



Office of the Auditor General

Review of OC Transpo Driver Training

Tabled at Audit Committee

October 27, 2020

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Acknowledgements

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Original signed by:

Auditor General

Executive summary

Purpose

This review was conducted as a result of a report to the Fraud and Waste Hotline. We assessed OC Transpo driver training related to the safety of the bus operations.

Background and rationale

There are 1,511 unionized bus operator positions within Transit Services. On-going driver training is provided to both new and existing operators to promote safe bus operations and reduce the risk of bus collisions.

The New Bus Operator Training (NBOT) program is a 6 week (31 day) full-time training program specific to the bus operator position. It is managed by a Program Manager and Section Manager. The content is developed by two curriculum designers based on the Ontario Ministry of Transportation requirements, defensive driving principles, OC Transpo policies and procedures and other applicable material. The training is delivered and administered by seven full-time instructors, and twelve relief instructors.

Incorporated within the NBOT program is the Ontario Ministry of Transportation (MTO) approved Ontario Driver Certification Program (DCP). Ontario's DCP, under authority of the MTO, allows OC Transpo instructors to train and test their employees for the purpose of upgrading or renewing classified licences and endorsements. The current process requires that OC Transpo instructors delivering this training and performing the testing be approved by the MTO as a signing authority. As MTO Signing Authorities, OC Transpo instructors have authority to administer and grade the MTO air brake test and the MTO written and driving tests for the Class C Licence and, based on the results of such tests, grant to an individual an Air Brake (z) Endorsement and an upgrade to a Class C Licence.

The DCP portion of the NBOT is subject to audit by the MTO.

In addition, ongoing training is provided to in-service bus operators. This training includes:

- Mandatory OC Transpo-wide training based on events – e.g. railway crossing training after Fallowfield incident;
- Orientation tours – e.g. tours provided to bus operators to orient them to new routes or major changes to existing routes;

- Garage campaigns – e.g. winter driving, cyclists on road, MTO reminders - provided in all garages;
- Safe winter driving (mandatory for all new bus operators);
- Operator reassessments if off work for more than 90 days;
- Authority to Operate training;
- Professional skills building; and
- Bus operator requested training, (ex: refresher training for specific bus types).

Findings

The audit focused on driver training practices. The key findings are as follows:

1. **Statistics:** A review of collisions from Riskmaster (data for the period 2015-19) indicates that collisions are almost entirely from driver error and not mechanical failure.
2. **Performance Measures:** Year-over-year targets for preventable collisions and plans to meet those targets have not been defined. Performance indicators and targets to measure the effectiveness of training of new and ongoing bus operators have not been defined.
3. **Data Analytics:** Data analytics to develop predictive relationships and analysis (leading indicators) that could be used to improve training or hiring, and/or reduce collisions are not in place.
4. **Data Integrity:** Data integrity problems exist relating to accuracy, completeness and integration of the training data.
5. **Governance:** Operational decisions have impacted the effectiveness of recruitment practices and bus operator training delivery.
6. **Bus Operator Experience:** Routes and type of bus booked by the new bus operator are determined by their seniority within their organization and not by their experience as an operator or the level of training received by the bus operator.
7. **Training Standards:** A robust training program focused on safe driving practices is in place. However, clearly defined, documented and objective OC Transpo standards for applying the program and determining successful versus unsuccessful NBOT trainees are required.

8. **Training Delivery:** The delivery of the NBOT curriculum could not be fully observed. Direct linkages could not be fully made between the NBOT curriculum and documentation in trainee files.
9. **Winter Driver Refresher:** New bus operators did not receive winter driver refresher training on a timely basis.
10. **Bus Operator Recertification:** Bus operators were not required to be recertified on a cyclical basis. There are plans to start recertifying bus operators starting in 2020, however there are no criteria to determine successful versus unsuccessful recertification.
11. **Fleet Safety Direction:** Implementation of direction for in-service assessments and additional training of specific drivers requires improvement.

Conclusion

At-fault bus collisions occur primarily as a result of driver error and not because of mechanical failure. While the NBOT curriculum is robust and focused on safe driving practices, significant improvements are required to ensure that appropriate training is provided to both new and existing bus operators. New bus operator trainees' skills are not assessed against clearly defined training standards to determine their readiness to operate an OC Transpo bus. Once an operator is in-service, improvements can also be made to ongoing training to ensure that it is effective and consistent standards are maintained. Performance measures and targets need to be defined to assess the effectiveness of bus operator training.

The implementation of the recommendations made in this report will help OC Transpo address issues relating to delivering training, assessing new and existing bus operators against consistent standards, and measuring the effectiveness of bus operator training.

Recommendations and responses

Recommendation #1

That the City define short-term and long-term performance indicators with year-over-year targets for preventable bus collisions and a plan to meet those targets that is supported by analysis and monitoring of progress.

Management response:

Management agrees with this recommendation.

Staff are reviewing data from Riskmaster and OC Transpo's Safety Management System (SMS) to develop short and longer-term targets. This work will be completed by Q1 2021. Year-over-year targets for preventable collisions will be incorporated into the SMS scorecard, which is updated annually.

Staff from OC Transpo's Training and Development unit and the City's Fleet Safety unit also meet regularly to discuss trending issues and Training staff adjust NBOT and bus operator training accordingly.

Recommendation #2

That the City define performance indicators with targets to measure the effectiveness of training for both new and ongoing bus operators.

Management response:

Management agrees with this recommendation.

Curriculum for new and existing bus operators is updated regularly based on trending issues and changing technology on board our vehicles.

Using data collected from various sources, including the annual targets and initiatives included in the SMS and Fleet Safety Unit's Riskmaster preventable collision data, staff are developing and defining performance indicators with targets to measure the effectiveness of training for all bus operators.

Performance indicators will be established collaboratively between Training and Transit Operations and incorporated into the targets set in the SMS by Q2 2021.

Recommendation #3

That the City implement data analytics to develop predictive relationships and analysis (leading indicators) that can be used to improve training or hiring, and/or reduce collisions.

Management response:

Management agrees with this recommendation.

Staff from Training and Fleet Safety meet regularly to discuss bus operator reassessments, collision rates, and trends, and Training adjusts curriculum accordingly.

We have begun the process of staffing a Quality Control and Assurance Coordinator to perform data analysis and better inform necessary changes to curriculum. The position will be in place by the end of Q1 2021.

Staff are also reviewing with various City departments, the feasibility of linking information from the various sources of data (Riskmaster, Action Point, M5 maintenance records, SAP, etc.) to develop predictive relationships and analysis that could also be used to improve training, hiring and reduce collisions.

Recommendation #4

That the City address data integrity issues relating to accuracy, completeness and integration of bus operator data.

Management response:

Current data collected is comprehensive and meets MTO standards, however management agrees with this recommendation and has addressed opportunities to improve the administration of the Bus Operator Training Program, specifically regarding documentation and records management.

Access to the Training database has been restricted to the administrative staff reporting to the training management team. This team also tracks and documents reassessments and mandatory refresher training. An electronic system for the submission of daily trainee evaluations is also in place, which includes drive times and platform mentor times.

Recommendation #5

That the City continue with recent efforts to augment governance over bus operator training that training, as a safety critical function, is implemented as designed and without interference.

Management response:

Transit Operations and Training work together to balance OC Transpo's service requirements and safety-critical training.

Management agrees with this recommendation and beginning in May 2020, staff from Transit Operations and Training increased the frequency of their meetings to weekly, to plan ahead and ensure that both OC Transpo service and bus operator training requirements are met.

The Operator Certification and Training Plan mentioned in this report is being updated to clarify governance over training, strengthen collaboration between Operations and Training, and include the frequency and schedules for all mandatory and non-mandatory training. Revisions will be complete by Q4 2020.

Recommendation #6

That the City clearly define, document and apply objective “OC Transpo” criteria and standards for determining successful/unsuccessful NBOT trainees.

Management response:

While not required by our governing body (MTO), management agrees with this recommendation.

Management is reviewing the NBOT curriculum that takes place after the MTO road test and establishing clear, objective pass/fail criteria for instructors to use during this portion of the program. A new standard operating procedure that establishes the clear, objective pass/fail criteria for OC Transpo training is in development. The review and supporting procedure will be complete by Q4 2020.

Recommendation #7

That the City improve the NBOT Daily Progress Report (DPR) as follows:

- Define standards such that DPR scoring provides a direct relationship between performance, as noted on the DPR, and decisions to pass/fail NBOT trainees;
- Develop criteria to guide the instructors on how to assess the trainees progress against the DPRs rating scale;
- Modify the rating scale such that the required sensitivity provides the basis to determine and compare performance of trainees;
- Implement a DPR quality assurance process to improve clarity and completion, ensure scores are supported and clearly linked to instructor comments and they are completed on a timely basis; and
- Implement a weighting of skills on the DPR scoring sheet such that more safety-critical related skills are given more weight.

Management response:

MTO requirements for road test assessments are met. DPRs are an assessment tool of OC Transpo's training program that exceed MTO's training requirements.

Management agrees with this recommendation and in January 2020, the new electronic NBOT DPR was introduced that has clearly defined performance standards linked to curriculum; a revised grading system that identifies and weights safety critical versus non-safety critical skills; a requirement to include a rationale for low scoring performance; and instructions to ensure consistent grading. Instructors were trained on the new DPRs in December 2019 prior to implementation and the Chief Safety Officer led a follow-up instructional meeting in July 2020 to reiterate the importance of the DPR.

Further work is underway to establish clearer pass/fail criteria driven by DPR results and will be complete by Q1 2021.

Recommendation #8

That the City determine and set minimum driving times for NBOT trainees on each vehicle type and then implement procedures to verify compliance with the standard.

Management response:

Management agrees with this recommendation and in January 2020, completed the implementation of mandatory minimum drive times by bus type, which exceeds the standards required by our governing body (MTO).

While the MTO requires 20 hours, trainees in the NBOT program must achieve an overall drive time of 60 hours, and a minimum total drive time in each style of bus before they graduate from the NBOT program.

Driving times are recorded in the employee DPRs by their instructor and this information is then entered into a tracking sheet by their group coordinator.

Recommendation #9

That the City clearly define the tests and exams required on each syllabus day and that the tests and exams occur as described in the syllabus with supporting documentation in the NBOT trainee's files.

Management response:

Management agrees in part with this recommendation as tests and evaluations are scheduled in the NBOT syllabus. However, as mentioned in the report, Management must allow some flexibility when tests are given to ensure that candidates are evaluated consistently and fairly. For instance, a day with inclement weather may require instructors to adjust on-road training if trainees are at the start of the program.

As of August 2020, each trainee's test and exam results are placed in the individual's trainee file, in addition to the NBOT group file.

Recommendation #10

That the City continue with the implementation of a final road test that must be passed by NBOT trainees at the end of the NBOT sessions.

Management response:

Management agrees with this recommendation and it has been implemented.

Trainees must complete the MTO practical road test midway through the program, and as of February 2020, a final in-service practical driving assessment and evaluation at the end of NBOT to graduate. This final road test exceeds MTO requirements.

Recommendation #11

That the City comply with its criteria for selecting platform mentors.

Management response:

Management agrees with this recommendation.

A standard operating procedure is currently being finalized that identifies responsibilities for ensuring that platform mentors are maintaining their qualifications. This compliance check will occur prior to the start of every New Bus Operator Training (NBOT) Program. Working collaboratively with Fleet Safety and Transit Operations, compliance checks will ensure operators have a clean driving record, have no infractions or preventable collisions on their Driver Safety Profile, and no demerit points or infractions on their driver's abstract. The policy will be implemented by the end of October 2020. The Platform Mentor Program is part of OC Transpo specific curriculum and exceeds MTO requirements.

Recommendation #12

That the City determine and recruit the optimal level of full-time and relief instructors to ensure consistent and effective delivery of training

Management response:

Management agrees with this recommendation.

Training, Transit Operations and Service Planning regularly meet to assess short and long-term service levels and the required number of operators. The analysis that will be performed by the new Quality and Control Coordinator, upon their hiring in 2021, will help ensure consistent delivery of NBOT program content through regular program quality assurance checks and provision of data that will allow management to adjust the ratio of full-time and relief instructors to optimal levels.

Recommendation #13

That the City develop and implement a formal methodology that ensures appropriate oversight of the quality of training provided by instructors.

Management response:

Management agrees with this recommendation and it has been implemented.

Instructors are evaluated by supervisory staff on their competency in the classroom based on many factors including: knowledge of the subject matter, speaking and facilitation skills, professionalism and their preparation for the class. In September 2020, the frequency of in-classroom observation of instructors was increased from twice a year to at least four times a year. An updated formal process for in-classroom observation, evaluation and tracking of compliance with this standard was also put in place in October 2020.

Recommendation #14

That the City develop policies and practices for the rehiring and retraining of individuals who had previously failed or resigned from NBOT.

Management response:

Management agrees with this recommendation and it has been implemented.

In September 2020, OC Transpo introduced a re-hiring policy that includes a waiting period prior to re-applying to the program for candidates who were unsuccessful or left the program prior to completion. Candidates who were unsuccessful during the pre-hire

assessment stage (psychometric, cognitive and driving assessment tests) must wait at least six months before being able to re-apply. Trainees who left during any other portion of the program must wait at least two years before they will be considered for re-hiring.

Recommendation #15

That the City augment the application of NBOT to allow for direct linkages from the NBOT curriculum to daily driving requirements and DPRs on file.

Management response:

MTO requirements for road test assessments are met. DPRs are an assessment tool of OC Transpo's training program that exceed MTO's training requirements.

Management agrees with this recommendation and in January 2020, the new electronic NBOT DPR was introduced that has clearly defined daily driving requirements linked to the curriculum. In addition, an electronic tracking sheet was introduced in October 2020 that documents each trainee's completion of every in-class and on-road session as listed in the syllabus. The instructor is responsible for ensuring that it is signed off every day and the tracking sheet is kept in each trainee's individual file.

Recommendation #16

That the City augment NBOT trainee file documentation by:

- Tracking and analyzing the total hours of driving time per bus type per trainee;
- Giving written assignments/tests on consistent days as per the curriculum;
- Placing trainee attendance records on file;
- Documenting daily meetings of instructors and group heads; and
- Completing and filing Final Assessment Letters for each trainee.

Management response:

Management agrees with this recommendation and it has been implemented.

While the information listed by the auditor was available in the NBOT group file, it is now also included in each trainee's individual file, including total drive time and drive time by bus-type; attendance records; and final assessment letters.

Written assignment and test results are also placed in trainees' individual files. While these evaluations are given consistently as per the curriculum, instructors are permitted some leeway on when they are administered, as described in Management's response to Recommendation #9.

Minutes from daily meetings of instructors and group heads are documented by the group coordinator and placed in the NBOT group file.

Recommendation #17

That the City provide winter driver refresher training early in the first winter of a bus operator's graduation from NBOT.

Management response:

The winter driving portion of OC Transpo's training program exceeds MTO requirements.

Management agrees with this recommendation.

Training for bus operators who had not yet received Winter Driver Training, as noted in this report, was completed by March 2020. Since this time, all graduates who complete the NBOT program between the dates of April 1 and November 30 attend Winter Driving Refresher Training by January 31 of their first winter as operators. Those graduating between December 1 and March 31 will have winter driving courses incorporated as part of the NBOT training program.

Recommendation #18

That the City ensure that training related to refreshing and enhancing bus operator skills, as identified by Training and Development, be delivered.

Management response:

Management agrees with this recommendation.

Management has organized virtual sessions for bus operators who had not yet completed Workplace Violence Awareness training. This training will be complete by Q1 2021.

Management will continue to ensure that all refresher training and training that enhances bus operators' practical driving skills is ongoing and delivered as scheduled. The Training and Development staff are tracking each individual bus operator's training status.

Recommendation #19

That the City continue efforts to implement recertification of bus operators on a cyclical basis with clear pass/fail criteria and next steps when there are failures.

Management response:

Management agrees with this recommendation.

The existing draft Driver Recertification Plan has been updated to include standard frequency, scheduling timelines, and pass/fail criteria for training and recertification of bus operators. It includes a three-day recertification process involving practical road tests and in-classroom refresher training, which exceeds MTO requirements.

Bus operators will participate in mandatory training every five years, in coordination with the renewal date of their driver's licence. At that time, they must pass the MTO written test, driving test and vision test in order to continue driving.

The Plan will be implemented in December 2020.

Recommendation #20

That the City fully implement the recommendation provided by Fleet Safety for in-service assessments and additional training, document this on trainees' files and notify Fleet Safety of the results of the remedial actions.

Management response:

Management agrees with this recommendation.

A documentation process is in development to formally log, track, assign and follow-up on Fleet Safety recommendations and will be in place by Q1 2021.

A new electronic report that tracks reassessments, performance skills building and Authority to Operate (ATO) training was introduced in October 2020.

Detailed review report

Introduction

As a result of a Fraud and Waste Hotline report, the Office of the Auditor General (OAG) conducted a review of OC Transpo Driver Training as it related to the safety of the bus operations.

Background and context

Running a bus service is inherently risky. Thousands of kilometres are driven by bus operators every day through a variety of, and sometimes extreme, road and weather conditions. As long as OC Transpo has drivers operating buses on roads with other people who are walking, cycling and driving, its buses are going to be involved in collisions, both “at fault” and “not at fault”.

Driver training is one of the most important safety functions available to minimize this risk.

- It should root out people who will likely never be able to safely drive a bus.
- It should train new drivers to a point that they can safely operate a bus. Bearing in mind that, like the general car driving population, a newly licensed bus driver will almost always pose a higher risk than an experienced bus driver. However, at some point, the marginal benefit from additional training is less than the operational benefit of having a new driver available to drive routes.
- It should refresh the skills of existing drivers where needed, again to minimize the risks at an acceptable cost.

There are 1,511 unionized bus operator positions within Transit Services. Driver training is provided both to new and existing operators on an ongoing basis.

The New Bus Operator Training (NBOT) program is a six-week (31¹ day) full-time training program specific to the bus operator position. It is managed by a Program Manager and Section Manager. The content is delivered and administered by seven full-time instructors, and twelve relief instructors. Content is developed by two

¹ Management informs us that after our fieldwork the program was extended to 36 days

curriculum designers based on the Ontario Ministry of Transportation (MTO) requirements, defensive driving principles, OC Transpo policies and procedures and other applicable material.

Incorporated within the NBOT program is the MTO approved Ontario Driver Certification Program (DCP). Ontario's DCP, under authority of the MTO, allows OC Transpo instructors to train and test their employees for the purpose of upgrading or renewing classified licences and endorsements. The current process requires that OC Transpo instructors who deliver this training and perform the testing must be approved by the MTO as a signing authority. As MTO signing authorities, OC Transpo instructors have authority to administer and grade the MTO air brake test and the MTO written and driving tests for the Class C Licence. Based on the results of such tests, OC Transpo instructors can grant to an individual an Air Brake (z) Endorsement and an upgrade their driver license to a Class C Licence.

The Air Brake (z) Endorsement and a Class C Licence are required to operate a full-sized bus in Ontario. The DCP portion of the NBOT is also subject to audit by the MTO.

In addition to the NBOT program, ongoing training is provided to bus operators. This training includes:

- Mandatory OC Transpo-wide training based on events – e.g. railway crossing training after Fallowfield incident;
- Orientation tours – e.g. tours provided to bus operators to orient them to new routes or major changes to existing routes;
- Garage campaigns which are provided in all garages – e.g. winter driving, cyclists on road, MTO reminders;
- Safe winter driving (mandatory for all new bus operators);
- Operator reassessments if off work for more than 90 days;
- Authority to Operate training;
- Professional skills building; and
- Bus operator requested training – e.g. refresher training for specific bus types.

Riskmaster Accelerator (Riskmaster) is a program used by the City, including OC Transpo. The system is used to input collisions and incidents (any damage to or involving a vehicle) information and investigative notes including whether a collision was deemed at fault/not at fault and preventable/non-preventable. Fleet Safety Action Point Registry (Action Point) is a database that tracks and rates the preventable collisions

which have been identified in Riskmaster. Action Point also maintains the driver safety profile for operators involved in a preventable collision.

Review objectives and criteria

The objective of this review was to assess the City's management practices relating to OC Transpo Driver Training.

This overall objective was comprised of the following two review objectives:

Review objective #1

Assess the controls that ensure appropriate training is provided to new bus operators.

Criteria:

- The NBOT program is clearly defined, updated and effectively addresses training requirements
- The NBOT curriculum is fully delivered
- OC Transpo monitors and assesses the effectiveness of NBOT training

Review objective #2

Assess the controls that ensure appropriate ongoing bus operator training is provided.

Criteria:

- Bus driver refresher training, reassessments and recertification occurs as required
- Fleet safety recommendations, under the Authority to Operate (ATO) policy, are implemented on a timely basis
- OC Transpo monitors and assesses the effectiveness of ongoing bus operator training

Scope

The scope of the review included an examination of training practices of new bus operator trainees and ongoing bus operators over the period 2017 to 2019 including:

- The NBOT Program and its effectiveness in addressing training requirements
- Delivery of the NBOT curriculum over the period 2017 to 2019
- Monitoring and assessing the effectiveness of NBOT and ongoing bus operator training

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- Bus operator refresher training, reassessments and recertification
- Collision information from Riskmaster and Action Point
- Implementation of Fleet Safety recommendations relating to bus operators, under the Authority to Operate (ATO) policy

Excluded from the scope of this review were practices and procedures related to Riskmaster and Action Point and compliance with the Authority to Operate City Vehicles and Mobile Equipment Policy and supporting procedures.

Review approach and methodology

The review methodology included the following activities:

- Interviews and process walkthroughs with City staff involved in the training of bus operators
- Review and testing of relevant documentation, e.g. NBOT curriculum, sample NBOT exams, sample bus operators' files, etc.
- Review and testing of a sample of ATO recommendations
- Analysis of training information in Riskmaster and Action Point

The review plan was finalized in October 2019, and the review fieldwork was substantially completed by December 31, 2019.

Review observations and recommendations

Review objective #1

Assess the controls that ensure appropriate training is provided to new bus operators.

Statistics and performance measurement

As mentioned above, driver training is one of the most important tools to reduce the risk of bus collisions. We reviewed data to confirm this and assess the extent to which the driver training program is designed and delivered in a manner that considers and manages this risk.

Riskmaster data was analyzed for preventative collisions by OC Transpo bus operators. Riskmaster is a web-based program used by the City, including OC Transpo. It is administered and used by the Legal Operations and Support Services Branch which reports to the City Solicitor. The system is used to input collisions and incidents (any damage to or involving a vehicle) information and investigative notes for a rating

rationale. Riskmaster is also used to run reports and analysis. OC Transpo management inform us that operators are required to report all collisions, regardless how minor.

Our review of Riskmaster collision data for the period 2017 to 2019 found that OC Transpo's preventable collisions are almost entirely from driver error and not mechanical failure. This confirmed our understanding of the importance of bus driver training.

We also reviewed Riskmaster data related to incidents of preventable collisions among NBOT graduates for the period of 2017 to 2019. We observed the following:

Table 1: Riskmaster highlights

Description	Number
Trainees that passed NBOT between 2017 and 2019 (graduates) that are still Active ²	227
Graduates involved in a preventable collision post-graduation	140 (62%)
Preventable collisions by graduates post-graduation	216 (0.95 collisions/NBOT graduate)
Graduates involved repeat preventable collisions	61 (27%)

It is important to note that, of the preventable collisions in the table above, 77% were assessed by Fleet Safety as minor (i.e. less than \$2,000 combined damaged) and 23% are assessed as major (more than \$2,000 combined damage).

² The above analysis includes only operators who were still active at the time of our review in order to reduce the impact on the data caused by different employment periods (e.g. temporary or short-term employment).

We expected to see both short-term and long-term performance indicators and targets for preventable collisions and plans to meet those targets. Such plans could include modifications to driver training if required. What we found was that there was no performance target setting and reporting relating to collisions in 2017 and 2018. In April 2019, OC Transpo's internal safety objectives were issued. The safety objectives represent a positive step in the measuring and acting on safety related issues such as vehicle collisions. The document identifies ongoing initiatives to better understand, track and trend collisions. The document sets out an OC Transpo target for 2019 of 0.44 preventable collisions per 100,000 kms driven by a bus. No target was set for years 2017 or 2018. Management informs us that the actual result was 0.88 for 2019. No variance analysis of root cause of actual versus target performance was provided. We also found that there is no direct linkage of the targets and the actual results to bus operator training.

While the Safety Objectives provide performance targets for 2019, they do not set out longer-term targets to be achieved with a plan to achieve them. The document does, however, recognize the need for continual improvement and to develop the necessary processes and framework to collect, monitor and analyze data to identify root causes of collisions.

We expected to see quantified short-term and long-term performance measures with targets that specifically assess the effectiveness of bus operator training and that influence the design and delivery of training. We did not find them. As discussed below (see Fleet safety recommendations) Fleet Safety staff and training staff do speak regularly as to the nature of preventable accidents that are occurring. These discussions factor into the remedial training provided to operators involved in preventable accidents. However, more formal quantified measures would permit training design and delivery to assess its impact on the number of preventable collisions in order to make more informed program decisions.

Current training related performance data is limited to statistics compiled by Training and Development showing the pass/fail rates for NBOT trainees. While this data is necessary to manage training, they are not direct indicators of the effectiveness of training in meeting OC Transpo safety objectives.

While the majority of preventable collisions are considered minor, their occurrence is a possible indicator that additional driver training is required. This is underscored in the City's Authority to Operate City Vehicles and Mobile Equipment Policy (ATO Policy) where all preventable collisions have a bearing on a driver's risk profile. The continued

operation of a bus by a driver is impacted by both the number and severity of collisions. Where necessary, operator performance is strengthened through additional training.

There is an opportunity for OC Transpo to develop performance indicators and targets that measure the effectiveness of training. These should be both lagging (what happened in the past) and leading (targets to measure if OC Transpo is preventing it from reoccurring in the future) in nature.

Recommendation #1

That the City define short-term and long-term performance indicators with year-over-year targets for preventable bus collisions and a plan to meet those targets that is supported by analysis and monitoring of progress.

Management response:

Management agrees with this recommendation.

Staff are reviewing data from Riskmaster and OC Transpo's Safety Management System (SMS) to develop short and longer-term targets. This work will be completed by Q1 2021. Year-over-year targets for preventable collisions will be incorporated into the SMS scorecard, which is updated annually.

Staff from OC Transpo's Training and Development unit and the City's Fleet Safety unit also meet regularly to discuss trending issues and Training staff adjust NBOT and bus operator training accordingly.

Recommendation #2

That the City define performance indicators with targets to measure the effectiveness of training for both new and ongoing bus operators.

Management response:

Management agrees with this recommendation.

Curriculum for new and existing bus operators is updated regularly based on trending issues and changing technology on board our vehicles.

Using data collected from various sources, including the annual targets and initiatives included in the SMS and Fleet Safety Unit's Riskmaster preventable collision data, staff are developing and defining performance indicators with targets to measure the effectiveness of training for all bus operators.

Performance indicators will be established collaboratively between Training and Transit Operations and incorporated into the targets set in the SMS by Q2 2021.

Data analytics

There is an opportunity for OC Transpo to use training data in conjunction with operations and collision data to develop potential predictive relationships and analysis (leading indicators) that could be used to improve training and hiring and reduce collisions. The data is currently not being used in this way. NBOT and ongoing training needs are not formally monitored, assessed and improved upon based on analytics.

The ability to use such analytics is constrained by:

- Lack of system integration between OC Transpo's training database, SAP, Riskmaster, Action Point and booking systems. Integration would augment the accuracy and completeness of Training and Development information. For example, better integration would allow Training and Development to: be aware of operators that are away on leave or are returning from extended absences; and to obtain data on routes driven by operators and frequency/type of collisions on those routes so that analysis can occur and inform training design and delivery.
- Backlog of information to be entered into the training database. This limits the analysis that can be performed with the data.
- Lack of control over data in the training database. This has resulted in the accidental deletion of data and could lead to the unauthorized and undetected alteration of data.
- Lack of integration of daily training performance with broader training information. Daily trainee evaluation scores are, at times, handwritten and not integrated with broader training information.
- Lack of analysis of training activities such as training requested by operators and their section heads, refresher training and in-service assessments provided and linking the analysis to continual training improvements
- Difficulty in extracting and analyzing basic information on training. For example, information on operators that received mandatory refresher training after absences of greater than 90 days or, the number of operators who initiated a request for refresher training, could not be provided by Training and Development.
- Absence of complete and accurate data. During our review, we found numerous errors in basic training data that we requested. For example, identification of NBOT graduates or trainees who had not taken winter refresher training. We also

found that data was missing on daily NBOT driving times and platform mentor time for certain training sessions.

- Incomplete data relating to the cost of the NBOT program. Using cost data provided by Training and Development, we calculated that NBOT costs approximately \$20,700 per successful trainee. However, there is no full costing methodology to determine training costs, so the true cost is much higher. Excluded from this costing are recruitment time, human resources time, Training and Development non-instructor salaries, platform mentors' salaries, bus operating costs, office and classroom space, classroom material, guest speakers' salaries and costs and systems costs and corporate overhead costs.

Recommendation #3

That the City implement data analytics to develop predictive relationships and analysis (leading indicators) that can be used to improve training or hiring, and/or reduce collisions.

Management response:

Management agrees with this recommendation.

Staff from Training and Fleet Safety meet regularly to discuss bus operator reassessments, collision rates, and trends, and Training adjusts curriculum accordingly.

We have begun the process of staffing a Quality Control and Assurance Coordinator to perform data analysis and better inform necessary changes to curriculum. The position will be in place by the end of Q1 2021.

Staff are also reviewing with various City departments, the feasibility of linking information from the various sources of data (Riskmaster, Action Point, M5 maintenance records, SAP, etc.) to develop predictive relationships and analysis that could also be used to improve training, hiring and reduce collisions.

Recommendation #4

That the City address data integrity issues relating to accuracy, completeness and integration of bus operator data.

Management response:

Current data collected is comprehensive and meets MTO standards, however management agrees with this recommendation and has addressed opportunities to improve the administration of the Bus Operator Training Program, specifically regarding documentation and records management.

Access to the Training database has been restricted to the administrative staff reporting to the training management team. This team also tracks and documents reassessments and mandatory refresher training. An electronic system for the submission of daily trainee evaluations is also in place, which includes drive times and platform mentor times.

Governance

Training of bus operators is a safety critical function for OC Transpo. It has as its primary objective ensuring the well-being and safety of OC Transpo's customers, operators and the general public. Impacting on the effectiveness of training is the governance of training. The Chief Safety Officer reports directly to the General Manager of the Transportation Services Department, as does Director of Operations (OC Transpo and Para Transpo). The Chief Safety Officer and Director of Transit Operations jointly monitor and approve changes to the safety management system and continuous improvement initiatives. The Chief Safety Officer is responsible for approval of all OC Transpo training, and ensures that training meets MTO legislation.

We expected to find that governance of the training function ensured that this safety critical function can be implemented without interference from other pressures that could put safety at risk. We found that the current governance structure for training does not allow Training and Development to operate the training function independently of Operations. During the time of our review there was an operational requirement to produce a target number of qualified bus operators. Significant operational pressures were caused by the delayed launch of O-Train Line 1. Part of OC Transpo management's response was to adjust driver training to produce more operators. This resulted in:

- Less stringent recruitment requirements;
- Condensing the NBOT; and
- Deferring ongoing training.

Recruitment requirements

The Driver Competency Assessments (DCA) were conducted prior to the hiring of a candidate. They were performed under the oversight of Operations and were intended to assess new candidates' skills and their potential for success in operating a bus. DCAs were removed as a recruitment requirement by Operations, part-way through 2017. Operations staff informed us that the DCA was cancelled because it was not working as it was originally envisioned. At the time of cancellation, other driver assessment options were not considered or reviewed.

The 2018 job posting to recruit candidates for bus operator positions indicated that the employment would be short-term and that it was an opportunity to acquire benefits such as: "a CZ license at no cost"; commercial driving and customer service training and experience; and transferable skills.

Staff in Training and Development, Operations, Human Resources and Fleet Safety all indicated to us that dropping the DCA and the expected short-term nature of the resulting employment ended up weakening the candidate pool entering NBOT. OC Transpo management informed us that it did not reduce its performance expectations required to pass the NBOT program and become a bus operator. As a result, average pass rates through NBOT dropped significantly from the latter part of 2017 into 2019 as follows: 2017 – 76%; 2018 – 60%; 2019 – 51%.

In part, as response to this, we were informed by management that a new form of driver assessment has recently been re-introduced into the recruitment process and that Training and Development, as opposed to Operations, is overseeing this new capability assessment. Training and Development also informed us that, as of December 2019, all new applicants must undergo a psychometric, cognitive and road test, prior to being accepted into the NBOT.

NBOT was condensed

Training session 12-17 which started on October 1, 2017 was the first session where the candidate pool did not undergo a DCA. Also, at that time, class size was increased for the NBOT training sessions for the period October 1, 2017 to December 21, 2017 (sessions 12-17 to 17-17). The number of days of training and the average amount of bus drive time by trainees were also significantly reduced for these sessions. At all times, however, the MTO requirement was met. The chart below shows that the larger the class size the lower that average driving time during training.

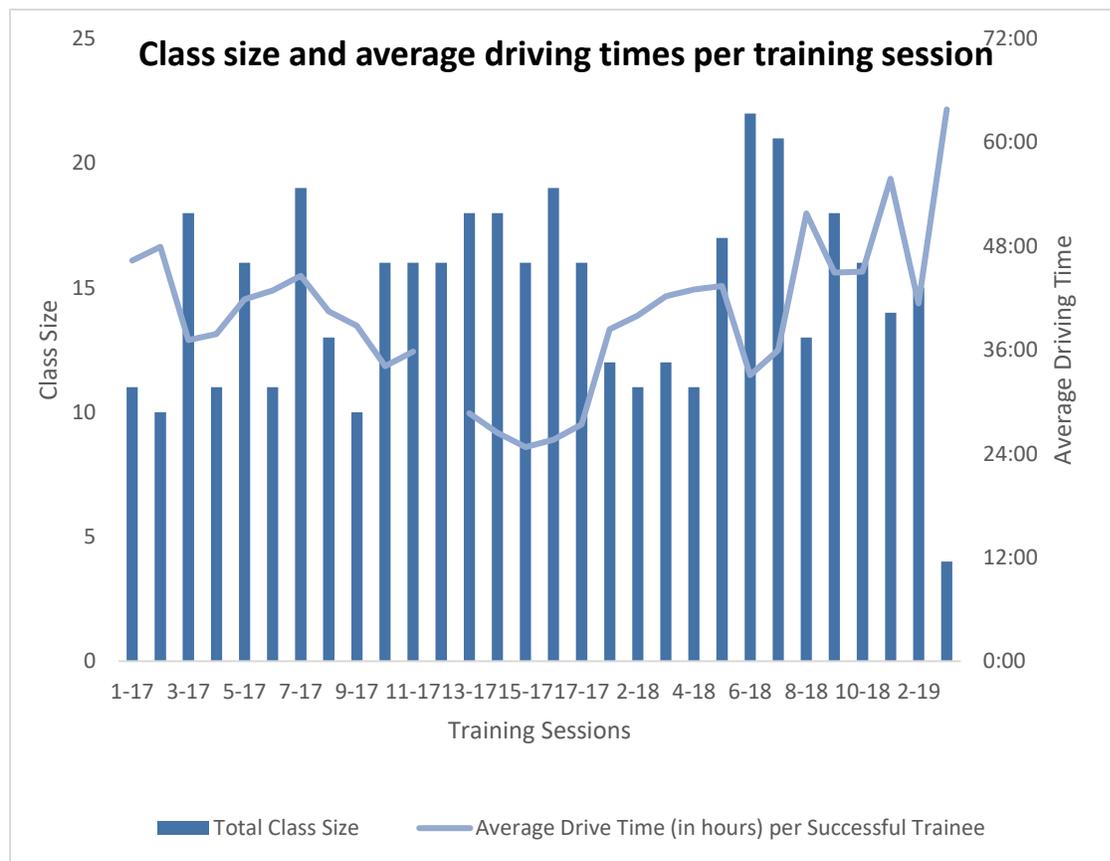


Figure 1: Class size and average drive times per training session³

It appears that the general quality of the resulting drivers coming out of these sessions was affected. For successful NBOT graduates from the 12-17 to 17-17 training sessions (sessions with larger classes and fewer driving hours), the percentage that were involved in a preventable collision during training or within 4 months of graduation increased. The following table shows the preventable collision information for these sessions, versus those before and after. The percentage of active NBOT graduates in a preventable collision within 4 months of graduation was 31% for the 12-17 to 17-17 training sessions, versus 22% before and 28% after.

³ As described above under “Data Analytics”, drive time data was not available for session 12-17.

Table 2: NBOT training sessions highlights

	NBOT training sessions		
	1-17 to 11-17	12-17 to 17-17	1-18 to 3-19
Duration of NBOT session (in days) ⁴	26	22	26
Average drive time with an Instructor (in hours)	40:42	26:34	44:31
Total NBOT Graduates who are still Active ⁵	96	55	75
# (%) of active NBOT graduates who had a preventable collision since hiring (includes training time)	20 (21%)	22 (40%)	15 (19%)
# (%) of active NBOT graduates who had a preventable collision during training	3 (3%)	9 (16%)	1 (1%)
# (%) of active NBOT graduates who had a preventable collision during training who were later involved in a repeat preventable collision	2 (67%)	6 (67%)	0 (0%)
# (%) of active NBOT graduates in a preventable collision within 4 months of graduation	21 (22%)	17 (31%)	21 (28%)
# of preventable collisions within 4 months of graduation per active NBOT graduate	0.27	0.35	0.35

Some of this difference might be explained by the time of year when NBOT sessions 12-17 to 17-17 graduated. Those sessions graduated from October 31, 2017 to December 27, 2017. As such the graduates would have spent some of their initial four months driving in winter conditions. However, when we compared their accident rates to those that graduated at a similar time in 2018, the rates for the 2017 graduates are again higher. The percentage of active NBOT graduates in a preventable collision within 4 months of graduation was 31% for the 12-17 to 17-17 training sessions, versus 27% in 2018. This is consistent with the observation above that the drivers trained in sessions 12-17 to 17-17 had relatively more preventable accidents.

⁴ Does not include Platform Mentor time. Training and Development were unable to provide these times for certain session in 2017.

⁵ The above analysis includes only operators who were still active at the time of our review in order to reduce the impact on the data caused by different employment periods (e.g. temporary or short-term employment).

Ongoing training deferred or not scheduled

We found that the influence of Operations, including its need to adjust due to the delays in opening O-Train Line 1, resulted in ongoing training being deferred or not scheduled at all. The details of training that was deferred/not scheduled are discussed below in more detail under Objective #2.

Operator Certification and Training Plan

To augment the governance over training of operators and as part of OC Transpo's commitment to improvement, a new guiding document, Operator Certification and Training Plan (Certification Plan), was issued in September 2019, after we started this review. The Certification Plan outlines the certifications for all training programs, both bus and rail and has been approved by the Chief Safety Officer, Director Transit Operations (OC Transpo and Para Transpo) and the Director Rail Operations. The Certification Plan is an important step in defining governance over training and recognizes the importance of committing to a process of providing training to operators. We believe that there is room to improve the Certification Plan by including:

- Authorities and process to adjusting course content and schedule in order to meet operational requirements;
- Provision that Operations make relief instructors available as per training schedule;
- Linkages between Training and Development and Operations in the development of training schedules;
- Agreement that drivers will be made available for training as scheduled by Training and Development; and
- Apart from the Defensive Driver Course modules – the Plan does not provide additional information on the frequency and scheduling of other mandatory and non-mandatory training for ongoing bus operators.

In our view, sound governance over bus operator training reduces the risk of preventable collisions by bus operators.

Recommendation #5

That the City continue with recent efforts to augment governance over bus operator training that training, as a safety critical function, is implemented as designed and without interference.

Management response:

Transit Operations and Training work together to balance OC Transpo's service requirements and safety-critical training.

Management agrees with this recommendation and beginning in May 2020, staff from Transit Operations and Training increased the frequency of their meetings to weekly, to plan ahead and ensure that both OC Transpo service and bus operator training requirements are met.

The Operator Certification and Training Plan mentioned in this report is being updated to clarify governance over training, strengthen collaboration between Operations and Training, and include the frequency and schedules for all mandatory and non-mandatory training. Revisions will be complete by Q4 2020.

Driver Transition to Operations

OC Transpo strives to ensure that upon graduation, operators passing NBOT have been trained to operate any type of bus, on any route, at any time. As NBOT progresses the difficulty in routes driven progresses; trainees begin in low-traffic suburbs and then move on to more high-traffic areas, like the downtown core. Training and Development provided us with a list generated by Fleet Safety of the 12 routes with the most preventable collisions.

We expected to find the experience of a new bus operator to be a key determinant in the type of bus and the difficulty of the routes that an operator will drive once they have graduated from NBOT as not all routes are equally difficult. What we found was that as per the City's negotiated collective agreement, the routes and type of bus booked by all operators are determined by their seniority within their organization and not by their experience as an operator or the level of training received by the bus operator. As a result, the skills of the bus operator do not factor into the booking of their work and new bus operators can select to operate more difficult routes.

In our view, by not aligning the work that is booked by new operators to the experience level of the bus operator, the risk of preventable collisions by bus operators is increased. However, we recognize that due to the collective agreement with ATU 279⁶, bus operators book routes based on seniority, meaning that management could not

⁶ New agreement with ATU 279 expires in 2025

implement such a change if it wanted to. We also considered examining possible changes to higher risk bus routes to reduce the risk of accidents, however this was outside of the scope of this review.

Training standards

NBOT

OC Transpo has a robust training curriculum focused on safe driving practices. The program includes a combination of in-class and on-road driving time. During new bus operator training, the program is designed such that trainees operate all bus types in the fleet (i.e. 40-foot, articulated and doubler-decker). Before trainees can take the MTO on-road driver exam, they must successfully complete at least 20 hours of driving under the supervision of an instructor who has delegated signing authority from MTO. Additionally, prior to receiving their C class license trainees:

- Complete certain elements of defensive driving training, written tests and daily practical evaluations;
- Receive training regarding their obligations to follow all the rules of the road; and
- Pass a formal MTO road test, consisting of a pre-trip inspection, backing procedure and driving on a prescribed test route approved by MTO.

The MTO portion of NBOT ends at approximately 60% (Day 15 or 16) into the NBOT session. The remaining NBOT days focus on adding to skills already learned and on building the skills necessary to be a successful OC Transpo bus operator.

The review expected to find the NBOT program clearly defined, updated and effectively addressing training requirements. We found that the NBOT curriculum was clearly defined through a series of curriculum documents (95 binders) and a supporting syllabus for each training session. The complete NBOT curriculum covering both the MTO and the subsequent OC Transpo specific training has been approved by MTO. The most recent MTO audit of the delivery of the DCP portion of NBOT was in 2017 and no infractions were noted.

Training and Development staff track updates required to the curriculum/syllabus and they inform MTO of major changes to the curriculum/syllabus. Full-time instructors are required to undergo significant training and re-training.

As part of effectively addressing training requirements, the review expected to see objective, defined training and performance standards and criteria that are adhered to in order to determine successful versus unsuccessful NBOT trainees. We found that while

MTO standards are defined, “OC Transpo” standards which are often referred to by Training and Development are not formally defined and documented.

We believe that there is an impact to not having clearly defined, objective, training standards. The lack of such standards increases the risk of certifying trainees as new bus operators and permitting them to operate a bus in-service when the trainee is not yet ready to operate a bus in-service.

Pass/Fail decisions

We found that, based on information provided by Training and Development, very few NBOT terminations of trainees were due to trainee’s failure to meet OC Transpo driving/safety standards. The majority of performance-based terminations were due to a failure to meet MTO standards. Specifically, 85% of terminations from 2015-19 were clearly due to a failure to meet MTO standards and only 8% of terminations from 2015-19 were clearly due to failure to meet OC Transpo driving/safety standards⁷.

It is important to note that we expected the number of failures would decrease as new bus operators progressed through their training. This is because many individuals who obviously are not suited to be a bus driver can be identified relatively early in the training process. In other words, to some extent the large share of terminations coming from failure to meet MTO standards is as we expected.

Training and Development staff monitor driving performance of trainees daily. However, other than the MTO exams, there is no concept of an “auto fail” nor specific criteria to determine a pass/fail and no formally defined performance standard that must be met. Instead, trainee performance is assessed on a case-by-case basis. As a result, there is a great degree of judgement that is applied and this introduces the opportunity for risk of bias (perceived or otherwise), and inconsistency in evaluating trainees.

We reviewed a sample of 12 trainees’ files. In our review we found instances where comments, for example, were made about unsafe driving practices, violations under the Highway Traffic Act, failure to improve as they progressed through NBOT and an act that required the instructor to intervene. We would expect that this trainee would have been terminated from the program at this point, however, the trainee continued with, and in some cases, completed the program.

⁷ The remaining 7% were terminated for other reasons.

We found that the Daily Progress Reports (DPRs), while monitoring progress of trainees, does not define a standard or provide a direct relationship to decisions to pass/fail the trainee. This is in contrast, for example, with the Toronto Transit Commission (TTC), where if a trainee in new bus operator training has two bad daily driving reports they are discontinued from the program.

Training and Development staff informed us that the process of removing a trainee can be lengthy and time consuming. Based on their past experiences, they need to be especially cautious to mitigate the risk of grievances or legal action. It can be easier to let the trainee fail the MTO exam twice and automatically remove them from NBOT for that reason, rather than go through the resource-intensive internal process of failing them for reasons outside of MTO requirements.

Training and Development staff informed us that they have directed instructors to clearly document issues on trainees' DPRs so that there is evidence in case it is ever required. We found however that DPRs are not always well documented.

We also found that preventable collisions occur at various stages during training and approximately 60% of these collisions occurred within 10 days of graduation. While we recognize that 77% of preventable collisions are deemed to be minor, in our view there is no clear standard or direction as to when a collision during training should trigger a termination or review.

Recommendation #6

That the City clearly define, document and apply objective "OC Transpo" criteria and standards for determining successful/unsuccessful NBOT trainees.

Management response:

While not required by our governing body (MTO), management agrees with this recommendation.

Management is reviewing the NBOT curriculum that takes place after the MTO road test and establishing clear, objective pass/fail criteria for instructors to use during this portion of the program. A new standard operating procedure that establishes the clear, objective pass/fail criteria for OC Transpo training is in development. The review and supporting procedure will be complete by Q4 2020.

Daily Progress Reports

The Daily Progress Report (DPR) has been relied upon, for a number of years, as a very important tool used by Training and Development to rate and monitor trainee progress through each day of the NBOT. The DPR is a two-page form that should be completed by the instructor while the trainees are driving the bus. At the time of this review, the DPR rated the trainees on a series of skills that were to be observed while driving. The rating scale used was 1 to 4 as follows:

- 1 – Skill was performed improperly/unsafely
- 2 – Skill was performed safely but requires improvement
- 3 – Skill was performed safely, smoothly and without errors
- 4 – Skill was not coached but requires more practice/Not-applicable

The actual rating of skills was a 1, 2 or 3 with the rating 4 relating to a skill which was not observed as being performed. Instructors were to complete the comments on the back of the DPR and all DPRs were to be signed by the instructor and the trainee. Other information appearing on the DPR included the type of bus driven, start time/end times, mileage in and mileage out, road conditions and total driving time.

We reviewed the DPRs for a sample of 12 trainees. We found that a DPR was completed for all trainees daily. However, we found the DPR tool to be inadequate to track and evaluate trainee progress. Specifically:

- Training and Development informed us that instructors were required to state clearly on the DPR that all areas of the syllabus for that day were covered. We found that this was often absent on the DPR. If parts of the syllabus were not covered in the drive time, there was a section on page 2 of the DPR to note the absences. However, we observed in our testing that this section was, at times, not completed. Likewise, the DPR was to document a follow-up plan when areas of the syllabus were not covered. We found that this was not being documented.
- The DPR rated trainees on a scale of 1 to 3. We found that a scale of 1 to 3 does not provide the level of sensitivity to truly separate trainee levels of performance. The vast majority (approximately 75%) of scores on the DPRs were a 2. Our analysis indicates that the scores of NBOT trainees who fail or end up having preventable collisions after NBOT completion were indistinguishable from those who passed NBOT and have no collisions, as depicted by the following chart:

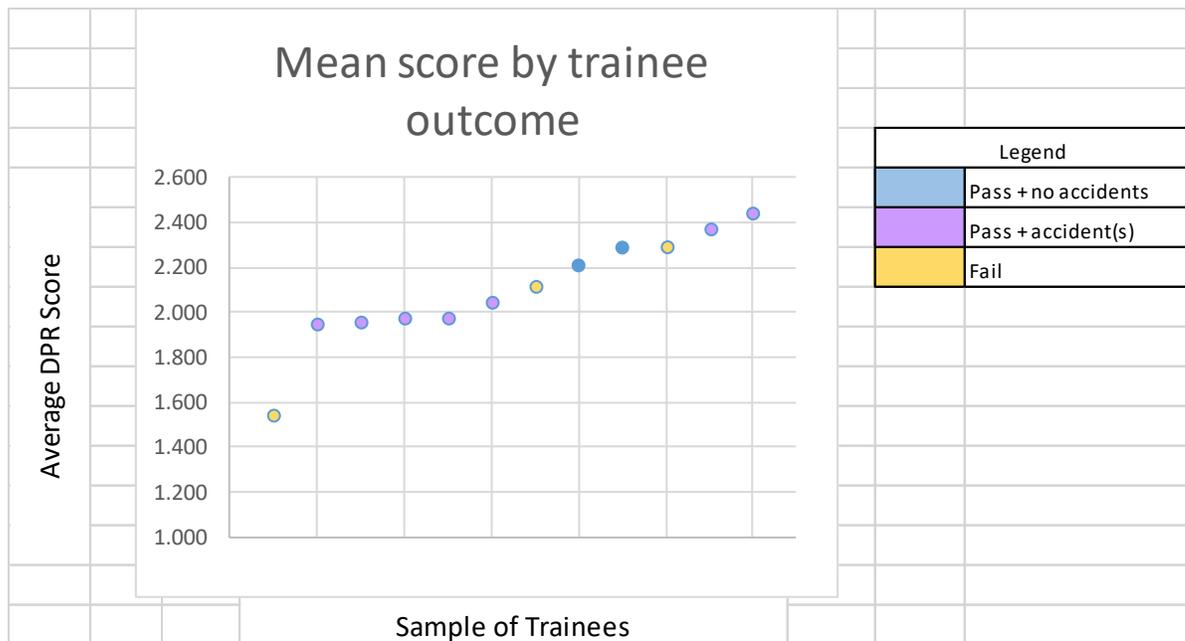


Figure 2: Mean score by trainee outcome

- We did not find a relationship between a trainee’s average DPR score and his or her likelihood of passing NBOT. We expected to find average DPR scores increasing or levelling off at higher levels the further a trainee progressed through NBOT as this would indicate that driving skills were improving. We did not see such a relationship. We found that in some cases trainees who successfully completed NBOT were scoring, on average, less than 2 and at times averaging as low as 1.70 in the days just prior to graduation.
- There were no criteria documented to guide the instructors on how to assess the trainees progress against the DPRs rating scale of 1 to 3. This resulted in inconsistent ratings provided by instructors on DPRs from day-to-day and from trainee-to-trainee.
- All skills on the DPR scoring sheet had equal implied weight, even though some are clearly more safety-critical than others. For example, use of the radio (e.g. awareness, volume, protocol, talk group, communication abilities) carried the same weight as lane changes and left/right turns.
- DPR scores did not input into any broader data analysis to determine potential predictive results or improve the program.
- The grading boxes on each DPR were nearly identical and not tailored to the syllabus material for that day.

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- Not all the boxes on the DPRs were scored every day and there was no explanation as to why certain boxes were not scored.
- At times the DPR scores did not seem consistent with the comments provided by the instructor and sometimes there were no comments or very little comments on the learner's actual status/progress.
- Instructors did not necessarily apply the same standards to all situations. For example, we observed one case where an instructor lowered driving expectations of a trainee on a particular type of bus because the trainee had only driven this bus type once before.
- DPRs were manually completed, oftentimes, after the driving was completed. This created the risk that the instructor did not fully recall the operator's performance.
- Handwriting on some of the DPRs was difficult and sometimes impossible to read.

Based on the findings above, the usefulness of the DPR as a tool for instructors can be improved. This would allow instructors to objectively assess the performance of the trainee, provide feedback to the trainee and to provide evidence that the NBOT curriculum has been fully implemented.

We were informed by Training and Development staff that instructors and program staff struggle with consistency and the limitations of the DPR. Training and Development staff have also indicated that they are working on improving the DPR tool and are considering moving to a scale of 1 to 5 with supporting criteria to guide the instructors in scoring the progress of each trainee.

Recommendation #7

That the City improve the NBOT Daily Progress Report (DPR) as follows:

- Define standards such that DPR scoring provides a direct relationship between performance, as noted on the DPR, and decisions to pass/fail NBOT trainees;
- Develop criteria to guide the instructors on how to assess the trainees progress against the DPRs rating scale;
- Modify the rating scale such that the required sensitivity provides the basis to determine and compare performance of trainees;
- Implement a DPR quality assurance process to improve clarity and completion, ensure scores are supported and clearly linked to instructor comments and they are completed on a timely basis; and
- Implement a weighting of skills on the DPR scoring sheet such that more safety-critical related skills are given more weight.

Management response:

MTO requirements for road test assessments are met. DPRs are an assessment tool of OC Transpo's training program that exceed MTO's training requirements.

Management agrees with this recommendation and in January 2020, the new electronic NBOT DPR was introduced that has clearly defined performance standards linked to curriculum; a revised grading system that identifies and weights safety critical versus non-safety critical skills; a requirement to include a rationale for low scoring performance; and instructions to ensure consistent grading. Instructors were trained on the new DPRs in December 2019 prior to implementation and the Chief Safety Officer led a follow-up instructional meeting in July 2020 to reiterate the importance of the DPR.

Further work is underway to establish clearer pass/fail criteria driven by DPR results and will be complete by Q1 2021.

Drive times

As per MTO regulations, trainees must have a minimum of 20 hours' drive time before they can take the road test for the "C" licence upgrade. Beyond this, we expected to find standards for daily and total drive times for each type of bus based on an objective consistent methodology that takes into consideration factors such as bus difficulty, bus capacity, trainee performance by bus type and the type of bus most often driven as a new operator.

We found practices in place to ensure that NBOT trainees met the MTO minimum drive time for the license upgrade. Training and Development however do not have a formal approach to aligning driving times to bus type and no standard drive time established for each bus type during training program. Drive times per trainee are informally reviewed daily by Training and Development staff. However, overall tracking of trainee drive time by bus type only started in February 2019, and there had been no formal analysis of the drive time.

We compiled drive time data for a sample of 12 trainees. While all 12 met the MTO minimum drive time, we found a wide variation in the number of hours each driver received in total and by each type of bus. Total bus driving time during the period 2017-19 ranged from a low of 22.25 hours to a high of 64.0 hours. Based on our sample we found trainee times on double decker buses ranged from 1.0 hour to 10.5 hours and time on articulated buses ranged from 3.0 hours to 13.5 hours.

As mentioned above, we found from transit data that new drivers are required to drive articulated buses for a significant amount of their drive time (roughly 50% of the time) during the start of their bus operator career at OC Transpo. However, the training drive time provided on the articulated bus during NBOT was relatively low - 19% drive time spent on articulated buses, based on our sample of trainee files. The following table provides additional information.

Table 3: NBOT and new bus operator drive time by bus type

Type of bus	NBOT driving time % (per OAG sample)	Actual drive time of a new bus operator (per OAG sample)
Invero – 40 foot	64%	23%
Articulated	19%	51%
Double-Decker	11%	9%
Hybrid – 40 foot	6%	17%

Training and Development staff inform us that drive times by bus types are dependent upon the availability of buses and are impacted by the weather and the number of trainees in a class. In our view, the absence of standards for drive times increases the risk that new operators are not fully trained on all bus types.

Recommendation #8

That the City determine and set minimum driving times for NBOT trainees on each vehicle type and then implement procedures to verify compliance with the standard.

Management response:

Management agrees with this recommendation and in January 2020, completed the implementation of mandatory minimum drive times by bus type, which exceeds the standards required by our governing body (MTO).

While the MTO requires 20 hours, trainees in the NBOT program must achieve an overall drive time of 60 hours, and a minimum total drive time in each style of bus before they graduate from the NBOT program.

Driving times are recorded in the employee DPRs by their instructor and this information is then entered into a tracking sheet by their group coordinator.

Testing

The NBOT program has 24 tests in the entire syllabus plus milestone written tests based on MTO standards; written upgrade tests, a mid-term test, and a final MTO exam. All MTO-approved tests that follow the Ontario Driver Certification Program (DCP) take place prior to the MTO road test. The only mandatory written test per the syllabus is the MTO written exam. Other written assignments/tests that are given to trainees in NBOT are discretionary and not mandatory. We expected to find a consistent application of available tests across the training sessions. What we found was that instructors usually give the same tests roughly around the same time in each session, but it can vary to a certain degree. We understand that instructors appreciate that flexibility. Our file review found that it was not clear whether a given trainee participated in all tests and assignments. As a result, there is a risk of inconsistency in the application of the curriculum.

We also found that there is no mandatory final road test provided to trainees to assess trainees driving skills at the end of the NBOT session. The only road test that occurs is the MTO road test that occurs approximately 60% into the NBOT. A pass/fail determination for a trainee is based on overall subjective determination made by Training and Development. As a result, staff told us that there is the risk that in the last few days, some trainees may take the NBOT less seriously as they believe that once they are in the latter stages of NBOT, they are going to pass. Training and Development staff agreed with us that that a final road test would be beneficial, and they inform us that it was introduced into the 2020 NBOT sessions.

Recommendation #9

That the City clearly define the tests and exams required on each syllabus day and that the tests and exams occur as described in the syllabus with supporting documentation in the NBOT trainee's files.

Management response:

Management agrees in part with this recommendation as tests and evaluations are scheduled in the NBOT syllabus. However, as mentioned in the report, Management must allow some flexibility when tests are given to ensure that candidates are evaluated consistently and fairly. For instance, a day with inclement weather may require instructors to adjust on-road training if trainees are at the start of the program.

As of August 2020, each trainee's test and exam results are placed in the individual's trainee file, in addition to the NBOT group file.

Recommendation #10

That the City continue with the implementation of a final road test that must be passed by NBOT trainees at the end of the NBOT sessions.

Management response:

Management agrees with this recommendation and it has been implemented.

Trainees must complete the MTO practical road test midway through the program, and as of February 2020, a final in-service practical driving assessment and evaluation at the end of NBOT to graduate. This final road test exceeds MTO requirements.

Platform mentoring

Platform mentoring is an important and positive part of NBOT training. In the last four days of the NBOT, a trainee will drive the route of a bus operator who has been designated to mentor the trainee. The objective is to provide a full, in-service, driving experience with a shift in focus from instructing to coaching the trainee.

Training and Development have put criteria in place for the selection of mentors. Criteria for bus operator applicants when entering the program includes no collisions or demerit points on record, a positive attendance record and a recommendation from their section head. We expected to find that these criteria were applied to mentor selection and throughout their participation in the program. What we found was that the above two criteria were not fully applied during 2017-19 timeframe. We found that some of the operators who participated as mentors had been involved in a preventable collision prior to being selected for the program and more of them had a preventable collision prior to their first mentoring session.

Recommendation #11

That the City comply with its criteria for selecting platform mentors.

Management response:

Management agrees with this recommendation.

A standard operating procedure is currently being finalized that identifies responsibilities for ensuring that platform mentors are maintaining their qualifications. This compliance check will occur prior to the start of every New Bus Operator Training (NBOT) Program. Working collaboratively with Fleet Safety and Transit Operations, compliance checks will ensure operators have a clean driving record, have no infractions or preventable collisions on their Driver Safety Profile, and no demerit points or infractions on their

driver's abstract. The policy will be implemented by the end of October 2020. The Platform Mentor Program is part of OC Transpo specific curriculum and exceeds MTO requirements.

Relief instructors

Relief instructors are often used in those cases where there aren't enough permanent instructors to train an influx of trainees. Relief instructors are expected to follow all the same standards as full-time instructors. Training and Development indicated that the use of relief instructors, while providing flexibility in the delivery of training, creates challenges with respect to consistency of training. Management informs us that these challenges are addressed by conducting observations of relief instructors' in-class lessons, regular one-on-one meetings and regular evaluations of relief instructor performance.

Relief instructors do not spend the same amount of time as a regular instructor does in providing training. In addition, at times, it can be difficult to obtain relief instructors from Operations. During 2017 to 2019, we observed that over half of the training (in hours) was provided by relief instructors. The use of relief instructors was identified as an issue in the recent benchmarking survey undertaken by the Canadian Urban Transit Association (CUTA). The survey found that 60% of respondents answered "yes" when asked if they experienced challenges with relief instructor consistency.

In-classroom observation by Training and Development staff to monitor the quality of training provided by instructors occurs approximately twice per year, with a focus on relief instructors. This is a good practice and we note that observations are documented. However, we believe that given the number of training sessions and the number of training days per session, this level of monitoring is too low. A formal methodology to select the sample of which classroom sessions to monitor is also needed to ensure proper coverage.

Recommendation #12

That the City determine and recruit the optimal level of full-time and relief instructors to ensure consistent and effective delivery of training

Management response:

Management agrees with this recommendation.

Training, Transit Operations and Service Planning regularly meet to assess short and long-term service levels and the required number of operators. The analysis that will be

performed by the new Quality and Control Coordinator, upon their hiring in 2021, will help ensure consistent delivery of NBOT program content through regular program quality assurance checks and provision of data that will allow management to adjust the ratio of full-time and relief instructors to optimal levels.

Recommendation #13

That the City develop and implement a formal methodology that ensures appropriate oversight of the quality of training provided by instructors.

Management response:

Management agrees with this recommendation and it has been implemented.

Instructors are evaluated by supervisory staff on their competency in the classroom based on many factors including: knowledge of the subject matter, speaking and facilitation skills, professionalism and their preparation for the class. In September 2020, the frequency of in-classroom observation of instructors was increased from twice a year to at least four times a year. An updated formal process for in-classroom observation, evaluation and tracking of compliance with this standard was also put in place in October 2020.

Rehiring practices

In addressing the effectiveness of training requirements, the review expected to see defined standards and practices for rehiring and retraining individuals who had previously failed or resigned from NBOT. This was expected because each rehire, given that they may have previously failed NBOT, could be introducing risk and potentially additional cost to the program. We found that there is no policy and guidance on rehiring previously unsuccessful NBOT candidates.

Some candidates who have failed or resigned from their first NBOT attempt have been rehired and included in a subsequent NBOT session. Management informs us that 12 of the 38 rehired candidates ended up failing a second time. Training and Development staff inform us that each rehire is reviewed on a case-by-case basis. However, there is no documented justification to support the rehire decision.

As a contrast, TTC has a standard waiting period before a failed new bus operator trainee can reapply for bus operator training.

Recommendation #14

That the City develop policies and practices for the rehiring and retraining of individuals who had previously failed or resigned from NBOT.

Management response:

Management agrees with this recommendation and it has been implemented.

In September 2020, OC Transpo introduced a re-hiring policy that includes a waiting period prior to re-applying to the program for candidates who were unsuccessful or left the program prior to completion. Candidates who were unsuccessful during the pre-hire assessment stage (psychometric, cognitive and driving assessment tests) must wait at least six months before being able to re-apply. Trainees who left during any other portion of the program must wait at least two years before they will be considered for re-hiring.

Training delivery

We expected to see evidence in trainees' files of the NBOT curriculum being fully delivered. Based on our review of a sample of trainee files, we found a number of good practices, including:

- Detailed syllabus for both classroom and road that sequentially builds drivers' skills;
- MTO written exams were signed by two instructors;
- All other exams and tests were signed by at least one instructor;
- All trainees tested met the MTO mandatory requirement of at least 20 hours of driving time prior to the MTO road test;
- All trainees that passed NBOT had passed the required MTO written and road exams;
- Any trainee who failed an MTO exam twice was removed from the program;
- All DPRs were signed by both the instructor and the trainee;
- The scheduled class time per the attendance sheet agreed with the time allotment in the syllabus;
- Any written tests where the trainee scored less than 80% were re-written;
- Pre-course driver abstracts were obtained ahead of all hires, and all appeared reasonable; and
- All trainee files had evidence of completion of railroad crossing training, a mandatory OC Transpo requirement.

However, our review also found that the delivery of the NBOT curriculum could not be fully observed in the trainee files. It was difficult to determine if the full curriculum was delivered and whether or not a trainee participated in all elements of the NBOT syllabus. NBOT training plans specify daily driving requirements, in both the number of hours and training objectives to be achieved during the drives. For example, NBOT Defensive Driving 3 – Intersections requires 120 minutes of drive time per the training plan. Direct linkages could not be made between daily driving requirements, as per the training plan, and DPRs on file. Training and Development staff inform us that driving hours, as per the NBOT curriculum, are managed in total over the 6-week NBOT session and that achieving required daily drive times and training objectives on a daily basis is difficult due to factors such as bus availability, class sizes and weather.

We also reviewed trainee files for additional supporting documentation that would indicate the delivery of the NBOT curriculum, oversight over the delivery of training sessions and information supporting the pass/fail decisions. Based on the sample files, we found that:

- The total number hours of driving time per trainee on OC Transpo's internal tracking spreadsheets ("All NBOT times") was tracked throughout the sessions, but the data was not always accurate. Data was sometimes missing, or the formulas to calculate drive times was incorrect resulting in double counting and significant summation errors in trainee drive times.
- The written assignments/tests and days on which they are given is not necessarily consistent between NBOT training sessions.
- Trainee attendance records were not always on their individual file.
- We were informed that instructors and group heads conduct daily morning meetings during NBOT to discuss session progress and concerns with trainees who are struggling, however, documentation of these meetings largely did not exist.
- Platform mentor time, while tracked daily, is not tracked overall such that analysis among trainees and sessions can occur.
- It was not always evident whether the trainee successfully completed NBOT (i.e. there is no final assessment of pass/fail); and in cases where the trainee was removed, the basis for the decision to remove a trainee was not documented. We are informed by Training and Development staff that since our review, they have started completing Final Assessment Letters and placing them on file.

As a result of the above, it is not clear whether the trainee participated in all elements of the NBOT curriculum or whether the NBOT curriculum was fully delivered.

Recommendation #15

That the City augment the application of NBOT to allow for direct linkages from the NBOT curriculum to daily driving requirements and DPRs on file.

Management response:

MTO requirements for road test assessments are met. DPRs are an assessment tool of OC Transpo's training program that exceed MTO's training requirements.

Management agrees with this recommendation and in January 2020, the new electronic NBOT DPR was introduced that has clearly defined daily driving requirements linked to the curriculum. In addition, an electronic tracking sheet was introduced in October 2020 that documents each trainee's completion of every in-class and on-road session as listed in the syllabus. The instructor is responsible for ensuring that it is signed off every day and the tracking sheet is kept in each trainee's individual file.

Recommendation #16

That the City augment NBOT trainee file documentation by:

- Tracking and analyzing the total hours of driving time per bus type per trainee;
- Giving written assignments/tests on consistent days as per the curriculum;
- Placing trainee attendance records on file;
- Documenting daily meetings of instructors and group heads; and
- Completing and filing Final Assessment Letters for each trainee.

Management response:

Management agrees with this recommendation and it has been implemented.

While the information listed by the auditor was available in the NBOT group file, it is now also included in each trainee's individual file, including total drive time and drive time by bus-type; attendance records; and final assessment letters.

Written assignment and test results are also placed in trainees' individual files. While these evaluations are given consistently as per the curriculum, instructors are permitted some leeway on when they are administered, as described in Management's response to Recommendation #9.

Minutes from daily meetings of instructors and group heads are documented by the group coordinator and placed in the NBOT group file.

Review objective #2

Assess the controls that ensure appropriate ongoing bus operator training is provided.

Performance measurement

The review expected to see OC Transpo monitoring and assessing the effectiveness of its ongoing bus operator training. As indicated under Review Objective #1, we found that at the time of our review, ongoing training needs are not formally monitored, assessed and improved upon based on analytics. Performance indicators and targets that measure the effectiveness of ongoing training were not in place.

Recommendations

See recommendation #1 and #2 above.

Deferral/Non-scheduling of training

We expected to see that ongoing training deemed necessary by Training and Development by way of refresher training or performance skills improvement training does occur, within competing priorities of OC Transpo. We found that documented processes exist for operators and their section heads to request reassessments, in-service assessments, performance skills building. However, we also found that, as indicated under objective #1, a significant amount planned operator mandatory and refresher training was deferred or not scheduled. We were informed by Training and Development staff that this was due to the need to meet operational requirements for bus operators as a result of the delayed launch of O-Train Line 1. Specifically:

Winter driving refresher

Operators hired and trained in months that had non-winter conditions are provided “winter driving refresher” training when the weather is more conducive. We expected to see drivers receiving winter driving refresher in the early part of the first winter of their first year of driving. What we found was that this training was not always provided at that time. We found that seven drivers from the 2017 NBOT and 24 drivers from the 2018 NBOT did not receive the winter driving refresher in the first winter after their graduation.

Management informed us that they have scheduled a winter driving refresher between January 13 to March 5, 2020 for all 2017 and 2018 NBOT graduates who had not yet

had a winter driving refresher, and for NBOT graduates who were trained in the non-winter months in 2019. In our view, winter refresh training to new drivers needs to be timelier. The risk of a preventable collision increases by not providing the training early in the first winter of becoming a new bus operator.

Other mandatory training deferrals/non-scheduling

We also observed non-scheduling of the following mandatory training:

- Tune-up Training – this one-day program was identified as required training in 2017 for bus operators.
- Workplace Violence Awareness – this is training that all City employees are required to take every three years. It does not include a practical driving component or curriculum related to the safe operation of a bus. Based on data provided by Training and Development, we found that 227 out of 1,511 operators were not in compliance.

In our view, ongoing driver training is a critical safety function. The Training and Development unit is accountable for designing and providing the training necessary to address safety risks. Non-compliance with Training and Development identified driver training requirements increases risks.

Recommendation #17

That the City provide winter driver refresher training early in the first winter of a bus operator's graduation from NBOT.

Management response:

The winter driving portion of OC Transpo's training program exceeds MTO requirements.

Management agrees with this recommendation.

Training for bus operators who had not yet received Winter Driver Training, as noted in this report, was completed by March 2020. Since this time, all graduates who complete the NBOT program between the dates of April 1 and November 30 attend Winter Driving Refresher Training by January 31 of their first winter as operators. Those graduating between December 1 and March 31 will have winter driving courses incorporated as part of the NBOT training program.

Recommendation #18

That the City ensure that training related to refreshing and enhancing bus operator skills, as identified by Training and Development, be delivered.

Management response:

Management agrees with this recommendation.

Management has organized virtual sessions for bus operators who had not yet completed Workplace Violence Awareness training. This training will be complete by Q1 2021.

Management will continue to ensure that all refresher training and training that enhances bus operators' practical driving skills is ongoing and delivered as scheduled. The Training and Development staff are tracking each individual bus operator's training status.

Recertification

We expected to find a process of recertifying its bus operators to ensure that they have maintained the skills necessary to operate a transit bus. Based on statistics provided by Fleet Safety, 56% of operators with less than 3 years of experience are involved in a preventable collision. The next highest group of collisions occurs with operators that have 3-10 years of experience, where 35% have been involved in a preventable collision.

We found that OC Transpo did not require that bus operators be recertified on a cyclical basis, until very recently. In September of 2019, OC Transpo issued the Operator Training and Certification Plan. In this document, recertification is to start in 2020.

In our view, this Certification Plan is a very important step. Specifically, the Plan recognizes that a "certified" operator is an employee who has been trained; passed all required evaluations (written, practical etc.); attended required refresher training; retains a valid licence; and successfully passes subsequent recertification evaluations. The Plan acknowledges that an unsuccessful trainee may be removed from the program and acknowledges that successful completion of recertification is mandatory.

However, there is room for clarification as it relates to recertifying operators as the plan is not clear as to what constitutes pass/fail in refresher training. The Plan indicates that the "*operator must participate in the mandatory cyclical recertification – if unsuccessful, the operator will not be permitted to return to normal duties*". There is however no definition or pass/fail criteria of what unsuccessful means. For example, is a successful

road test required, a written test, or both. As well, how many opportunities are allowed to repeat a test, and will additional training be provided?

We found, by way of example, that the TTC has a recertification process. They have mandatory recertification for bus operators every three years which include road testing. Operators are assessed a pass/fail. If the operator fails, they are placed in a five-day re-training program and re-tested at the conclusion of the five days. The operator must pass with an 80% score or better. If they fail a second time their employment as a bus operator is terminated.

Recommendation #19

That the City continue efforts to implement recertification of bus operators on a cyclical basis with clear pass/fail criteria and next steps when there are failures.

Management response:

Management agrees with this recommendation.

The existing draft Driver Recertification Plan has been updated to include standard frequency, scheduling timelines, and pass/fail criteria for training and recertification of bus operators. It includes a three-day recertification process involving practical road tests and in-classroom refresher training, which exceeds MTO requirements.

Bus operators will participate in mandatory training every five years, in coordination with the renewal date of their driver's licence. At that time, they must pass the MTO written test, driving test and vision test in order to continue driving.

The Plan will be implemented in December 2020.

Fleet safety recommendations

Fleet Safety and Training and Development staff speak regularly about the nature of preventable collisions that are occurring. These discussions factor into remedial training for operators involved in preventable collisions. In addition, after major and/or cumulative accidents, under the ATO Policy, Fleet Safety provides recommendations to Training and Development to reassess and provide remedial training to a given operator. The ATO Policy and supporting processes provides the opportunity on a case-by-case basis to evaluate these operators, potentially leading to additional assessments and training. We expected to find that recommendations provided by Fleet Safety to Training and Development would be fully implemented on a timely basis.

We found that the implementation of recommendations for in-service assessments and additional training of specific drivers, as made by Fleet Safety, requires improvement:

- We found three cases where the recommendation was not fully implemented as prescribed by Fleet Safety.
- There were instances where the operator's file did not indicate whether the problems experienced by the operator were remedied.
- Feedback to Fleet Safety regarding the remedial actions that were implemented, and the results of those actions, was not occurring. However, after we discussed the matter with staff, feedback to Fleet Safety was started, although in a somewhat inconsistent manner.

Recommendation #20

That the City fully implement the recommendation provided by Fleet Safety for in-service assessments and additional training, document this on trainees' files and notify Fleet Safety of the results of the remedial actions.

Management response:

Management agrees with this recommendation.

A documentation process is in development to formally log, track, assign and follow-up on Fleet Safety recommendations and will be in place by Q1 2021.

A new electronic report that tracks reassessments, performance skills building and Authority to Operate (ATO) training was introduced in October 2020.

Drivers' licence abstracts

Abstracts for driver operator licences are run monthly for Ontario residents and annually for Quebec residents. This is done in order to ensure that OC Transpo knows that operators continue to hold valid applicable licences. We found this process was working well. Only minor instances were observed where the abstracts were not run as required.

We also expected to find that Training and Development staff would follow-up with Operations to ensure that operators without the appropriate licence were not operating an in-service bus. We found that this was occurring as expected.