



Audit of the Toronto Transit Commission's Streetcar Overhead Assets: Strengthening the Maintenance and Repair Program to Minimize Asset Failures and Service Delays

TTC Board Decision

The TTC Board, at its meeting on November 22, 2023, adopted the following:

It is recommended that the TTC Board:

1. Request the Chief Executive Officer, Toronto Transit Commission, to support continuous improvement and increase streetcar service reliability by:
 - a. Reassessing and strengthening existing policies and procedures in Streetcar Overhead Operations to provide more criteria and clarity on the nature and extent of the root cause analysis and investigation required for service delays;
 - b. Determining the root causes for those delays that require investigation according to the policy, in order to prevent the same issues from recurring; and
 - c. Developing and implementing a process in Streetcar Overhead Operations to ensure compliance with the policies and procedures regarding root cause analyses and investigations of service delays.
2. Request the Chief Executive Officer, Toronto Transit Commission, to improve communication and information sharing across relevant streetcar and other departments, in order to support continuous improvements and reduce the number of fail-to-operate switch emergency calls. Information collection and sharing across these departments should include:
 - a. Collecting and tracking appropriate and relevant data regarding fail-to-operate switch emergency calls, including but not limited to switch IDs, number of calls, and their results; and
 - b. Using the data collected to perform root cause analyses and investigations with the goal of reducing the number of fail-to-operate switch emergency calls.
3. Request the Chief Executive Officer, Toronto Transit Commission, to develop and use a centralized database of Overhead Operations' assets across departments (Streetcar Infrastructure, Transit Control, Streetcar Transportation) to ensure Streetcar Overhead Operations is using an accurate and complete asset database, including a centralized switch inventory, to inform their operational decision-making and optimize their resource allocation.

4. Request the Chief Executive Officer, Toronto Transit Commission, to implement policies and procedures in Streetcar Overhead Operations, including oversight and monitoring policies and procedures, to ensure the assets in the Maintenance Schedule are always accurate and complete, and that any required asset changes, additions, and/or removals are made to the Maintenance Schedule on a timely basis.
5. Request the Chief Executive Officer, Toronto Transit Commission, to implement policies and procedures in Streetcar Overhead Operations to ensure all completed work orders are recorded on the Maintenance Schedule, in order to plan, manage, and schedule preventative inspections in an efficient manner that optimizes the use of time and resources.
6. Request the Chief Executive Officer, Toronto Transit Commission, to review, update, and approve all maintenance and inspection policies, procedures, and manuals in Streetcar Overhead Operations to ensure they are accurate, complete, and relevant, and provide training to staff on them.
7. Request the Chief Executive Officer, Toronto Transit Commission, to:
 - a. Review and update the annual preventative inspection targets in Streetcar Overhead Operations on both an annual and as-needed basis; and
 - b. Establish policies and procedures to provide clear guidance in Streetcar Overhead Operations on which source data and information is needed for the reassessment.
8. Request the Chief Executive Officer, Toronto Transit Commission, to establish and implement standard time expectations for common preventative inspections in Streetcar Overhead Operations and incorporate them into the employee performance evaluation.
9. Request the Chief Executive Officer, Toronto Transit Commission, to install and enable GPS on Streetcar Overhead Operations' non-revenue vehicles to effectively monitor and assess performance.
10. Request the Chief Executive Officer, Toronto Transit Commission, to:
 - a. Ensure policies, procedures and manuals in Streetcar Overhead Operations provide clear directions as to how preventative inspections' activity tasks, results, and observations should be performed (including the measurement method) and documented; and
 - b. Develop and implement an oversight process in Streetcar Overhead Operations (e.g., quality assurance audit program, spot checks, increased supervision) to ensure the accuracy, completeness, and reliability of the documented work orders and consistency of the work performed.

11. Request the Chief Executive Officer, Toronto Transit Commission, to develop and implement formalized processes in Streetcar Overhead Operations to:
 - a. Ensure preventative inspections comply with annual inspection targets; and
 - b. Ensure preventative inspections are scheduled and completed in accordance with Overhead Operations' specified time intervals.
12. Request the Chief Executive Officer, Toronto Transit Commission, to develop and implement policies and procedures in Streetcar Overhead Operations to:
 - a. Provide clear expectations and training as to how crews should communicate and document preventative inspections that are only partially completed; and
 - b. Track and ensure partially completed inspections are appropriately rescheduled to be fully completed.
13. Request the Chief Executive Officer, Toronto Transit Commission, to develop and implement policies and procedures for Streetcar Overhead Operations' preventative and corrective maintenance program, which includes but is not limited to providing:
 - a. A set of criteria for each asset type to determine if corrective maintenance and repair work orders need to be generated, based on risks and implications;
 - b. Clear timing expectations for reviewing completed preventative inspections and generating any necessary corrective maintenance work orders; and
 - c. Clear criteria and timing expectations for the prioritization and completion of corrective maintenance work orders, based on risks and implications.
14. Request the Chief Executive Officer, Toronto Transit Commission, to develop and implement in Streetcar Overhead Operations:
 - a. Standard Operating Procedures that outline the steps to be taken to ensure the measuring tools used by crews during inspections (e.g., calipers) are in good working order; and
 - b. An oversight process to monitor and ensure compliance with the Standard Operating Procedures.
15. Request the Chief Executive Officer, Toronto Transit Commission, to develop a comprehensive Maximo implementation plan to ensure Maximo is implemented as both an enterprise asset management system and workflow process management system for Streetcar Overhead Operations. This implementation plan should include, but not be limited to:

- a. Detailed implementation target dates and timelines; and
 - b. Implementation of Maximo Anywhere to all crews, not just emergency crews.
16. Request the Chief Executive Officer, Toronto Transit Commission, to provide appropriate Maximo training to responsible frontline crews/technicians/staff and management in order to fully leverage existing Maximo technology for Streetcar Overhead Operations.
 17. Request the Chief Executive Officer, Toronto Transit Commission, to review and update Streetcar Overhead Operations' asset inventory and job plans/activity tasks in Maximo to ensure they are complete, accurate, and up-to-date, in order to support the planning and completion of repair and maintenance work.
 18. Request the Chief Executive Officer, Toronto Transit Commission, to develop and implement a process in Streetcar Overhead Operations using Maximo to track the real-time status of work orders to support ongoing work order management and supervision.
 19. Request the Chief Executive Officer, Toronto Transit Commission, to leverage Maximo to collect and track observations from Streetcar Overhead Operations' assets inspections, and information about maintenance and repairs activities, that can be used for data mining and trend analysis to support Key Performance Indicator reporting and inform decision-making.
 20. Request the Chief Executive Officer, Toronto Transit Commission, to improve the Key Performance Indicator reporting for Streetcar Overhead Operations by:
 - a. Establishing clearly defined, appropriate, outcome-focused Key Performance Indicators and targets;
 - b. Developing short- and long-term strategies to meet these targets;
 - c. Regularly reassessing to determine whether Key Performance Indicators and targets need to be revised; and
 - d. Retaining supporting data and verifying the accuracy of data used for Key Performance Indicator reporting, ongoing oversight, and management decision-making.
 21. Forward this report to City Council for information through the City's Audit Committee.

Advice and Other Information

The TTC Board adopted the following member motion:

Direct staff to report to the Audit & Risk Management Committee by the end of Q2 2024 on the state of preventative maintenance for the overhead system, and that the report include a remediation plan, if required.