METROLINX

MEMORANDUM

To: Metrolinx Board of Directors

From: Steve Levene
Chief Operating Officer, Rapid Transit

Date: September 12, 2024

Re: **Operations – Rapid Transit Quarterly Report**

This report provides an update on activity and key milestones in the Operations – Rapid Transit division over the past quarter.

Advancing the LRT Lines

As we progress towards Revenue Service Demonstration (RSD) on the Eglinton Crosstown and Finch West LRTs, our focus remains on ensuring that all required readiness activities are completed in addition to the construction and testing and commissioning. For the last few months, Metrolinx has been holding detailed Operational Readiness Control Room meetings that have been instrumental in ensuring alignment across all business units and with the TTC. In these meetings, teams engage in collaborative planning sessions where upcoming activities are meticulously reviewed to identify opportunities to condense timescales, expose potential blockers, and address emerging challenges. Lean visual management boards are used to provide a clear snapshot of information to facilitate communication, monitor progress, and resolve issues promptly. We have made significant strides, including readiness testing through Day-In-The Life tabletop exercises where participants from various business units are able to strengthen our readiness and response capabilities and ensure alignment with our organizational objectives. To enhance customer experience, customer journey maps have also been conducted on both lines, identifying opportunities to improve and refine different aspects of the LRT journey. These ongoing efforts underscore our dedication to operational readiness, ensuring a seamless transition to RSD and a successful Day 1 launch.

On the Hamilton LRT, Metrolinx is working with the City of Hamilton to finalize a RACI document that conveys different groups' high-level roles and responsibilities during the Operations & Maintenance (O&M) period. This document will help inform Metrolinx's procurement strategy in successfully delivering the project from an O&M perspective and will incorporate lessons learned from the Eglinton Crosstown LRT.

Engineering Development Program

The Metrolinx Engineering Development Program was launched in June 2023 within Operations – Rapid Transit with the goal to mitigate the division's talent risk by building a strong talent pipeline to address immediate and future skills needs. The pilot program consists of 12 Engineering Graduate Trainees (EGTs) who have recently completed their engineering studies.

As of August 2024, EGTs have completed their first year in the program and are currently in the third rotation. Through a recent program check-in, 75 per cent of EGTs received a performance rating of at least "Exceeds Expectations". Based on the success of the program

to date, the Operations – Rapid Transit division is planning to add up to six additional EGTs to the program in 2025, pending budget approval.

Invision Pilot Update

Metrolinx has initiated two pilot projects with Invision AI, an industry partner, to further improve safety targeting Level Crossings and Obstacle Detection. The goals of the pilot projects are intended to collect and automate detection and timing parameters for events such as train approach, gate activation, crossing occupation by train, and gate deactivation; encroachment at the crossing by vehicles and pedestrians; statistics of road vehicles and pedestrians (count, timing and crossing area), and; vehicle length that could be used for revaluating the design vehicle parameter for that location.

The Level Crossings pilot project data modeling and training were completed at the end of August 2024. The engineering team is currently reviewing the preliminary reports generated by the system and are expecting the final dashboard and live alerts to be trialled from September to November 2024. Invision AI will also produce a pilot report in November 2024 detailing the system's overall accuracy for Metrolinx and Transport Canada. The cameras will remain functional until the end of January 2025 to capture performance during heavy snow days, as requested by Transport Canada.

As part of the fleet-based Obstacle Detection pilot, cameras and computers were installed on GO passenger coach Cab 317 at the end of April 2024. Video footage and other sensory information have been provided to Invision AI to begin training the model. Invision AI and Hitachi continue to monitor the onboard equipment and periodically visit the GO passenger coach for data downloads. Metrolinx is expecting to receive reports from the captured footage detailing the classification of obstacle types, locations, speed, and other train parameters by October 2024. Additionally, this pilot will also attempt to confirm signal sightline measurements based on the captured footage. The pilot is set to complete in November 2025. These initiatives contribute to the continued reduction of risk of railway crossings to the public, for which a 20.87 per cent reduction has already been achieved.

Autonomous Testing of Track Infrastructure (ATTI)

On August 7, 2024, Metrolinx formally awarded the contract for the construction of four locomotive mounted autonomous track inspection systems. Each system will consist of laser measurement equipment, high-definition cameras, and laser line scan systems mounted on revenue service locomotives. During regular operations at track speed, the systems will measure the track geometry and rail wear as well as leverage machine vision algorithms to inventory and assess track components such as the rail, ties, ballast and joint bars. The systems will replace current main line geometry measurements done three times per year with dedicated hi-rail equipment and increase the frequency of inspection to weekly or bi-weekly. The resulting data will improve visibility over the condition of the asset and the rates of deterioration. This will improve preventative maintenance planning, reduce the likelihood of temporary slow orders and maintain safe operations over the network.

The program will see the first ATTI system placed into service by December 2025. Following the successful commissioning, including the system's achievement of key performance indicators, the remaining three units will be installed and enter service in 2026.

Respectfully submitted,

Steve Levene
Chief Operating Officer, Rapid Transit