DGL-14
SHARED STATIONS

DESIGN GUIDELINE

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Metrolinx Design Guidelines
Shared Station Design Guideline

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This document was prepared by the
Metrolinx Design Division

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1 INTRODUCTION

1.1 PREFACE

This is the first edition of the Shared Station Design Guideline. This document provides guidance and priorities to external design consultants and internal Metrolinx staff in the design of Shared Stations.

1.2 PURPOSE

Shared Stations serve as critical nodes in the integrated transit network where customers make transfers between modes and service providers en route to their destination.

Typically high ridership and often operated by multiple service providers, these stations require early planning and decision-making to ensure an efficient and optimized build that:

- Removes barriers in the transfer experience with the goal of a unified experience for customers of all abilities irrespective of mode or operator, and
- Is cost-effective by eliminating duplication of station infrastructure, where possible.

This guideline defines the design priorities and provides recommendations for customer-facing infrastructure to meet the dual objectives mentioned above.

The challenges at Shared Stations, often functioning in multi-modal and multi-jurisdictional contexts across the Greater Golden Horseshoe (GGH) region, are broad and complex. To achieve system integration, optimized infrastructure, and a unified customer experience in these stations, standardized governance and processes that define the programmatic, financial, and operational requirements are needed.

Metrolinx's existing standards are mode-specific and do not fully address the complexity of connectivity between rail, subways, light rail transit (LRT), bus rapid transit (BRT), and bus. This guideline supplements requirements in Metrolinx's existing mode-specific standards to improve access and ensure that the transfer experience between modes is fast, easy, safe, and accessible.

The **customer experience lens** is one of many lenses through which the broader challenges at Shared Stations are addressed within this guideline, and it is the primary lens through which the recommendations are presented.

1.3 WHAT IS A SHARED STATION?

A Shared Station:

1. Is a multi-modal or interchange station with two or more existing or future transit connections,
2. Is operated by more than one service provider, and
3. Has high current or anticipated ridership, where
4. Most customers arrive by transit and make a transfer.

Shared Stations play a key role in supporting the integrated transit network and typically have multi-use development opportunities around the station site. Since these stations have more than one operator, sharing or collocating customer amenities between service providers ensures that customers experience the station as a unified environment where their need to make fast and easy transfers is prioritized. At the same time, from an operational lens, eliminating duplicate infrastructure and optimizing the station footprint creates operational efficiencies as well as potential cost-saving opportunities.

No two Shared Stations are the same in the network given their site and project-specific contexts and complexities.

A few examples include:

- Union Station
- Kipling Station Transit Hub
- Exhibition Station
- Scarborough Town Centre Station
- Kennedy Station

As the network evolves over the coming years, the Shared Station criteria will increasingly apply to more stations, both existing and planned, to meet the objectives of the 2041 Regional Transportation Plan.

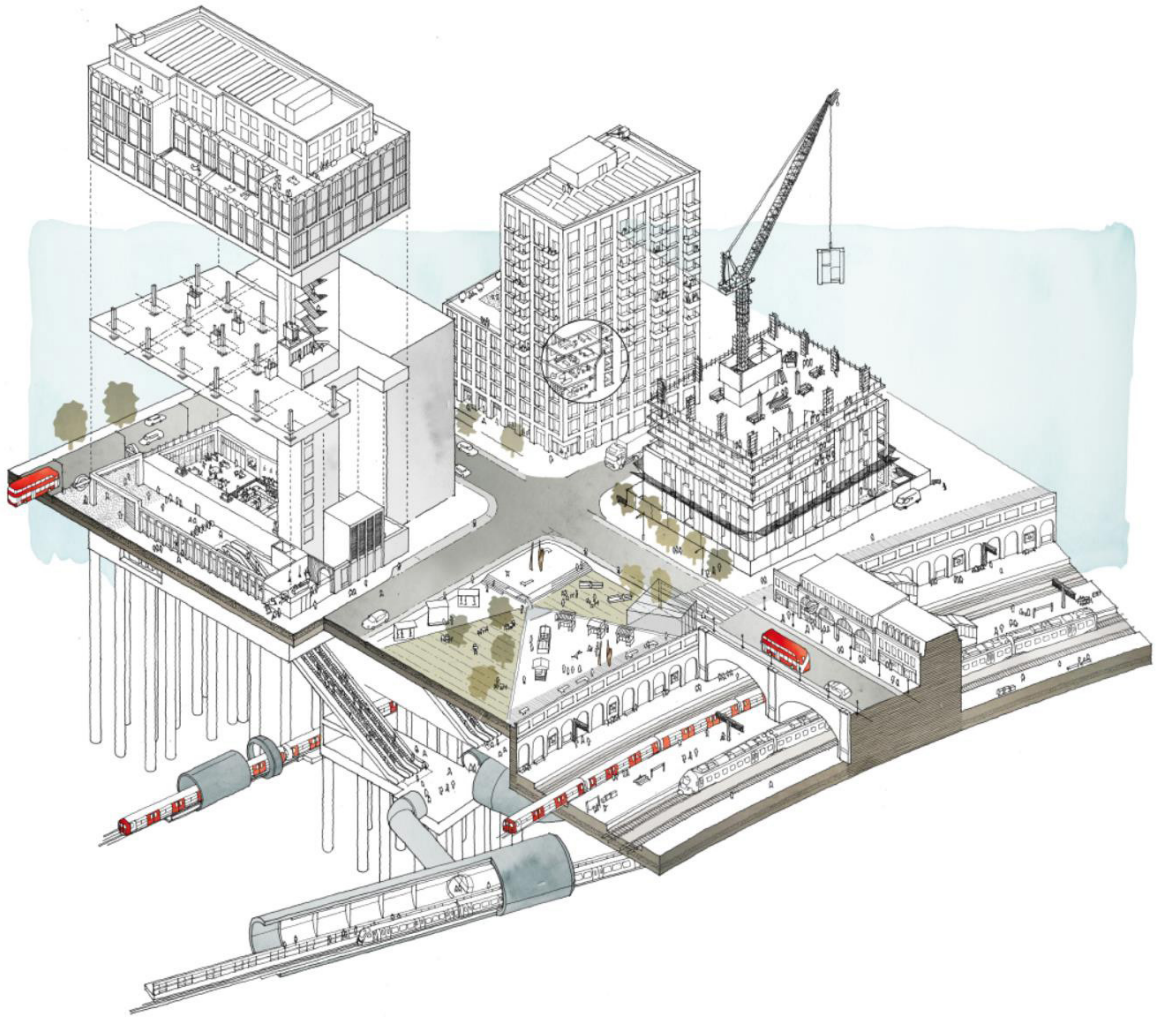

Figure 1. Illustration of a Shared Station in an Urban Context
Illustration depicts a` multi-modal station in an urban context. It is well-integrated with TOC with significant passenger transfers across multiple modes.
Image Reference: Tottenham Court Road Station, London

1.4 RELATIONSHIP WITH OTHER DOCUMENTS

The Shared Station Design Guideline provides a bridge to other existing requirements and standard documents published by Metrolinx, namely:

1. Design guidelines (DGL-series),
2. Design standards (DS-series),
3. Design Requirements Manual (DRM), and
4. All other documents and technical standards published here.

This design guideline should be read in conjunction with Metrolinx standards as well as all other applicable codes, standards, and regulatory requirements. While standards will not be referenced repeatedly, select content from relevant standards documents may be repeated in some sections of this document to provide context.

See Table 1 for a list of abbreviations referenced in this document.

Table 1. List of Abbreviations

Abbreviation	Term
BOH	Back of House
BRT	Bus Rapid Transit
CCTV	Closed Circuit Television
CPTED	Crime Prevention Through Environmental Design
CSAT	Customer Satisfaction
DRM	GO Design Requirements Manual
DWA	Designated Waiting Area
ESAT	Employee Satisfaction
FOH	Front of House
GGH	Greater Golden Horseshoe
IP	Investment Panel
LRT	Light Rail Transit
MSP	Municipal Service Provider
MUP	Multi-Use Pathway
PA System	Public Address System
PA	Project Agreement
PAI	Passenger Assistance Intercom
PUDO	Pick-Up Drop-Off
RACI	Responsible, Accountable, Consulted, Informed
RCD	Reference Concept Design
SARA	Service Animal Relief Area
TOC	Transit Oriented Community

2 REGIONAL CUSTOMER EXPERIENCE PRINCIPLES

Shared Stations largely serve customers traveling across the region who make at least one transfer along the way between transit modes and / or service providers.

To ensure Shared Stations are designed and built to prioritize customer needs and expectations in their travel, below are four Regional Customer Experience Principles that are shared among municipal service providers in the region:

1. **Safe**
2. **Fast**
3. **Easy**
4. **Accessible**

These principles were identified through a comprehensive review of customer experience and service strategy documents publicly available across municipal service providers, as well as municipal and regional transportation master plans.

While these Regional Customer Experience Principles have not yet been presented in a regional transit forum, they provide value by encouraging all stakeholders in the development of Shared Stations to design and develop requirements throughout the project life-cycle with a holistic and customer-centric lens.

See Table 2 on the following page for a description of each of the Regional Customer Experience Principles.

Table 2. Regional Customer Experience Principles

SAFE	• Design the experience to ensure customers feel personally, physically, and psychologically safe throughout their journey, at any time of day and at any location. • Design to support hazard-free travel and provide safe and comfortable conditions for all travelers.
FAST	• Provide an end-to-end customer experience that is well-connected, convenient, and frictionless. • Minimize walking distances and wait times between transfers, and move people efficiently and effectively.
EASY	• Provide an experience that is simple, predictable, and consistent when transferring between modes or service providers. • Provide direct, continuous, and convenient routes within the station environment. • Provide customers with real-time information and services when and where they need it.
ACCESSIBLE	• Design to serve the diverse needs and abilities of all travelers regardless of age, gender, income or familiarity of the system. • Design to value customers and provide services that are equitable and meet or exceed customer expectations.

3 KEY QUESTIONS IN PROJECT DEVELOPMENT

Early on in the project life-cycle, it is important to gather a robust understanding of the project context, goals, benefits, and key considerations by relevant Metrolinx stakeholders.

The Key Questions in Project Development is an internal document for Metrolinx Sponsors, Commercial Management, and Project Delivery Teams to aid in information gathering and build clarity amongst project stakeholders. This document supports:

- Informed decision-making,
- Early and efficient development of the initial program, negotiations and agreements, and
- The development of optimal design solutions and associated design outputs.

This document should be used early and continually referenced and updated through to the design development phase. This will ensure all parties, including the design teams, are working with up-to-date and comprehensive information to drive informed decision-making and streamlined design solutions.

4 PROCESS

The Shared Station Design Guideline as well as the Key Questions in Project Development document are critical inputs to drive early decision-making and streamline design solutions.

Table 3 illustrates how best to integrate these two inputs into the project life-cycle to ensure best outcomes. This table is to be used under the leadership of Metrolinx Sponsors with support from key departments, including Design, Operations, Development and others.

Note: When there is a revision to the project scope, it is important to refer back to this document to ensure that the proposed design solutions align with the design criteria.

Table 3. Process to Integrate Design Guidelines into Project Development Phases

Project Development Phase	Key Questions in Project Development Use this document to...	Shared Station Design Guideline Use this document to...
PROJECT SCOPING AND REQUIREMENTS SETTING **(Typically IP Stage 0 to Stage 2)***	• Gather initial understanding of project context, stakeholders, and assumptions.	• Support early conversations with relevant stakeholders. • Identify opportunities to share FOH and BOH programmatic elements. • Inform early strategic and customer decisions. • Inform operational and commercial negotiations. • Inform potential discussions with TOC developers. • Support the development of the Draft Concept of Operations.
SCHEMATIC DESIGN **(Typically IP Stage 2 and early Stage 3)***	• Modify and expand on the responses. • Share with relevant parties who are developing design options and outputs.	• Inform project schematic designs, design briefs, project output specifications, including RCDs and Project Agreements. • Test schematic design against Shared Station Fundamentals.
DESIGN DEVELOPMENT **(IP Stage 3)***	• Continually reference as the station and facility design is refined. • **If the project scope is revised,** update and modify key question responses and share with relevant stakeholders.	• Continually reference as the station and facility design is refined. • **If the project scope is revised,** refer to the guideline and ensure alternate design solutions align with criteria provided. • **For any significant changes,** test schematic design against Shared Station Fundamentals.
CONSTRUCTION **(IP Stage 4)***	• Reference to ensure alignment with the goals identified in earlier stages.	• Refer to section 5.9 - Staging, Phasing, and Construction to ensure customer needs are prioritized. Ensure this requirement is referenced in relevant contracts in the previous project development phases. • **If there are significant changes,** refer to the guideline and ensure alternate design solutions align with criteria provided.

*** Note:** Application of Investment Panel (IP) Stages may vary by project and delivery methodology.

5 SHARED STATION FUNDAMENTALS

Shared Station Fundamentals structure the essential guidance for the successful design and development of a Shared Station, i.e., a well-integrated station with optimized infrastructure that is both operationally functional and provides a unified customer experience.

There are nine overarching Shared Station Fundamentals. They are all equally important to inform the development of functional station requirements, design briefs, design concepts, design development, and project guidance and assessments throughout the project life-cycle.

See Table 4 for a summary of the design guidance in the sections that follow.

Table 4. Shared Station Fundamentals

Fundamentals	Objective	See Section
Right-sizing	**Consolidate functional program needs across agencies and contributors** to avoid the duplication of infrastructure and translate the program to the most efficient build.	**5.1**
Efficiency and Future Proofing	**Design for an efficient station** that optimizes life-cycle costs and is flexible for future additions or modifications.	**5.2**
Equitable Design of Transit	**Ensure the station environment and service delivery model** serve the diverse needs and abilities of all travelers regardless of age, gender, income level, or familiarity of the system.	**5.3**
Seamless Travel	**Design for a fast and easy transfer experience for all customers** at the station and across the integrated transit network.	**5.4**
Safety and Security	**Ensure safety and security for customers, station staff, and the larger public** in the design, construction, and operational phases. Assess, analyze, and, minimize all safety risks throughout the project life-cycle and ensure there is organizational agreement and sign-off.	**5.5**
Operational Functionality	**Design for a resilient and sustainable station** building that facilitates operations, in alignment with operator requirements and shared priorities.	**5.6**
Community Building	**Integrate the station within the surrounding community and local destinations**, and ensure access to transit is prioritized and the hierarchy of station access is protected for.	**5.7**
Non-Fare Revenue	**Maximize non-fare revenue within project constraints.** Consider life-cycle costs and adapt to the evolving advertising and retail landscape.	**5.8**
Staging, Phasing, and Construction	**Plan for a seamless construction phase** with clear impact assessment and management of customers, staff, transit operations, neighbours, and the larger public. Unless otherwise agreed upon, station should remain functional through all development phases, including surrounding TOC development and integration.	**5.9**

5.1 RIGHT-SIZING

Consolidate functional program needs across agencies and contributors to avoid the duplication of infrastructure and translate the program to the most efficient build.

APPROACH

In the project scoping phase, opportunities to share functional program between service providers as well as with third parties need to be explored. Sharing or consolidating functional program not only helps customers make quick and easy transfers through a unified station experience, but it can also provide benefits to the asset owner and operator(s), such as:

- A smaller station footprint,
- Infrastructure cost savings,
- Lower operations and maintenance costs, and
- Cost-sharing opportunities with our partners.

To achieve this, owners, operators, and other relevant stakeholders should be identified early to outline opportunities and constraints and to support decision-making on applicable standards for shared FOH and BOH programmatic elements. In parallel, critical scope and key regulatory compliances should be defined.

To support a unified customer experience, designers must strive to achieve right-sizing alongside consistency in architectural expression, look and feel, and functionality.

GUIDANCE

5.1.1 Customer-facing Programmatic Elements

a) Recommended below is a list of programmatic elements and amenities that can be consolidated between service providers and with third parties. Sharing of functional program is subject to various commercial and operational agreements. Associated dependencies may need to be established.

The list of programmatic elements to be consolidated includes, but is not limited to, the following:

Site elements:

1. Station plaza,
2. PUDO, including the barrier-free drop off zone,
3. Parking, and
4. Open and enclosed bike shelters.

Station elements:

5. Station access elements (i.e. entrances, access points, and lobbies),
6. Fare purchase areas (i.e. station attendant booths, fare purchase devices),
7. Waiting areas and enclosed waiting rooms,
8. Public washrooms,
9. First aid rooms,
10. Vertical circulation elements,
11. Platform access means (i.e. concourses, tunnels, bridges),
12. Platforms, and
13. Passenger shelters.

General elements:

14. Digital signage with service information,
15. Retail infrastructure,
16. Advertising infrastructure,
17. Furniture such as seating and waste receptacles,
18. Passenger Assistance Intercom system,
19. CCTV system,
20. PA system, and
21. Cellular and Wi-Fi network.

b) **Sharing of functional program** should consider and adapt to site-specific and program-specific constraints. Two architectural typologies to be considered are:

1. Integrated services and buildings -
   - Recommended for new builds,
   - Shared concourses and amenities,
   - Adjacent, stacked, or shared modal platforms, and
   - Quick transfers and short walking distances are prioritized.
2. Adjacent services and building -
   - Common for additions to existing stations,
   - Likely no shared concourse or amenities, and
   - Dedicated modal platforms, adjacent or stacked.

c) **Availability of amenities:** All amenities to be available to all customers during hours of operations.

d) **Future-proofing:** Where sharing is not possible due to operational requirements, FOH amenities to be located in close proximity to one another, ideally adjacent, to support consolidation at a future date.

e) **Strategic placement:** Sensory design, use of tactile elements, auditory cues, lighting, colour and pattern, digital signage, materials, and placement of furniture and fixtures to be considered in the design.

f) **Waiting areas:** Waiting areas to be sized according to station size and expected passenger use.

g) **Vertical circulation elements:** Vertical circulation elements (escalators, elevators, stairs) to be optimally located, visible from the station entry points, appropriately sized, and enabling choice of access by proximity and adjacency, for day one and future-proofed. Accessible route to be easy to locate, and for customers who don't require elevator access, non step-free route to be easy to locate.

h) **Shared Platforms:** To minimize walking distances, infrastructure and operations, the sharing of platforms should be explored with the below criteria:

1. Sharing of bus platforms across bus agencies should be explored to minimize size of bus facilities.

2. Sharing platforms across various modes is a more challenging exercise. It results in non-typical configurations that balance advantages and challenges, particularly for access, transfers, and fare payment / fare allocation. This approach should be restricted to particular cases. Where pursued, the design should be developed, discussed and tested with all stakeholders. The following can inform studies and discussions:

    i) Irrespective of mode and shared modal conditions, all platforms should be fully realized platforms with the necessary minimum clearances to ensure safe passenger flows,

    ii) Early and robust studies should be conducted to ensure that shared platforms do not create a risk of customer confusion in payment and navigation to and from their platform. This must include customers with disabilities as well as infrequent riders and visitors. Refer to sections 5.3 and 5.4,

    iii) Fare payment strategies should be developed and confirmed in greater detail early on, in particular where fare or fare revenue sharing is required across agencies,

    iv) Customer journey / experience, inclusive of the fare experience, to be comprehensively analyzed in all scenarios (peak, event, regular), and for all customer types (regular transit user, visitor, weekend user, etc.) across the station site,

    v) A fulsome pedestrian flow analysis and Code and regulatory requirements analysis to be performed early, and

    vi) Additional analysis may be required based on site-specific configurations, operational, fare and other constraints.

i) **Bus Platforms:** When employing dynamic and zoned-based allocations or a Terminal Management System, the needs of people with vision and hearing loss in navigating a dynamic environment must lead the design process early on.

5.1.2 Back of House Programmatic Elements

a) Opportunities for sharing BOH amenities between service providers to be considered and explored. Below is a preliminary list for consideration, subject to technical and operational negotiations and agreements:

1. BOH circulation areas,
2. Staff parking,
3. Station attendant service counter BOH,
4. Staff and driver areas and washrooms,
5. Janitor / maintenance rooms,
6. Facility-related technical spaces,
7. Service-specific technical spaces, and
8. Staff building access.

- Dynamic bus bays with clear zones for departure
- Collocated central seating area
- Digital signage with consolidated service information

Figure 2. Union Station Bus Terminal, Toronto

5.2 EFFICIENCY AND FUTURE PROOFING

Design for an efficient station that optimizes life-cycle costs and is flexible for future additions or modifications.

APPROACH

Communities surrounding our stations are growing and evolving over time. Shared Stations must be designed to anticipate and accommodate day-one and future community and context-based needs such as increased density, connections to points of community interest, adjacent developments, new / expanded transit lines, amenities, etc. The Shared Station design must support a quick and easy transit access and transfer experience, and an easy implementation of station modifications over time.

GUIDANCE

Future-proofing through design that is practical and strategic for the anticipated station life-cycle. Some considerations are as follows:

a) **Life-cycle:** The station will serve the transit network and the neighbourhood for the next 75 to 100 years, or more.

b) **Design for the future:** Infrastructure needs associated with the anticipated ridership projections and urban growth need to be established.

c) **Flexibility and space-proofing:** Infrastructure design to be future-proofed by space-proofing for changes at a later date. Considerations include, but are not limited to:

1. Additional access requirements (horizontal and vertical) to meet future ridership needs,
2. Space-proofing for changes at a later date, particularly in intensifying areas,
3. Amenities that need to be added or relocated at a later date. Examples include fare lines, fare purchase devices, seating and waiting areas, retail, and
4. Review of design to assess other opportunities to protect and / or not preclude future interventions.

d) **Third party opportunities:** Opportunities for delivery of certain components of the plan via TOC or third parties to be explored. Transit requirements, priorities, objectives, and schedule to be clearly identified prior to negotiations to protect customers and transit users.

e) **Technical design opportunities:** Opportunities to optimize technical design and disciplines to be maximized, to protect customer experience and customer-facing design.

f) **Phasing opportunities:** Opportunities for phasing infrastructure needs to be explored and defined. Considerations include, but are not limited to:

   1. Establishing dates when implementation of interventions becomes critical, and

   2. If relying on future projects, ensuring design allows for / does not preclude future additions and modifications.

g) **Past projects and analysis:** Where past analysis at the site exists, the project's historic decision-making context to be reviewed and findings integrated into new plans.

h) **Procurement strategies:** Procurement strategies to be explored to find innovative and cost-effective solutions that protect customer needs.

5.3 EQUITABLE DESIGN OF TRANSIT

Ensure the station environment and service delivery model serve the diverse needs and abilities of all travelers regardless of age, gender, income, or familiarity of the system.

APPROACH

Equitable design of transit addresses concepts of universal and inclusive design that strive to create transit environments that can be accessed, understood, and used by all individuals, regardless of their age, gender, income, familiarity with the system, or disabilities. Equitable access means that customers, especially those with disabilities, do not have to undertake additional actions or measures to receive the same level of service or experience as others.

The design should consider how customers of all abilities and backgrounds move through the space and interact with amenities to ensure their journeys are simple, short, intuitive, and accessible at all times of the day. Our customers are diverse, and design should consider and respond to the spectrum of human differences, needs, and preferences.

GUIDANCE

a) **Customer journey at a transit station:** A transit station is considered to support an end-to-end customer journey and integrated customer experience that, independent of owner or operator:

   1. Starts at street / public right-of-way and ends with getting on board; or
   2. Starts with alighting and ends at boarding the next transit connection; or
   3. Starts with alighting and ends at street / public right-of-way.

b) **Access** to be maximized to support connections to public transit and increase station catchment areas. Critical concepts include:

   1. Clarity of access location: visible from far and located at critical community connections and main road / arterial intersections,
   2. Ease of access to transit: enabling easy and fast modal transfers that are clear and convenient,
   3. Future-proofed: allowing flexibility for future adjustments by space-proofing according to context,
   4. Safety: support of actual and perceived safety.

c) **Accessible routes** to be provided - a continuous, unobstructed, step-free, external and internal path of travel according to Metrolinx standards. Connect accessible elements and services from major arrival areas and transfer points through to the platforms and the Designated Waiting Areas (DWAs). Ensure accessible routes to connect transit access with:

   1. Public sidewalks and station plazas,
   2. Pick-up drop-offs (PUDOs),
   3. Bike parking, and
   4. Parking areas.

d) **Stepped and step-free routes** should be adjacent and visible to / from each other so that all passengers are traveling in the same direction without segregating.

e) **Walking distances** to be minimized and stations to be designed prioritizing the customer and the customer journey. Where needed, rest areas are to be provided along the accessible route.

f) **Barrier-free drop off zone** to accommodate specialized transit. The barrier-free drop off zone to be located on the shortest, most convenient, and visible accessible pedestrian route to the facility entrance and to the accessible boarding area(s). Enclosed waiting and seating areas to be provided with clear sight lines to the barrier-free PUDO, reserved for customers who use mobility devices.

g) **Accessible parking:** Where specified, accessible parking to be located to minimize travel distances through the site, on highly visible, safe routes.

h) **Bike storage:** Bike shelters and bike storage to be conveniently located within a short distance to most transit connections. In case of conflict, accessible arrival areas and accessible route(s) to be prioritized over cyclists.

i) **Vertical circulation elements:** Where access to transit requires vertical access:

1. The vertical circulation scope (stairs, escalators, and elevators) to respond to context, station depth, human abilities, CPTED, and to consider passenger flows. Passenger flow calculations to include transfers, community connections and consideration of usage and particular neighbourhood characteristics (e.g. event spaces, different peak hour conditions, etc.),
2. Needs of vulnerable populations - such as women, the elderly, people traveling alone, 2SLGBTQIA+, and other - need to be considered in establishing the scope of vertical circulation; for instance escalators are preferred by several groups over elevators as they are perceived as giving a safer option,
3. Accessibility of vertical circulation services and facilities must be preserved at all times,
4. Redundant access and redundant paths that are clear and require low physical and cognitive effort to be provided for disruption scenarios such as equipment failure, service delays, accidents, construction, and extreme weather, and
5. Where there is no conflict with safety and accessibility requirements, bicycle runnels to be included in staircases.

j) **Washrooms:** Universal washrooms and, where specified, gendered multi-stall washrooms to be provided. All washrooms to be located on an accessible route and have clear sight lines to entry points for safety.

k) **Fixtures, furnishings and fare devices** to be clustered across the station environment such that points of information and areas for waiting / rest are clearly identifiable and located along the main path of travel to transit.

l) **Seating** to be provided throughout the station environment. Customers with chronic conditions and ailments, heavy bags, strollers, and aging customers may require respite along their travel journey. Well-lit, visible areas where customers can rest along the route to and from the platform, between transfers, and on the platforms to be provided.

m) **PA:** A single PA system with clear and intelligible audio information to be provided throughout the station environment.

n) **Service Animal Relief Areas (SARAs):** A well-integrated Service Animal Relief Area to be provided in the station plaza, along the accessible route, and in proximity to the station entrance.

o) **Water bottle filling station:** A water bottle filling station to be provided adjacent to the washrooms.

5.4 SEAMLESS TRAVEL

Design for a fast and easy transfer experience for all customers at the station and across the integrated transit network.

APPROACH

Shared Stations support the integrated transit network by enabling access to multiple modes. To create seamless travel options, priorities and objectives include connections to the community and neighbourhood, tight spatial integration between various modes, and design strategies that support an easy and intuitive station functionality and customer navigation.

As stations become larger and more complex, an effort in compactness supports faster and easier transfers. Optimizing the various customer journey options is critical, supported by strategies that enable clarity and simplicity, through architecture and materiality, customer information, strategic fare purchase and payment, amenities along the direct routes, etc. These strategies help minimize capital and operational costs and efforts.

GUIDANCE

a) **Community connectivity:** Community connectivity and transit access in desired catchment areas to be maximized, and multiple access points to be provided, well-distributed across the site.

b) **Customer journey / customer path of travel:** A customer path of travel to be provided that is clear, simple to navigate, safe, and as short as possible, in particular along main passenger flows to ensure quick and easy transfers:

   1. Between higher order transit (i.e. subway, heavy rail, LRT) and other transit connections, including major on-street transit connections, such as bus, BRT, streetcars, etc.,
   2. Between transit connections and station access points, and
   3. Between station access points and adjacent community points of interest such as hospitals, community centers, parks, schools and universities, and public buildings.

c) **Wayfinding and navigation:** The navigation and wayfinding strategy to be designed with the end-to-end customer journey in mind and the many types of passenger flows aligned with the *Regional Transit Wayfinding Program*. The strategy is to be consistently applied across the station environment, regardless of service provider or mode. Some considerations for an intuitive navigation include considerations of connections and areas:

   1. Between transit connections,
   2. Between transit connections and TOC or third party connections,
   3. Between station access points and transit connections, and
   4. Between station access points and adjacent community points of interest such as hospitals, community centers, parks, schools and universities, and public buildings.

d) **Intuitive wayfinding strategies through design:** Clear and intuitive navigation strategies to be applied to draw customers to key touch points within the station environment, such as station access points, fare purchase areas, vertical circulation elements, and platforms. Strategies include, but are not limited to:

   1. Direct lines of sight to locations of interest,
   2. Lighting, both natural and artificial, and
   3. Wall and ceiling feature elements with distinct materials, colours, and patterns that are informed by the station context and surrounding community. This includes site-specific architectural strategies as well as requirements such as feature walls which are defined in subways design standards.

e) **Materiality and architectural expression:** A unified material palette to be provided with continuity in materials and finishes throughout the interior and exterior site, to ensure the Shared Station is perceived as a unified station environment.

f) **Branding:** Elements that carry a station identity to be prioritized in spaces shared between service providers to support a holistic, brand-agnostic station experience for customers. Service provider-specific branded elements to be strategically applied to dedicated areas only, such as platforms, to support navigation.

g) **Self-Serve:** To maximize self-serve options, Self-Serve Hubs (comprised of trip planning, service information and fare purchase devices) to be conveniently located on direct customer routes, in spaces shared between service providers:

   1. To make travel decisions easily and quickly, Self-Serve Hubs to be collocated so that customers can access trip planning, fare purchase, and real-time service information in one place, regardless of service provider,
   2. Where Self-Serve Hubs may be too large for a constrained site, the programmatic elements listed above to be organized in a logical and efficient manner to meet the above customer experience objective, and
   3. Self-Serve Hubs to be located in proximity to station access points.

- Use of brand-agnostic accent colour to draw customers to platforms
- Collocation of stairs, escalators, and elevator
- Clear visibility of station entry/exit points

Figure 3. Vaughan Metropolitan Centre Bus Terminal, Vaughan

4. Clear visual cues to be provided to ensure customers can distinguish between transit agencies to reduce customer confusion when purchasing their trip fare.

h) **Station Attendant Booths:** Where provided, station attendant booths to be located adjacent or in proximity to the Self-Serve Hubs. This will allow station attendants to have a clear sight line to the Self-Serve Hubs to assist customers when needed.

i) **Real-time service information:** Real-time service information to be provided at key decision points within the station environment. Service information to be collocated across service providers to enable customers to make quick and informed transit decisions. These locations include:

1. At or before fare payment, and
2. En-route to platforms

j) **Fare payment:** Revenue protection is an important factor for transit agencies. Agency-specific payment requirements and standards to be followed, while taking into account future fare integration opportunities and trends. Approach to allow tracking of customer transfers between agencies:

1. Solutions to support agnostic bus station terminals include unpaid stations and terminals with payment when boarding the bus, and
2. Shared platforms between subways and heavy rail require particular design considerations.

k) **Platforms:** If a platform is shared,

1. Clear visual cues for customers to distinguish between service providers and identify where they need to wait for their train or other mode. This is particularly important when the platforms may be of unequal length, and
2. To ensure the success of the shared platform and avoid operational and staffing burdens, the fare payment process must be designed such that when making a transfer it is simple and clear to a customer who is unfamiliar with our regional transit network.

l) **Digital information on platforms:** Trip confirmation and service updates to be provided on digital signage at platforms.

- Use of multiple escalators for tall vertical circulation.
- Use of feature light well to draw customers to station exit.

Figure 4. Canary Wharf Tube Station, London

5.5 SAFETY AND SECURITY

Ensure safety and security for customers, station staff, and the larger public in the design, construction, and operational phases. Assess, analyze, and minimize all safety risks throughout the project life-cycle and ensure there is organizational agreement and sign-off.

APPROACH

Metrolinx has a "Safety First" approach.

A Shared Station is experienced as a moment in the integrated transit journey, and a Safety by Design approach needs to be applied holistically, independent of owner and operators. Safety by Design considerations include actual and perceived safety, operational scenarios (regular and irregular), emergency and worst-case scenarios (crowding, fire, unforeseen acts of violence, or other), and life safety. The station should be analyzed through the lens of people of all abilities, including vulnerable populations (such as older adults, women, children, people traveling alone, etc.).

Safety is site-specific. Safety is impacted by items such as neighbourhood and context, traffic and site, station size and complexity, station depth, access and egress options, quality and availability of vertical connections, etc.

From a perceived safety and customer and station design perspective, visibility, transparency, and CPTED principles are critical. These include particular care in designing underground connections, providing options and choice of access, emphasizing the importance of transparency and visibility ("eyes on the street" / "eyes from the street"), and others. Additional safety considerations include environmental aspects such as cleanliness, air quality, noise, and thermal comfort.

While Codes, Standards, and regulatory requirements are a must, Safety by Design goes beyond and applies a customer perception and inclusive design lens to all aspects of the customer journey options and the station design.

Safety is essential in all stages and phases of the project.

GUIDANCE

a) **Hierarchy of Station Access:** Customer movement at the station to prioritize the Hierarchy of Station Access.

b) **End design and interim conditions:** The approaches outlined in this section apply to all stages and phases of construction, including interim conditions. Customer circulation routes and customer and staff spaces are to be carefully designed and reviewed throughout all phases of the project life-cycle.

c) **Safety risk assessments:** Safety risk assessments are supported by the Metrolinx Safety and Systems Assurance team and need to consider multiple and all anticipated safety risks including worst-case scenarios, fire and life safety, evacuation of people with disabilities, unforeseen emergencies, crowd control, emergency egress (inclusive of ventilation, emergency plans, etc.) evacuation, risks, and hazard analysis, etc. Additionally, roles of owners and operators need to be considered.

d) **Day-to-day operational scenarios** need to include:

1. Role of a station within the network - i.e. turn-back station or other,
2. Service disruptions and other operational irregularities - i.e. missed headways, out of service elevator / escalators,
3. Assessments of time and effort required of customers in elevator / escalator out of service situations - e.g. older adults, people with strollers, people with disabilities, etc., and
4. Anticipated ridership over the life-cycle of the station.

e) **Codes and regulatory requirements:** Compliance with all applicable Codes, and regulatory requirements in the design of the station environment is required. Additionally, municipal standards, guidelines and requirements are to be met.

f) **Crime Prevention Through Environmental Design (CPTED):** CPTED principles to be applied in the design of all spaces touched by customers independent of owner and operators. Additionally:

1. Transparency and visibility to be provided from and into public spaces,
2. An eyes on / from the street approach to be provided,
3. Choices of access and alternates to underground connections and access points to be provided,
4. Elevator lobbies, waiting areas, and fare purchase areas where customers may linger to have good natural surveillance through unobstructed sight lines, and
5. For station elements such as retail that may have shorter operating hours than the station, they are to be positioned such that they don't impede natural surveillance when closed.

g) **Traffic and pedestrian safety:**

1. Circulation routes to be well-defined,
2. Safe pedestrian access from key street intersections to be prioritized to support ease of transit identification, access, and orientation for all customers,
3. Municipal standards, guidelines, and requirements to be followed in the development of safe urban spaces around the station,
4. PUDO to be located and designed in a manner that prevents dangerous stopping situations or safety risks to customers being picked up or dropped off,
5. The public realm to be designed to avoid conflicts between vehicular, bike, and pedestrian traffic. Particular consideration to be given to the following areas:
   i) Open spaces,
   ii) Pedestrian and cycling routes,
   iii) Locations where pedestrians may wait before crossing or transferring across the site, and
4. Design of landscape elements to support clear sight lines, particularly in transfer areas between transit services.

h) **Station access:** Clearly visible and well-illuminated station entrances to be provided, with clear sight lines from inside and outside the station.

i) **Grade-separated connections:** Grade-separated connections to be provided where crossing of tracks, or crossing of active bus lanes is required.

1. To support life safety, regulatory and operational requirements to be met,
2. Redundant access across the station to be provided, in particular to / from GO platforms, to facilitate sufficient and safe egress in the event of extreme weather, service delays and disruptions, accidents, and acts of violence, and

3. Human behaviours and least effort approach to be considered when establishing and designing infrastructure next to rail corridors and / or dedicated bus lanes.

j) **Tunnels and underground connections:** Where possible, underground connections via tunnels to be minimized to lower the perceived lack of safety and the risk of safety incidents. Alternate routes to be provided.

k) **Design of tunnels and bridges:** Where overhead or underground connections are provided via tunnels and bridges:

1. Walking distances to be minimized and at-grade alternates to be provided (exception: no at-grade alternates where GO rail corridor crossings would be required due to safety risk),

2. Clear sight lines to vertical circulation points to be provided; angles, blind corners, recesses, and other places where people could hide to be avoided,

   - Security mirrors to be used to lengthen sight lines in tunnels and bridges, and

   - Ensure they are well-illuminated.

3. Pedestrian tunnels to be animated with advertising media to increase customer perception of safety,

4. Bridges to be glazed and have clear views and sight lines to surrounding areas, to support CPTED and perceived safety, and

5. Bridge ventilation to be designed with thermal safety in mind, especially for hot summer months; louvers to be designed such as to prevent entry of precipitation that may create slip and fall risks.

- Well-lit
- Use of advertising to animate the space
- Use of linear lighting to aid navigation

Figure 5. London Underground, London

l) **Vertical circulation, general:** Vertical circulation elements across the station site to be:

1. Located and sized optimally via pedestrian flow modeling,
2. Protected from the elements via vestibules, and
3. Where escalators are used, they must follow specific surge and safety requirements.

m) **Underground stations and height differences above 6m for subways:** Safety risks increase with station depth / height difference:

1. Day-to-day operations as well as service disruption scenarios, emergencies, and high-volume special events to be considered,
2. Human abilities and station depth to be considered in establishing and sizing vertical circulation elements (stairs, escalators, and elevators),
3. Escalators and elevators to be provided in addition to stairs to reduce risks of customer fatigue and exacerbating existing health issues,
4. Choices of vertical circulation elements to be provided with consideration to the preference that vulnerable populations (people traveling alone, older adults, women, and others) give to escalators over elevators as they feel safer,
5. Elevators to be provided as required for barrier-free accessibility, and
6. Out of service situations to be designed for and mitigated for all mechanical means of access (escalators and elevators). Safety and access to be maintained in all cases, including for service disruptions or service irregularities when unforeseen crowding and panic may occur.

n) **Weather protection:** Consistent and continuous weather protection to be provided in all areas where customers wait, including fare purchase areas and platforms to:

1. Prevent slips and falls,
2. Distribute customers in inclement weather (snow, rain, hot sun) along the length of the platform and
   - Avoid crowding issues at platform access points, and
   - Facilitate quick and safe boarding and alighting.

o) **Snow removal strategy:** A snow removal strategy to be provided to reduce the risk of slips and falls on platforms. A snow melt system to be provided where possible to support operations by minimizing the need for snow clearance.

p) **Environmental safety - air quality, noise, and thermal safety:** The Shared Station to be designed with comprehensive customer safety in mind, including thermal safety and comfort, air quality, and acoustics.

   1. When designing the space, the broad spectrum of customers and staff to be considered, throughout the year, to support CSAT and ESAT, older adults, children, those with health concerns, etc.
   2. When establishing a comprehensive environmental design strategy, potential service disruptions, crowding, and unforeseen events, as well as climate change to be considered.

q) **Lighting:** Even and sufficiently bright lighting to be provided to eliminate dark areas. Enhanced lighting to be provided in areas where customers may wait or make decisions, such as:

   1. Elevator lobbies,
   2. Waiting areas, and
   3. Fare purchase areas.

r) **Cellular and Wi-Fi:** A single, continuous cellular and Wi-Fi connectivity to be provided throughout the station environment, to support quick communication in the event of emergency, disruptions and delays, and timely reporting of safety incidents.

s) **Passenger Assistance Intercoms (PAI):** A single PAI system to be provided throughout the station environment, supported by a consistent look and functionality of these devices, as well as the quality of assistance anywhere in the Shared Station.

   1. PAIs to be located along the path of travel and provide clear visual cues to easily identify them.

t) **CCTV:** A single CCTV system to be provided throughout the station. If CCTVs are managed separately by service providers, the system is to be well-coordinated with no blind spots or unnecessary overlaps in CCTV locations.

u) **Safety-conscious fixtures and fittings:** Materials to be used- that deter vandalism and can be easily maintained or repaired if vandalism does occur.

5.6 OPERATIONAL FUNCTIONALITY

Design for a resilient and sustainable station that facilitates operations, in alignment with operator requirements and shared priorities.

APPROACH

A well-functioning transit station is heavily reliant on operations. From a customer's perspective the station will be experienced as a single site and transit node. Early identification of owners and operators, opportunities and challenges with sharing infrastructure, maintenance agreements, provision of sufficient space and access, consistency of elements and designs, and longevity of materials and details are some of the strategies to be employed to enable operational opportunities and support effective and efficient design solutions.

GUIDANCE

a) **Early commercial negotiations:** Operational and commercial negotiations to be initiated early in the project scoping phase. The following to be identified:

1. Station owners and operators, this will clarify governing standards and requirements,
2. Operational responsibilities, including customer-facing operations such as Lost and Found, handling customer complaints, emergency assistance, etc.
3. Customer-facing and back of house programmatic elements that can be consolidated (refer to section 5.1),
4. Associated O&M requirements,
5. Cost-sharing opportunities, and
6. RACIs.

Operational and commercial RACIs and agreements should be finalized in the design development phase.

b) **Concept of Operations:** Draft Concept of Operations to be developed early in the project life-cycle with the support of information in guidance a).

c) **Additional customer-facing operational considerations:** Relevant operations and maintenance needs to be protected throughout the project life-cycle, including through TOC phases, where applicable. Some considerations include:

1. Consistent availability of amenities, including but not limited to retail and washrooms, during all hours of station site operations,

2. Consistent access to major station entry / exit points,
3. A station-wide approach to customer service delivery that prioritizes the customer's needs for station and trip navigation regardless of service,
4. Consistent level of cleanliness throughout the site, independent of vendor(s), and
5. Provision for safe and functional temporary or interim conditions.

d) **Service spaces** to be strategically located to support operations while away from customer paths of travel. In stations where service spaces are located within or shared with private developers or other third parties, robust agreements are required to ensure access, ability to make future modifications, cost-sharing, and other interface conditions.

e) **Life safety:** One unified life safety system, one unified emergency system, and one unified fire alarm system to be provided. Particular attention to be paid to life safety and emergency / fire alarm conditions in buildings with residential or other occupancy as part of operational emergency response discussions.

f) **Maintenance access:**

1. Maintenance of station exterior to be enabled, and
2. Maintenance access to be provided to and around the site that is sufficient for the various programs.

g) **Non-fare revenue and retail requirements:** The operational needs of the retail spaces need to be accommodated in the design, including storage, garbage, technical requirements, etc. away from the public-facing areas and customer path of travel.

h) **Sustainability and life-cycle:** Sustainability and durability to be considered in the provision of all building components and systems, including structure, envelope materials, and building systems.

i) **Furniture, fixtures, and equipment:** From a customer and operational perspective consistency in furniture and fixtures is preferred. Applicable standards and exceptions to be identified early in the design phase in discussion with MSPs and municipalities.

j) **Electric bus charging:** On bus platforms -

1. The locations of bus charging and servicing to be secondary to passenger flow and convenience of bus bay locations for customers.
2. Minimize customer walking distances and maximize safety to support customer convenience. The bus station / terminal footprint may not be increased by the provision of bus charging within the facility.

5.7 COMMUNITY BUILDING

Integrate the station within the surrounding community and local destinations, and ensure access to transit is prioritized and the hierarchy of station access is protected for.

APPROACH

Shared Stations are critical nodes in the community where a multitude of transit options are being brought to customers. Transit, access to transit, and the customer journey must be prioritized as a public, community-serving, critical service and supported through the station location, station design, and architectural expression. They are to enable safety, convenience, intuitive navigation, and wayfinding.

The design and building of the shared station also provide opportunities for community benefits, in the form of connections, public realm enhancements, and potential provisions that enable future development.

For both adjacent development / TOC and the station design, long-term thinking needs to be applied including through station planning and space-proofing for the future anticipating an intensified urban context.

- Access to subway directly adjacent to main entrance of a center for arts and culture
- Clear visibility from main intersection

Figure 6. Four Seasons Centre for the Performing Arts, Toronto

GUIDANCE

a) **Station to be designed to fit within the urban context:**

1. Station design to consider future urban growth, including through coordination with various municipal and provincial planning documents and priorities,
    - This should be reflected in long-term thinking in station design and space-proofing that supports the transit use for projected context, urban density, and ridership,
2. Pedestrian access points, bike paths, and multi-use paths (MUPs) to connect to and continue municipal sidewalks, bike paths, and MUPs,
3. Station plaza(s) and public realm adjacent to stations to be designed in a cohesive and well-thought-out manner,
4. Elements such as landscaping, lighting, urban furniture, and bike storage to be coordinated with the municipality, and
5. Vents, mechanical, or other elements that may have acoustic, vibration or other impact to be carefully located, away from sensitive areas.

b) **Location of access at points of community interest:** Access points to be located in proximity to community amenities such as parks, hospitals, and educational institutions as well as high-density residential areas, etc.

1. Transit access to be prioritized as a public, community-serving, critical service, and
2. Provisions of access (e.g. vertical circulation elements such as stairs, escalators, and elevators) to be appropriately designed to respond to the needs at the particular location.

c) **Clarity of access:** Transit access to be clearly visible and located at main streets and arterials, and

1. A clear transit architectural and design identity that is easily recognizable, to support intuitive wayfinding and navigation.

d) **Potential for community connections** across the station or station-related infrastructure to be explored, particularly across GO rail corridors, transit corridors, major roads, and highways:

1. Community connections to be outside of fare paid zones,
2. Early negotiations and agreements with municipalities are required.

e) **Provisions for future development / TOC:** Where applicable, provisions to be made through the station design / construction to enable urban intensification and growth - e.g.: provisions for overbuilt over the station box, building adjacencies, inclusion of knock-out panels, etc., and

f) **Signage and Wayfinding:** To support transit access, signage and wayfinding may be required beyond the immediate transit station environment through third party or municipal connections to direct passengers to and from surrounding streets, bicycle routes, and nearby destinations and landmarks.

- Adjacent to main path of travel
- Open and inviting storefront to draw customers in
- Clear brand signage

Figure 7. Union Station, Toronto

5.8 NON-FARE REVENUE

Maximize non-fare revenue within project constraints. Consider life-cycle costs and adapt to the evolving advertising and retail landscape.

APPROACH

Advertising and retail are two critical opportunities for transit agencies to generate non-fare revenue while providing customers with amenities on the go. Non-fare revenue should be considered early in the infrastructure planning to anticipate future vendor needs when the station opens.

Both retail and advertising will change over time with advances in technology, trends, and customer behaviours and should be designed in a manner that allows for flexibility. The approach to advertising and retail will be heavily influenced by owner and operator agreements.

GUIDANCE

5.8.1 Advertising:

a) **Metrolinx requirements:** Engage early in the design process with Metrolinx Advertising & Commercial Revenue or equivalent team(s) for desired quantities of advertising media and associated specifications, to supplement Metrolinx standards and guidelines. Requirements may vary based on the owner of the advertising non-fare revenue contract.

b) **Hierarchy of information:** From a customer perspective,

1. Hierarchy and clarity of transit information to be maintained and prioritized over advertising,
2. A unified advertising experience, and
3. Appropriate provisions for technical and support elements to be provided -
    - For instance, appropriately sized and located advertising back of house spaces with third party equipment away from the customer path of travel.

5.8.2 Retail:

a) **Metrolinx requirements:** Engage early in the design process with Metrolinx Retail Partnerships or equivalent team(s) to identify the retail scope, including both temporary (pop-ups, brand activations, etc.) and long-term retail (kiosks, retail vending, etc.).

b) **Municipal zoning:** Ensure that the land is zoned appropriately to accommodate retail.

c) **Retail location:** To facilitate customer use and support transit non-fare revenue, strategically locate retail types to be easily visible and adjacent to the main path of travel. Requirements may vary based on the owner of the retail non-fare revenue contract.

d) **Support spaces and elements:** Support spaces and elements of appropriate size to be provided within the station environment, located along services access and away from the customer path of travel. For the variety of retail typologies, these include:

1. Mechanical, electrical, and communications access, panels, connections, meters, etc., and
2. Service access, garbage, and storage.

5.9 STAGING, PHASING, AND CONSTRUCTION

Plan for a seamless construction phase with clear impact assessment and management of customers, staff, transit operations, neighbours, and the larger public. Unless otherwise agreed to, a station should remain functional through all development phases, including surrounding TOC development and integration.

APPROACH

Due to scope and complexity, Shared Stations are anticipated to be constructed in multiple stages. These stages require robust planning to optimize construction needs and minimize impacts to customers using the station, applying an integrated network approach.

Additionally, a phasing approach should be applied to the requirements and design of the station, taking into account the lifespan of the transit station which is anticipated to be 75 to 100 years or more. This should include strategies such as space-proofing for later dates and establishing triggers for infrastructure modifications.

Safety for customers, staff, transit operations, neighbours, and the larger public is essential through all stages and phases of the station life-cycle. For further detail on safety refer also to section 5.5.

GUIDANCE

a) **Safety:** At all times during a station's life-cycle it must be safe for all, independent of owners and operators.

b) **Coordination and planning:** All activities to be coordinated across service providers and modes to prioritize the customer experience and customer journey.

c) **Phasing:** Phasing refers to planned and strategic development of a Shared Station to meet the transit and customer needs over the station life-cycle of 75 to 100 years or more:

1. Items subject to phasing may include connections, access points, access provisions, amenities, and other,
2. For elements and components that depend on third parties, a strategy should be in place in case there is a delay in schedules, or a change in scope / agreement,
3. For elements and components that are required at a later date, robust planning and space-proofing must be in place to enable delivery of the infrastructure component at a later date. This may include:

i) Property acquisition, in particular for areas that may be intensified at moment of infrastructure need,

ii) Establishing triggers for infrastructure modification such as dates or other data-based information, and

iii) Tracking and planning to ensure timelines and requirements are met, in particular for customer-facing and safety-sensitive items.

d) **Staging and Construction:** For staged construction and implementation scenarios:

1. Existing stations to remain operational throughout the delivery of the project unless otherwise directed by Metrolinx,
2. Station components open to customers to remain safe, comfortable, equitable, and universally accessible to all customers, maintaining or exceeding the existing performance level,
3. Critical customer requirements and amenities to be provided. These include fare purchase and payment, circulation and pedestrian flow, shelter, intuitive navigation, and signage (static and digital),
4. Shortest walking distances to be implemented,
5. Passenger flows to be applied and tested for all customer journey scenarios,
6. Conflict between pedestrians and vehicular traffic to be minimized at all times, and
7. Where possible existing and interim provisions to be integrated in the final end-state of the station facility.