



INVESTIGATION OF OC TRANSPO BUS MAINTENANCE

SEPTEMBER 2024



Office of the
Auditor General
City of Ottawa

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Acknowledgement

The team responsible for this investigation was comprised of Leo Kadzombe and Anna Koldewey from the Office of the Auditor General, as well as independent fleet management subject matter experts from Fleet Challenge Canada (external consultants), under the supervision of Joanne Gorenstein, Deputy Auditor General and my direction. My colleagues and I would like to thank those individuals who contributed to this project, and particularly, those who provided insights and comments as part of this investigation.

Respectfully,



Nathalie Gougeon, CPA, CA, CIA, CRMA, B.Comm
Auditor General

Introduction

As a result of several reports received through the City's Fraud and Waste Hotline (FWHL), the Office of the Auditor General (OAG) undertook an investigation to assess concerns with respect to OC Transpo's bus maintenance practices.

Background and Context

Within OC Transpo, Transit Bus Operations and Maintenance Services oversee the maintenance and upkeep of the 738-bus and 80-minibus Para Transpo fleet. This includes responsibility for regular preventative maintenance inspections, as well as defect and collision repairs, as needed. To fulfill these obligations, approximately 167 mechanics and 33 apprentices provide 24/7 service within four (4) maintenance facilities across the City of Ottawa (the City). In specific instances, maintenance activities are also carried out by third-party garages. With more than half of the bus fleet nearing or exceeding the typical lifespan for conventional buses¹, the aging fleet has put additional operational pressure on the bus maintenance team.



There are several key systems used by OC Transpo to document, track and analyze bus maintenance activities. Of note, fleet maintenance is managed and tracked through the City's FleetFocus M5 maintenance system (M5). M5 is linked to the Equipment Master System (EQMS) which identifies buses available for service, and the Riskmaster Accelerator (Riskmaster) which tracks collision and incident information involving vehicles.

We understand there are several initiatives underway or planned to improve OC Transpo's bus maintenance program. To achieve its goal of 99.5% daily service delivery, OC Transpo presented its Bus Maintenance Action Plan to Transit Commission on November 14, 2023². The action plan focuses on both short-term and long-term solutions to address ongoing operational challenges such as staffing and recruitment and an aging bus fleet. Specifically, the actions in this plan focus on refining the apprentice training program, addressing high workloads, and updating technologies, among other priorities.

¹ Transit Commission June 13, 2024 ([4.1 OC Transpo Update – Rail, Bus, and Para Transpo pg.28](#))

² Transit Commission November 14, 2023 ([5.1 OC Transpo Update – Rail, Bus, and Para Transpo pg.18](#))

Investigation Objective and Scope

The objective of this investigation was to review OC Transpo's bus maintenance practices in relation to the concerns raised in reports received through the FWHL.

The scope of our investigation was limited to assessing whether the allegations had merit, and if so, to determine the appropriate course of action that may be required for each of the issues. However, to the extent that, during the investigation, other control issues were identified and validated, they have been presented in this report. The investigation focused on three main areas: the oversight of the Truck and Coach Technician (310T) apprentice program, outsourced maintenance work, and compliance with preventative maintenance inspections for the period from January 2023 to May 2024 to ensure they were compliant with ministry standards and in line with industry best practices.

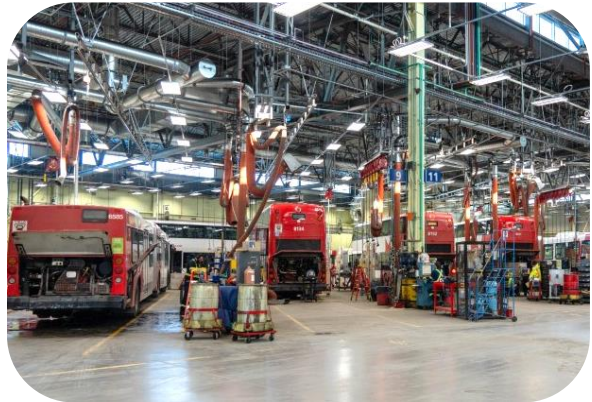
Readers are cautioned about the important distinction between an investigation and an audit. An audit is designed to provide a high level of assurance over its findings and will typically feature rigorous testing and analysis. While this investigation was conducted in a systematic and professional manner, the extent of activities undertaken by the OAG was narrow compared to an audit and focused solely on the concerns raised to our attention.

Refer to [Appendix 1](#) for additional details on the objective approach and methodology to the investigation.

Value of Investigation: This investigation identified safety risks and highlighted cost-saving opportunities. Beyond addressing the initial allegations, the recommendations are intended to improve overall controls and enhance efficiencies. This reinforces the importance of the City's Fraud and Waste Hotline.

Conclusion

The work performed highlighted the need to improve the controls within OC Transpo's bus maintenance processes that, if left unaddressed, could lead to increased safety risks. More specifically, we found areas where the oversight of the apprentice program requires strengthening. We confirmed that the supervision of apprentices working on critical safety systems is not



consistently documented, and that in one case, an apprentice did not have the required registration with the Province of Ontario prior to working on buses. Additionally, we learned that apprentices have been receiving pay premiums for tasks related to inspection and brake work, for which they are ineligible for as per the related collective agreement.

We identified that there is no standard process in place to ensure that maintenance work outsourced to vendors has been completed within service expectations. Specific examples were noted where outsourced maintenance work on OC Transpo buses was not sufficient and could have posed a safety risk when the bus was in service.

During our investigation, we also found opportunities for improvement related to clarity of intervals/limits for certain types of preventive maintenance inspection, comprehensiveness of process documentation and consistency of electronic records.

While we were able to substantiate specific allegations reported, the lack of specificity of various other allegations and the inability to corroborate the other claims resulted in our not being able to fully prove or disprove their merit. **No further information can be provided on these allegations as we were unable to conclude on them.**

Investigation Findings and Recommendations

Apprentice Program

Since 2018, the number of 310T licenced mechanics working at OC Transpo had been decreasing which has put significant pressure on the ability to maintain the bus fleet and meet service demands. In response, OC Transpo has focused on growing the 310T apprentice program to ensure the availability of licenced mechanics to meet existing and future service requirements. During our investigation, OC Transpo had approximately 33 apprentices; however, we understand the plan is to increase the total number of apprentices by the end of 2024.

Skilled Trades Ontario (STO) is an agency of the Ministry of Labour, Immigration, Training and Skills Development responsible for apprenticeship and skilled trades certification in Ontario. While many of the apprentices have a mechanic background, to work on conventional buses, STO requires an individual to attain a 310T³ (Truck and Coach Technician) license, which is gained through the 310T apprenticeship program. This program consists of on-the-job and in-school training and generally takes three and a half years to complete.

As part of the Bus Maintenance Action Plan, management has transferred the oversight of the 310T Truck and Coach Apprenticeship Program to the Transit Training and Development team under the Chief Safety Officer. Additionally, as part of an updated apprenticeship program, we understand a formalized mentorship program is expected to be developed to provide apprentices with more coaching and supervision.

1.1 Evidence of apprentice supervision by a licensed mechanic could not be consistently demonstrated.

Due to a FWHL allegation, the OAG examined whether 310T apprentices were completing work on buses, including critical safety systems such as brakes, without supervision.

While STO does not outline specific expectations for apprentice supervision, based on industry best practices, we expected to see evidence of sign-off by a licensed mechanic when apprentices work on safety components and formalized apprentice supervision processes.

Through interviews with management, we learned that specific tasks within the garage require supporting documentation to demonstrate work completed, including check sheets and inspections. While apprentices can sign these documents, a signature of a licenced 310T mechanic is required, as well as the garage supervisor. Although garage supervisors, who have 310T licenses, are expected to sign the check sheets, our interviews indicated that their sign-off represents high level oversight and not detailed supervision of the work completed. The primary day-to-day supervisory



³ A Truck and Coach Technician inspects, repairs and maintains commercial trucks, emergency vehicles, buses and road transport vehicles by performing work on structural, mechanical, electrical and electronic systems (<https://www.skilledtradesontario.ca/trade-information/truck-and-coach-technician/>).

and coaching responsibility for apprentices is with the 310T mechanic overseeing the work, who is expected to closely collaborate with the apprentice on their shift.

During the investigation, we observed that there is no formal documentation outlining specific responsibilities and expectations for apprentice supervision. In our detailed testing, we found that apprentices are not consistently evidenced as being supervised as jobs that require an inspection check sheet are not always being signed off by a licensed 310T mechanic before the bus goes back into service. In 53% of the inspections tested, the 310T apprentices were signing preventative maintenance inspection check sheets where no licensed 310T mechanic had signed off. In one (1) case, the inspection check sheet was neither signed by a 310T mechanic nor a garage supervisor. We further reviewed work order details in M5 and noted that the licensed mechanics often did not have labour time allocated to the job performed by the apprentice, which could have provided evidence of such supervision. Additionally, we found one (1) instance where there was no evidence of supervision of an apprentice performing a rear brake replacement, a critical safety component of a bus.

While apprentices need hands-on experience working on critical safety systems, they must be adequately supervised as they do not have sufficient knowledge and experience to complete these tasks on their own. Apprentices who are working without the direct supervision of experienced, licenced mechanics, especially on critical safety systems, could potentially cause safety risks and expose the City to liability risks in the event of an incident.

RECOMMENDATION 1 – ESTABLISH CLEAR RESPONSIBILITIES AND EXPECTATIONS FOR APPRENTICE SUPERVISION AND SIGN-OFF

In conjunction with the updated apprenticeship program, the Chief Safety Officer should establish clear responsibilities and expectations for apprentice supervision, including specific guidance for sign-off and documentation.

MANAGEMENT RESPONSE 1

Management agrees with the recommendation.

OC Transpo's Acting Chief Safety Officer is overseeing the re-development of OC Transpo's apprentice program, which will include clear mapping and documentation of the responsibilities, expectations and training for all parties involved in the process. This process is anticipated to be completed by Q1 2025.

1.2 Apprentices received premiums for working on brake and inspection jobs that they are not entitled to.

Apprentice pay rates are established in the Amalgamated Transit Union (ATU) 279 collective agreement, and progress through their salary range based on their successful completion of each school term. As a result of a FWHL report, we examined whether additional premiums were paid to apprentices at mechanic rates for inspection and brake work that they were not entitled to receive as per the collective agreement.

Through our detailed testing, we learned that garage supervisors had approved premiums for apprentices performing brake and inspection jobs that resulted in them getting paid mechanic premium rates; however, per the collective agreement, apprentices are not eligible for such premiums. For 2023, we calculated the total ineligible premium payments made to apprentices to be \$31,990. A cursory review by the OAG of historical SAP data indicates that this practice has been in place at a minimum since early 2022.

Management confirmed that this issue was flagged in January 2024 and an investigation was undertaken that resulted in the decision to not claw back the premiums from apprentices. Management indicated that communication was provided verbally in January 2024 to the OC Transpo maintenance team and time administrator to stop this practice immediately. However, the OAG could not substantiate this as the official communication was not formally documented.

We carried out subsequent testing and noted that apprentice premiums continued to be paid beyond January 2024. For the period of January to May 2024, our testing indicated that \$9,410 of ineligible premium payments were made to apprentices. This indicates the practice has continued despite garage supervisors being instructed to stop.

RECOMMENDATION 2 – PROVIDE FORMAL COMMUNICATION TO STOP INELIGIBLE PREMIUM PAYMENTS MADE TO APPRENTICES

The Director of Transit Bus Operations and Maintenance should formally communicate to all garage supervisors the expectation to stop approving ineligible premium payments to apprentices. Monitoring should be established to ensure compliance.

MANAGEMENT RESPONSE 2

Management agrees with the recommendation.

The Acting Director of Transit Bus Operations and Maintenance will formally communicate the details of the newly developed apprenticeship program to all garage supervisors by Wednesday July 31, 2024, which will include details on the correct process for tracking and assigning of tasks warranting the use of premium codes. The

new apprentice program, currently under development by the Acting Chief Safety Officer, will be developed specifically to avoid unauthorized premium payments to apprentices. Management will also implement a process whereby a monthly premium pay report is reviewed by either or both of the Manager of Fleet Maintenance and the Acting Director of Transit Bus Operations and Maintenance.

The revised process for tracking and assigning tasks is anticipated to be implemented by Q3 2024.

1.3 An apprentice working on buses did not have the required registration with the Province.

Apprentices are required to enroll in the 310T apprentice program with STO to gain the necessary skills and technical knowledge to work on conventional buses. As the 310T trade is compulsory, to practice this trade legally in Ontario, an apprentice must hold a Registered Training Agreement, Certificate of Qualification and their information must appear on the STO Public Register.

Allegations raised through the FWHL claimed that apprentices were working at OC Transpo without attaining the required registration with the Province of Ontario. The detailed testing and interviews conducted as part of this investigation support this allegation for one (1) individual. We identified an apprentice for whom evidence of registration with STO was dated May 31, 2023; however, OC Transpo records indicate that the individual has been working on buses prior to this date.

An apprentice working on buses without adequate registration represents a compliance issue with the Province of Ontario and increases the risk of insufficient qualifications of individuals maintaining the bus fleet.

RECOMMENDATION 3 – ENSURE ALL APPRENTICES ARE REGISTERED WITH STO

In conjunction with the updated apprenticeship program, the Chief Safety Officer should ensure all apprentices are appropriately registered with the STO prior to any work on OC Transpo buses.

MANAGEMENT RESPONSE 3

Management agrees with the recommendation.
A full review of apprentice qualifications and registrations was conducted by June 28, 2024 to ensure all current apprentices are properly registered. One employee was found to have not been registered properly and has now been properly registered.

Going forward, the Manager of Fleet Maintenance and the Manager of Training will review all new apprentice files to ensure proper registration has been documented.

This work was completed in Q2 2024.

Oversight of Vendor Performance

2.1 There is no standard process in place to ensure that maintenance work outsourced to vendors is completed in accordance with expectations.

In 2023, approximately 1.8% of OC Transpo's maintenance work was outsourced, totalling \$3.1M. Typically, work is only outsourced when there are in-house resource and capacity constraints or when the work would fall under warranty coverage. The ATU279 collective agreement requires management to provide justification for why they are requesting work be outsourced through a formalized process.

2.1.1 Quality Assurance over Vendor Maintenance

Through the FWHL, multiple allegations concerning vendors failing to properly complete safety checks and other maintenance work were flagged. The OAG reviewed the individual cases, including case notes on subsequent work orders in M5. We found specific instances of insufficient vendor work which could have posed a safety risk to the public while the bus was in service and resulted in inefficient use of resources due to rework done by in-house staff and reduced fleet availability for service.

Through interviews and document review, we found there was no defined or formalized quality assurance process in place to guide inspections of outsourced work before a bus is put into service. While we have been informed that a re-examination could be performed once the bus is received back from a vendor, this is not standardized and is based on the Vendor Coordinator's professional judgment. It often falls to the OC Transpo licensed mechanics to identify issues related to vendor work after the bus has been put in service (i.e., when it returns to the garage for routine maintenance repairs or when mechanical defects are identified during service).

Without mitigating quality assurance processes, issues related to vendor work increases the risk to public safety and the City's exposure to liability.

2.1.2 Vendor Oversight and Monitoring

As part of our procedures, we enquired about the vendor oversight and monitoring process. While there is a centralized Vendor Coordinator position, we found that vendor outsourcing is not always overseen by this position. Because some outsourcing activities are managed by individual garage superintendents, there can be vendor non-performance issues that the Vendor Coordinator is not aware of and as a result, cannot

track, trend or address holistically. Additionally, we learned that it was unclear who has the authority to take action relative to vendor non-performance.

It was identified that vendor performance issues are tracked through emails and are based on historical knowledge. However, there is no documented or centralized tracking mechanism to monitor vendor non-performance issues, identify trends and facilitate timely detection and response. We also found that OC Transpo is not adequately tracking vendor performance metrics, such as additional costs related to rework done by in-house staff due to inadequate or incomplete vendor work.

Without centralized monitoring and formal tracking, vendor-related maintenance issues may not be identified and addressed in a timely manner.

RECOMMENDATION 4 – FORMALIZE VENDOR QUALITY ASSURANCE PROCESSES

The Director of Transit Bus Operations and Maintenance should formalize the vendor quality assurance processes by implementing a risk-based inspection program. This should be based on an established set of criteria with prescribed roles and responsibilities to enable targeted inspections for higher risk activities. This would require a formal inspection by a qualified mechanic on buses returning from vendors before being put into service. Management could consider applying this to maintenance work performed internally as well.

MANAGEMENT RESPONSE 4

Management agrees with the recommendation.

A formal quality assurance program is being implemented, with documented roles for members of the Strategic Maintenance Planning (SMP) Branch of Transit Bus Operations and Maintenance and members of the Engineering Support Team. The reliability analysts in SMP will assume the responsibility of monitoring the Quality Assurance Program, while the Engineering Support team will have a dedicated bay in the garages to sample buses for quality checks. OC Transpo has a Vendor Coordinator in place, who will continue to work closely with Manager, Fleet Maintenance to ensure full oversight on Vendor Quality Control.

A formal communication to the team regarding expectations around process will be sent by Q4 2024 and the quality assurance program is expected to be fully implemented by Q2 2025.

RECOMMENDATION 5 – ESTABLISH A STANDARDIZED PROCESS FOR TRACKING, REPORTING AND ESCALATING ISSUES WITH VENDOR PERFORMANCE

The Director of Transit Bus Operations and Maintenance should establish a standardized process for tracking and reporting on vendor performance, with defined severity levels for non-performance. This would include:

- Clearly defined roles and responsibilities for monitoring and escalating vendor non-performance.
- A centralized repository to track and store unsatisfactory or non-performance by vendor.
- Establishment of relevant metrics and regular reporting against expectations to OC Transpo management.

MANAGEMENT RESPONSE 5

Management agrees with the recommendation.

A new “Projects and Contracts Management” section is being established within Transit Bus Operation and Maintenance’s Strategic Maintenance Planning Branch. This new section will be responsible for overseeing all contracts and finances relating to Fleet Maintenance and Materials Purchasing. Once established, the group will review each existing contract with Supply, and work closely with the Reliability team, Fleet Maintenance, and Engineering Support to document formal parameters to consistently measure vendor performance.

The process of establishing the Projects and Contracts Management section and completing the documentation of vendor performance parameters is expected to be completed by Q2 2025.

Other Opportunities for Improvement

3.1 Process documentation is not always available or sufficiently detailed.

From our work across the several areas we investigated, we found a consistent theme where process documentation was not always available or where available, was not sufficiently detailed. At times we received inconsistent information, demonstrating a lack of knowledge and standardization. We often received verbal information based on historical knowledge where documented procedures would have better provided a more reliable reference point.

Feedback from some OC Transpo bus maintenance staff indicated there were areas where they felt they were not always provided concrete directives, policies, and procedures to guide their work. Additionally, we noted that there were instances where activities were undertaken differently across the different garages (e.g., vendor outsourcing and monitoring).

As an example, we understand that the outer kilometer limit for the NOVA bus preventative maintenance inspections has recently changed; however, this was not formally documented nor officially communicated.

A lack of documented procedures can lead to confusion, inefficiencies, and inconsistencies in operations. In some cases, the lack of standard expectations could lead to safety risks of buses.

3.2 Bus maintenance records are not consistently stored electronically, increasing the risk of misplaced files.

During our investigation, we noted that files such as inspection check sheets are primarily paper-based and stored physically onsite at the garages. While M5 has the capability to attach files to the electronic work order, we found that this functionality was rarely used. As part of our detailed testing, we observed two (2) instances where files were misplaced or lost. Maintaining paper-based records increases the risk that they may be misplaced, lost, or destroyed impacting the ability to prove work was completed.

As part of the Bus Maintenance Action Plan, management has indicated it will be implementing upgrades to M5 and investing in a new yard management system software. We understand this could result in direct documentation of maintenance activities within the electronic system.

RECOMMENDATION 6 – PRIORITIZE PROCESS IMPROVEMENTS

The Director of Transit Bus Operations and Maintenance should consider process improvements, including standardized process documentation and maintaining electronic records to increase consistency of bus maintenance activities and supporting documentation as part of ongoing bus maintenance improvement initiatives.

MANAGEMENT RESPONSE 6

Management agrees with the recommendation and is pursuing these opportunities for improvements through the Bus Maintenance Action Plan. The Manager of Fleet Maintenance is responsible for establishing a formal standardized documentation process in collaboration with the Strategic Maintenance Planning Branch. Furthermore,

a Document Controller position will be introduced as part of the new organizational structure that will be reporting directly to the Manager of Fleet Maintenance.

The digitizing of bus maintenance records will be completed using the Fleet Maintenance Software, M5, which is currently undergoing a full upgrade.

These improvements are expected to be substantially completed by Q2 2025.

Appendix 1 – About the Investigation

Investigation objective

The objective of this investigation was to review OC Transpo’s bus maintenance practices in relation to concerns raised in reports received through the FWHL.

Scope

The scope of our investigation was limited to reports received through the FWHL.

Our assessment covered the period from January 1, 2023, to May 31, 2024, which was approximately the time period during which the FWHL reports were received.

Investigation approach and methodology

To assess the merit of the concerns outlined in the FWHL, we conducted the following:

- **Review of information and documentation:** This included a detailed review and data analysis of M5, EQMS and Riskmaster data, and payroll records extracted from the City’s financial system, SAP.
- **Interviews, discussions and enquiries:** Interviews, discussions and enquiries were held with OC Transpo’s management and employees, other City staff, STO, and confidential reporters.
- **Detailed testing:** Testing of a sample of bus maintenance work orders including examination of supporting documentation.
- **Review of other relevant information:** Other relevant information included Transit Committee reports and management presentations.

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