

PRESTO SERVICE DESIGN STANDARD

MX-PYM-STD-005

Revision 00
October 2025

PRESTO SERVICE DESIGN STANDARD

MX-PYM-STD-005

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Preface

This is the first edition of the Metrolinx PRESTO Service Design Standard.

This document is for use by Transit Agencies, Metrolinx Payments internal teams, designers, consultants and contractors involved with the planning, design, and construction of projects where fare payment via the PRESTO fare system is in scope. It is intended for suitably qualified professionals that are familiar with the subject matter. This document is not a substitute for all applicable local codes, standards, and manuals.

The Metrolinx PRESTO Service Design Standard (MX-PYM-STD-005) was developed by the Metrolinx Payments Customer Experience & Channel Products Office, Payments (PRESTO) Division, Metrolinx.

Suggestions for revision or improvement can be sent to Metrolinx Payments Division, Attention: Director, Payments Customer Experience & Channel Products. The Director, Payments Customer Experience & Channel Products, ultimately authorizes the changes. A description of the proposed change shall be included along with information on the background of the application and any other useful rationale or justification. Proposals for revisions or improvements to include your name, company affiliation (if applicable), email address, and phone number.

October 2025

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1. INTRODUCTION

1.1 OBJECTIVES

The PRESTO vision is “Easy payments connecting seamless journeys.” The standards document supports this vision by describing PRESTO service and device offerings and providing guidance on how they should be deployed to serve current Clients (Transit Agencies) and customers (i.e., transit riders). This document includes:

- a) A PRESTO system overview;
- b) An overview of PRESTO devices and their capabilities; and
- c) Requirements and considerations for deploying PRESTO in a variety of transit environments.

This document will support four key objectives:

- a) **Consistency:** Ensure consistency across environments to meet customer expectations and support the formation of successful customer habits;
- b) **Efficient Planning:** Provide a central source of information to simplify the decision-making for TAs and project teams throughout the planning process of infrastructure projects;
- c) **Effective Design:** Ensure all PRESTO devices are designed into built transit environments in a manner that ensures PRESTO services are inclusive of the needs of various customer segments, while providing users with an experience which is easy to use and safe; and
- d) **Future-Proofing:** Plan with consideration for anticipated shifts in PRESTO technology as well as customer needs and behaviours.

It should be noted that the PRESTO system is being modernized to provide a more scalable and integrated end-to-end experience for both Customers and TA Clients (see 1.3 PRESTO Modernization).

Where appropriate, this document will reference other Metrolinx Standards and Guidance (see 1.2 Related Metrolinx Design Standards).

1.1.1 AUDIENCE

The document is focussed on three key audiences:

- a) Transit agencies (TAs) onboarding to PRESTO;
- b) Infrastructure projects building new transit environments; and
- c) PRESTO internal teams working on infrastructure projects.

For these audiences, this document will:

- a) Inform early discussion on expectations with relevant reference information on:
 - 1) PRESTO features;
 - 2) Fare products;
 - 3) Fare logic features; and
 - 4) PRESTO devices.
- b) Provide guidance on the minimum number of devices in various transit environments and their placement.

1.1.2 GUIDING DESIGN PRINCIPLES

Metrolinx has identified six design principles that serve as overarching values to inform and guide the development of the regional customer experience. From a fare payment context, these principles are as follows:

- a) **Seamless:** The PRESTO payment experience is well-connected, convenient, and frictionless to keep customers “on the move;”
- b) **Intuitive:** The PRESTO payment experience shall be easy to use, predictable, and consistent throughout the service area;
- c) **Inclusive:** The PRESTO payment experience shall meet the diverse needs of all customers regardless of age, gender, ability, income, or familiarity with the system;
- d) **Safe:** The PRESTO payment experience shall be designed to ensure customers feel secure throughout their end-to-end journey, at any time of day and any location;
- e) **Reliable:** The PRESTO payment experience shall be designed to support reliability through ease of maintenance and operations, durable assets, and a consistent customer experience from end to end; and
- f) **Thoughtful:** The PRESTO payment experience shall be customer-centric, personalized, and future-proofed. Thoughtful consideration is given to address pain points and create a positive, innovative, and pleasing experience.

1.1.3 REQUIRED VS. GUIDANCE SECTIONS

The sections and sub-sections of this document are marked as either “**Required**” or “**Guidance**.”

The “**Guidance**” sections are provided as background reference. The “**Required**” sections include requirements that shall be met by the service design for specific situations.

1.2 RELATED METROLINX DESIGN STANDARDS

This document shall be used in conjunction with relevant Metrolinx Design Standard Documents and applicable standards, regulations, and requirements, including but not limited to the following. The latest version shall always be followed. **Where this document differs from other Metrolinx design standards differ, the most stringent requirements shall be followed.**

- a) **Metrolinx GO Design Requirements Manual (DRM)**
Along with Metrolinx Design Standards, the DRM outlines the standard requirements and technical details for designing and building GO stations, terminals, and facilities.
- b) **Metrolinx Design Standards**
 - 1) **Metrolinx DS-02 Universal Design Standard**
The standard for ensuring accessibility by people with disabilities for transit projects planned, designed, and built by Metrolinx, including GO Transit, UP Express, PRESTO and Rapid Transit projects, such as Light Rail Transit (LRT) and Bus Rapid Transit (BRT);
 - 2) **Metrolinx DS-03 Wayfinding Design Standard (and Implementation Manuals)**
The standard for signage in Metrolinx developed stations and stops, referring to PRESTO devices, includes common signage symbols;
 - 3) **Metrolinx DS-04 GO Station Architecture Design Standard**
The standard for planning, designing, and building/retrofitting GO Stations across the network;

- 4) **Metrolinx DS-08 GO Bus Park & Ride Design Standard**
The standard for public-facing elements of the GO Bus Park & Ride, including requirements for future development and renovations to existing GO Bus Park & Rides.
 - 5) **Metrolinx DS-09 Subway Station Architecture Design Standard**
The standard for Metrolinx developed subway lines and extensions (e.g., Ontario Line, Scarborough Subway Extension, Yonge North Subway Extension, Eglinton Crosstown West Extension);
 - 6) **Metrolinx DS-11 Third-Party Entrance Connection Requirements**
The standard for third-party entrance connections to Metrolinx stations, including LRT, Bus, Subway, and GO Transit rail. From a fare payment perspective, the document is clear that the third-party connection must include appropriate fare equipment unless such equipment is already provided on the path of travel from the connection to the platforms;
 - 7) **Metrolinx DS-12 Pedestrian Flow Modelling Design Standard (DRAFT)**
This standard outlines the standard requirements and technical details to analyze and plan for pedestrian circulation within all Metrolinx stations, terminals, and facilities;
 - 8) **Metrolinx DS-13 Light Rail Transit (LRT) Architecture Design Standard**
This standard establishes requirements to ensure a consistent design expression and customer experience that can be applied coherently across the LRT network in different station and stop contexts; and
 - 9) **Metrolinx DS-27 Bus Rapid Transit (BRT) Architecture Design Standard**
This standard is intended to ensure consistent, seamless, safe, and inclusive customer experience and a highly functional and maintainable transit environment for Metrolinx BRT assets.
- c) **MX-BT-STD-001 Business Technology Telecommunication and Systems Standards**
This document defines the Metrolinx Business Technology requirements related to new build and retrofitted facilities, including specification standards for telecommunications rooms, cabling, and telecommunications racks. This document also defines the Metrolinx Business Technology requirements for systems that must be installed and commissioned for new construction or retrofit projects. These specifications are related to systems, including close-circuit TV cameras (CCTV), public announcements (PA), two-way communication (Intercom), Fare Devices, and Wi-Fi;
- d) **Metrolinx Payments (PRESTO) Technical Standards**
Note: It is essential to engage with Metrolinx Payments (PRESTO) prior to finalizing a design. Contact PaymentsInfrastructure@metrolinx.com. To date, the standards developed or under development include:
- 1) MX-PYM-STD-01: Payments (PRESTO) Add Value Machine (AVM) Standard
 - 2) MX-PYM-STD-02: Payments (PRESTO) Station Fare Transaction Processor (SFTP) Standard
 - 3) MX-PYM-STD-03: Payments (PRESTO) Station Point of Sale (SPOS) Standard
 - 4) MX-PYM-STD-04: Payments (PRESTO) Sigma Ticket Vending Machine (S-TVM) Standard
- e) **Transit Fare System Strategy (2016-2021): Supporting Self-Serve;** and
- f) **GO External standards to which Metrolinx adheres include:**
- 1) **Accessibility for Ontarians with Disabilities Act (AODA) Integrated Accessibility Standards**
 - 2) **Canadian Standards Association (CSA) Standards**
 - I. CSA-B651.2 - Accessible Design for Self-Service Interactive Devices; and
 - II. CSA-B651 - Accessible design for the built environment.

1.3 PRESTO MODERNIZATION

Several PRESTO strategy documents exist or are in development to guide the modernization effort. These include:

- a) PRESTO Device Strategy;
- b) PRESTO Digital Channel Strategy; and
- c) PRESTO Fare Products Portfolio Strategy.

1.3.1 PRESTO FARE PRODUCT MODERNIZATION

1.3.1.1 Current State (as of July 2024)

- a) Most PRESTO customers still use the stored-value **PRESTO physical card**;
- b) **PRESTO in Mobile Wallet** (PRESTO in Apple Wallet and PRESTO in Google Wallet) is available across the GTHA. This product is not available on OC Transpo;
- c) **PRESTO Contactless** ("Open Payments" with Credit and Debit Cards) is available across the GTHA and Para Transpo in Ottawa. OC Transpo's conventional service uses a separate 3rd party Open Payments system branded O-Payment;
- d) For customers who have not adopted PRESTO and are using **Cash**, there are **NFC Tickets** limited use media (on TTC only) and paper **proof-of-payment (POP) tickets/receipts** (including paper transfers);
- e) The **PRESTO E-Tickets app** serves Hamilton Street Railway (HSR), Durham Region Transit (DRT), Oakville Transit and MiWay. QR code validation is used to ensure E-Ticket activation.

1.3.1.2 After the PRESTO digital transformation

Most customers (est. ~80% within 8-10 years) are expected to use one of the PRESTO digital media options:

- a) **PRESTO in Mobile Wallet** (PRESTO in Apple Wallet and PRESTO in Google Wallet);
- b) **PRESTO Contactless**, often with a credit or debit card in a mobile wallet (Apple Wallet or Google Wallet); and
- c) **PRESTO E-Tickets**, with QR code validation.

The remaining customers (est. ~20%) will use either:

- a) Account-based **PRESTO physical card** (especially used for low-income programs and customers with less access to technology);
- b) **Proof-of-payment (POP) tickets/receipts** purchased at vending devices.

1.3.2 PRESTO DEVICE MODERNIZATION

There are currently four payment device product lines in the PRESTO system:

- a) **Fare Payment Devices** - PRESTO readers at stations and on-board vehicles to process fare payments (includes station fare gates, mobile fare payment devices and the mobile fare payment App);
- b) **Self-Serve Fare Vending Devices** - PRESTO vending machines at stations/stops or onboard vehicles for customers to self-serve their purchase of fare or load fare media;
- c) **Point of Sale (POS) Devices** - PRESTO devices at stations, retail locations, or onboard vehicles to assist operators in selling, loading, or troubleshooting fare media; and
- d) **Inspection Devices** - PRESTO handheld device used for fare inspection and enforcement.

While periodic enhancements have been made since PRESTO devices were first installed over a decade ago, a major device modernization initiative is underway with short-term and long-term activities.

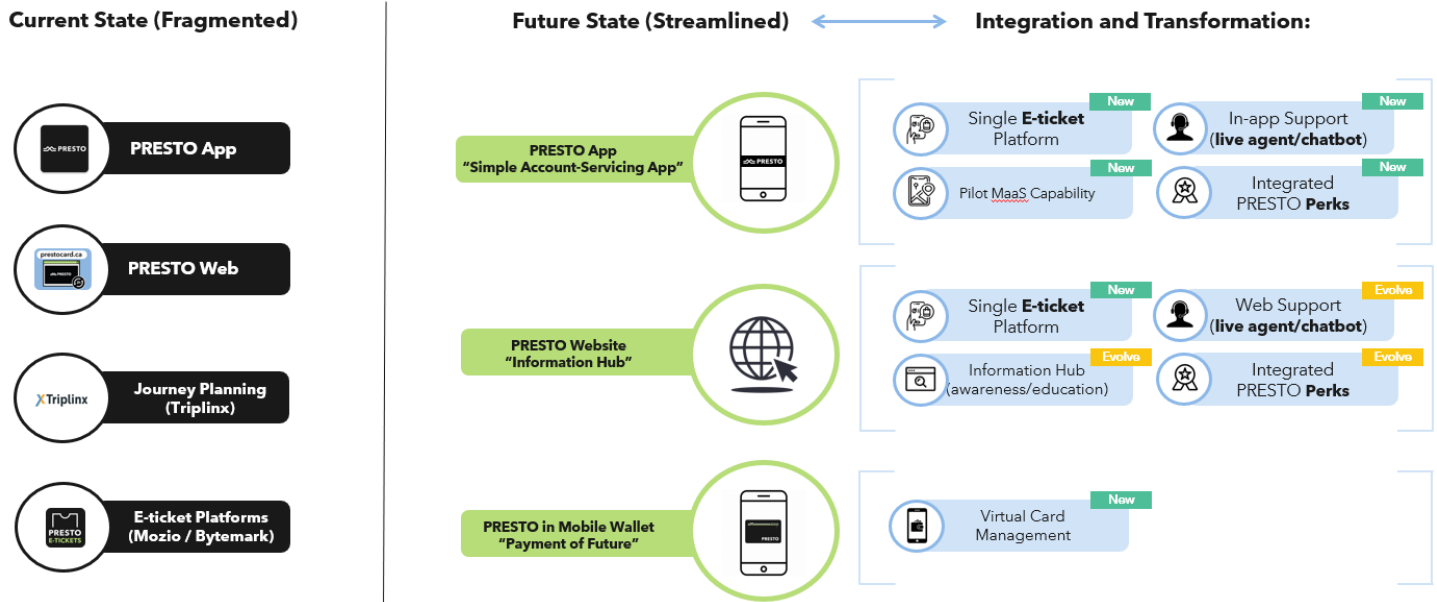
Table 1: PRESTO Modernization Timeline

Device Product Lines	Short-Term Device Modernization (1-2 years) Supporting the new PRESTO fare options (e.g., E-Tickets, Contactless and Mobile Wallet Card)	Long-Term Device Modernization (3-10 years) A PRESTO device marketplace will be developed with solutions certified by Scheme
Fare Payment Devices	a) PRESTO Contactless (the ability to pay with physical credit and debit cards and cards in mobile wallets - Apple Pay/Google Pay) and PRESTO E-Ticket QR code scanning will be widely supported; b) PRESTO shall finish the device refresh process with TTC; and c) The mobile fare payment app (MFPA) used by specialized transit services has been standardized and ready to replace the current mobile fare payment device (MFTP).	a) Digital fare media and Open Payment technologies are supported system-wide by all validators and fare gates; b) Optical scanners are included in the reader solution to support QR-coded E-Tickets; c) A standardized Mobile Payment App will be enhanced to support commercial off-the-shelf (COTS) devices; and d) New emerging sensor technology may be introduced. Validator equipment must be upgraded to automatically capture fare payment without requiring customer action. Certain types of field equipment (e.g., sensors) will still be required to capture and transmit the transaction data to the central system.
Self-Serve Fare Vending Devices	a) PRESTO has awarded a new vending machine vendor, which will support multi-tenancy (i.e., one type of kiosk will be capable of supporting multiple TAs); and b) As PRESTO E-Tickets and contactless payments increase adoption, it will reduce dependence on vending machines for paper ticket purchases.	a) Kiosk functions will be further streamlined; b) Digital fare media and mobile should further reduce dependence on kiosks; and c) Kiosks may be required within fare-paid zones to facilitate system-wide tap-off and distance-based fare policies.
Point of Sale (POS) Devices	a) An enhanced MPOS will support roaming station agents and retail channel locations.	a) The station desktop POS device will gradually be replaced by a mobile POS device, which can support roaming station agents.
Inspection Devices	a) New handheld device will be introduced with an external reader for higher throughput and PRESTO Contactless support; and b) The PRESTO Contactless inspection feature will be enhanced and adopted by TAs. The same handheld device hardware will be used for validation and POS applications.	a) Inspection becomes a device App for multiple compatible and certified devices; b) The same handheld device should be able to download and use other PRESTO fare payment and POS applications; and c) Inspectors can use one device for multiple tasks.

1.3.3 PRESTO DIGITAL CHANNEL MODERNIZATION

PRESTO is also embarking on an ambitious strategy to improve, de-fragment and extend its digital offerings. Instead of being primarily a physical farecard, PRESTO will streamline and integrate its new and existing digital channels.

Figure 1: PRESTO Digital Channel Modernization



2. PRESTO SYSTEM OVERVIEW: CUSTOMER FEATURES

This section is **Guidance**.

2.1 PRESTO CUSTOMER NEEDS

PRESTO products and services provide the following core values to customers:

Convenience

- a) No need to carry cash;
- b) No need to know the current fare cost and transfer rules of each transit agency;
- c) No need to purchase fare media or acquire paper transfers when travelling across transit agency boundaries; and
- d) Ability to pay with preferred payment type (e.g., cash, debit card or credit card).

Confidence

- a) The option to have transit funds set aside (i.e., PRESTO Card e-purse balance);
- b) The option to automatically reload funds (i.e., Autoload) or transit passes (i.e., Autorenew); and
- c) Having transit fare media that is accepted and reloadable across transit agencies.

Value

- a) Use a fare type (e.g., Senior, Youth) or transit pass product (e.g., TTC Adult Monthly Pass);
- b) Receiving discounts when transferring between transit agencies; and
- c) Receiving discounts based on loyalty or travel frequency.

2.1.1 CUSTOMER SEGMENTS

A set of customer segments is being developed based on customer payment source preferences (i.e., cash, debit card or credit card) and technology comfort (i.e., in-person, kiosk, online or contract). The interim segments are:

Table 2: PRESTO Customer Experience Segments (Nov 2023 Data)

Segments	Customer Share (%)	Balance Between Frequent and Occasional Riders	Non-Adult (%)	Credit-Debit (%)
Kiosk Debit/Credit Loaders	27	More occasional	19	55 - 45
Online Loaders	20	Balanced	27	91 - 9
PRESTO Contactless	18	More occasional	0	52 - 48
In-Person Debit/Credit Loaders	12	More frequent	42	44 - 56
Set & Forget Loaders (Autoload & Autorenew)	10	More occasional	22	Not available
In-Person Cash Loaders	7	More frequent	40	Cash
Kiosk Cash Loaders	6	Similar frequent and occasional	23	Cash

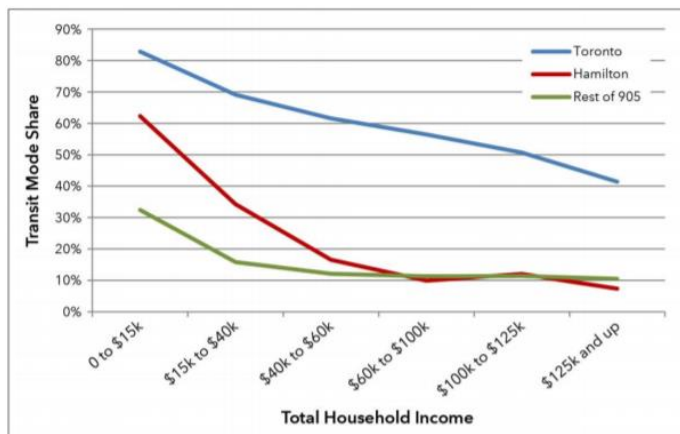
2.1.2 EQUITY AND ACCESSIBILITY CONSIDERATIONS

An important consideration for the PRESTO fare system, especially as modernization proceeds, is to ensure that equity and accessibility are enhanced for traditionally underserved groups, especially members of low-income households and people with disabilities.

2.1.2.1 Low-Income Customers

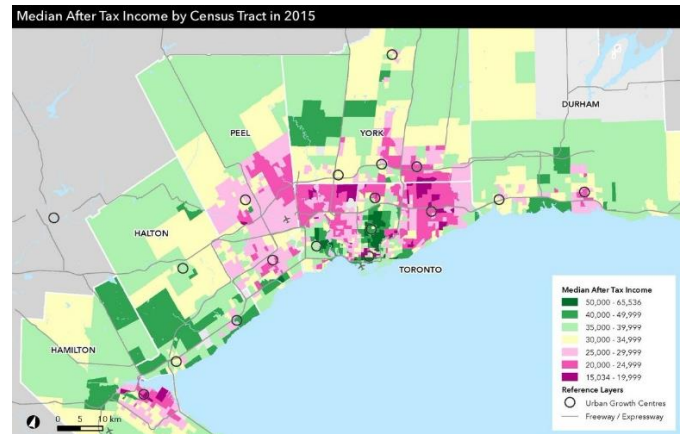
A focus on low-income customers is important from a revenue standpoint because members of low-income households are significantly more likely to travel by public transit (Figure 2), and also from a public policy perspective, because access to public transit enables access to employment, education and training, social connections, and healthcare. Furthermore, low-income neighbourhoods are distributed throughout the Greater Toronto and Hamilton Area (Figure 3) and the Ottawa region, which is a concern for all TAs.

Figure 2: GTHA Transit Use by Household Income (2016)



Source: University of Toronto Data Management Group, 2016 Transportation Tomorrow Survey.

Figure 3: Distribution of Low-Income GTHA Households (2015)



The PRESTO fare system already provides many benefits to low-income transit customers:

- Extensive discounts for inter-transit agency transfers.** Transfers amongst the 905 transit agencies have been free for some time. The Ontario One Fare program has introduced free transfers between the 905 agencies and the TTC. Transfers between GO Transit and the 905s/TTC are also free, whereas transfers from 905s/TTC involve the GO Transit fare being discounted by the amount of the proceeding 905/TTC leg.
- Budgeting assistance:** Ability to set aside a transit budget separate from other expenses;
- Variety of loading options:** Paper tickets or tokens can generally only be purchased in-person;
- In-person service option:** Ability to load in-person (for those who live/work near a retail or TA service location);
- Lost card balance protection:** Immediate protection when a registered card is lost, stolen or damaged;
- Overdraft:** Free 1-ride overdraft credit for registered PRESTO physical cards;
- Shareable:** Members of a household may typically share a card if they qualify for the same fare type;
- Low minimum loads:** \$0.05 via web, app, retail, and TA customer service; and
- Fare and balance display on tap-on:** Enables easy tracking of balance.

Some additional PRESTO features are options that TAs can enable:

- Facilitates automated **low-income discount programs**:
 - TTC Fair Pass;

- DRT Transit Assistance Program;
 - Halton Subsidized Passes for Low Income Transit (SPLIT) Program – Burlington Transit, Oakville Transit;
 - HSR Fare Assist;
 - OC Transpo Equipass;
 - Peel Affordable Transit Program - Brampton Transit, MiWay; and
 - YRT Transit Assistance Program;
- b) **Time-based unlimited transfers:** Enables hop on/off and quick return trips (e.g., TTC 2-hour transfer);
- c) **Capping:** Monthly/weekly spending is capped, so there's no need to risk buying a transit pass that might not be worth it (the cap can be set higher than the pass cost to encourage that option for frequent riders);
- d) **Daily cap:** Caps a rider's daily transit spend on a transit agency;
- e) **Time-of-day pricing:** Allows the provision of off-peak prices;
- f) **Additional types of passes:** e.g., a reduced-cost midday monthly pass for seniors;
- g) **Inter-TA discounts:** e.g., the free co-fare arrangement between GO Transit and the 905 agencies, free transfers between the 905 agencies, and the up-coming One-Fare TTC transfer program in 2024; and
- h) **Bulk tickets (TTC only):** Bulk NFC tickets are ordered by social service agencies for distribution to the clients they serve. These agencies are concerned about the price point, minimum order levels and expiry dates.

There are several areas in which improvement is required (and in some cases underway):

- a) **Filling retail geographic gaps:** In too many areas, retail locations (or in-station load points) are not within reasonable walking distance;
- b) **Low-income fare types and cross-boundary travel:** Currently, the low-income support programs that PRESTO enables use TA-specific fare types, meaning there is a challenge when crossing a boundary. A universal fare type would enable more affordable travel across boundaries for work, school, appointments, etc.;
- c) **Reducing PRESTO costs to customers** (e.g., card cost, minimum load, etc.). This was improved in August 2023, when the price of a new PRESTO card was reduced from \$6 to \$4.

2.1.2.2 Customers with Disabilities

Fare payment is a key step in the end-to-end transit customer experience. Hence, ensuring fare payment via PRESTO is accessible to customers with disabilities is crucial to enabling accessible public transit. That can only be accomplished by ensuring that the various PRESTO customer channels are accessible to people with a broad range of disabilities.

The PRESTO approach to accessibility is to:

- a) **Follow applicable legal requirements** (e.g., Accessibility for Ontarians with Disabilities Act - AODA regulations) and design standards (e.g., CSA Accessible Kiosks) and require conformance in all procurement requirements. For example, providing Braille labels and audio modes for customers with visual disabilities;
- b) **Seek "Universal Design" opportunities** that result in better customer experiences for everyone (referred to as "curb-cuts"). For example, PRESTO's large, bold white-on-black text is easier to see with low vision and by all customers (Figure 4);
- c) **Gather input from customers with disabilities** (e.g., Metrolinx AAC, TTC-ACAT, end-user testing); and
- d) **Maintain in-house accessibility testing expertise** to double-check vendor claims.

Figure 4: Examples of Accessible Design Features: Braille “p” on the PRESTO Physical Card (Left), Braille Labels on the SFTP (Centre), High Contrast Tactile and Braille Labels on the FVM (Right)



2.2 PRESTO FARE PRODUCTS

2.2.1 OVERVIEW

A range of transit fare products are available via PRESTO sales channels and accepted by PRESTO fare payment devices, including machine-readable fare products (Table 3) and visually inspected fare products (Table 4). Additional options are being developed (Table 5).

Table 3: Machine-Readable PRESTO Fare Products

Fare Media	Description	Products/Settings Supported	Transit Agencies
 PRESTO Physical Card (Stored-Value)	A closed loop Near Field Communication (NFC) smart card that enables customers to load funds and transit passes, set a fare type, earn discounts, and view their transit history. The card is tapped on a fare transaction processor to pay a fare. Proof of payment is stored on the card. PRESTO physical cards are purchased for \$4.00 plus the minimum load in the purchase channel. Unlike an account-based system, the “ledger of record” is the card. There are delays as action lists (e.g., Web loads) are sent down to payment devices, and transaction lists (e.g., fare payments) are sent back to the central system.	Fare Types: PRESTO physical cards can be set to <u>one</u> of a variety of fare types: either a universal type (e.g., senior) or a TA-specific type. Customers must visit a retail location or complete a TA-prescribed process (e.g., for the TTC Fair Pass). E-purse: Customers can load funds and pay for transit fares out of this balance. Transit Passes: Passes (weekly, monthly, etc.) offer free travel within the period. TAs specify pass types and costs. Transit passes may be fare type-specific (e.g., senior) and/or service type-specific (e.g., “Premium”). Discounts (Loyalty, Capping, Co-Fare): TAs can specify discounts after either a given spend (Capping) or a given number of rides (Loyalty) within a specified period. TAs may also specify discounts when transferring to or from another TA (co-fare).	All GTHA and Ottawa: • Brampton Transit • Burlington Transit • DRT • GO Transit • HSR • MiWay • Oakville Transit • OC Transpo • TTC • UP Express • YRT

Fare Media	Description	Products/Settings Supported	Transit Agencies
 PRESTO Card in Mobile Wallet	A PRESTO Card that can be stored in a mobile wallet (Apple Wallet or Google Wallet). The system is account-based, with the cards acting as “credentials” to access account information stored in the PRESTO Central System account. This enables transactions to occur in real-time. Customers can either convert a physical card to a mobile wallet card (after which the physical card is blocked), or a new mobile wallet card can be provisioned for free.	Includes most of the same features as the PRESTO physical card, including: • E-purse; • Transit Passes; • Fare types; and • Discounts. There are some differences: • Fare Types: PRESTO in Mobile Wallet Cards can be set to one universal type (e.g., senior) and also one TA-specific type per TA. Customers must visit a retail location or complete a TA-prescribed process (e.g., for the TTC Fair Pass); • No self-serve vending machine loading; and • No overdraft, even if registered.	PRESTO in Apple Wallet: All GTHA transit agencies. Not OC Transpo. PRESTO in Google Wallet: All GTHA transit agencies. Not OC Transpo.
 PRESTO Contactless (Open Payment)	Customers can pay for transit by tapping their Debit or Credit cards in physical or virtual form (e.g., Apple Pay, Google Pay) on PRESTO fare payment processors.	Discounts (Loyalty, Capping, Co-Fare): Supported. Fares: TTC, GO Transit, and UP Express charge the PRESTO adult fare. The 905s charge the adult cash fare. Registration: Customers can register their credit/debit card to make it easier to access their transaction history. No Fare Types: Adult-only at launch. No Transit Passes: Not present at launch.	All GTHA transit agencies, as well as Para Transpo (OC Transpo’s specialized service)
 NFC Tickets	NFC Tickets are non-reloadable limited-use media (LUMs) that must be used before expiration. The expiry date may be printed on the ticket (if dispensed by a vending machine). They are designed to be tapped like a PRESTO card and retained as proof of payment. NFC Tickets can be queried on PRESTO FVMs to check if they are active, and the expiry date. The TA is identified on the ticket.	Rides or Period Passes: Supports multi-ride balance (not e-purse) or period pass products. Products are set to the specifications of the TA. The TTC currently sells the following products: - 1 Ride ticket - 2 Ride ticket - Day pass Fare Types: Adult-only at Retail and vending machines. Bulk NFC Tickets (for social agencies) include Youth and Senior versions.	• TTC only (FVM, retail MPOS)

Fare Media	Description	Products/Settings Supported	Transit Agencies
 PRESTO E-Tickets	The PRESTO E-tickets apps (iPhone/Android) or web portal enable customers to purchase digital tickets. E-Tickets must be activated on the app prior to boarding. The app must be online to purchase a ticket, but it can be off-line when activating a ticket stored on the device (prior to travel). Inspection is either visual or via a QR code (determined by the TA).	Fare Types: When TAs set up the e-ticket offerings, they can describe eligibility conditions (e.g., a senior ticket). When customers purchase a product, they are agreeing the eligibility conditions. The operator may verify these on boarding or by a fare inspector. Transit Passes: TAs can create e-tickets that remain active for a given time period (i.e., transit passes). Group Travel: Supported if enabled by TA. Easy Remote Distribution of Rides: Tickets may also be sent between customers (both sender and recipient must be online). A B2C capability is also available to allow organizations to purchase and distribute tickets to end users.	• HSR • DRT • Oakville Transit • MiWay

Table 4: Visually Inspected PRESTO Fare Products

Fare Media	Description	Products/Settings Supported	Transit Agencies
 Proof-of-Payment (POP) Tickets/Receipts	Paper media, purchased at time of travel, provides the customer with a printed record that a fare was paid, in case of inspection. A time stamp is printed on this media, and the “clock is ticking” as soon as this product is dispensed. The TA is identified on the ticket.	1-Ride or Period Passes (e.g., Day Pass): Products are set to the specifications of the TA. Fare Types: Fare types (senior, etc.) can be self-selected. Group Travel: Supported if enabled by TA (e.g., a “family” ticket)	• GO Transit (DCU, TVM, SPOS) • UP Express (TVM, SPOS) • 905s (DCU) • TTC (SRVM)

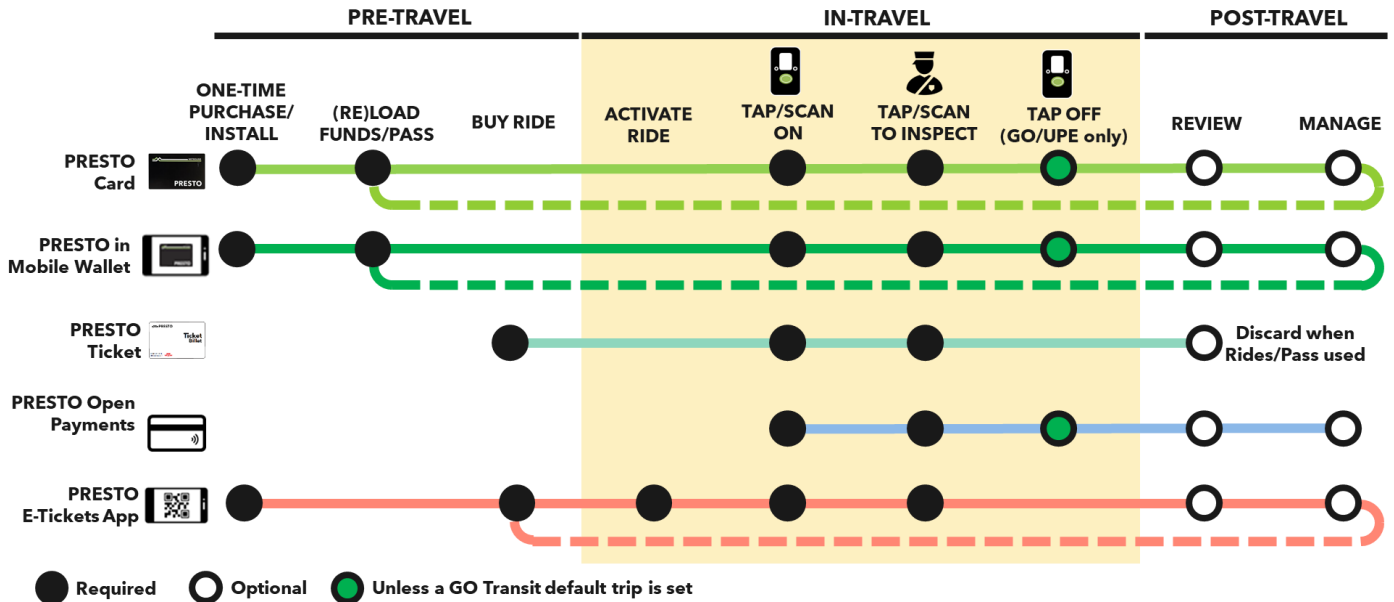
Table 5: PRESTO Fare Products Under Development

Fare Media	Description	Products/Settings Supported	Timeline
 PRESTO Physical Card (Account-Based)	The PRESTO physical card is only a “credential,” enabling access to the balance, transactions, etc., stored in a PRESTO Central System account. Transactions and settings changes occur (and are available across all channels) in real-time. The intention is to convert rather than replace the existing cards held by customers.	Will include the same features as the PRESTO physical card (Stored-Value), including: • E-purse, • Transit Passes, • Fare types, • and Discounts.	Planned for 2025/2026.
 Machine Readable Transfer	A machine-readable transfer product (QR code on paper) for TTC is under consideration. The QR code will enable it to open subway faregates.	This is a POP with a transfer window that will begin at purchase.	The timeline is still TBD

2.2.2 PRESTO FARE PRODUCT CUSTOMER JOURNEYS

The PRESTO fare products primarily differ regarding the **pre-travel** purchase/loading experience and the available **post-travel** review and management options. The **in-travel** experience with all machine-readable PRESTO fare products is relatively uniform, with all products either tapped or scanned at boarding and again when inspected.

Figure 5: Machine-Readable PRESTO Fare Product Customer Journey Steps



PHASE 1: PRE-TRAVEL

Pre-travel includes deciding on the fare product to use and, if applicable, purchasing and loading it or buying rides.

Table 6: Pre-Travel Customer Journey for Machine-Readable PRESTO Fare Products

Fare Media	One-Time Purchase/Install	(Re)Load Funds/Pass	Buy Ride
PRESTO Physical Card	Customers can purchase their card in advance (e.g., online, through a retail outlet) or at the time of travel (e.g., at self-serve fare vending devices or in-station customer service counters).	- Fare vending devices - PRESTO website (Delayed) - PRESTO app - Retail - TA Customer Service - Autoload/Autorenew (set up with website or app)	Not Applicable
PRESTO Card in Mobile Wallet	Customers must add a PRESTO card to their mobile wallet via the Apple Wallet or Google Wallet apps or via the PRESTO app. The wallet apps are usually pre-installed, but the PRESTO app must be downloaded and installed.	- PRESTO app - Retail - TA Customer Service - Autoload/Autorenew (set up with app) - Apple Wallet or Google Wallet app	Not Applicable

Fare Media	One-Time Purchase/Install	(Re)Load Funds/Pass	Buy Ride
PRESTO Contactless (Open Payment)	Not Applicable	Not Applicable	Not Applicable
NFC Tickets	Not Applicable	Not Applicable	- Fare vending devices (FVM only) - Retail
PRESTO E-Tickets	Customers must download and install the (free) PRESTO E-Tickets app for their iPhone or Android smartphone.	Not Applicable	Buy e-tickets with the app.

PHASE 2: IN-TRAVEL

In-travel includes tapping/scanning to board a vehicle. It also may include having a fare inspected and tap-off.

Table 7: In-travel Customer Journey for Machine-Readable PRESTO Fare Products

Fare Media	Tap/Scan On	Tap/Scan to Inspect	Tap Off (GO/UPE Only)
PRESTO Physical Card	Customers must present the card alone (not in a wallet) to the PRESTO reader "tap target."	Customers must present the card alone (not in a wallet) to the Inspector's PRESTO reader "tap target."	Customers must present the card alone (not in a wallet) to the PRESTO reader "tap target."
PRESTO Card in Mobile Wallet	Customers must present their smartphone/watch to the PRESTO reader "tap target." Android or Apple phones with Express Transit set up must be woken up.	Customers must present their smartphone/watch to the Inspector's PRESTO reader "tap target." Apple or Android phones with Express Transit set up must be woken up.	Customers must present their smartphone/watch to the PRESTO reader "tap target." Apple or Android phones with Express Transit set up must be woken up.
PRESTO Contactless (Open Payment)	Customers must present the credit or debit card alone (not in a wallet) to the PRESTO reader "tap target." Cards in Apple or Google Wallets are accepted.	Customers must present the credit or debit card alone (not in a wallet) to the Inspector's PRESTO reader "tap target." Cards in Apple or Google Wallets are accepted.	Customers must present the credit or debit card alone (not in a wallet) to the PRESTO reader "tap target." Cards in Apple or Google Wallets are accepted.
NFC Tickets	Customers must present the ticket alone (not in a wallet) to the PRESTO reader "tap target."	Customers must present the ticket alone (not in a wallet) to the Inspector's PRESTO reader "tap target."	Not Applicable

Fare Media	Tap/Scan On	Tap/Scan to Inspect	Tap Off (GO/UPE Only)
 PRESTO E-Tickets	Customers must “activate” the purchased e-ticket from the app (no data required if the e-ticket is on the device) The customer then selects the barcode button and presents the barcode on the screen to the fare payment device’s barcode reader.	The customer selects the barcode button and presents the barcode on the screen to the fare inspector’s barcode reader.	Not Applicable

PHASE 3: POST-TRAVEL

Post-travel includes reviewing travel history to verify charges, managing settings or resolving problems.

Table 8: Post-travel Customer Journey for Machine-readable PRESTO Fare Products

Fare Media	Review	Manage
 PRESTO Physical Card	- Fare vending devices - PRESTO website (Delayed) - PRESTO app (Delayed) - PRESTO Call Centre IVR (Delayed) - Retail - TA Customer Service	- Fare types can be set (at Retail or TA Customer Service). - GO Transit customers can use a “default trip.” - Customers can register their card (and create a PRESTO account if registering online). - With an account, customers can: - Transfer lost cards balance protection; - Save a payment method; - Setup Autoload/Autorenew. - Customers may also register for balance protection via a paper form or by phone.
 PRESTO Card in Mobile Wallet	- PRESTO app - Apple Wallet or Google Wallet app - PRESTO Call Centre IVR - Retail - TA Customer Service	- Fare types can be set (at Retail or TA Customer Service). - GO Transit customers can set a “default trip.” - Customers can register their card (and create a PRESTO account if registering online). - With an account, customers can: - Transfer lost cards balance protection; - Save a payment method; - Setup Autoload/Autorenew. - Customers experiencing issues can reach the PRESTO contact centre via call, text chat or web form.

Fare Media	Review	Manage
 PRESTO Contactless (Open Payment)	• PRESTO website • PRESTO app	• GO Transit customers can set a "default trip." • Customers can register their card (and create a PRESTO account if registering online). • With an account, customers can: ○ View cards together ○ View more activity history. • Customers experiencing issues can reach the PRESTO contact centre via call, text chat or web form.
 NFC Tickets	• Fare vending devices (FVM only) • PRESTO app	• Customers experiencing issues can reach the PRESTO contact centre via call, text chat or web form.
 PRESTO E-Tickets	• PRESTO E-Tickets app	• Customers can view travel history, etc. • Customers experiencing issues can reach the PRESTO contact centre via call, text chat or web form.

2.2.3 REGISTERED VS. ANONYMOUS USE

Anonymous customers use a PRESTO physical or mobile wallet card that has not been added to a PRESTO account. They can load funds and passes from all PRESTO channels; however, there are PRESTO features that they cannot access. Many customers prefer a low level of engagement with PRESTO and travel spending and are simply unaware of PRESTO accounts and features. There is also a subset of customers who choose to remain anonymous for privacy reasons or because the digital nature of the PRESTO account does not meet their personal needs, such as cash loading or maintaining a low level of technological integration in their lives.

Registered customers are those who have created a PRESTO account and use a PRESTO physical or mobile wallet card (or contactless credit or debit card) that has been added to that account or who have registered a PRESTO card via a paper form (available from the PRESTO website or sometimes pre-printed by TAs). Completing these actions provides customers with a set of new management and loading options.

- Overdraft:** All registered PRESTO physical cards automatically provide an overdraft function, which allows customers to go into a negative balance for one trip, including transfers on the same service class type. Note: Overdraft is unavailable when paying for the UP Express or GO Transit base fare. PRESTO on Mobile Wallet Cards does not enable routine overdraft for registered cards, although overdraft may still occur if a device is off-line, and a low balance card is tapped;
- Autoload (for Funds):** This feature allows customers to set up automatic e-purse loads in their desired amount whenever their e-purse balance drops below an amount specified by the user; and
- Autorenew (for Transit Passes):** This feature allows customers to create automatic purchases of transit passes either indefinitely or until a specific end date is reached. The passes available are defined by the TA, and the fare type is set to the card.

Table 9: Comparison of Anonymous vs. Registered PRESTO Physical Card Features

Features		Anonymous	Registered
Information Setting	Login information	Must type card number at Web/App login	PRESTO card information is saved in account
	Payment information	Must enter payment info with each Web/App transaction	Option to save a preferred Web/App payment type
Loading	Load e-purse	YES	YES
	Purchase monthly pass	YES	YES
	Autoload	NO	YES
	Autorenew	NO	YES
	Save a preferred payment	NO	YES
Maintenance	Set fare type	YES	YES
	View transaction/travel history on vending machines	PRESTO Physical Card: The last 10 fare payments and 5 loads.	PRESTO Physical Card: The last 10 fare payments and 5 loads.
	View transaction/travel history on PRESTO website	PRESTO Card: No history Contactless: 7-day history	PRESTO Card: 2-year history Contactless: 6-month history
	View transaction/travel history on PRESTO app	PRESTO Card: No history Contactless: 7-day history	PRESTO Card: 90-day history Contactless: 90-day history
	Download travel history reporting	NO	YES
	Lost card balance protection (includes funds, passes, settings)	NO	YES
	Overdraft	NO	YES (Physical card only)
	PRESTO App notifications (low balance, pass reminder)	NO	YES

2.3 PRESTO FARE TYPES

2.3.1 PRESTO CARD FARE TYPES

A PRESTO Card is set with a fare type (previously referred to as “concessions”) that the fare processor uses, in conjunction with the TAs fare table and other information (e.g., time of day for “time of day pricing”), to determine the fare to charge. All PRESTO cards default to the adult fare type when purchased.

A stored-value PRESTO Card can only be set to one fare type. This can be **either** one of the universal fare types (Table 12) or one TA-specific fare type. Outside of the TA, a card with a TA-specific fare type will be recognized as an adult fare type. This is a drawback when TAs use TA-specific fare types to provide special pricing to customers who may also qualify for special fare type pricing in other regions. For example, a fare type for people over 80 is possible within a TA, but when that card is used on another TA, it will be charged the adult fare rather than a Senior fare.

Account-based PRESTO products (e.g., PRESTO in Mobile Wallet) enable multiple fare types. For example, an 82-year-old Hamilton resident could set an HSR-specific “Golden Age” fare type for travel within Hamilton (eligibility 80+ years old) and a universal “Senior” fare type (eligibility 65+ years old) for travel on any other TA.

Table 10: Universal PRESTO Card Fare Types

Universal Fare Types	Eligibility Criteria	Proof Required at Inspection
Adult	Ages 20 to 64 (inclusive)	N/A - This is the default fare type.
Child	Ages 6 to 12 (inclusive)	Proof of age required
Youth (previously "Student")	Ages 13 to 19 (inclusive)	Photo ID with date of birth required
Post-Secondary	Enrolled full-time at a post-secondary institution; however, TAs have different policies and application procedures.	Depends on the TA (e.g., TTC requires customers to carry TTC photo ID)
Senior	Ages 65 or older	Photo ID with date of birth required

Reference: Scheme Register V.1 SGC Approved_12 16 19 (2)

The processes and conditions needed to be met by customers to permit different fare types are established by each TA. PRESTO currently does not support the ability for customers to set their own fare type at a kiosk, on the website or via the PRESTO app. Fare types are set by SPOS, MPOS and TPT devices at TA customer service outlets, Retail, and 3rd party customer service channels.

Potential Future Opportunities:

- Fare Harmonization/Simplification initiatives are ongoing between Metrolinx, PRESTO and TAs to reduce unnecessary fare types and products and simplify cross-border travel.

2.3.2 NFC TICKET FARE TYPES (TTC ONLY)

Only Adult NFC Tickets are sold at Retail locations and fare vending machines. However, Youth and Senior Tickets are available for high-volume orders through the Bulk NFC Ticket sales channel (available to social service agencies).

2.3.3 PRESTO E-TICKETS FARE TYPES

Fare types operate differently in the context of E-Tickets. With E-Tickets, the TA sets the eligibility conditions when they create E-Ticket products (e.g., Senior tickets). When a customer selects a product, they agree to the eligibility conditions, once the ticket is activated, the fare type is displayed on the activated ticket display for visual inspection by the driver or inspector. To date, the following fare types have been used:

- Adult (DRT, HSR, Oakville Transit);
- Senior (DRT, HSR, Oakville Transit);
- Youth (DRT, HSR, Oakville Transit); and
- Child (HSR).

Potential Future Opportunities

The E-Ticket app could be configured so that specific eligible customers may be presented with additional fare product options (e.g., low-income ticket options).

2.3.4 GROUP TRAVEL

The PRESTO Physical Card, PRESTO in Mobile Wallet, PRESTO NFC Ticket, and PRESTO Contactless products only allow travel by the individual that tapped on. These products do **not** allow group travel on one piece of fare media.

PRESTO E-Tickets and POP tickets/receipts do potentially support group travel.

- a) **PRESTO E-Tickets:** Multiple individual e-tickets can be purchased and activated together on the same smartphone for a group to travel. Group products (e.g., family day passes) may be added in the future by TAs; and
- b) **POP Tickets/Receipts (Paper):** Multiple individual fares can be purchased and printed on the same POP for a group to travel. Group products (e.g., family day passes) are available on some TAs.

2.4 PRESTO FARE LOGIC FEATURES

The PRESTO system has two high-level fare logic mechanisms:

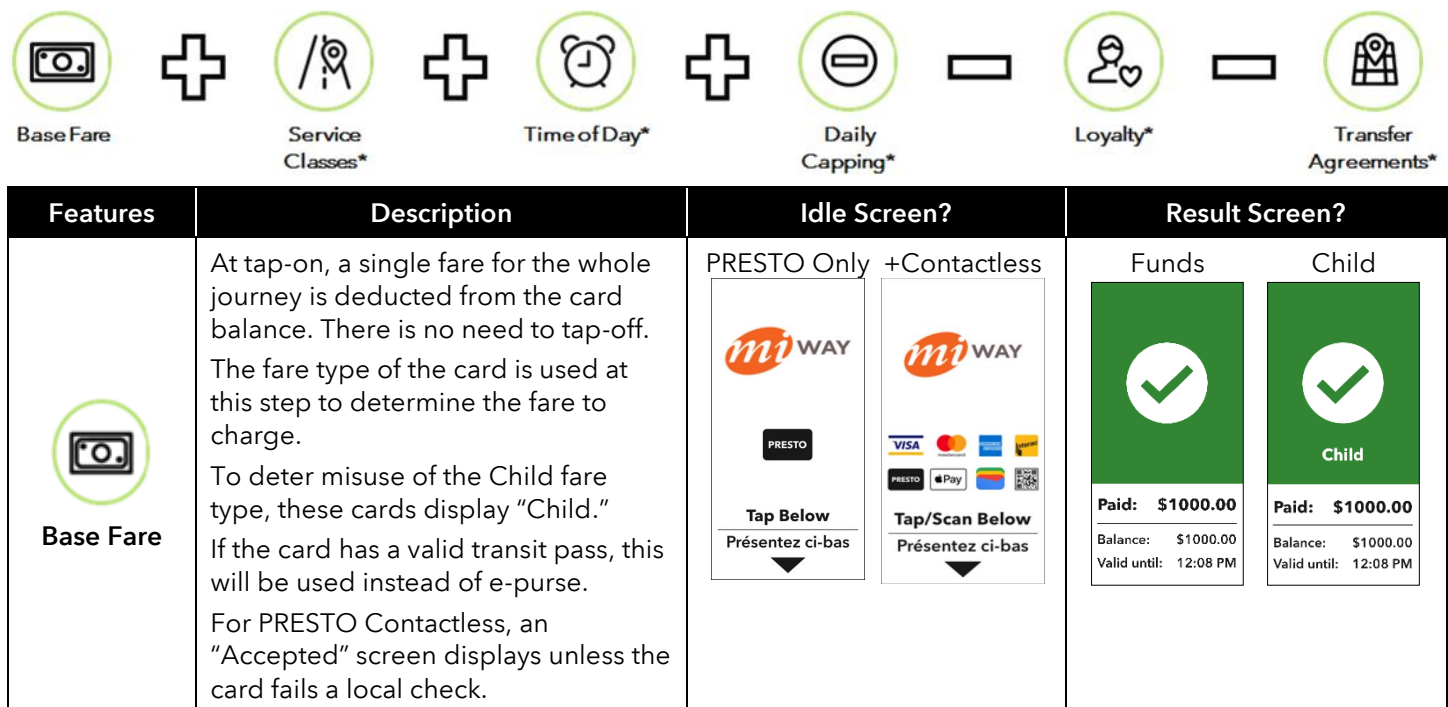
- a) **Flat Fare:** A single fare is charged when the customer performs a tap-on. There is no need to tap-off. There is always a time period (i.e., transfer window) within which a free transfer is in effect. After that, tapping will charge a new fare; and
- b) **Fare by Distance:** The cost of the journey is determined by the start and end points (from a table of fares between zones). A minimum “base fare” amount is charged when the customer taps on. The full journey fare is calculated when the customer taps off and applies an upward or downward adjustment.

Additional fare logic features exist Within these high-level mechanisms (see below). The fare logic features implemented for a TA will always be determined by that TA's fare policies.

Note: The screen designs are common for all transit agencies except OC Transpo. Following the Acquirer Model, OC Transpo is free to have a different HMI.

2.4.1 FARE LOGIC FEATURES: FLAT FARE

Figure 6: Flat Fare Calculation



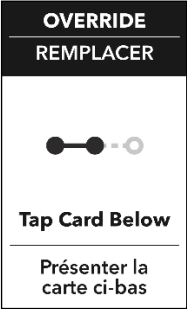
Features	Description	Idle Screen?	Result Screen?
			Pass Contactless
Transfer Window (Intra-TA)	Once a fare has been charged, the customer has unlimited travel on the TA for a specified amount of time: - TTC, 905s: 2 hrs - GO Transit: 3 hrs - OC Transpo: 90 mins at peak; 105 mins off-peak; until 4:30 am for late-night service	No Indicator	
Service Classes	The cost of different services offered by the same TA can be set differently. The service classes are: Regular Premium Special Event For example, a TA may offer a Regular service and a Premium service (e.g., TTC Downtown Express Bus) that charges a higher flat fare. Service Class also applies to weekly/monthly passes, so a Regular pass holder pays a supplement from their balance. If a service class is in effect, this is indicated on the Idle Screen.		Typically, No Indicator (other than the different fare). If supplemental fare is required for transfer or pass holders: PRESTO Only +Contactless
Time of Day Pricing	The fares for a TA service can be set differently at different times of day (e.g., a TA might charge more for journeys during rush hour). This is indicated on the Idle Screen if time-of-day pricing is in effect. <u>Note:</u> Time of Day Pricing does not apply during inter- or intra-agency transfers.		No Indicator (other than the fare amount)

Features	Description	Idle Screen?	Result Screen?
 Daily Capping	Limits the daily spend on a TA to a capped amount. After that amount, the customer rides free for the rest of the service day.	No Indicator	No Indicator (other than reducing the fare paid if the cap has been reached)
 Loyalty	Limits the spend (or number of paid trips) within a given period (week, month, or year) on a TA to a capped amount. After that amount of spend (or paid trips), the customer rides free for the rest of the period.	No Indicator	No Indicator (other than reducing the fare paid if the loyalty limit has been reached)
 Transfer Agreements	TAs may arrange inter-agency transfer agreements (e.g., between the various 905 agencies). In case of a \$0 transfer, registered cards are still accepted with a balance below \$0. The transfer time remaining will reflect the time remaining from the first tap (on the original TA).	No Indicator	No Change (other than reducing the fare paid)
GPS-Based Fare Switching (Cross-Boundary)	A TA may arrange to have one vehicle charge fares of a different TA depending on its GPS position. (e.g., TTC cross-boundary service into York charges a YRT fare after crossing the municipal boundary). A change in the idle screen TA logo indicates the TA fare rules are in effect. Tap Off Required? Currently, the agreements in place between TTC and YRT/MiWay specify that: - all customers must tap-on to board (the BFTP will charge the fare appropriate for the bus location); - customers exiting the bus before the boundary do not tap-off; - at the boundary, the BFTP will switch to the fare rules of the new location; - customers exiting the bus after crossing the boundary must tap off.	Changing from one TA logo... ... to another.     Tap Below Présentez ci-bas  	No Indicator (other than changing the appropriate fare amount for the TA)

2.4.2 FARE LOGIC FEATURES: FARE BY DISTANCE

Figure 7: Fare by Distance Calculation

										
Base Fare (Zone Dependent)		Concession Coefficient		Time of Day*		Service Factors*		Loyalty*		Transfer Agreements*
Features	Description	Idle Screen?		Result Screen?						
 Base Fare (Zone Dependent)	The cost of the journey is determined by the start and end points (from a table of fares between up to 250 zones). When the customer taps-on, a minimum “base fare” amount is charged. When the customer taps-off, the full journey fare is calculated, and an upward or downward adjustment is applied. • GO Transit base fare was: \$3.70 as of November 2022. • UP Express base fare is the maximum fare from that station to the end of the line.	PRESTO Only +Contactless  Union Pearson Express  Tap Below Présentez ci-bas  Union Pearson Express  Tap/Scan Below Présentez ci-bas		Tap-onTap-off  Paid: \$1000.00 Balance: \$1000.00 Tap off by: 12:08 PM  Paid: \$1000.00 Total trip: \$1000.00 Balance: \$1000.00						
Missed Tap-Off (Underpayment)	If the customer does not tap-off: • On GO Transit, after the 3-hour travel window expires, the journey is closed by the Central System, and an end-of-the-line (“Underpayment”) adjustment for the customer’s fare type is added to the system. For physical cards, this is collected the next time the Customer taps on GO Transit. For Mobile Wallet Cards, the adjustment will be made immediately when the travel window closes. • On UP Express, the journey is closed after the travel window expires. Since the card was already charged the maximum fare, there is no adjustment. For GO Transit, an underpayment adjustment mechanism enables the underpayment amount to be adjusted based on the following: Loyalty, Transfer Discounts, Concession Coefficients, Service Factors, and Time of Day Pricing. Currently, this is turned off.	No Indicator		No Indication (underpayments are paid off with no indication other than lower than expected balance after the current fare is paid)						

Features	Description	Idle Screen?	Result Screen?
GO Transit Default Trip	GO Transit Customers have the option to set a "Default Trip" between two stations that they regularly travel between. Once this is set, the customer only needs to tap-on, and the full cost of their "Default Trip" will be charged. However, they must <u>not</u> tap-off. An attempt to tap-off will be interpreted as starting a new return trip. Suppose a customer has an existing default trip but wishes to travel from their usual origin to a different destination. In that case, they must press the SFTP Mode button to put the device into "Override" mode before tapping on. Once they tap-on, they must tap-off at their destination. If the customer forgets to tap-off, it will be treated as a "Missed Tap-Off". See "Base Fare (Zone Dependent)", above. If a customer with a Default Trip is travelling from a different origin, there is no need to use the "Override" button.	No Indicator But customer can put SFTP in Override mode: 	With default trip: 
 Concession Coefficient	Fare types (e.g., Senior) are applied by multiplying the base fare by a "concession coefficient." For example, the free Child fare is calculated by multiplying the base fare by a 0 multiplier.	No Indicator	No Indicator (other than changing the fare amount)
Transfer Window (Intra-TA)	Once a fare has been charged, the customer can travel on the TA for a specified amount of time (GO Transit without default trip: 3 hours). To better enable trips that include a transfer with low balances, the second tap on GO Transit within a transfer window is free (i.e., a base fare is not charged), and the final journey cost is charged at tap-off.	No Indicator	

Features	Description	Idle Screen?	Result Screen?
 Time of Day Pricing	The cost of a TA service can be set differently depending on the tap-on time. For example, a TA might charge more for journeys beginning during a defined rush hour period. Up to 7 price points are possible: • Day of the Week (up to 3 price points). Pricing is based on the day of the week (Monday – Sunday) and the specific time ranges within those days. (e.g., Monday – Thursday from 7:00am-10:00am: apply 10% surcharge). • Calendar Date (up to 2 price points). Pricing is based on specific Calendar Dates and the time ranges within those dates (e.g., Canada Day: apply a 50% discount). • Free Travel (single free price point). Free travel (\$0.00 fare) based on specific Calendar Dates. An unlimited number of dates can be defined. If pricing programs conflict, the prioritization will be: Free Travel → Calendar Date → Day of the Week. If time-of-day pricing is in effect, this is indicated to the customer on the Idle Screen. Currently, this is turned off.		No Indication (other than changing the fare amount)
 Service Factors	The cost of different services offered by the same TA can be set differently. For example, a TA may offer a “Regular” service and a “Premium” service that charges a higher flat fare. If a service factor is in effect, this is indicated to the customer on the Idle Screen. For GO Transit, this is bus-only. Currently, this is turned off.		No Indication (other than changing the fare amount)
 Loyalty	Weekly/Monthly/Yearly Loyalty: Limits customer spend (or number of paid trips) within a given period on a TA to a capped amount. After that amount of spend (or paid trips), they ride free for the rest of the period.	No Indication	No Indication (other than changing the fare amount)

Features	Description	Idle Screen?	Result Screen?
 Transfer Agreements (Inter-TA)	TAs may arrange inter-agency transfer agreements (e.g., GO Transit to/from 905 agencies). For GO Transit, transfer discounts (known as "Fare Integration Credits" or FICs) are applied to the base fare at tap-on, enabling travel with lower balances (e.g., for Oakville→GO Transit: \$3.70-\$3.25=\$0.45 base fare).	No Indication	No Indication (other than changing the fare amount)
Tap-On Fare Adjustments	Tap on fare updates allows the ability to charge fare adjustments at tap on (instead of at tap off). These adjustments include: Loyalty, Transfer Discounts, Concession Coefficients, Service Factors, and Time of Day Pricing. Currently, this is turned off.	No Indication (other than changing the fare amount)	No Indication (other than changing the fare amount)

2.4.3 SPECIAL FEATURE: OC TRANSP/STO INTEGRATION

OC Transpo and the Société de transport de l'Outaouais (STO) provide the residents of the National Capital Region with integrated public transit services between the provinces of Ontario and Quebec. To support this integration, PRESTO provides the following functionality on **PRESTO physical card only**:

Features	Description
  Reciprocal Acceptance of Transit Passes	Paying with a PRESTO Transit Pass on STO (and with STO Multi Card Pass on OC Transpo): - Tap PRESTO card (with a valid OC Transpo transit pass) on the STO reader. - STO Readers do not process PRESTO load lists, so the customers loading a PRESTO transit pass remotely must have picked up the pass before using it on STO.
  Reciprocal Acceptance of Transfers	Travelling with PRESTO E-Purse on STO (and with Reloadable STO Multi Card on OC Transpo) - A customer <u>cannot begin</u> their PRESTO E-Purse trip on STO. - However, after they have tapped their PRESTO card on an OC Transpo PRESTO reader to begin their trip, the transfer is accepted on the STO reader until the transfer time expires (OC Transpo transfer rules: 90 mins at peak; 105 mins off-peak; until 4:30am for late night service)

2.5 OTHER PRESTO CUSTOMER CHANNELS

While this document is focussed primarily on PRESTO self-serve devices, there is a suite of non-device customer channels that provide customers with information and support regarding the PRESTO system.

Table 11: Other PRESTO Customer Channels

Channel	Description	Functions
 PRESTO Website Including web form and web chat 	The website provides PRESTO related information and supports Customer account creation, PRESTO physical card purchase loading and transactional information. Customers who load their cards via the website can do so as a registered or anonymous user. All PRESTO loads from the website are subject to a delay of 2-6 hours (depending on the pick-up device) before they can be picked up by the customer's card. The delay for fare payment transactions to appear on the website (and app) can be 24 hours or more. Customers can also access a web chat function to answer general enquiries and account-specific transactions (if the customer is logged in). The virtual agent system is available 24/7, and live web chat agents are available during the same hours as the PRESTO call centre.	Information: How to use PRESTO, fare types and where to get a PRESTO card. Web form: This is a customer service channel accessible from the PRESTO website, which supports general questions and account-specific transactions if the PRESTO customer is logged in to their account. Purchase a new PRESTO physical card to be delivered by mail. Anonymous user: E-purse loading, pass purchase, account creation and PRESTO card registration. Registered users: E-purse loading, pass purchases, account information, setting Autoload and Autorenew, balance alerts, saved payment methods, view transaction history, and activate a PRESTO physical card. If logged in to an account: Report a lost/stolen/damaged card, activate a card, check card balance, and reset the card PIN.
 PRESTO App	The official PRESTO app is available for iOS and Android mobile phones. Unlike other loading channels, the PRESTO app allows the customer to choose to load their PRESTO physical card <u>either</u> immediately through NFC tap or through the standard remote process, which can take 2-6 hours (depending on the pick-up device). The App can load a PRESTO in Google Wallet or PRESTO in Apple Wallet card instantly.	Anonymous Users: E-purse loading, pass purchase, account creation and PRESTO card registration. Registered Users: E-purse loading, pass purchases, account information, setting Autoload and Autorenew, balance alerts, saved payment methods and view transaction history.
 PRESTO customer service call center	PRESTO has a customer service call center that supports customer inquiries and issues. The interactive voice response system is available 24/7, and live agents are available during more limited hours. 3rd party translation in 200+ languages and dialects is supported.	Information: PRESTO instructions, balance inquiries, process status, load status, etc. Issue reporting escalation and resolution Registered users can also: Report a lost/stolen/damaged card, activate a card, check card balance, reset card PIN, and load e-purse funds if there is a saved payment on file.

Channel	Description	Functions
 Social Media	Provides service via Facebook and Twitter during limited business hours. Informational videos are provided on YouTube.	Social media posts: e.g., Encouragement to get the app, announcement of new features, etc. General information: How to use PRESTO, fare media types, where to get a PRESTO physical card, etc. Direct Message (DM) with agent (Twitter, Facebook): Can report lost/stolen/damaged card, activate card, check balance, reset card PIN
 Retail	PRESTO services are available at select Shoppers Drug Mart, Loblaws and Superstore locations.	• Purchase a PRESTO physical card • Load PRESTO e-purse • Purchase a Transit Pass • Set a Fare Type • Purchase an NFC Ticket (TTC only)
 Transit Agency Customer Service	TAs sometimes offer in-station support personnel who support PRESTO functions and inquires. TAs may also offer third-party customer service outlets in locations such as municipal buildings, community centres, libraries, and mall information centers.	• Purchase a PRESTO physical card • Load PRESTO e-purse • Purchase a Transit Pass • Set a Fare Type • Set a default Trip (GO Transit Only) • Refund a PRESTO card (if balance is <\$50)
 Bulk NFC Tickets (TTC Only)	An option available to Toronto-based Social Services organizations (e.g., school boards, Toronto Public Library, charities, etc.) enables ordering NFC Tickets in bulk to be shipped directly to the organization. Adult, Senior and Youth tickets are available. The organizations must distribute the tickets to customers for free (not re-sell them).	• Purchase NFC Tickets (TTC Only) in large quantities.
PRESTO Vouchers	The PRESTO Vouchers functionality allows PRESTO, participating transit agencies, and organizations (such as universities, colleges, community service groups, businesses, or other organizations) to issue loads and fare types to PRESTO cardholders via the PRESTO system or a unique code, which can be entered into the PRESTO website (for physical cards) or PRESTO app (for PRESTO in Google Wallet or PRESTO in Apple Wallet cards). As part of the website process, the customer may need to confirm their date of birth, or they may need to be registered.	• Load transit pass • Distribute a discounted transit pass • Load e-purse • Set a fare type

3. PRESTO FARE VENDING DEVICES

This section includes **Guidance** and **Required** sub-sections.

3.1 OVERVIEW

Consulting Transit Agency operators: As PRESTO service design choices are made (e.g., as part of a new infrastructure project), it is essential to ensure the involvement of the transit agency or agencies that will operate the service. Decisions such as whether a new service will be gated or not will have significant consequences for fare revenue, the transfer experience, the nature of fare inspection, etc.

Engaging Metrolinx Payments Teams: In addition to the information below, there are other requirements regarding power, networking, flooring materials, anchoring, CCTV, etc. Therefore, it is essential to engage with Metrolinx Payments (PRESTO) prior to finalizing a design. Please send email messages to both of these addresses: PaymentEquipmentProductTeam@metrolinx.com, PaymentsInfrastructure@metrolinx.com

The PRESTO fare vending devices allow customers to accomplish fare loading/vending tasks such as:

- purchase a new PRESTO physical card;
- load funds and passes to their PRESTO physical cards;
- purchase tickets (e.g., NFC Tickets, POP tickets/receipts); and
- and check their PRESTO physical card balance and transactions.

Multi-Tenancy: Currently, while PRESTO vending machines can load funds to be used on any transit agency when it comes to TA products (i.e., tickets or transit passes), the machines are “single tenant,” selling only fare products for one transit agency. In the future, beginning with the Sigma TVM device, PRESTO vending devices will support multi-tenancy, which means the ability to sell fare products for multiple TAs.

- A **basic multi-tenancy feature** would be to sell **single-TA products** (e.g., POP tickets/receipts) for multiple TAs; and
- An **advanced multi-tenancy feature** would be the ability to sell **multi-TA products** (e.g., tickets, transit passes) that enable travel across multiple TAs with a single purchase.

3.1.1 GENERIC SIZE CLASSES FOR FARE VENDING DEVICES

This sub-section is **Required**.

When vending devices are re-procured (every 5-10 years), the sizes may change somewhat. To enable infrastructure projects to account for changing device dimensions over the life of the infrastructure, PRESTO has established two generic size classes for vending devices: Full-Size and Compact-Size.

Compact devices will have limited functionality compared to full-size ones. For example, they are unlikely to accept cash bills, significantly limiting their usefulness in supporting PRESTO physical card loading by cash-paying customers. Therefore, in offboard transit environments, full-size devices shall be present before secondary compact devices are added.

Table 12: Generic Size Classes for Fare Vending Devices

Full-Size Vending Device Size Class		Primarily for off-board installations. Dimensions (with no canopy): - Height: 2150mm; - Width: 900mm; and - Depth (for base and mobility device turning): 470mm; or - Depth (above the base): 600mm.
Compact-Size Vending Device Size Class		Primarily for onboard or legacy installations. Dimensions: - Height: 1715mm; - Width: 520mm; and - Depth: 520mm.

3.1.2 FARE VENDING DEVICE TYPES (AS OF 2023)

Table 13: Full-Size PRESTO Fare Vending Device Types

Features	S&B FVM	Sigma TVM
Primary operation	Touchscreen	Touchscreen
Sell PRESTO physical cards	YES	YES
Sell NFC Tickets	YES	In future
Sell Paper Tickets/POPs	No - but possible	YES
Sell QR-coded tickets	No - but possible	TBD
Multi-TA?	NO	YES
Load PRESTO Funds	YES	YES
Load PRESTO Passes	YES - One TA only	YES - Multiple Tas
Query PRESTO physical cards	YES	YES
Query NFC Tickets	YES	YES
Pay w/ Cards NFC	YES	YES
Pay w/ Cards PIN	YES	YES.
Pay w/ Coins	YES	YES
Pay w/ TTC tokens	NO	NO
Pay with Bills	YES - up to \$50	YES - up to \$100
Provides Change	YES - coins only	YES - including Bills
Accessibility Features	- Audio mode via jack & PIN pad control. - Braille labels - Raised and raised labels	- Audio mode via jack & PIN pad control. - PIN pad tooltips - Braille and raised labels

Table 14: Compact-Size PRESTO Fare Vending Device Types

Features	S&B/Acc. SSRM	S&B SRVM	Flowbird SRVM
			
Primary operation	Touchscreen	Touchscreen	Hardware buttons
Sell PRESTO Physical Cards	NO	NO	NO
Sell NFC Tickets	NO	NO	NO
Sell Paper Tickets/POPs	No - but possible	YES	YES
Sell QR-coded tickets	No - but possible	No - but possible	NO
Multi-Tenancy	NO	NO	NO
Load PRESTO Funds	YES	NO	NO
Load PRESTO Passes	YES - One TA only	NO	NO
Query PRESTO Physical Cards	YES	NO	NO
Query NFC Tickets	No - but possible	NO	NO
Pay w/ Cards NFC	YES	NO	NO
Pay w/ Cards PIN	YES	NO	NO
Pay w/ Coins	NO	YES	YES
Pay w/ TTC tokens	NO	YES	YES
Pay with Bills	NO	NO	NO
Provides Change	NO	NO	NO
Accessibility Features	- Audio mode via jack & PIN pad control. - Braille and raised labels	- Audio mode via jack & PIN pad control. - Braille and raised labels	- Tactilely discernible buttons.
Notes	While still supported, device inventories are limited, and there are no plans to re-order.		Near end-of-life

3.2 FARE VENDING DEVICES IN SERVICE (2023)

3.2.1 SCHEID & BACHMANN (S&B) FARE VENDING MACHINE (FVM)

This section is **Guidance**.

The S&B FVM is a full-service vending device that accepts credit/debit cards, cards and paper bills. The primary limitation of the device is that it is not multi-tenant.

3.2.1.1 S&B FVM Dimensions

Note: The dimensions in this section are only provided for reference. The generic sizes in Section 3.1.1 Generic Size Classes for Fare Vending Devices shall be used for infrastructure planning. For installations without a canopy, these dimensions are:

- Height: **2150mm**;
- Width: **900mm**;
- Depth (for base and wheelchair turning): **470mm**; or
- Depth (above the base): **600mm**

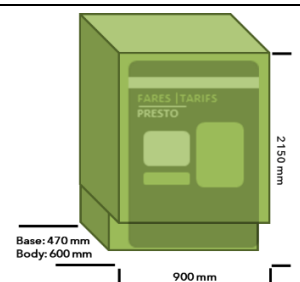


Table 15: S&B FVM Dimensions

Device	Height (mm)	Width (mm)	Depth (for Base and Mobility Device Turning) (mm)	Depth (above the Base) (mm)
S&B FVM	1985	900	470	564

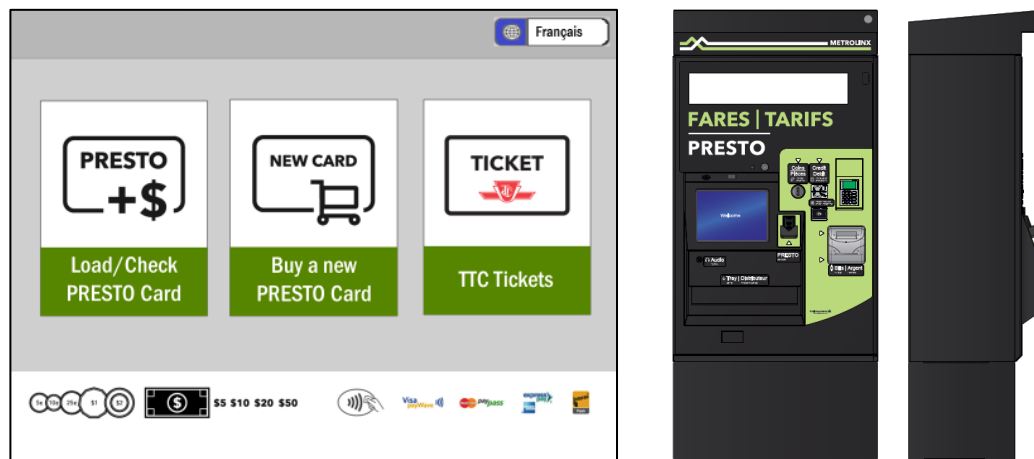
Note: These dimensions are provided for reference only. For infrastructure planning, use the dimensions for generic Full-Size fare vending devices.

3.2.1.2 S&B FVM Branding

This sub-section is **Guidance**.

The branding of the FVM is PRESTO-generic rather than TA-specific. This is intended to reinforce that the device is primarily a PRESTO load/query point and will better enable multi-tenancy in the future. However, TA-specific functionality, such as the ability to purchase TTC NFC Tickets, is indicated via TA-specific branding in HMI software.

Figure 8: S&B FVM User Interface Idle Screen (Left) and Branding (Right)



S&B FVMs are not typically accompanied by additional signage; temporary marketing “flags” may be affixed.

3.2.1.3 Potential Future Opportunities

- a) Load e-purse with a customized amount field
- b) Purchase PRESTO physical card with a minimum load of \$0.05;
- c) Purchase and dispense QR-coded POP tickets/receipts;
- d) The FVM can be enabled to provide video customer support from the Customer Service Center.

3.2.2 SIGMA TICKET VENDING MACHINE (SIGMA TVM)

This section is **Guidance**.

The SIGMA TVM is a full-service vending device. It accepts credit/debit cards, coins, and paper bills. It allows multi-tenancy (i.e., selling POPs for multiple agencies from one machine), which is the primary limitation of the S&B FVM.

3.2.2.1 Sigma TVM Dimensions

Note: The dimensions in this section are only provided for reference. The generic sizes in Section 3.1.1 Generic Size Classes for Fare Vending Devices shall be used for infrastructure planning. For installations without a canopy, these dimensions are:

- Height: **2150mm**;
- Width: **900mm**;
- Depth (for base and wheelchair turning): **470mm**; or
- Depth (above the base): **600mm**

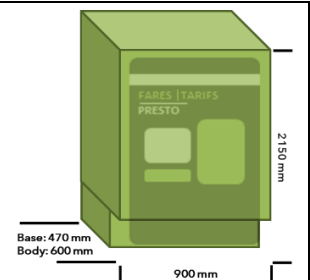


Table 16: S&B FVM Dimensions

Device	Height (mm)	Width (mm)	Depth (for Base and Mobility Device Turning) (mm)	Depth (above the Base) (mm)
Sigma TVM	2135	900	350	570
Sigma TVM with outdoor canopy <u>Note:</u> With the outdoor canopy, the device is larger than the generic full-size dimensions.	2345	1200	350	Main body: 570 Canopy: 1400

Note: These dimensions are provided for reference only. For infrastructure planning, use the dimensions for generic Full-Size fare vending devices.

3.2.2.2 Sigma TVM Branding

This sub-section is **Guidance**.

The branding of the Sigma TVM is PRESTO-generic rather than TA-specific. This is intended to reinforce that the device is primarily a PRESTO load/query point and will better enable multi-tenancy in the future. However, TA-specific functionality, such as the ability to purchase GO and UP Tickets, is indicated via TA-specific branding in HMI software.

Figure 9: Sigma TVM User Interface Idle Screen (Left), Branding (Centre) and Canopy (Right)



3.2.3 S&B/ACCENTURE SELF-SERVE RELOAD MACHINE (S&B SSRM)

This section is **Guidance**.

Note: While still supported, S&B SSRM inventories are limited, and there are no plans to re-order. All vending locations where card loading is planned shall be sized to accommodate Full-Size vending machines.

The S&B SSRM is more compact than full-service vending devices, but it is more limited in functionality. It loads but does not sell PRESTO physical cards or paper tickets. It accepts only credit and debit cards for payment.

3.2.3.1 S&B/Accenture SSRM Dimensions

Note: The dimensions in this section are only provided for reference. The generic sizes in Section 3.1.1 Generic Size Classes for Fare Vending Devices shall be used for infrastructure planning.

- Height: **1715mm**;
- Width: **520mm**; and
- Depth: **520mm**.

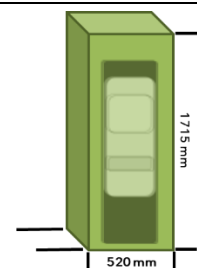


Table 17: S&B SSRM Dimensions

Device	Height (mm)	Width (mm)	Depth (mm)
SSRM	Rear: 1695 Front: 1525	420	420

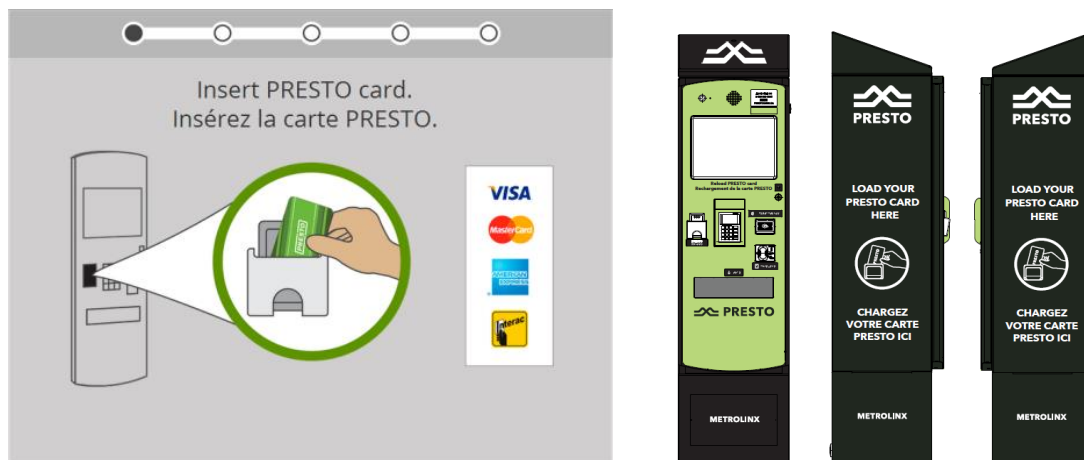
Note: These dimensions are provided for reference only. For infrastructure planning, use the dimensions for generic Compact-Size fare vending devices.

3.2.3.2 S&B/Accenture SSRM Branding

The branding of the SSRM is PRESTO-generic rather than TA-specific. This is intended to reinforce to customers that the device is a PRESTO load/query point, and PRESTO funds can be used at any TA in the system.

The only TA-specific functionality is the ability to load a TTC transit pass. This is not currently marked with a TTC logo, but this may be added in the future.

Figure 10: S&B SSRM User Interface Idle Screen (Left) and Branding (Right)



SSRMs are not typically accompanied by additional signage; temporary marketing “flags” may be affixed.

3.2.4 S&B SINGLE RIDE VENDING MACHINE (SRVM)

This sub-section is **Guidance**.

The Single Ride Vending Machine (SRVM) supports cash customers by selling POP tickets/receipts for coins. There are onboard and off-board variants of this device. The onboard variants are installed on TTC streetcars.

3.2.4.1 S&B SRVM Dimensions

Note: The dimensions in this section are only provided for reference. The generic sizes in Section 3.1.1 Generic Size Classes for Fare Vending Devices shall be used for infrastructure planning.

- Height: **1715mm**;
- Width: **520mm**; and
- Depth: **520mm**.

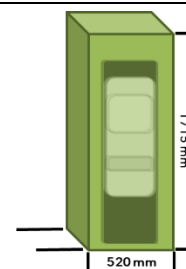


Table 18: S&B SVRM Dimensions

Device	Height (mm)	Width (mm)	Depth (mm)
SRVM	Rear: 1695 Front: 1525	420	420

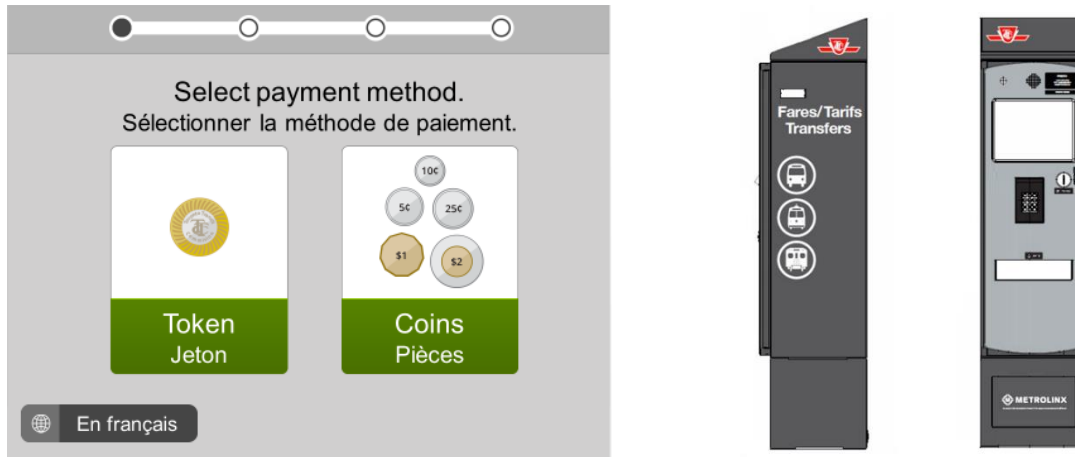
Note: These dimensions are provided for reference only. For infrastructure planning, use the dimensions for generic Compact-Size fare vending devices.

3.2.4.2 S&B SRVM Branding

This section is **Required**.

The branding of the SRVM is currently TA-specific (i.e., TTC). This is intended to reinforce to customers that the device only sells POP tickets/receipts (paper) for use on the TTC and has no PRESTO functionality.

Figure 11: S&B SRVM User Interface Idle Screen (Left) and Branding (Right)



SRVM's are not typically accompanied by additional signage, but temporary marketing "flags" may be affixed.

3.2.4.3 Potential Future Opportunities

- a) Buy QR-coded POP tickets/receipts (paper)

4. PRESTO POINT OF SALE DEVICES

This section includes **Guidance** and **Required** sub-sections.

4.1 OVERVIEW

Point of Sale (POS) devices are used by staff (TA, Retailer, etc.) to sell, load and manage PRESTO fare products.

Table 19: PRESTO Point of Sale Devices

Features	Accenture Station Point of Sale (SPOS)	Accenture Third-Party Terminal (TPT)	Accenture Mobile Point of Sale (MPOS)
			
Used by	TA Customer Service Operators	3 rd party Customer Service Operators	Retail Customer Service Operators
Sell POP tickets/receipts (paper)	YES	YES	NO
Sell PRESTO physical cards	YES	YES	YES
Load PRESTO cards	YES	YES	YES
Set Fare Type	YES	YES	YES
Query PRESTO physical cards	YES	YES	YES
Issue e-Purse refund	YES	YES	YES
Issue load reversal	YES	YES	YES
Sell NFC Tickets	YES	YES	YES
Query NFC Tickets	YES	YES	YES

4.1.1 POINT OF SALE DEVICES BRANDING AND SIGNAGE

This section is **Guidance**.

The branding of the SPOS is generic rather than TA-specific, which allows the equipment to be easily moved between TAs. Because a TA operator uses the equipment, branding isn't needed as it would be if the device were customer-operated.

Additional environmental signage does not typically accompany SPOS devices.

5. PRESTO FARE PAYMENT DEVICES

This section includes **Guidance** and **Required** sub-sections.

5.1 OVERVIEW

These devices facilitate fare payment transactions using PRESTO fare products. Currently, each payment device serves only one TA and devices are configured with TA fare rules. Different form factors are necessary to accommodate different fare policies and installation conditions.

5.1.1 ENGAGING METROLINX PAYMENTS TEAM

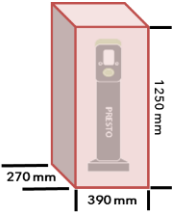
In addition to the information below, there are other requirements regarding power, networking, flooring materials, anchoring, CCTV, etc. Therefore, it is essential to engage with Metrolinx Payments (PRESTO) prior to finalizing a design. Please send emails to both of these addresses:

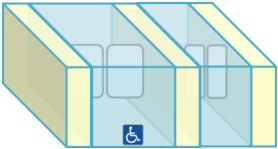
PaymentEquipmentProductTeam@metrolinx.com, PaymentsInfrastructure@metrolinx.com

5.1.2 GENERIC SIZE CLASSES FOR OFF-BOARD FARE PAYMENT DEVICES

Since fare payment devices are re-procured every 5-10 years, the size of devices can change due to technological advancements. To account for this, PRESTO has established two generic size classes for offboard fare payment devices:

Table 20: Generic Size Classes for Off-Board Fare Payment Devices

Station Fare Transaction Processors (SFTP)		Suitable for open stations or stops. • Height: 1250mm; • Width: 390mm; and • Depth: 270mm.
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Fare Gates		Suitable for enclosed stations. • Height: 1500mm; • Depth: 2150mm; • Width: ◦ Stanchions: 200mm; ◦ Standard lane: 700mm (lane+2 stanchions: 1100mm); or ◦ Accessible lane: 1100mm (lane+2 stanchions: 1500mm). • In addition: ◦ a maintenance clearance of 500mm is required on <u>both</u> ends of the fare line between the stanchion and the wall (filled with glass barriers in-line with the axis of the fare line); ◦ a touchscreen controller must be located and accessible to staff (usually in a booth); and ◦ an emergency release switch must be located where it is easily accessible to staff.
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5.1.3 OFF-BOARD FARE PAYMENT DEVICES

Table 21: Off-Board Fare Payment Devices

Features	Famoco/Acc. SFTP	S&B PG-20 Fare Gates	S&B PG-40 Fare Gates
			
 Accepts PRESTO Physical Cards, PRESTO in Apple Wallet or PRESTO in Google Wallet	YES	YES	YES
 Accepts NFC Ticket	YES	YES	YES
 Accepts Credit/Debit Cards (NFC)	YES	YES	YES
 Accepts Barcodes/QR codes e.g., E-Tickets, printed barcode	YES	YES ²	YES ²
Mode: Fare Reversal	YES	NO	NO
Mode: Override (GO Default Trip) Ignores default trip setting	YES	NO	NO
Mode: Check Balance	YES	NO	NO
Supports Tap-Off	YES	NO ¹	NO ¹
Multi-Tenant TA determined by tap-on/tap-off	NO	NO	NO
Accessibility: Tactile/Braille	YES	YES	YES
Accessibility: Audio mode	YES	NO	NO
Accessibility: Gates open fully	n/a	NO	YES

Notes:

¹ Yes, with a hardware upgrade

² Yes, with a software upgrade

5.1.4 ONBOARD FARE PAYMENT DEVICES

Table 22: Onboard Fare Payment Devices

Features	Famoco/Acc. BFTP	Accenture DCU	Accenture MFTP	Acc. MFPA
				
Primarily used by	Customer	Operator	Operator	Operator
 Accepts PRESTO Physical Cards, PRESTO in Apple Wallet or PRESTO in Google Wallet	YES	YES	YES	YES
 Accepts NFC Ticket	YES	YES	YES	YES
 Accepts EMV Credit/Debit	YES	NO	YES	YES
 Accepts Barcodes/QR codes e.g., E-Tickets, printed barcode	YES	NO	NO ¹	NO ¹
Mode: Fare Reversal	NO	YES	YES	YES
Mode: Check Balance	NO	YES	YES	YES
Supports Tap-Off	YES	YES	NO ²	NO ²
Accessibility: Tactile/Braille	YES	YES	YES	YES
Accessibility: Audio mode	NO	NO	YES	YES

Notes:

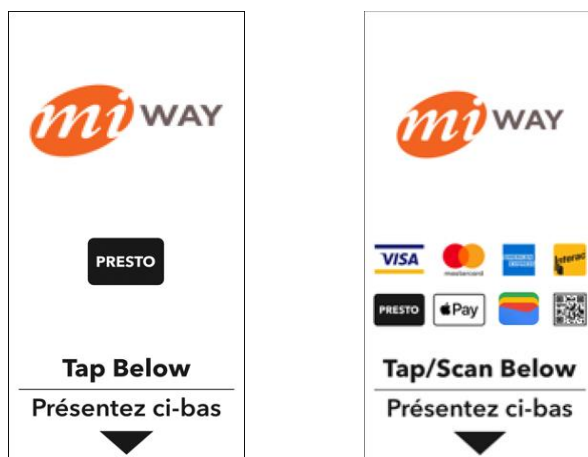
¹ Yes, with a hardware upgrade

² Yes, with a software upgrade

5.1.5 PRESTO FARE PRODUCTS AVAILABILITY DISPLAY

The fare options a fare payment device currently accepts are displayed on idle screens.

Figure 12: PRESTO Idle Screen in PRESTO Card Only Mode (Left) and When Accepting Contactless and E-Tickets Barcode (Right)



5.1.5.1 Idle Screen Exceptions

Following the Acquirer Model, OC Transpo has different fare options displayed on their idle screen.

Figure 13: Fare Options Display on the OC Transpo BFTP Idle Screen (2023)



5.1.6 TAP TARGET DESIGN FOR FARE PAYMENT DEVICES

This sub-section is **Guidance**.

PRESTO is moving towards a uniform tap target design for the GTHA, which now appears on the SFTP, BFTP, PG-20 and PG-40 fare gates, and Inspection Devices.

Figure 14: Tap Targets for Various Fare Payment Devices



5.1.6.1 Decal Colours

The primary target colour is green with a black outline and then a white outline against a contrasting background (black). The colours are bold and high contrast. There are no fades, shadows, etc.

Table 23: Decal Colours

Colours	Pantone Colour Code	RAL Colour Code
Black	Process Black C	RAL 9005 (Jet Black)
White	White	RAL 9003 (Signal White)
Green	Pantone 366C	N/A

5.1.6.2 EMV® Symbol & Lights



The EMV® symbol indicates that a reader can also accept taps by credit or debit cards (i.e., PRESTO Contactless). Sometimes, the symbol will be part of the reader hardware (e.g., BFTP, SFTP). Alternatively, the symbol will be part of the decal (e.g., MFPA card reader).



The EMV® lights indicate the state of the EMV® reader and the transaction, not the transaction's success. The location of EMV® lights can vary by "Off-the-shelf" reader design. Sometimes, this means the lights will be within the PRESTO tap target circle and other times outside. The lights are part of the reader and are visible via clear windows or cut-outs in the decal.

5.1.6.3 PRESTO Card-in-Hand Symbol



A black PRESTO card (with white "PRESTO" text) is held by a black-outlined white hand, interrupting the outer black and white target circles. The card is centre justified, just below the EMV symbol.

5.1.6.4 Accessibility Features

- a) The colours have been chosen to maximize **contrast**;
- b) The hand holding the PRESTO card is included as a **memory prompt**; and
- c) There must be a **raised tactile circle** outside the outer white circle in the black area.

5.1.6.5 Tap Target Exceptions

Following the Acquirer Model, OC Transpo is free to brand its devices differently.

Figure 15: OC Transpo Fare Gate Tap Target



5.1.7 FARE PAYMENT DEVICES: HMI TONES

There is a set of standardized tones for the following PRESTO device events:

- a) **Successful fare payment (Adult) - Single tone.** To indicate acceptance of low-income fare types (e.g., TTC Fare Pass) to reduce the potential for stigmatization of these customers;
- b) **Successful fare payment (Non-Adult & Non-Child) - Two-tone;**
- c) **Successful fare payment (Child) - Three-tone.** To reduce fare evasion with child cards;

Note: OC Transpo has opted out of supporting the PRESTO Child card, electing to charge the Adult fare for these cardholders. Children 12 and under can ride on OC Transpo without tapping any fare media.

- d) **Declined fare payment;**
- e) **Attempted fare evasion – Long, loud buzzer.** Used for fare gate fare evasion scenarios such as pushing through the gates or waiting too long directly in front of the gates; and
- f) **Query – Chime.** Used when a card is read to check the balance.

5.2 OFFBOARD FARE PAYMENT DEVICES IN SERVICE (2023)

5.2.1 FAMOCO/ACCENTURE STATION FARE TRANSACTION PROCESSOR (SFTP)

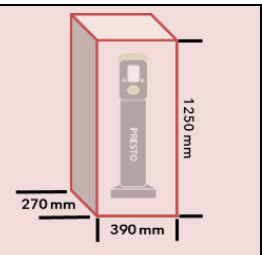
There is currently only one model of SFTP.

5.2.1.1 Famoco/Accenture SFTP Dimensions

This sub-section is **Guidance**.

Note: The dimensions in this section are only provided for reference. The generic sizes in section 5.1.2 Generic Size Classes for Off-board Fare Payment Devices shall be used for infrastructure planning.

- Height: **1250mm;**
- Width: **390mm;** and
- Depth: **270mm**



The SFTP can be mounted in three configurations: **floor**, **wall**, and **pole mount**. However, once it has been configured to be mounted in either the pedestal or wall/pole mount, it cannot be configured otherwise (i.e., Once an SFTP has been wall- or pole-mounted, it cannot be pedestal-mounted, and vice versa). In addition, a **portable SFTP** is available for temporary applications, such as when a bus bridge (utilizing 3rd party coach buses) is established between commuter rail stations due to major track construction.

Table 24: SFTP Installation Configurations

Floor-Mounted	Wall-Mounted	Horizontal Pole-Mounted	Portable SFTP
 Mounted on a metal pedestal on the finished floor or concrete pad. This is the recommended approach for maximum flexibility as technology changes.	 Mounts to the wall using a custom plate. For accessibility, the mounting height must ensure that all controls are less than 1200mm from the floor/ground. Due to inflexibility, this approach is not recommended.	 Specific to YRT/VIVA stops, an interface bracket is used to attach the SFTP to horizontal poles that also contain the cabling. For accessibility, the mounting height must ensure that controls are less than 1200mm from the floor/ground.	 Used during construction or to facilitate the use of buses to replace train service. For safety, channel cable protectors shall be used for installation less than 1-month. Longer installations shall use trenched cable conduits.

5.2.1.2 Famoco/Accenture SFTP Branding Requirements

This sub-section is **Required**.

The branding of the SFTP is a balance of the PRESTO and TA brands because each SFTP can only be used to process PRESTO fares for a single TA, and it's important that customers do not confuse the devices.

PRESTO is identified by:

- PRESTO logo on the **pedestal**;
- PRESTO logo on the **face**;
- PRESTO logo on the **tap target**; and
- A small **Braille label** ("presto") above the visible word PRESTO, on the face.

The "Standard" approach to TA identification is:

- The TA logo on a **wrap** around the middle of the pedestal;
- The TA logo **on-screen** in the top centre of the screen; and
- A small **Braille label** indicating the TA, is attached to the upper left of the device face.

Alternatively, a TA may adopt the extended SFTP branding, which allows the **upper portion of the pedestal and device hood to be painted using the TAs colours**. This design extension was produced to clarify which TA a device serves in a multi-TA station setting.

Note: For consistency, if a TA adopts the extended branding, all SFTPs must be branded this way.

Figure 16: SFTP Branding: Standard Pedestal (Left), Device Face (Centre), Extended Pedestal (Right)



Future Multi-Tenancy: If a multi-tenancy SFTP is procured in the future, a new approach to branding will be required.

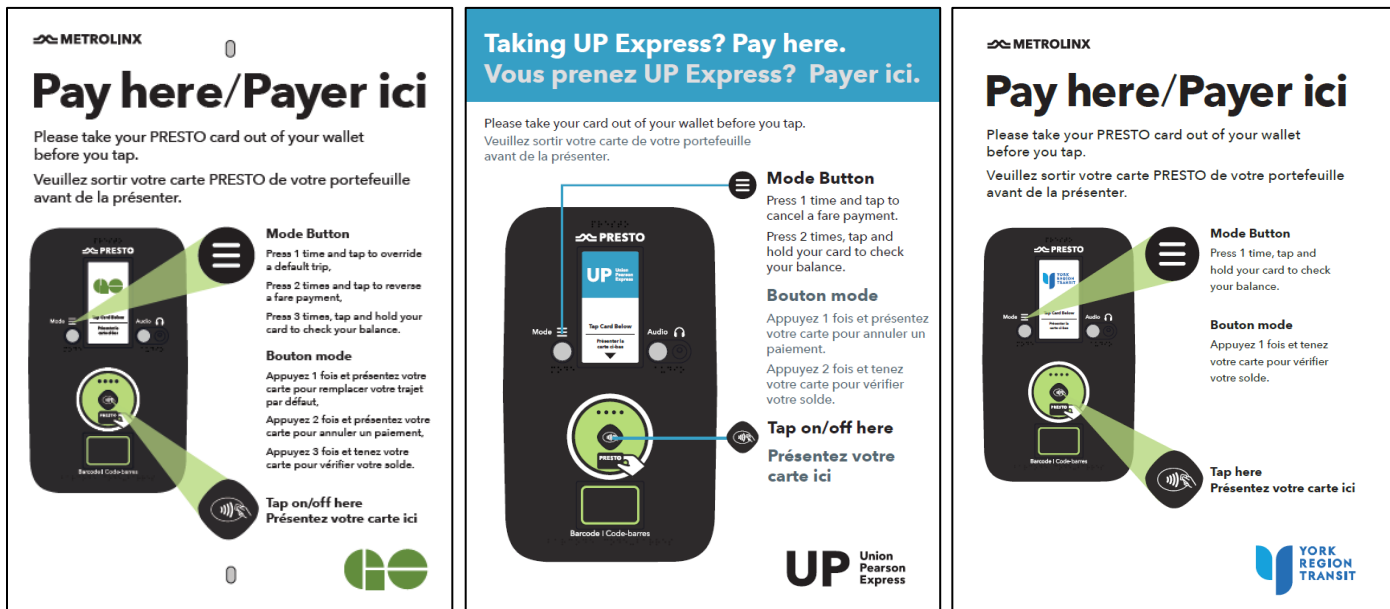
5.2.1.3 Famoco/Accenture SFTP Signage Requirements

This sub-section is **Guidance**.

PRESTO and TA-branded instructional signage may accompany SFTP's.

GO Transit and UP Express include this signage, whereas YRT has prepared signage, but typically has not installed it. The signage provides customers with instructions showing how to tap-on (and, if applicable, tap-off) and how to use the device's mode button to switch between the modes available for that TA.

Figure 17: Signage for GO Transit (Left), UP Express (Centre), and YRT (Right)



The signage material and installation location will vary depending on the SFTP location. Some examples are listed in Table 25. For safety, any signage must conform to DS-02 section 1.5 Hazard detection.

Table 25: Examples of SFTP Signage Installation

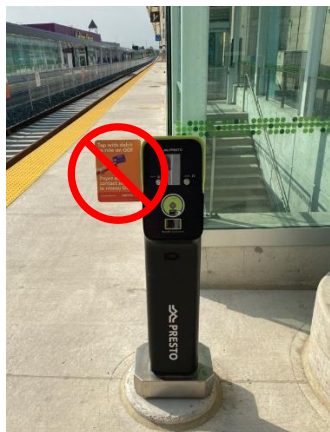
Free-Standing	In Front of Square Pillar	In Front of Concrete Wall	In Front of Round Pillar	In Front of Glazing
				
13mm PVC sign installed on steel signpost	13mm PVC sign installed on square steel canopy pillar	.081 aluminum sign installed on concrete wall	Vinyl decal installed on round canopy pillar	Vinyl decal installed on glazing

5.2.1.4 Famoco/Accenture SFTP Temporary Marketing Flags

This sub-section is **Guidance**.

In addition to the instructional sign, temporary marketing “flags” or “side poppers” may also be affixed to the device's body at the TA's discretion. These should be permanently affixed to the side that expects less foot traffic so that pedestrian flow is not negatively impacted.

Figure 18: A GO Transit SFTP Marketing Flag Improperly Attached on the Foot Traffic Side of the Device



5.2.2 S&B FARE GATES

This sub-section is **Guidance**.

There are currently two fare gate models in operation on the PRESTO network. The initial TTC Subway network rollout employed the PG-20, which features a relatively short fare lane. In Ottawa, the OC Transpo LRTs use the PG-40 faregates, which have a longer fare lane. PG-40s are also installed on the Eglinton Crosstown LRT and the Finch West LRT.

The shift to the PG-40 has been made for several reasons:

- The longer PG-40 lane requires the customer to take an extra step before reaching the gates, meaning it is more likely that the gates will have fully opened, reducing the chance that customers will push into the gates;

- The PG-40 accessible gates open more completely flush with the sides of the stanchions, reducing the chance of hitting the gates or pinching a finger; and
- The PG-40 screen is located further back in the lane, reducing the likelihood that customers will mistakenly tap on the screen.

Table 26: Fare Gate Models in Current (2023) or Near-Term Use

Devices	Functions	Notes
Fare Gates - S&B (PG-20) 	• Fare payment by: ○ PRESTO Physical Card ○ PRESTO in Mobile Wallet ○ PRESTO NFC Ticket ○ PRESTO Contactless ○ (Planned) QR coded E-Ticket ○ (Planned) QR coded Printed Ticket	• The “accessible” variant provides a slightly wider clearance, but the gates do <u>not</u> open flush. • The “accessible” variant also provides a second (lower) reader on the front of the stanchion to accommodate reach and reduce the reach range required.
Fare Gates - S&B (PG-40) 	• Fare payment by: ○ PRESTO Physical Card ○ PRESTO in Mobile Wallet ○ PRESTO NFC Ticket ○ PRESTO Contactless ○ (Planned) QR coded E-Ticket ○ (Planned) QR coded Printed Ticket	• The gates on the “accessible” variant open flush. • The “accessible” fare gates on Eglinton have only one reader (located inside the stanchion wall). This will likely be retrofitted in the future.

5.2.2.1 S&B PG-20 and PG-40 Fare Gate Dimensions

This sub-section is **Guidance**.

Note: The dimensions in this section are only provided for reference. The generic sizes in section 5.1.2 Generic Size Classes for Off-board Fare Payment Devices shall be used for infrastructure planning.

- Height: **1500mm**;
- Depth: **2150mm**; and
- Width:
 - Stanchions: **200mm**;
 - Standard lane: **700mm** (lane+2 stanchions: 1100mm); and
 - Accessible lane: **1100mm** (lane+2 stanchions: 1500mm);
- In addition: **maintenance clearance of 500mm, touchscreen controller, and emergency release switch.**



For the S&B fare gate solution, a fare line comprises fare gate lanes defined by stanchions and glass barriers to fill the maintenance clearances at either end. There is always one more stanchion than the number of lanes. For example, for four lanes, five stanchions are required:

Figure 19: A PG-40 Fare Line Comprised of Two Standard Gates and Two Accessible Gates (Left) and an Example of Glass Barriers to Fill the Maintenance Clearance (Right)

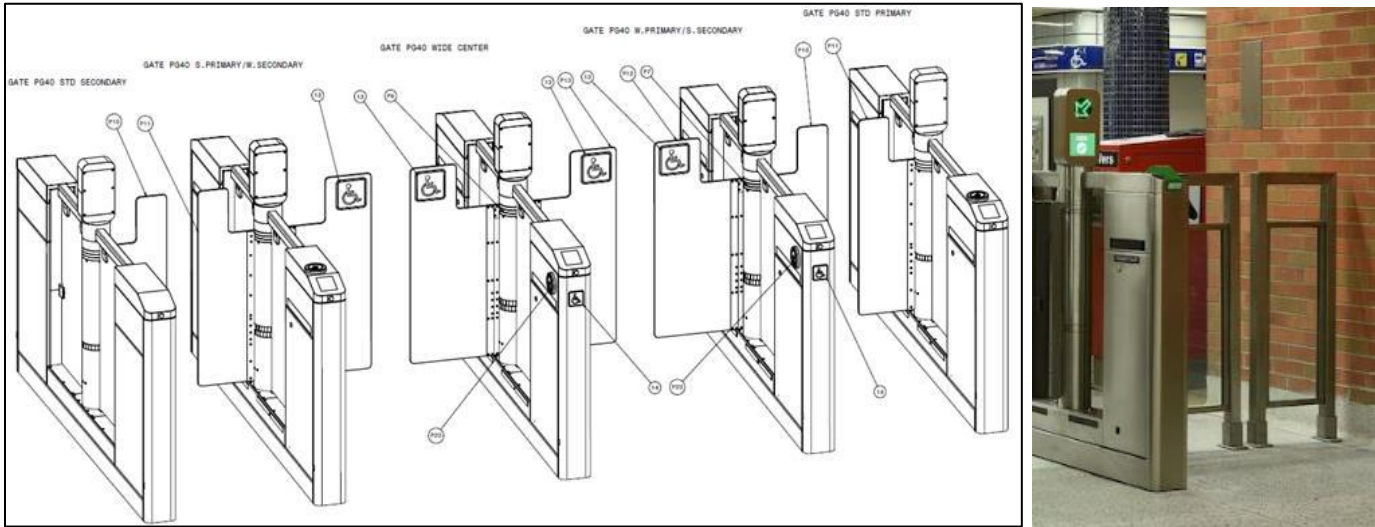


Table 27: S&B Fare Gate Dimensions

Device	Lane Depth (mm)	Stanchion Height (mm)	Lane Width (mm)	Stanchion Width (mm)	Width of Lane + 2 Stanchions (mm)
S&B PG-20 Standard	1300	1420	600	150	900
S&B PG-20 Accessible	1300	1420	1100	150	1400
S&B PG-40 Standard	2130	1420	660	155	970
S&B PG-40 Accessible	2130	1420	980	155	1290

Note: These dimensions are provided for reference only. For infrastructure planning, use the generic fare gate dimensions.

5.2.2.2 S&B Fare Gate Branding

This sub-section is **Required**.

The branding of the fare gates is a balance of the PRESTO and TA brands because the fare gates can only be used to process PRESTO fares for a single TA:

- PRESTO will be identified on the **tap target**; and
- The TA will be identified **on-screen** by the coloured TA logo in the middle of the screen.

Fare gates are not accompanied by other environmental signage.

Figure 20: Fare Gate Branding: NFC Reader (Left), Reader Mounting Position (Centre) and Fare Gate Idle Screen (Right)



6. PRESTO INSPECTION DEVICES

6.1 OVERVIEW

This sub-section is **Guidance**.

TA fare inspectors carry inspection devices to inspect the PRESTO fare media of passengers.

Table 28: PRESTO Inspection Devices

Devices	Functions	Notes
Handheld Point of Sale (HHPOS) 	- Inspect PRESTO cards - Query PRESTO cards	The Handheld Point of Sale is designed for use by Enforcement Operators on TTC streetcars and Subway stations to inspect and query PRESTO cards. This device is part of the 2020 Device Refresh. No longer deploying new units for this model, replaced by a newer model device with additional functionalities (accepting fare payment).
Inspection Device 	- Inspect PRESTO cards - Query PRESTO cards - Tap on Reversal - Digital Counter - Inspect Contactless - Inspect E-Tickets (QR Code) - Audio mode (via speaker or headset)	The Inspection Device is designed to be used by TA Enforcement Officers to inspect PRESTO cards, facilitate PRESTO card queries, and facilitate fare payment reversal. This device is part of the 2020 Device Refresh.

Table 29: Inspection Device Dimensions

	Handheld Point of Sale (HHPOS)	Inspection Device
Device	Zebra TC55	Panasonic FZ N1 MKII + Kiosk IV External Reader
Dimensions	With standard battery: 137mm(L) x 69mm(W) x 15.9mm(D)	Overall: 235mm(L) x 105mm(W) x 42mm(D) Phone-only: 155mm(L) x 74mm(W) x 15.2mm-30.5mm (D)
Weight	With standard battery: 7.8 oz./220g	- With regular battery: 452 g - With extended battery: 536 g
External Card Reader	N/A	- IK08 - IP65 64mm(L) x 53mm(W) x 13.5mm(D) 68 g

	Handheld Point of Sale (HHPOS)	Inspection Device
Display	• Blanview LCD display, 109.22mm. WVGA, exceptionally low power consumption, exceptionally bright image with 700 NITs, 3% transfective, Corning Gorilla Glass 3	• 119.4mm high definition 1280 x 720 display • 10-point capacitive multi-touch with glove touch mode • Brightness: 2 - 500 nits (daylight-viewable)

6.1.1 INSPECTION DEVICE BRANDING

This sub-section is **Required**.

Inspection device readers have tap target branding similar to other PRESTO device card readers.

Figure 21: Inspection Device with Branded NFC Reader Tap Target: Customer View (Left), Inspector View (Right)



7. TRANSIT ENVIRONMENT SERVICE DESIGN

This section includes **Guidance** and **Required** sub-sections.

Consulting Transit Agency operators: As PRESTO service design choices are made (e.g., as part of a new infrastructure project), it is essential to ensure the involvement of the transit agency or agencies that will operate the service. Decisions such as whether a new service will be gated or not will have significant consequences for fare revenue, the transfer experience, the nature of fare inspection, etc.

Engaging Metrolinx Payments Teams: In addition to the information below, there are other requirements regarding power, networking, flooring materials, anchoring, CCTV, etc. Therefore, it is essential to engage with Metrolinx Payments (PRESTO) prior to finalizing a design. Please send email to both of these addresses: PaymentEquipmentProductTeam@metrolinx.com, PaymentsInfrastructure@metrolinx.com

7.1 TRANSIT ENVIRONMENT TYPES OVERVIEW

This sub-section is **Guidance**.

The type and number of PRESTO devices required in various transit environments varies depending primarily on the following:

- a) Whether payment for the service is **onboard** or **off-board**. Off-board payment is preferred for “rapid transit” lines where:
 - (1) Vehicles stop less frequently;
 - (2) Typically at better-served stops;
 - (3) To pick up relatively more passengers; and
 - (4) The time to board/disembark is to be minimized.
- b) The **number of customers** accessing transit modes via the transit environments (i.e., the station/stop ridership).

Interconnecting modes and transit agencies: High connectivity between modes and TAs is a key to efficient and effective transit networks. Strategies for handling these interconnections from a PRESTO service design perspective are outlined in 7.7 PRESTO at Multi-Agency Transit Hubs.

An overview of the different transit environment types is provided in Table 30: Transit Environment Types, with in-depth information in the following sections.

Table 30: Transit Environment Types

Types of Transit Environments	Fare Payment Devices	Vending Devices	Staff Support with Fares?
Off-Board Payment			
1. Enclosed Stations  Subway, LRT & “integrated” Bus/Streetcar 	 Fare gates at all fare lines.	 Full-size (loading, tickets) at all fare lines - prior to fare gates.	TTC: No POS devices. Staff may assist with vending devices. OC Transpo: No POS devices. Staff may assist with vending devices.

Types of Transit Environments	Fare Payment Devices	Vending Devices	Staff Support with Fares?
2. Open Stations Commuter Rail 	 SFTPs prior to each platform access point.	 Full-size (loading, tickets) at most entrances.	GO Transit/UP Express: At staffed stations, staff can assist with vending machines and will have the mobile SA tool.
3A. Rapid Transit Stops: LRT LRT 	 SFTPs at entry to each platform.	 Full-size (loading, tickets) near platform entry. SRVM only EcLRT & FwLRT	No
3B. Rapid Transit Stops: BRT Platforms Bus 	 SFTPs at entry to each platform.	or Vending devices (at least tickets, preferably PRESTO loading) near entry.	No
3C. Rapid Transit Stops: BRT Shelters without Platforms Bus 	 SFTPs inside or adjacent to shelters.	 Vending devices (tickets) inside or adjacent to the shelter.	No
On-Board Payment			
4A. Onboard Fare Payment Stops: With Off-Board Vending Bus/Streetcar 	 BFTP/LFTPs on board vehicles.	or Vending devices (at least tickets, preferably PRESTO loading) near entrances.	No
4B. Onboard Fare Payment Stops: Without Vending Bus/Streetcar 	 BFTP/LFTPs on board vehicles.	No	No

7.2 GENERAL INSTALLATION REQUIREMENTS FOR PRESTO DEVICES

This section includes **Guidance** and **Required** sub-sections.

7.2.1 ESTIMATING FARE VENDING DEVICE NUMBERS

This section is **Guidance**.

The number of fare vending devices required within a transit environment will depend on the following factors:

- Minimum device numbers:** For redundancy, there are typically minimum device numbers. The numbers may depend on whether the entrance is considered a main, secondary, or third-party connection. Any entrance that is the primary accessible route would also be considered main;
Source of decision regarding main, secondary, and third-party: Metrolinx planning teams.
- Peak hour boardings per entrance (or fare line):** There must be enough devices to serve the number of customers expected to board at the peak hour. Depending on the station/stop layout, entrances may be able to share vending devices (e.g., where multiple street-level entrances lead to a single concourse ahead of a gated fare line that leads to both directions of a subway line). In other cases, calculations must be entrance-specific (e.g., where an entrance leads to only one side platform);
Source of data regarding: peak hour boarding estimates: Metrolinx planning teams.
- The % of customers using vending devices and the mix of customer tasks:** What percentage of customers will use the devices? This is estimated from historical data for similar stations as follows:
Source of data: PRESTO BI

Tasks	Loads per Boarding ¹³	Ticket Purchases (Paper Tickets or NFC Tickets) per Boarding
TTC Subway Walk-ins	6% ¹	3% ⁷
TTC-transfers between Subway/bus/streetcar	3% ²	0% ⁸
GO→TTC Subway (Transfers from GO Train)	3% ³	1.5% ⁹
GO Train Walk-ins	6% ⁴	6% ¹⁰
GO-transfers between train/bus	3% ⁵	0% ¹¹
TTC→GO Train (Transfers from TTC Subway)	3% ⁶	3% ¹²

Notes:

¹ In future, TTC riders are expected to increasingly adopt the PRESTO App, PRESTO in Mobile Wallet and PRESTO Contactless. For comparison, in Q1-2020 (pre-COVID), 7.6% of fare gate boardings had an accompanying FVM/SSRM load. In Q1-2022, this had increased to 10.4% because transit passes and Autoload had become less popular over the Pandemic, and average load size had decreased. In Q4-2024, the rate had dropped back to 6.9%.

² These intra-TTC transferring customers will typically continue with their TTC 2-hour transfer. However, some customers (especially those arriving by bus or streetcar) will take the opportunity to reload because this is not possible on a bus or streetcar. Therefore, a 50% factor is used.

³ Customers transferring from GO to TTC are observed to load at approximately 50% of the rate of walk-in customers (in line with 2019 and 2021 BI data).

⁴ In future, GO Train riders are expected to increasingly adopt the PRESTO App, PRESTO in Mobile Wallet, E-Ticket and PRESTO Contactless. By comparison, pre-COVID, approx. 12% of GO train boardings had an accompanying TVM/SSRM load. During the Pandemic, this increased to more than 20% as Autoload customers reduced their travel and Customer Service staffing was reduced.

⁵ Customers transferring from TTC to GO are observed to load at approximately 50% of the rate of walk-in customers (in line with 2019 and 2021 BI data).

⁶ These intra-GO transferring customers will typically continue with their GO Transit 3-hour transfer. However, some customers (especially those arriving by bus) will take the opportunity to reload, because this is not a convenient task on a bus. Therefore, a 50% factor is used.

⁷ Pre-Pandemic (Q1-2020), 1.4% of TTC Subway customers bought tickets. In Q1-2022, this had increased was 3.0%, possibly as tourism rebounded. However, occasional customers have increasingly adopted Open Payment, and in Q1-2024, the rate was back to 1.6%.

⁸ These intra-TTC transferring customers will typically continue with their NFC Ticket.

⁹ Customers transferring from TTC to GO are estimated to buy tickets at 50% of the rate of walk-in customers.

¹⁰ Pre-Pandemic (Jan. 2020), 7-12% of GO Train customers bought a paper ticket. This % figure reflects the expected adoption of E-Tickets and Open Payments.

¹¹ These intra-GO transferring customers will typically continue with their paper tickets.

¹² Customers transferring from GO to TTC are estimated to buy tickets at 50% of the rate of walk-in customers.

¹³ Purchases of new PRESTO physical cards are relatively rare (below 0.1% of boardings), so this task is excluded from the analysis;

- d) **Whether in-station assistance is available:** When customers self-serve, the average time tends to be relatively higher compared to the median time due to a small number of high-duration outliers (e.g., a customer repeatedly attempting to use a damaged bill). The availability of in-station assistance reduces these outliers and allows the use of the median time in the calculation. Otherwise, the average (pure self-serve) time must be used;

Source of decision regarding assistance: Metrolinx planning teams.

- e) **The time required for different tasks:** The time required by each customer at a vending machine depends on the complexity of the task (e.g., loading a card vs. specifying the endpoints of a fare by distance ticket), the method of payment (e.g., tapping a contactless credit card is faster than inserting coins), and the device HMI (e.g., response time to user input, the efficiency of the HMI design, etc.). This data will be updated periodically.

Source of data: Metrolinx Payments CX team in-field TTC, GO, and UPE observations (May 2022).

Customer Task	Estimate Timing
PRESTO physical card load (FVM) ¹	40 sec.
Flat fare ticket purchase (FVM) ²	50 sec.
Fare by distance paper ticket purchase (TVM) ³	70 sec.

Notes:

¹ Observed data for loading a PRESTO physical card on the FVM: Average: 44 sec.; Median: 34 sec.

² Observed data for purchasing a flat-fare ticket on the FVM: Average: 48 sec.; Median: 40 sec.

³ Observed data for purchasing distance-based GO tickets on the Flowbird FVMs: Average: 81 sec; Median: 72 sec. The new Sigma TVMs will be faster, so a 10-second improvement has been added, but the exact value will only be known once the rollout begins.

- f) **Future tap-off (enclosed transit environments only):** If tap-off (fare-by-distance) is ever implemented for enclosed (fare-gated) transit environments, customers may need to purchase additional fare to exit. Therefore, enclosed transit environments shall include (capped) civil works (space, power, communications) for fare vending machines within each fare-paid zone to protect this possibility.

7.2.2 GENERAL SPACING AND MANEUVERABILITY REQUIREMENTS

This sub-section is **Required**.

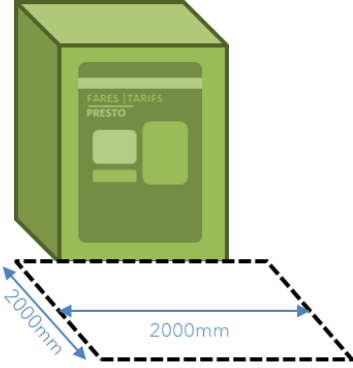
Important: In addition to the requirements information below, there are other factors to consider, such as:

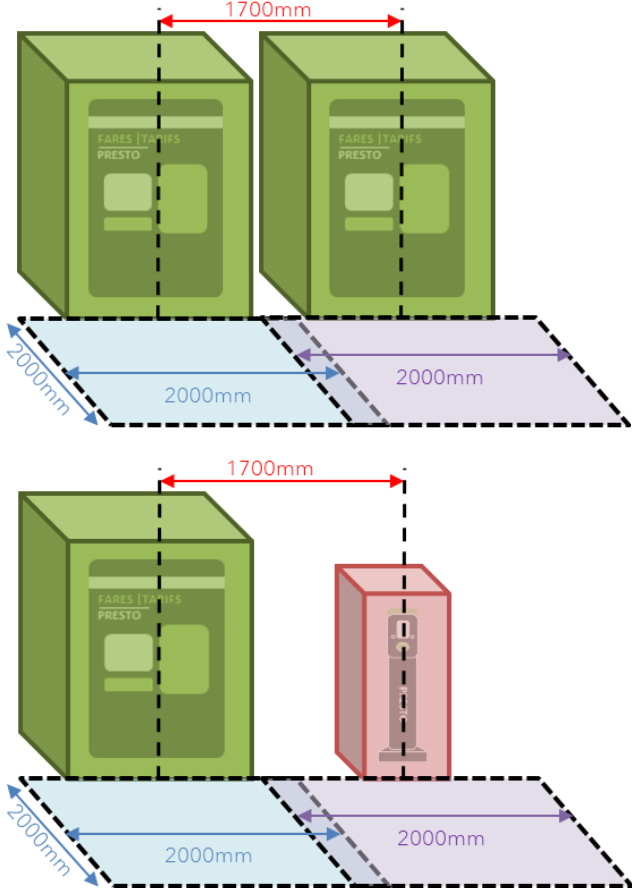
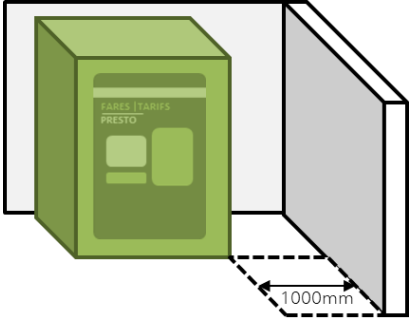
- The exact size of the current family of device models.
- The exact layout of floor anchors for specific devices.
- The exact layout of conduits.
- Additional details regarding power and networking.

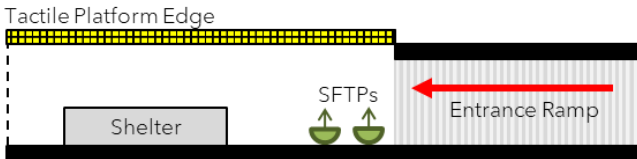
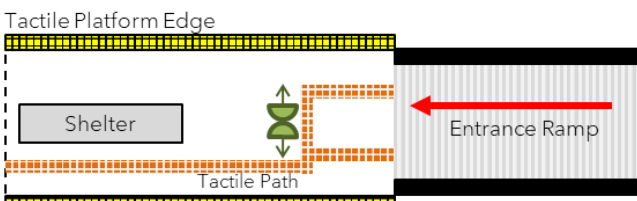
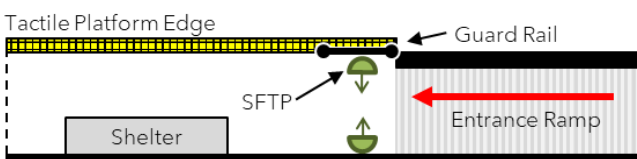
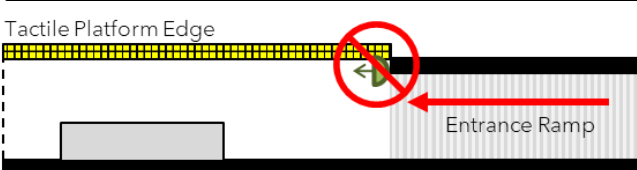
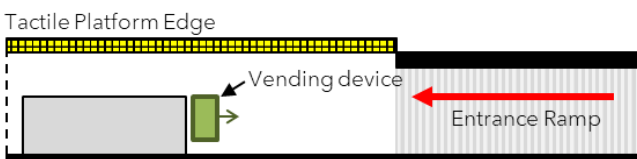
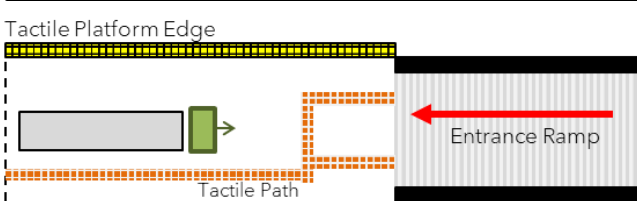
Therefore, it is essential to engage the Metrolinx Payments (PRESTO) Infrastructure Team (PaymentsInfrastructure@metrolinx.com) prior to finalizing any design elements that may constrain fare system installation.

Note: Where this document differs from other Metrolinx design standards differ, the most stringent requirements shall be followed.

#	Requirements	Rationale/Consequences
GEN-1	Follow the appropriate Payments (PRESTO) Technical Standard for the installation details: • S&B AVM: MX-PYM-STD-01 • Accenture/Famoco SFTP: MX-PYM-STD-02 • Sigma TVM: MX-PYM-STD-04 Standards for additional devices (e.g., S&B FVM, S&B SRVM, Faregates) will be developed in the future.	Includes technical requirements necessary to properly install PRESTO devices including electrical information, flooring, and concrete pad design details.
GEN-2	Floor/ground surface: Floor/ground surface adjacent to the device's operating controls shall: a) be level (i.e., less than 2% slope for drainage, not interrupted by expansion joints or floor drainage); b) be stable and firm; c) be slip-resistant; and d) produce minimal glare; and not be heavily patterned.	
GEN-3	Indoors, it is preferable to install devices directly on the finished floor: PRESTO SFTPs and vending devices are sized to be installed on a level floor to ensure access by people using wheeled mobility devices (e.g., so that uppermost user controls are not higher than 1200mm); and	

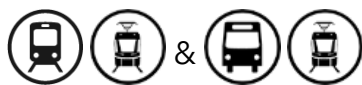
#	Requirements	Rationale/Consequences
GEN-4	Outdoors, devices shall be installed directly on level ground where practicable. If concrete bases are used, the dimensions of the base shall not interfere with reach or approach by customers using mobility devices. See the Payments (PRESTO) Technical Standard for the installation details.	PRESTO devices are sized to be installed on a level floor to ensure access by people using wheeled mobility devices. However, in outdoor environments concrete pads are sometimes used to account for slopes required to facilitate drainage.
GEN-5	Provide a clear turning space of 2000mm by 2000mm centred on the device;  The diagram shows a green rectangular device with a screen displaying 'FARES/TARIFS' and 'PRESTO'. Below the device, a dashed rectangle indicates a clear turning space. Blue arrows and text label the dimensions of this space as 2000mm by 2000mm.	Facilitates reaching by enabling the customer to adjust their side- or front-approach.

#	Requirements	Rationale/Consequences
GEN-6	When a vending machine is adjacent to another device, the clear turning space of 2000mm by 2000mm can overlap such that devices can be equally spaced along the length of the wall, with a clearance of 1700mm between devices; 	While 2000mm is required to maneuver with a mobility device, if two customers using mobility devices are using adjacent devices, it is reasonable to expect that they could coordinate their maneuvering.
GEN-7	Self-service machines shall be located at least 1000mm from adjacent inside corners and return walls. 	
GEN-8	Vending devices shall have clear queue space for a minimum of three people standing perpendicularly in front of each machine (1400mm/person as per the National Fire Protection Association). This queue space shall not interfere with the egress, path of travel, or other fare thresholds queue space.	

#	Requirements	Rationale/Consequences
GEN-9	Ensure sufficient clear space on platforms: A minimum clear space of 1500mm is required; this must not include the tactile platform edge.	
GEN-10	Avoid unprotected platform edges on platforms: Devices shall not be installed so that customers using the device are adjacent to an unprotected platform edge. This typically means placing the devices against the side wall for side platforms. For centre island platforms, devices can be placed along the platform mid-line:   If an SFTP is placed adjacent to the platform edge, it must face away from the edge and have a guard rail behind it.  	If devices are installed adjacent to an unprotected platform edge, this presents a safety concern for customers using mobility devices or who have visual disabilities and may inadvertently interact with the platform edge.
GEN-11	On platforms, consider installing vending devices so that the queue is parallel to the platform edge: Vending devices shall be installed so that queues do not interfere with the path of travel;  	This orientation enables customers to queue while other customers can still move easily along the platforms.
GEN-12	Do not impede accessible routes: Devices shall be installed so accessible routes are not impeded;	

#	Requirements	Rationale/Consequences
GEN-12	Do not impede tactile guidance paths: Devices must be installed to preserve at least 600mm clear space on each side of any tactile guidance paths;	Customers with visual disabilities who use these paths will expect them to be clear of obstacles.
GEN-13	Do not impede surge spaces: Devices must not be located within the mandated surge spaces for vertical access elements and doors;	
GEN-14	Security: Ensure that CCTV cameras cover payment and vending devices.	

7.3 PRESTO AT ENCLOSED STATIONS



Subway, LRT & “integrated”
Bus/Streetcar



7.3.1 OVERVIEW

This sub-section is **Guidance**.

Enclosed Stations are built environments for boarding large rapid transit vehicles (subway, LRT), where off-board payment is required prior to entry into a fare-paid zone. These stations are characterized by:

- Transit options are available beyond a fare line indicated by a payment barrier (i.e., fare gates);
- Requires an **unpaid zone** in which fare payment occurs. Regardless of fare media type, all customers must interact with the fare gates;
- Vending machines for PRESTO loading and ticket purchase are located in the unpaid zone;
- Stations will include platforms typically connected by vertical circulation elements (VCEs) such as stairs, escalators, elevators, or ramps;
- A station is **integrated** if other modes of transit (e.g., bus, streetcar) may be accessed from within the fare-paid zone. Otherwise, if the other modes connect outside the fare line, the station is **non-integrated**; and
- Inspections can occur at any point beyond the fare line (in-station and on-vehicle), referred to as a **fare-paid zone**. However, due to the barrier presented by the fare gates, inspection tends to be less of a focus for systems with enclosed stations.

For customers, having the collection of fare enforced upon entry removes the mental effort of remembering to pay. Additionally, having PRESTO physical card loading options and ticket purchase options available in the same space provides a sense of security to travel. However, fare gates can pose complications that can require TA staff support. For example, customers may pay and then miss their gate.

Another advantage of fare gates for TAs is crowd control. Fare gates can be turned on and off to limit the number of customers at the platform level during service disruptions or event surges. Customers benefit when dangerous crowding is prevented.

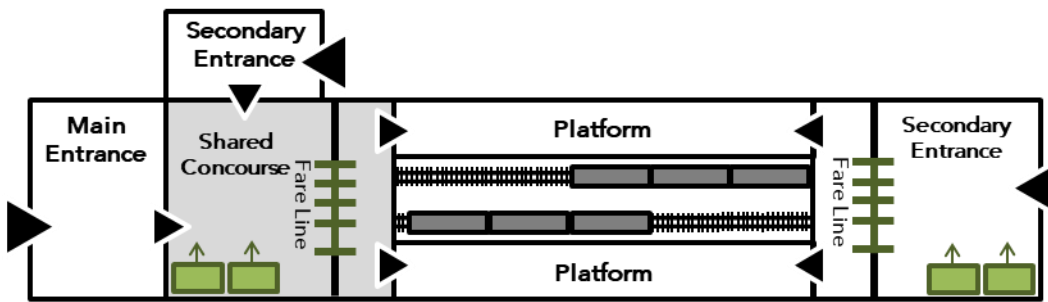
7.3.1.1 Entrances and concourses

Enclosed stations are often built with multiple entrances that more efficiently serve customers approaching from different directions.

- An entrance may have its own fare line, or multiple entrances may feed into a shared concourse where the fare line is located; and
- Where multiple entrances feed a single concourse, the minimum number of devices for the concourse can be calculated as if the concourse is a single entrance.

- c) If a concourse contains multiple fare lines, they can be considered part of one larger fare line for the calculation of minimum device numbers.

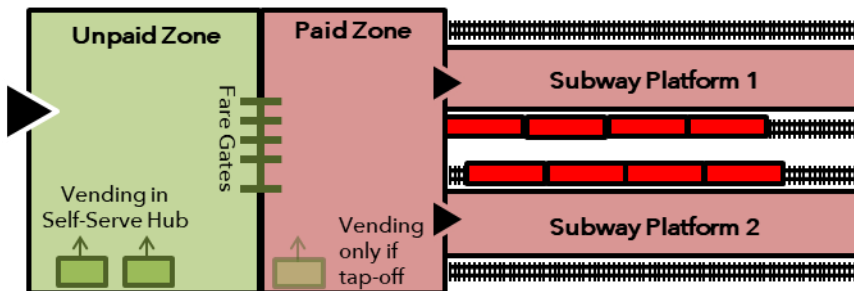
Figure 22: Example of Fare Lines Located in a Shared Concourse (Serving Two Entrances) and at a Secondary Entrance.



7.3.1.2 Integrated (Multi-modal) Stations

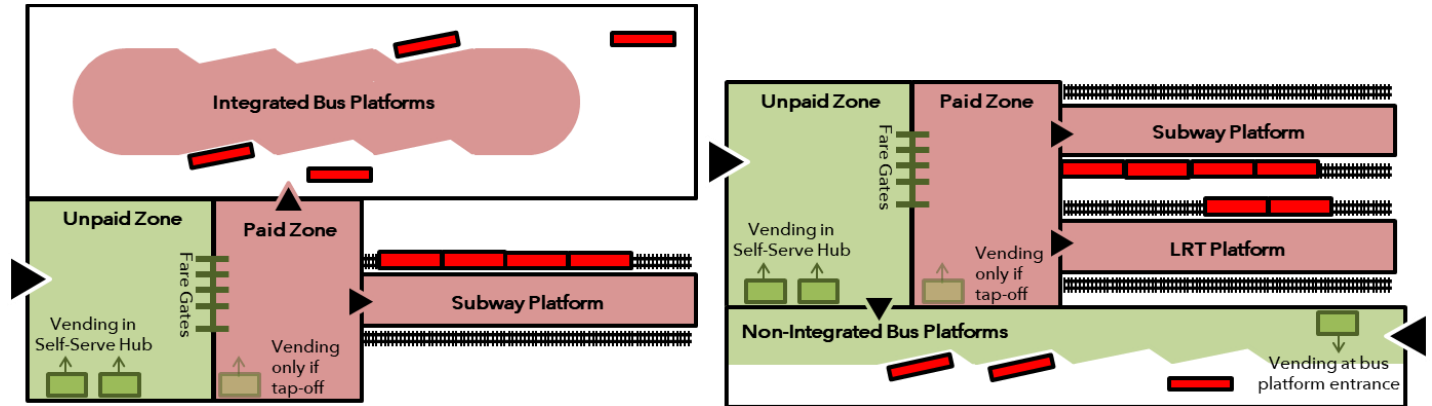
When multiple transit lines operated by the same transit agency that employs enclosed stations converge, the transfer stations are typically designed to enable “free body” transfers within a continuous fare-paid zone. This arrangement allows customers to move smoothly from one line to another without the “friction” of leaving one fare-paid area and re-entering another via two sets of fare gates. Sometimes, the fare paid zone is compact (e.g., TTC St. George Subway Station features stacked platforms for lines 1 and 2, connected by stairs, escalators, and elevators). In contrast, at other stations, the fare paid zone may be much more extensive (e.g., TTC Spadina Subway Station features a 150m walkway between the platforms for TTC Line 1 and 2).

Figure 23: Example of an Enclosed Station with a “Free Body” Transfer between Two Subway Lines



Station designers may also elect to bring other modes that typically do not feature enclosed stations into the enclosed station to facilitate transfers. For example, buses and streetcars, which typically employ onboard fare payment, may connect directly to the paid zone at subway stations. These stations are referred to as “**integrated stations**.” However, this arrangement is not a requirement, and “**non-integrated stations**” are common, with offboard payment modes connecting to the station outside the fare paid zone.

Figure 24: Examples of Stations with Bus Platforms That are “Integrated” (Left) vs. “Non-Integrated” (Right)



Non-integrated bus platforms are especially well-suited to situations in which buses from multiple transit agencies stop at a station because:

- unpaid free body transfers to the subway service are prevented; and
- transfers between buses from different TAs are easily enabled.

For more information on multi-agency stations, see 7.7 PRESTO at Multi-Agency Transit Hubs.

7.3.1.3 Fare by distance and vending devices in the fare paid zone (Future Opportunity)

Among the transit agencies that use the PRESTO fare system, only the TTC Subway/LRT and the OC Transpo LRT employ the Enclosed Station format, and both charge a flat fare on tap-on.

However, fare by distance could be enabled in the future by installing readers on the fare paid side of the fare gates that customers would then be required to tap-off to exit. For PRESTO customers (PRESTO card, PRESTO Contactless), this would likely operate in the same way as either GO Transit (base fare at tap-on; adjustment at tap-off) or UP Express (maximum fare charged at tap-on; adjustment refund at tap-off).

However, fare vending devices will be required inside the fare-paid zone for customers travelling on an NFC Ticket or POP ticket (barcoded). If a customer has insufficient fare (NFC Ticket or POP ticket) to travel to the station attempting to exit, they will likely need to purchase an “exit” fare from the vending machine to open the fare gate to exit.

7.3.2 PRESTO CUSTOMER NEEDS AT ENCLOSED STATIONS

This sub-section is **Guidance**.

There are several high-level customer needs concerning fare payment that must be accommodated within Enclosed Stations:

- Ability to purchase prior to the fare gates:** Customers need an opportunity to purchase a fare prior to the fare gates in the unpaid area. Customers may use this opportunity prior to attempting payment at the fare gate or after being declined;
- Ease of navigation:** Customers need to easily find and identify fare vending devices prior to the fare gates;
- Sufficient devices:** There must be enough vending and payment devices to serve customers at peak times;
- Queue space:** Adequate queueing space for fare payment and loading devices; and
- In-station support:** Since fare gates are a physical barrier, customers may feel stranded if they experience a fare payment issue (e.g., they tap but miss their gate and then experience an “Already Tapped” decline. Message).

7.3.3 OTHER RELEVANT METROLINX DESIGN STANDARDS

The following standards are relevant to the design of enclosed stations. **Where this document differs from other Metrolinx design standards differ, the most stringent requirements shall be followed.**

- **Metrolinx DS-02 Universal Design Standard**
- **Metrolinx DS-03 Wayfinding Design Standard (and Implementation Manuals)**

Notes on Alignment: DS-03 This standard defines signage for Metrolinx developed stations, and stops referring to PRESTO devices, and includes a set of standard symbols, including symbols related to fare payment (see below):



- **Metrolinx DS-09 Subway Station Architecture Design Standard**
Notes on Alignment: DS-09 calls for fare gates and a minimum of two vending devices as primary and secondary entrances, which aligns with the current Standard. However, DS-09 does not include the provision to protect for a (future) fare vending devices in the fare paid zone in case tap-off is ever instituted on the Subway in the future, which the current Standard does.
- **Metrolinx DS-11 Third-Party Entrance Connection Requirements**
Notes on Alignment: DS-11 requires that third-party connections shall either lead to the station's unpaid area or be designed to accommodate fare control systems (i.e., fare gates and vending devices).
- **Metrolinx DS-12 Pedestrian Flow Modelling Design Standard (DRAFT)**
- **Metrolinx DS-13 Light Rail Transit (LRT) Architecture Design Standard**
Notes on Alignment: DS-13 enables LRT Stations to be either enclosed (i.e., fare payment by fare gates) or open (i.e., fare payment by SFTPs), as does the current Standard.
- **Metrolinx Payments (PRESTO) Technical Standards**
Note: It is essential to engage with Metrolinx Payments (PRESTO) prior to finalizing a design. Contact PaymentsInfrastructure@metrolinx.com
 - 1) MX-PYM-STD-01: S&B Add Value Machine (AVM);
 - 2) MX-PYM-STD-04: Sigma Ticket Vending Machine (TVM)

7.3.4 ENCLOSED STATIONS - FARE GATE REQUIREMENTS

This sub-section is **Required**.

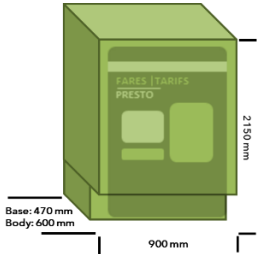
Table 31: Requirements for Fare Gates at Enclosed Stations

#	Requirements	Rationale/Consequences
ES-FG-1	Plan using the generic fare gate dimensions: - Height: 1500mm; - Depth: 2150mm; and - Width: - Stanchions: 200mm; - Standard lane: 700mm; or (lane+2 stanchions: 1100mm) - Accessible lane: 1100mm; (lane+2 stanchions: 1500mm). - In addition: maintenance clearance of 500mm, touchscreen controller, and emergency release switch. 	Enables devices to be swapped out for different suppliers/models as devices and technology evolve.
ES-FG-2	Fare gates must be placed in the natural flow of customers from the entrances toward the platform areas (i.e., the fare paid area).	Device placement emphasizes visual transparency to avoid safety hazards in open spaces or at crossing points.
ES-FG-3	Fare gates must be co-located with fare vending devices.	Enable customers to quickly find the devices if their first fare payment attempt is declined.
ES-FG-4	In-station staff shall be capable of opening at least one (accessible) fare gate per fare line.	Provide convenience and comfort for customers.
ES-FG-5	Fare gates must be sheltered from direct weather.	Provide convenience and comfort for customers. Also, the devices are designed for operation inside a station building or a sheltered location (i.e., under a roof and not directly exposed to rain or snow).
ES-FG-6	Where glass barriers are used to fill maintenance clearances, these must be aligned along the central axis of the fare line.	To provide a consistent barrier from whichever side the fare line is approached.
ES-FG-7	All main entrance fare lanes shall accommodate at least two (2) accessible fare gates and shall be located along the accessible path of travel. However, where a fare line is at an entrance that leads <u>only</u> to a non-accessible route (i.e., with stairs or escalator as the only vertical circulation element), accessible fare gates are unnecessary. But if the entrance may later be retro-fitted to be accessible (e.g., with an elevator or ramp), then to reduce retro-fitting costs for the fare line, accessible fare gates are permitted.	Ensures accessibility compliance.

7.3.5 ENCLOSED STATIONS - FARE VENDING DEVICES REQUIREMENTS

This sub-section is **Required**.

Table 32: Requirements for Fare Vending Devices at Enclosed Stations

#	Requirements	Rationale/Consequences
ES-VD-1	Plan using the generic Full Size fare vending device dimensions (unless a canopy is required):  - Height: 2150mm; - Width: 900mm; and - Depth (for base and mobility device turning): 470mm; - Depth (above the base): 600mm.	Enables devices to be swapped out for different suppliers/models as devices and technology evolve.
ES-VD-2	Fare vending devices must be present in the unpaid zone prior to each fare line to enable the following: - PRESTO physical card purchase; - PRESTO physical card query and loading; and - Ticket purchase. These devices must enable payment via cash (bills and coins), credit and debit.	PRESTO customers using cash or credit/debit cards must be supported.
ES-VD-3	Main fare lines may have more fare vending functionality than secondary fare lines.	It's expected that main fare lines will have higher customer volumes. Main fare lines will have more customer amenities, in general.
ES-VD-4	Fare vending devices must be placed: - Prior to fare lines in the unpaid area; - On the same level as the fare line (not a level up or down); - Along the natural path of movement from an entrance to the fare line to avoid customer confusion or wasted time; - Within sight of the fare gates (i.e., not around a corner); and - Along the Barrier-free path of travel for easy access by customers with accessibility needs.	Device placement emphasizes on visual transparency to avoid safety hazards in open spaces or at crossing points. Payment must be accessible and accommodate common, non-proprietary forms of payment.
ES-VD-5	Fare vending devices are to be placed in a way that ensures: - Station movement and volume don't obscure or obstruct device use; - Queues for devices don't obstruct movement within the station, including movement to/from the fare lines; and - Queues for devices don't obstruct the use of other devices.	Devices that feel precarious to customers due to their placement aren't used as frequently.

#	Requirements	Rationale/Consequences
ES-VD-6	If tap-off is required (or a paid transfer may be required from within the fare paid area), then a customer must be able to purchase a ticket and load a PRESTO physical card at least one location: a) Within the fare paid area; and b) In proximity to the main fare line.	Fare-by-distance customers may have to pay an additional fare to exit, so they will need a payment method (by loading value or buying a ticket to exit). Customers may have lost their fare media and will need the ability to exit the station.
ES-VD-7	Where possible, fare vending devices shall be sheltered from the weather and direct sun glare.	While the fare vending devices are rated for outdoor use, a shelter will increase customer comfort.

7.3.6 ENCLOSED STATIONS - ESTIMATING DEVICE NUMBERS

This sub-section is **Required**.

7.3.6.1 Recommended Number of Fare Gates

The number of fare gates required will depend on the following factors:

- a) **Emergency egress:** The determining factor for the number of fare gates is typically sufficient emergency egress capacity:
 - 1) See NFPA (guided by the National Fire Protection Association) 130: Standard for Fixed Guideway Transit and Passenger Rail Systems;
 - 2) In an emergency (with all gates automatically opened), each fare gate has an egress capacity of 50 people per minute (PPM). NFPA 130 requires platform evacuation in less than 4 minutes and station evacuation in less than 6 minutes. The effect of these requirements on the minimum fare gate numbers will depend on the station layout;
- b) **Fare gate throughput:** 25 PPM can tap and pass through each fare gate (as per Metrolinx Pedestrian Flow Modelling Standard) in one direction;
- c) **Expected station ridership by fare line:** How many customers will enter and exit the station via each fare line at peak times?
- d) **Device redundancy:** Some redundancy shall be included if fare gates go out of order; and
- e) **Support for separation of future enter-only/exit-only fare gates:** At busy stations, gate collisions (where people on both unpaid and paid sides of the gate attempt to use it simultaneously) reduce fare gate throughput. This can be eliminated by setting a portion of the gates as enter-only while another portion is exit-only. This should be considered in the calculation. However, given that accessible gate numbers tend to be limited, these can be kept bi-directional.

7.3.6.2 Recommended Number of Vending Devices (Enclosed Stations)

The number of fare vending devices required will depend on several factors (see section This section includes **Guidance** and **Required** sub-sections.

7.2.1 Estimating Fare Vending Device Numbers) including:

- a) Minimum device numbers;

- b) Peak hour boardings per fare line;
- c) The % of customers using vending devices and the mix of customer tasks;
- d) Whether in-station assistance is available;
- e) The time required for different tasks; and
- f) Whether tap-off is to be implemented and an additional fare could be charged to exit. If this is the case, or if this is a future possibility, then vending devices must be available for customers with insufficient fares to exit (e.g., an insufficient ticket or PRESTO balance).

7.3.6.3 Device Number Calculations (Enclosed Stations)

STEP 1: Begin with the minimum device numbers:

Devices	Main Fare Line ¹	Secondary Fare Line ¹	3 rd -Party Connection Fare Line ³	Comments
 Fare Gates	3 (at least 2 accessible)	2 (at least 1 accessible if the route is accessible ⁵)	2 (at least 1 accessible if the route is accessible ⁵)	These are minimums. Emergency egress requirements and peak hour estimates will dictate the minimum number of fare gates.
 Vending Devices²	<u>Unpaid Area:</u> 2 <u>Paid Area:</u> Protect ⁴ for 1 in proximity to the main fare line	<u>Unpaid Area:</u> 2	<u>Unpaid Area:</u> 1	For redundancy (e.g., when a device is being serviced). Third-party connections may have just one vending device, as other fare lines can provide redundancy.

Notes:

¹ "Fare lines" are specified instead of "entrances" because multiple entrances may feed a common concourse with one fare line. A fare line intended to be served by an attendant would be considered a main fare line. Any fare line that is the primary accessible route would also be considered a main fare line. If a concourse contains multiple fare lines, they can be considered part of one larger fare line for the calculation of minimum device numbers.

² Current TTC Subway stations also include SSRMs; while still supported, S&B SSRM inventories are limited, and there are no plans to re-order. Future projects shall be sized to accommodate full-service vending devices (e.g. S&B FVM or Sigma TVM).

³ For more information, see Metrolinx DS-11 Third-Party Entrance Connection Requirements.

⁴ Protecting in case of tap-off enablement in the future requires additional fare payment to exit.

⁵ Where a fare line is at an entrance that leads only to a non-accessible path (i.e., with stairs or escalator as the only vertical circulation element), accessible fare gates are unnecessary. But if the entrance may later be retro-fitted to be accessible (e.g., with an elevator or ramp), then to reduce retro-fitting costs for the fare line, accessible fare gates are permitted.

STEP 2: Then, determine if any additional fare gates are required:

Fare Gates Required for Emergency Egress (as per NFPA 130)		A: _____
Fare gates required for customers entering fare paid area (peak hour)		B1: _____
Fare gates required for customers exiting fare paid area (peak hour)		B2: _____
# Fare gates		Larger of A or B1+B2 _____

STEP 3: Then, determine if any additional vending devices are required with the following worksheet:

ENCLOSED STATION VENDING DEVICES Peak Ridership (/Hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ¹	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: _____	Load card (x6%)		x 40 sec. =		
	Buy flat-fare tickets (x3%)		x 50 sec. =		
# TTC-transfers between Subway/bus/streetcar: _____	Load card (x3%)		x 40 sec. =		
	Buy flat-fare tickets (x0%)		x 50 sec. =		
#GO→TTC Subway (Transfers from GO Train): _____	Load card (x3%)		x 40 sec. =		
	Buy flat-fare tickets (x1.5%)		x 50 sec. =		
¹ From 7.2.1 Estimating Fare Vending Device Numbers				# Devices	

EXAMPLE: An enclosed TTC Subway station (with one fare line) with the following expected peak hour ridership:

PEAK RIDERSHIP /HR		Depart		
Arrive		Walk-out (300)	Integrated TTC Bus Bay (1000)	Subway (1700)
	Walk-in (1500)		500	1000
	Integrated TTC Bus Bay (1000)	100	200	700
	Subway (500)	200	300	

ENCLOSED STATION VENDING DEVICES Peak Ridership (/Hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ¹	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: 1500	Load card (x6%)	90	x 40 sec. =	3600	1
	Buy flat-fare tickets (x3%)	45	x 50 sec. =	2250	0.625
# TTC-transfers between Subway/bus/streetcar: 1200	Load card (x3%)	36	x 40 sec. =	1440	0.4
	Buy flat-fare tickets (x0%)	0	x 50 sec. =	0	0
#GO→TTC Subway (Transfers from GO Train): n/a	Load card (x3%)	0	x 40 sec. =	0	0
	Buy flat-fare tickets (x1.5%)	0	x 50 sec. =	0	0
¹ From 7.2.1 Estimating Fare Vending Device Numbers				# Devices	2

7.3.7 EXAMPLES OF ENCLOSED STATIONS

This sub-section is **Guidance**.

7.3.7.1 Union Subway Station (TTC)

TTC Union is a station on the Line 1 Yonge-University Subway. It has pedestrian connections with GO Transit, VIA Rail and UP Express within the historic Union Station Building and the Downtown Toronto PATH pedestrian system.

- a) **Fare Model:** Flat fare (TTC);
- b) **Mode Connections:** An “integrated” connection between Subway Line 1 and the Queens Quay streetcar line. Several bus routes make “non-integrated” connections at street level;
- c) **Vehicle Capacity:** TTC subway trains have a capacity of 1100 passengers with a target of 36 trains per hour.
- d) **Status:** In service; and
- e) **Alignment with the PRESTO Service Design Standard:** Fare gates and FVMs are well-aligned. Also:
 - 1) **Gated fare lines for each direction of station entry:** The below-grade station enables customer entry from various directions by placing fare gates on all four sides of a central fare paid area;
 - 2) **Fare vending prior to each fare line:** Each fare line has at least two fare vending machines enabling PRESTO physical card purchase and loading, and NFC ticket purchase; and
 - 3) **Interconnection between entry points and station services:** With five fare lines, TA personnel are not stationed at each. However, the station's design allows customers to circulate through the unpaid concourse area to access support at other fare lines without leaving the station.

Figure 25: TTC Union Station East Fare Line (Left) and Alternate East Fare Line (Right)

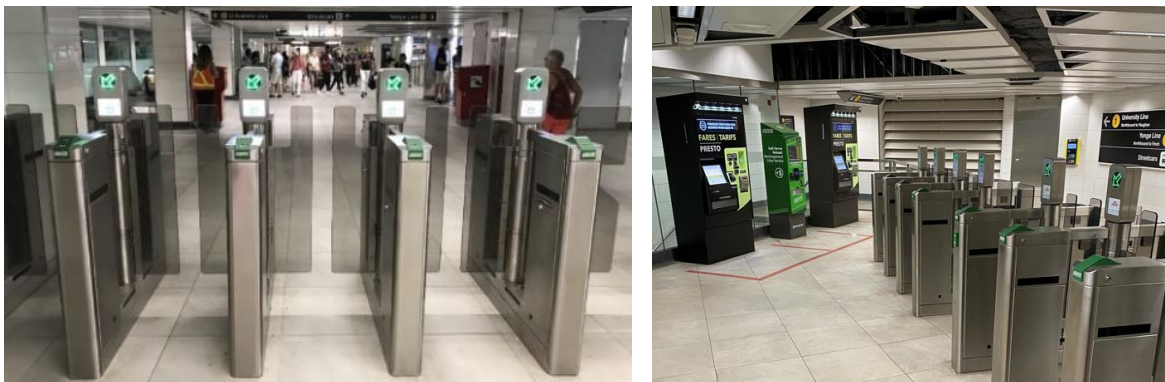


Table 33: PRESTO Fare Product Support (TTC Union Station)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	Yes	No	Non-PRESTO TTC provides legacy cash boxes. Customers with POP receipts from at-grade SRVM arrive in fare-paid zones.

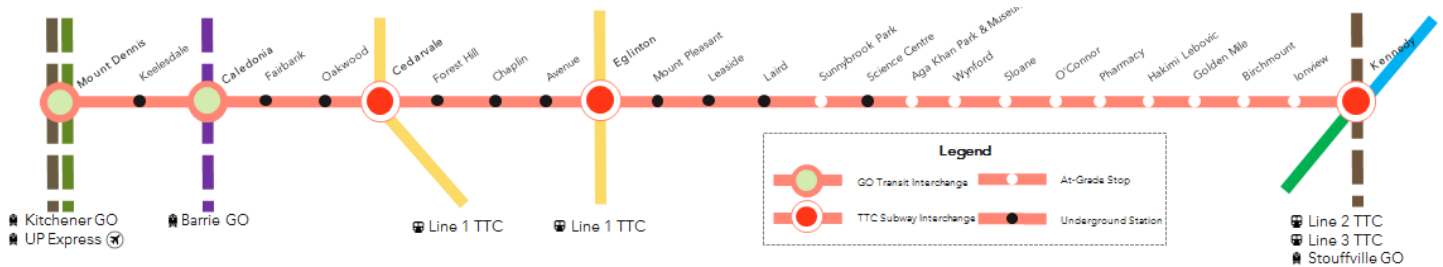
Table 34: Device Numbers (TTC Union Station)

Devices	South Fare Line	West Fare Line	North Fare Line	East Fare Line	Alt. East Fare Line
 S&B PG-20 Fare Gates (Standard & Accessible)	9 (2 accessible)	7 (1 accessible)	13 (2 accessible)	6 (1 accessible)	7 (1 accessible)
 S&B SSRM	2	0 (but easy walk to North and South fare lines)	2	1	1
 S&B FVM	2	0 (but easy walk to North and South fare lines)	2	2	2

7.3.7.2 Eglinton Crosstown LRT (EcLRT) Underground Stations

The Eglinton Crosstown LRT (EcLRT) is a light rail transit line under construction along Eglinton Avenue in Toronto. EcLRT will have 25 stops and will link to the UP Express, Kitchener GO line, Barrie GO, TTC Subway Lines 1 (Spadina-University-Yonge), Line 2 (Bloor), Line 3 (Scarborough RT), and Stouffville GO line.

Figure 26: Eglinton Crosstown LRT Map



The EcLRT consists of a mix of at-grade stops (mostly side platforms, but one centre island platform - Sloane), underground stations, and underground interchange stations with the TTC Subway.

- Fare Model:** Flat fare (TTC);
- Mode Connections:** The EcLRT makes "integrated" connections with TTC Subway Lines 1, 2 and 3. Some stations feature "integrated" bus route connections (e.g., Science Centre), while others have "non-integrated" bus route connections at street level;
- Vehicle Capacity:** Each vehicle holds 163 riders, and trains will consist of two to three vehicles. Trains should run every 4 minutes at peak;
- Status:** Under construction; and
- Alignment with the PRESTO Service Design Standard:** Good alignment (now that fare gates are planned for all underground stations).

Figure 27: Renderings of an EclRT Station at Ground Level (Left) and Concourse Level (Right)



Table 35: PRESTO Fare Product Support (Eglinton Crosstown LRT Station)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	Yes	No	Non-PRESTO TTC provides legacy cash boxes. Customers with POP receipts from at-grade SRVM arrive in fare-paid zones.

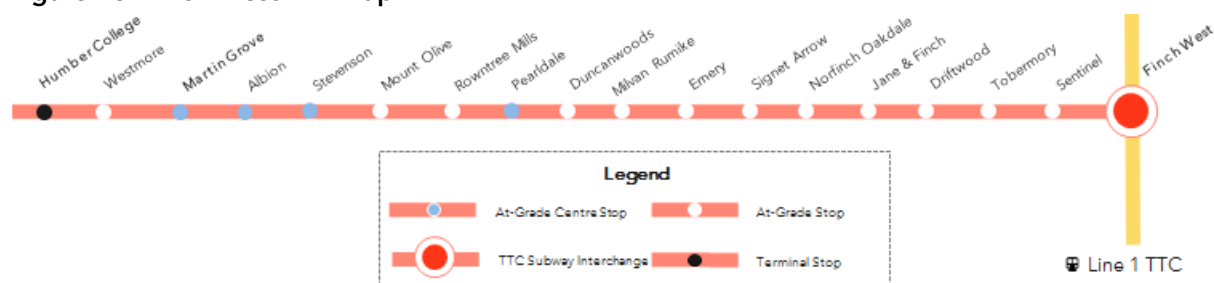
Table 36: Device Numbers (Eglinton Crosstown LRT Station)

Devices	Main Fare Lines	Secondary Fare Lines	3 rd Party Connections
 S&B PG-40 Fare Gates (Standard & Accessible)	5-6 (Some stations have two main fare lines)	3-4	TBC
 S&B FVM	2-4 (Mt. Dennis: 3; others: 2)	1-2 (Typically, 2)	TBC

7.3.7.3 Finch West LRT (FwLRT) Underground Stations

The Finch West LRT (FwLRT) is a light rail transit line under construction along Finch Avenue in Toronto. FwLRT will have 18 stops and link Finch West TTC Subway station with Humber College.

Figure 28: Finch West LRT Map



The FwLRT consists primarily of at-grade stops (a mix of centre and side platforms) with an underground interchange at Finch West Subway and an underground terminal stop at Humber College.

- Fare Model:** Flat fare (TTC);
- Mode Connections:** The FwLRT makes an “integrated” connection with TTC Subway Line 1 at Finch West;
- Vehicle Capacity:** The capacity of each FwLRT vehicle is 163 people, and trains will consist of two vehicles. Trains should run every 5-7 minutes at peak;
- Status:** Under construction; and
- Alignment with the PRESTO Service Design Standard:** Good alignment (now that the Humber College station will have fare gates).

Figure 29: Rendering of a Finch West LRT Underground Station



Table 37: PRESTO Fare Product Support (Finch West LRT Station)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	Yes	No	Non-PRESTO TTC provides legacy cash boxes. Customers with POP receipts from at-grade SRVM arrive in fare-paid zones.

Table 38: Device Numbers (Finch West LRT Station)

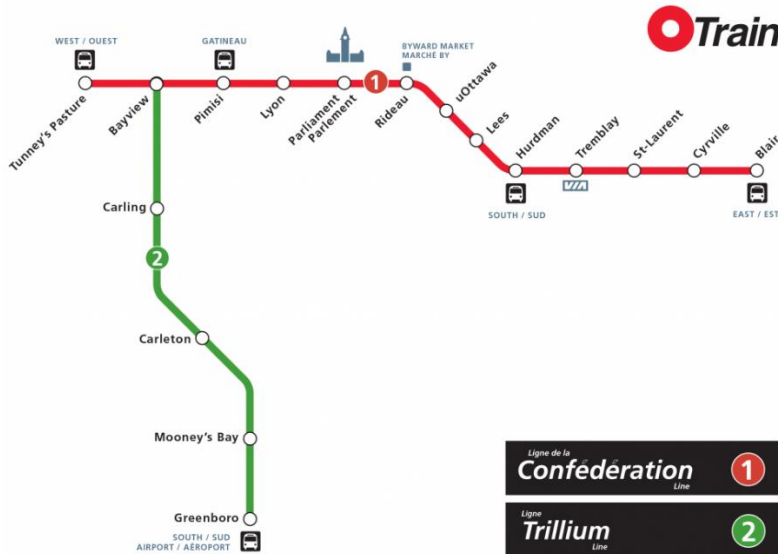
Devices	TTC Subway Interchange Station (Finch West TTC)	Underground Station (Humber College)
 S&B PG-40 Fare Gates (Standard & Accessible)	4	6 (3 per fare line)
 S&B FVM	2	2

7.3.7.4 O-Train Stations (OC Transpo)

Note: OC Transpo follows the PRESTO Acquirer Model, so it is responsible for procuring, installing, and maintaining its own fare payment and fare vending devices.

All 17 Confederation Line LRT stations (13 at/above grade and 4 below grade) use fare gates (S&B PG-40).

Figure 30: OC Transpo O-Train System Map



The PRESTO Acquirer Model enables OC Transpo to specify their visual identity for fare vending and payment devices.

- Fare Model:** Flat fare (OC Transpo);
- Mode Connections:** O-Train Lines 1 and 2 have an “integrated” connection at Bayview Station. Some stations also feature “integrated” bus route connections (e.g., Blair), while others have “non-integrated” bus route connections at street level;
- Capacity:** Planned peak of 10,700 passengers per hour, potentially growing to 24,000;
- Status:** In service and an extension is underway; and
- Alignment with the PRESTO Service Design Standard:** While the PRESTO Acquirer Model means that OC Transpo has more freedom to determine its PRESTO Customer Experience, the alignment with this document is relatively good.

Figure 31: Rendering of an O-Train Confederation Line Station



Supported PRESTO Fare Products:

The system also accepts third-party QR-coded POP tickets/receipts. OC Transpo has decided to move forward with a third-party Open Payment solution that will not be interoperable with PRESTO Contactless.

Table 39: PRESTO Fare Product Support (O-Train Confederation Line)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	No	Non- PRESTO O-Payments	No	No	Non-PRESTO Proprietary QR tickets can open fare gates.

Table 40: Device Numbers (O-Train Confederation Line)

Devices	Main Fare Line
 Fare Gates (PG-40) (Mix of Standard and Accessible)	Varies - Minimum of 2 accessible gates per fare line.
 FVM	2+ Per fare line

7.4 PRESTO AT OPEN STATIONS



Commuter Rail



7.4.1 OVERVIEW

This sub-section is **Guidance**.

Open Stations are built environments for boarding large vehicles (commuter rail), where payment timing and location are more flexible. These stations are characterized by:

- Platforms which are reached by either stairs, escalators, elevators, ramps, or at-grade entryways;
- Station Fare Transaction Processors (SFTP) are available in advance of boarding and are generally not located on the platforms;
- Vending machines for PRESTO loading and ticket purchase are located before or near the SFTPs, not on the platforms;
- Customers purchasing some fare media types (e.g., POP receipts) do not need to interact with the SFTPs.
- Onboard fare inspection is typical; and
- Where specific areas for off-board payment are provided separately (and prior) to the boarding areas (e.g., lines, platforms), the boarding areas can be considered fare-paid zones and may be patrolled by fare inspectors.

Open stations provide customers with more freedom to move throughout the station and more easily enable TAs to offer multi-person fare products (e.g., a family pass paper ticket).

However, open stations place the onus on customers to remember to pay and to find the correct device to pay their fare (both at the origin station and, for fare by distance TAs, at the destination station). As a result, open stations tend to be more ambiguous for customers, especially if stations vary in layout and device location (as is often the case).

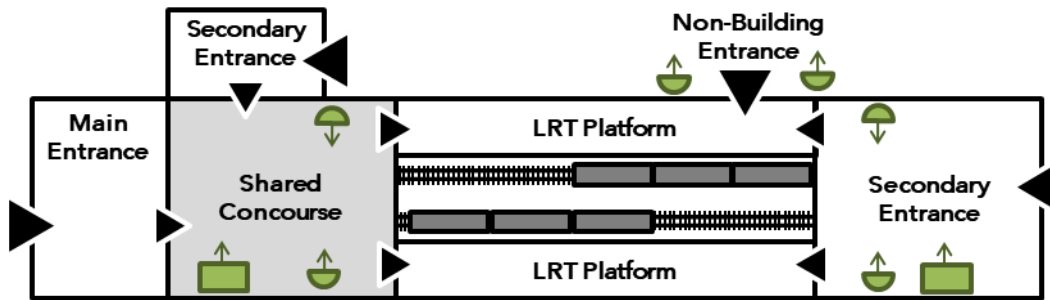
7.4.1.1 Entrances, Concourses, Tunnels, and Bridges

Open stations often have multiple entrances to serve customers approaching from different directions more efficiently. An entrance may have its own fare vending and fare payment devices, or multiple entrances may feed into a shared concourse where the fare vending and fare payment devices are located.

Entrances via station buildings are categorized as **main entrances** or **secondary entrances**. Main entrances will have a larger gross floor area and more customer amenities (e.g., station ambassadors, washrooms, coffee stands, customer waiting areas, etc.). All other station buildings are to be considered secondary. These entrances must be served by SFTPs and fare vending devices (either within the entrance or within a shared concourse).

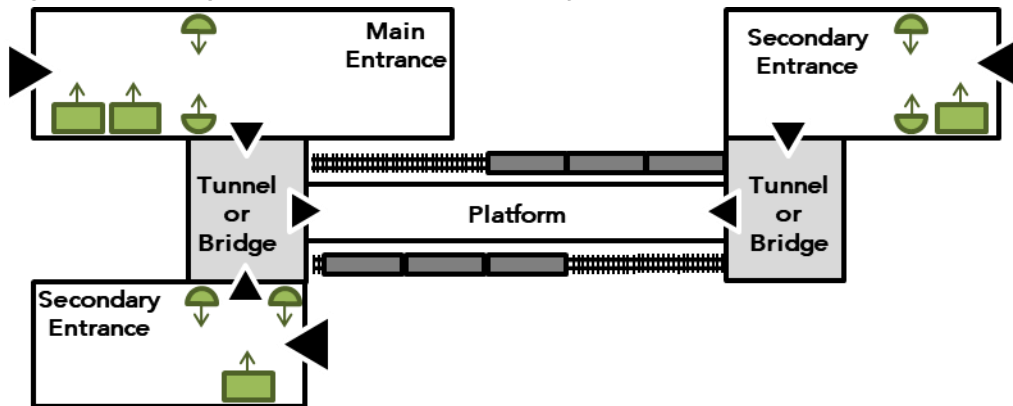
In addition, a platform may also be served by a **non-building entrance** leading from a sidewalk, parking lot or footpath. SFTPs must serve these non-building entrances, but installing a fare vending device is optional.

Figure 32: Example of Fare Vending and Payment Devices Located in a Shared Concourse and a Secondary Entrance



Tunnels and bridges do not typically have space for fare payment, vending devices, and their queues, so locating this equipment in the entrance areas is better.

Figure 33: Example of Fare Lines Located Only in Entrances



7.4.2 PRESTO CUSTOMER NEEDS AT OPEN STATIONS

This sub-section is **Guidance**.

The open station customer experience differs from the Enclosed Station customer needs in a few ways:

- Direction of travel within the station area is ambiguous:** Without a clear fare line, fare vending and payment devices play a role in orienting customers toward the location of platforms;
- The fare payment devices do not enforce fare payment:** Unlike Enclosed Stations, customers direct their fare payment, which can be a challenge for customers focused on boarding transit who can easily tap on an incorrect device or forget to tap. The ability to observe other customers interact with devices plays an essential role in the success of an environment; and
- No guarantee of in-station TA support:** Where many open stations have in-station support staff capable of helping customers with fare purchasing and payment issues, open stations are more likely to be unstaffed or have staff at the platform level, away from fare payment and vending devices. Therefore, there is extra emphasis on the availability and redundancy of devices.

7.4.3 OTHER RELEVANT METROLINX DESIGN STANDARDS

The following standards are relevant to the design of open stations. **Where this document differs from other Metrolinx design standards differ, the most stringent requirements shall be followed.**

- Metrolinx DS-02 Universal Design Standard
- GO-DRM & Business Technology Telecommunications and Systems Standards

Notes on Alignment: Mostly aligned with this standard; however, the PRESTO standard goes somewhat beyond the DRM, which only calls for “when possible, a minimum of 2 TVM at the following mandatory locations: a) 1 TVM located within the vicinity of the station building. If no station building is provided, 1 TVM will be placed at the main entrance to platform (as per site conditions) along the Barrier-free path of travel in such a way that the path remains Barrier-free; and b) 1 TVM to be located at an additional platform access point.” The current Standard calls for two TVMs at main entrances and one at secondary entrances.

- **DS-04 GO Station Architecture Design Standard**

Notes on Alignment: Mostly aligned, but the PRESTO standard requires spacing for vending machines to always plan for the generic full-size dimensions.

- **Metrolinx DS-13 Light Rail Transit (LRT) Architecture Design Standard**

Notes on Alignment: DS-13 enables LRT Stations to be either enclosed (i.e., fare payment by fare gates) or open (i.e., fare payment by SFTPs), as does the current Standard.

- **Metrolinx DS-03 Wayfinding Design Standard (and Implementation Manuals)**

Notes on Alignment: DS-03 This standard defines signage for Metrolinx developed stations, and stops referring to PRESTO devices, and includes a set of standard symbols, including symbols related to fare payment (see below):



- **Metrolinx DS-12 Pedestrian Flow Modelling Design Standard (DRAFT)**

- **Metrolinx Payments (PRESTO) Technical Standards**

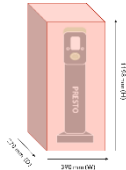
Note: It is essential to engage with Metrolinx Payments (PRESTO) prior to finalizing a design. Contact PaymentsInfrastructure@metrolinx.com

- 3) MX-PYM-STD-01: S&B Add Value Machine (AVM)
- 4) MX-PYM-STD-02: Accenture/Famoco Station Fare Transaction Processor (SFTP)
- 5) MX-PYM-STD-04: Sigma Ticket Vending Machine (TVM)

7.4.4 OPEN STATIONS - SFTP REQUIREMENTS

This sub-section is **Required**.

Table 41: Requirements for SFTP's at Open Stations

#	Requirements	Rationale/Consequences
OS-SF-1	Plan using the generic SFTP dimensions:  - Height: 1250mm; - Width: 390mm; and - Depth: 270mm	Enables devices to be swapped out for different suppliers/models as devices and technology evolve.

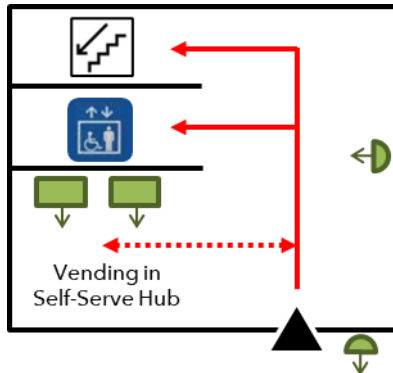
#	Requirements	Rationale/Consequences
OS-SF-2	Each Open Station entrance must have a minimum of 2 SFTP's to ensure redundancy. This includes entrances from parking lots and entrances from other transit modes or transit agency services. If an entrance building is separated by doors that will be locked as part of the staffing service model, then each section must be treated as a separate entrance.	Having enough devices to ensure reasonable throughput and reduce crowding.
OS-SF-3	Where possible, a minimum of two (2) devices shall be placed on independent electrical circuits to provide redundancy in case of power failure.	GO design guidance to improve device availability.
OS-SF-4	SFTP's shall be located so that they are: a) Located along all paths of travel from doorways/entranceways to the platforms; b) Positioned so that the device's face is visible from the path of travel (i.e., not facing away); c) Easily tapped while a customer continues moving along the natural path of travel toward the platforms; and d) Where possible, at least one device is on the right side of the path of travel.	Make SFTP's easy to find and notice. This improves the customer experience and reduces unintentional fare evasion.
OS-SF-5	Where possible, SFTP's shall back up against a wall, fence or column so there is no movement path behind the SFTP.	Make it clear to customers where to travel and reduce the potential to trip over the device base.
OS-SF-6	When SFTP's are placed at a station entrance/access point equipped with fare vending devices (e.g., a self-serve hub): a) SFTP's shall be placed after the fare vending device along the natural path of travel; and b) The distance between the fare vending device and the nearest SFTP shall be minimized.	After a customer purchases fare media (or reloads), they must not be forced to double back to use it.
OS-SF-7	SFTP's must be located so that queues to tap do not obstruct movement or place users at risk of being pushed onto stairs, ramps, platform edges, or other dangers.	Devices that feel precarious to customers due to their placement will be avoided, leading to higher traffic on the other devices.
OS-SF-8	At least one SFTP must be located between the Station Ambassador office and the platforms.	After a customer purchases fare media, they must not be forced to double back to use it.
OS-SF-9	Where a platform is open without defined entrances (e.g., to an adjacent parking lot), SFTP's must be placed no more than 75 m apart and at locations with direct platform access.	GO DRM guidance.
OS-SF-10	If <u>tap-off is required</u> , each path to a station exit must have at least one SFTP, which is: a) Located along the path of travel from the platform to the station exit; b) Positioned so that the device's face is visible from the path of travel from the platform to the station exit (i.e., not facing away); and c) Where possible, on the right side of the path of travel.	When, where, how much, and how to pay must be simple, intuitive, predictable, and consistent across the network.

#	Requirements	Rationale/Consequences
OS-SF-11	SFTP's shall be placed along the accessible path of travel from drop-off points (i.e., Barrier-free pick-up and drop-off locations; accessible parking) to the accessible boarding locations of the platforms.	So that customers with disabilities can more easily pay their fare without having to double back.
OS-SF-12	If the station has a tactile guidance path, at least one SFTP shall be located along the tactile guidance path: a) Minimum clearance is 600mm from the device base to the edge of the path; and b) Maximum distance is 1000m from the device base to the path's edge.	Device placement emphasizes on visual transparency to avoid safety hazards in open spaces or at crossing points.
OS-SF-13	For accessibility, SFTPs must have a clear space measuring 1700mm X 1700mm directly in front of the device. This space must exclude the tactile platform edge but can include the tactile guidance path.	Serve the diverse needs of different customer segments. Inherently accessible to people of diverse abilities.
OS-SF-14	A minimum clearance of 500mm between two adjacent SFTP devices must be maintained.	GO DRM guidance.
OS-SF-15	While the SFTP can be mounted to a wall, free-standing installations are much preferred for ease of installation, maintenance, and future device flexibility.	Wall mounting relies on correctly installed infrastructure, whereas mounting on a flat-poured concrete base compensates for grade issues.
OS-SF-16	SFTPs shall be accompanied by supportive signage which informs new users of the following: a) how to pay (tap-on and tap-off are needed); b) how to use the mode button; and c) how to scan a barcoded/QR-coded ticket (once QR-coded E-Tickets are used). (See section 5.2.1.3 Famoco/Accenture SFTP Signage Requirements)	Provide convenience and comfort for customers.
OS-SF-17	In situations where two different TAs are utilizing SFTPs for fare payment within a common station/platform, see 7.7.1 PRESTO Device Requirements for Multi-Agency Transit Hubs.	To minimize customer confusion

7.4.4.1 Potential SFTP Placement in Open Stations

Simple Entrance Buildings to Bridges or Tunnels:

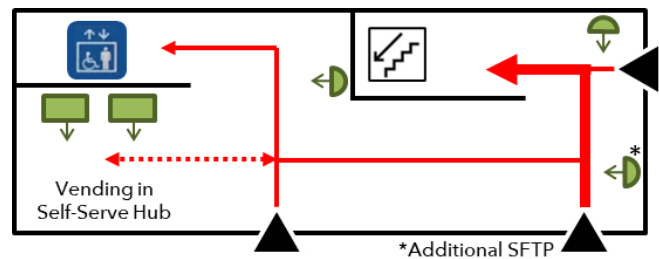
If there is one doorway leading to a straightforward path of travel, then the minimum two SFTP's are sufficient. One may be placed outside on the right as customers enter. The other is placed on the right, just past the Self-Serve Hub, as customers head for the elevator and stairs. This SFTP is easily noticed whether entering or exiting.



Complex Entrance Buildings to Bridges or Tunnels:

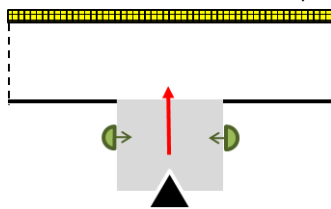
If entrance buildings have additional doorways and multiple paths of travel, additional SFTP's may be required. This ensures that regardless of the entrance access point, customers will always pass at least one SFTP on their way to either the stairs or the elevator leading to the platform. Similarly, as customers exit, they will always pass at least one SFTP between the stairs or elevator and their exit point.

*The additional SFTP shall be placed to serve the busiest anticipated path of travel.



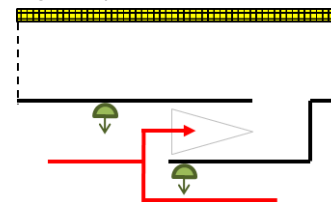
Direct Entrance to a Platform from a Pathway:

Position one SFTP on either side of the pathway.



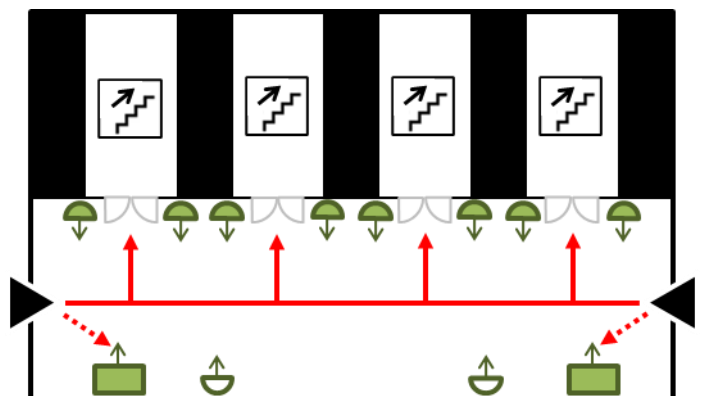
Direct Entrance to a Platform via a Ramp or Stairway

Position one SFTP for easy access by customers arriving in either direction. Ensure that one SFTP is prominent for customers exiting the platform.



Teamway with Multiple Stairway Entrances:

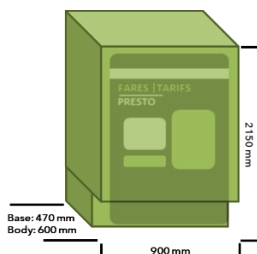
Position one SFTP on each side of each entrance. This enables easy access as customers search for and locate their entrance. Additional SFTP's may be located on the other side of the access corridor, if very high customer volumes are anticipated.



7.4.5 OPEN STATIONS - FARE VENDING DEVICES REQUIREMENTS

This sub-section is **Required**.

Table 42: Requirements for Fare Vending Devices at Open Stations

#	Requirements	Rationale/ Consequences
OS-VD-1	Plan using the generic Full Size fare vending device dimensions (unless a canopy is required):  - Height: 2150mm; - Width: 900mm; and - Depth (for base and mobility device turning): 470mm; or Depth (above the base): 600mm.	Enables devices to be swapped out for different suppliers/models as devices and technology evolve.
OS-VD-2	Each station must have the capability of purchasing a PRESTO physical card by fare vending device or station services.	PRESTO card purchase is needed to accommodate those with lost or broken cards
OS-VD-3	Each station entrance (leading to a platform) must provide fare vending devices to enable the following: - PRESTO physical card query and loading; and - Purchase tickets. These devices must enable payment via cash (bills and coins), credit and debit cards.	To accommodate Credit, Debit and Cash customers and those encountering an issue and making unexpected purchases. Tickets must be available to support customers with and without a PRESTO Card. PRESTO physical card loading must be available for customers with low balances and delayed loads
OS-VD-4	Main entrances may have more fare vending functionality than secondary entrances. <u>Note:</u> Main entrances will have a larger gross floor area and more customer amenities (e.g., station ambassadors, washrooms, coffee stands, customer waiting areas, etc.). All other station buildings are to be considered secondary.	It's expected that main entrances will typically have higher customer volumes and will be expected to have more customer amenities, in general.
OS-VD-5	Non-building entrances do not require fare vending functionality, assuming that vending machines are available at other entrances.	Customers won't expect as much vending infrastructure at these entrances, as long as the distance to another vending machine is reasonable.
OS-VD-6	Fare vending devices must be placed: - Along the natural path of movement to avoid customer confusion or wasted time; - On the same level as the SFTP (not a level up or down); - Prior to at least one SFTP if placed at an entrance; and - Along the Barrier-free path of travel for easy access by customers with accessibility needs.	Fare vending devices need to occur prior to fare payment devices to prevent customers from arriving at SFTPs before they have had a chance to purchase fare media.

#	Requirements	Rationale/ Consequences
OS-VD-7	Fare vending devices are to be placed in a way that ensures: a) Station movement and volume doesn't obscure or obstruct device use; b) Queues for devices don't obstruct movement within the station, including movement to/from the platforms; and c) Queues for devices don't obstruct the use of other devices.	Devices that feel precarious to customers due to their placement will be used less and won't balance device traffic.
OS-VD-8	Where possible, fare vending devices shall be sheltered from the weather and direct sun glare.	While the fare vending devices are rated for outdoor use, a shelter will increase customer comfort.

7.4.6 OPEN STATIONS - ESTIMATING DEVICE NUMBERS

This sub-section is **Required**.

7.4.6.1 Recommended Number of SFTPs

The number of SFTPs required will depend on several factors:

- a) **SFTP throughput:** SFTP throughput is approx. 20-30 PPM and waiting to tap-on (or tap-off) for longer than 20 seconds is a poor customer experience. If the number of customers entering/exiting an entrance at peak times is expected to be greater than 40/minute, then additional SFTPs (beyond the minimum of 2) shall be provided;
- b) **Expected station ridership:** Number of customers entering and exiting the station at peak times; and
- c) **Expected customers per entrance:** How will customers be distributed between entrances?

7.4.6.2 Recommended Number of Vending Devices

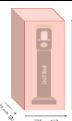
The number of fare vending devices required will depend on several factors:

- a) Minimum device numbers for the type of entrance;
- b) Peak hour boardings per entrance;
- c) The % of customers using vending devices and the mix of customer tasks (especially fare-by-distance ticket), average time (TVM):160 sec;
- d) Whether in-station assistance is available; and
- e) The time required for different tasks.

7.4.6.3 Device Number Calculations (Open Stations)

STEP 1: Begin with the minimum device numbers:

Table 43: Open Station Device Minimum Numbers

Devices	Main Entrances (Or high-Volume Secondary Entrances)	Secondary Entrance ¹	Non-Building Entrance	Comments
 SFTP (per TA)	2 ³	2 ³	2	For redundancy.
 Vending Devices² (per TA until multi-tenancy is available)	2	1	0 ⁴	Main entrances require at least two devices for redundancy (e.g., when a device is being serviced).

Notes:

¹ Secondary entrances that are located close together may share vending devices.

² After the current stock of SSRMs is drawn down, future projects will use full-size vending devices (either the FVM or the SIGMA TVM). No more Flowbird TVMs are being procured.

³ Assuming one path of travel. Additional doorways leading to multiple paths of travel require additional SFTPs.

⁴ If the entrance is within 75 metres of another vending device.

STEP 2A: Determine if any additional SFTPs are required:

OPEN STATION SFTPs Peak ridership (/hr)	% of customers performing task ¹	Users/task/hr	Time per session ¹	Total task time (sec/hr)	Converted to hours
#Walk-ins: _____	Tapping (x98%)		x 3 sec. =		
				# devices	

EXAMPLE: A GO station entrance expecting 600 customers at peak hour

OPEN STATION SFTPs Peak Ridership (/Hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ¹	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: 600	Tapping (x98%)	588	x 3 sec. =	1764	0.5
				# Devices	So, the minimum (2) SFTPs are sufficient.

STEP 2B: Determine if any additional vending devices are required with the following worksheet:

OPEN STATION VENDING DEVICES Peak Ridership (/Hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ^{1,2}	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: _____	Load card (x6%)		x 40 sec. =		
	Buy fare-by-distance tickets (x6%)		x 70 sec. =		
# GO-transfers between train/bus: _____	Load card (x3%)		x 40 sec. =		
	Buy fare-by-distance tickets (x0%)		x 70 sec. =		
#TTC Subway→GO Train (Transfers from TTC): _____	Load card (x3%)		x 40 sec. =		
	Buy fare-by-distance tickets (x3%)		x 70 sec. =		
¹ From 7.2.1 Estimating Fare Vending Device Numbers ² The 70-second time will be updated when SIGMA TVM design testing is complete.				# Devices	

EXAMPLE: A GO Station Adjacent to a TTC Subway Station with the following expected Peak Ridership:

PEAK RIDERSHIP /HR		Depart		
Arrive		Walk-out (1000)	GO Train (2000)	TTC Subway (1500)
	Walk-in (2000)		1000	1000
	GO Train (1000)	500		500
	TTC Subway (1500)	500	1000	

OPEN STATION VENDING DEVICES Peak Ridership (/hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ¹	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: 1000	Load card (x6%)	60	x 40 sec. =	2400	0.67
	Buy fare-by-distance tickets (x6%)	60	x 70 sec. =	4200	1.17
# GO-transfers between train/bus: 0	Load card (x3%)	0	x 40 sec. =	0	0
	Buy fare-by-distance tickets (x0%)	0	x 70 sec. =	0	0
#TTC Subway→GO Train (Transfers from TTC): 1000	Load card (x3%)	30	x 40 sec. =	1200	0.33
	Buy fare-by-distance tickets (x3%)	30	x 70 sec. =	2100	0.58
				# Devices	2.75 (Rounded to 3)

7.4.8 EXAMPLES OF OPEN STATIONS

This sub-section is **Guidance**.

7.4.8.1 Clarkson Station (GO Transit)

Clarkson GO Station is a busy station on the Lakeshore West line. It has three access tunnels served by five entrances and no walk-in platforms. The main entrance has a service counter equipped with vending devices to load PRESTO physical cards and sell paper tickets. Only the middle tunnel is Barrier-free (equipped with elevators). PRESTO loading devices are located at least one end of each tunnel, so customers seeking a card load or paper ticket may have to cross through a tunnel, but not change tunnels.

- a) **Fare Model:** Fare by distance (GO Transit). The platforms are Fare Paid Zones;
- b) **Capacity:** GO Train 12-car consist capacity is 1944 passengers;
- c) **Status:** In service; and
- d) **Alignment with the PRESTO Service Design Standard:** Reasonably good alignment with this document. Two secondary entrances lack the ability to buy a paper ticket before arriving at the stairs/elevators up to the platforms (and one entrance lacks the ability to reload a PRESTO physical card). However, proceeding down through the tunnel and up to the other entrance allows access to these fare vending services.

Figure 34: Clarkson GO Station



Table 44: PRESTO Fare Product Support (GO Transit Station)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	No (TTC-only)	Non-PRESTO Mozio E-Ticket	Yes TVM/SPOS paper tickets

Table 45: Device Numbers (Clarkson GO Station)

Devices	(South-East) Main Entrance [1] in diagram	North-East [2] in diagram	North-Centre (Barrier Free) [3] in diagram	South-Centre (Barrier Free) [4] in diagram	South-West (Multi-Storey Garage) [5] in diagram
 SFTP	4	2	2	3	4
 SSRM	1	0	0	1	0
 TVM	1	0	1	0	1

7.5 PRESTO AT RAPID TRANSIT STOPS (LRT, BRT)



Light Rail Transit (LRT)



Bus



Bus



7.5.1 OVERVIEW

This section is **Guidance**.

Rapid Transit systems (LRT, BRT) are designed to operate more like subways or rail than buses or streetcars. They are designed to stop less frequently and to board/disembark relatively large numbers of passengers during short dwell times.

These stops are characterized by the following:

- a) Station Fare Transaction Processors (SFTP) are available in advance of boarding at the platform entrances;
- b) Vending machines for **PRESTO loading** and **ticket purchase** are adjacent to or just past the SFTPs;
- c) Customers purchasing some fare media types (e.g., POP receipts) do not need to interact with the SFTPs;
- d) Onboard fare inspection is typical; and
- e) With the fare payment and purchase options located at the entrance to the platform, the rest of the platform can be considered **fare-paid zones** and may be patrolled by fare inspectors.

However, because they aren't gated, these stops (much like **open stations**) place the burden of learning how to pay, finding fare payment devices, and remembering to pay, on to the customers. The design of these stops needs to consider how customers will access and use the platform based on the surrounding area, fare rules, and common behaviours to direct device numbers and placement.

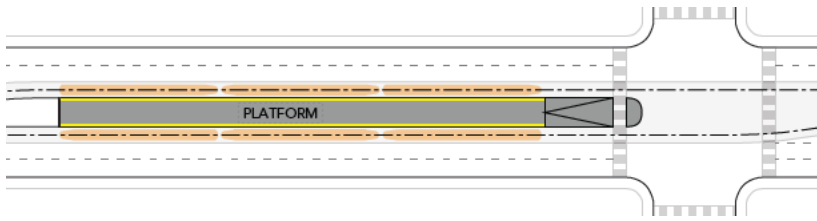
7.5.1.1 Rapid transit stop topologies and entrances

Rapid transit stops include a variety of platform topologies and entrance locations, which have different implications for PRESTO installation.

Centre Island Platforms (LRT Only)

On a shared platform, customers travelling in both directions can share devices; therefore, fewer PRESTO devices are required.

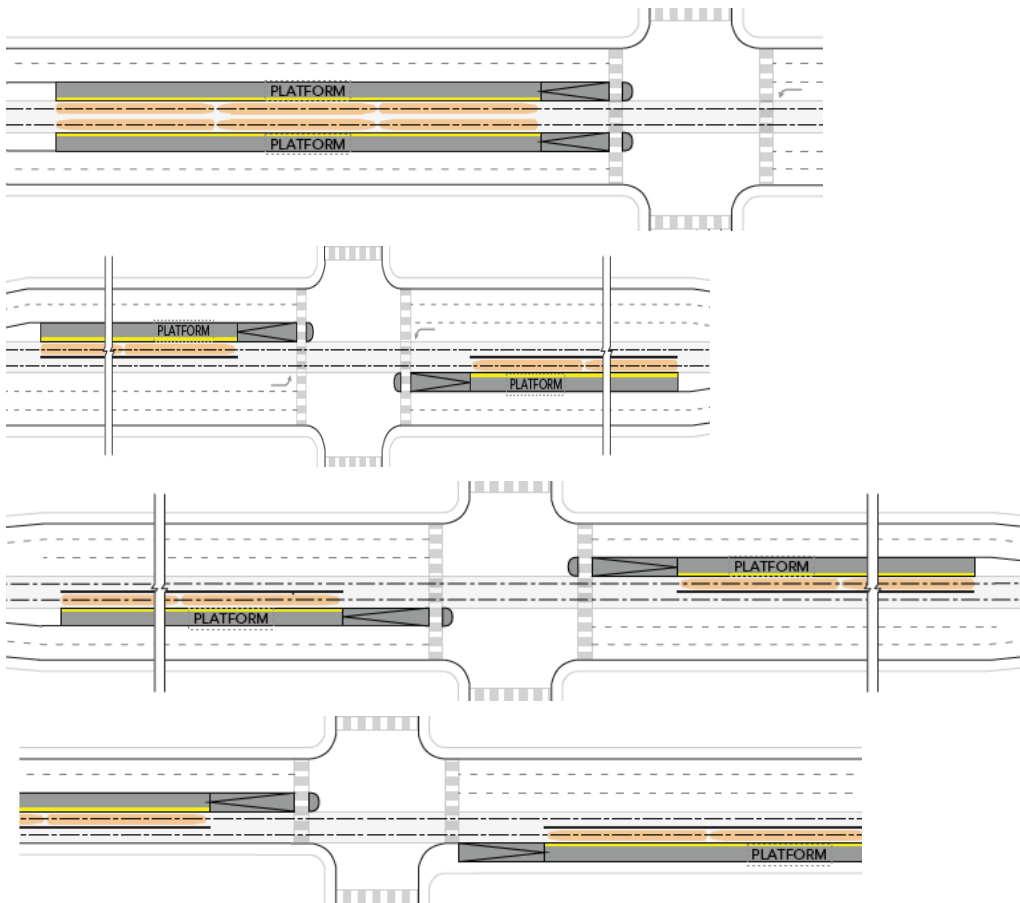
Figure 35: Centre Island Platform



Side Platforms

On side platforms, each platform requires equivalent PRESTO device numbers. While cost savings might be realized by placing a fare equipment (e.g., ticket vending device) on only one platform, this would be a poor customer experience, since customers intending to depart from the less well-served platform would have to cross multiple tracks and/or lanes of traffic to access the devices and then return to their departure platform.

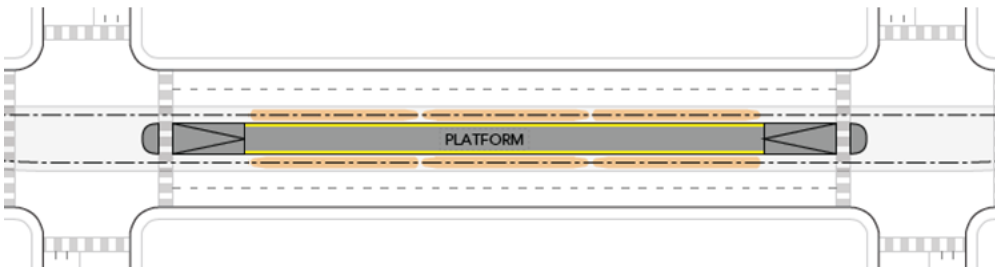
Figure 36: Types of Side Platforms (from Top to Bottom): Parallel Platforms, Far Side Platforms, Near Side Platforms, and Curbside Platforms



Secondary Entrances

In some cases, platforms have secondary entrances at the far end or midway along the platform. In these cases, the entrances must be equipped with off-board fare payment devices (i.e., SFTPs), but it is not necessary to add more vending devices, because customers can safely walk down the platform to access these. The vending devices shall be installed near the anticipated primary (i.e., busiest) entrance.

Figure 37: Centre Island Platform with Entrances at Each End



7.5.2 PRESTO CUSTOMER NEEDS FOR RAPID TRANSIT STOPS (LRT, BRT)

This sub-section is **Guidance**.

The customer journey for offboard stops (LRT, BRT) must carefully balance several factors:

- Recognizing that these lines often run through geographic areas with relatively sparse retail and subway/rail station coverage, the stops must include fare payment devices to eliminate the need to provide onboard vending capability;
- Devices are located on platforms, so they must be placed to avoid obstructing the relatively narrow circulation spaces (ramps, platforms, shelters, etc.);
- Devices must be easily reached from any point of entry to the platform;
- Customer should be able to observe the non-private interactions of others with payment devices to inform their own understanding of payment norms; and
- The relatively high capital and operating costs related to excess devices.

7.5.3 OTHER RELEVANT METROLINX DESIGN STANDARDS

The following standards are relevant to the design of rapid transit stops (LRT, BRT). **Where this document differs from other Metrolinx design standards differ, the most stringent requirements shall be followed.**

- Metrolinx DS-02 Universal Design Standard**
- DS-13 LRT Architecture Design Standard**
Notes on Alignment: Well-aligned. In fact, the LRT standard specifically references the PRESTO standard and adds requirements around device sheltering and lighting.
- DS-27 Bus Rapid Transit (BRT) Architecture Design Standard**
Notes on Alignment: Well-aligned. In fact, the BRT standard specifically references the PRESTO standard.

Figure 38: Examples of LRT Side and Centre-island Platforms from DS-13

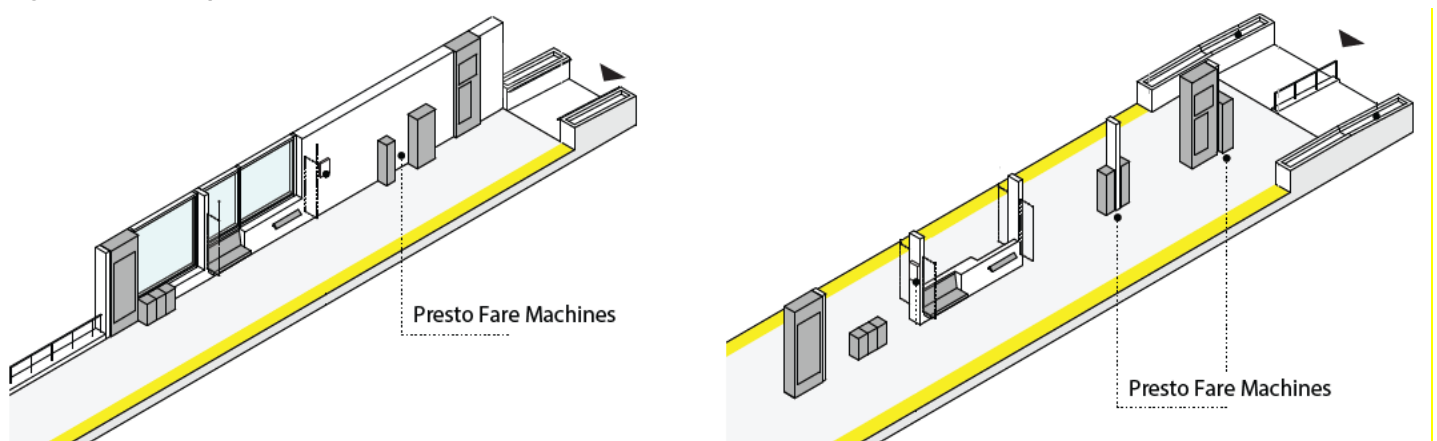
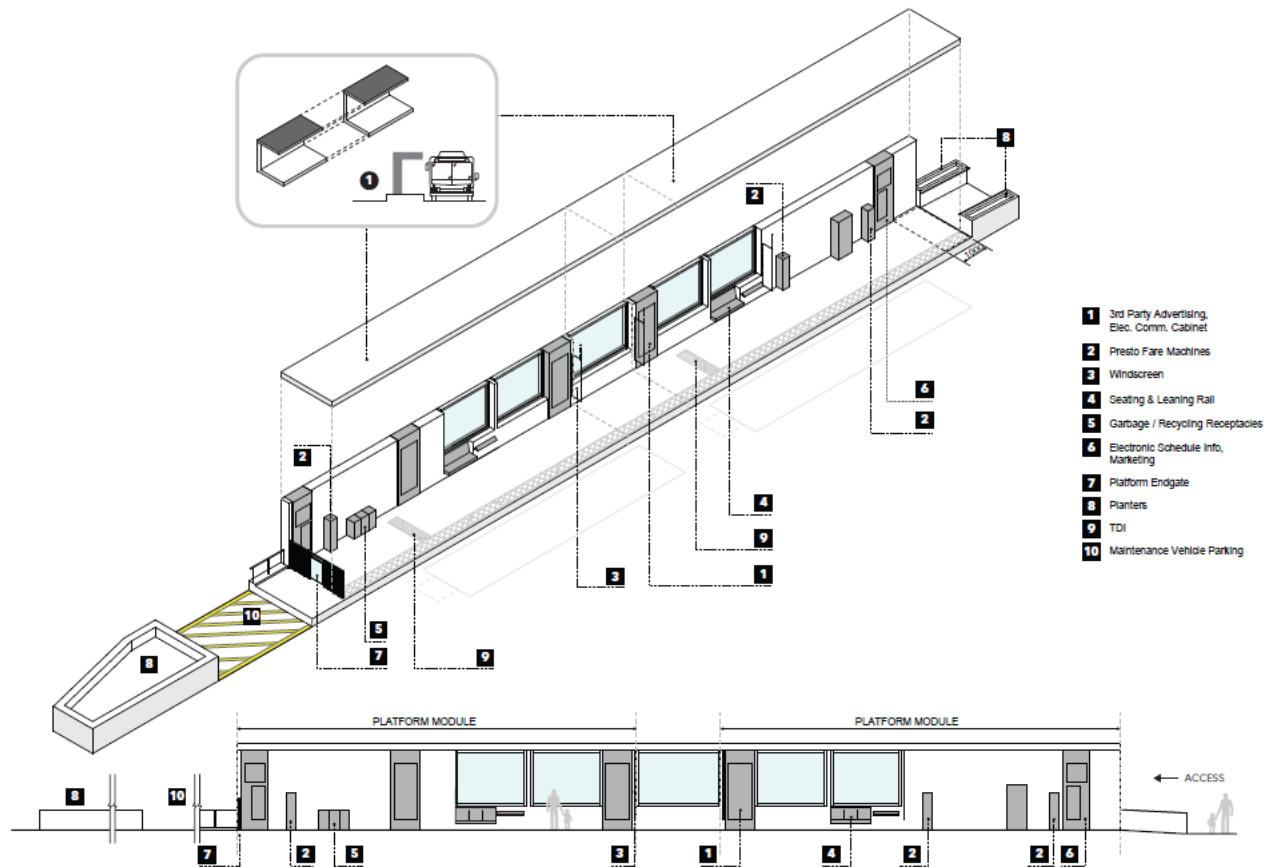


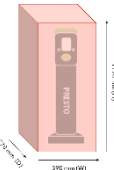
Figure 39: Example of a BRT Side Platform from DS-27



7.5.4 RAPID TRANSIT STOPS - SFTP REQUIREMENTS

This sub-section is **Required**.

Table 46: Requirements for SFTP Placement at Off-board Payment Stops

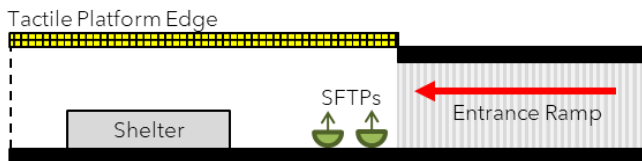
#	Requirements	Rationale/Consequences
RT-SF-1	Plan using the generic SFTP dimensions:  - Height: 1250mm; - Width: 390mm; and - Depth: 270mm.	Enables devices to be swapped out for different suppliers/models as devices and technology evolve.
RT-SF-2	Each LRT or BRT platform must have a minimum of 2 SFTPs to ensure redundancy. BRT Shelter Stops may be outfitted with one SFTP.	Increases throughput, reduces crowding, and increases customer feelings of control and efficiency.

#	Requirements	Rationale/Consequences
RT-SF-3	SFTP shall be placed along the natural customer path of travel to (or along) each platform. The minimum two SFTPs, must be: - Located along the path of travel when entering the platform and prior to the first door of a waiting vehicle (so no backtracking is needed to tap-on and enter that door); - Positioned so that the device face is visible from the path of travel (i.e., not facing away); - Customers can easily tap and continue moving along the natural path of travel toward the platforms; and - Queues to tap do not obstruct movement or place users at risk of being bumped towards platform edges. If additional SFTPs are required (due to high ridership), these must be: - Located mid-platform along the path of travel; - Positioned so that the device face is visible from the path of travel (i.e., not facing away); and - Queues to tap do not obstruct movement or place users at risk of being bumped towards platform edges.	Device placement with an emphasis on visual transparency will: - reduce unintentional fare evasion; - increase device visibility if fare by, distance (tap-off) is implemented; and - and increase safety. (Not relevant to Minor BRT Stops, with no "platforms")
RT-SF-4	Guard rails shall be employed if an SFTP is placed adjacent to platform edges.	Safety and accessibility.
RT-SF-5	If tap-off is required, each path to a stop exit must have at least one SFTP, which is: - Located along the path of travel when exiting the platform so that even customers exiting the end door of the vehicle don't have to backtrack along the platform to tap-off and exit the platform); and - Positioned so that the device face is visible from the path of travel from the vehicle door to the exit (i.e., not facing away).	When, where, how much, and how to pay must be simple, intuitive, predictable, and consistent across the network.
RT-SF-6	Tactile Guidance Path: If the stop has a tactile guidance path, at least one SFTP shall be located along the tactile guidance path: - Minimum clearance is 600mm from the device base to the edge of the path; and - Maximum distance is 1000m from the device base to the edge of the path	Facilitates device discovery by people with visual disabilities.
RT-SF-7	Clear Space for Accessibility: SFTPs shall have a clear space measuring 1500mm X 1500mm directly in front of the device. This space must exclude the tactile platform edge but can include the tactile guidance path (as long as the 600mm clear space is respected).	Serve the diverse needs of different customer segments, including people using mobility devices.
RT-SF-8	Free-standing Installation Recommended: While the SFTP can be mounted to a wall, free-standing installations are much preferred for ease of installation, maintenance, and future device flexibility.	Wall mounting relies on correctly installed infrastructure, whereas mounting on a flat-poured concrete base compensates for grade issues.

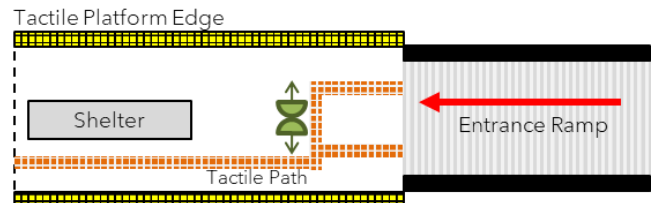
#	Requirements	Rationale/Consequences
RT-SF-9	SFTPs shall be accompanied by supportive signage which informs new users of the following: a) how to pay (e.g., tap on and tap off, if needed); b) how to use the mode button; and c) how to scan a barcoded/QR-coded ticket (once QR-coded E-Tickets are used).	Provide convenience and comfort for customers.
RT-SF-10	If a stop is busy enough to require additional SFTPs (beyond the minimum quantities), then to prevent customers from bunching up, these additional SFTPs can be placed further down the platform.	Prevention of crowding at entrances.

7.5.4.1 Potential SFTP Placement at Entrances

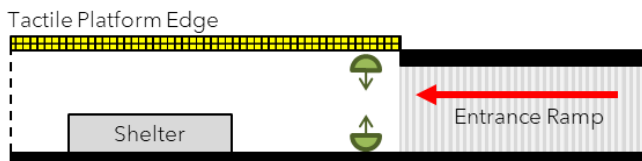
Side Platform (Preferred): 2 SFTPs side by side against the side wall:



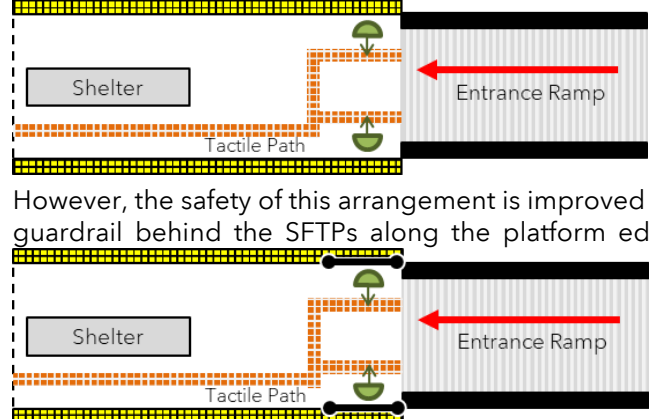
Centre Island Platform (Preferred): 2 SFTPs back-to-back on the centreline of the platform facing outwards:



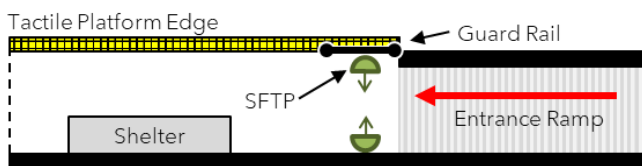
Side Platform (Less preferred): 1 SFTP on each side at the top of the entrance ramp:



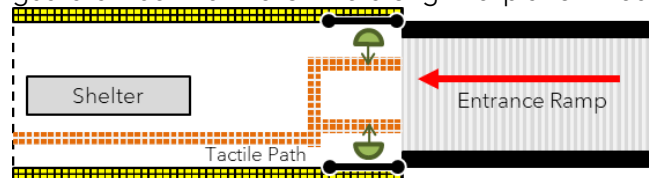
Centre Island Platform (Less preferred): 1 SFTP on each side at the top of the entrance ramp:



However, the safety of this arrangement is improved by a guardrail behind the SFTP along the platform edge:

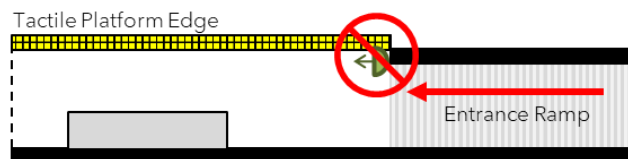


However, the safety of this arrangement is improved by a guardrail behind the SFTPs along the platform edges:



7.5.4.2 SFTP Placements to be Avoided

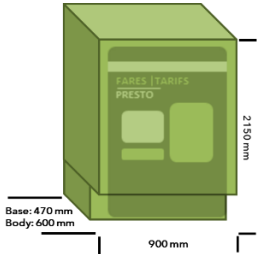
Having the SFTP facing parallel to the tracks may lead to customers being too close to the platform edge:



7.5.5 RAPID TRANSIT STOPS - FARE VENDING DEVICE REQUIREMENTS

This sub-section is **Required**.

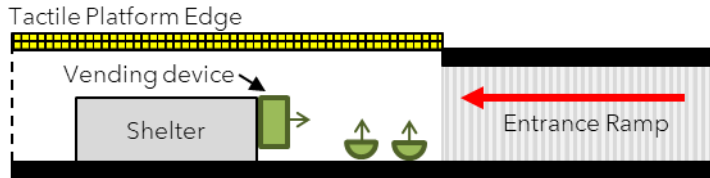
Table 47: Requirements for Fare Vending Devices at Off-Board Payment Stops

No.	Requirements	Rationale and Consequences
RS-VD-1	Plan using the generic Full Size fare vending device dimensions (unless a canopy is required):  - Height: 2150mm; - Width: 900mm; and - Depth (for base and mobility device turning): 470mm; or Depth (above the base): 600mm.	Enables devices to be swapped out for different suppliers/models as devices and technology evolve.
RS-VD-2	Each platform must provide equal access to: - Purchase tickets; and - PRESTO physical cards query and loading. These devices must enable payment via cash (bills and coins), credit and debit. Centre Island platforms: In this case, customers on both platforms can use the same equipment, reducing the need for extra devices. Two Entrances: One entrance may have more vending capability if a platform is accessed from either end.	Equal access from each platform prevents customers from crossing the tracks or roadway twice (once there, once back) to purchase fares. Tickets must be available to support customers without a PRESTO card, especially when paying cash. PRESTO physical card loading must be available for customers with low balances.
RS-VD-3	Fare vending devices must be placed: - Along the natural path of movement to avoid customer confusion or wasted time; - Along the Barrier-free path of travel; and - With enough distance from ramps or stairs to prevent queues from interfering with these features.	Devices can be located quickly and safely.
RS-VD-4	Fare vending devices are to be placed in a way that ensures: - Passenger movement and volume doesn't obscure or obstruct device use; - Queues for devices don't obstruct movement along stop including to the platform (e.g., on platforms, consider the installation of vending devices so that the queue is parallel to the platform edge); and - Queues for devices don't obstruct the use of other devices.	Devices that feel precarious to customers due to their placement aren't used as frequently and so won't balance device traffic.
RS-VD-5	If a stop is busy enough to require additional vending devices (beyond the minimum quantities), these additional vending devices can be placed further down the platform to prevent customers from bunching up.	Prevention of crowding at entrances.

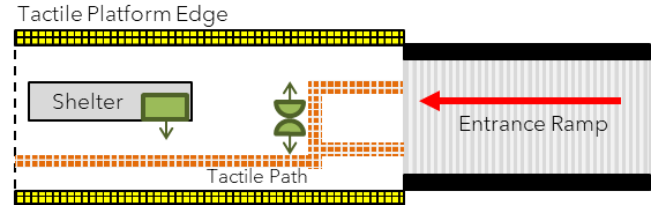
No.	Requirements	Rationale and Consequences
RS-VD-6	Fare vending devices shall be located so that: a) Opportunities to hide behind the device are minimized (e.g., backed up against a wall or column); and b) Visibility from within shelters is not unduly restricted.	Prevention of opportunities for crime.

7.5.5.1 Potential Vending Device Placement at Entrances

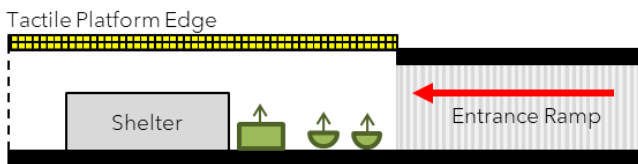
Side Platform: Vending device against the wall of a shelter (requires wide platform):



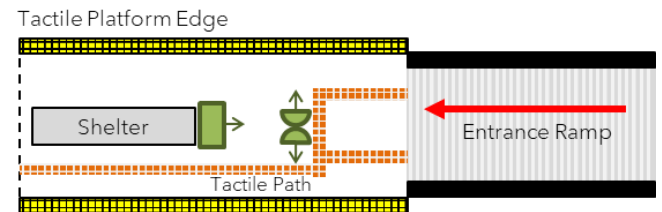
Centre Island Platform: Vending device on the centreline facing the entrance ramp:



Side Platform: Vending device against the back wall of the platform:



Centre Island Platform: Vending integrated with shelter (if the platform is narrow, the shelter may have to be adjusted to provide more space for accessible maneuver):



Note: Where a vending device is integrated with a shelter, care shall be taken to ensure visibility for safety.

7.5.6 RAPID TRANSIT STOPS - ESTIMATING DEVICE NUMBERS

This sub-section is **Required**.

7.5.6.1 Recommended Number of SFTPs

The number of SFTPs required will depend on several factors:

- a) **SFTP throughput:** SFTP throughput is approx. 20-30 PPM and waiting to tap-on (or tap-off) for longer than 20 seconds is a poor customer experience. If the number of customers boarding or disembarking at peak times is expected to be greater than 40/minute, then additional SFTPs (beyond the minimum of 2) shall be provided. However, rather than bunching additional SFTPs at the entranceways, it is recommended that the additional SFTPs be placed **mid-platform** to reduce crowding at the entranceways;
- b) **Expected stop ridership:** How many riders will be entering and exiting the stop at peak times? and
- c) **Expected riders per entrance:** If the platform has multiple entrances, how are customers distributed between entrances.

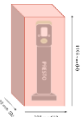
7.5.6.2 Recommended Number of Vending Devices

The number of fare vending devices required will depend on several factors (see section 7.2.1 Estimating Fare Vending Device Numbers):

- Minimum device numbers;
- Peak hour boardings per entrance;
- Whether **in-station assistance** is available;
- % of customers using vending devices** and the **mix of customer tasks**: These are included in the estimating templates below; and
- Time required for different tasks**: Times are included in the estimating templates below.

7.5.6.3 Device Number Calculations (Rapid Transit Stops)

STEP 1: Begin with the minimum device numbers:

Devices	Main Entrance to Centre Island Platform	Main Entrance to Side Platform	Secondary Entrance
 SFTP (per TA)	2	2	2
 Vending Devices (per TA until multi-tenancy is available)	1	1	0

STEP 2A: Determine if any additional SFTPs are required:

RAPID TRANSIT STOP SFTPs Peak Ridership (/Hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ¹	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: _____	Tapping (x95%)		x 3 sec. =		
				# Devices	

EXAMPLE: A stop platform expecting 600 customers at peak hour:

RAPID TRANSIT STOP SFTPs Peak Ridership (/Hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ¹	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: 600	Tapping (x95%)	570	x 3 sec. =	1710	0.48
				# Devices	Minimum=2

STEP 2B: Determine if any additional vending devices are required with the following worksheet:

RAPID TRANSIT STOP VENDING DEVICES Peak Ridership (/Hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ¹	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: _____	Load card (x6%)		x 40 sec. =		
	Buy flat tickets (x3%)		x 50 sec. =		
¹ From 7.2.1 Estimating Fare Vending Device Numbers				# Devices	

EXAMPLE: A stop platform expecting 600 customers at peak hour

RAPID TRANSIT STOP VENDING DEVICES Peak Ridership (/Hr)	% of Customers Performing Task ¹	Users/Task/Hr	Time per Session ¹	Total Task Time (Sec/Hr)	Converted to Hours
#Walk-ins: 600	Load card (x6%)	36	x 40 sec. =	1440	0.4
	Buy flat fare tickets (x3%)	18	x 50 sec. =	900	0.25
				# Devices	Minimum=1

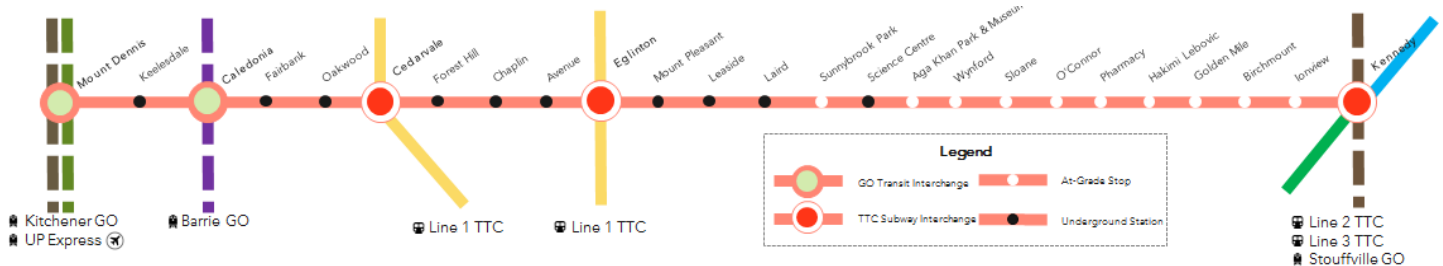
7.5.7 EXAMPLES OF RAPID TRANSIT STOPS

This sub-section is **Guidance**.

Eglinton Crosstown LRT (EcLRT) At-Grade Stops

The Eglinton Crosstown LRT (EcLRT) is a light rail transit line under construction along Eglinton Avenue in Toronto. EcLRT will have 25 stops and will connect to the UP Express, Kitchener GO line, Barrie GO, TTC Subway Lines 1 (Spadina-Yonge), Line 2 (Bloor), Line 3 (Scarborough RT), and Stouffville GO line.

Figure 40: Eglinton Crosstown LRT Map



The EcLRT consists of a mix of at-grade stops (mostly side platforms, with one centre island platform - Sloane), underground stations and underground interchange stations with the TTC Subway.

- Fare model:** Flat Fare (TTC);
- Capacity:** Each vehicle holds 163 riders. Each train will consist of two to three vehicles. Trains should run every 4 minutes at peak;
- Status:** Under construction; and
- Alignment with the PRESTO Service Design Standard:** Reasonable alignment with this document. Earlier plans to install SSRMs have been updated to specify FVMs instead. SRVM numbers have been reduced, since the FVM sells NFC Tickets and PRESTO physical cards, reducing the need for POP receipts/tickets (paper).

Figure 41: Rendering of a Future EcLRT Stop



Table 48: PRESTO Fare Product Support (Eglinton Crosstown LRT Stop)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	Yes	No	Yes Via SRVM at Stops

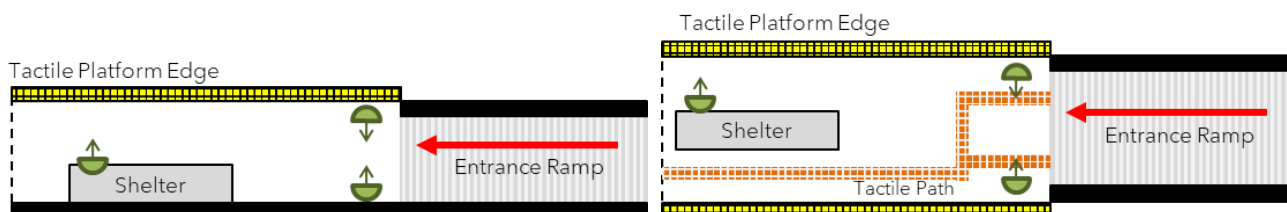
Table 49: Device Numbers (EcLRT Stop)

Devices	Stops: Centre Island Platform (1 Entrance) Sloane Stop only	Stops: Side Platform (1 Entrance)	Stops: Side Platform (2 Entrances) O'Connor Stop only
 SFTP (identified as "VM" in the project documents)	4 (2 at the entrance; 2 mid-platform)	6 (3 per side with 2 at the entrance and 1 mid-platform)	8 (4 per side, with 2 per entrance)
 SRVM (identified as "FVM" in the project documents)	2¹	2¹ (1 per entrance)	4¹ (1 per entrance)
 S&B FVM	1 (1 per entrance)	2 (1 per entrance)	2 (1 per side)

¹ SRVMs are planned for EcLRT and FwLRT as a legacy decision. The shelters are designed for this size of device.

Device Locations:

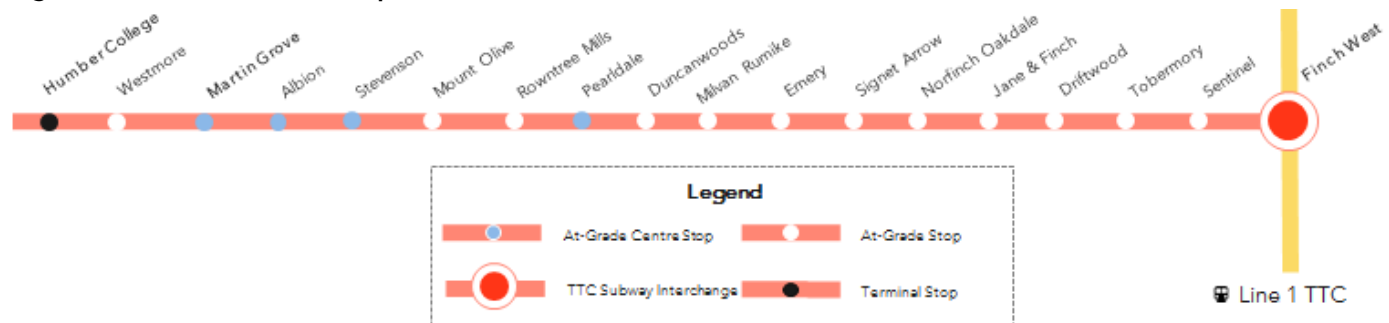
On Eglinton Crosstown, 9 of the 10 stops are Side Platforms, while 1 is a Centre Island (Sloane). All of the stops have additional SFTPs mid-platform. One of the stops (O'Connor) has entrances at both ends of the platform. Originally, Sloane was planned with SFTPs parallel to the platform edge, but this is being adjusted for safety reasons.



Finch West LRT (FwLRT) At-Grade Stops

The Finch West LRT (FwLRT) is a light rail transit line currently under construction along Finch Avenue in Toronto. FwLRT will have 18 stops and link Finch West TTC Subway station with Humber College.

Figure 42: Finch West LRT Map



The FwLRT consists primarily of at-grade stops (a mix of centre and side platforms) with an underground interchange at Finch West Subway and an underground terminal stop at Humber College.

- Fare model:** Flat Fare (TTC)
- Capacity:** The capacity of each FwLRT vehicle is 163 people, and trains will consist of two vehicles. Trains should run every 5-7 minutes at peak.
- Status:** Under construction
- Alignment with the PRESTO Service Design Standard:** Reasonable alignment with this document. To align with the revised EclRT plans, FVMs will be installed. SRVM numbers have been reduced, since the FVM sells NFC Tickets and PRESTO physical cards, reducing the need for POP receipts/tickets (paper).

Figure 43: Rendering of a Future Finch West LRT Stop



Table 50: PRESTO Fare Product Support (Finch West LRT Stop)

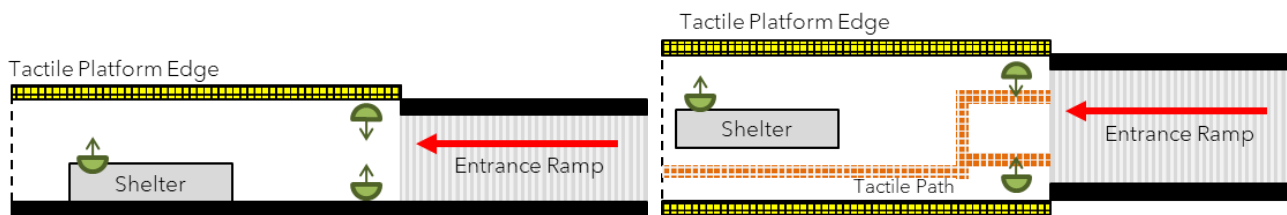
	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	Yes	No	Yes Via SRVM at Stops

Table 51: Device Numbers (Finch West LRT Stop)

Devices	4 Stops: Centre Island Platform (1 Entrance)	12 Stops: Side Platform (1 Entrance)
 SFTP (identified as "VM" in the project documents)	4 (2 at the entrance; 2 mid-platform)	6 (3 per side with 2 at the entrance and 1 mid-platform)
 SRVM (identified as "FVM" in the project documents)	3	4 (2 per side)
 S&B FVM	1 (1 per entrance)	2 (1 per entrance)

Device Locations:

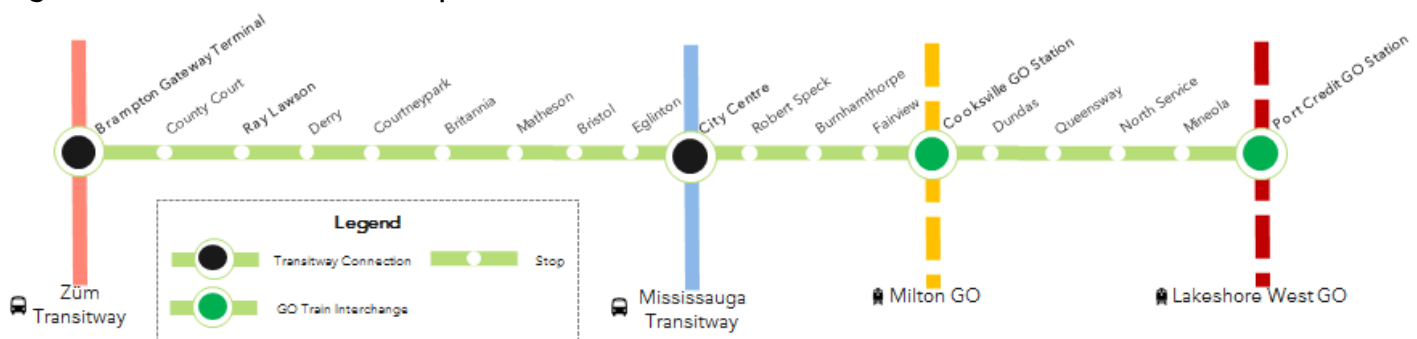
On Finch West, 12 of the 16 stops are Side Platforms, while 4 are Centre Island. There are also 2 stations (Humber College and Finch West). All of the stops have additional SFTPs mid-platform. The centre island stops were originally planned with SFTPs parallel to the platform edge, but this is being adjusted for safety reasons.



Hazel McCallion LRT (HMLRT)

The Hazel McCallion LRT (HMLRT) is a light rail transit line currently under construction along Hurontario Street, connecting Mississauga and Brampton.

Figure 44: Hazel McCallion LRT Map



HMLRT will have 19 stops (18 at-grade centre stops and 1 underground stop at Port Credit GO) and will link Cooksville GO, Port Credit GO, Mississauga Transitway, and the Brampton Gateway Terminal.

- Fare model:** Flat Fare (Mi-Way, Brampton Transit) - *Still to be confirmed* ;
- Capacity:** HMLRT vehicle capacity is 163 passengers. Trains will run every 5 minutes at peak;
- Status:** Under construction; and
- Alignment with the PRESTO Service Design Standard:** Good alignment with this document.

Figure 45: Rendering of a Hazel McCallion LRT Stop with SFTP and Full-Size Vending Device



Table 52: PRESTO Fare Product Support (Hazel McCallion LRT) - Anticipated

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	No (TTC Only)	Yes	Yes From vending machine.
	Yes	Yes	Yes	No (TTC Only)	No	Yes From vending machine.

Table 53: Device Numbers (Hazel McCallion LRT)

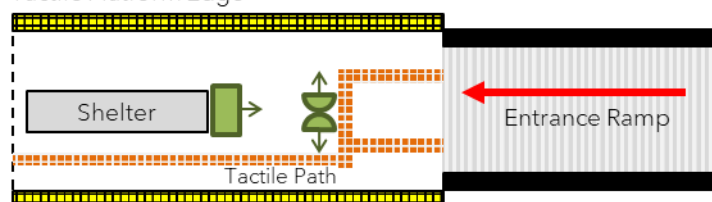
Devices	Stops: Centre Island Platform (1 Entrance)	Stops: Centre Platform (1 Entrance) at Hubs (Cooksville GO, Mississauga Transitway)	Stops: Centre Island Platforms (2 Entrances) (Port Credit GO)
 SFTP (identified as "VM" in the project docs.)	2 ¹	2 ¹	4 ¹
 FVM (identified as "FVM" in the project docs.)	1	1	2

¹ Additional (mid-platform) SFTP devices are recommended at high throughput stations.

² FVM vs. SRVM is still in discussion. PRESTO recommends FVM.

Device Locations:

Tactile Platform Edge



VIVA Rapid Transit (YRT) Bus Rapid Transit

The VIVA Rapid Transit system is a series of six bus rapid transit lines operated by York Region Transit.

Figure 46: YRT-VIVA BRT Map



The lines consist primarily of at-grade off-board payment stops. Some are more significant stops with platforms on dedicated busways, while others are more minor stops comprised of bus shelters outfitted with off-board payment equipment.

- Fare model:** Flat Fare (YRT);
- Capacity:** The largest VIVA buses can carry a maximum of 80 passengers;
- Status:** In service; and
- Alignment with the PRESTO Service Design Standard:** Good alignment with this document. The exception is that VIVA's fare vending devices do not support PRESTO loading.

Figure 47: YRT VIVA Side Platform Stop (Top), Fare Payment Area Close-up (Bottom-left), and Bus Shelter (Bottom-right).



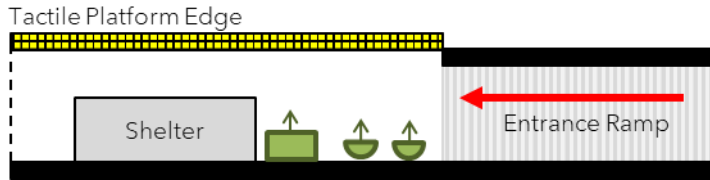
Table 54: PRESTO Fare Product Support (YRT/VIVA)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	No (TTC Only)	Non-PRESTO YRT Pay app	Non-PRESTO Legacy cash (incl. VIVA paper POPs)

Table 55: Device Numbers (YRT/VIVA)

Devices	Major Stops (Side platforms)	Minor Stops (Curbside; no platform)
 SFTP	4 (2 per side platform)	1 (1 per shelter)
 YRT-Operated Ticket Vending Machine Non-PRESTO	1 (1 per side platform)	1 (1 per shelter)

Device Locations:



7.6 PRESTO AT ONBOARD FARE PAYMENT STOPS



7.6.1 OVERVIEW

This section is **Guidance**.

At onboard payment stops, customers are sheltered as they wait, but they pay as they board the vehicle.

TAs can choose how they want customers to board and pay. For example, some board solely through the front door, paying via a BFTP and/or DCU, while others allow customers to board through any door by outfitting rear door(s) with BFTP units. Where there is no operator to supervise the cash collection, TAs may choose to implement a self-serve onboard ticket vending machine.

Customers tend to expect the onboard format for buses and streetcars, as it has been the universal norm (outside of subway and rail) until relatively recently. For customers, this format means:

- a) Lighter mental load at the stop for customers;
- b) Fewer (or no) devices at the stop level; and
- c) Easier flow of pedestrian traffic.

However, the downside is that transit vehicle entrances can become a bottleneck, especially when issues or customer special requests arise.

7.6.2 CUSTOMER NEEDS FOR ONBOARD FARE PAYMENT STOPS

In onboard fare payment, stops are more straightforward because the fare payment infrastructure is on board the vehicles; however, customers' PRESTO physical card loading and fare purchasing needs are the same as with off-board payment stations.

Additionally, the experience is made more complex by the possible unavailability of payment devices and the possible need to walk through a moving vehicle to access alternate fare payment devices or a fare vending device.

7.6.3 OTHER RELEVANT METROLINX DESIGN STANDARDS

The following standards are relevant to the design of onboard fare payment stops. **Where this document differs from other Metrolinx design standards differ, the most stringent requirements shall be followed.**

- **Metrolinx DS-02 Universal Design Standard**

DS-08 GO Bus Park & Ride Design Standard

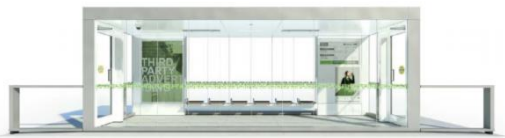
Notes on alignment: Well aligned. Requires large shelters to include fare vending devices, but devices are optional for medium and small shelters.

Figure 48: DS-08 GO Bus Shelter Types: Large, Medium, and Small

Type 1- Large Passenger Shelter



Type 2- Medium Passenger Shelter



Type 3- Small Passenger Shelter



7.6.4 ONBOARD FARE PAYMENT STOPS - FARE VENDING DEVICES

This sub-section is **Required**.

Fare vending devices are not required at onboard fare payment stops because, as the name implies, fare payment/vending is available onboard. However, TAs may elect to provide fare vending devices at these locations to prevent boarding bottlenecks at very busy stops. For example, the GO DS-08 Standard calls for vending devices in large Type 1 - Large Shelters.

Figure 49: Examples of GO Transit Vending Devices: Erin Mills Station (Left), Wilfred Laurier University (Right)



Figure 50: Examples of Bus Shelters without Vending Devices: MiWay (Left), Brampton Transit ZUM (Right)



7.6.5 ONBOARD FARE PAYMENT STOPS - DEVICE REQUIREMENTS AND NUMBER ESTIMATES

This sub-section is **Required**.

As stated, fare vending equipment is not required at onboard fare payment stops. However, where the decision is made to provide fare vending to facilitate faster boarding, use the vending device requirements and number estimation formula provided for Rapid Transit stops: 7.5.6.2 Recommended Number of Vending Devices.

7.7 PRESTO AT MULTI-AGENCY TRANSIT HUBS

Stations and/or stops of different TAs may be grouped or interconnected, enabling customers to transfer between the TAs readily. However, these situations sometimes require special consideration for PRESTO fare payment to ensure a consistent, easy-to-use customer experience.

7.7.1 PRESTO DEVICE REQUIREMENTS FOR MULTI-AGENCY TRANSIT HUBS

This sub-section is **Required**.

Note: These requirements will be used with the relevant Station/Stop type requirements above (i.e., for Enclosed Stations, Open Stations, and Off-Board Payment Stops).

Table 56: Requirements for Multi-Agency Transit Hubs

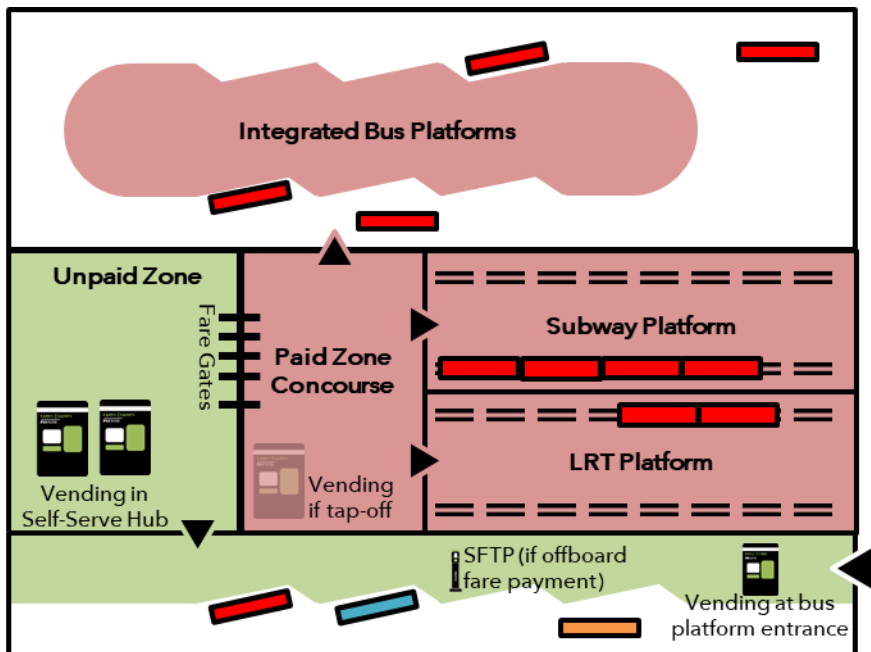
#	Detail	Rationale and Consequences
HUBS-1	[Faregates] A station shall not be enclosed by fare gates if its platforms serve multiple transit agencies. If an enclosed service (e.g., Subway) is adjacent to a multi-TA boarding area (e.g., bus loop), then the fare gates shall enclose the Subway, not the bus loop.	Otherwise, customers seeking to access a bus will have to pay a fare on the subway and then again on the bus.
HUBS-2	[SFTPs] If TAs share an open station or offboard payment stop, SFTPs for the different TAs: a) Must be differentiated by their onscreen TA logo; b) Must be differentiated from a distance and close-up by their pedestal branding (including the use of Extended SFTP Branding); and c) Must be accompanied by supportive signage, which must be branded to aid in differentiating the TA.	To minimize the chance of customers tapping on the wrong SFTP.
HUBS-3	[SFTPs] If TAs share an open station or offboard payment stop, BUT do not share tracks or platforms, SFTPs for the different TAs: a) Must <u>not</u> be located together; and b) Must be located along the natural path to the platform(s) served by the respective TA, preferably after decision points between the different platforms (e.g., adjacent to an entrance serving only one TA).	To minimize the chance of customers tapping on the wrong SFTP.
HUBS-4	[SFTPs] If TAs share an open station or offboard payment stop AND share tracks or platforms, SFTPs for the different TAs: a) Must be separated to some degree, but b) Not separated to the degree that a customer could enter that platform only encountering the SFTPs from one TA.	To minimize the chance of customers tapping on the wrong SFTP.
HUBS-5	[Fare Vending Devices] Fare Vending Devices that serve different TAs: a) Must not be located side-by-side. b) Must be located along the natural path to the platform(s) served by the TA, preferably after decision points between the different platforms (e.g., adjacent to an entrance serving only one TA).	To prevent customers from accidentally purchasing tickets for the wrong TA. Consequently, a multiple TA station requires separate groupings of TA-specific devices. <u>Note:</u> Multi-tenancy fare vending devices are intended to address this issue.

#	Detail	Rationale and Consequences
HUBS-6	[Fare Vending Devices] Fare Vending Devices that serve only one TA (and do not support PRESTO physical card loading) must indicate which TA they serve by: - Clearly branding the exterior. - Clearly indicating the TA on the device HMI.	To prevent customers from accidentally purchasing tickets for the wrong TA.
HUBS-7	[Fare Media] If a fare media is only valid on one TA (e.g., POP tickets/receipts, Transit Pass): - The TA must be clearly indicated at the time of purchase on the fare vending device HMI. - The TA must be clearly indicated on the fare media (e.g., printed on the ticket) or when the fare media is queried (e.g., for PRESTO physical cards).	Protect TA fare revenue.
HUBS-8	[Fare Vending Devices] If a fare vending machine serves multiple TAs (multi-tenancy), the device must: - list fare options simply - communicate the cost of each fare option - clearly communicates any TA or other restrictions	When, where, how much, and how to pay must be simple, intuitive, predictable, and consistent or risk delays at devices and mistaken purchases

7.7.1.1 Potential Multi-Agency Hub Layouts

The fare payment arrangement layout for multi-agency hubs will depend on the transit modes that they serve. The fare payment experience shall be consistent with other stops and stations on the respective lines wherever possible. As shown in Figure 51, an enclosed station may be co-located with an open bus platform.

Figure 51: Example of an “Integrated” Station (Subway/Bus) with an Attached “Non-Integrated” Multi-TA Bus Platform



7.7.2 MULTI-AGENCY TRANSIT HUBS EXAMPLES

7.7.2.1 Downsview Park Station (GO Transit & TTC)

This multi-agency hub is located at the crossing of the GO Barrie Line and TTC Line 1 (Yonge-University-Spadina).

- a) **Station type:** Open Station (GO Transit); Enclosed Station (TTC);
- b) **Fare models:** Fare by distance (GO Transit); Flat fare (TTC);
- c) **Status:** In service; and
- d) **Alignment with the PRESTO Service Design Standard:** Good alignment with this document.

Customers enter a shared at-grade concourse from which they can choose to exit through doors to an outdoor at-grade GO Station, equipped with SFTPs and TVMs, or descend to the underground, enclosed TTC subway station with its gated fare lines and FVMs.

Figure 52: Illustration of Adjacent TTC Subway and GO Transit Train Stations

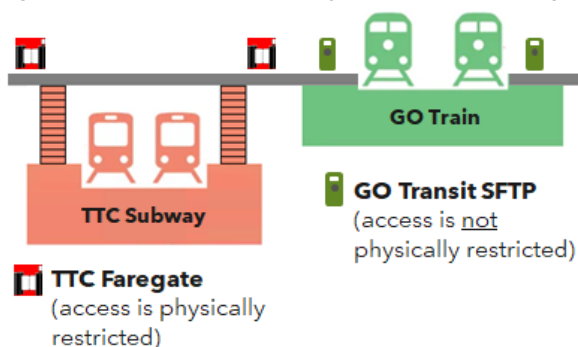


Figure 53: Downsview Park GO Station (Left) and TTC Station (Right)

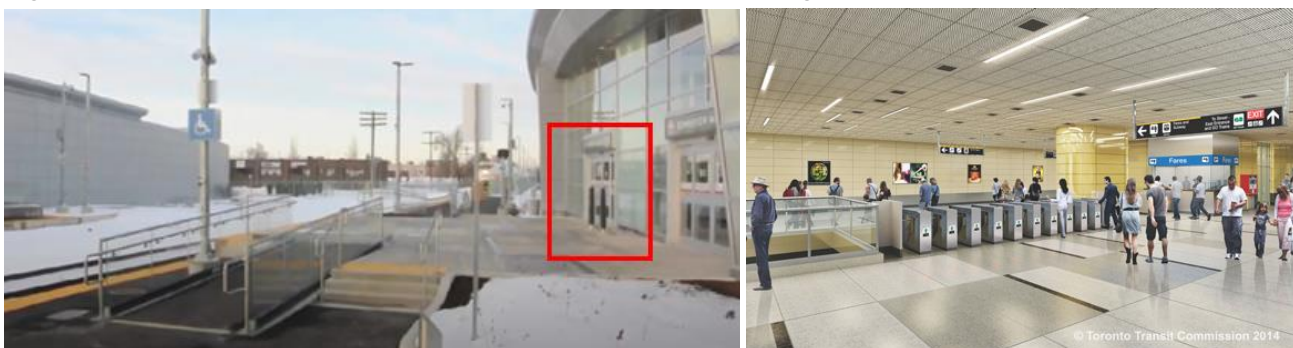
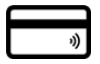


Table 57: PRESTO Fare Product Support (Downsview Park Station)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	No (TTC-only)	Non-PRESTO Mozio E-Ticket	Yes TVM/SPOS paper tickets
	Yes	Yes	Yes	Yes	No	Non-PRESTO Legacy cash, tokens.

7.7.2.2 Bloor Station (GO Transit & UP Express)

At Bloor Station, UP Express trains stop at the south end, where the platform is raised to enable level-boarding. GO trains stop at the north end of the platform, where the platform is lower. Both services are fare by distance and use open station layouts equipped with SFTPs.

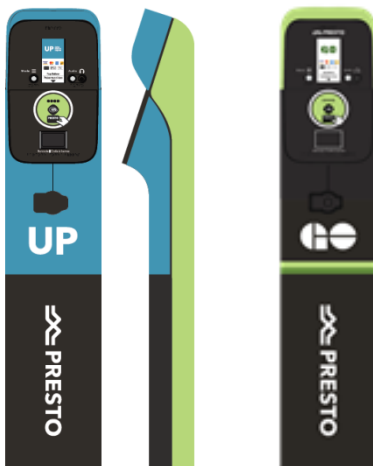
- a) **Station type:** Open Stations (GO Transit & UP Express);
- b) **Fare models:** Fare by distance (GO Transit & UP Express);
- c) **Status:** In service; and
- d) **Alignment with the PRESTO Service Design Standard:** Reasonable alignment with this document, although there are situations where UP and GO devices are inter-mingled more than would be recommended.

Figure 54: GO/UPE Bloor Station



Open Stations pose a challenge to customers because they are responsible for remembering to pay and properly completing payment. This contrasts with Enclosed Stations, in which the fare gates dictate payment success by opening the gates. However, there is potential for device confusion since GO and UP Express customers must tap-on different SFTPs.

- a) **GO Transit station is an open station (north end of the platforms):** Fare payment is made using SFTPs. GO Transit fare vending machines are provided;
- b) **UP Express is an open station (south end of the platforms):** Fare payment is made using SFTPs. UP Express fare vending devices are provided; and
- c) **SFTPs are clearly branded according to the TA they serve:** At this (and other stations serving GO and UP Express), the UP Express SFTPs include extended branding to more clearly identify the TA that they serve:



- d) **Placement of fare vending and fare loading devices are related to the TA they serve:** Fare Vending devices and SFTP's of two different TAs shall not be grouped. Platform SFTP's must be aligned with entrances and the TA that they serve; and
- e) **The entrance type determines the placement approach.**
 - 1) Station building entrance: SFTP's and fare vending devices are placed within the path of entry to the platform, while devices are separated for each TA;
 - 2) Direct to platform entrance: SFTP's are placed in relation to platform entrances, and fare loading is available at the platform level; and
 - 3) Pathway entrance: Fare vending devices occur prior to fare SFTP payment devices and are separated by TA. SFTP's are placed within the path of movement, with each TAs device placed only on the platform from which the TA operates.

Table 58: PRESTO Fare Product Support (Bloor Station)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	No (TTC-only)	Non-PRESTO Mozio E-Ticket	Yes TVM/SPOS paper tickets
	Yes	Yes	Yes	No (TTC Only)	Non-PRESTO Bytemark E-Ticket.	Yes TVM/SPOS paper tickets

7.7.2.3 Finch Subway and Bus Terminal (TTC, YRT, GO Transit)

This multi-agency hub is located at the terminus of TTC Subway Line 1 (Yonge-University-Spadina) and serves TTC, YRT-VIVA and GO Transit buses. This hub has two large bus terminals. The TTC bus terminal is enclosed within the TTC Subway fare paid zone. A second open bus terminal, which serves GO Transit and YRT-VIVA, is outside the TTC fare-paid zone and open to pedestrian walk-ins.

- a) **Station type:** Enclosed Station (TTC); Onboard Fare Payment Stop (GO Transit); Rapid Transit Stop – BRT (YRT-VIVA);
- b) **Fare models:** Flat fare (TTC, YRT-VIVA); Fare by distance (GO Transit);
- c) **Status:** In service; and
- d) **Alignment with the PRESTO Service Design Standard:** Reasonable alignment with this document. Merging the TTC, GO, and YRT bus services outside the fare gates would have also aligned and better enabled bus riders' transfers.

TTC customers enter the subway station concourse, served by FVM and SSRM vending devices, before proceeding through fare gates to access the TTC subway or "integrated" TTC bus terminal. GO Transit or YRT-VIVA customers access a separate open bus terminal. The VIVA bus platforms are equipped with SFTP devices to enable offboard fare payment. SSRMs and GO Transit TVMs are located in this terminal to enable PRESTO physical card loads and GO paper ticket sales.

Figure 55: YRT VIVA Stop at Finch Bus Terminal Includes an SFTP



Table 59: PRESTO Fare Product Support (Finch Subway and Bus Terminal)

	PRESTO Physical Card	PRESTO in Mobile Wallet	PRESTO Contactless	NFC Ticket (TTC Only)	E-Tickets	POP Receipt (Paper)
						
	Yes	Yes	Yes	Yes	No	Non-PRESTO Legacy cash, tokens.
	Yes	Yes	Yes	No (TTC-only)	Non-PRESTO Mozio E- Ticket	Yes TVM/SPOS paper tickets
	Yes	Yes	Yes	No (TTC Only)	Non-PRESTO YRT Pay app	Non-PRESTO Legacy cash (incl. VIVA paper POPs)

8. PRESTO DEVICES ONBOARD VEHICLES

This section will be added in a future edition of the document. Topics to be covered will include:

- a) Placement of DCU (in bus);
- b) Placement of BFTP/LFTP at the front door (in bus, streetcar);
- c) Placement of BFTP/LFTP at additional doors (in bus, streetcar);
- d) Placement of MFTP/MFPA in paratransit vehicles;
- e) Various models for the role of inspector vs driver;
- f) Placement of onboard SRVM (Streetcar); and
- g) (Potential future) Automated farebox (bus).

ABBREVIATIONS

Abbreviation	Definition
905 Transit Agencies	Brampton Transit, Burlington Transit, Durham Region Transit (DRT), Hamilton Street Railway (HSR), MiWay, Oakville Transit, York Region Transit (YRT)
AAC	Metrolinx Accessibility Advisory Committee
AODA	Accessibility for Ontarians with Disability Act
BFTP	Bus Fare Transaction Processor
BRT	Bus Rapid Transit
CCTV	Closed-Circuit Television
COTS	Commercial Off The Shelf
CSA	Canadian Standards Association
DCU	Driver Control Unit
DM	Direct Message
DRM	Design Requirements Manual
DRT	Durham Region Transit
EcLRT	Eglinton Crosstown Light Rail Transit
FTP	Fare Transaction Processor
FVM	Fare Vending Machine
FwLRT	Finch West Light Rail Transit
GTHA	Great Toronto and Hamilton Area
HHPOS	Hand-Held Point of Sale
HMI	Human Machine Interface (i.e., the customer user interface)
HMLRT	Hazel McCallion Light Rail Transit
HSR	Hamilton Street Railway
ISA	International Symbol of Access
LFTP	Light Rail Fare Transaction Processor
LRT	Light Rail Transit
LUM	Limited Use Media (NFC Ticket)
MFPA	Mobile Fare Payment Application
MFTP	Mobile Fare Transaction Processor
MPOS	Mobile Point of Sale
NFC	Near Field Communication

Abbreviation	Definition
PIN	Personal Identification Number
POP	Proof of Purchase
POS	Point of Sale
PPM	People Per Minute
RAL	RAL colour management system
S&B	Scheidt & Bachmann
SFTP	Station Fare Transaction Processor
SPOS	Station Point of Sale
SRVM	Single Ride Vending Machine
SSRM	Self-Serve Reload Machine
TA	Transit Agency
TPT	Third-Party Terminal
TTC	Toronto Transit Commission
TTC-ACAT	TTC Advisory Committee on Accessible Transit
TVM	Ticket Vending Machine
UPE	Union Pearson Express
VCE	Vertical Circulation Elements
YRT	York Region Transit

End of Document