General Placement Guidelines

- Shall be laid out to facilitate convenient access to services and information along the passenger's journey
- Locate with clear visibility to encourage intuitive wayfinding, passenger safety, and passive surveillance of adjacent environments
- Minimum clearance of 500 mm between two adjacent furnishings or devices shall be maintained
- Ensure clearance is provided for barrier-free paths and approach
- Provide queueing areas that will not interfere with pedestrian/passenger traffic
- Ensure that each seating area provides a clear space for side approach and side transfer to a seat
- Cluster devices where possible to clearly identify points of passenger service, information and efficiently utilize station infrastructure
- Installation tolerances and operational requirements shall be provided to facilitate ease of ongoing site operations and maintenance
- Materials and assemblies shall have a robust design and durable materials to ensure longevity
- Fare handling devices shall be placed to avoid work within the Structure Clearance Envelope on/or beside Railway Track

Shelters

Because GO is primarily a commuter system, operating in accordance with timetables, most passengers arrive on platforms to coincide with train or bus departures.

Sheltered areas for customer comfort integrated within the canopy on the rail or bus platform are the preference for application of the sheltered areas.

Sheltered areas should typically provide the following amenities:

- Heaters
- Digital Information Walls
- GO Standard Benches
- Wi fi
- Charging Receptacles

Fare Systems (only in certain applications at car pool lots and or remote station access locations or where there is no station building)

Where the integrated sheltered option is not available, standalone shelters shall be provided within the GO Standard suite of shelters, comprising of:

- Passenger Shelters
- Car Pool Shelters

Number of sheltered areas on a bus or rail platform are determined such that each shelter would accommodate approximately a bus-load of passengers or two rail shelters would accommodate approximately a half coach-load of passengers.

Digital Signs at Line Stations, Terminals and Carpool Lots

Suite of sign types

- Digital Departure Signs (Train and/or Bus)
- Digital Platform Specific Signs (Train or Bus)
- Digital Parking Counter
- Digital Way finding Interactive Kiosks(TBD)
- Infotainment

Digital Departure Signs (Train and/or Bus)

Location Criteria

- Digital Departure Sign (Train and/or Bus) shall be located at:
    - Inside Station/Terminal buildings, adjacent to waiting area; mounted at barrier free height as per OBC and AODA regulations
    - At Rail Platform Access Points (platform access area, entrances to tunnels, bridges, parking structures,

side platforms – via ramp and/or walk-on)

- At Primary Bus Loop Access Point(s)
- At Car Pool Lots shall be located at:
- At remote parking lot locations (at GO's discretion)

Placement* & Appearance *Criteria

- Placement to be perpendicular to path of travel; avoid disruption of pedestrian traffic flow that may be caused by queuing.
- Do not place departure signs above doors.
- Co-locate access points where possible
- Co-locate Digital Departure Sign (Train and/or Bus) with Fare Systems (Ticket Vending Machine, Add Value Machine), and GO marketing, integrated into Information and/or Service Modules
- Consider passenger flow and intuitive wayfinding in establishing Information and Service Modules
- Where multiple modes and/or transit agencies are provided, co-locate signage and fare systems
- Establish one common point if multiple access points and station building /terminal waiting areas are in close proximity
- Use static signage if required to way find to Information and Service Modules
- Information and Service Modules to be used for interior and exterior applications, with modules adjusted as required, based on site conditions (in consultation with GO)
  - For exterior applications, integrate within building envelope where possible and provide weather protection i.e. building canopy
  - Provide independent weather protection if integration with building canopy is not possible (in consultation with GO).
  - Where an Information or Service Module cannot be established due to site conditions, consider suspending the screen from underside of canopy. At remote locations consider implementing the concept of the suite of shelters.
- At car pool lots, integrate into car pool shelter
- Where possible recess eye-level digital signs into walls to prevent potential injuries. Install such that face of screen is flush with adjacent surfaces. Ensure entire screen is visible from all angles. Conceal all conduits, connections and infrastructure

Monitor Size

- Use current I&IT standard

Number of Monitors

- Minimum one Digital Departure Sign for Train, plus one for Bus, or one combination Train and Bus Digital Sign (confirm with GO).
- For larger sites with significant service, confirm number of monitors for each of the above with GO.

Mounting Height

- Barrier free height as per OBC and AODA regulations, as noted in location criteria, and
- 2.134 m (7'-0") minimum clearance to u/s of monitor (interior application)
- 2.438 m (8'-0") minimum clearance to u/s of monitor/housing where maintenance and snow clearing equipment is used

General Mounting Bracket Requirements

- Monitor mounting bracket to be stainless steel weldment system and stainless steel hardware.
- Bracket to be vandal proof, corrosion resistant and exterior grade with a minimum safe loading capacity of 500kg.
- Tilt capability (20 degrees).
- No exposed fastening.
- Required bracket mounting configurations:
  - Ceiling mounted
  - Wall mounted
  - Pole mounted
- Back to back, side to side and double back to back mounting options required.
- Ability to support attachment of NEMA enclosure.

- Monitor mounting bracket to be stainless steel weldment system and stainless steel hardware

Figure F-11: Conceptual Digital Service Module

Figure F-12: Conceptual Information Module

Figure F-13: Digital Departure sign in Car Pool Shelter

Digital Platform Specific Signs (Train or Bus)

Location Criteria - Rail

- Island Platforms: three sets of back to back Digital Platform Specific Signs (Train) at each track used by GO.
- Side Platforms: three sets of back to back Digital Platform Specific Signs (Train) at each track used by GO.
- Avoid clustering of digital signs in close proximity; Digital Departure Sign locations take precedence over Digital Platform Specific Signs.
- Always locate one set of Digital Platform Specific Signs at mini platform and the other two equally spaced.
- Digital Platform Specific Signs should be mounted to underside of rail platform canopy.
- Ensure digital screens are outside of train envelopes.

Location Criteria - Bus

- At each bus platform at Line Stations, But Terminals and Car Pool Lots: one set of back to back Digital Platform Specific Signs (Bus).
- Locate digital signs consistently at driver end of each platform, outside of road envelope.
- Mount Digital Platform Specific Signs from underside of canopy, where possible. If not possible, use standard GO pole. Ensure poles are away from the barrier-free path of travel.

Placement & Appearance Criteria

- Follow GO standard drawings for poles and canopy mounts.
- At rail platforms, place static platform number on track side.
- At bus platforms, place static platform number on road side.

Monitor Type/Size

- LED type (Use current I&IT standard)

Number of Monitors

- Set of two screens, back-to-back, at each location

Mounting Height

- 2.438 m (8’-0”) minimum clearance to u/s of screen/housing

Figure F-14: Conceptual Digital Platform – Canopy and Pole mounted modules

Digital Parking Counter

Location Criteria

- At vehicular entrance(s) to parking structures, visible when approaching by road

Appearance

- Follow look and feel below. Integrate with GO Station ID Totem suite

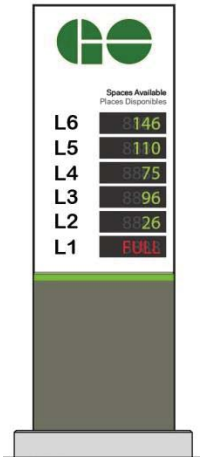

Figure F-15: Conceptual Digital Parking Counter Totem

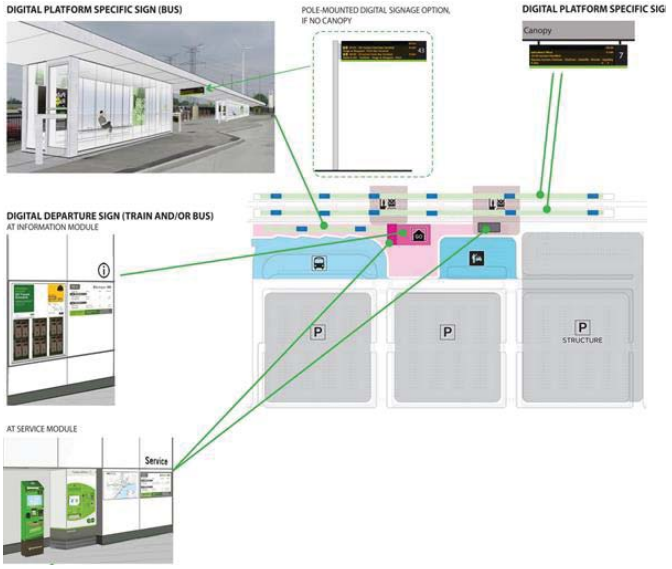

Figure F-16: Conceptual Typical Application of Digital Signs at a Rail Line Station

Technical Requirements

Process

- The digital signs will be supplied, commissioned and maintained by Information and Information Technology (I&IT), except for the Digital Parking Counter. I&IT will install the PCs, routers, and switches in the communications room
- Capital Project Delivery will perform the physical installation of the monitor, power cabling, and data cabling to the monitors from the communications rooms
- Screens and digital media players (DMP’s), CPU’s to be provided by IT and installed by the Contractor. Pick up from storage to be by Contractor.
- Transceivers, cabling terminations, communication room racks, and all civil work (conduits, pulling of wiring, pole footings, pole structure, mountings, NEMA boxes, etc.) to be by the Contractor.
- Fully installed and tested solution by the Contractor.
- Commissioning by the Contractor in coordination with IT and Station Operations.

Technical Design Requirements

- Each Digital Sign location must be shown on the electrical drawings and must include data and electrical outlet locations as well as any enclosures or other infrastructure associated with these signs
- Monitors: (Use current IT standard)
- Digital Media Player (DMP):(Use current IT standard)
- Contractor to provide transceivers/receivers, associated with cabling type and the balance of digital sign components. Provide receivers with minimal profile; by Extron or approved equivalent – reference products:
- Extron DTP HDMI 4K 330 Transmitter/ Receiver for shielded cable
- Extron HFX 100 Transmitter/Receiver for fiber
- Poles and mounting standards – refer to digital signage guidelines; GO pole conceptual design drawings under development. Shop drawings to be developed by the Contractor in coordination with digital signage equipment.

Connectivity

- Each of these devices requires a minimum of one CAT6 network outlet. These network outlets are to be cabled back to the nearest telecommunications room network rack and terminated as per the copper horizontal cabling standard.
- CAT6 shielded cable for devices placed within 90m from the Communications (Hub) Room.
- Multimode 6 strand fiber for installation beyond the 90m mark.

NEMA Enclosure

- NEMA enclosures shall be provided for receivers and fiber terminations at digital screens.
- NEMA/EEMAC Type 4X IP-65 with solid door capable to accept box lock requested by IT Field Services, and physically separated into two compartments to isolate power from communications devices.
- BEL R SS Series EEMAC/NEMA 4-4x-12 / IP-65 or Hoffman CONCEPTTM Type 4x or any other box meeting NEMA Type 4X IP-65, physical separation capabilities and box lock requirements.
- The enclosure size selection shall be based on the electrical and electronic equipment to be housed inside the box.
- All NEMA enclosures to be concealed within poles or finishes adjacent to screens. Visible NEMA boxes shall not be accepted. Provide access to concealed NEMA boxes. Do not drill or perforate the integrity of the NEMA box in any manner.

Conduit

- One 53mm conduit for power and separate 53mm conduit for data from the communications (hub) room all the way to the last pull point before the device; from the last pull use 25mm conduit to the device.
- Follow DRM in terms of conduit selection (PVC for buried conduit, RGSEC (Rigid Galvanized Steel Epoxy Coated at the factory) for all exposed locations such as tunnels, etc); 53mm liquid-tight conduits from the NEMA enclosure to the monitor mounting bracket. Provided with drip loops and easy release on the NEMA enclosure side.
- All conduits and connections to be concealed within poles or adjacent finishes.

Power

- Dedicated single 20amp duplex receptacles shall be used.
- Outdoor locations require sizing based on external enclosure and screen power draws. All receptacles must be GFI Type which may be reset at the NEMA enclosure. This is to be coordinated at time of design and must adhere to DRM.
- All devices shall be UPS backed-up. If the existing UPS does not provide enough capacity or if there is no UPS whatsoever, provide a Surge Protection Device in the local panel where the monitor and DMP is fed from. This device shall be appropriate for the specific panel at each location.

Data

- DMP's to be placed in Communication (Hub) Rooms.
- Assume one DMP per digital display. (confirm with IT)
- For design assumptions, use Cisco Interactive Experience Client 4650.

Fare Systems

Fare handling machines are proprietary equipment and will be provided and installed by the appropriate supplier. Consultants shall meet with GO Transit staff to ensure the required facilities needed to operate these machines, e.g., power, are provided.

The following equipment identified below are typical fare handling devices:

- "Interac", etc. (including data polling, Station Control Computer (SCC), Debit and Credit equipment
- Smart Card equipment PRESTO
- Ticket Vending Machines (TVMs)

PRESTO Overview

Presto Fare Handling System is a smartcard-based fare payment system designed to support the use of one common fare card for fare payment on various participating public transit systems.

PRESTO equipment is proprietary, provided, and installed by the appropriate supplier, and comprises:

- SPOS (Station Point of Sale)–located on the Service Counters
- SFTP (Station Fare Transaction Processor)
- CQD (Card Query Device)
- HCR (Handheld Card Reader) and the HCR Cradles–located in Safety Systems Offices
- WAP (Wireless Access Points)–located at bus facilities
- CC (Concentrator Complex)–installed in main racks
- AVM's (Add Value Machinces)

Location

Devices may be located either in the station building, on the platforms, at access points to platforms (tunnels, pedestrian bridges, walkways, stairs, ramps, etc)

General Placement Criteria

- Placement of devices and way-finding signage is site specific
- Devices shall be placed to avoid work within the Structure Clearance Envelope on/or beside Railway Track
- Bus Terminal locations require CQDs and SPOSs and TVM's; all fare collecting equipment is located on the bus
- Minimum clearance of 500 mm between two adjacent devices shall be maintained.
- Devices shall not impede accessible clearances and accessible routes.

SFTP Placement Criteria

- Devices shall be placed at all rail platform access points. Devices shall be placed maximum 75 m apart at locations with direct parking lot to rail platform access.
- Devices shall be placed along passenger natural flow, at clear and visible locations, and shall be readily accessible by Cardholders for fare payment.
- Remote locations shall be provided with two (2) devices on different circuits, to provide redundancy in case of power failure.

CQD Placement Criteria

- Shall be located outside the passenger flow, near TVM and/or Information Board/Digital Station Information Signs.

Refer to Standard Drawings for Presto System Architecture and installation details.

Ticket Vending Machines (TVM) at Line Stations, Terminals and Carpool Lots

Placement Philosophy:

- Each Rail Line Station and GO Bus Terminal shall provide, when possible a minimum of 2 TVM at the following mandatory locations