



*Office of the Auditor General*

**Audit of Planning Process for Cancellation of Bus Trips**

**Tabled at Audit Committee – March 12, 2015**



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## **Executive Summary**

### **Introduction**

The Audit of OC Transpo Business Strategic Planning Processes was included in the 2013 Audit Plan of the Office of the Auditor General, approved by Council on October 10, 2012. Subsequently, in May 2014, the City Manager, Deputy City Manager, City Operations Portfolio and General Manager of Transit Services were advised that the OAG was deferring part of its work on the audit of OC Transpo's Strategic Planning Process until it is fully implemented but would continue its audit work on two objectives, previously outlined in the audit plan. Specifically, assessing the planning process for OC Transpo Lost and Found (report under separate cover); and, assessing the adequacy of the planning process for cancellation of bus trips, which is the subject matter of the present report. .

### **Background**

OC Transpo is one of the City's largest, most complex business units responsible for the current and future transit needs of residents and visitors. Headed by the General Manager, Transit Services Department, OC Transpo is part of the City Operations Portfolio. Transit Services Department is mandated to deliver safe, reliable, and courteous service at a reasonable price. Currently, OC Transpo provides public transportation on 5,584 km of routes over an urban transit area of 466 sq km and serves approximately 100 million passengers per year with an average weekday ridership of 375,000 passengers. In excess of 1,500 bus operators provide service over a 24-hour period. Day-to-day delivery of transit service is overseen by Transit Operations Branch.

### **Audit Objectives, Approach and Scope**

The objective of the audit was to assess the adequacy of the planning process for cancelling bus trips.

The approach used for this audit included:

- Interviews with staff involved in the cancellation process;
- Review of documentation; and,
- Analyse data relating to cancellation over a two week period in May 2014.

The scope of the audit was limited to the planning of cancelled bus trips.

### **Summary of Key Findings**

1. The Transit Supervisor Trip Cancellation Procedures, Standard Operating Procedure (SOP) defines a priority trip as "any trip that is identified as [sic] a school trip, a rural route, a last trip or when headway gap is excessive for the route is a priority to be covered". (Headway gap could be considered the arrival time e.g., the time it takes

for a following bus to pass through the same specific location as the lead bus.) We found that Superintendents and Transit Supervisors of the Transit Operations Control Centre have a consistent understanding as to which routes are considered priority and should not be cancelled and which routes should be used to fill a priority trip. We also found OC Transpo's approach, which intends to limit inconvenience to the public, to be reasonable. Superintendents indicated a more extensive list of priority routes that should not be cancelled compared to the SOP. The standard operating procedure should be updated to more closely match the approach in use.

2. Service-Not-Out (SNO) is defined as bus "runs that are not leaving a garage due to no operator or no bus available". OC Transpo has various types of operator substitute: spares (schedule additional/substitute operators); "scroungers" (unscheduled operators who present themselves at a garage looking for one or more pieces of work on their days off); or extras (manned buses already on the street at strategic relief point locations waiting for work to come up). SNO Operator (no operator available to be assigned to known open work) is initially managed by dispatch's booking officers who attempt to fill any unfilled trip using spares; "scroungers"; or extras. Scheduling the right number of spares is important to limit impact to the public and costs such as overtime. OC Transpo computes the percentage of total spares to pieces of work (subset of bus trips in the block that form an operator's shift) and has established that their service reliability is greatest with a "spare compliment" of approximately 21%. Although we did not audit this target (percentage of spares compared to total work), we found that they operated within 3%-4% of the spare compliment target of 21%.
3. Cancellation alerts are not issued as promptly as they could be, and at times, are issued after the next scheduled bus should have gone by. For the period May 1 to May 15, 2014, 33% or 150 out of 453 cancellation alerts were sent out 20 minutes after the scheduled first stop of the cancelled route. The lack of prompt alerts decreases the usefulness of the information which could have assisted transit users in planning an alternative route or mode of transportation.

## ***Recommendations and Management Responses***

### **Recommendation 1**

**That OC Transpo update their Standard Operating Procedure (SOP) *Transit Supervisor Trip Cancellation Procedure* to match the current practice and clearly identify all possible priority trips that should not be cancelled and ensure consistent handling for transit supervisor.**

### **Management Response**

Management agrees with the recommendation. It is OC Transpo's goal to initiate a review of the SOP on an annual basis. A change in process would also initiate a

review of an SOP and may be completed prior to the annual review. A review of the Transit Supervisor Trip Cancellation Procedures SOP will be completed by the end of Q2 2015. Required changes, to ensure the SOP matches current practice, will be implemented.

### **Recommendation 2**

**That OC Transpo provide more timely notice of cancellation, especially when the waits for the next available service is lengthy.**

### **Management Response**

Management agrees with the recommendation. Providing timely information to minimize the impact on customers is a priority for the Transit Operations Control Centre. There are operational issues, such as traffic collisions and vehicle breakdowns, which occur that are outside of OC Transpo's control that limit the ability to provide timely notification, however, for service delivery issues that are known in advance, communication to customers will be immediate. In the event that a previously scheduled trip is able to resume operation, an update will be communicated to customers.

### ***Potential Savings***

No potential savings were identified as part of our work.

### ***Conclusion***

We found that OC Transpo has established guidelines and procedures such as the Transit Supervisor Trip Cancellation Procedures; the Service Not Out Report Procedures; and the Updates and Alerts User Guide to inform the cancellation and notification processes. We noted a consistent understanding by both Superintendents and Transit Supervisors as to what service is considered priority and should not be cancelled and which route should be used to fill a priority trip. However, this differed somewhat from the Standard Operating Procedure. As OC Transpo practice is more extensive than the SOP, it would be a good practice to update the procedure to match the current practice.

More timely cancellation alerts would assist transit users in planning alternative routes. We found that alerts were, at times, sent out after the next scheduled bus should have gone by, which in our opinion decreases the usefulness of the information.

Lastly, information captured on the "Booking Analysis Master" is used after each of the four yearly bookings to review spares utilization. Although we did not audit this target (percentage of spares compared to total work), we found that OC Transpo operated within 3%-4% of their spare compliment target of 21%

***Acknowledgement***

We wish to acknowledge our appreciation for the cooperation and assistance afforded the audit team by management.

The following section is the detailed audit report.

## **1.1 Detailed Audit Report**

### **1.1.1 Introduction**

The Audit of OC Transpo Business Strategic Planning Processes was included in the 2013 Audit Plan of the Office of the Auditor General, approved by Council on October 10, 2012. Subsequently, in May 2014, the City Manager, Deputy City Manager, City Operations Portfolio and General Manager of Transit Services were advised that the OAG was deferring part of its work on the audit of OC Transpo's Strategic Planning Process until it is fully implemented but would continue its audit work on two objectives, previously outlined in the audit plan. Specifically, assessing the planning process for OC Transpo Lost and Found (report under separate cover); and, assessing the adequacy of the planning process for cancellation of bus trips, which is the subject matter of the present report. .

### **1.1.2 Background**

OC Transpo is one of the City's largest, most complex business units responsible for the current and future transit needs of residents and visitors. Headed by the General Manager, Transit Services Department, OC Transpo is part of the City Operations Portfolio. Transit Services Department is mandated to deliver safe, reliable, and courteous service at a reasonable price. Currently, OC Transpo provides public transportation on 5,584 km of routes over an urban transit area of 466 sq km and serves approximately 100 million passengers per year with an average weekday ridership of 375,000 passengers. In excess of 1,500 bus operators provide service over a 24-hour period. Day-to-day delivery of transit service is overseen by Transit Operations Branch.

### **1.1.3 Audit Objective**

As specified in the May 2014 ratified audit plan, the objective of the audit was to:

**Assess the adequacy of the planning process for cancelling bus trips.**

#### **Criteria:**

- Determine the adequacy of the planning process for cancelling bus trips; and,
- Determine the efficiency and effectiveness of the planning process and how bus trips are cancelled including the rationale and basis (such as utilization, capacity, or other methods).

### **1.1.4 Audit Scope**

The scope of the audit was limited to the planning of cancelled bus trips.

### **1.1.5 Approach**

The approach used for this audit included:

- Interviews with staff involved in the cancellation process;
- Review of documentation; and,
- Analyse data relating to cancellation over a two week period in May 2014.

### **1.1.6 Detailed Findings, Observations and Recommendations**

#### **1.1.6.1 Criteria:**

Determine the adequacy of the planning process for cancelling bus trips

##### **1.1.6.1.1 Transit Supervisor Trip Cancellation Procedures**

Transit Operations Branch is responsible for managing the delivery of reliable and efficient transit services to Ottawa residents.

Cancelled trips are a result of unplanned service disruptions that occur at any time and requires on-street adjustment(s) and reallocation of bus and/or operator resources.

There are numerous reasons why a bus trip may be cancelled. Sometimes, an unplanned event such as an illness, an operator's lateness, or a lack of buses, can cause a route to be unmanned. OC Transpo refers to these as SNO "service not out".

OC Transpo has various types of operator substitute: spares (schedule additional/substitute operators); "scroungers" (unscheduled operators who present themselves at a garage looking for one or more pieces of work on their days off); or extras (manned buses already on the street at strategic relief point locations waiting for work to come up). SNO is first managed by dispatch's booking officers who attempt to fill any unfilled trip using spares; "scroungers"; or extras. When dispatch booking officers are not successful in finding replacement operators or buses, they hand over the matter to the Transit Operations Control Centre.

Broadly speaking, the role of the Superintendents - Transit Operations is split between two important responsibilities – managing all Transit Supervisors both in the Control Centre or those located in strategic relief point locations across the City and ensuring the reliability of the transit service for the public. Superintendents informed us that they only focus and react to service in the upcoming half hour.

The OC Transpo Control Centre serves as the main location from which Superintendents and Supervisors control the various aspects of the transit system as well as make operational decisions regarding unplanned serviced disruptions.

During peak periods, two Superintendents - Transit Operations, oversee approximately six Transit Supervisors who monitor between 100 and 150 buses each. In addition, one

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Supervisor dealing specifically with service-not-out; and, one Coordinator of Communications work in the Control Centre. The Superintendent informed us that collectively the Control Centre's Supervisors were monitoring approximately 750 buses on the street during peak-periods. The Control Centre relies on Traffic Management for camera imagery at intersections; and GPS technology that permits the Supervisors to monitor where each bus should be and whether they are on-time, ahead of or behind schedule.

As such, Transit Supervisors in the Control Centre ensure that the transit service is reliable and functioning on-schedule. They communicate with both bus operators; and, on-the-street Supervisors to ensure smooth operation. Whereas on-street Supervisors, located throughout the City, solve problems and respond to bus operators emergencies.

One Control Centre Transit Supervisor is solely responsible for managing "Service-Not-Out" and ensuring priority routes are covered by either frequent transitway routes such as 95 or by finding replacement operators. Specifically they deal with scheduling problems, such as missing operator or bus, identified by Dispatch. The SNO Transit Supervisor may use extras or operators returning their bus back to a garage to fill a trip. At the end of his/her shift the SNO Transit Supervisor completes the Daily Coverage Report (SNO) which is provided to approximately 130 different email accounts which includes all management.

In September 2013, OC Transpo established a Standard Operating Procedure (SOP) "Transit Supervisor Trip Cancellation Procedure" to ensure consistent handling by Transit Supervisors to cancel trips, as required. The SOP makes clear that school trips, rural routes, a last trip on a route or excessive headway gap on a route (headway gap could be considered the arrival time e.g., the time it takes for a following bus to pass through the same specific location as the lead bus) are considered priorities not to be cancelled.

We found that there is a consistent understanding by both Superintendents and Transit Supervisors as to what service should or should not be cancelled and which route should be used to fill a priority trip. Superintendents related to us a more elaborate list of priority routes that should not be cancelled compared to the SOP. Specifically, Superintendents included:

- express routes with a waiting time of greater than 20 minutes;
- express route 76 during rush hour only because they have a 40 minutes wait for the next service;
- back-to-back trips (two trips scheduled one after the other); and,
- elaborated that long headway meant no gaps between buses greater than 30 minutes.

We found that this differed from the Standard Operating Procedure (SOP) Transit Supervisor Trip Cancellation Procedures. The Procedures states to “Verify priority of trip, e.g. school trips, rural route, last trip, excessive gap” and defines priority trip as “any trip that is identified as [sic] a school trip, a rural route, a last trip or when headway gap is excessive for the route is a priority to be covered”. As OC Transpo practice is more extensive than the SOP, it would be a good practice to update the Procedure to match the current understanding.

### **Recommendation 1**

**That OC Transpo update their Standard Operating Procedure (SOP) *Transit Supervisor Trip Cancellation Procedure* to match the actual practice and clearly identify all possible priority trips that should not be cancelled and ensure consistent handling for transit supervisor.**

### **Management Response**

Management agrees with the recommendation. It is OC Transpo’s goal to initiate a review of the SOP on an annual basis. A change in process would also initiate a review of an SOP and may be completed prior to the annual review. A review of the Transit Supervisor Trip Cancellation Procedures SOP will be completed by the end of Q2 2015. Required changes, to ensure the SOP matches current practice, will be implemented

#### **1.1.6.2 Criteria:**

Determine the efficiency and effectiveness of the planning process and how bus trips are cancelled including the rationale and basis such as utilization, capacity, or other methods.

##### **1.1.6.2.1 Utilization Analysis**

Throughout the year, OC Transpo analyses its utilization by garage. Information on spares, “scroungers”, service such as work, late out, service-not-out, etc., is captured on the *Booking Analysis Master* and used on a daily basis after a booking to review the utilization of spares.

“Scroungers” are unscheduled operators who present themselves at a garage looking for one or more pieces of work on their days off. As by definition, “scroungers” are not scheduled. OC Transpo has informed us that their service reliability is greatest with a “spare compliment” target of approximately 21%. We did not audit the 21% target which represents the number of spares as a percentage of total work booked.

Management informed us that when each booking cycle is completed, they compute the number of spares. From our review of quarterly booking spreadsheet for the period April 2011 to June 2014, we found that the percentages of spares ranged from 17.8% in

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September 2012 to 25.6% in September 2011 and that OC Transpo operated within 3% of their spare compliment target of 21% except for September quarters were they operated within 4%. This is consistent with management explanation that spare compliment percentage fluctuates seasonally in both amount of work to be booked as well as vacations which informs their need to hire, and/or react to other operational needs.

### ***1.1.6.2.2 Reasons and Communication of Cancelled Trips***

There are approximately 30 codes to track the reasons for cancelled trips.

Management informed us that approximately 80% of cancelled trips relate to five categories: on-street adjustments; mechanical failures; operator spread (the total time from the start of an operator's shift to its end, whether a bus is in service or not); SNO no operator/no buses; and accidents/collisions.

Transit users can be informed of cancellations and/or delays via various mechanisms. While in transit, they can stay informed of changes through MyTransit mobile app; 560-560 text message service which confirms departure times, some of which are adjusted with GPS data; text alerts; OTranspo.mobi; and by calling an automated system 613-560-1000 plus the 4-digit unique bus stop identifier. Automated and GPS-based services, such as 560-560 text message service and the MyTransit mobile app, automatically take into account cancelled trips in the information they provide to customers, in real-time, as soon as the service is adjusted. The text alert service, on the other hand, relies on manual intervention by staff to forward the alert information to subscribed customers.

For the period May 1 to May 15, 2014, OC Transpo provided us a database of 457 trip cancellations made up of 453 cancellation alerts; 3 back-in-service alerts; and 1 next schedule trip not indicated. Based on the alerts reviewed, we found 35 priority routes cancellations. Specifically,

- 4 instances of back-to-back trip cancellation (8 bus trips);
- 2 rural route (series 200) cancellation;
- 24 alerts where cancellation was between 30 to 59 minutes for the next service;
- 4 alerts with next service 1 hour later; and,
- 1 last trip cancellation.

In three of the four alerts where the next service was 1 hour later, the alerts were sent very close to the cancelled service - specifically 9 minutes after; 1 minute before; and 3 minutes before - which provide very little warning for a transit user to make alternative arrangements. We also noted that the alert for the last trip was sent 26 minutes after the start of the route.

In addition, we noted that only 29% or 132 alerts were sent out prior to the start of the trip; compared to 324 alerts received after the start of the trip's first stop (one alert did not have a first stop time). For the period May 1 to May 15, 2014, 33% or 150 out of 453 cancellation alerts were sent out 20 minutes after the scheduled first stop of the cancelled route. Since in many cases, the next bus was scheduled to have gone by under the 20 minutes threshold, there is no real advantage to having sent out these alerts. The lack of prompt alerts decreases the usefulness of this particular tool to assist transit users in planning an alternative route or mode of transportation.

### **Recommendation 2**

**That OC Transpo provide more timely notice of cancellation, especially when the waits for the next available service is lengthy.**

### **Management Response**

Management agrees with the recommendation. Providing timely information to minimize the impact on customers is a priority for the Transit Operations Control Centre. There are operational issues, such as traffic collisions and vehicle breakdowns, which occur that are outside of OC Transpo's control that limit the ability to provide timely notification, however, for service delivery issues that are known in advance, communication to customers will be immediate. In the event that a previously scheduled trip is able to resume operation, an update will be communicated to customers.

#### **1.1.7 Potential Savings**

No potential savings were identified as part of our work.

#### **1.1.8 Conclusion**

We found that OC Transpo has established guidelines and procedures such as the Transit Supervisor Trip Cancellation Procedures; the Service Not Out Report Procedures; and the Updates and Alerts User Guide to inform the cancellation and notification processes. We noted a consistent understanding by both Superintendents and Transit Supervisors as to what service is considered priority and should not be cancelled and which route should be used to fill a priority trip. However, this differed somewhat from the Standard Operating Procedure. As OC Transpo practice is more extensive than the SOP, it would be a good practice to update the procedure to match the current practice.

More timely cancellation alerts would assist transit users in planning alternative routes. We found that alerts were, at times, sent out after the next scheduled bus should have gone by, which in our opinion decreases the usefulness of the information.

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Lastly, information captured on the “Booking Analysis Master” is used after each of the four yearly bookings to review spares utilization. Although we did not audit this target (percentage of spares compared to total work), we found that OC Transpo operated within 3%-4% of their spare compliment target of 21%.

### **1.1.9 Acknowledgement**

We wish to acknowledge our appreciation for the cooperation and assistance afforded the audit team by management.