	39%	0%
Total	10,457	43,587	100%	100%

* Analyzed parts issued up to January 11th 2019, date of the data dump from M5, with parts requests approved between August and December 2018.

Only 21% of parts were supplied within one hour of the request

Overall, only 21 per cent of parts requested were supplied at the point of purchase, or within one hour of the request. This is far from the contracted fill rate of 85 per cent.

Using a 24-hour threshold, parts were supplied 56 per cent[7] of the time compared to the 95 per cent required.

Fill rate alone does not provide a full picture of the delay in parts supply, particularly regarding very slow orders. For the 39 per cent of parts that took more than 48 hours to supply, many of them took longer than one week (Table 4):

Table 4: Breakdown of Parts That Took Longer Than 48 Hours To Supply, August to December 2018

Days	No. of Part Requests	No. of Parts	Percent of Total
2 to 3	374	644	4%
3 to 5	592	4,018	24%
5 to 7	532	1,198	7%
More than 7	1,226	11,191	66%
Total	2,724	17,051	100%

Front line garage staff indicated that delays in receiving parts is a major reason causing prolonged downtime as well as inefficiencies.

We recognize that the M5 Parts Request Module was implemented in July 2018, and there could be fine-tuning of data in subsequent months. However, based on our review of the parts supply process, the supplier's fill rate calculations, and their reports to management, it is our view that the extent of the discrepancy observed (85 per cent contracted versus 21 per cent from M5) is so significant that it points to issues beyond system fine-tuning.

Through discussion and data analysis, we identified the following contributing factors to the supplier's poor inventory fill rate record:

[7] Cumulative total of "Within 1 hour" and "Within 1-24 hours" (21% + 35%).

B.1.2 The Supplier Self-Reported Fill Rates Exceeding the Requirement

The City's contract with the parts supplier states that:

"(The supplier) guarantees that it shall maintain inventory on hand and provide at a minimum 85% of the parts requirements at point of purchase (POP) at all parts counters and Satellite Location(s). Monthly Fill Rates will be reviewed by the City's representative to assess (supplier's) performance and identify problems as they occur."

The supplier self-report fill rates exceeding the 85% requirement

In accordance with the contract, the parts supplier calculated and provided monthly fill rate reports to Fleet Services. These reports showed the supplier's overall fill rate in 2018 as 88 per cent, exceeding the required rate of 85 per cent. However, the supplier's calculation method was very different from the formula stipulated in the contract, shown below:

$$\frac{\text{\# parts requested in period, delivered in X(time)}}{\text{Total parts ordered in period by location}}$$

The contract requires specific turnaround times but the supplier's calculations and reports did not appear to take into account the actual time taken to fulfill the orders.

City of New York also uses the same parts supplier and found similar issues

The same parts supplier also has an agreement with the City of New York to operate on-site parts rooms and supply vehicle parts. The Comptroller of the City of New York highlighted similar issues in his June 2017 audit report.

The parts supplier also had poor fill rates at the City of New York

Similar to what we noted, the Comptroller's report pointed out that the supplier's fill rate calculations did not account for the length of time it took to fill an order, and that their fill rates for the City of New York were poor. The audit report can be found at the link below:

https://comptroller.nyc.gov/wp-content/uploads/documents/MD16-122A.pdf

The supplier's calculated fill rates were not validated by Fleet Services management until September 2018. Fleet staff commented that this delay was caused by the M5 parts request module, which was under development until July 2018.

We reviewed Fleet Services' calculations of the inventory fill rate and found that they had counted parts received within a 10-hour window as parts filled at point of purchase. This means garage staff may not receive the parts until the next shift.

B.1.3 Fleet Services Should Ensure the Supplier's has Sufficient Stocked Items

Fleet Services' parts supplier, as with any supplier, incurs carrying costs on its inventory. It is in their best interest to carry limited inventory. Fleet staff should work with the parts supplier to ensure that the frequently required parts are stocked.

The City's current agreement with the parts supplier states that:

> *"(the parts supplier) and the City shall jointly conduct monthly Parts audits at all On-Site Stores and shall agree upon what is deemed required or not required based on the amount of turnover, length of time to procure a part and the City's requirements to stock the part."*

Staff started reviewing the supplier inventory during the audit

During the audit, staff began reviewing the parts carried by the supplier in December 2018, and requested new stock items in February 2019.

To mitigate future delays and to improve vehicle and equipment downtime, Fleet Services should work more closely with its parts supplier to ensure the frequently required parts are stocked in City garages.

B.1.4 Ensure Suitable Level of Incentive / Disincentive in Future Contract

The amount of incentive/ disincentive is insufficient

The current contract, signed in 2018, stipulates that the supplier needs to pay 0.1 per cent of the annual part purchase costs when it does not meet the required inventory fill rate, or conversely receive a bonus payment equivalent to 0.1 per cent when it does. This disincentive/ incentive is equivalent to $6,000 based on an approximate annual parts spending of $6 million. This is not likely a sufficient amount to encourage the supplier to change its business practices.

In addition, the language in the agreement is not clear on whether the incentive calculation should be based on fill rates at each individual garages or at an overall level. In order to ensure a consistent inventory fill rate performance among different garages and throughout the year, we recommend that the agreement specify that:

a) fill rates be calculated and measured for individual garages on a monthly basis, and
b) incentive / disincentive be assessed accordingly.

Nonetheless, management has not conducted an assessment of the amount owing by the supplier under this contractual clause as of March 15, 2019, at the conclusion of our fieldwork. The previous contract did not have this clause.

Recommendation:

3. **City Council request the General Manager, Fleet Services Division, to take the necessary steps to improve the fill rates by the parts supplier to help reduce vehicle downtime. Steps to be taken should include, but not be limited to:**

   a. **ensuring the supplier's calculation of fill rate is consistent with requirements specified in the contract**

   b. **periodically reviewing the part inventory to ensure that frequently used parts are stocked to shorten vehicle turnaround time**

   c. **regularly monitoring the part supplier's inventory fill rate and enforce the incentive/disincentive clause of the part contract**

   d. **making sure future contracts for parts procurement incorporate an effective penalty clause to encourage contract compliance.**

B.2 Assess Capacity for Internal Services

Our consultation with management and garage staff found that both groups hold similar views in that there are insufficient hands on deck to manage internal vehicle service demands. We performed further analysis and found the following:

Services contracted out

25% of work orders were partially or completely performed externally

One of the goals of the Alternate Service Delivery model was to enable City staff to specialize in heavy duty vehicles and equipment. However, of the approximately 17,000 work orders performed for these types of vehicles in 2018, 25 per cent of them were partially or completely performed by external vendors.

Some external work is unavoidable due to special circumstances such as inclement weather, and dedicated equipment/expertise needed for certain units. However, it may also be an indication of insufficient internal staffing capacity to meet service demands.

Overtime incurred at garages

$1.23 million in overtime incurred from 2016-2018

Over the three years 2016-2018, Fleet Services incurred $1.23 million in overtime at its nine garages:

Table 5: Overtime Cost by Location, 2016 - 2018

Location	2016	2017	2018	Total
Disco	$63,697	$96,517	$138,503	$298,717
Finch	39,352	41,340	91,830	172,522
Bermondsey	102,534	84,158	70,355	257,047
Eastern Ave.	31,212	41,231	38,959	111,402
Ellesmere	109,322	105,626	38,295	253,242
Ingram, Booth, Yonge, King	27,190	24,555	42,059	93,804
Total	**$387,789**	**$408,899**	**$430,799**	**$1,227,487**

In 2018, Disco and Finch garages incurred the highest amount of overtime, more than the other seven garages combined. In addition, both garages showed a noticeable increasing trend in overtime cost over the three years. Reviewing the monthly breakdown showed that while there were periods of high and low demand, there was a continuous need for overtime at these locations, after taking seasonality into account.

Facility Capacity compared to technicians

The Finch garage has capacity to service approximately 16 vehicles at a time, but on average only four to five mechanics per shift.

Having a slightly higher number of garage bays or hoists than technicians can provide some flexibility for staff to service a second vehicle while the first one is waiting (e.g. for parts or approval). However, the ratio suggests that Finch, and possibly other facilities, may be able to accommodate extra work demands without the need for significant capital investment.

Based on the above factors, we believe there is a need for Fleet Services to assess its internal staffing capacity at each location and its sufficiency to meet work demands.

Dedicate resources for minor repairs

Travel time incurred for minor repairs

Several divisional yards, such as those at Bering Road and Northline Road, have a concentrated number of vehicles. In both cases, the City used to operate a garage on site but closed it down several years ago. Staff working from these yards would need to spend extra time travelling to and from Fleet Services garages even for minor repairs, such as changing light bulbs and replacing windshield wipers. This issue affects some groups more than others as some yards are close or even adjacent to a fleet garage, while others are far from the nearest garage.

We analyzed the maintenance records for a group of 137 vehicles at Bering Yard to quantify the number of minor services performed during 2018:

Table 6: Minor Repairs Performed for Bering Road Vehicles

Job Type	Number of Jobs Performed in 2018
Lights	193
Boosts	40
Tires	280
Wipers	46
Oil	51
Battery	81
Total	**691**

Vehicles at one City yard made on average 3.4 trips for minor repairs in 2018

The 691 jobs translate into 460 unique work orders or maintenance trips. This equals an average of five jobs or 3.4 trips per vehicle in 2018 just for minor repairs. Each trip would involve driving 13 km each way between the yard and the City garage.

Potential solutions to expedite minor repairs

Fleet Services should explore options to expedite the process for minor repairs, including providing mobile services (e.g. service vans) at targeted locations, or renovating its facilities to provide lube bays or drive through services.

The internal capacity is further affected by the state of garage facilities. Most of the City garages were built in the 1960s and have not been updated ever since, with the exception of Bermondsey and Ingram garages which received updates in 2010. In addition, a large area of the Eastern Avenue garage is condemned due to issues with flooring. Part of the garage has a low ceiling and cannot accommodate a hoist. Ellesmere garage was burned down in 2016 and staff currently work from temporary facilities.

Recommendation:

4. **City Council request the General Manager, Fleet Services Division, to explore ways that can help reduce vehicle downtime including an assessment of:**

   a. **Internal staffing capacity to meet work demands**

   b. **Options that will help expedite service times for minor repairs, particularly for City yards with a large number of concentrated vehicles.**

B.3 Monitor Repair Quality

Maintenance quality can be measured by the amount of repeat work

A common performance indicator for maintenance quality is the number of 'comebacks', or work which has to be repeated within a short period of time. Using 30- and 60-day thresholds, we analyzed repair data for the years 2017 and 2018 and observed the following:

Table 7: Repeat Work By Vehicle Type, 2017-2018

	2017		2018	
Vehicle Type	Comebacks within 30 days	Comebacks within 60 days	Comebacks within 30 days	Comebacks within 60 days
Light Duty (contracted out)	2%	4%	3%	4-5%
Medium Duty	2-4%	4-7%	3-7%	5-11%
Heavy Duty (excl. Class 8)	8%	14%	7-10%	11-14%
Heavy Duty, Class 8	18%	25%	17%	24%

24% of repairs for Class 8 vehicles failed again within 60 days

As Table 7 shows, heavy duty vehicles showed a high percentage of repeat work for both 2017 and 2018. Class 8 vehicles (garbage packers, tractor trailers, sewer trucks) in particular performed the worst, with a 24% repeat rate in 2018, using the 60-day threshold. This is one in four repairs failed within 60 days.

Averaging at least one visit to garage each month

We acknowledge that the more complex nature of heavy duty vehicles may have contributed to a higher rate of repeat work. Nonetheless, the repair quality issue likely contributed to a higher annual downtime. On average, Class 8 vehicles required 16 work orders a year, averaging more than once a month in visits to garages.

Fleet Services should monitor occurrences of repeat work and where issues are identified, work with the garage or vendor to ensure the quality of workmanship.

Recommendation:

5. **City Council request the General Manager, Fleet Services Division, to implement processes to identify and monitor repair quality issues, to reduce repeated repairs and downtime.**

C. Improving Contracted Out Maintenance Services

Fleet Services spent $13 million on external maintenance services in 2018

The contracting out of light-duty vehicles in 2017 represented a significant undertaking, as the Division began to place more reliance on contract services and shifted its role from providing maintenance services to managing contractor work. In 2018, Fleet Services spent $13 million on external maintenance services.

On average, an oil change for City light duty vehicles results in three days of downtime

We observed some inefficiencies with this process. For instance, on average an oil change for City light duty vehicles results in three days of downtime. A Torontonian who drives a similar vehicle can drop the vehicle off at a private garage for oil change and get it back within a few hours. There are a number of issues in the management of contracted services that contribute to this delay, which are discussed in this section.

C.1 Streamline the Contracted Maintenance Process

C.1.1 Logistics for Contracted Maintenance

Gaps and inefficiencies in the contracted services process

The table below outlines the main steps along the contracted maintenance process, and inefficiencies we observed that likely contributed to a higher downtime:

Table 8: Process Inefficiencies For Contracted Maintenance

Step	Delays Observed	Potential Remedies
Divisions initiate a vehicle service request by emailing Fleet Services. Fleet staff then contact the appropriate vendor to schedule the service.	We reviewed 20 sample emails involving 23 service requests. Out of the 23, 10 took two or more days to schedule. Five of them took a week or longer. The M5 system has the capability to track workflows but is currently not being used by staff.	Set target turnaround times for scheduling services and monitor actual performance.
Divisions deliver their vehicle to the vendor at the scheduled date and time or vendors pick up vehicles from City garages or yards.	The process is not clearly understood. Some users bring their vehicles to City garages instead. We also noted instances of miscommunication which led to service delays.	Clarify procedures and provide additional guidance or communication to the divisions and garage staff.

	More groups may be able to deliver their vehicles to the vendor if shuttle service were provided, eliminating the need to arrange extra transportation.	Negotiate with vendors to expand shuttle service to designated City yards.
The vendor inspects the vehicle to produce an estimate.	Vendors do not have access to the City vehicle's service history, making it difficult to form accurate assessments.	Develop processes to allow efficient sharing of vehicle service history.
Fleet Services reviews and approves the estimate before the vendor can begin work.	Out of 15 vendor estimates reviewed, only three were approved within the same day by Fleet staff; two took one to three days; 10 took five or more days, with the longest being 19 days.	Establish pre-approved limits for routine work. Increase number of management staff who can approve estimates.
Vendors complete the service, then deliver or have someone pick up the vehicle.	Completed vehicles are currently returned to Fleet Services garages. Except for cases where staff need to inspect the vehicle or perform follow up work, it may be more efficient to return it directly to the division.	Work with divisions to develop suitable processes and controls.

Making the needed adjustments to address these delays will help streamline the process for contracted vehicle services.

Recommendation:

6. **City Council request the General Manager, Fleet Services Division, to review and address the logistics issues in procuring and approving contracted maintenance and repair services to reduce vehicle downtime. Steps to be taken should include:**

    a. **Setting customer turnaround time target for responding to service request**

    b. **Clarifying vehicle delivery and return procedures, and providing additional guidance or communication to the divisions and garage staff**

    c. **Negotiating with vendors to expand shuttle service to designated City yards to facilitate direct transportation of vehicles to / from vendors where feasible**

    d. **Expediting the estimate approval process by Fleet staff**

    e. **Improving the ease of providing vehicle maintenance history to external vendors.**

C.1.2 Support Staff Work Hours

Contract Coordinators

Contract Coordinators work closely with garage staff and vendors to provide service

Fleet Services Division has four Contract Coordinator positions (one currently vacant) serving the maintenance garages. Their main responsibility is to facilitate divisional vehicle service needs with Fleet Services garages and external vendors.

Regular working hours from 10 a.m. to 6 p.m.

Contract Coordinators' regular working hours are from 10 a.m. to 6 p.m. This does not align with their three main stakeholder groups:

- City garages: City garages open at 6 or 6:30am. Staff have commented that their workload is usually heaviest in the early morning hours, when division staff take their vehicles to begin their shifts.
- External vendors: Fleet Services' procurement documents require many of its vendors to have minimum operating hours from 8 a.m. to 5 p.m.
- Divisional Operators: While some user groups do have evening and overnight shifts, most staff begin shifts early in the morning between 6:30 and 7 a.m., and end at 2:30 to 3 p.m.

Need for Contract Coordinator services are highest earlier in the morning

Contract Coordinators' schedules mean that they are not present during the morning three to four hours when demand for their services is likely highest, while the final hours of their shift occur after stakeholders have finished for the day. This may cause some work to cascade into the next day, contributing to service delays.

In late 2018, management moved Contract Coordinators' working location from Eastern Avenue to their respective district garages. This allowed them to work more closely with garage staff to service their clients. If their working schedules were staggered to provide broader coverage with their stakeholders' operating hours, it may help to further enhance their effectiveness.

Research Analysts

Research Analysts work from 8 a.m. to 4 p.m. or 8:30 a.m. to 4:30 p.m. Their main responsibilities include receiving maintenance requests, updating work orders, sending part requests, and performing analysis to support management decision making. Staggering their shifts can similarly provide better coverage to their stakeholders.

Recommendation:

7. **City Council request the General Manager, Fleet Services Division, to consider running a pilot program to assess the feasibility and merits of realigning Contract Coordinator and Research Analyst shift schedules with external vendor and internal user group operating hours.**

C.1.3 Paying Invoices for Completed Work

$1.0 million in payables outstanding for 60 days or longer

Fleet Services' accounts payable aging schedule shows that of the $2.3 million payables outstanding as of early 2019, $1.0 million had been outstanding for 60 days or longer. Consistently late invoice payments can affect the City's operations in multiple ways:

Consistently late payments may lead to delays in service

- Downtime may increase because it is in the vendors' financial interest to prioritize service for customers who pay on a timely basis. Some of our vendors have other corporate customers.

- It affects the City's relationship with its vendors. Both Fleet Services and vendors have stressed the importance of building strong working relationships in the process.

- Other vendors, especially those more dependent on cash flow, may be discouraged from bidding on City tenders.

- In 2018, Fleet Services captured 61 per cent of available early payment discounts, missing out on $26,600. This discount capture rate was among the lowest in City divisions.

When Fleet Services initially approves the vendor estimate allowing work to begin, they also set up a purchase order in the SAP financial system. When vendors complete the work and invoice the City, the invoice must exactly match the purchase order in order to be paid. This appears to create a bottleneck in the process:

- During vehicle service, technicians often identify extra issues after work has begun. This causes (sometimes multiple) changes to the final cost.

- Invoices were held back because the labour and parts charges were off by a small amount, sometimes within a dollar, even though the total cost matches the SAP record.

Flexibility in the purchase order setup may expedite process

We acknowledge that the purchase order process is an important control to ensure that the City is not overcharged. However, if some flexibility can be built into the process while still protecting the City's financial interests, it will help expedite the process.

Recommendations:

8. **City Council request the General Manager, Fleet Services Division, to expedite clearing of the Division's backlog of outstanding invoice payments.**

9. **City Council request the General Manager, Fleet Services Division, to work with Corporate Accounts Payable to design and implement a process that balances control risks with the City's need to pay invoices in a timely manner.**

C.2 Assess External Vendor Capacity

Fleet Services only has four vendors to service medium and heavy duty vehicles

While the previous section discussed process inefficiencies, there also appears to be an overall shortage in external vendor capacity. In particular, for medium and heavy duty vehicles, Fleet Services only has four vendors that handle their maintenance – two in North York, one in Etobicoke and one in Scarborough. The City's garages frequently have to send vehicles across the city to other districts because of this shortage.

Retain additional vendors to increase capacity

Some of this shortage may be alleviated through building internal repair capacity and eliminating inefficiencies as discussed above. We also recommend that Fleet Services retain more vendors than they currently have in order to increase external service capacity. This could reduce the service bottleneck, and provide the Division with more viable alternatives in the case of vendors underperforming or being temporarily unavailable.

Savings can likely be achieved through more competitive tenders

In order to meet its service requirements, Fleet Services has set up Divisional Purchase Orders (DPO) just under $50,000 – the City's maximum allowable amount – with a number of vendors which it has repeatedly used for vehicle maintenance. Savings can likely be achieved through the use of more competitive tenders. We compared prices offered by vendors servicing similar types of vehicles and found that with one contracted vendor, the City was charged a labour rate of up to 65 per cent lower than other vendors through the DPO, in addition to bulk discounts on parts.

If Fleet Services expects that it will continue to require the services of these vendors, issuing the appropriate tenders to establish contracts with them will likely allow the City to enjoy lower rates, as well as increase the service capacity in their respective areas.

Recommendations:

10. **City Council request the General Manager, Fleet Services Division, to review its contracted capacity and work demand with a goal to retain a sufficient number of qualified vendors to effectively meet its vehicle service needs.**

11. **City Council request the General Manager, Fleet Services Division, to monitor its external vendor spending and where opportunities are identified, initiate tendering processes to obtain more competitive rates.**

C.3 Improve the Vendor Audit Process

In 2018, Fleet Services' maintenance section spent $8.3 million on goods and services provided by external vendors[8]. It is critical that the City has sufficient controls to ensure this amount is spent prudently. One such control is the vendor audit.

Vendor audits are performed to validate estimates and verify work completed

When vehicles are sent to external vendors for service, Fleet Services staff perform inspections on a sample basis. This can be done at the beginning of work to validate vendor estimates, or upon completion to ensure the appropriateness, timeliness and quality of work, and accuracy of the amount invoiced.

Fleet Services improved vendor audit standardization and tracking

In response to a 2013 Internal Audit recommendation, Fleet Services implemented a standard vendor audit form and tracking process in its fleet management system. This has improved the consistency of audits and made it easier for management to review Fleet staff's vendor audit results.

In reviewing Fleet Services' vendor audit process, we identified the following areas that can be further improved:

1. Inconsistent/insufficient audit coverage

Based on figures provided by management, in 2018 staff audited 167, or 2 per cent, of the total 7,587 external maintenance-related invoices. Table 9 provides a summary of the vendor audit statistics from 2015 to 2018.

[8] Excluding goods and services that do not require audits, such as tows and lubrication.

Table 9: Vendor Audit Summary, 2015 to 2018

Year	2015	2016	2017	2018
Number of Invoices	4,126	4,787	6,439	7,587
Number of Audits	232	88	66	167
Audit Coverage (%)	6%	2%	1%	2%
Issues Identified	44	39	29	51
Audits with Issues Found (%)	19%	44%	44%	31%

Overall number of audits may not be sufficient

Between the years 2015 to 2018, the portion of audits which resulted in work quality and timeline issues ranged from 19 per cent to 44 per cent. However, the number of audits decreased from 232 in 2015 to 167 in 2018 despite an increased number of contracts and the relatively high percentage of work orders with issues. The 2018 audit coverage at 2 per cent may not be sufficient to ensure the quality and appropriateness of the service received.

Audit coverage varied widely between garages

This audit coverage also varied widely between the City's nine garages, ranging from zero or below 1 per cent of work orders, to the highest coverage of 27 per cent.

2. Audit selection method should target higher risk vendors

Vendor audits should be selected to provide the greatest assurance

Since it is not practical for staff to audit every work order, it is important that audits are selected in a manner that provides the greatest assurance given limited resources available. This was not being done effectively:

- Audit coverage did not appear to have taken into consideration the vendors' track record. For example, audits performed for one vendor dropped from 21 in 2015 to 5 in 2018, despite the vendor performing progressively more work over this period and staff consistently identifying repair quality or timeline issues.
- Some vendors were rarely or never audited despite performing a significant number of services for the City.

We did observe some instances of staff directing audits towards riskier areas. However, selecting vendor audits based on risks has not been consistently applied.

3. Audit documentation is not sufficient

We reviewed documentation for 56 audits performed by three garages in 2018, and observed the following common issues:

- Incomplete audit forms;
- Inconsistent or insufficient information (such as indicating issues without explanation);
- Not using the prescribed template; or
- Not retaining the audit documentation at all.

See Table 10 below for audit results.

Table 10: Sample Review Results of Vendor Audits, 2018

Description	Total	% of Total
Vendor Audits reviewed	56	100%
Audit information is incomplete or inconsistent	16	29%
Incorrect template used	6	11%
Audit records not retained	3	5%

Recommendation:

12. City Council request the General Manager, Fleet Services Division, to provide additional guidance on the vendor audit process including target coverage, selection method, audit process, and results tracking, to ensure the consistency and effectiveness of the process.

D. Strengthening Parts Warranty Management to Maximize Savings

There are generally two types of warranties: new vehicle warranty and aftermarket parts warranty.

A new vehicle warranty is a manufacturer-backed warranty. Warranties on new vehicles vary in what terms they cover.

Parts purchased for replacement, commonly known as aftermarket parts, should be covered by the parts manufacturers, with the exception of consumables such as filters and lubricants. Different parts and manufacturers have different warranty terms.

Warranty findings in this report pertain to aftermarket parts only

In this current phase, we reviewed the aftermarket parts warranty for parts purchased through the City's contracted parts supplier only. New vehicle warranty will be covered in Phase Two of the Fleet Audit.

Of the $6 million in parts that Fleet Services purchases annually, a small portion will fail within the warranty periods. Part of Fleet Services' responsibilities is to make sure the City has an effective warranty claim process to avoid paying for parts and labour costs that are under warranty.

The contract between the parts supplier and the City says:

"(the parts supplier) shall be responsible to enter all warranty applicable data into FleetFocus (M5) and take direct responsibility to handle all claims submitted by the City for defective and/or warranty items on behalf of the manufacturer."

Parts supplier is responsible for processing the City's warranty claim

According to the agreement with the parts supplier, Fleet staff are responsible for identifying warranty claims, and the supplier's staff are responsible for processing the claims on behalf of the City.

Estimated $400,000 annually in aftermarket parts and labour warranty was not claimed

Our review found that Fleet Services did not have sufficient oversight of supplier's warranty claim process. Based on our analysis, Fleet Services has foregone an estimated $1.2 million savings in aftermarket parts and labour warranty over the last three years, averaging $400,000 per year.

D.1 Maximize Parts Warranty Claims

Only a Small Percentage of the Parts Eligible for Warranty Was Claimed

Fleet Services claimed warranty for just above 10% of the total purchases that failed within warranty terms

For the years 2016 to 2018, Fleet Services' M5 system flagged approximately $900,000 worth of parts that failed within the warranty terms. We reviewed these parts, removed consumables, and eliminated items under $25. We arrived at $680,000 worth of parts.

Based on billing data, Fleet's total warranty claims for the same period was only $72,000[9] (averaging $24,000 per year), which is just above 10 per cent of the value of eligible parts.

Warranty information in M5 may be incomplete

Further, $900,000 is a small amount compared to the estimated $15 million[10] of parts purchased during this period. It is possible that not all warranty information has been entered into M5 by the supplier's staff in accordance with the contract. While the supplier's staff are responsible for entering warranty information into M5, Fleet Services needs to maintain oversight to ensure this is consistently done.

[9] From the parts supplier's billing system for the period of January 1 2016 to November 15 2018.
[10] Based on the parts supplier's billing data.

Labour Cost for Prematurely Failed Parts were not Claimed

City does not claim labour time in its warranty claims

When parts fail prematurely, in addition to the purchase cost of the new parts, the City also incurs labour costs to remove the defective part and install the replacement parts. Fleet staff have not pursued claims for labour costs associated with prematurely failed parts.

The City's agreement with the supplier does not include an explicit labour reimbursement warranty clause. However, the City's agreement with the supplier is established through a U.S based joint procurement initiative.

The parts supplier's original submission to the initiative states:

"Labor cost will be requested from specific vendors ... (the parts supplier) will manage the process to recover all available warranties from the vendors that provide parts".

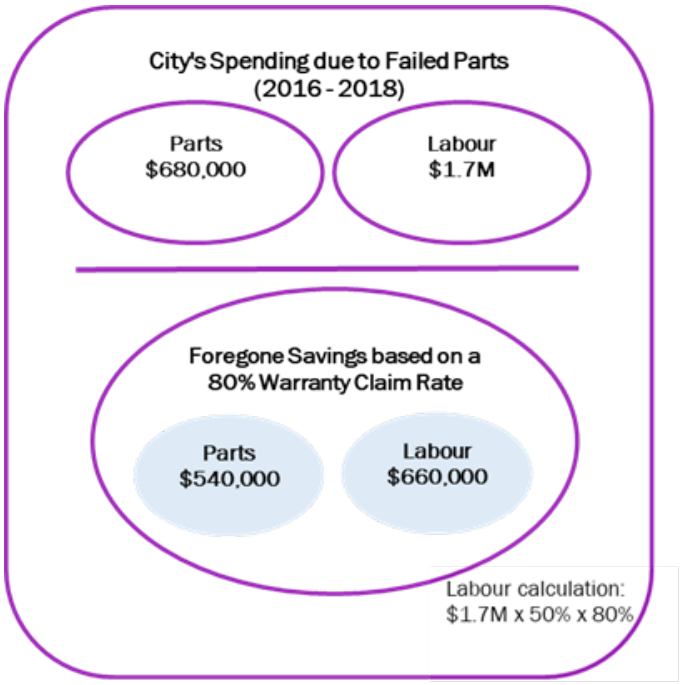
This suggests that the City can claim warranty for labour hours by submitting the required documentation for the labour hours to the parts supplier.

For the $680,000 failed parts identified above, the City spent 17,000 labour hours for the repair jobs. Using the City's hourly shop rate of $97, this translates into over $1.7 million in the last three years. Staff stated manufacturers generally reimburse 50 per cent of the hourly shop rate for aftermarket part warranties.

Total Potential Amount of Foregone Savings:

Figure 9 below shows the City's actual spending on prematurely failed parts, associated labour cost, and the potential annual savings if it achieves 80 per cent claim rates for the defective parts and the labour costs:

Figure 9: Potential Foregone Warranty Savings, 2016 to 2018



Had the City been able to successfully claim warranties for 80 per cent of the prematurely failed parts, the City could have saved just over $540,000, or $180,000 per year, in parts in the last three years.

City could have saved at least $1.2M in the last 3 years from warranty claims

Similarly, if part manufacturers reimbursed the City 50 per cent of its shop rate on 80 per cent of claims, the City could have saved $660,000 or $220,000 every year. The combined potential savings could amount to 1.2 million over the last three years, or $400,000 per year. As discussed earlier, this does not include additional parts that may have warranties but not flagged in M5.

Warranty issue may be applicable to other divisions

Since the parts supplier also services other City divisions such as Fire Services and Toronto Paramedic Services, the parts warranty issue and audit recommendation may be applicable to them.

D.2 Improve Current Warranty Process

Staff not reviewing warranty claims for parts

Under the contract, the parts supplier is responsible for processing warranty claims, but Fleet Services needs to regularly review and monitor aftermarket part warranty claims administered by the supplier to maximize these claims.

Currently, there is no one at Fleet Services dedicated to reviewing and tracking warranty claims for the supplier's parts. There is no management report from M5 to show outstanding part warranty claims. Management also stated that the maintenance group is short-staffed and warranty identification is not a work priority. We also found that warranty terms were not always set up accurately in M5.

Recommendation:

13. City Council request the General Manager, Fleet Services Division, to take steps to maximize warranty claims for parts and labour costs. Steps to be taken should include, but not be limited to:

a. Setting a performance target for warranty claims and periodically measuring warranty effort against the target

b. Allocating appropriate staff resources to adequately review and monitor the parts supplier's administration of aftermarket part and labour warranty claims

c. Making sure the warranty data in M5 are accurate and complete

d. Providing training to Fleet maintenance staff on policies and procedures pertaining to warranty claims.

E. Audit Results May Be Relevant to Other City Divisions and Agencies

Many of the issues and recommendations included in this report, particularly in regards to warranty administration, may have relevance to other City divisions (Fire Services and Toronto Paramedic Services) and agencies (Toronto Police Service, Toronto Transit Commission, Toronto Zoo, Exhibition Place) who maintain their own fleet.

Management representatives in these organizations should review the issues and recommendations in this report relative to their respective operations.

Recommendation:

14. City Council request the City Manager to forward this report to Division Heads and Chief Executive Officers of City agencies and corporations with fleet management operations, and request them to review and consider implementing the recommendations that are relevant to their respective operations.

Conclusion

We recognize that Fleet Services Division is approximately a year and a half into the implementation of the Alternate Service Delivery model, and is still in the process of fine-tuning its implementation. We observed that the Division was making improvements along our audit.

14 recommendations to help reduce vehicle downtime and improve operational effectiveness and efficiency

The City fleet is faced with issues of lengthy downtime and low preventive maintenance ratios. These affect the availability and reliability of City vehicles used to deliver essential services and meet operational needs. Our audit identified a number of areas where Fleet Services can improve its internal maintenance operations and better manage its contracted maintenance services.

The implementation of the 14 recommendations in this report will help reduce vehicle downtime, strengthen warranty administration, and improve the efficiency and cost effectiveness of the Fleet Services Division's vehicle maintenance operations.

Audit Objectives, Scope and Methodology

Audit was part of Auditor General's 2018 Work Plan

The Auditor General's 2018 Audit Work Plan included an operational review of Fleet Services.

Audit Objective and Scope

The objective of the audit is to assess the effectiveness, efficiency, and economy of the Fleet Services Division's operations. The audit is performed in two phases:

- Phase One focused on vehicle maintenance, including parts management, warranty administration, and services performed by City garages as well as contracted providers.
- Phase Two will review asset management and other aspects of fleet management.

The Phase One audit covered the period from 2015 to 2018. Preventive maintenance scheduling and compliance has been excluded from this audit, as Fleet Services Division revised its preventive maintenance intervals in 2018 and sufficient time has not passed for us to assess its effect.

Audit Methodology

Our audit methodology included the following:

- Review of relevant City of Toronto and Fleet Services Division policies and procedures
- Analysis of contracts, legal agreements and progress reports between the City and its contracted vendors
- Interviews with staff, operating divisions, and external vendors
- Analysis of maintenance data and financial information
- Review of correspondence and documentation relating to service requests, vendor estimates, and invoices
- Review of literature in the fleet management industry and other comparable municipalities
- Review of previous audits and recommendations

Compliance with generally accepted government auditing standards

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix 1: Management's Response to the Auditor General's Report Entitled: "Fleet Services Operational Review - Phase One: Lengthy Downtime Requires Immediate Attention"

Recommendation 1: City Council request the General Manager, Fleet Services Division, to take the necessary steps to shorten vehicle and equipment downtime and achieve the downtime target set out in the Division's 2016 Alternate Service Delivery model report.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services acknowledges the importance of vehicle availability and achievement of the five-year targets that were established through the Alternative Service Delivery (ASD) plan, and will execute these initiatives:
1) Improve internal resource capacity, efficiency, and training:
- Assess internal capacity by identifying opportunities for optimization of current resources and any existing resource gaps (Q3 2019)
- Include actionable items in 2020 budget submission (Q3 2019)

2) Augment vendor capacity and work management (please refer to recommendation 10 for details)
3) Improve IT system utilization and processes for work order data capture, tracking, and reporting (Ongoing)
4) Address the State of Good Repair, including reduction of the replacement backlog
- Assess and recommend different funding models to address the replacement backlog (Q2 2021)

Recommendation 2: City Council request the General Manager, Fleet Services Division, to take steps to improve its preventive maintenance ratio to reduce overall fleet maintenance cost.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Service will take the following steps to improve its preventive maintenance versus non-preventive maintenance ratio, as established in the ASD five-year plan:
1) Improve internal resource capacity, efficiency, and training
- Assess internal capacity by identifying opportunities for optimization of current resources and any existing resource gaps (Q3 2019)
- Include actionable items in 2020 budget submission (Q3 2019)

2) Augment vendor capacity and work management (please refer to recommendation 10 for details)
3) Improve Fleet Preventative Maintenance ratio, business practices and reporting methodologies to provide relevant information to clients to assist with better vehicle operation and utilization (Ongoing)
4) Improve parts supply (please refer to recommendation 3 and 13 for details)
5) Address the State of Good Repair, including reduction of the replacement backlog
- Assess and recommend different funding models to address the replacement backlog (Q2 2021)

Recommendation 3: City Council request the General Manager, Fleet Services Division, to take the necessary steps to improve the fill rates by the parts supplier to help reduce vehicle downtime. Steps to be taken should include, but not be limited to:

a. ensuring the supplier's calculation of fill rate is consistent with requirements specified in the contract

b. periodically reviewing the part inventory to ensure that frequently used parts are stocked to shorten vehicle turnaround time

c. regularly monitoring the part supplier's inventory fill rate and enforce the incentive/disincentive clause of the part contract

d. making sure future contracts for parts procurement incorporate an effective penalty clause to encourage contract compliance.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
a. Fleet Services will continue to ensure proper calculation of fill rates based on actual time to fulfill the parts request at the specific parts counter location (immediate)

b. Fleet Services is currently in the midst of part inventory optimization at the four major garages and is working with the parts vendor to increase the frequency of this function. (Q4 2020)

c. Fill rates are measured monthly while incentive and disincentive fee's will be applied annually at the contract anniversary (Q3 2019)

d. Fleet Services will ensure effective but fair performance clauses on future parts procurements (Q4 2020)

Recommendation 4: City Council request the General Manager, Fleet Services Division, to explore ways that can help reduce vehicle downtime including an assessment of:

a. internal staffing capacity to meet work demands

b. options that will help expedite service times for minor repairs, particularly for City yards with a large number of concentrated vehicles.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services acknowledges the importance of vehicle availability and achievement of the five-year targets that were established through the Council approved ASD plan, and will execute these initiatives:

a) Assess and improve internal staffing capacity:
(i) Analyze internal resource capacity (Q3 2019)
(ii) Implement identified efficiency improvement opportunities, and provide staff training (Q2 2020). Remaining actionable items to be included in 2020 budget.

(iii) Enhance internal work processes and management (Ongoing)

b. Analyze the cost and viability of internal and external options (Q3 2019)
(i) Implement identified efficiency improvement opportunities, and provide staff training (Q2 2020). Remaining actionable items to be included in 2020 budget.
(ii) Augment vendor capacity and work management (please refer to recommendation 10 for details)

Recommendation 5: City Council request the General Manager, Fleet Services Division, to implement processes to identify and monitor repair quality issues, to reduce repeated repairs and downtime.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services will implement processes to better identify and monitor repair quality issues, to reduce repeat repairs and downtime, including:

Short-term actions:
1) Assess internal capacity by identifying opportunities for optimization of current resources and any existing resource gaps (Q3 2019 – see Recommendations 1 and 2 for additional details)
2) Assess and improve internal work processes for identifying and monitoring repeat repairs (Q4 2019)

Long-term actions:
3) Assess and develop a process and systems to implement VMRS (Vehicle Maintenance Reporting Standards) including the proper structure and controls (Q4 2021)
4) Augmenting vendor capacity and work management (please refer to recommendation 10 for details)

Recommendation 6: City Council request the General Manager, Fleet Services Division, to review and address the logistics issues in procuring and approving contracted maintenance and repair services to reduce vehicle downtime. Steps to be taken should include:

a. setting customer turnaround time target for responding to service request

b. clarifying vehicle delivery and return procedures, and providing additional guidance or communication to the divisions and garage staff

c. negotiating with vendors to expand shuttle service to designated City yards to facilitate direct transportation of vehicles to / from vendors where feasible

d. expediting the estimate approval process by Fleet staff

e. improving the ease of providing vehicle maintenance history to external vendors.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services will take the following steps to review and address the logistics issues in procuring and approving contracted maintenance and repair services:

a. Customer turnaround times to be tracked by ensuring estimate return date is tracked in Fleet Management Information System (Q3 2020)
Fleet Services will develop and implement standard turnaround times per job/work category (Q3 2020).

b. (i) Improve work order request to ensure schedule is accurate and comprehensive (Q4 2020)
(ii) Provide additional communication to the clients and staff (Ongoing)

c. Expand shuttle service to designated City yards to facilitate direct transportation of vehicles to and from vendors where feasible in future tenders (Q4 2020)

d. Increase number of management staff who can approve estimates (please see items 1 and 2 for additional details) (Q1 2021)

e. Fleet Services will implement the most efficient way of providing relevant maintenance history to our vendors as required (Q4 2019)

Recommendation 7: City Council request the General Manager, Fleet Services Division, to consider running a pilot program to assess the feasibility and merits of realigning Contract Coordinator and Research Analyst shift schedules with external vendor and internal user group operating hours.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Contract Coordinators shifts and Research Analyst schedule to be adjusted as a pilot program to align with external vendors and internal client group (Q3 2019).

Recommendation 8: City Council request the General Manager, Fleet Services Division, to expedite clearing of the Division's backlog of outstanding invoice payments.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services target for payment of invoices that are accurate, with required documentation, will be in accordance with the applicable Corporate Accounts Payables policy.

The Division is in the process of filling the existing vacancies to expedite the clearing of the invoice payment backlog.

The vacant positions are expected to be filled by Q3 of 2019. The invoice payment backlog is expected to be improved by the end of 2019.

Further, Fleet Services has an approved 2019 capital project for a vendor management solution, to provide a platform that will enable Fleet Services staff to initiate, review, and approve estimates and final costs electronically, to increase efficiency and controls. This project which aligns with the Corporate Supply Chain efforts that are already underway is expected to be complete at the end of Q4 2020.

Recommendation 9: **City Council request the General Manager, Fleet Services Division, to work with Corporate Accounts Payable to design and implement a process that balances control risks with the City's need to pay invoices in a timely manner.**

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services will work with Accounting Services on acceptable process changes to balance control and risk with timely invoices payments, as part of broader Corporate initiatives. This includes evaluating other payment options, reviewing vendor communication processes, and streamlining the invoice approval process. (Q4 2019).

Further, Fleet Services has an approved 2019 capital project for a vendor management solution, to provide a platform that will enable Fleet Services staff to initiate, review, and approve estimates and final costs electronically, to increase efficiency and controls. This project which aligns with the Corporate Supply Chain efforts that are already underway is expected to be complete at the end of Q4 2020.

Recommendation 10: **City Council request the General Manager, Fleet Services Division, to review its contracted capacity and work demand with a goal to retain a sufficient number of qualified vendors to effectively meet its vehicle service needs.**

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
As part of the established five-year targets, Fleet Services Division will review contracted vendor options, capacity, and work demand to expand the vendor network and increase external service capacity, including:

1) Enhanced vendor service delivery:
- Issue call documents which aim to attract qualified vendors in districts that currently lack sufficient external vendor capacity (Q3 2020)
- Continue exploring service models and alternative options, including cooperative procurements, to increase capacity (Q2 2020)

2) Increased number of management staff who can approve estimates and provide sufficient controls as part of capacity analysis (see Recommendations 1 and 2 for additional details) (Q4 2020)

Recommendation 11: City Council request the General Manager, Fleet Services Division, to monitor its external vendor spending and where opportunities are identified, initiate tendering processes to obtain more competitive rates.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services Division will monitor its external vendor contracts, including spending, lack of long-term contracts, and insufficient service coverage, and where opportunities are identified will initiate tendering processes to obtain more competitive rates as required (Q2 2020)

Fleet Services Division will continue to use available tools to expand the vendor network such as the utilization of vendor days and strengthening the language and requirements in the tendering process through lessons learned (Q4 2020)

Recommendation 12: City Council request the General Manager, Fleet Services Division, to provide additional guidance on the vendor audit process including target coverage, selection method, audit process, and results tracking, to ensure the consistency and effectiveness of the process.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services will establish vendor audit benchmarks, including target coverage, selection method, defined audit process, including remote and data-based audits and results tracking, to ensure consistency and effectiveness (Q3 2019).

Further, Fleet Services will assess internal capacity by identifying opportunities for optimization of current resources and any existing resource gaps (Q3 2019).

Actionable items will be included in 2020 budget submission (Q3 2019).

Fleet Services will begin to implement the approved items in (Q4 2020)

Recommendation 13: City Council request the General Manager, Fleet Services Division, to take steps to maximize warranty claims for parts and labour costs. Steps to be taken should include, but not be limited to:

a. setting a performance target for warranty claims and periodically measuring warranty effort against the target

b. allocating appropriate staff resources to adequately review and monitor the parts supplier's administration of aftermarket part and labour warranty claims

c. making sure the warranty data in M5 are accurate and complete

d. providing training to Fleet maintenance staff on policies and procedures pertaining to warranty claims.

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
a. Fleet Services will set performance targets for warranty claims and measure warranty effort against the target quarterly (Q4 2020)

b. Fleet Services will allocate appropriate staff resources to adequately review and monitor the parts supplier's administration of aftermarket part and labour warranty claims (Q1 2020)

c. Fleet Services will develop processes with defined accountability and required documentation to ensure the warranty data in the FMIS is accurate and complete (Q4 2020)

d. Fleet Services will provide training to maintenance staff on policies and procedures pertaining to warranty claims (Q4 2020)

Recommendation 14: **City Council request the City Manager to forward this report to Division Heads and Chief Executive Officers of City agencies and corporations with fleet management operations, and request them to review and consider implementing the recommendations that are relevant to their respective operations.**

Management Response: ☒ Agree ☐ Disagree

Comments/Action Plan/Time Frame:
Fleet Services, in consultation with the City Manager will communicate the recommendations identified in this report to the Division Heads and Chief Executive Officers of City agencies and corporations with fleet management operations.

Fleet Services will further include this for review as part of the Fleet Management Steering Committee meetings, which include all City agencies and corporations with fleet management operations.
