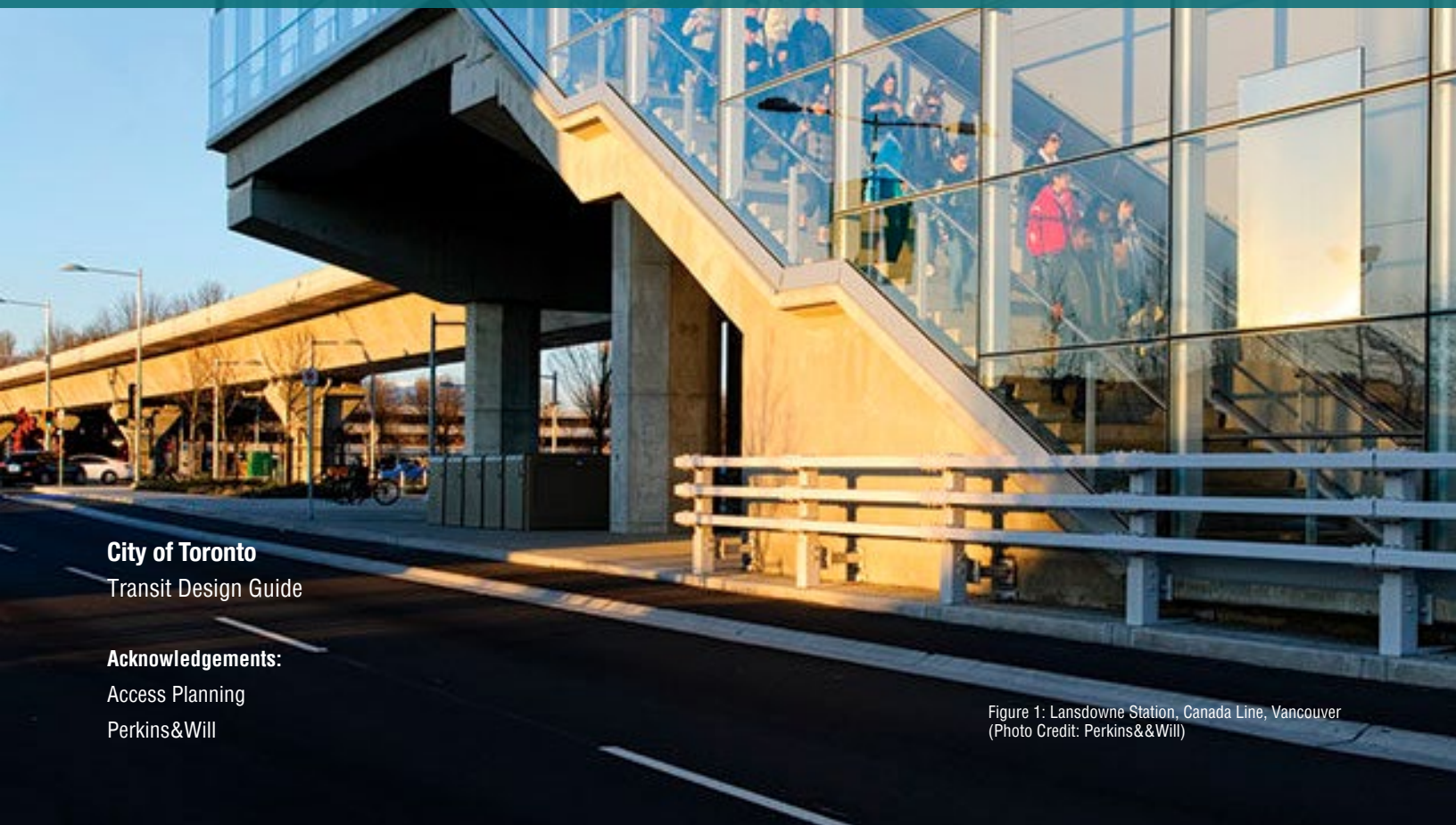
TORONTO | Transit Design Guide

Elevated Stations



City of Toronto
Transit Design Guide

Acknowledgements:
Access Planning
Perkins&Will

Figure 1: Lansdowne Station, Canada Line, Vancouver
(Photo Credit: Perkins&&Will)

1.0 INTRODUCTION

1.1 Definition

An elevated station is the access point from the street to the platform for an elevated transit line, including rail, light rail or bus, and it is where passengers board or alight transit vehicles. The elevated station area encompasses the full site on which the station is located, from the station approach to the platform.

A series of factors influence the layout and resulting station type, including:

- Alignment of station site and guideways within the block structure and adjacent streets
- Connections to other transit facilities
- Potential integration with Transit-Oriented Development (TOD)
- Adjacency to other corridors such as highways, rail tracks, or natural features such as ravines or linear parks

The components of an elevated station are:

- **Vertical Circulation (Stairs, Elevators):** The vertical infrastructure that brings passengers from the public realm at grade (or adjacent buildings, if applicable) to the transit platform along a guideway.
- **Station Approach (Pathways, Cycle Tracks):** The horizontal infrastructure that creates access to the elevated station from surrounding streets, sidewalks, and cycle tracks.

Figure 2: Diagram depicting the various components of a typical elevated station, Gilmore SkyTrain Station (Photo Credit: Perkins&Will)

- **Canopy, Wind Screen and Shelter:** The elements that provide weather protection for passengers, shade and shelter passengers waiting and/or travelling to the elevated station.
- **Station Plaza:** The station approach, entrances, and plaza are critical pieces of the public realm to facilitate intermodal transportation, organize ancillary elements, buildings and utilities, and encourage intuitive wayfinding.
- **TOD Site:** The developable areas above or beside stations. These sites provide direct and convenient connections between areas of living/working to public transportation.
- **Underpass:** Unique to elevated transit typologies, the underpass is the space beneath the elevated infrastructure. These become critical areas for facilitating an inviting and safe public realm, and provide visibility and permeability.
- **Station Entrance:** A weather-protected threshold between paid and non-paid areas that are facilitated by ticketing areas or fare gate equipment
- **Platform:** The area adjacent to the guideway where transit passengers wait for, and disembark from transit vehicles, located at the top level of elevated stations

1.2 Areas of Influence

In the context of elevated stations, the areas of influence can be defined as follows:

Zone 1: Includes the local context in which the station is situated, including surrounding properties that will be physically impacted by the station and related to its surrounding infrastructure. This also includes parking, passenger pick-up and drop-off (PPUDO) and public/private access roads to the station. Decisions for this zone are important, and early consideration made during the delivery of this transit infrastructure, must ensure existing or future transit-oriented development or other public amenities are secured.

Zone 2: Includes the exterior station structure, materials and transparency, including the building itself and exteriors of circulation elements such as elevators, bridges, and stairs – where they interface with development and/or the public realm. This zone also extends into the public realm at street level, such as a station plaza, for example. The Guide will inform the relationships between the station infrastructure and the surrounding public realm, with regard to fit with local context.

Zone 3: Includes internal station functions and amenities such as fare gates, ticket machines and washrooms. This will also include the operational transit infrastructure components within the station, such as the track itself, power systems, and platforms. This zone is generally outside of the scope of these guidelines. The Guide includes recommendations on how the overall station's built form and aesthetics shall be considered and designed.

Figure 3: Annotated diagram depicting how the areas of influence apply to elevated stations (Photo Credit: Perkins&Will)

1.3 Applications of Elevated Stations

Elevated stations are generally composed of a combination of the following characteristics.

Elevated Guideway or Embankment:

Figure 4: Burquitlam Station, Evergreen Line, Coquitlam (Photo Credit: Perkins&Will)

Elevated Guideway

This application refers to transit lines where, due to the alignment of an elevated guideway, results in an elevated station to provide access from the ground level, up to the platform. This creates a clear public realm below the guideway and station, where secondary uses such as service access or ancillary buildings can be located.

Figure 5: Middle Gorge Station, Mernda Rail Extension 2, Victoria, Australia (Photo Credit: Level Crossing Removal Project)

Embankment

This application refers to stations that are located on an artificially raised section of terrain. Due to the landscape and topography, this often results in limited opportunities for crossings and the creation of retaining walls.

Side or Centre Running

Figure 6: Burquitlam Station, Evergreen Line, Coquitlam (Photo Credit: Perkins&Will)

Side-Running

This application refers to stations on elevated guideways that run alongside the roadway, limiting the station and platform access from one side of an intersection.

Figure 7: Metrotown Skytrain Station, Burnaby (Photo Credit: VIA Architecture)

Centre-Running

This application refers stations on elevated guideways that run in the centre of roadways, resulting in elevated stations that provide access from the median (typically in wider rights-of-ways) or rely on a concourse that bridges the street.

Centre or Side Platforms:

Figure 8: Main Street-Science World Station, Vancouver (Photo Credit: VIA Architecture)

Figure 9: Brentwood Station on the Millennium Line, Burnaby (Photo Credit: Perkins&Will)

Centre Platform

This application refers to elevated stations that serve transit stops with a centre platform. These often occur at terminals (end of line) or interchange stations. This orientation requires centrally located stair(s) and elevator(s). As platform edge doors are in-board, guideways are often more visually prominent in this typology and will require careful consideration of materiality and interface with the public realm.

Side Platform

This application refers to elevated stations that serve transit stops with a side platform, application for in-line stations (i.e., not a terminal or interchange station). In this typology, the platform is served by accesses and vertical circulation along the side of the guideway. This makes elements such as stairs and wind screens more prominent from the public realm and the rest of the neighbourhood.

Location along the Transit Route:

Line

This application refers to elevated stations that are located in-line along a transit route. These typically serve lower volumes and are therefore more neighborhood-scaled.

Figure 10: Richmond-Brighouse Canada Line Station is a terminus station with a bus terminal (Photo Credit: Express691, CPTDB)

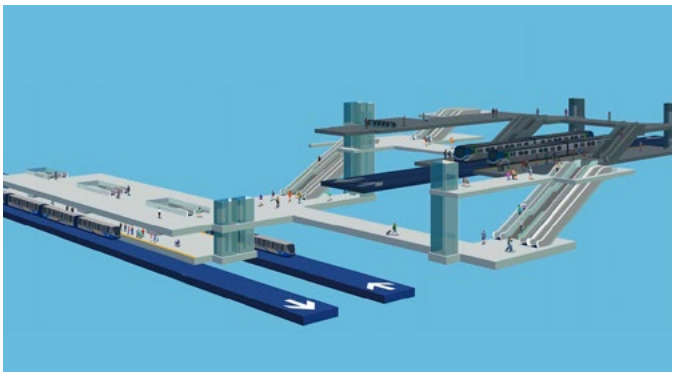


Figure 11: Conceptual cross-sectional rendering of Broadway-City Hall station's interchange between Millennium Line and Canada Line, Vancouver (Photo Credit: Government of BC)

Terminus

This application refers to elevated stations at the ends of transit lines. These are often centre-platform stations, with additional infrastructure such as pedestrian bridges or tunnels to support connections to other modes like a local bus transfer facility or passenger pick-up drop-off (PPUDO). Elevated station layout is critical at terminus stations, especially for wayfinding and mode switching.

Interchange

This application refers to interchange stations, where the elevated transit line intersects with another higher-order transit route. These stations often facilitate transfers between large volumes of passengers. This may result in multiple grade changes (e.g., transferring from elevated guideway to underground subway) and require critical consideration of internal layouts, interfaces with public realm and wayfinding.

1.4 Typical Project Delivery

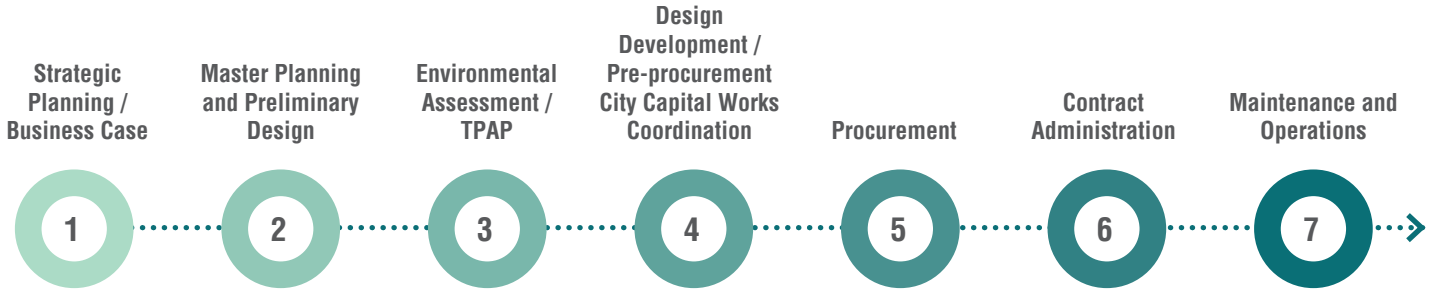


Figure 12: The typical delivery process for transit infrastructure

Elevated stations maintain a prominent place within the public realm (when compared to underground or at-grade stations), and the decision to proceed with an elevated alignment is often made during the early planning stages, such as the **Strategic Planning/Business Case** or **Master Planning** stages. As civic buildings, it is important that elevated stations demonstrate design excellence and well-integrated design that will become the signature for the entire network. However, each station is situated in a unique context and should adapt to its context accordingly in relation to in layout, materiality and scale. Because of this, it is necessary that the evaluation criteria developed for any **Business Case Assessment** or **Environmental Impact Analysis** takes into consideration all the benefits and drawbacks of an elevated system. This should include the cost of delivering a high-quality building, the investment in the public realm design to integrate the structure to its surrounding plaza/public realm, as well as the additional operational costs involved in maintaining the associated spaces.

Elevated systems including station buildings are typically delivered as one part of an overarching transit line project, such as a **P3 Procurement process**. Under these circumstances, it is expected that:

- The transit agency delivering the project should produce project-specific guidance documents that address overall cohesion of the design and ensure continuity in identity throughout the transit line, applicable to both the architectural language of the station buildings and the surrounding plaza, landscaping, and wayfinding. These documents should be part of the procurement documents.
- City of Toronto staff should participate in the preparation of the procurement documents and provide input as per the guidelines included in this document.
- Other relevant stakeholders include emergency services as special evacuation conditions and access considerations will apply given the elevated nature of the infrastructure.

2.0 EXISTING GUIDANCE

There is extensive guidance in existing documents regarding transit stations with this Guide providing additional guidance for elevated stations within the urban context. Other documents speak to individual elements (e.g., TOD, Passenger Pick up and Drop off, Station Plazas, etc.) which may be read in conjunction with this guidance as part of the overall station site.

The following is a non-exhaustive, illustrative list of existing guidance and requirements that should be read together with this Guide.

- **TTC Design Manual, DM-0401-04 General Criteria Design Guidelines& Internal Space Organization:** Site development guidelines correspond to urban integration objectives, this Guide helps to apply these requirements specifically to an elevated condition. Also provides design requirements for transit station interior spaces.
- **MTO Transit Supportive Guidelines, 1.1.1.7:** Transit stops should support neighbouring active, street level shops and services to provide easier access and promote pedestrian activity. Transit station areas should host active, street-level shops and services to provide easier access and promote pedestrian activity, meeting integration and placemaking objectives.
- **MTO Transit Supportive Guidelines, 2.3.1 Location and Design of Transit Stops:** emphasizing how location and orientation influences accessibility and enhances user comfort; **2.3.1.12** encourages integration of stops / shelters with local development.
- **Metrolinx Mobility Hub Guidelines 1.1 Seamless Integration of Modes:** Achievable with reduced station footprint sizes resulting from only considering off-street terminals when multiple routes involved, and prescribing a central service platform to facilitate transfer.
- **Metrolinx Design Requirements Manual, D.2 Rail Platform Access:** Encourages tunnel connection to community uses when possible and integration to station building.
- **Metrolinx LRT Design Criteria Manual, B7.3.2:** Includes direction on where transit plazas should be provided to enhance the user experience.
- **City of Toronto Official Plan, 3.1.1.5:** New policies on publicly accessible transit infrastructure proposed to ensure they fit with existing and planned context, ensure integration and connectivity with transit, cycling and pedestrian networks.
- **City of Toronto Official Plan, 4.3.3:** Development within Parks and Open Space Areas is intended to have only minimal adverse impacts on natural features and functions, and those areas are to be restored and enhanced including existing vegetation and other natural heritage features
- **City of Toronto Official Plan, 3.1.X:** Public realm policies for higher-order transit propose requiring transit stations and ancillary infrastructure to provide high-quality architecture, landscape architecture, and urban design. Ancillary elements located, organized and designed to be contextually responsive and limit impacts to public realm and adjacent property.
- **TTC Design Manual, DM-0303-01 Elevated Structures:** Aesthetic considerations inform the guideway form and impact structural design process. No prescribed form; direction to minimize the massiveness of the guideway.
- **TTC Design Manual, DM-0409-TC Materials:** Full guidance provided on lifecycle and maintenance considerations.
- **Toronto Green Standards, version 4:** Requires 75% non-roof hardscape to reduce heat island, native plants, and green roof / cool roof measures.

Most of the existing guidance for elevated stations relate to the objectives of **Urban Integration, User Experience, Sustainability and Resilience**, and **Accountability.** There are aspects of elevated stations that require additional detail, such as the public realm surrounding the station, grade relationships, or **Intermodal Operations** as it relates to mode transfers and multi-modal systems.

3.0 OBJECTIVES

Elevated stations provide communities with access to the broader transit network and are important civic landmarks and community hubs in a city.

Urban Integration

Elevated stations should integrate with the existing and planned urban context, and take advantage of the physical infrastructure to create a sense of place within the public realm. They should be planned and designed to enable future development and/or public infrastructure that is integrated with, or physically connected to the station infrastructure.

User Experience

Elevated stations should create an interesting, safe and accessible experience within the station and surrounding public realm. A positive and delightful user experience should encourage transit use within the community.

Sustainability & Resilience

Elevated stations should be sustainably designed with low-carbon materials, optimize use of green infrastructure, and have increased resilience to climate change.

Intermodal Operations

From a transportation operations perspective, the design of elevated stations must facilitate safe and efficient transit operations through the station location, and ensure safety for both vehicles and passengers, in particular to emergency procedures. Elevated stations should facilitate easy access to surface transit and active transportation networks.

Accountability

Elevated station design should consider the entire lifecycle, use of materials and construction methods that account for whole life cost, and foresee the need to accommodate new transit lines, improved service, changes in capacity and new technology. Importantly, the siting, massing and design of elevated stations should facilitate future overbuild, secondary transit entrances and/or active TOD frontages.

4.0 DESIGN GUIDANCE

Urban Integration

4.1 Urban Integration

1. Design elevated stations to occupy a compact footprint.
2. Orient primary station entrances to the main intersection for ease of access and highest visibility from surrounding areas. If the station is not located at an intersection, orient entrances to the main street or major destination.
3. Design the site to allow for future TOD, when transit infrastructure is developed first. Locate and design the station to allow for future development integration, such as overbuild and knock-out panels.
4. Design and locate the station to protect for future TOD design elements such as entrance doors, landscaped setbacks, access to lobbies, below-grade parking, loading and servicing, moving rooms, bike parking, and active uses at grade.
5. Ensure direct pedestrian connections from TOD to station accesses, while also limiting changes in grade.
6. Locate and design the station to maximize space in the public realm, for example to provide a transit plaza.
7. Design the station building to allow for permeability, especially on a longer frontage where active uses such as retail may be located.
8. Co-locate the transit station with a transit plaza to support multi-modal interchanges and provide places for people to rest, wait, or move through.
9. Connect local institutions or community uses to the station to contribute to the overall use and civic function of the site.
10. Preserve, protect, and enhance parks and natural features and functions.
11. Limit curb cuts to access service functions along frontages and locate for service areas in the rear of the site.
12. Support safe occasional service vehicle uses in multi-functional transit plazas without creating an auto-centric environment, through design strategies such as mountable curbs in less visible areas.
13. Respond to the physical context of the local neighbourhood (e.g., heritage, architectural style, materiality) while maintaining line-wide identity. For example, use creative interpretive signage or elements highlighting local cultural, heritage, or natural features.
14. Separate or conceal back-of-house, non-public spaces such as mechanical/electrical services, station employee offices or staff washrooms from the public realm (e.g., away from pedestrian areas, rear of station buildings, or below-grade).

Figure 13: Surrey Central Skytrain Station at night, with lighting to enhance the public realm and offer feelings of comfort and safety, Surrey (Photo Credit: Office of McFarlane Biggar)

Figure 14: Surrey Central Skytrain Station, Surrey (Photo Credit: Office of McFarlane Biggar)

15. Integrate station service and ancillary spaces within the station. Where this is not possible, incorporate screening and/or acoustic mitigation to ensure service equipment is not visible or audible from the public realm.

16. Create service lane conditions that both the station and new development(s) back onto, where station buildings take up an entire block.

17. Ensure architectural prominence of the station building in ways other than increasing scale so that it is identifiable from the surrounding public realm.

18. Integrate the underside of the guideway into the architectural expression at locations where it interfaces directly with the elevated stations and surrounding public realm.

19. Integrate signature features that serve a function into the design of the stations for wayfinding and identity.

20. Follow CPTED principles when planning stations and avoid creating dark corners or recessed areas.

21. Provide pedestrian amenities (e.g., seating, lighting, trash receptacles, wayfinding signage, benches, etc.) along main paths of travel and around the main station entrance and frontage. Ensure pedestrian amenities are highly visible but secondary to station amenities such as ticket vending machines, station signage, and the fare equipment. Group amenities and integrate them into stations where possible to leave plaza space open and unobstructed to maximize pedestrian flow.

22. Locate covered bike parking and bike share stations in a convenient and accessible location near station entrances. Integrate bike parking close to entrances as a part of the building structure, avoiding separate structures and ancillary structures.

23. Clearly define the pedestrian realm and transit plaza through unique landscaping, paving, lighting, and signage.

24. Coordinate the design of station plazas along the same transit line to create a consistent visual language.

25. Ensure standalone pedestrian amenities such as benches or light fixtures do not interfere with pedestrian circulation.

26. Provide a generous horizontal setback between the curb and elevated station façade to accommodate:

    a. The elements of a complete street within the ROW, including street tree planting, landscaping, cycle tracks and wide pedestrian clearways; and

    b. Transit plaza(s) that are minimum of 5m deep (from property line) and 10m wide, located at the entrance to the station.

27. Ensure proper soil volumes for trees and that planted areas provide an environment for viable, mature tree growth.

Figure 15: Main Street-Science World Skytrain secure bicycle parking area (Photo Credit: VIA Architecture)

Figure 16: McLean Station with bike parking and pedestrian amenities directly by station entrance and vertical circulation (Photo Credit: PlanItMetro)

4.2 User Experience

1. Ensure the primary entrance to the station is barrier-free, rather than a secondary, accessible entrance that may be provided in a less visible or direct location.
2. Clearly delineate pathways between entrances and transit platforms, to create a direct and inviting journey from station plaza to the platform.
3. Avoid multiple grade changes and switchbacks, prioritizing clear, direct, paths of travel.
4. Streamline and consolidate vertical structural elements to allow for more open floorplates to improve pedestrian movement and visibility.
5. Design, locate, and/or orient station buildings to mitigate micro-climatic impacts, using canopies and windscreens as supplementary measures.
6. Develop a visual hierarchy where signage and passenger information are more prominent and visible than advertising and operational signage, to improve station navigation.
7. Extend wayfinding principles to architectural design treatments such as material, colour, and lighting and pedestrian touch points such as fare equipment, furniture, and signage to provide recognizable cues and reduced visual clutter.
8. Coordinate station wayfinding with other City signage standards (e.g. Parks, TO360).
9. Ensure lighting and furniture layouts consider projected passenger flow volumes to prevent crowding.
10. Provide seating to support people near station entrances and waiting at PPUDOs.
11. Locate pedestrian lighting along pedestrian paths of travel

Figure 17: Conceptual rendering of elevated station as part of Réseau express métropolitain rail network, Montréal (Photo Credit: REM)

Figure 18: Gilmore SkyTrain station has high transparency, also encouraging transit use through accessibility and safety (Photo Credit: Perkins&Will)

Figure 19: Architectural expression and materiality can create a signature and unique design, shaped by local context (Photo Credit: Wade Zimmerman)

Case Study
Brentwood Station – SkyTrain, Burnaby, British Columbia

As part of the Millennium Line, Brentwood Station was designed to be a marquee and signature station, leveraging its highly visible location on a hillside to become an inviting "beacon". More than its aesthetic excellence and elegance in form, the station was also designed to be environmentally responsible. The form allows for natural ventilation and reduced lighting loads, carefully-chosen materials reduces CO_2 in production, and reclaimed wood and steel reduce transportation loads. The building itself also touches minimally on the ground, creating a light and appealing structure.

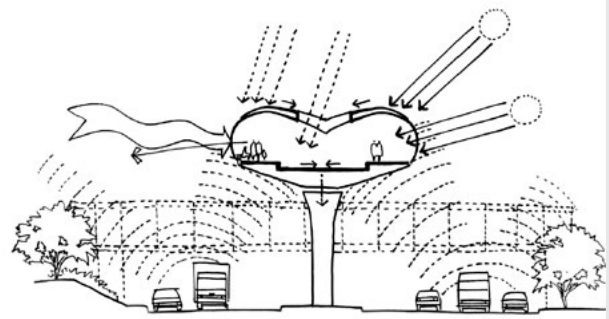


Figure 20: Illustration demonstrating natural ventilation impacts on Brentwood Station (Photo Credit: Perkins&Will)

Figure 21: Lighting of the station building enhances its prominence in the local context (Photo Credit: Perkins&Will)

Figure 22: The warm glow of the wood and lighting allows the station to be highly visible above the highway (Photo Credit: Perkins&Will)

User Experience

to support intuitive wayfinding.

12. Provide weather protection along primary pedestrian circulation paths and waiting areas.
13. Provide protected spaces for cyclists/pedestrians at key mixing or crossing zones to create a safe and seamless public realm.
14. Provide end of trip facilities that can offer safe storage of personal gear/equipment (e.g. secure bike parking) or safe spaces within the station for lockers, etc.
15. In a natural or heritage context, creative interpretative signage describing the natural or heritage value or interest should be considered.
16. Integrate public art at stations, plazas, and/or adjacent guideways. Ensure public art is visible to pedestrians but does not impede pedestrian flow or station and guideway maintenance and operations.
17. Locate public art in areas that accommodate queuing, slower passenger movement, and limit visual clutter near signage and wayfinding.

Figure 23: Vaughan Metropolitan Station demonstrates architectural excellence, with pedestrian-scaled considerations such as bike parking and weather protection (Photo Credit: Shai Gil)

Sustainability & Resilience | Intermodal Operations | Accountability

4.3 Sustainability and Resilience

1. Integrate sustainable design and climate resilience strategies with a focus on energy efficiency, natural lighting, passive ventilation, cooling and heating and stormwater management.
2. Implement green walls and green roofs into the station design.
3. Study and integrate renewable energy at stations. Ensure renewable energy is serviceable and does not interfere with station operations and maintenance.
4. Use photovoltaic panels in platform canopies, wind screens, or glass enclosures.
5. Consider solar heat gain when designing vertical circulation elements and integrate shading devices in ways to reduce need for mechanical ventilation.
6. Promote and maintain a high-quality ecosystem including a mature tree canopy as part of the landscaping around the station.

4.4 Intermodal Operations

1. Provide flexible space in station drop-off and pick-up zones for ride-share and emerging technologies such as autonomous vehicles, while maintaining pedestrian priority and safety in and around the station.
2. Consolidate accesses to eliminate redundancies and enhance ease of passenger navigation.
3. Limit impact of operations-related services (e.g., staff parking, servicing, emergency generators, etc.) on the public realm by locating these in discrete, consolidated location(s).

4.5 Accountability

1. Maintenance boundaries of transit facilities at-grade should be made clear to all parties involved and can be integrated into the physical design of stations, through features, treatments and finishes.
2. Invest in high-quality materials and treatments to mitigate noise, vibration, and exposure to de-icing chemicals to provide an attractive, safe and comfortable public realm.
3. Coordinate materials and maintenance where station is adjacent to, or crosses property lines/jurisdictional responsibilities.
4. Future-proof for connections to other pedestrian areas, public amenities, or future extensions of the transit line, including planned TOD and other development.

Figure 24: Victoria Park Subway Station and Bus Terminal with rooftop landscaping (Photo Credit: Forrec)

Case Study

Evergreen Line Stations – Coquitlam, British Columbia

The Evergreen Line is an 11km long extension of the Millennium Line of Metro Vancouver's SkyTrain rapid transit system, delivered via P3 procurement. The stations are designed intentionally and thoughtfully as a family, united by architectural structure, glazing, wayfinding and its timber roof elements. Due to its context, local considerations were integrated such as weather protection and providing visual warmth through the wood in the roof deck. Intuitive wayfinding is achieved by transparency and the use of glass, consistent signage, and its integration into the local context. User comfort is ensured through a generous plaza space with landscaping, pedestrian-friendly sidewalks, and amenities such as bike parking.

Figure 25: Burquitlam Station in the winter, where considerations for snow accumulation have been made to not interfere with travel paths (Photo Credits: Perkins&Will)

Figure 26: Burquitlam Station utilizes key identifiers so users can easily navigate from station plaza all the way to transit vehicle and platform (Photo Credits: Perkins&Will)

Figure 27: Lincoln Station demonstrating the slender profile of the station building, while emphasizing its position as a local landmark (Photo Credits: Perkins&Will)

4.6 Applications Specific Guidance

The guidelines below are specific to the individual applications and to be applied in addition to the general guidelines above.

Guideway

1. Protect and enhance views through the station, as permeability will ensure that these structures feel visually light and inviting.

Embankment

2. Facilitate safe and direct crossings, with regard for barriers that may be created by retaining walls.
3. Consider the relationship of the station to the surrounding topography and where vertical circulation structures can be located in order to maintain universal accessibility, reduce structures, and promote a positive user experience by maximizing natural light and/or views to key destinations.

Side-Running / Side-Platforms

4. Ensure that safe and appropriately sized pedestrian crossings are provided to all corners of the intersection/ sides of the street, as all of the pedestrian access is concentrated on one side or corner of an intersection.
5. Create obvious and intuitive points of crossing from the side of the intersection where the station is not located
6. Locate station buildings on the side of the street where intermodal transfers can be most efficiently made.

Centre-Running / Centre-Platforms

7. Mitigate visual bulk created by multiple bridges or vertical circulation structures.

Line Station

8. Future-proof line stations to potentially adapt to serving a different role (i.e., a future interchange station).

Terminal Station

9. Future-proof adjacent lands to best serve current transportation demands (e.g., surface parking that can seamlessly transition into a bus facility or TOD; increasing waiting areas for carshare; etc.), as terminal stations potentially serve a larger catchment area, without sacrificing the design or function of the public realm.
10. Future proof terminal stations for future extensions of the transit line.

Interchange Station

11. Minimize vertical travel distances between transit lines.
12. Site new stations platforms to facilitate even distribution of passengers to avoid over-crowding at vertical circulation, entrances and/or vehicle doors.

Figure 28: Gilmore SkyTrain station has high transparency, also encouraging transit use through accessibility and safety (Photo Credit: Perkins&Will)

Figure 29: Brentwood Town Centre station involved extra design work to reflect its visually prominent position along a highway and incorporated a mezzanine level to facilitate pedestrian movements through the neighbourhood. The station also provides a pedestrian bridge connection to the commercial and residential development at the concourse level (Photo Credit: Perkins&Will)