



## **Automated Streetcar Enforcement System**

**Date:** October 29, 2024

**To:** TTC Board

**From:** Chief Strategy and Customer Experience Officer

### **Reason for Confidential Information**

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This report contains information about a trade secret or scientific, technical, commercial, or financial information that belongs to the City or local board and has monetary value or potential monetary value.

### **Summary**

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At the request of the TTC Board at its meeting on September 24, 2024, this report provides an update on the TTC's Automated Streetcar Enforcement System project. In 2021 and 2022, the Province enacted legislation (Moving Ontarians More Safely Act, 2021) and regulations (O. Reg 354/22 and 355/22) to allow the TTC to implement automatic camera enforcement. As indicated in the Board-approved 5-Year Service Plan and Customer Experience Plan, the TTC is examining the use of automated camera enforcement to improve streetcar customer safety. The purpose of automated camera enforcement is to ticket and fine offending motorists that drive past streetcars that are serving a curbside stop. The technology is similar to those used in Red Light Cameras, Automated Speed Enforcement Cameras, and Automated School Bus Stop-Arm Enforcement.

The TTC is currently developing a pilot project to test the efficacy of this technology and to build a better understanding of the scale of the issue. The pilot will bring on vendors to work with the TTC to test and implement an automated camera enforcement system on a limited number of streetcars. No tickets would actually be issued during the pilot period, but will help the TTC determine the final requirements for a potential full rollout. The procurement for vendor partners is already underway, and they are expected to come on board by early 2025. Planning, design, installation, and testing will take place shortly after they are on board, and in-field testing would start by Q2 2026. Once the vendor partners are on board, opportunities to accelerate the schedule will be explored.

### **Recommendations**

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It is recommended that the TTC Board:

1. Receive this report for information.

2. Authorize that the information in the Confidential Attachment to remain confidential until such time as the Automated Streetcar Enforcement System (ASES) Pilot contract is awarded.

## **Financial Summary**

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Funds for this pilot project are included in the TTC's 2024-2033 Capital Budget and Plan under Program 7.1, ITS Systems/Infrastructure Program, Corporate Camera Strategy and Delivery project, which was approved by the TTC Board on December 20, 2023, and by City Council on February 14, 2024.

The total project cost for the Corporate Camera Strategy and Delivery project is approximately \$120.6 million, including costs to the end of 2023 of \$4.5 million, approved cash flow funding of \$6.8 million and unfunded estimates of \$109.3 million in the TTC's 2024-2033 Approved Capital Budget and Plan. Beyond the pilot for streetcar illegal passing, the Corporate Camera Strategy and Delivery project also includes projects like Body-Worn Camera and Special Constable In-Car Camera System.

The Chief Financial Officer has reviewed this report and agrees with the financial impact information.

## **Equity/Accessibility Matters**

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The TTC is strongly committed to making Toronto's transit system safe and accessible to all. The TTC believes all customers should enjoy the freedom, independence, and flexibility to travel anywhere on the public transit system, regardless of ability. The TTC's commitment to providing safe and accessible transit is a key principle in its 2024-2028 Corporate Plan, 5-Year Service and Customer Experience Action Plan, and 5-Year Accessibility Plan.

Since new low-floor streetcars were introduced to the system, replacing the previous high-floor vehicles, customers with mobility devices can now conveniently access this part of the transit network. An automated camera enforcement system will improve the safety of all customers, but will especially help customers with disabilities and seniors who may require more time and care to board and disembark from vehicles.

## **Decision History**

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At its meeting on December 11, 2017, the TTC Board directed staff to work with relevant stakeholders to consider the enforcement of unauthorized use of transit lanes, illegal parking and turning maneuvers that impact transit operations, and the illegal passing of streetcars that are stopped to serve customers.

[Automated Camera Enforcement for Transit Only Lanes and Vehicles Improperly Passing Stopped Streetcars](#)

At its meeting on September 24, 2019, the TTC Board requested the Minister of Transportation to enact amendments to the Highway Traffic Act, 1990, to permit the operation of streetcar enforcement cameras to monitor and enforce traffic violations. [Moving Forward with Streetcar Camera Enforcement to Address Urgent Passenger Safety Concerns](#)

At its meeting on September 24, 2024, the TTC Board approved a motion for automated ticketing enforcement for motorists that fail to stop for open streetcar doors at curbside stops and directed staff to report back on an implementation plan. [Automated Streetcar Cameras](#)

At the same meeting, the TTC Board also approved a motion for TTC staff to report back on the process underway for procuring and installing automated enforcement cameras on all streetcars under the Moving Ontarians More Safely Act and strategies to process all fines issued from these cameras. [Motion on Advancing Automated Streetcar Enforcement to Address Urgent Safety Concerns](#)

## **Issue Background**

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The TTC currently operates 11 daytime streetcar routes, in addition to seven overnight routes. Of the daytime streetcar routes serviced, eight operate in mixed-traffic conditions where customers at curbside stops are required to cross the traffic lane adjacent to the curb to board and alight from streetcars. This operating environment applies to five of the overnight streetcar routes as well. This configuration is unique in Toronto, with only a few other agencies in the world that operate this way.

To ensure that customers are safe when doing so, motorists, motorcyclists, and cyclists are required by law, under the Highway Traffic Act, to stop behind the streetcar once its doors are open. After engagement on the issue with the Province, legislation and regulations were made in 2021 (Bill 282, Moving Ontarians More Safely Act, 2021) and 2022 (Ontario Regulation 354/22 and 355/22) that now allow for the use of cameras to monitor and automatically enforce traffic violations against streetcars.

## **Comments**

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The TTC has long been committed to improving customer safety on the streetcar network. In 2017, the TTC Board sent a letter to the Ministry of Transportation requesting for the Highway Traffic Act to be amended to enable camera enforcement. Since that time, TTC staff have worked with Provincial and City staff to advance the understanding of automatic camera enforcement, including undertaking a proof of concept in 2020. In 2021 and 2022, the Province enacted legislation and regulation changes to allow the TTC to implement automatic camera enforcement. The TTC is now launching a pilot to better understand the actual scale of this safety risk and how to prepare for a full system rollout, including requirements for ticket administration.

### ***Proof of Concept***

To test the efficacy of automatic enforcement camera technology, a proof of concept was completed in 2020. The TTC worked with two vendors and tested a combination of existing technologies that together were able to provide a potential solution for the streetcar illegal passing violations. This included testing cameras and license plate recognition software in a controlled, non-revenue environment that captured different types of offending vehicles in various lighting conditions. Both solutions presented by the vendors for the proof of concept were technically viable since the provided equipment and technology met the requirements. Through this process, the TTC also determined that no single, out-of-the-box solution existed on the market.

### ***Pilot Scope***

Since the proof of concept's completion, the TTC moved to the next phase of the project with the development of a pilot, pending enabling legislation and capital funding being approved. The pilot objective is to test the camera solution in a revenue environment, with streetcars actually in-service on city streets, and develop more accurate designs, timelines, and potential costs for a full rollout. The pilot will also allow the TTC to use the cameras to collect data and better understand the safety concerns about motor vehicles illegally passing streetcars and enforcement requirements. Having more accurate data regarding the issue will help the TTC make an informed decision about a full rollout.

The pilot will implement the camera system on a limited number of streetcars to capture any infringements. Tickets will not actually be administered as part of the pilot. The pilot will also develop and test the process for building evidentiary packages that are required to enforce fines and penalties. The current scope is to test the pilot with special camera-equipped streetcars deployed on routes that operate in mixed traffic for up to 12 months in a revenue environment. A 12-month pilot period will provide sufficient data to understand the safety concerns, quantify the issue, and capture the impact of the different seasonal environments.

### ***Ticket Administration***

As no tickets will be actually issued during the pilot, developing a solution for ticket administration will be a parallel stream of work during the pilot, as will the process for developing integration with other partners, such as the Ministry of Transportation for license plate information. The TTC will be exploring a partnership with the City of Toronto, or another jurisdiction, to use their joint processing centre to facilitate the critical back end ticketing process. Consideration will also be given to using the administrative penalty system.

### ***City of Toronto and Toronto Police Service – Automatic Enforcement Co-ordination***

The City of Toronto is also exploring automated enforcement as part of its Transportation Innovation Challenge (TIC). The purpose of this TIC is to explore the potential to automate the collection of images related to offences, such as illegal travel in priority bus lanes as well as illegal blocking the box, turns and through movements at intersections. The TIC will provide insight into the feasibility, benefits, and limitations of applying automated enforcement to these specific violations.

Toronto Police Service's Parking Enforcement is also leading an initiative for "Traffic Services and Parking Enforcement Solution" that will explore, among other things, using an Automatic License Plate Reader dashcam system to allow Parking Enforcement Officers to automatically gather evidence for potential violations. This application could be extended to illegal occupation of bus priority lanes and other transit facilities.

The TTC will continue to work closely with partners at the City of Toronto and Toronto Police Service to co-ordinate these initiatives with the automated streetcar enforcement system.

### ***Other Transit Agencies***

Melbourne has the most extensive tram network in the world, and about two-thirds of their network is in mixed-traffic operating environments. The majority of the mixed-traffic routes also serve curbside stops where customers cross a traffic lane to board and alight. In 2022, the agency reported 2,630 near misses at their stops, prompting them to launch a safety campaign, "when a tram stops, you stop". Camera enforcement has also been considered, but no plans for implementation have been made.



*Figure 1. Screenshot of Safety Campaign Video by Public Transport Victoria.*

In San Francisco, the L Taraval was the only Muni line where, at most stops, customers board and alight through a live lane of traffic. Since 2019, San Francisco has been upgrading the corridor to now have boarding islands, among other improvements, to improve customer safety.



Figure 2. Image of New Boarding Island/Source: The San Francisco Standard.

### **Implementation Timeline**

The TTC will have vendors on board by early 2025 to initiate the pilot. Throughout 2025 and into 2026, the TTC will work with the vendors to design, build, and implement the camera system on a limited number of streetcars. These streetcars will then be deployed on routes where mixed-traffic conditions exist and customers board and alight from curbside stops. Once the vendor partners are on board, opportunities to accelerate the schedule will be explored. By 2026, these pilot streetcars will be put into revenue service to actually collect data, and to validate and build experience with the camera system. The experience gained from the pilot will form the basis for future recommendations back to the TTC Board on how to proceed for full-scale implementation.

Milestones	Estimated Start
Procurement of Pilot Vendors	Q3 2024
Work with City of Toronto on path for ticket administration and co-ordinate project with other automatic enforcement projects	Q4/2024
Pilot Design, Build and Implementation	Q1/2025
In-Field Testing and Data Gathering	Q2/2026

## **Next Steps**

While the pilot process is underway, the TTC will continue to advance other programs to improve safety for streetcar customers. A safe and secure customer experience is paramount at the TTC. For roadway safety initiatives, the TTC works closely with the City of Toronto to implement Vision Zero. This includes studying and taking any required action on transit stops, with a focus on mid-block stops (i.e. transit stops that are not at signalized intersections or protected crossings).

The TTC is also working with the City to add digital signage advisories on existing city signs to promote streetcar safety. Enhanced road signage, pavement markings, and public awareness campaigns are other tools the TTC will be exploring with City partners to improve roadway safety for streetcar customers. While automatic camera enforcement is an important tool to help shape the behaviour of road users, the TTC will also continue to look at other proactive approaches, including working with the City on integrated streetcar stop designs, where possible. Such approaches are already applied on city cycling projects where potential conflicts with vehicles and cyclists are managed by integrated platform designs where possible.

## **Contact**

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Eric Chu, Head – Project Development and Planning  
416-393-2153  
eric.chu@ttc.ca

Dhaksayan Shanmuganayagam – Chief Information Officer (IT Services)  
416-393-3922  
dhaksayan.shanmuganayagam@ttc.ca

## **Signature**

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Josh Colle  
Chief Strategy and Customer Experience Officer

## **Attachments**

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Attachment 1 – Confidential Information