

# Item 2



For Action

## Audit, Risk and Compliance: Fare Evasion Study (2019)

**Date:** February 11, 2020  
**To:** TTC Audit and Risk Management Committee  
**From:** Head of Audit, Risk and Compliance

### Summary

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In November 2019, the Audit, Risk and Compliance (ARC) Department partnered with the Transit Enforcement Unit and commenced its comprehensive six-week fare evasion study (“study”). Based on the results of our study, the TTC’s overall weighted average fare evasion rate across the TTC network is approximately 5.7%. This will serve as a baseline against which future ARC evasion studies will be measured.

Using the revenue loss estimation method of the City of Toronto Auditor General (AG), this translates into \$65.5 million annually. However, this figure assumes the population of customers that do not pay a proper fare is a percentage of total paid revenue ridership. Recognizing that the population of customers that do not pay a proper fare must be distinct and derived from a calculated Total Ridership (paid and unpaid)<sup>1</sup>, the uncollected revenue figure increases to \$70.3 million:

Mode	Fare Evasion Rate	Uncollected Revenue (2019)	
		(AG method)	(Adjusted) <sup>1</sup>
Streetcar	15.9%	\$19.4M	\$23.0M
Bus	6.3%	\$33.4M	\$34.4M
Subway	2.4%	\$12.7M	\$12.9M
Total		\$65.5M	\$70.3M

Further refinement of revenue recovery estimates will be considered in the future as TTC Finance revisits its average fare rate calculation assumptions. For example, adjusting the 2019 average fare from \$2.25 to \$2.35 to exclude children age 12 years and younger, as they ride for free, would increase the estimated uncollected revenue for 2019 to \$73.5 million.

Fare evasion is a major concern to the TTC as revenue losses contribute to the need for fare increases and create inequities for paying customers. While a certain level of evasion is inevitable, the cumulative impact of significant changes implemented by the TTC since 2010 to improve operational efficiencies, modernize the customer experience and enhance access through fare policy changes have inadvertently increased fare evasion risk. Social media further suggests that knowledge of the TTC’s inspection practices and monitoring the vicinity of TTC Fare Inspectors and Special Constables allows certain customers to circumvent the existing enforcement model.

<sup>1</sup> Total calculated ridership (paid and unpaid) – Streetcar 64.2M; Bus 243.2M; Subway 238.8M

In our professional opinion, the success of a Revenue Protection Strategy is highly dependent on building a fare compliant culture. Specifically, a culture shift towards fare compliance and a reset of social norms are needed to disrupt negative customer behaviour. As such, concentrated efforts to educate our customers and emphasize the importance of tapping and paying proper fares while maintaining equity and respecting the dignity of our diverse customers must continue.

Finally, the visibility of TTC employees can positively impact customer payment behaviour and deter fare evasion. Therefore, enhancing the presence and interaction between TTC representatives and customers to promote awareness of fare policy and consequences of non-compliance is a fundamental element that must be considered as a critical part of the TTC's Revenue Protection Strategy.

## **Recommendations**

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It is recommended that the TTC Audit and Risk Management Committee:

1. Receive this report for information.
2. Forward a copy to the TTC Board for information.
3. Direct Management to report back by the third quarter of 2020 to the Audit and Risk Management Committee on the status of proposed actions in the Comments section of this report.

## **Financial Summary**

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There are no funding implications from the adoption of the recommendations in this report.

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

## **Equity/Accessibility Matters**

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The TTC is committed to promoting and supporting diversity and inclusion in all corporate policies, procedures, processes, programs and services in order to reflect and respond to the needs of our employees, contractors and customers.

Using these guiding principles, ARC designed its fare evasion study to:

- Ensure representative coverage of all riders by using a stratified random sampling technique to select routes and time periods for observation;
- Use pre-defined and objective fare evasion criteria to guide inspections for each mode as follows:
  - Boarding a bus or streetcar without paying or using an invalid fare;
  - Entering a subway station without paying or using an invalid fare; and
  - Entering a subway station through the fare line by pushing open the fare gates, hopping over the fare line barrier, walking behind someone (tailgating) or holding fare gates open.

- Partner with the TTC Special Constables who are well-equipped and specifically trained in diversity and inclusion, mental health awareness, crisis intervention and de-escalation to interact with members of the public; and
- Focus on educating customers rather than enforcement to increase awareness and fare compliance.

## Decision History

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In anticipation of conducting a system wide fare evasion study in 2019 following full PRESTO implementation, ARC identified in its 2018 Flexible Work Plan its intent to first gain a comprehensive understanding of the changes in TTC's fare evasion risk landscape. This involved assessing the impact of introducing the electronic fare payment system (PRESTO), replacing turnstiles with fare gates, implementing other customer centric initiatives aimed to modernize and improve the customer experience (e.g., proof-of-payment and all-door boarding on streetcars), and establishing the Fare Inspection Program in conjunction with the TTC's existing enforcement model.

[http://www.ttc.ca/About\\_the\\_TTC/Commission\\_reports\\_and\\_information/Committee\\_meetings/Audit\\_Risk\\_Management/2018/February\\_15/Reports/4\\_TTC\\_Internal\\_Audit\\_2018\\_Flexible\\_Audit\\_Work\\_Plan.pdf](http://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Committee_meetings/Audit_Risk_Management/2018/February_15/Reports/4_TTC_Internal_Audit_2018_Flexible_Audit_Work_Plan.pdf)

ARC identified in its 2019 Flexible Audit Work Plan, approved by the Audit and Risk Management Committee (ARMC) on February 26, 2019, its intention to support TTC Executive Management in its continuous efforts to reduce fare evasion.

[https://www.ttc.ca/About\\_the\\_TTC/Commission\\_reports\\_and\\_information/Committee\\_meetings/Audit\\_Risk\\_Management/2019/Feb\\_26/Reports/7\\_An\\_Integrated\\_Strategy\\_2019\\_Flexible\\_Work\\_Plan\\_2019.pdf](https://www.ttc.ca/About_the_TTC/Commission_reports_and_information/Committee_meetings/Audit_Risk_Management/2019/Feb_26/Reports/7_An_Integrated_Strategy_2019_Flexible_Work_Plan_2019.pdf)

## Issue Background

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The introduction of proof-of-payment (POP) fare policy and the implementation of PRESTO altered the TTC's fare evasion risk landscape. Since passenger fares represent 97% of the TTC's non-subsidized operating revenue, the TTC loses millions of dollars each year when customers use the system without paying. Losses due to evasion significantly impacts annual funding requirements and threatens the TTC's financial sustainability. Recognizing these risks, the Fare Inspection Program was implemented in 2014 with the goal of providing customer service while focusing on fare policy compliance and POP enforcement.

In 2018, the City of Toronto Auditor General (AG) conducted a review of the efficiency and effectiveness of the TTC's controls to minimize revenue loss from fare evasion, including its Fare Inspection Program. According to the AG's report, fare evasion across the TTC was estimated to be 5.4%. This equates to approximately \$61 million in annual revenue loss due to fare evasion. An additional loss of \$3.4 million was attributed to the malfunctioning Metrolinx equipment. A total of 27 recommendations were provided by the AG and endorsed by the Board to address the TTC's revenue loss issues.

## Comments

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### **Methodology and Results**

The objectives of ARC's study were to obtain data on fare evasion incidents by mode, estimate an overall TTC fare evasion rate for the entire network and provide further insight to the root causes of revenue losses from fare evasion.

ARC employed a stratified random sampling technique<sup>2</sup> to measure fare evasion during our study period. To ensure representative coverage, we made sample observations across all service hours, taking into account passenger boarding data by mode and route, and by time of day and the day of the week.

To estimate an overall and representative fare evasion rate, ARC staff observed TTC Special Constables in plain clothes conducting proof-of-payment inspections and enforcement activities. The observations took place between November and December 2019 on 186 streetcars (9 routes), 117 buses (52 routes) and 38 subway stations for a total of 196 observation hours. We also reviewed security camera footage for second entrances at 24 subway stations to observe illegal entries.

TTC Special Constables provided corrective instructions rather than enforcement to educate each passenger who failed to show valid proof-of payment and issued Provincial Offense Notices (tickets) for fraudulent use of PRESTO child cards and other serious incidents of non-compliance. For example, tickets were issued to streetcar customers who had been given a warning for no valid proof-of-payment and were immediately identified boarding the next streetcar without paying. ARC staff recorded the number of passengers inspected and classified each incident according to the confirmed type of fare evasion.

Although research suggests that a small segment of a population is likely to defraud, regardless of the actual or perceived controls in place and the consequences, our study revealed that fare evasion can be triggered by multiple factors within the transit system. Existing infrastructure and operational factors such as fare policies, vehicle characteristics and use of barriers can effect passengers' motivation and ability to evade fares. However, more importantly, we noted the importance and impact the visible presence and proximity of TTC employees (i.e. Fare Inspectors, Special Constables, Operators, Collectors) have on customer behaviour and the opportunities to leverage interactions to continuously educate customers and encourage fare compliance.

Fare enforcement can effectively detect evasion but the goal should be to maximize preventative efforts to reduce occurrence. Certain circumstances such as crush-load/overcrowding conditions and non-POP route inspection restrictions impede the TTC's

<sup>2</sup> Statistical Accuracy

- Streetcar fare evasion rate at 15.9%, accurate to plus or minus 0.8%, 19 times out of 20
- Bus fare evasion rate at 6.3%, accurate to plus or minus 0.9%, 19 times out of 20
- Subway fare evasion rate at 2.4%, accurate to plus or minus 0.2%, 19 times out of 20

ability to optimally identify customers that do not pay a proper fare through fare enforcement alone. Therefore, the TTC must adopt a comprehensive approach to address root causes and pursue strategies that will not only deter people from not paying their fair share but promote a customer culture of fare compliance.

### **Detailed Observations**

#### *Streetcars*

The highest segment of fare evasion was noted on streetcars (15.9%) where the majority of customers did not pay as they boarded the vehicles. However, customers entering through doors that are nearer to the operator compartment were observed to be more compliant in tapping and paying their correct fares. This suggests that the All-Door-Boarding policy and the structural design of newer Low Floor Light Rail Vehicles (LFLRVs) which places the operator in a separate compartment, diminishes customer interaction and increases the risk of fare evasion.

Routes utilizing the newer LFLRVs also resulted in higher evasion rates in comparison to those that operated with legacy streetcars (Canadian Light Rail Vehicles or CLRVs) and replacement buses. Again, this is likely because operators are more visible to boarding customers on these alternative vehicles.

At times, out of service PRESTO reader devices and on-board fare payment machines (i.e., Single-Ride Vending Machines / SRVMs) impact passengers' ability to pay. During our study, PRESTO readers were available 95% and SRVMs 84% of the time. However, we noted incidents where customers claimed the machines were not working although they had made no attempt to pay using the machines.

The sampled route (508 Lake Shore) with the highest number of observed evasion incidents was likely due to the infrequent inspections historically conducted on remote locations along this route. This suggests that the visible and consistent presence of Fare Inspectors encourages passengers to tap. This was corroborated by ARC's early fall 2019 customer tapping behaviour study on 504 King and 501 Queen Streetcars. Therefore, regular and increased fare inspection coupled with strategic deployment initiatives that take into consideration the recent retirement and replacement of legacy streetcars with LFLRVs is encouraged to create a strong presence to deter fare evasion on all streetcars.

#### *Buses*

Front-door boarding only and visible operator presence and interaction on buses likely explains the lower evasion rate of 6.3% in comparison to streetcars. Passengers boarding without paying and fraudulent use of PRESTO child cards were the most prevalent types of fare evasion observed on buses. While the TTC has stopped the distribution of promotional child cards, they are still available through third party vendors and online sales (i.e. Kijiji, Craigslist) that advertise PRESTO cards with "unlimited taps". ARC continues to monitor and report these ads for removal. Efforts to work with concession card distributors and implement controls over the issuance of multiple child

cards and to ensure child cards being purchased are utilized solely for children age 12 years and under must continue.

The safety of operators is a TTC priority. To avoid potentially unsafe altercations with customers that do not pay, operators have been instructed to enforce fares by educating customers on the appropriate fare, explaining where fare media may be obtained, and to document where fare dispute and evasion occurs by pressing the fare dispute button on their VISION console. TTC Special Constables continue to respond to operators reporting escalated safety concerns as part of the 'Bringing Uniform Support to Surface Operating Personnel' (BUSSTOP) program. While initiatives to leverage fare dispute and BUSSTOP data to inform future deployment strategies are being pursued, further work is required to corroborate and correlate these and other sources of data, as well as to ensure the consistent use of the function by all operators.

Future implementation of proof-of-payment with all-door-boarding on buses may negatively impact customer tapping behaviour as seen on streetcars. Regular fare inspections and BUSSTOP deployment of TTC Special Constables may deter evasion on buses once the proof-of-payment policy has been implemented. Addressing the current limitation of Special Constable authority in the Regional Municipality of York to allow inspections to be conducted on bus routes that operate north of Steeles may also address potential fare evasion along these routes.

### *Subways*

The overall evasion rate for subway main entrances (1.9%) and secondary entrances (4.9%) is the lowest amongst all modes due to the fare gate barriers that largely control passenger access to the system. However, following closely behind tapping customers (i.e. tailgating), entering through the open dedicated legacy fare media line without paying and fraudulent use of PRESTO child cards were the most common types of evasion noted in subway stations.

The new fare lines in TTC stations are known for their improved customer friendly appearance and experience but have structural design risks. Paddle-style gates in place of turnstiles more readily allow fare evasion tactics such as tailgating and lower waist-height barriers and fare gates can be easily jumped over. The evasion rate for subway secondary (unattended) entrances is more than double that of the main entrances where collector booths are located. This suggests that the visible presence of collectors and customer service representatives deter passengers from evading. Therefore, efforts should be made to ensure mobile customer service agents provide a constant presence at fare lines to the extent possible. The impact of using customer facing cameras to encourage fare compliance will be more evident following an analysis of pilot project results.

Non-transferrable passes issued to employees and pensioners are also at risk of being abused. Three instances of fraudulent use were noted during our study, two at a station and one on a bus. These incidents are being further investigated by the TTC's Investigative Services.

## **Management Considerations**

Management should consider the following actions to reduce fare evasion:

*Develop adaptable strategies to align with revenue recovery targets:*

- Consider commissioning a study that will provide insight into the root causes that contribute to fare evasion behaviour. In the interim, research and leverage the results of published behavioural studies on the motivation to commit similar crimes (e.g., shoplifting or petty theft) to inform holistic revenue protection strategies;
- Continue to work with Metrolinx to secure a modified fare product that aids in distinguishing between adult and child card usage;
- Emphasize in public communications that fare evasion unfairly impacts paying customers and is a crime of theft that carries significant consequences – so message they “should do the right thing and pay their fair share”. Consider a wider outreach with multilingual materials, use of Public Announcements and configurable VISION audio and visual messages on vehicles to continually prompt passengers to pay/tap;
- Reduce customers’ intentional avoidance and the predictability of fare inspections through the increased use of plain clothes inspections;
- Re-assess the existing fare structure to potentially:
  - Offer one equitable flat-rate monthly pass for all customer groups;
  - Implement a more simplified zone fare policy required for passengers travelling north of Steeles Avenue to pay for York Region Transit fares. In the interim, management should review the ability to request York Region Transit to support fare inspection activities on routes serviced by TTC vehicles;
  - Simplify the proof-of-age eligibility requirement for the youth concession; and
  - Re-introduce the child fare. In the interim, institute an annual child card concession renewal requirement to help reduce fraudulent use of PRESTO child cards.
- Encourage community involvement and engage academic institutions, private sector entities, not-for-profit organizations and police out-reach services to develop a variety of initiatives focused on minimizing fare evasion risk factors. For example, seek the support of high school authorities (i.e., School Trustees or Administrators) to discuss the TTC’s expectations for fare compliance and consequences for fare evasion.
- Develop corporate and institutional programs that offer PRESTO card volume incentives to promote transit use as part of corporate social responsibility and Green initiatives; and
- Strategically position TTC Customer Service Agents (CSAs) and temporary Customer Service Representatives (CSRs) at high risk subway entrances to help deter evasion and clarify expectations and opportunities for these resources to continuously educate customers and encourage fare compliance.

*Improve operational agility to suit changing evasion conditions:*

- Improve PRESTO reader device and fare payment machine availability and reliability, and offer additional payment options (i.e. open payment) to support passengers who wish to pay every time;

- Leverage the TTC Special Constable Service's Community Engagement Unit to collaborate with school authorities to address youth and student fare evasion behaviour;
- Address and respond in a timely manner to customer comments and operator concerns regarding observations of potential fraudulent behaviour. Leverage the TTC's social media presence (i.e. Twitter) and Special Constable Service's (BUSSTOP) program to provide increased and relevant support to customers and operators alike based on reported fare evasion concerns; and
- Re-assess future plan to implement all-door-boarding on buses in light of increased fare evasion risk.

*Pursue technological improvements and active use of big data to identify areas of greater evasion concern:*

- Continue to work with Metrolinx to prioritize improving the performance of Handheld Point of Sale (HHPOS) devices;
- Refine Scheidt & Bachmann GmbH (S&B) fraud event codes to better represent instances of fare gate fraud;
- Continue to leverage big data, improve its accuracy and correlate information to make risk-based revenue protection decisions, as well as identify and address vulnerabilities based on tracked results. For example, correlations between high risk bus routes, fare dispute key data and TTC Special Constable Service's BUSSTOP deployment data should be analyzed to inform revenue protection strategies; and
- Monitor and publicly report the impact of fare evasion reduction and revenue protection strategies by measuring changes in evasion trends. Key performance indicator results can inform changes to customer communications, policies, procedures, etc.

## **Contact**

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## **Signature**

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