City of Ottawa Light Rail Transit System

May 2011

Ottawa Light Rail

Agenda

- Introduction (Chris Brouwer)
- Design Guidelines (Rick Piccolo, Steve Sunderland, Eileen Jones)
  - Design Principles
  - Common Station Elements
  - Landscape Concepts – Design and Accessibility
  - Enclosure Concepts
  - Wayfinding and Signage
- Rideau Station (Rick Piccolo, Steve Sunderland)
  - Urban Design
  - Station Design
- Tunney’s Pasture Station (Rick Piccolo, Steve Sunderland)
  - Urban Design
  - Station Design

Agenda

- LeBreton Station (Steve Sunderland, Rick Piccolo)
  - Urban Design
  - Station Design
- Hurdman Station (Steve Sunderland, Rick Piccolo)
  - Urban Design
  - Station Design

Introduction

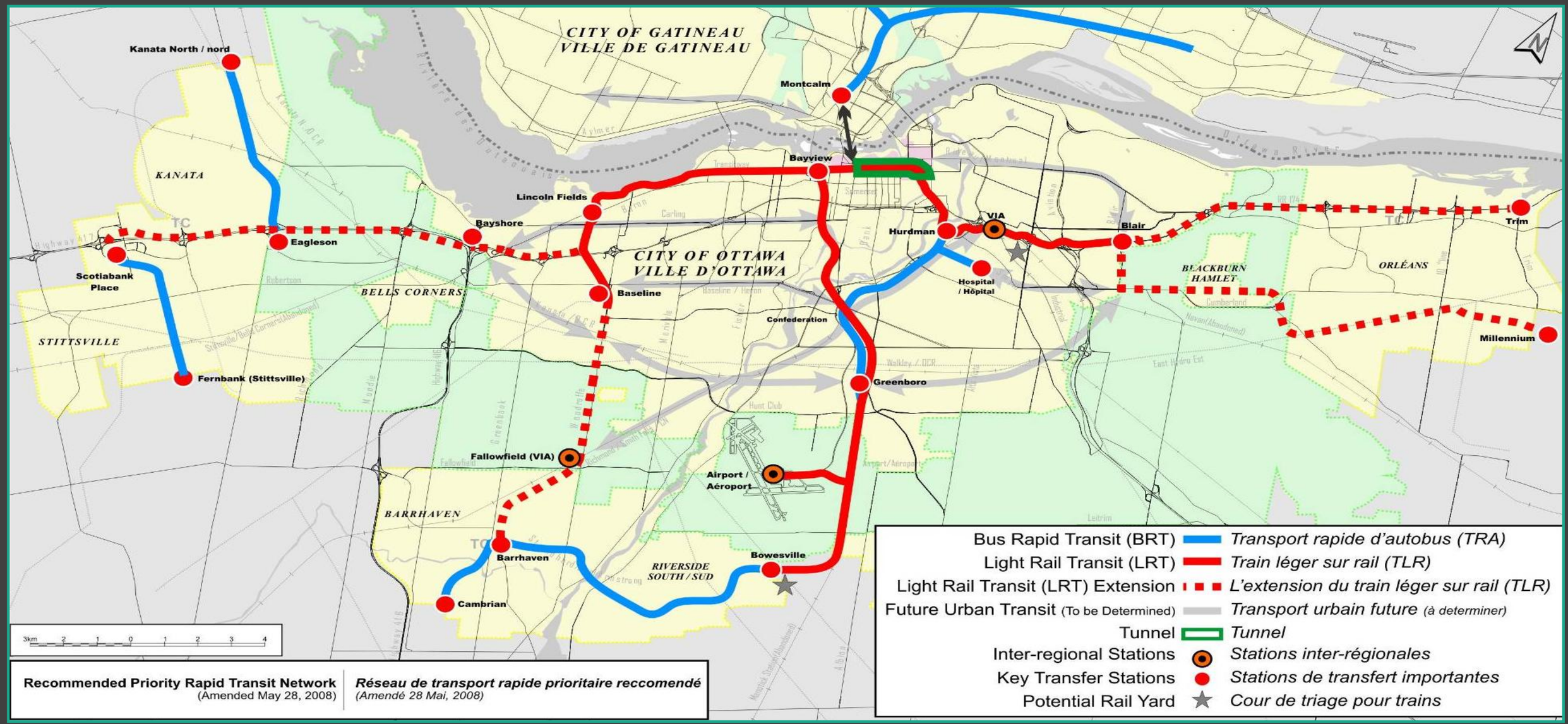
Ottawa's Light Rail Transit

City Advisory Committee Project Update Presentation

May, 2011

City of Ottawa Rail Implementation Office

The Rapid Transit System



The OLRT Project

Ottawa

Light Rail Transit Corridor

Corridor du service de transport en commun par train léger rapide

Tunney's Pasture to Blair Station | Pré Tunney à la station Blair

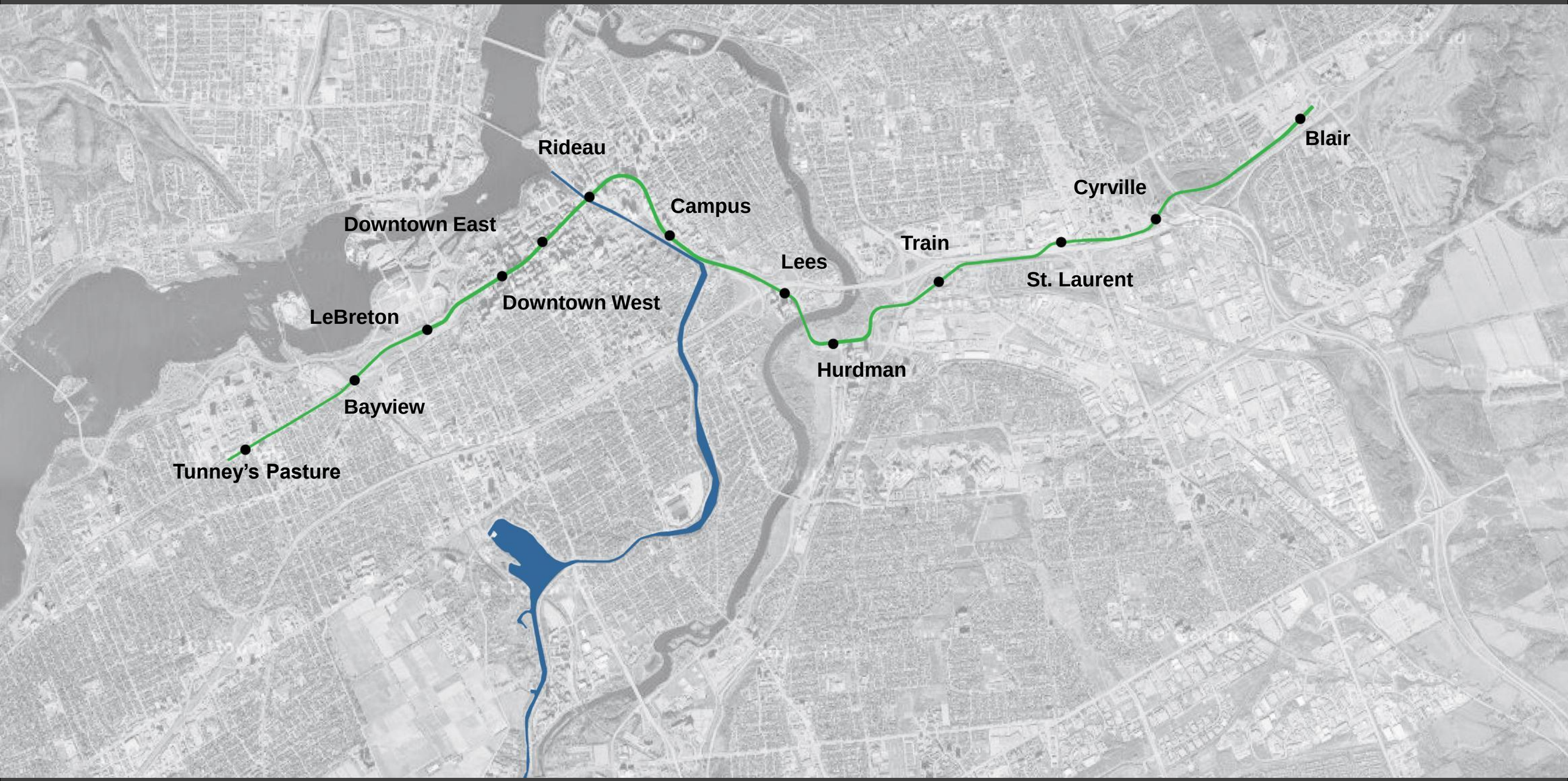
Transportation Master Plan - Phase I, Increment I | Plan directeur des transports – phase 1, étape 1

Project Milestones

TIMING	PROJECT ELEMENT
May 2010	*Advisory Committee Presentations*
Oct. 2010	*Commencement of Preliminary Engineering*
Dec. 2010	*Commencement of Sample Station Designs*
Jan. 2011	*Commencement of Design Sub-Studies*
Feb. 2011	*Stakeholder Outreach*
May – June 2011	*Completion of Draft Station Designs*
May 2011	**Advisory Committee Presentations**
June 2011	Public Open House Meeting
Early 2012	Completion of Preliminary Engineering

Design Principles

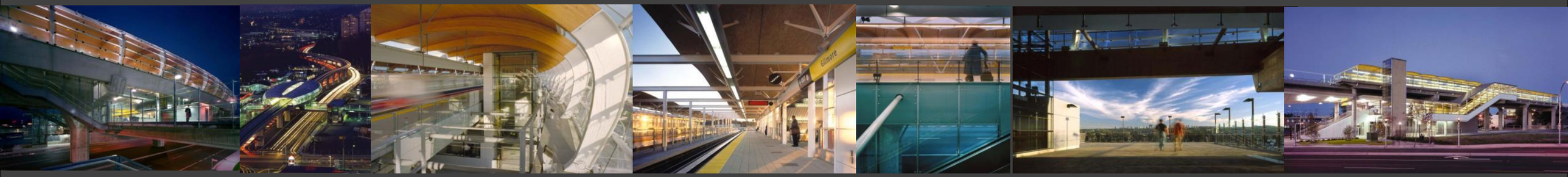
An Opportunity for Connection



Core Values of Transit Design

Design Excellence – Users of Public Transit deserve the Highest Level of Design Quality

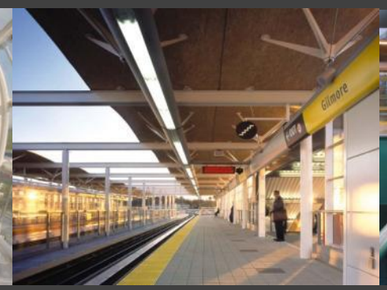
- Passenger Comfort
- Safety and Security
- Public Accessibility
- Sustainability
- Station Identity
- Passenger Experience



Design Goals

- Ennoble the Transit Experience, Encourage Ridership
- Provide for User Safety and Security
- Enhance User Comfort, Convenience and Accessibility
- Represent Public Values (Sustainable Design)
- Encourage Community Ownership and Pride
- Provide for Transit Oriented Development Opportunities



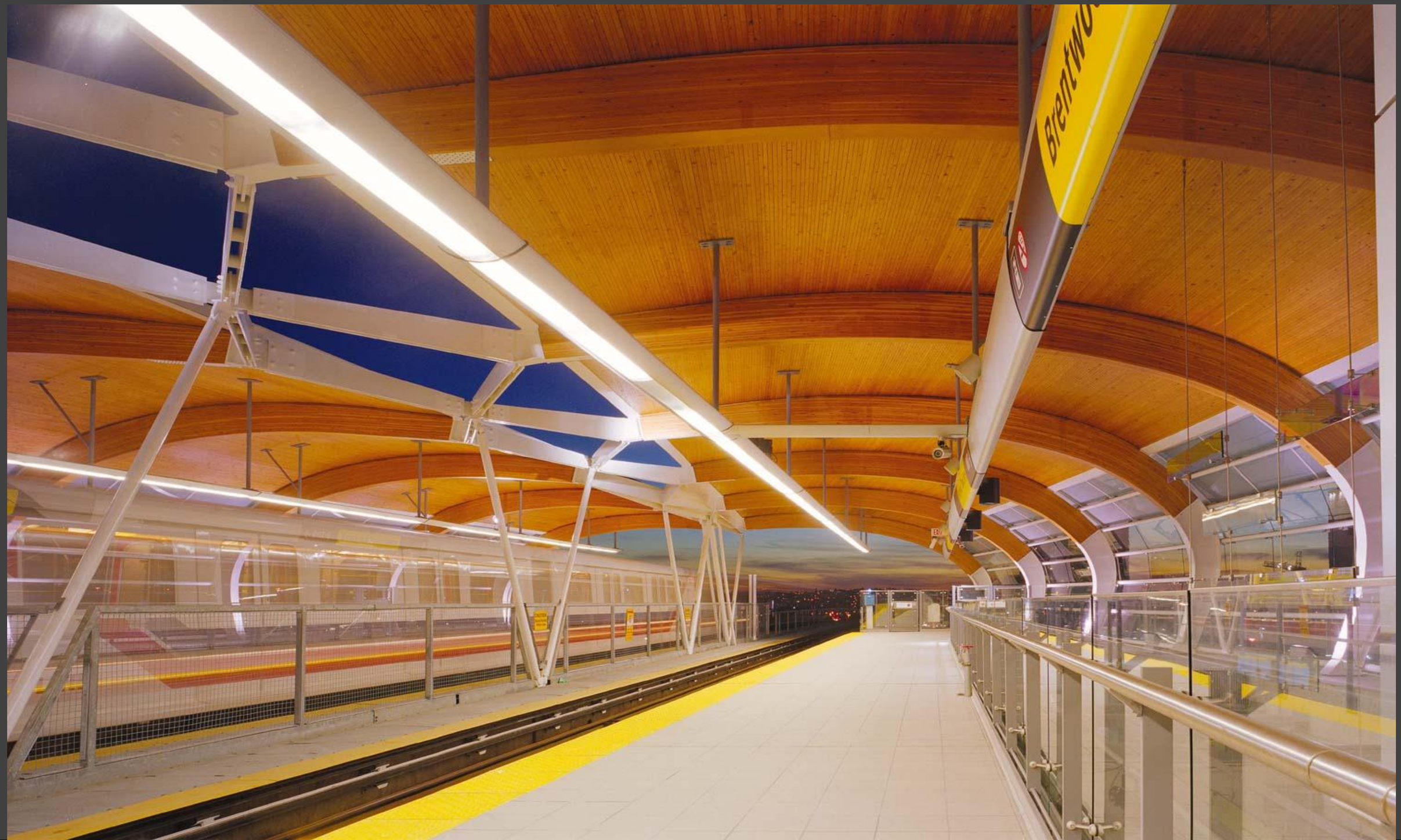





Design Goals: Transit Oriented Development

- Follow City of Ottawa Transit-Oriented Development Guidelines
- Design Mixed-Use Residential/Commercial Development
- Provide Street-related Development
- Provide Active Uses at Grade
- Pedestrian Scale and Walkability Requirements
- Higher Density Development, Mid-rise and High-rise

Safety and Security: High Quality Lighting Design



Safety and Security

CPTED Principles
Clearly Organized Wayfinding
Platform Visibility – Line of Sight
Transparency

Public Accessibility

AODA/ADA Standards
Clearly Organized Wayfinding for the Visually Impaired
Glazed Elevators to all station Levels

Design Guidelines – Common Station Elements

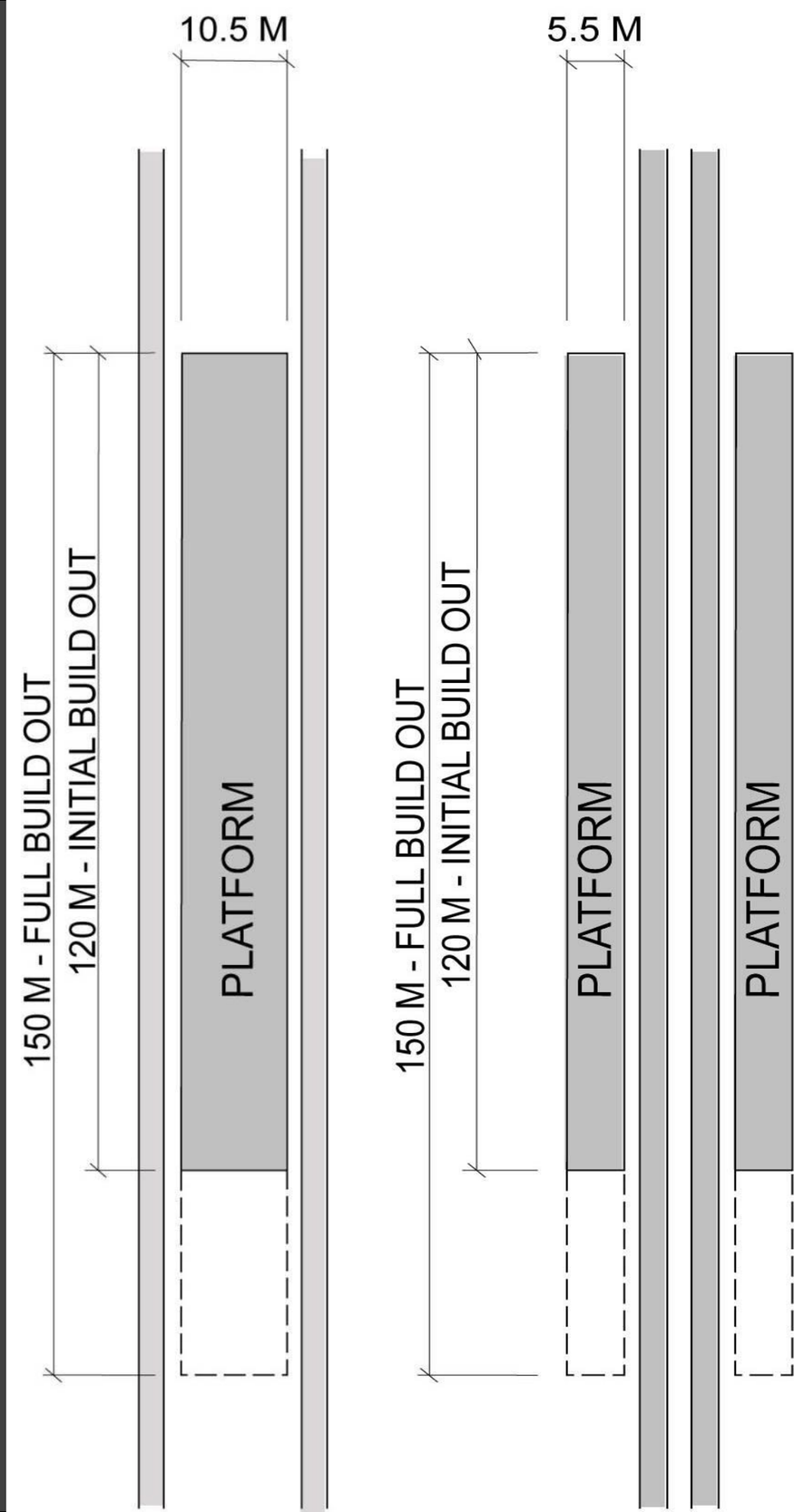
Platform sizes

- Centre-platform stations:

  Typically – 10.5m x 120m (Initial construction)
  10.5m x 150m (full build out)

- Side-platform stations:

  Typically – 5.5m x 120m (Initial construction)
  5.5m x 150m (full build out)



Floor Materials

- Platform: Thick set porcelain tile on cast-in-place concrete
- Platform edge: Premanufactured, fully adjustable tile of molded plastic and polymer cementitious fill
- Grade/Concourse: Thick set porcelain tile on cast-in-place concrete
- Washrooms: Thin set porcelain tile
- Service spaces: Sealed or epoxy sealed concrete as required

Vertical Circulation

- Stairs: Precast concrete risers on cast-in-place concrete structure
- Stair railing: Stainless steel pipe
- Stair nosing: Inset material of contrasting colour
- Tactile Warning: Thick set porcelain tile on cast-in-place concrete
- Escalators: Aluminum clad on primed steel structure

Vertical Circulation: Elevators

- Elevators: 2-sided glazed, 2 sided metal panel
- Elevator cab: 2-sided glazed, 2 sided metal panel
- Cab floor: Thin-set porcelain tile
- Structural frame: Painted steel structural frame

Guardrails/Handrails

- Glazed guardrail: Tempered or laminated glass (as required) with aluminum edge protection inserted into stainless steel clad steel support channel
- Handrail: Stainless steel pipe supported by cast aluminum or stainless steel brackets
- Exit stair guardrail: Painted steel welded wire mesh supported by painted steel angle framing

Entry Grilles and Heated Slabs

- Stations entrances will be organized so that as much as possible, dirt, grit, sand, salt and other corrosive materials are prevented as much as possible from being tracked into the station interiors.

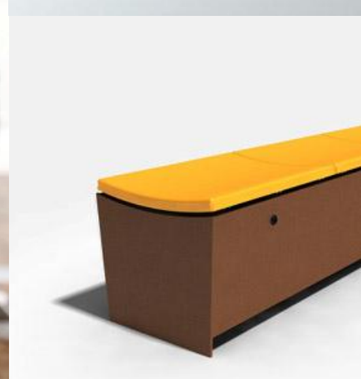
- Heated slabs: heated slabs will be provided wherever possible at station entrances in order to both minimize the amount of snow and ice on the ground available to be tracked into the stations, and to improve the slip resistance of the surfaces at the station entrance.

- Entry Grilles: Stainless steel flat bar or extruded aluminum linear grilles complete with evaporative drain pan will be provided in the zone between the heated slab and the station entry to maximize removal or dirt, grit, sand and salt.

On-Demand Heating

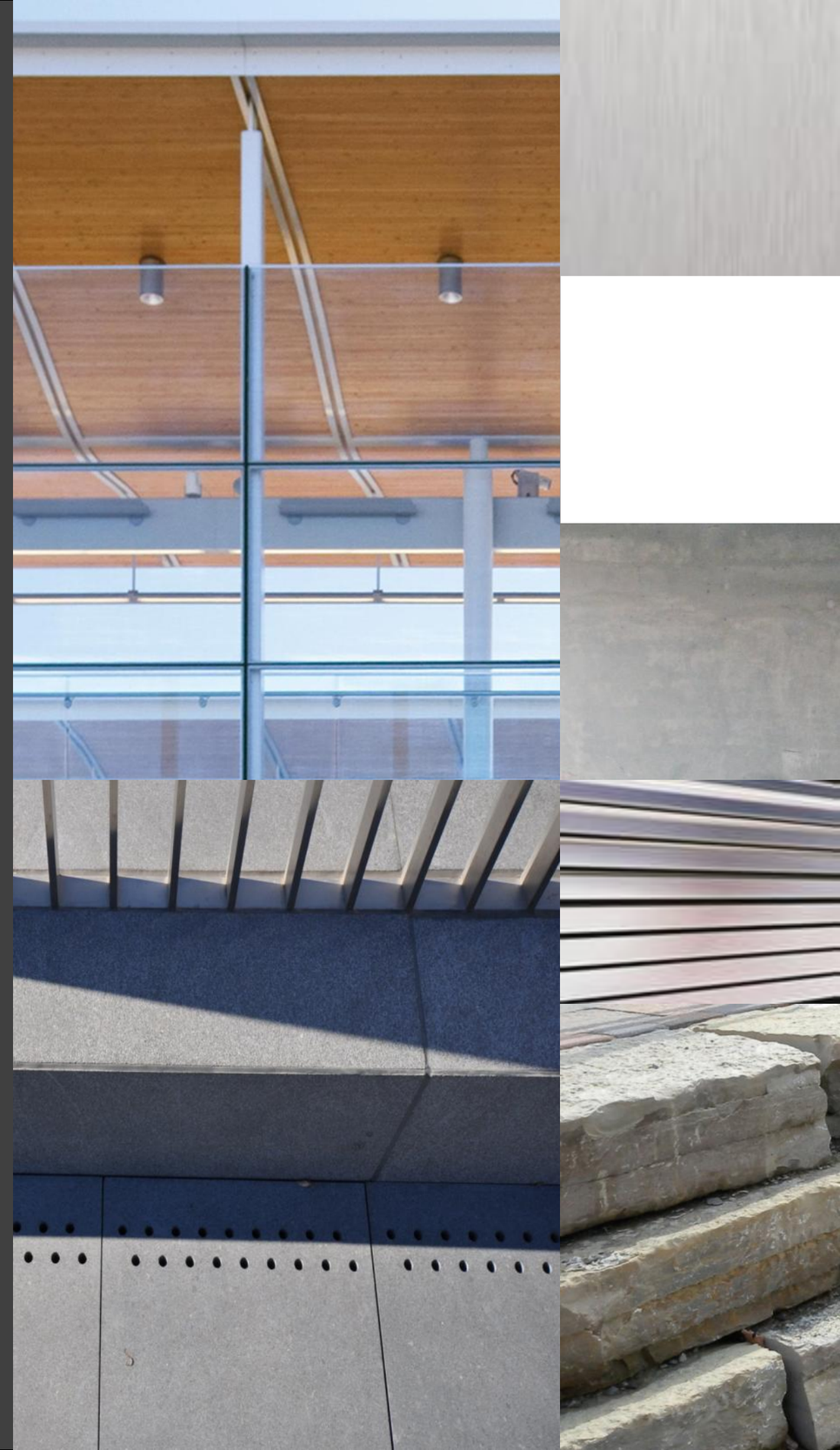
- The stations will have no active heating or cooling systems on the platforms

- Specific areas will be designated on the platforms which can provide supplemental heat through user activation, such as motion-sensor activated radiant heaters, or benches and seats which warm upon use.



Exterior Materials

- Solid walls: Local stone clad base walls, retaining walls and ground-related features as described in the Conceptual Section. Where appropriate, salvaged stone from the tunnel excavation will be used for these walls.
- Windscreens: Mullion-supported or structurally-glazed clear or fritted glass screens, 2.5 to 3m tall.
- Security Fence: Stainless or painted steel vertical flatbar pickets where required to 1.5 to 2m tall depending upon ground conditions.
- Exposed Concrete: all exposed-to-view concrete to be architectural concrete.
- Metal Panels: preformed anodized aluminum or painted steel cladding panels.
- Metal Louvres: self-draining painted steel or prefinished aluminum louvres complete with bird and insect screens.



Interior Materials

- Solid walls: Local stone clad base walls, retaining walls and ground-related features as described in the Conceptual Section. Where appropriate, salvaged stone from the tunnel excavation will be used for these walls.
- Wood soffits: Locally-sourced dimensional lumber.
- Structural Steel: all exposed-to-view structural steel will be painted and meet AESS requirements.
- Exposed Concrete: all exposed-to-view concrete to be architectural concrete.
- Metal Panels: preformed anodized aluminum or painted steel cladding panels.
- Metal Louvres: self-draining painted steel or prefinished aluminum louvres complete with bird and insect screens.

Station Entrances

- Open and airy, welcoming places filled with light.
- Clearly organized spaces to eliminate congestion from users passing through, waiting, using the ticketing facilities, or uncertain what to do.
- Clear and concise wayfinding and signage, both for within the station and the station neighbourhood.
- Ticketing machines located conveniently for access, but outside of the main flow of station users.

Design Goals: Site Furnishings

Signage, lighting fixtures and amenity items will Assist in wayfinding and will be simple forms so as to complement, and not distract from the Architecture

Will coordinate to create a **family of elements**

Will be integrated **with paving and traffic flow**, both pedestrian and vehicular

Will be **durable, low maintenance** and will reduce heat transfer as necessary

Site Furnishings: Benches

- Rather than being separate entities, seating will be a natural part of the stations' flowing and natural landscape features.

- Walls and space dividers will create seating opportunities by themselves, which will be further enhanced and accentuated by usage of refined yet durable wood and metal seating surfaces.

- Heated Benches may be provided at specific locations. The potential for using recaptured energy, wastes energy from a variety of sources, or ground source heat will be investigated.

Site Furnishings: Signage Band

- Wayfinding features and location information will be incorporated into a standardized, consistent and easily recognizable feature, positioned such as to not interfere with, but enhance the natural flow of pedestrian traffic.

- Signage structures will be combined with essential components, such as platform lighting, security cameras, audio systems and emergency services.

Site Furnishings: Litter and Recycling

- Special attention will be paid to the natural inclusion of litter and recycling facilities to ensure that the stations are kept clean and utilized in an environmentally responsible manner.

- Litter and recycling stations will be located in logical and accessible locations to promote responsible disposal, without being obstacles to the natural flow of pedestrian traffic.

- Consideration will be made to ensure an easy and convenient servicing of the receptacles.

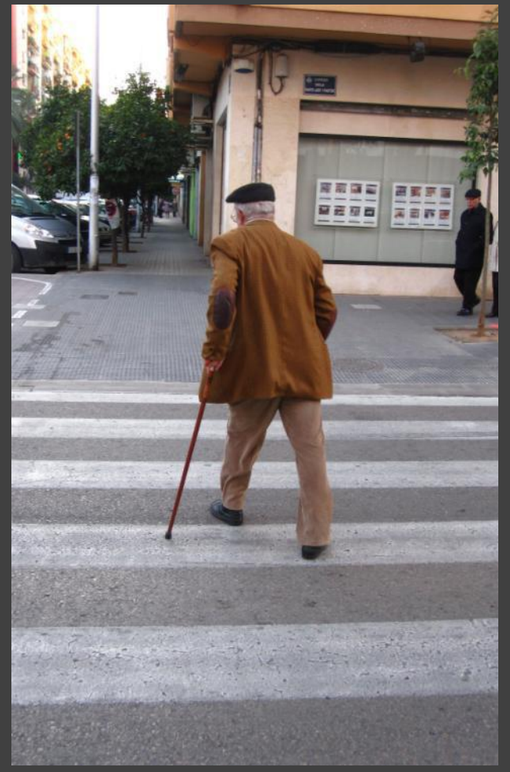
- If exposed to the outdoor environment, litter receptacles will have covered openings and will be sturdy and resistant to impact and abuse.

Landscape Concepts – Design and Accessibility

Universal Access

- Designing stations for a broad range of users from the beginning of the design process can increase usability of the LRT environment.

- Station designs will be inclusive and accommodate people with disabilities, senior citizens, children and others who are non-average in a way that is not stigmatizing and benefits all users.



Universal Access

- Ensure that pedestrian areas are designed with proper spacing and site grades to facilitate free movement of people who use mobility aids, people with mobility impairments and people with baby strollers or hand carts.

- Station designs will incorporate AODA (Accessibility for Ontarians with Disabilities Act) 2010 Standards.

Wayfinding & Signage (on-going study)

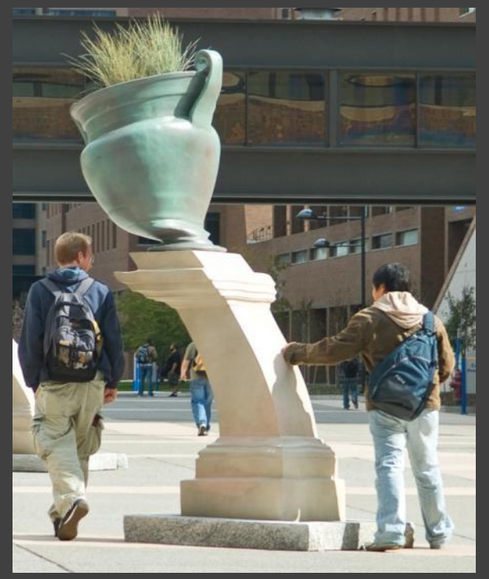
Wayfinding establishes the use of objects, materials, colours and graphic techniques to facilitate persons of all abilities in finding and successfully using transit facilities. The primary elements of wayfinding should be embodied in the design of public areas in all stations.

The following are some of the ways that wayfinding may be enhanced at each LRT station:

- Architectural Communication
- Graphic Communication
- Audible Communication
- Tactile Communication

Wayfinding & Signage in the Landscape

- Promote site development that enhances user comfort and ability to navigate through the site with ease.
- Apply appropriate paving patterns, colour and tactile elements to assist wayfinding.
- Landscape elements and other site amenities, such as Public Art can serve as “landmarks” or “cues” that assist wayfinding in the built environment.



CPTED

All stations must embody the principles of CPTED (Crime Prevention Through Environmental Design) and incorporate into design:

- Natural access control
- Natural surveillance
- Territorial control

CPTED applications in station landscapes:

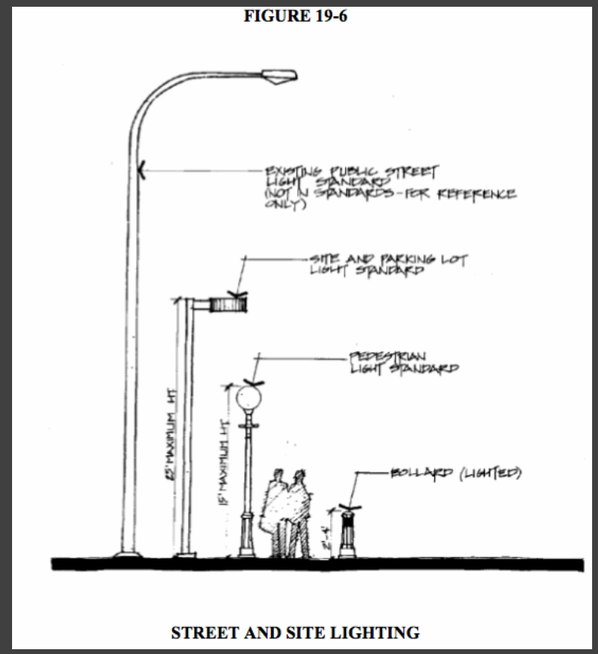
- Maximizing visibility to help deter suspicious activities.
- Landscaped areas to project a positive image and reflect sense of ownership.
- Landscape designs to foster interaction among transit users, establishing more vigilance in public areas.
- Planting schemes to avoid potential hiding spots.

Lighting

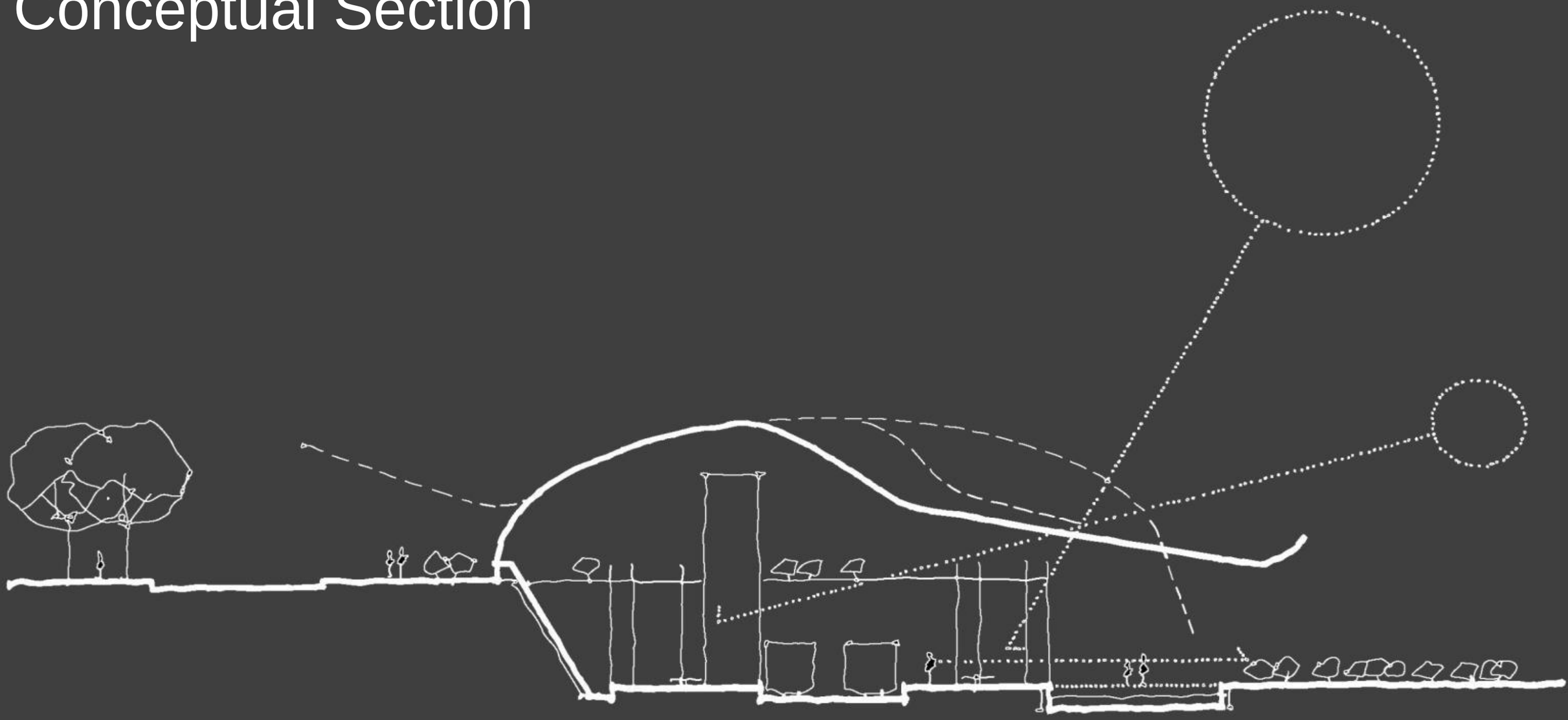
- To provide improved safety and security, all stations and areas external and immediately adjacent to stations that are accessible to the public shall be well lit with a white light source (metal halide/fluorescent, LED).
- Pedestrian routes, plazas, bicycle parking areas, station entrances and platform areas should be brightly lit.
- Lighting styles on external parts of stations shall be coordinated/complimentary with light styles inside of the station.

Accepted Minimum Light Levels (OLRT Station Design Guidelines):
Station Rail Platform Lighting
• Average Maintained Level = 200 lux
• Uniformity (Avg./Min.) 3:1

Pedestrian Tunnels and Concourse Lighting
• Average Maintained Level = 100 lux
• Uniformity (Avg./Min.) # 2.5:1

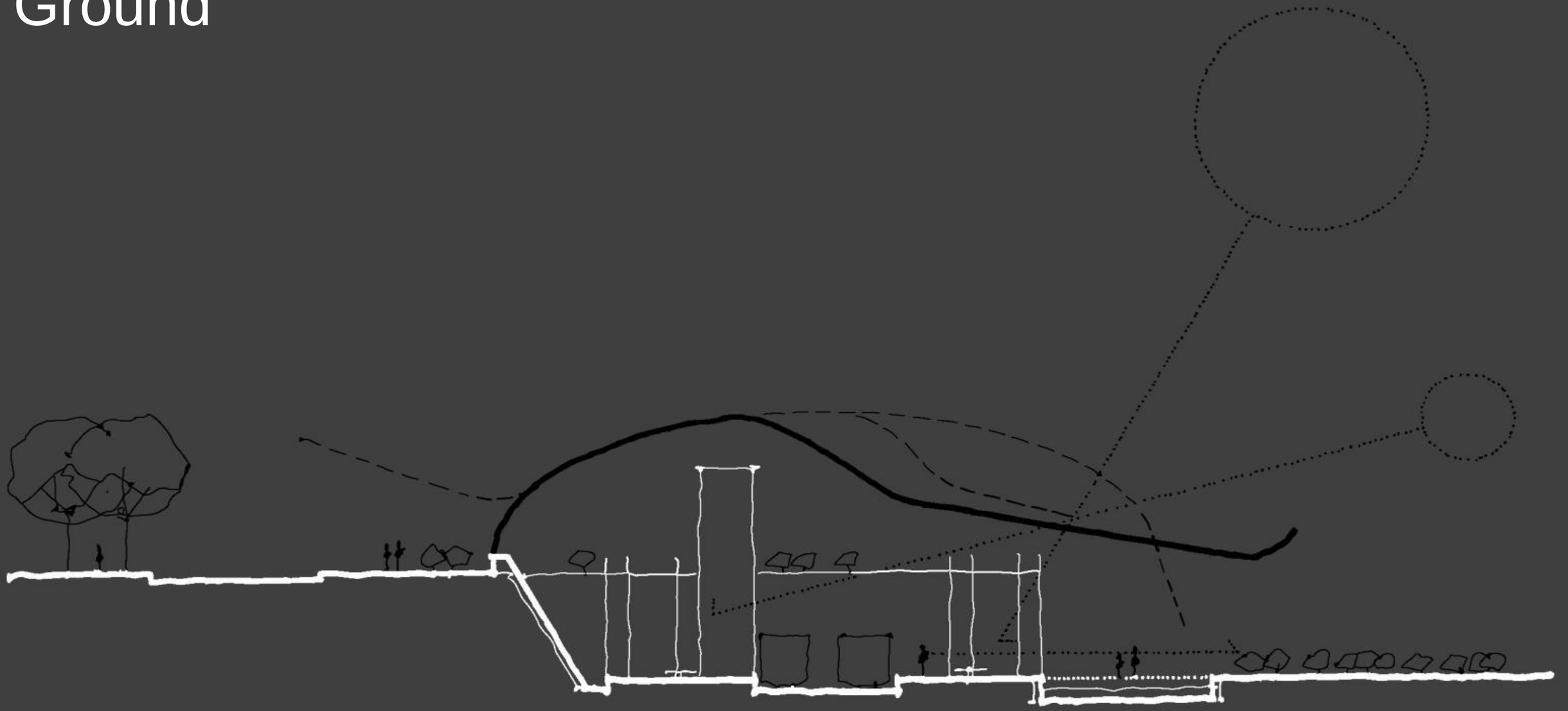


Conceptual Section



On a conceptual level, the architecture of the stations can be described as consisting of the ‘Ground’, ‘Landscape’, and ‘Enclosure’.

Ground

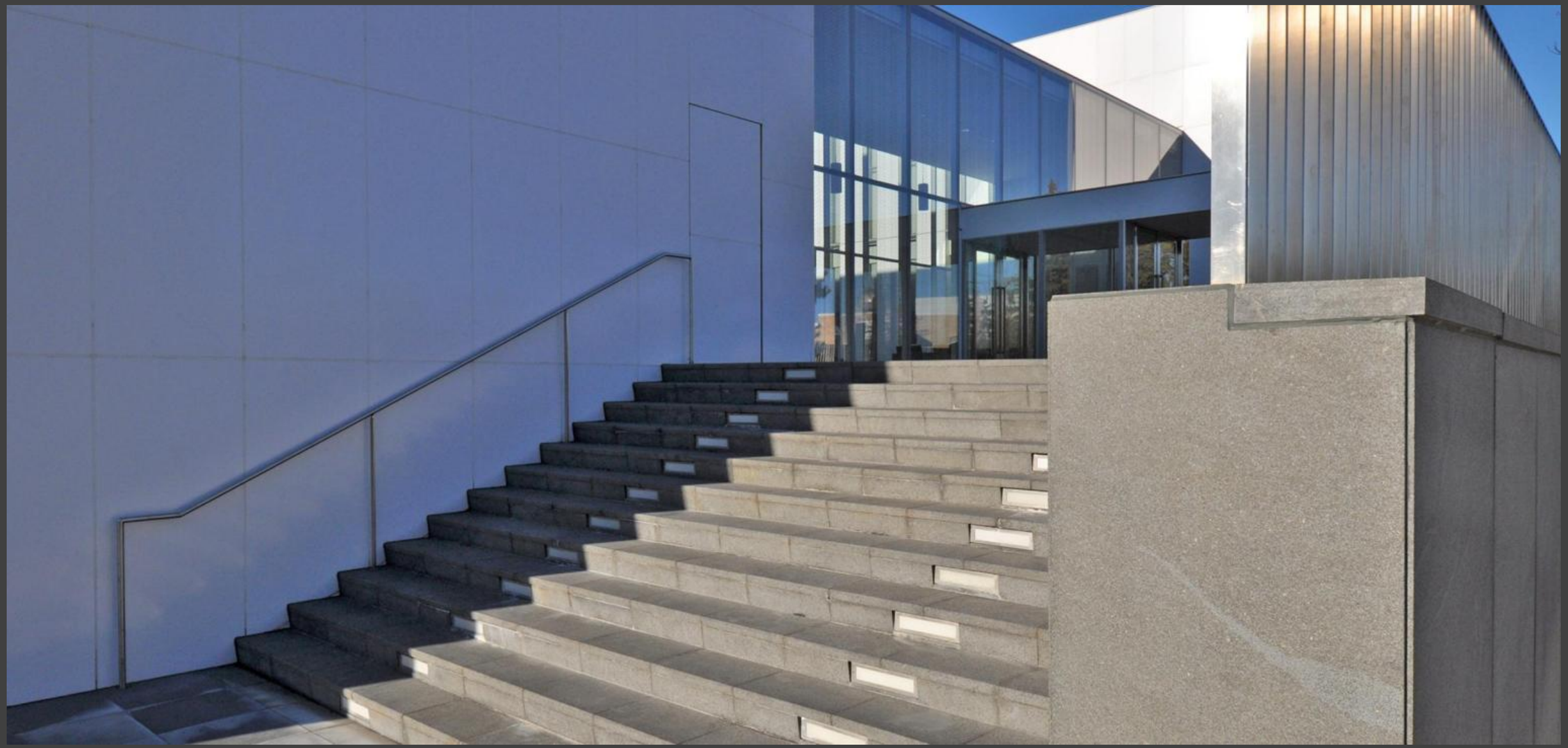


The ‘ground’ associated with the stations consists of the walls, retaining walls and walking surfaces which are rooted in and grow out of the topography of each site.

Ground – Rootedness

For the stations with excavated or tunneled sites, it is desirable to expose or reuse the bedrock in strategic locations as opposed to utilizing a more processed material such as concrete.

Ground – Durability



In contrast, the large volume of traffic associated with the stations makes it necessary to utilize highly durable materials for the walking surfaces or other surfaces which people come into contact with, if the stations are to age well.

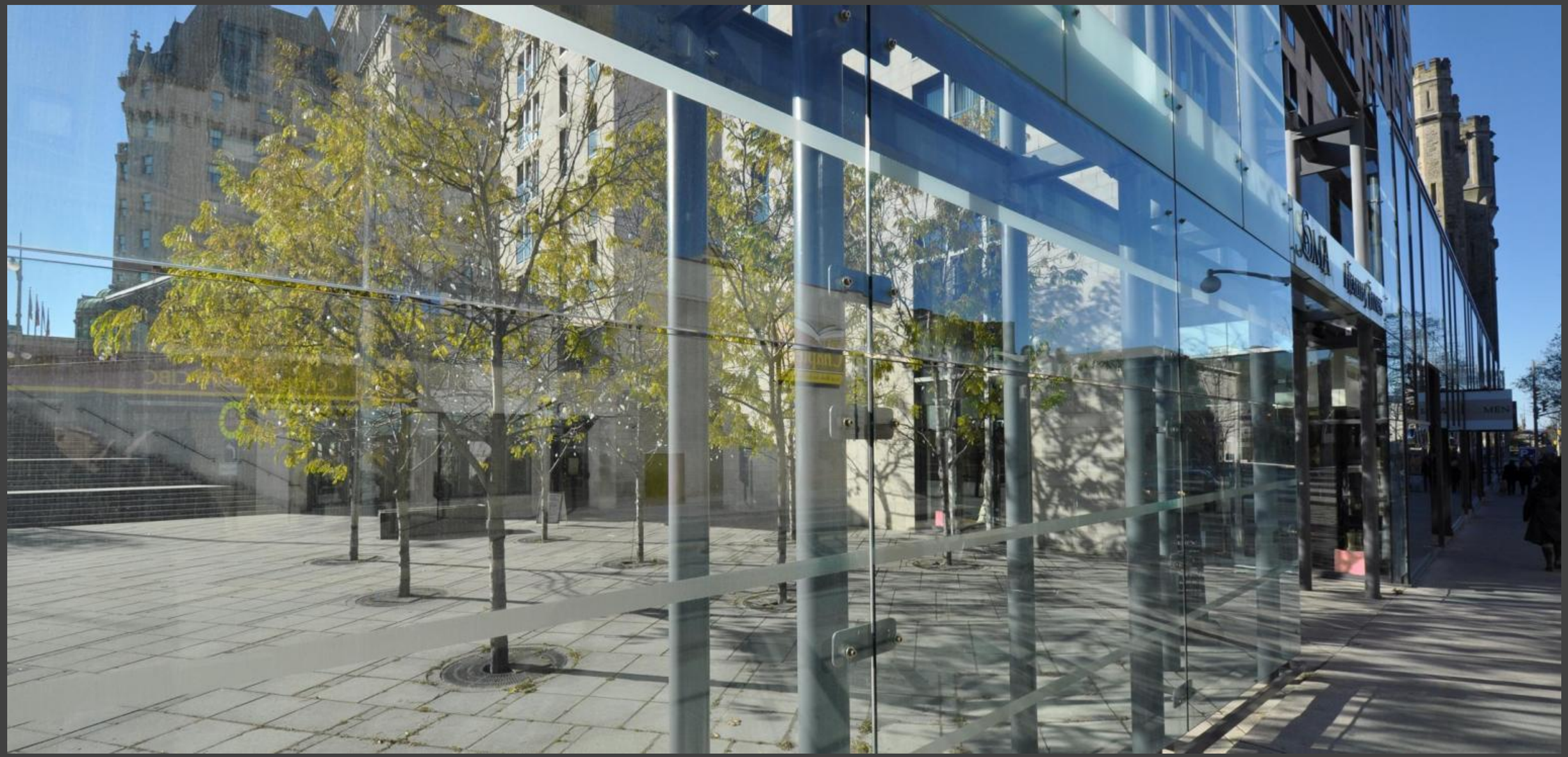
Ground – Snow Melting Technologies

It is possible to melt the snow associated with walking surfaces using sustainable sources of energy such as the recapturing of brake energy or electrical transformer heat and/or ground source heat, in lieu of utilizing salt, sand and snow removal equipment.

Ground – Water

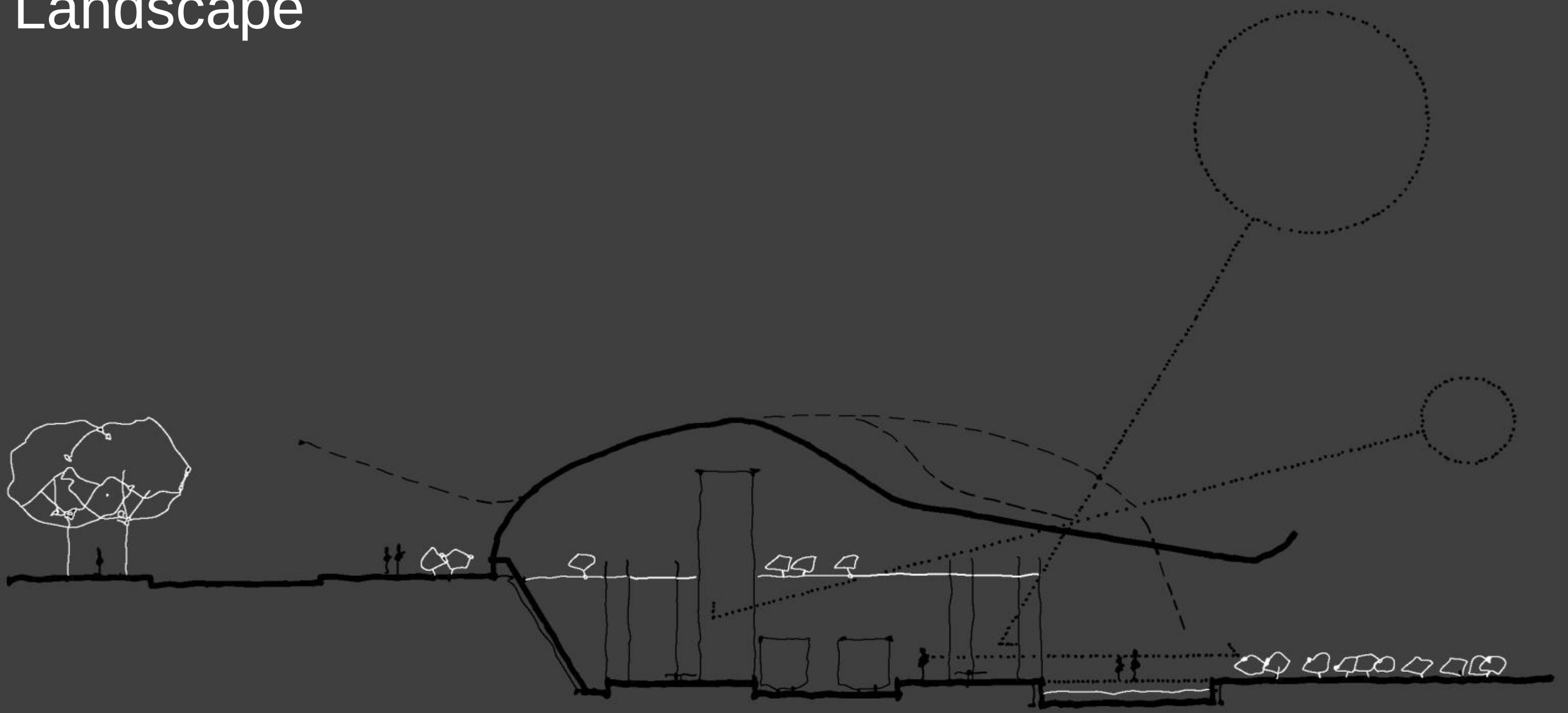
Water is an integral part of the Ottawa landscape. There is the need to manage the large volumes of storm water which will be generated by the hard surfaces associated with the stations.

Ground – Security and Wind



At times it will be necessary to utilize durable ground related screens which provide security and protection from the weather, while maintaining the desired transparency in terms of views and security.

Landscape

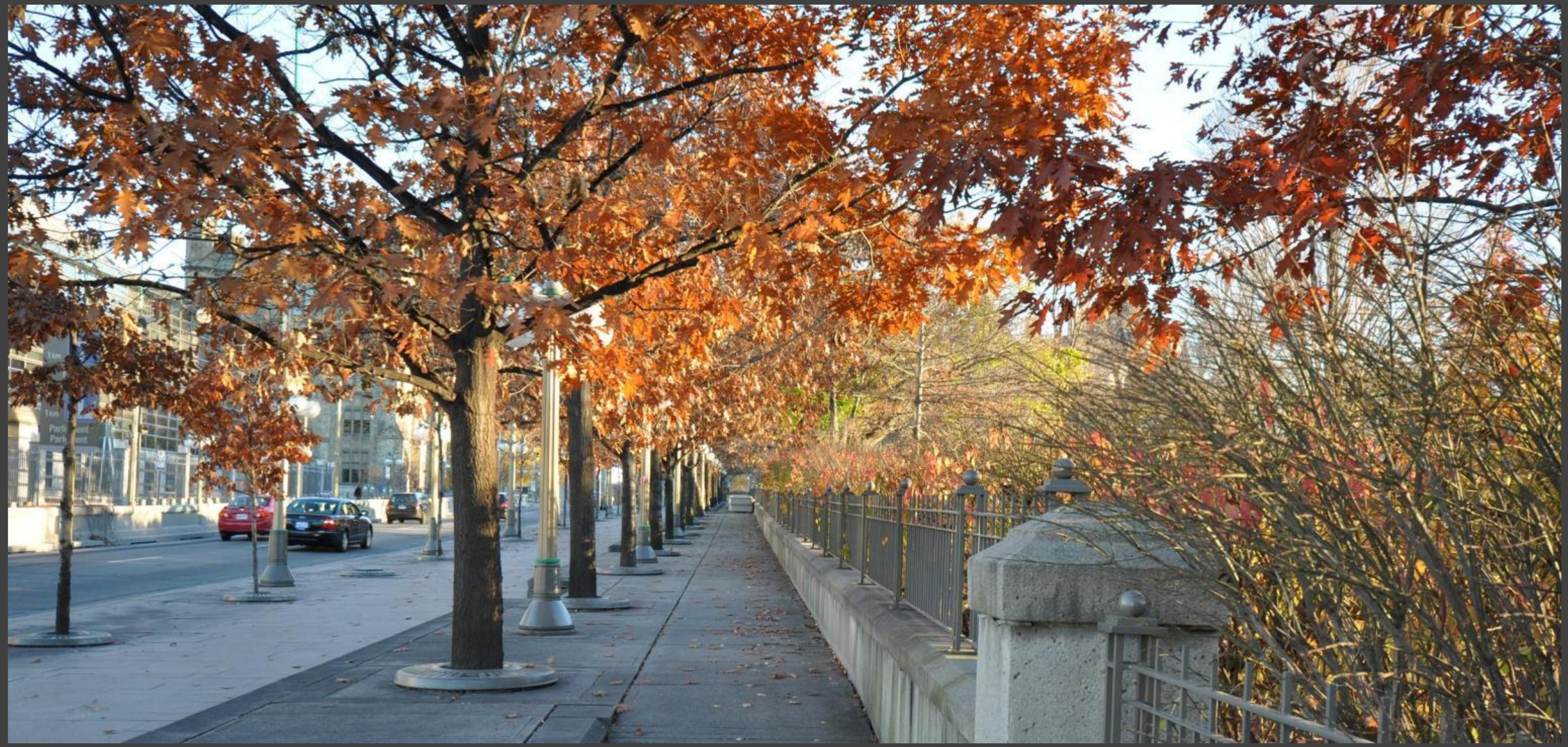


The stations will benefit from having an integral relationship with the planted ‘landscape’; in terms of providing protection from the summer sun and cold winter winds as well as in terms of the aesthetic value.

Landscape – Aesthetics

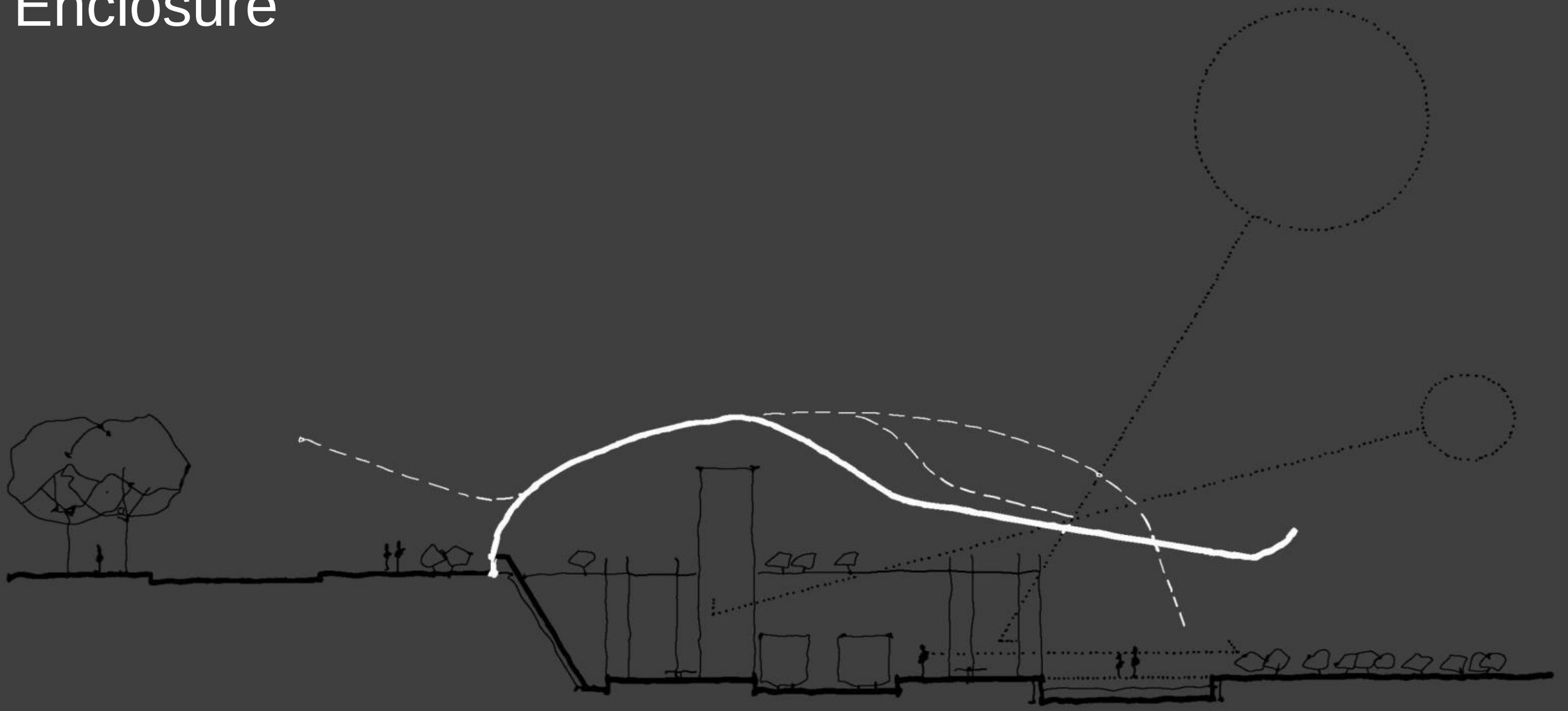
The tendency is for stations to possess a hard sterile quality; due to the employment of ‘maintenance free’ materials, but this can be transformed if the landscape possesses a more intertwined relationship with the architecture.

Landscape – Experiential Quality



In addition to providing aesthetic enrichment the planted landscape has the potential to help protect pedestrians from the summer sun and winter winds as pedestrians move to and from the stations.

Enclosure

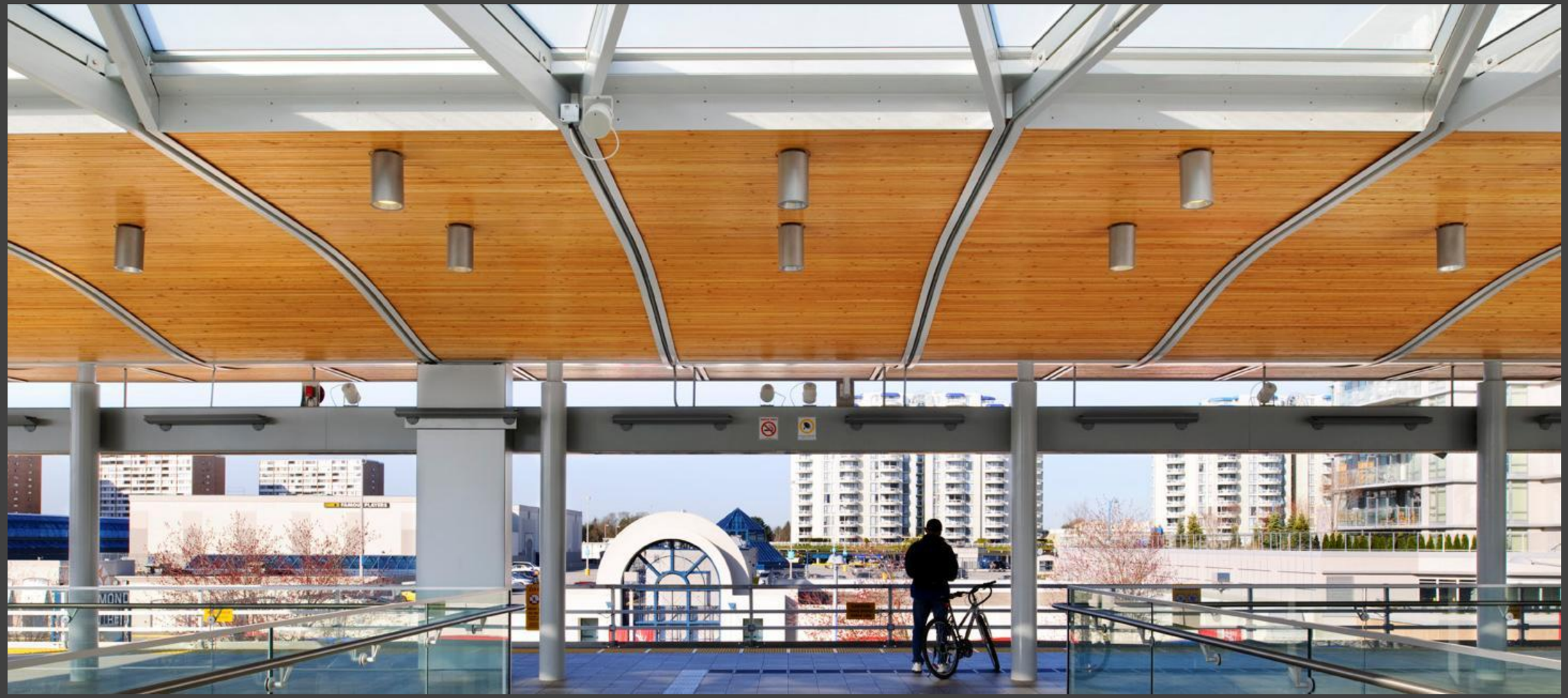


The stations will benefit from having an ‘enclosure’ which is shaped to mitigate the impact which the Ottawa climate has on pedestrian movement by providing protection from the rain, snow, cold winter winds and the summer sun, while welcoming the warmth of the winter sun and cooling summer breezes.

Enclosure – Materiality – History

The lumber industry formed the economic foundation upon which Ottawa was built.

Enclosure – Materiality



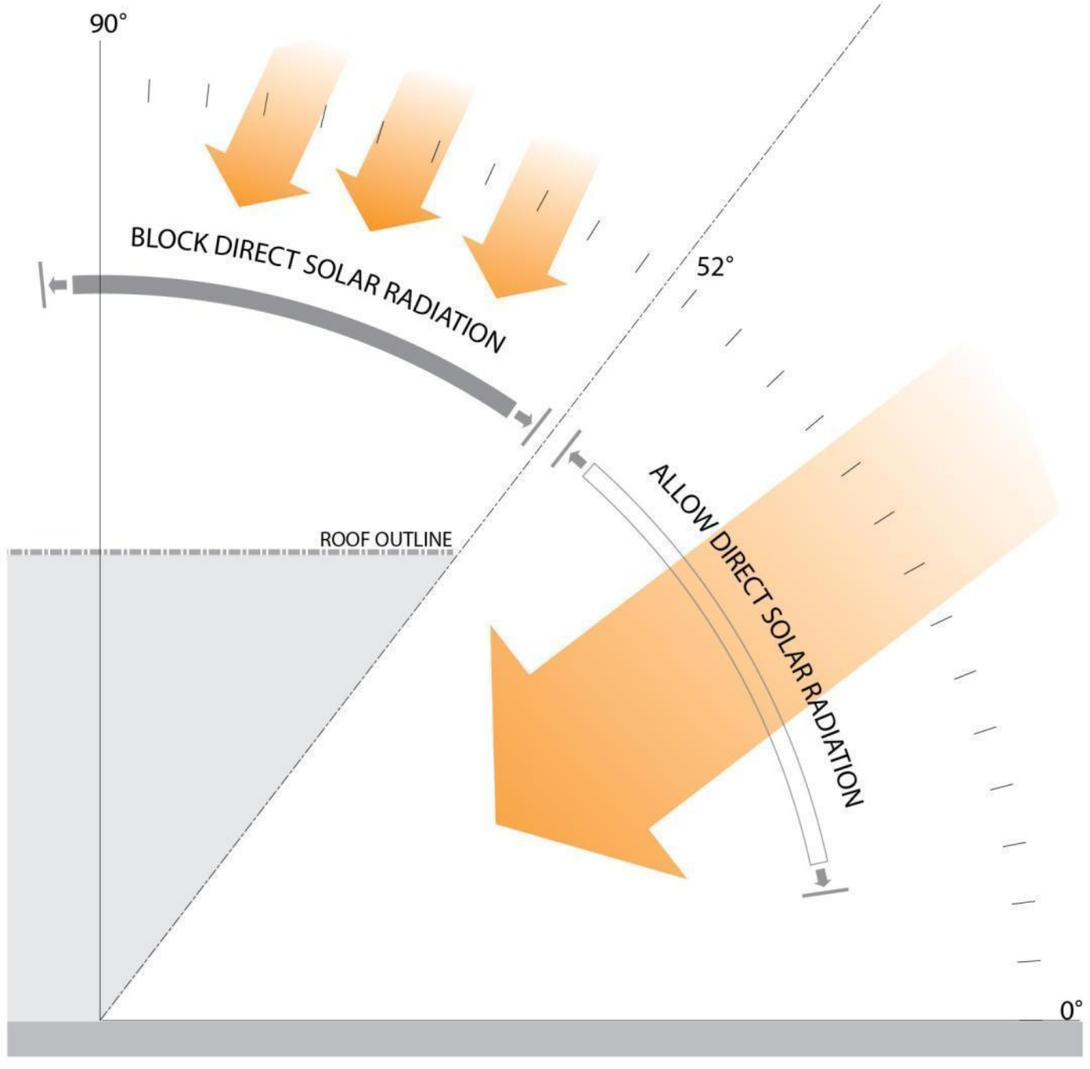
The hard, sterile quality associated with many ‘maintenance free’ materials can be transformed if warmer materials such as wood are introduced. One of the few surfaces in a station which can be built with wood without compromising the desire for long term durability, is the underside of the roof.

Enclosure – Porch – Station as Community Centre

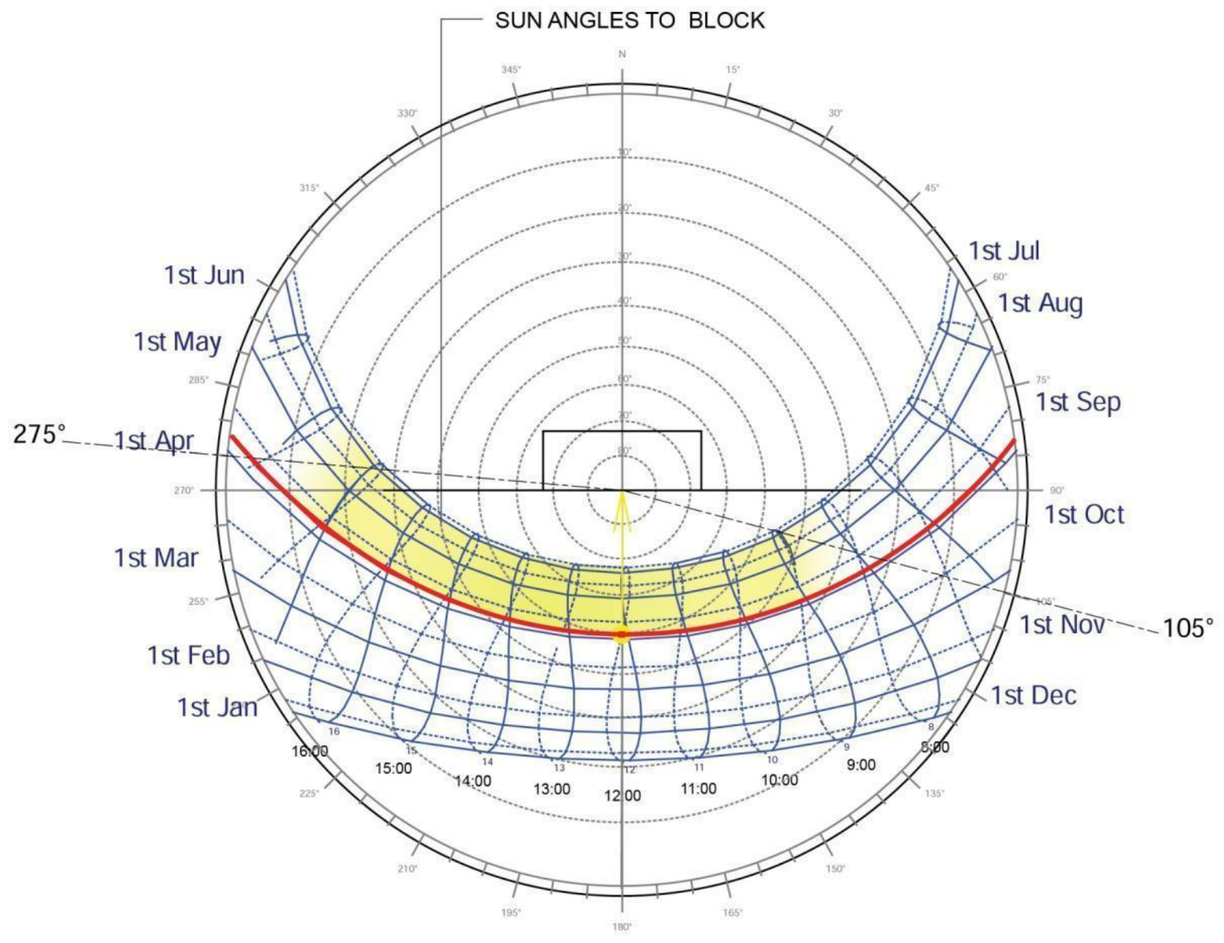
The enclosure can be shaped to provide porch like spaces which provide a place for a variety of community events which help connect the city such as Farmer’s Market.

Design Guidelines – Enclosure Concepts

- End dates established from the temperature analysis are used to set the allowed and blocked sun angles.
- The yellow area represents times of concern to the roof's design for sun angle control:
  April 7th to September 7th from 9am to 5pm.
  Sun altitudes above 52° within latitudes range of 105° to 275°.
- Roof design to block direct solar radiation during the above times.



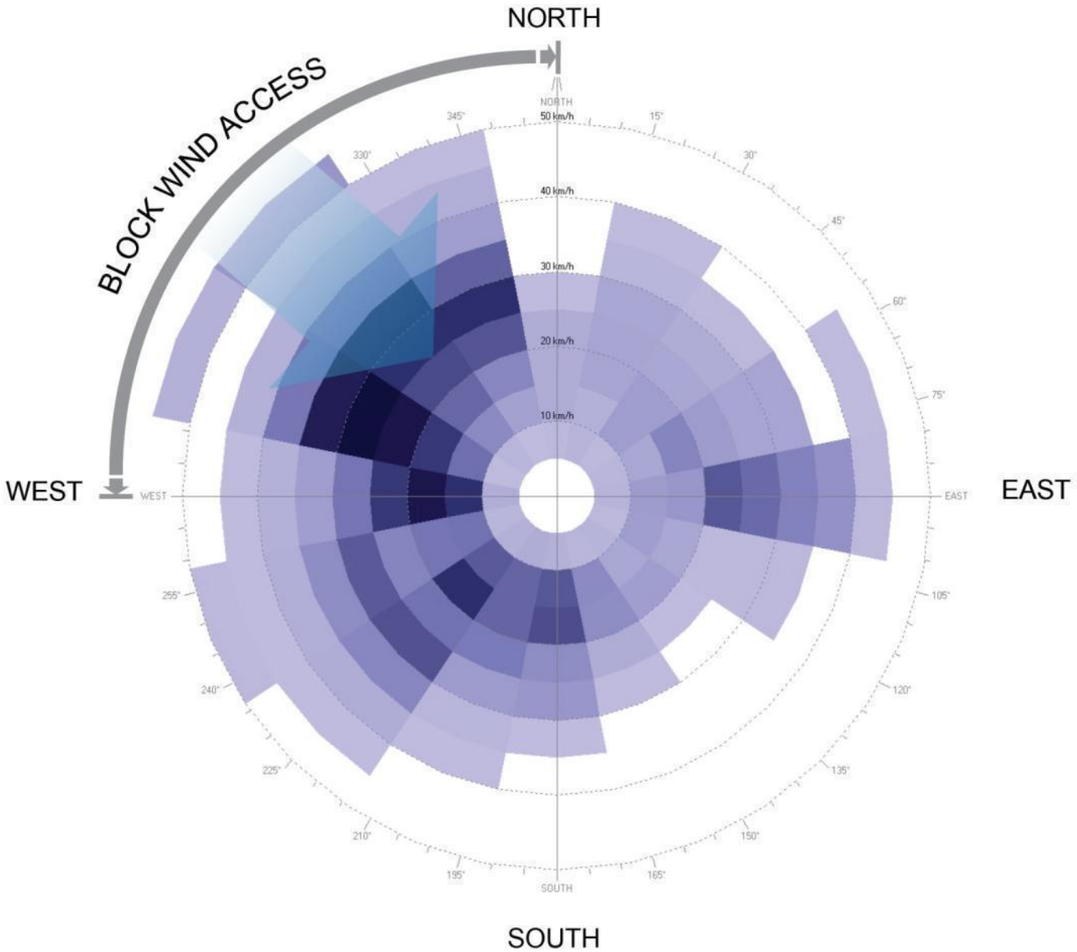
SECTION



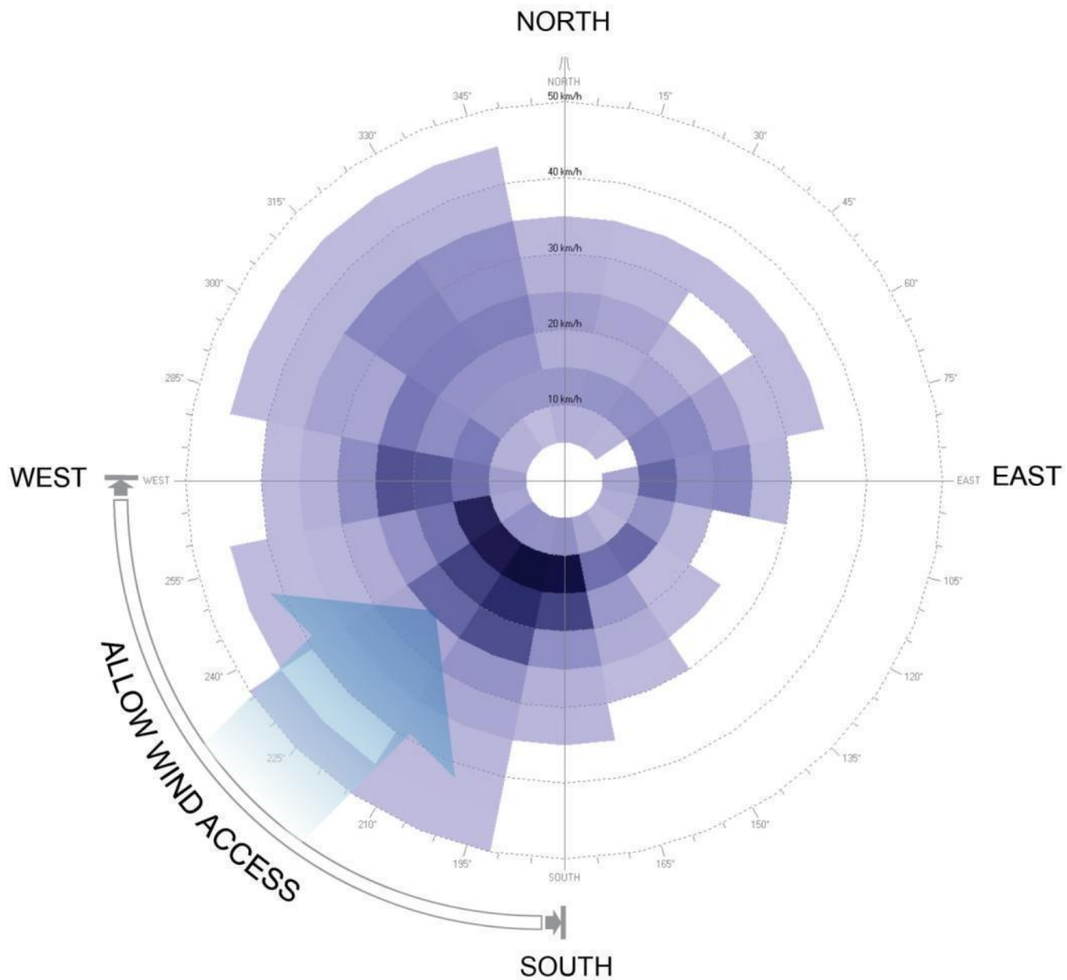
PLAN

Solar Diagram - Ottawa

- Colored squares represent days in the year. The darker the square, the more days it represents.
- Design to shield prevailing winter wind from northwest
- Design to allow prevailing summer wind from southwest



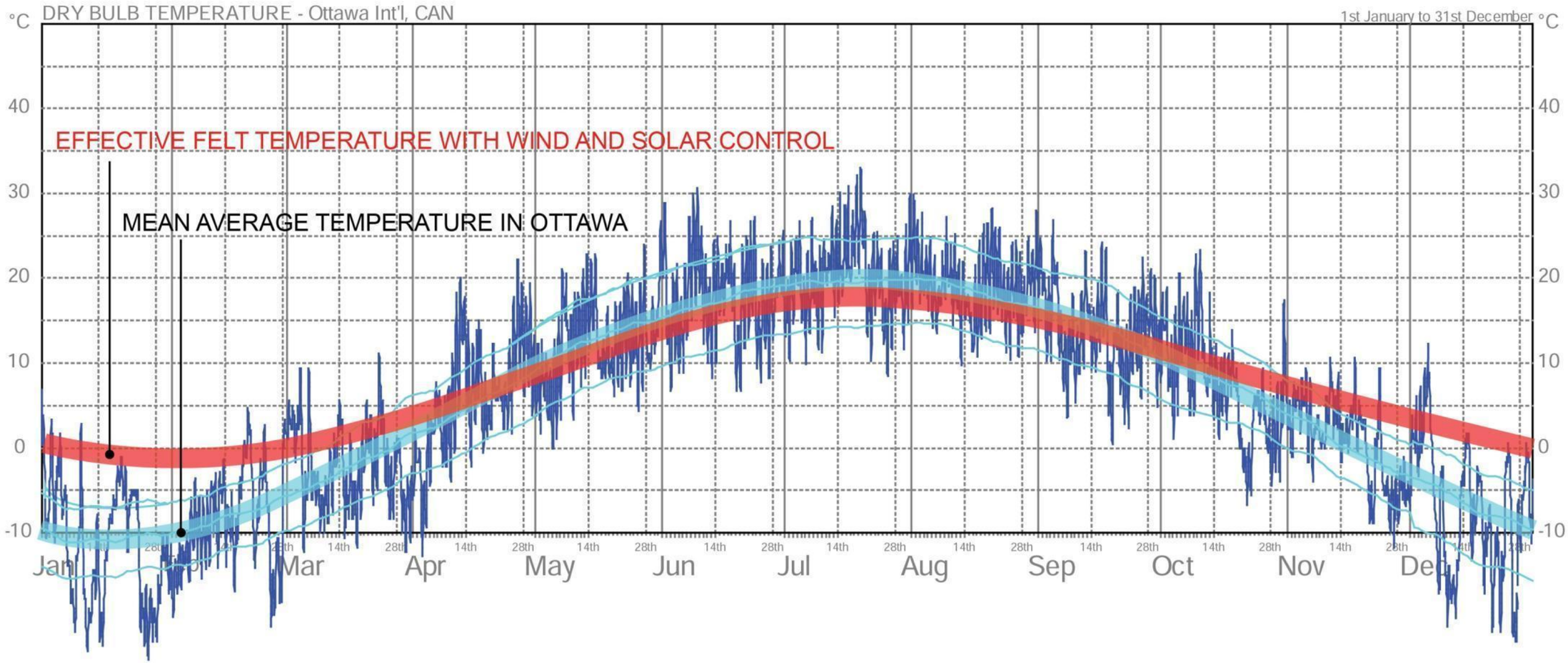
WINTER



SUMMER

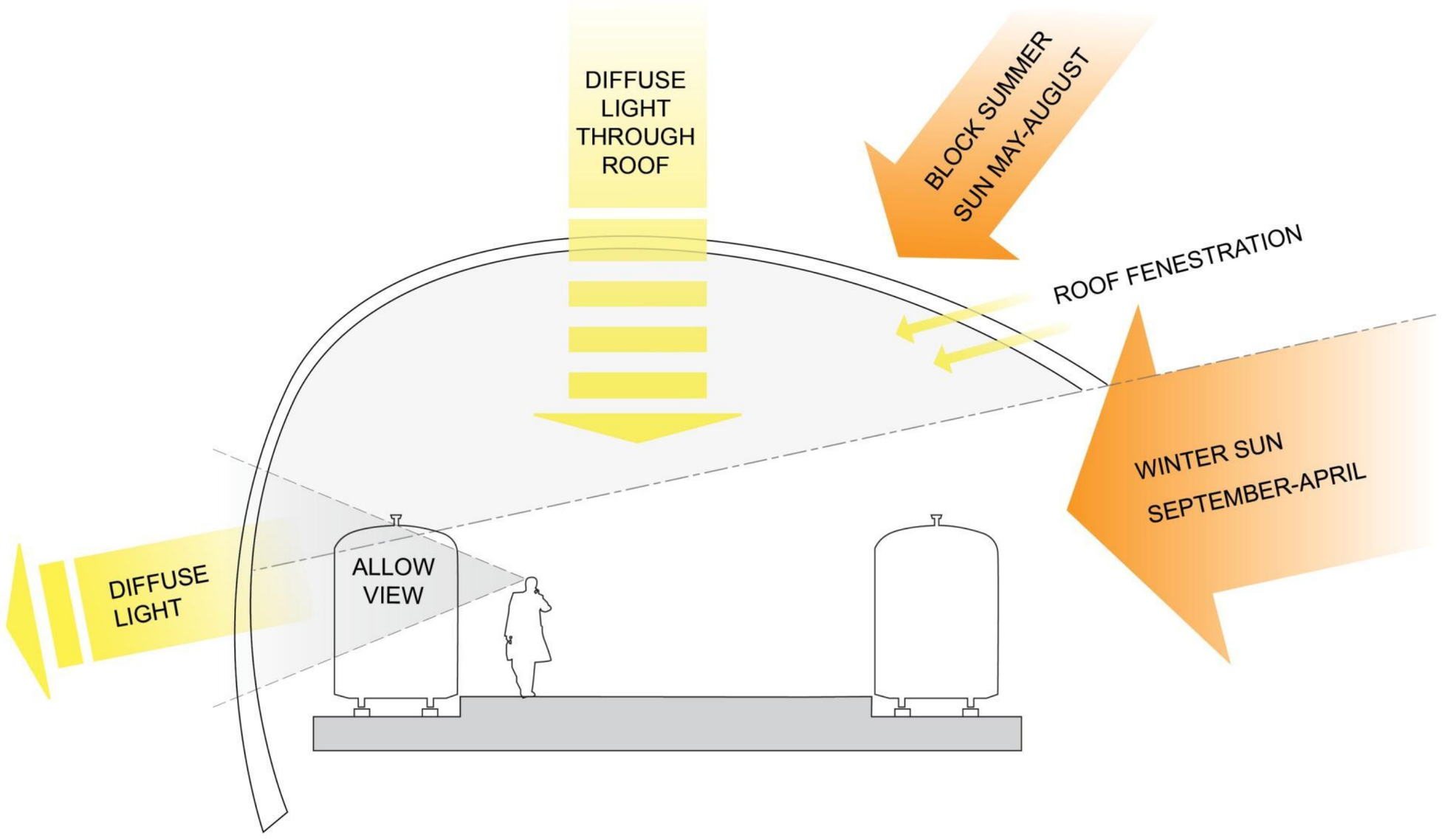
Wind Diagrams - Ottawa

- The diagram represents plotted average temperatures in Ottawa.
- The blue curve represents the mean average temperature.
- The red curve represents felt mean temperatures inside the stations adjusted considering the effect of wind shield and solar radiation control.



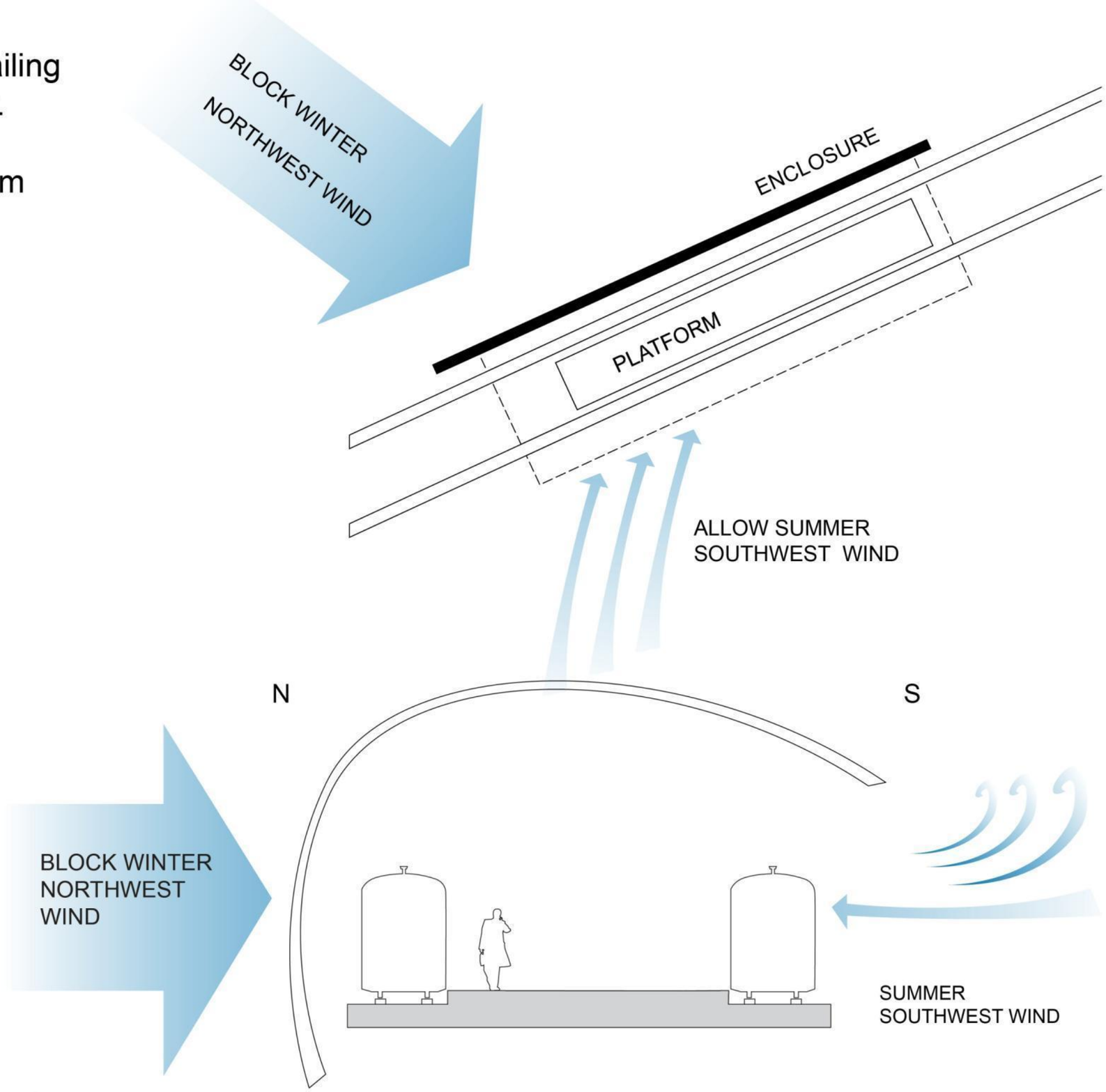
Effective Felt Temperature (All Year) - Ottawa

- Roof blocks direct solar radiation during summer times (April 7th to September 7th from 9am to 5pm).
- Roof form allows access of direct solar radiation during winter.
- Roof enclosure allows the penetration of diffused light.



Solar Exposure – Centre Platform

- Roof enclosure blocks prevailing winter winds from northwest.
- Roof form allows access of summer prevailing winds from southwest.



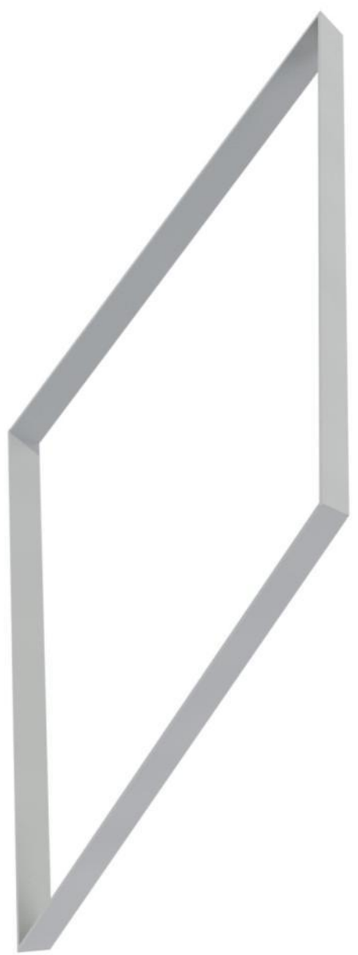
Prevailing Winds– Centre Platform

PREFABRICATED STEEL PANEL TYPES

1. WOOD INFILL PANEL

2. GLAZED PANEL

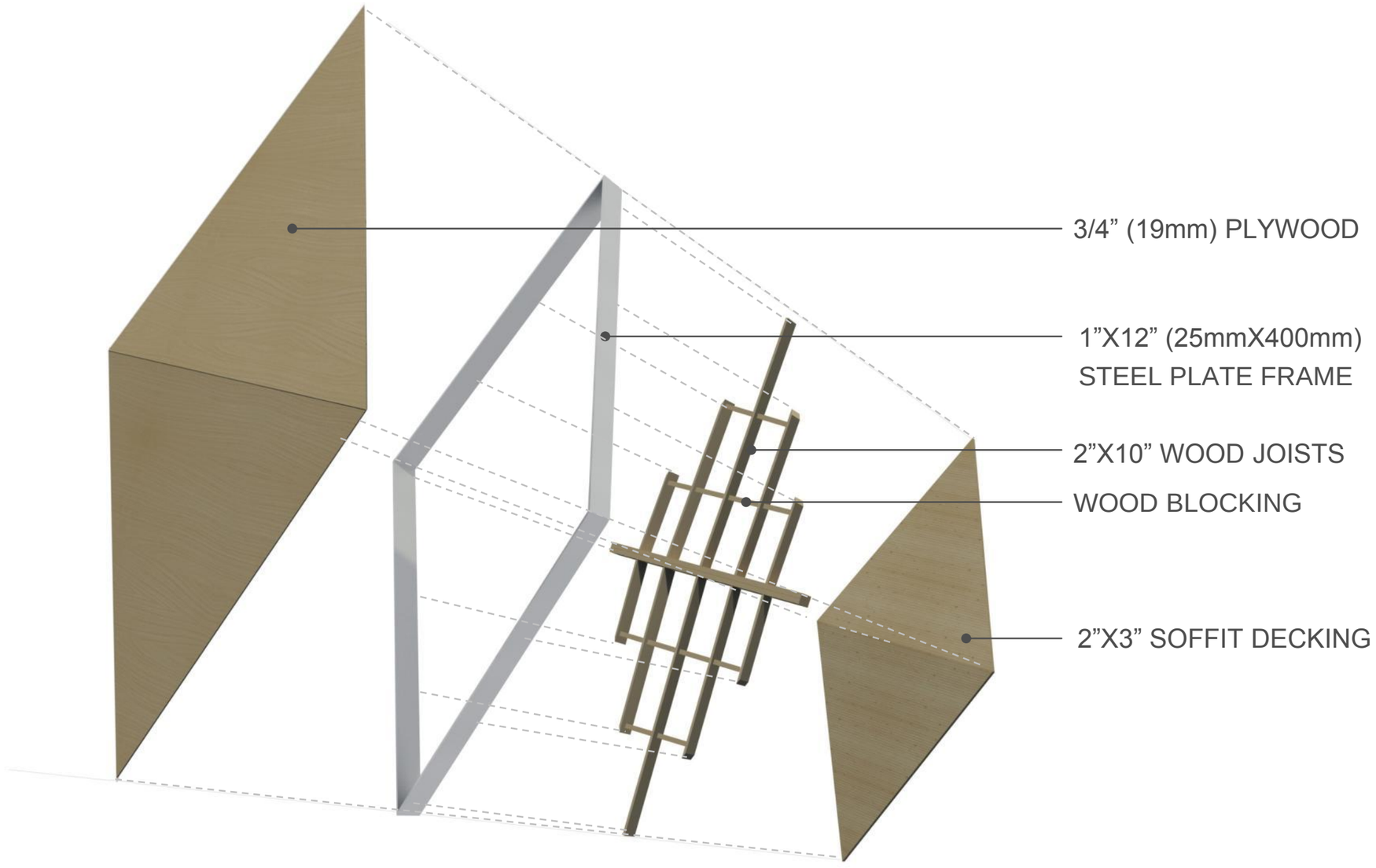
3. VENTILATION PANEL



4. OPEN FRAME PANEL

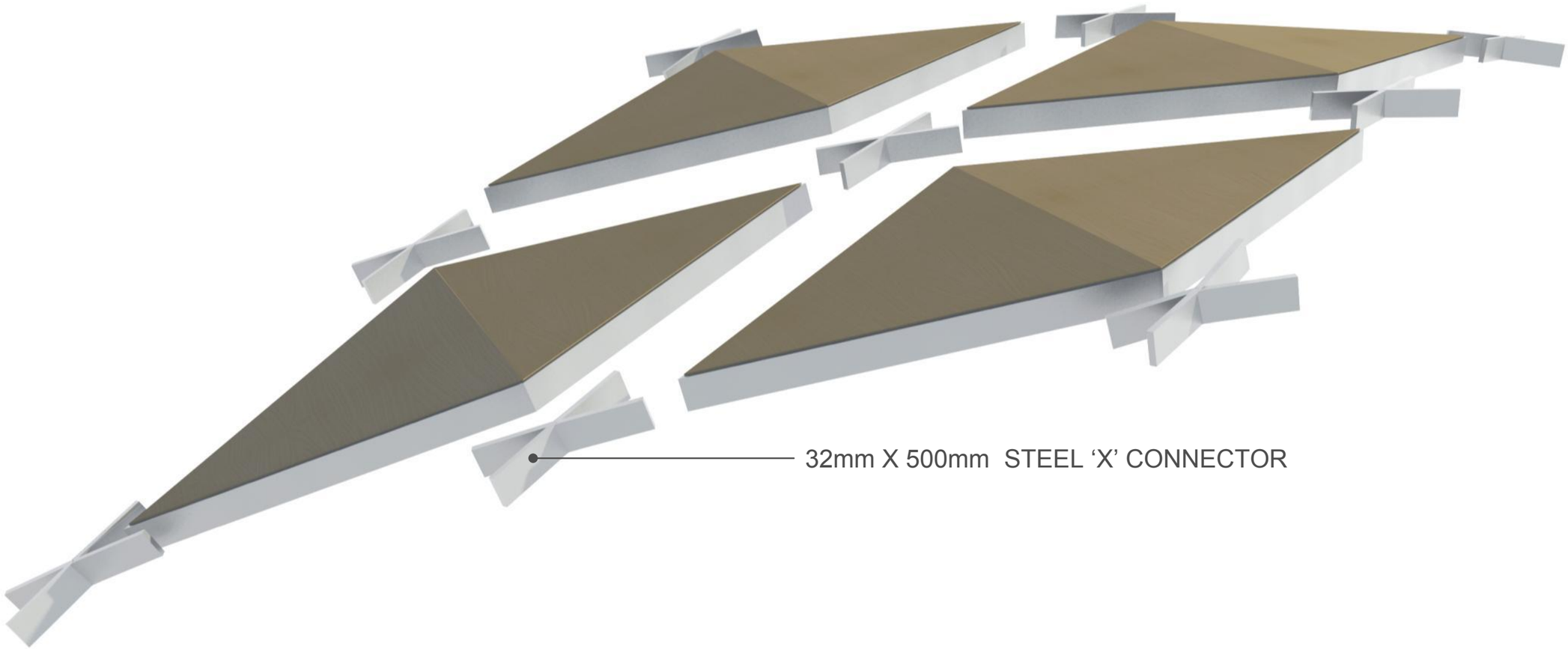
WOOD INFILL PANEL

WOOD INFILL PANEL



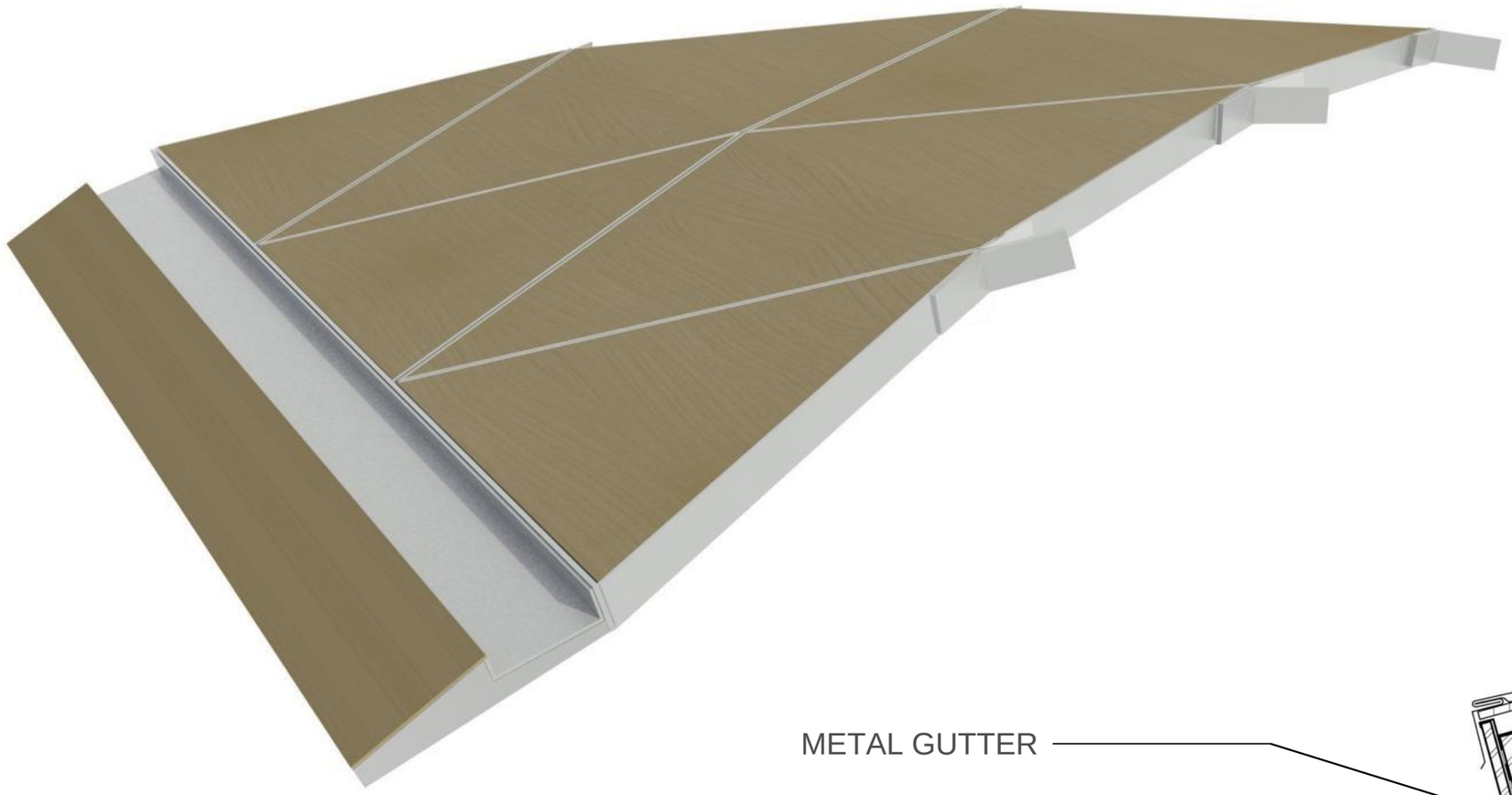
EXPLODED COMPONENTS DIAGRAM

PREFABRICATED PANELS

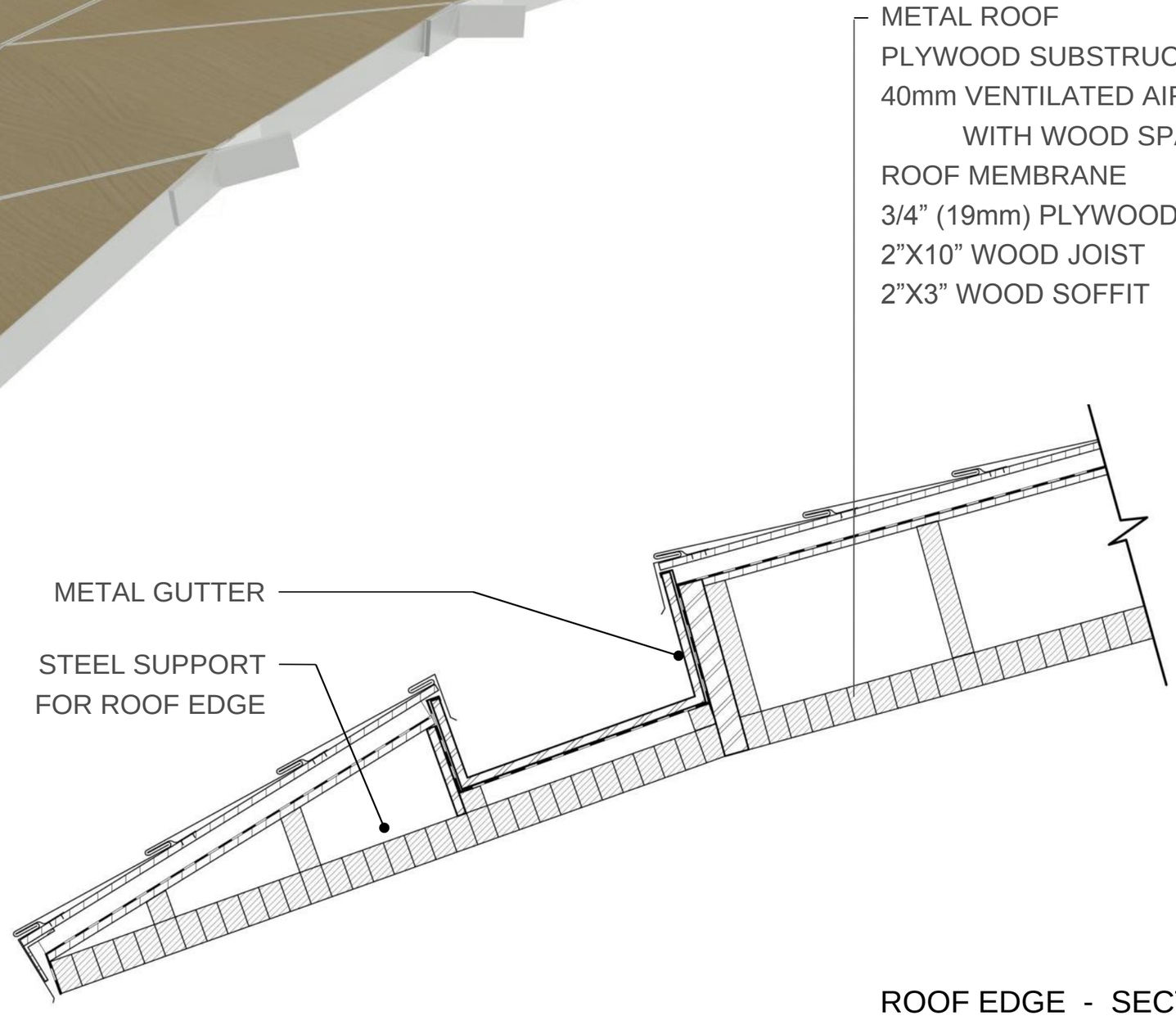


EXPLODED ASSEMBLY DIAGRAM - 4 PANELS

PREFABRICATED PANELS



ROOF EDGE



ROOF EDGE - SECTION

ROOF LAYER ASSEMBLY

STANDING SEAM METAL ROOF

ROOF MEMBRANE

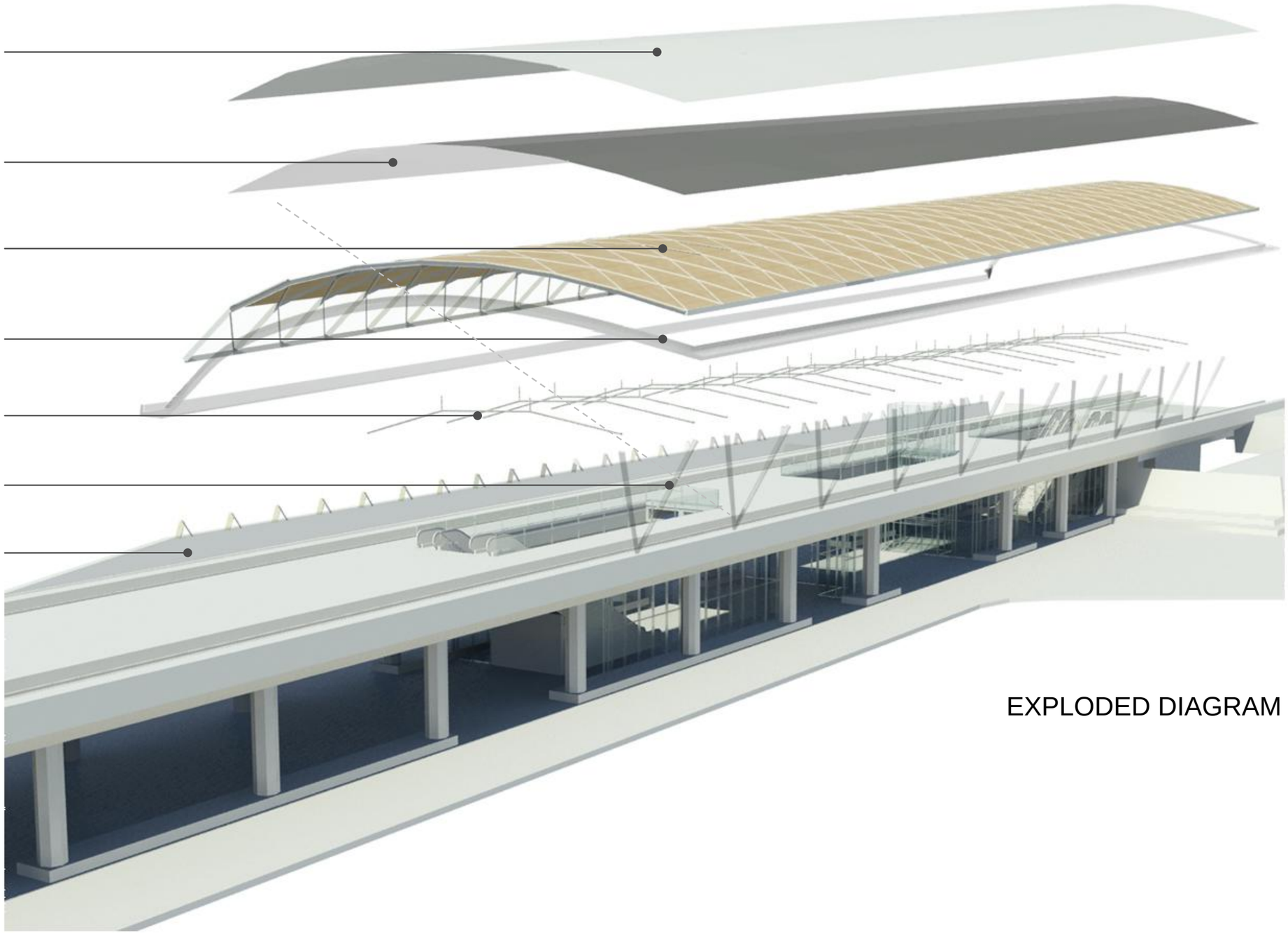
PREFABRICATED STEEL PANELS
WOOD / GLASS INFILL

RAIN GUTTER

TENSION CABLES / KING POSTS

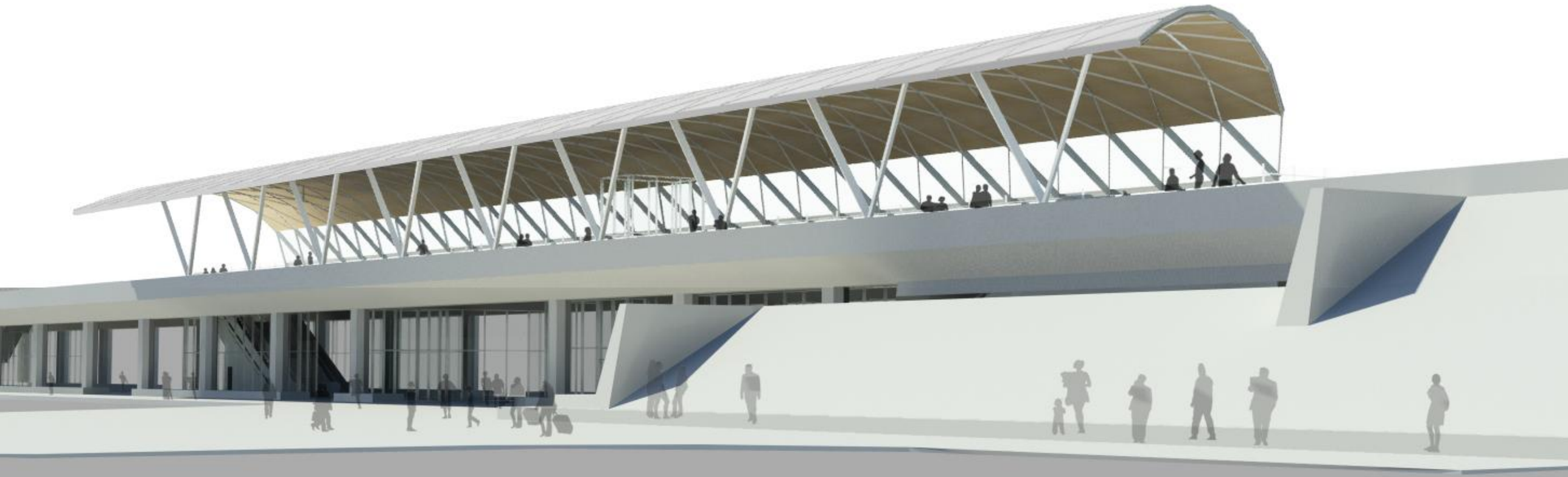
STEEL COLUMNS

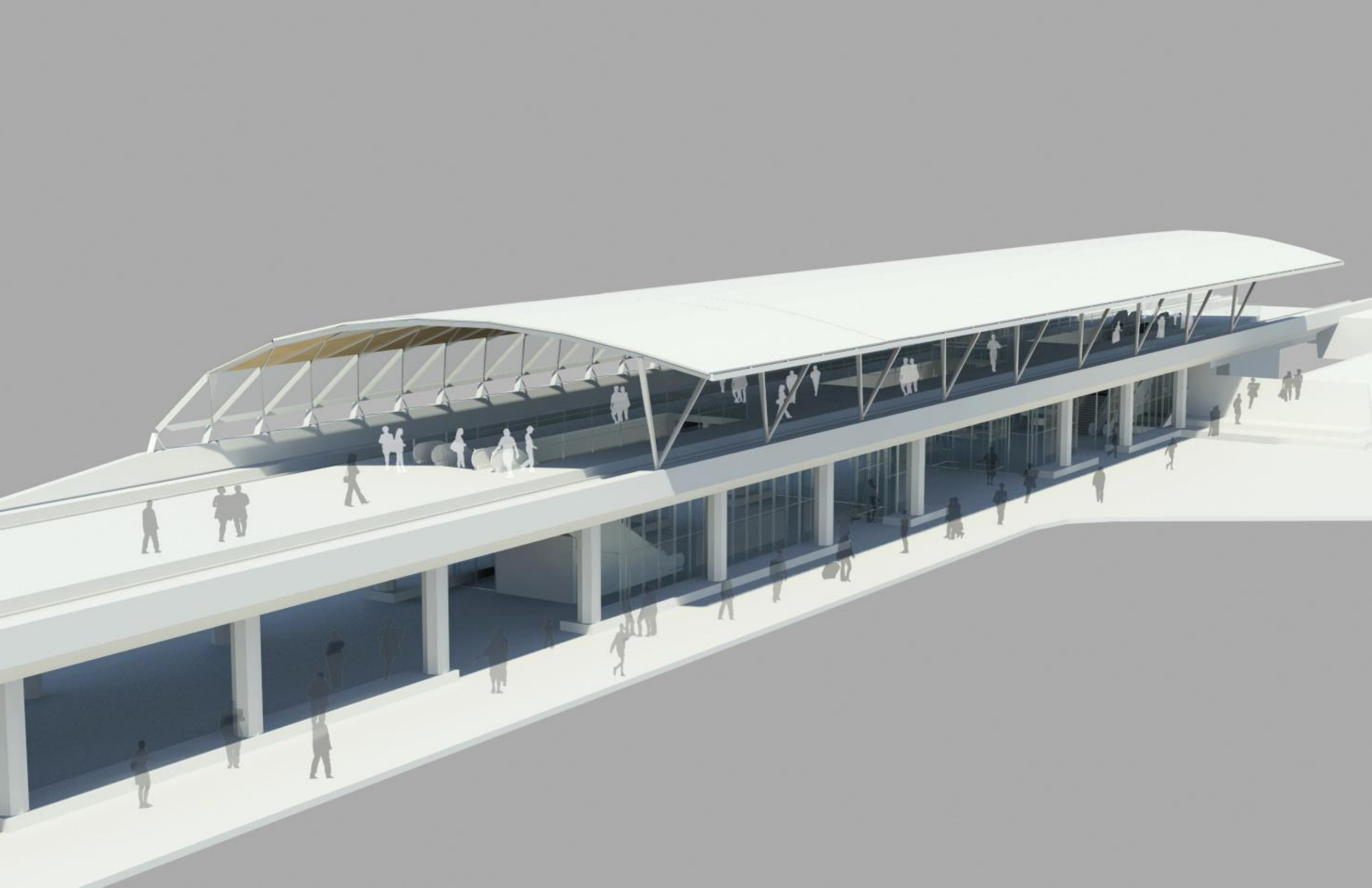
CONCRETE/ STONE CURB



EXPLODED DIAGRAM


Hurdman
Hurdman





Wayfinding and Signage

Wayfinding+Signage Programme Goals+Objectives

Programme Project Goals:

- Make transit facilities easy to identify and to navigate system-wide
- Use language and visual techniques that people understand
- Comply with accessibility guidelines
- Assist in providing a successful journey for passengers

Wayfinding+Signage Programme Goals+Objectives

Programme Project Objectives:

- Improve the overall function and aesthetics of the light rail system by providing accessible, attractive, identifiable and understandable signage
- Improve wayfinding for system passengers by providing map, text, and/or pictograph signage for important station and community destinations and features
- Provide plain-language signage and not “over-signed” stations
- Develop project outcomes that inform and meet the timing of the design requirements for station pre-engineering and final designs

Wayfinding+Signage Programme Goals+Objectives

Sign Design Programme Principles:

- Design a palette of sign types that are complimentary in design, nomenclature, information hierarchy, color, contrast, typography, size, materials, construction, installation, and application

- Sign types should emphasize and integrate the use of international symbols to support a diverse population’s information needs

- Modularity in the various sign panel sizes and consistency in installation method is a primary goal for long term maintenance, efficiency and cost control

Wayfinding+Signage Purpose

The development of an effective Wayfinding+Signage strategy is critical to the success of the experience all user groups have with the Ottawa LRT system. At its most fundamental level, it will provide:

- Orientation,
- Direction,
- Information, and
- Identification to users at the various stations within the system

At a higher level, it will serve to knit together and connect the various stations and communities along the line and enhance each of their various experiences.

Wayfinding Strategies

In order to achieve the stated Goals and Objectives, various Wayfinding Strategies will be considered, including:

- Intuitive design
- Cognitive mapping
- Sequencing
- Architectural features, light, colour, sound
- Public Art elements
- Pathways + Motion
- Universal design

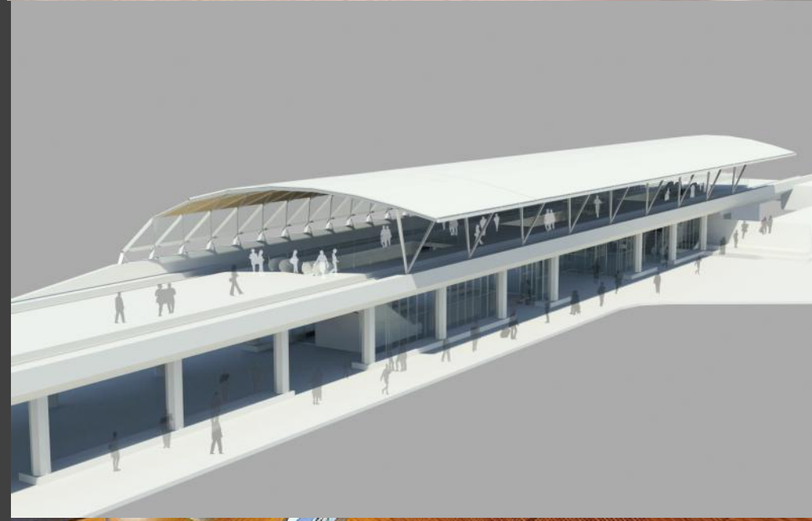
Wayfinding Strategies

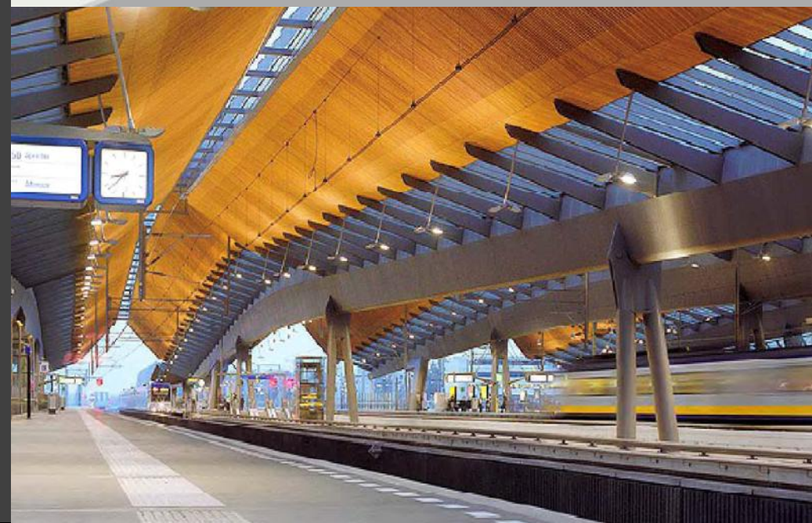
Intuitive Design is

based on individual spatial knowledge and
instinctive behavior from previous encounters
with similar archetypes and spatial configurations.

It is used to:

- clarify hierarchy of space
- identify main destinations
- determine circulation and access





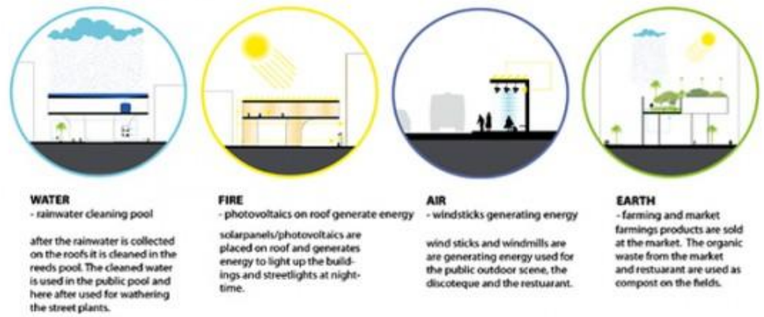
Wayfinding Strategies

Cognitive Mapping builds

on personal experiences to make spatial decisions and guide movement from a variety of encounters.

It is used to:

- develop mental ‘route map’ from ‘mental landmarks map’ through sequencing
- inform how to use space, not just recognize it



Wayfinding Strategies

Sequencing is

the use of space and information to facilitate progression of movement and indicate next steps.

It is used to:

- identify location
- point towards next location
- facilitate decision-making

Wayfinding Strategies

Architectural Feature- Light

The placement and type of light can direct users.

Light is used to:

- highlight entries and stopping points
- increase legibility from distance
- create a sense of security and comfort

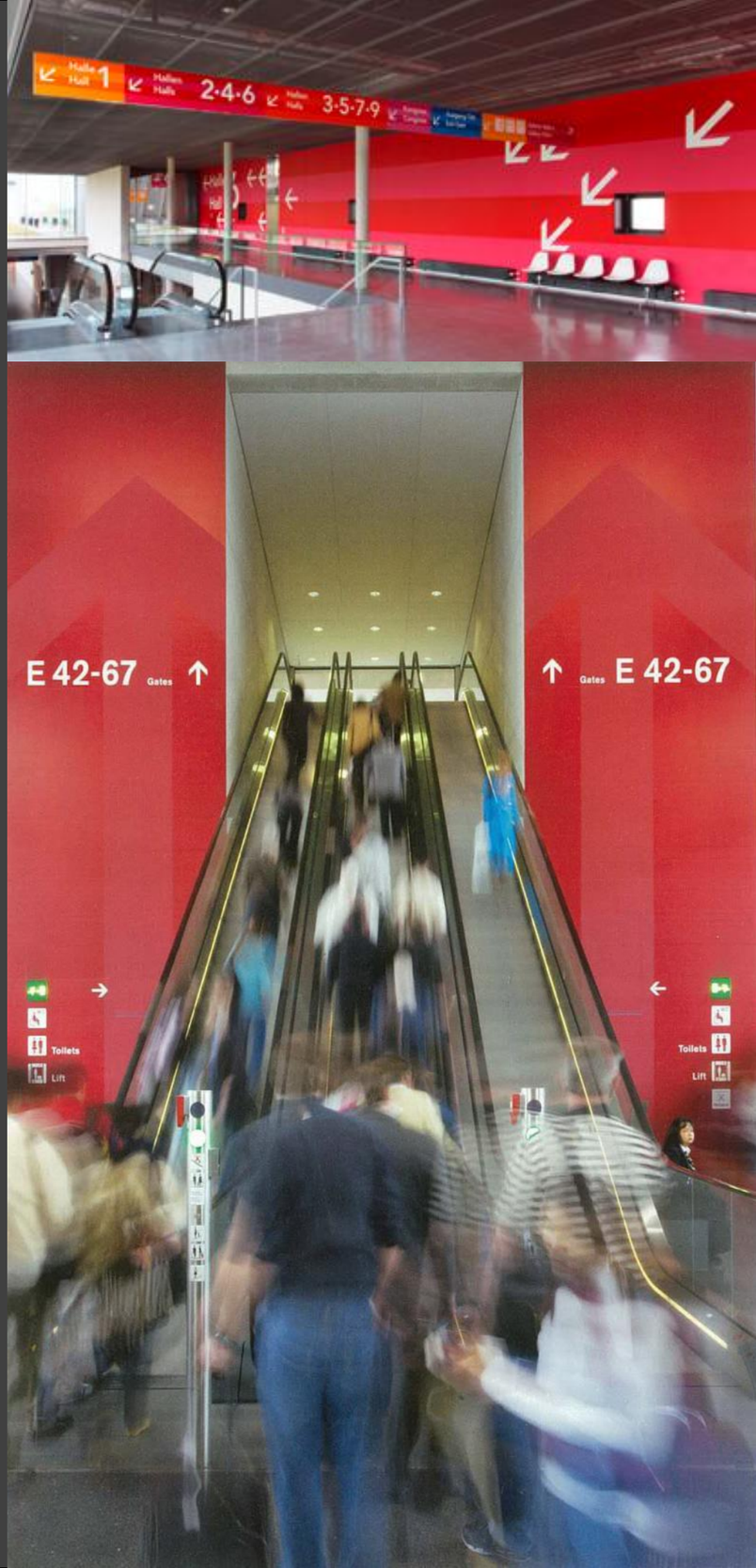
Wayfinding Strategies

Architectural Feature- Colour

The use of colour can reinforce and/or define wayfinding elements in a variety of ways.

Colour is used to:

- define ordinal direction
- reinforce brand
- provide universally designed cues
- organize information
- colour code by function



Wayfinding Strategies

Architectural Feature- Sound

The use of sound can orient users.

Sound is used:

- for public announcements
- to provide directional information
- in episodic auditory cues
- to deliver information to users regardless of visual ability

Wayfinding Strategies

Public Art Elements

Enhance the sense of place by providing a landmark or event within or around the path of circulation.

It is used to:

- create a landmark
- identify a destination

Wayfinding Strategies

Pathways + Motion

Materiality and location of elements help locate users.

Pathways + Motion are used to:

- differentiate the hardscape leading to the transit zone
- identify purpose of use
- react to art source, waterfalls, markers or kinetic pieces

Wayfinding Strategies

Universal Access

a broad spectrum approach which provides environments that are accessible for individuals with all levels of abilities.

It is important to consider:

- visual perception
- auditory ability and interference
- physical impediments

Signage Strategies

Likewise, an effective system of Signage strategies will be developed to aid in overall site and facility navigation. Strategy considerations include:

- Integration with architectural ground, landscape and enclosure planes
- Mapping + Technology
- Graphics + Typography
- Nomenclature
- Dual language
- Appropriateness for first-time users
- Universal design

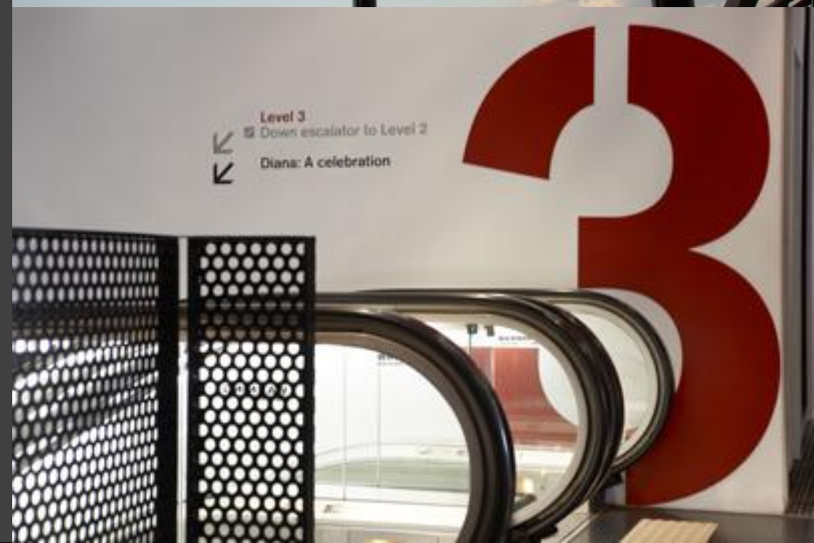
Signage Strategies

Graphics

- Use of colour, pictograms, arrows, and other visual elements instead of text
- Simplify complex information
- Universally recognized
- Use of illustrative drawings to tell a story or provide information/instructions

Typography

- Use to reinforce key locations, identifications or instructions
- Define zones/sections
- Guide users to destinations



Signage Strategies

Mapping

- On-site maps
  - use during low density times
- Printed Maps
  - easily accessible during entire journey
- Handheld wireless navigation application – GPS, smartphones
- Language Support for International Visitors

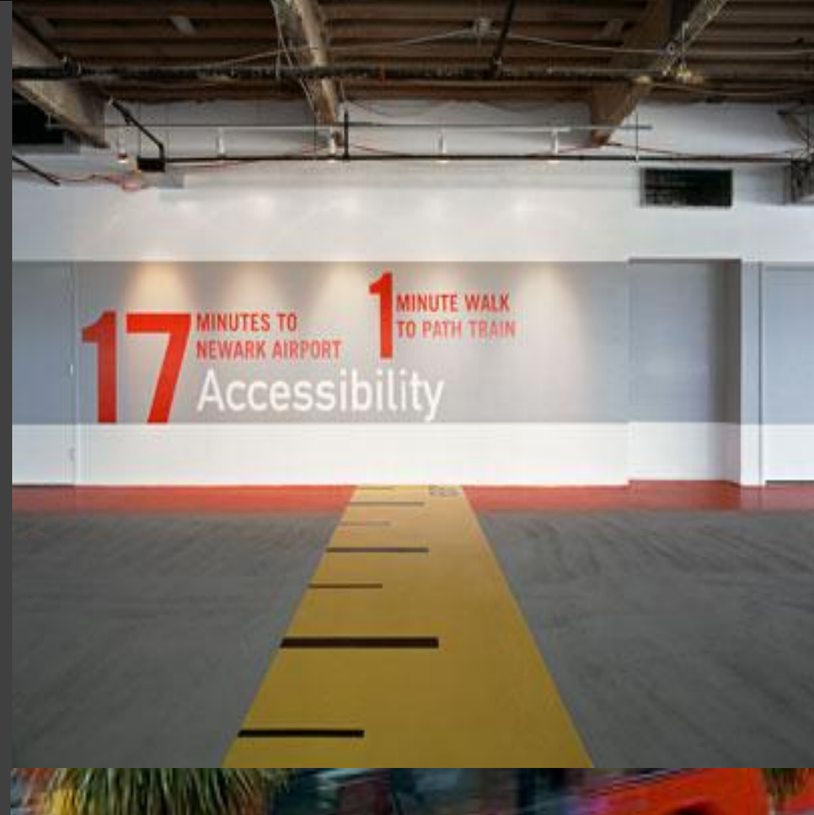
Technology

- LED signs
  - dynamic information
  - energy efficient/sustainable
- Tactile/Audio Maps
  - aid to vision/hearing impaired
- Sound Systems

Signage Strategies

Universal Access

- Provide equitable access to users with visual, auditory and/or physical impairments
- Appropriate for first time users
- Allow flexible use
- Provide perceptible information
- Minimizes error
- Reduce physical effort
- Provide size and space standards



Wayfinding+Signage Design Principles

Wayfinding+Signage can add to the richness and vibrancy of the Ottawa LRT system at an individual station level while providing a layer of connectivity system-wide that is both flexible and sustainable over the life of its installation.

Design Principles will strive to ensure that distinct station or “themed” elements can be integrated into the system, while maintaining system-wide consistency and integration of appropriate brand identity components.

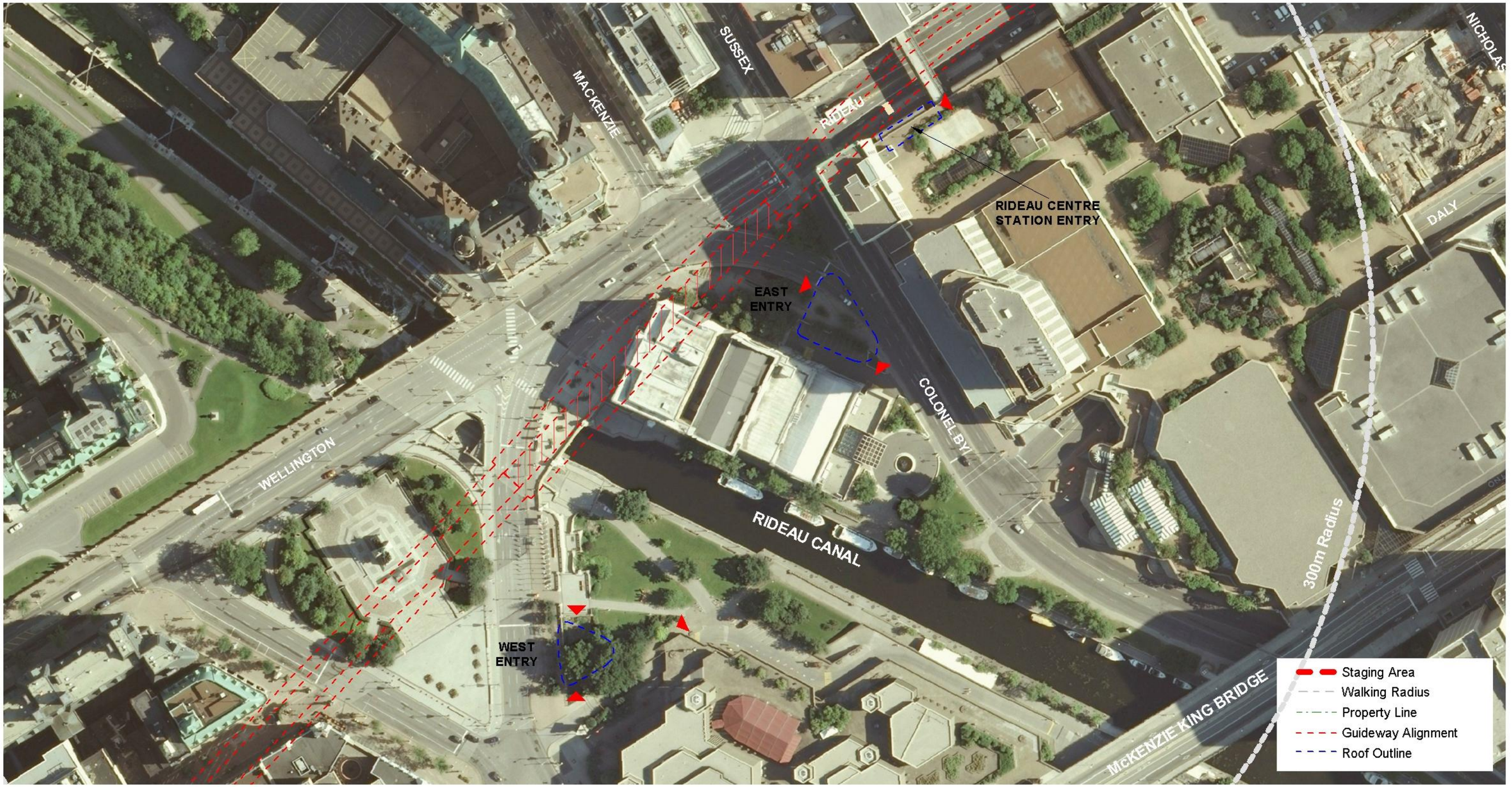
Wayfinding+Signage Design Principles

In order to manage both the aesthetic and the pragmatic attributes of the Wayfinding+Signage system, Design Principles will be established to guide the design process. Initial considerations include:

- Minimal sign-type vocabulary
- Complimentary to and integration with architecture, art and landscape features
- Simplicity + elegance
- System-wide solution
- Continuous vs. fragmented
- Permanent + flexible, flexible + unifying
- Maintenance + security
- Colour as differentiator, cultural reference, directional reinforcement

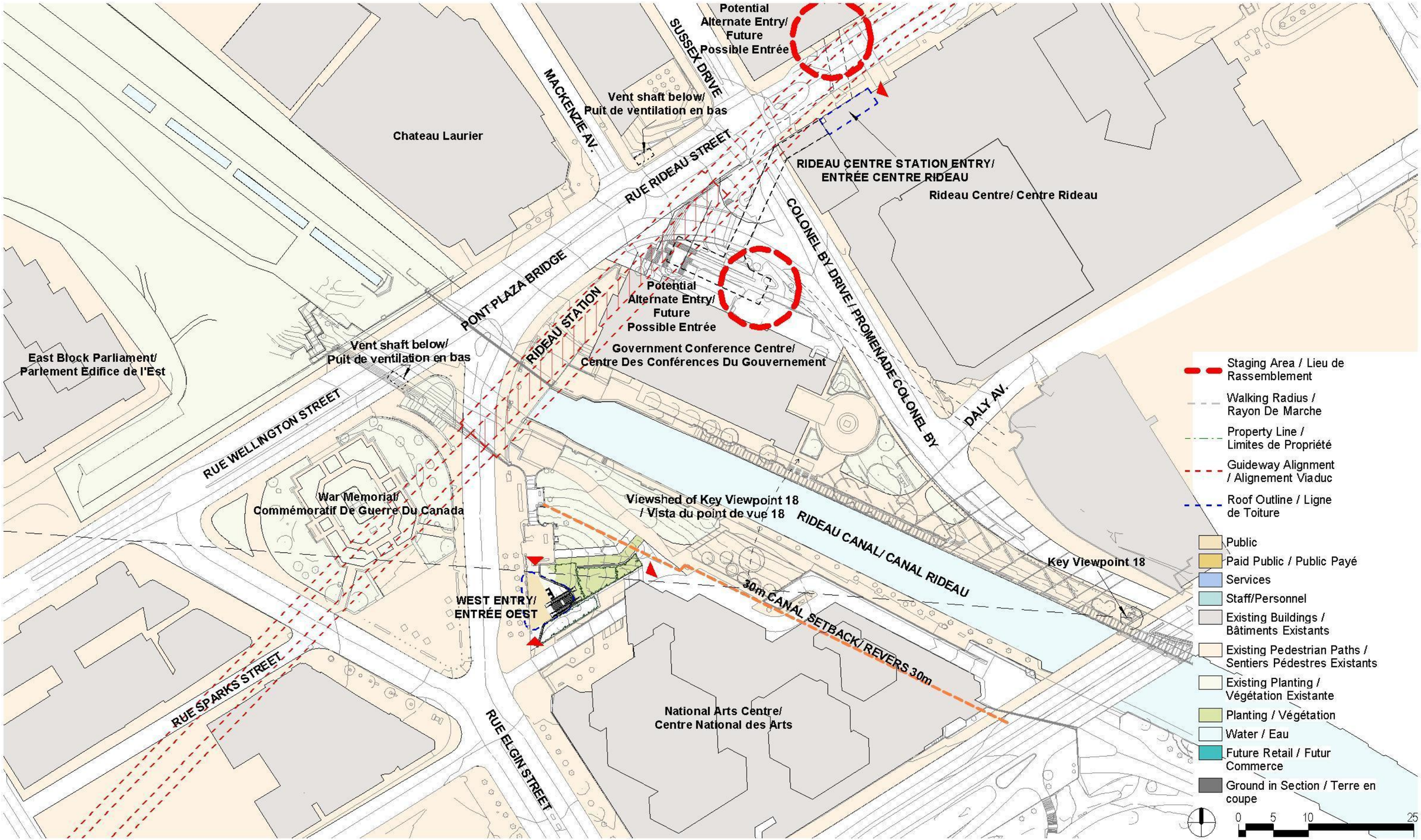
Rideau Station

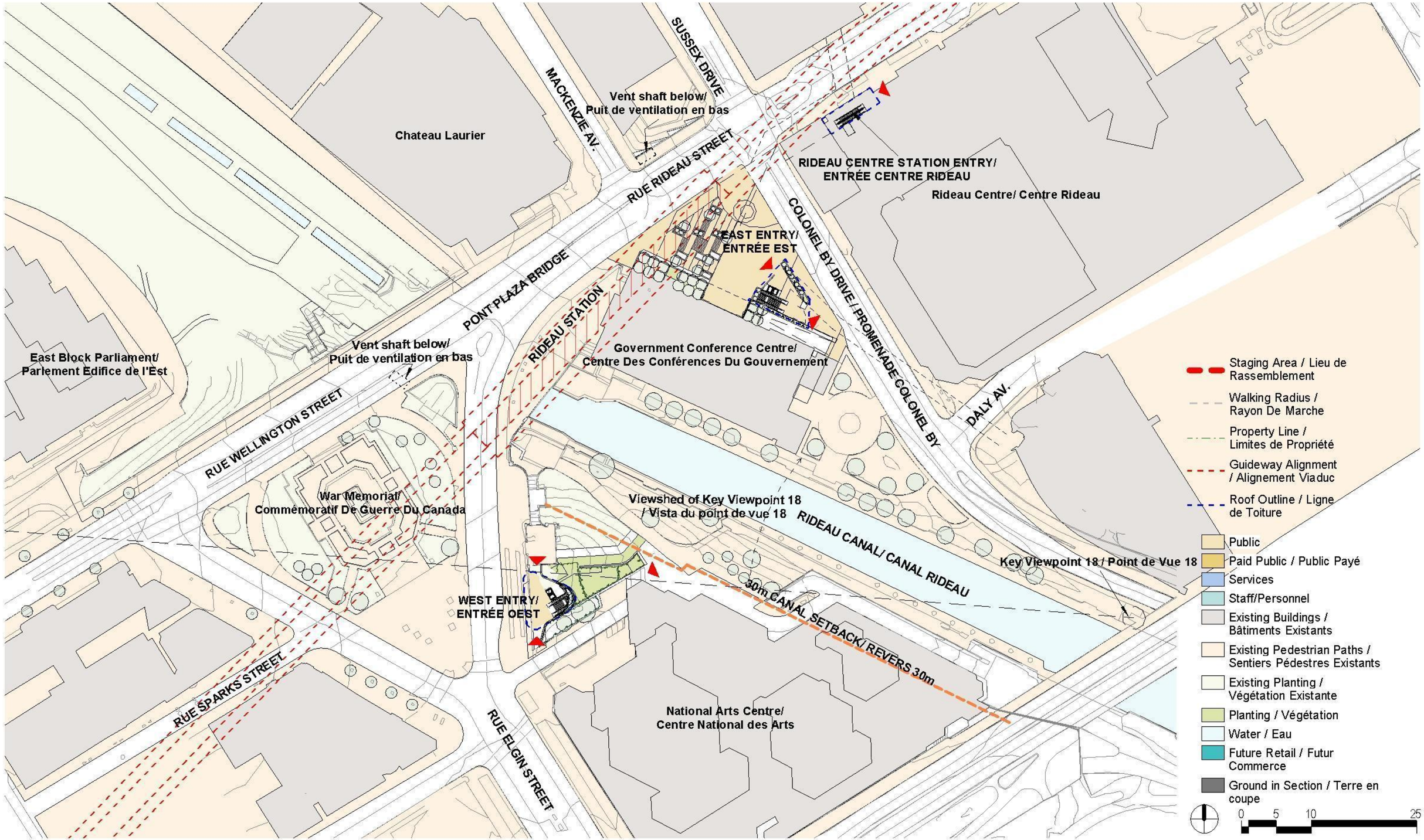
Rideau Station – Site Context



Rideau Station – Site Context – Aerial View

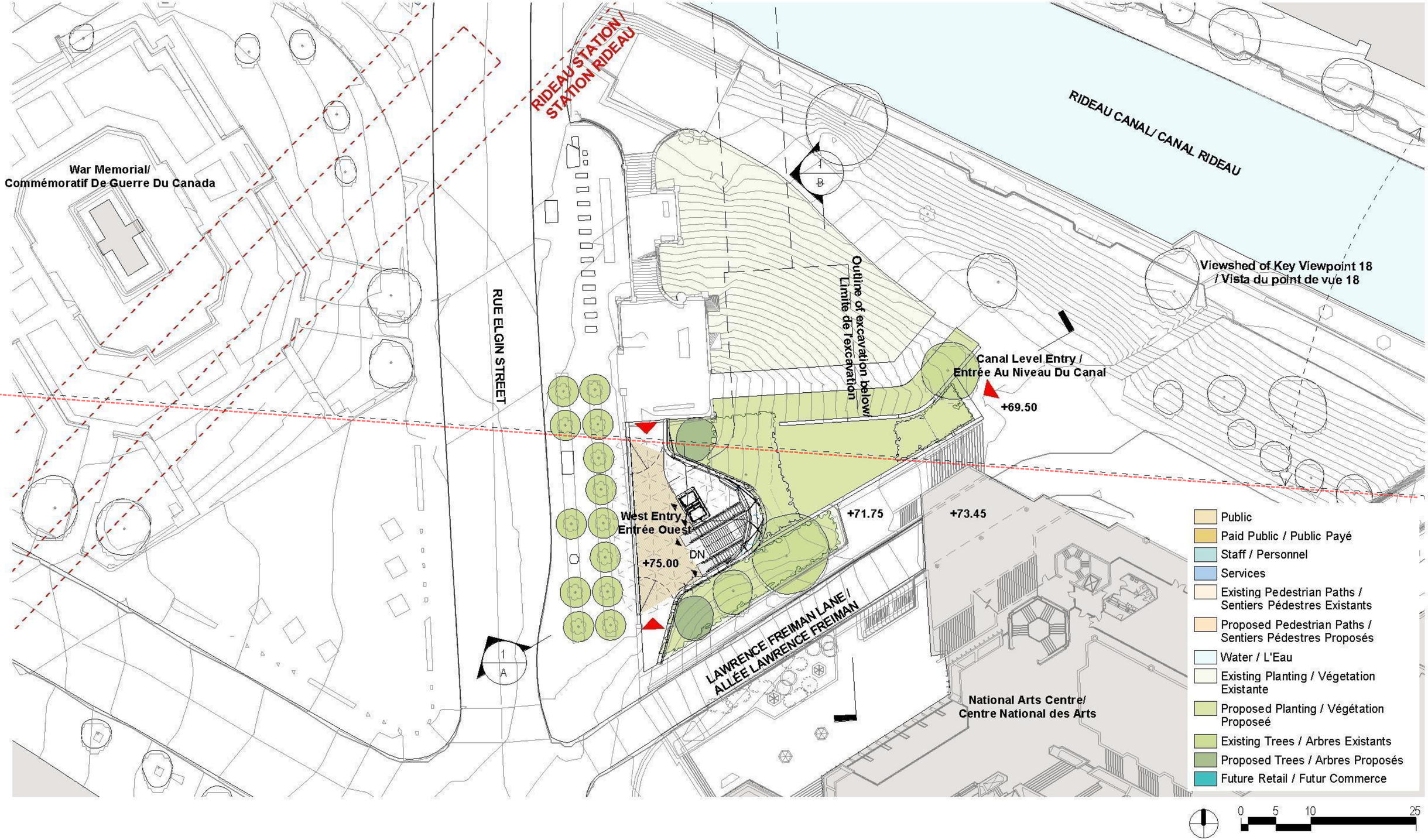
Rideau Station – Site Plan – Initial Build Out



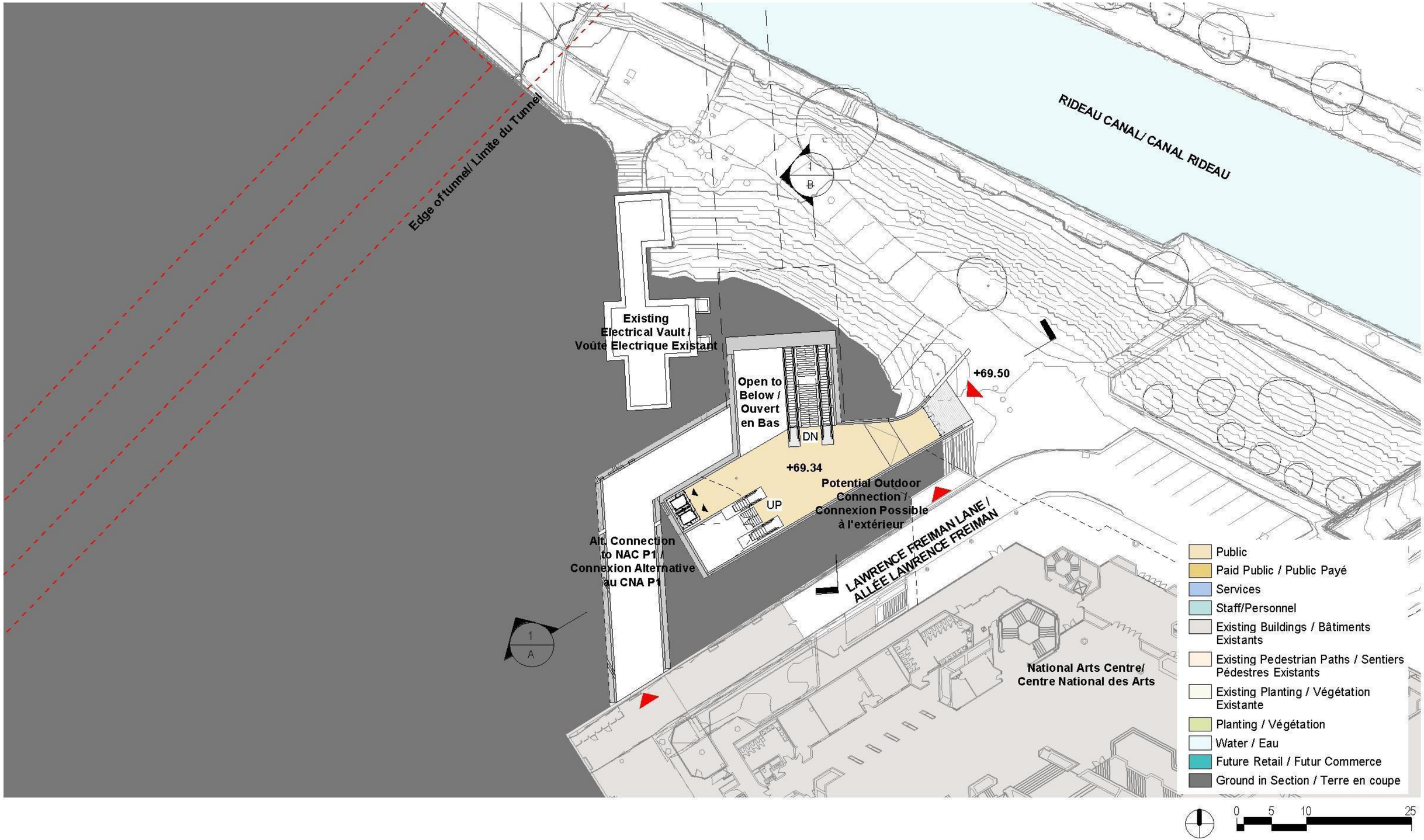


Rideau Station – Site Plan – Full Build Out

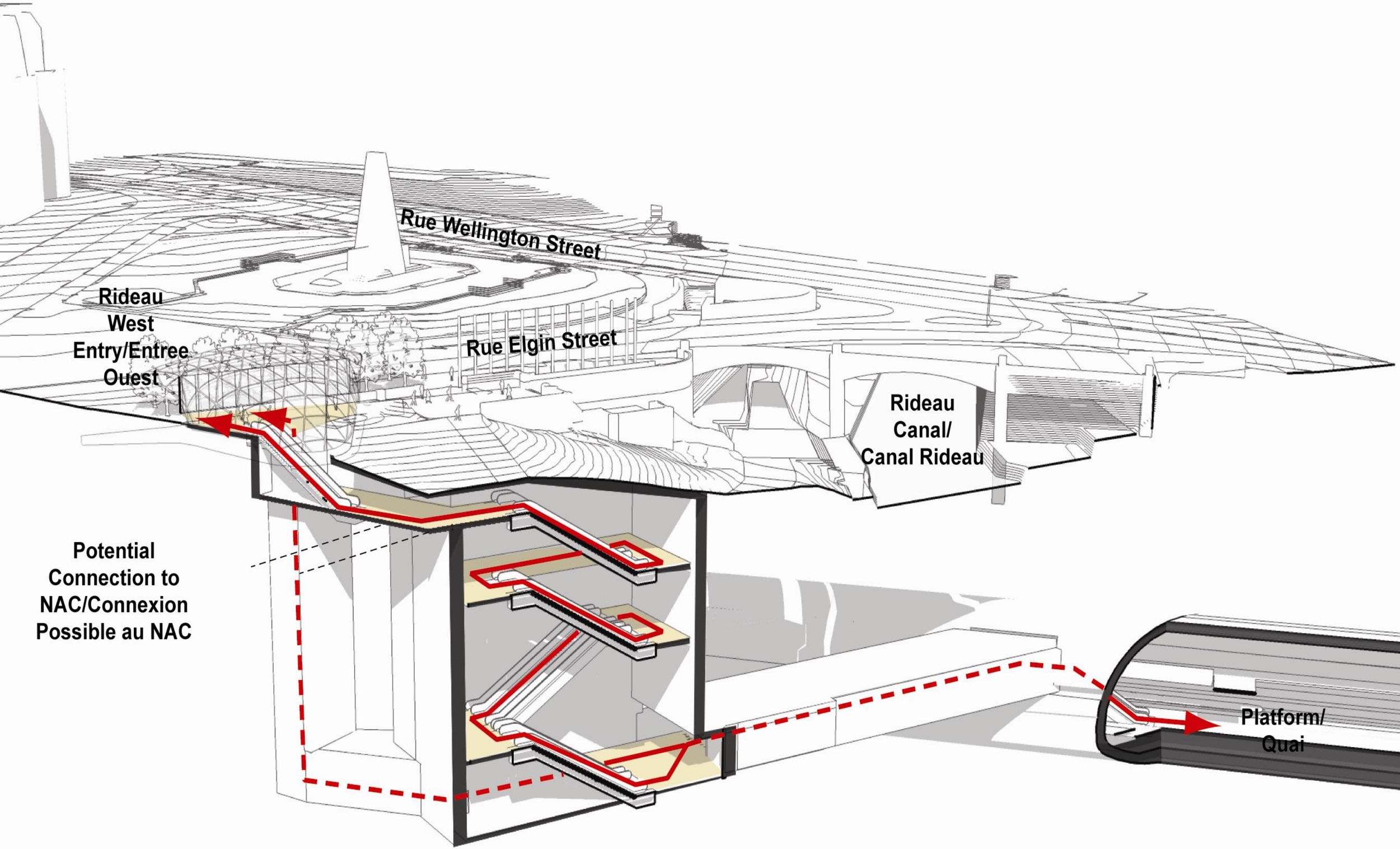
Rideau Station – Landscape Design West Entry



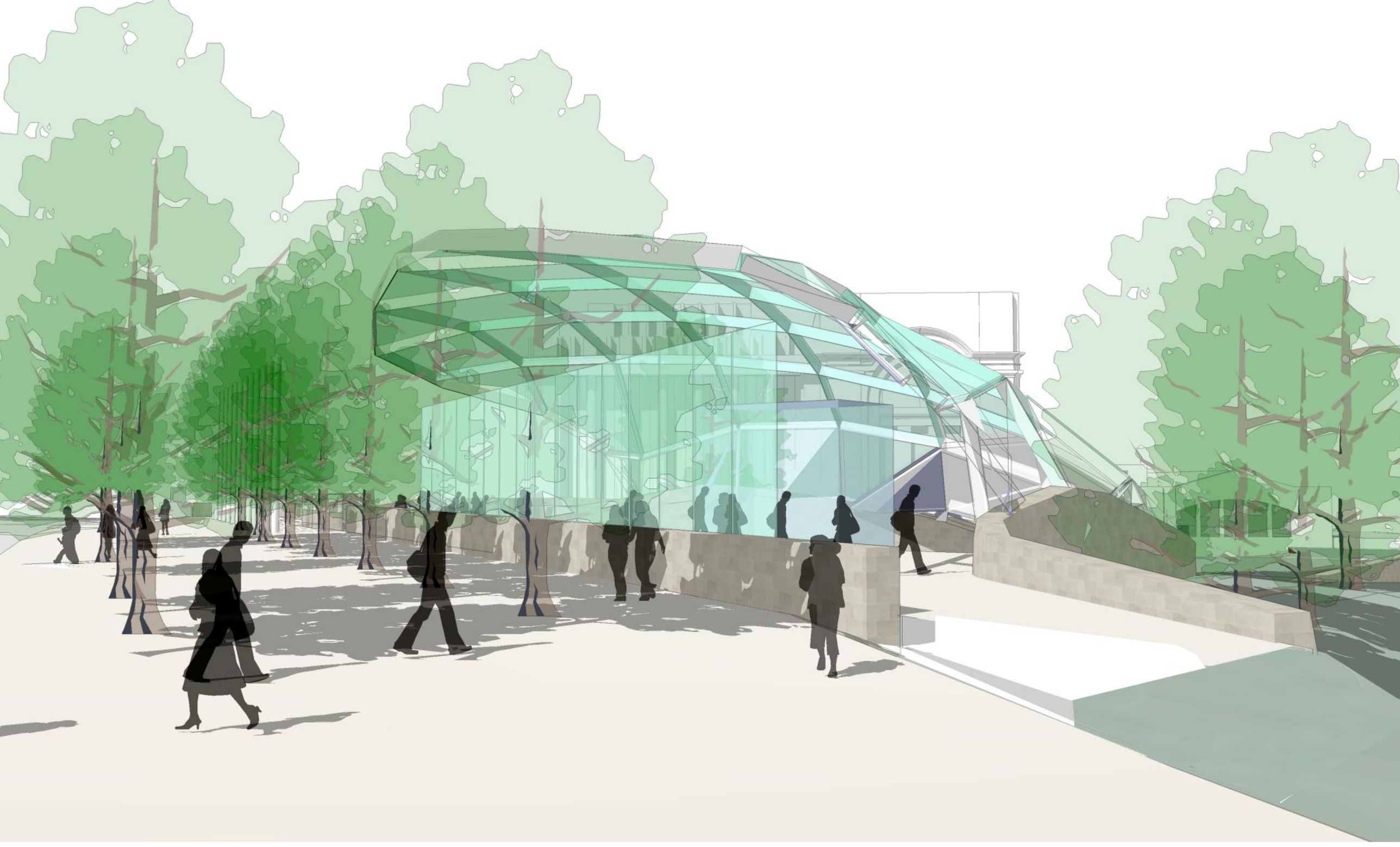
Rideau Station – West Entry Plan



Rideau Station – Mezzanine Level Plan – Canal Entry Level



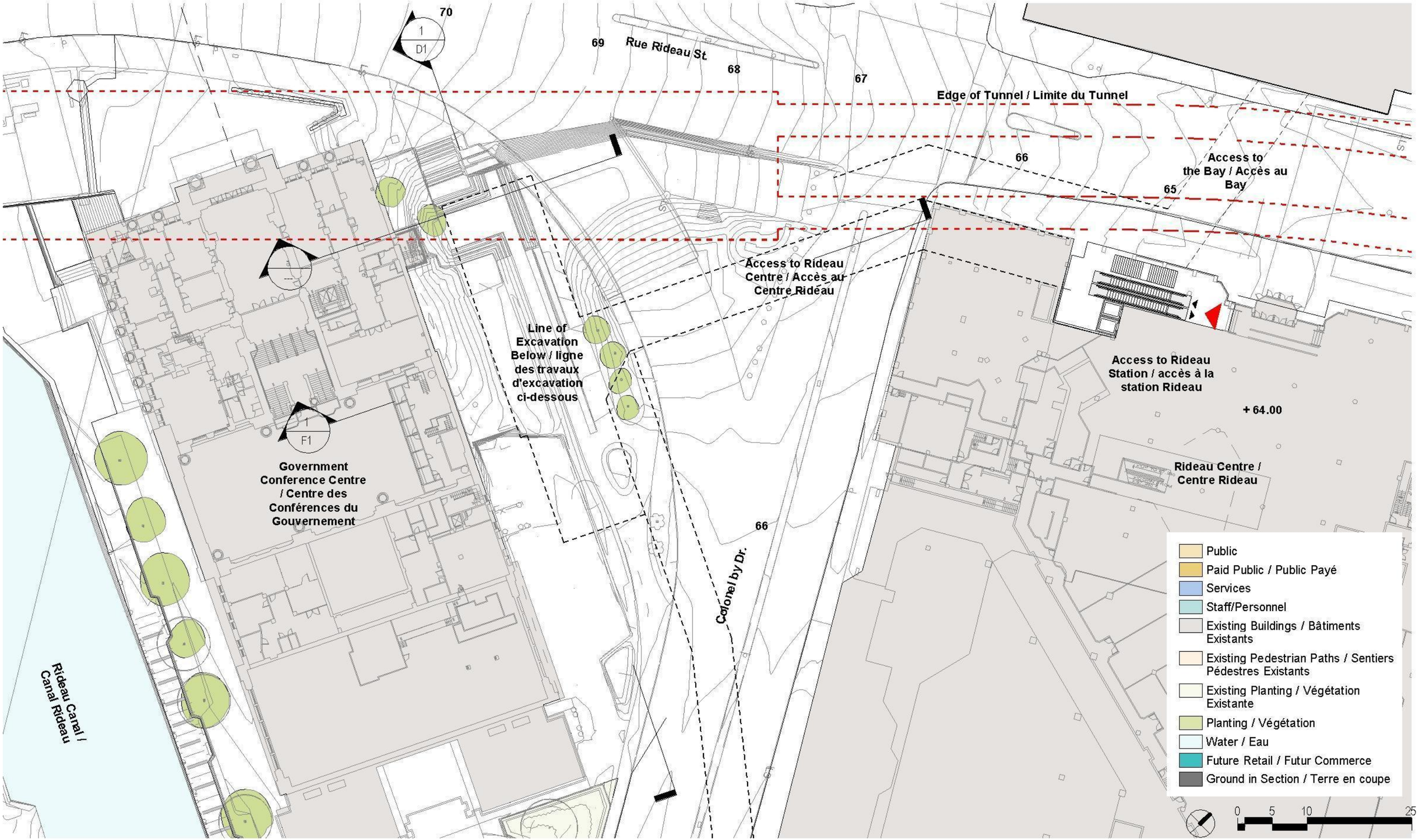
Rideau Station – West Station Entry Axonometric View

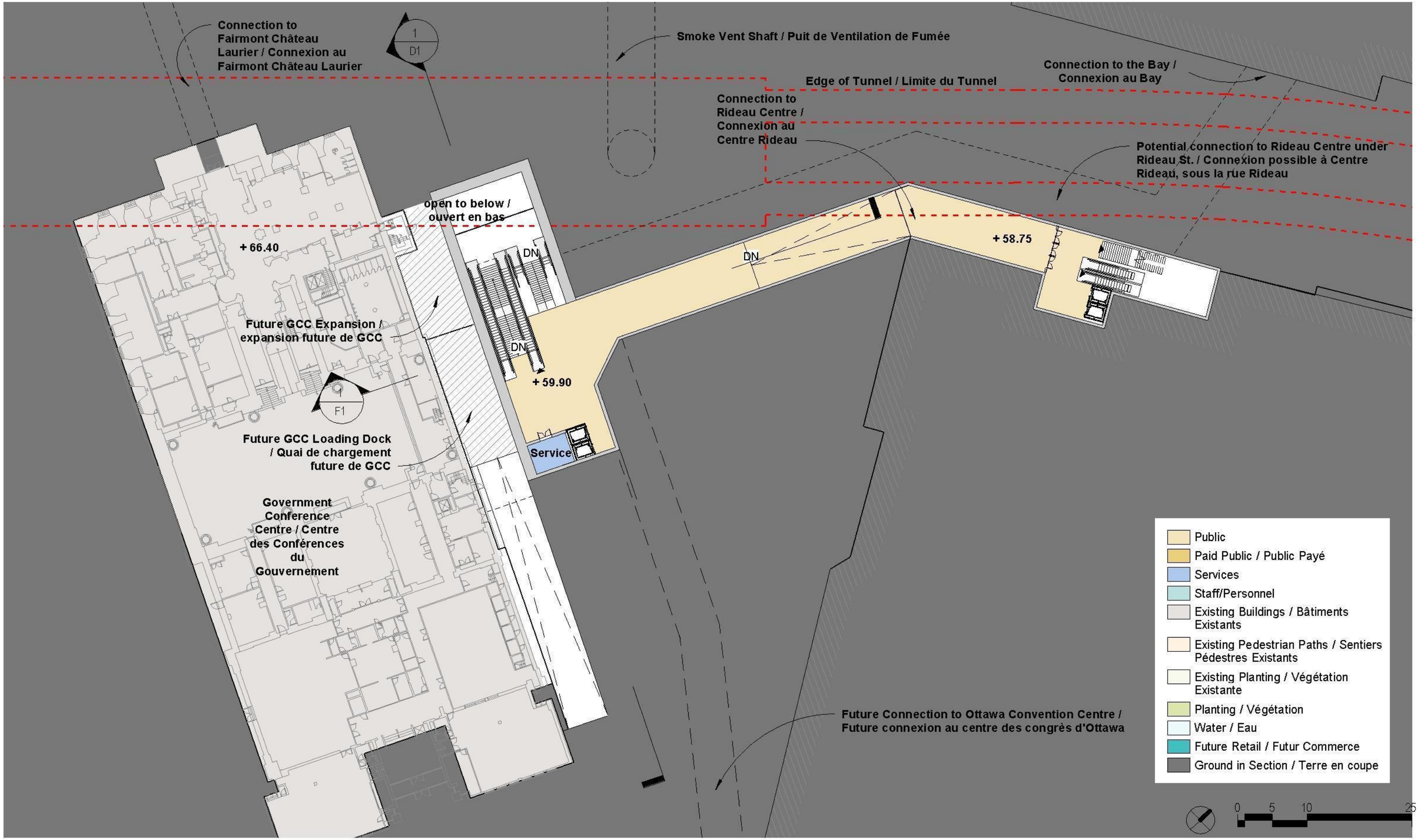


Rideau Station – West Station Entry Street Level View

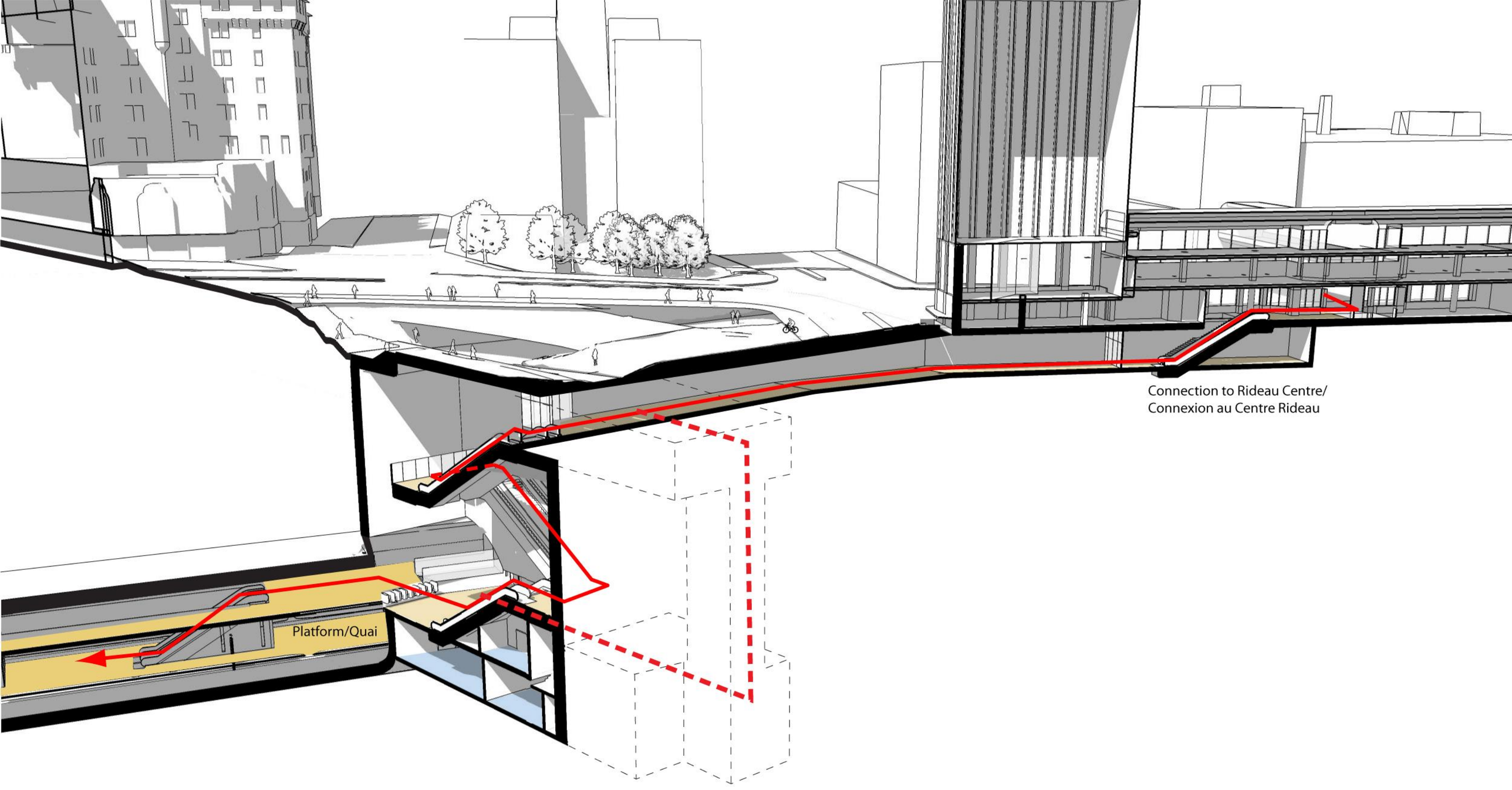
Rideau Station – West Station Entry Canal Level View

Rideau Station – Rideau Centre Entry Plan





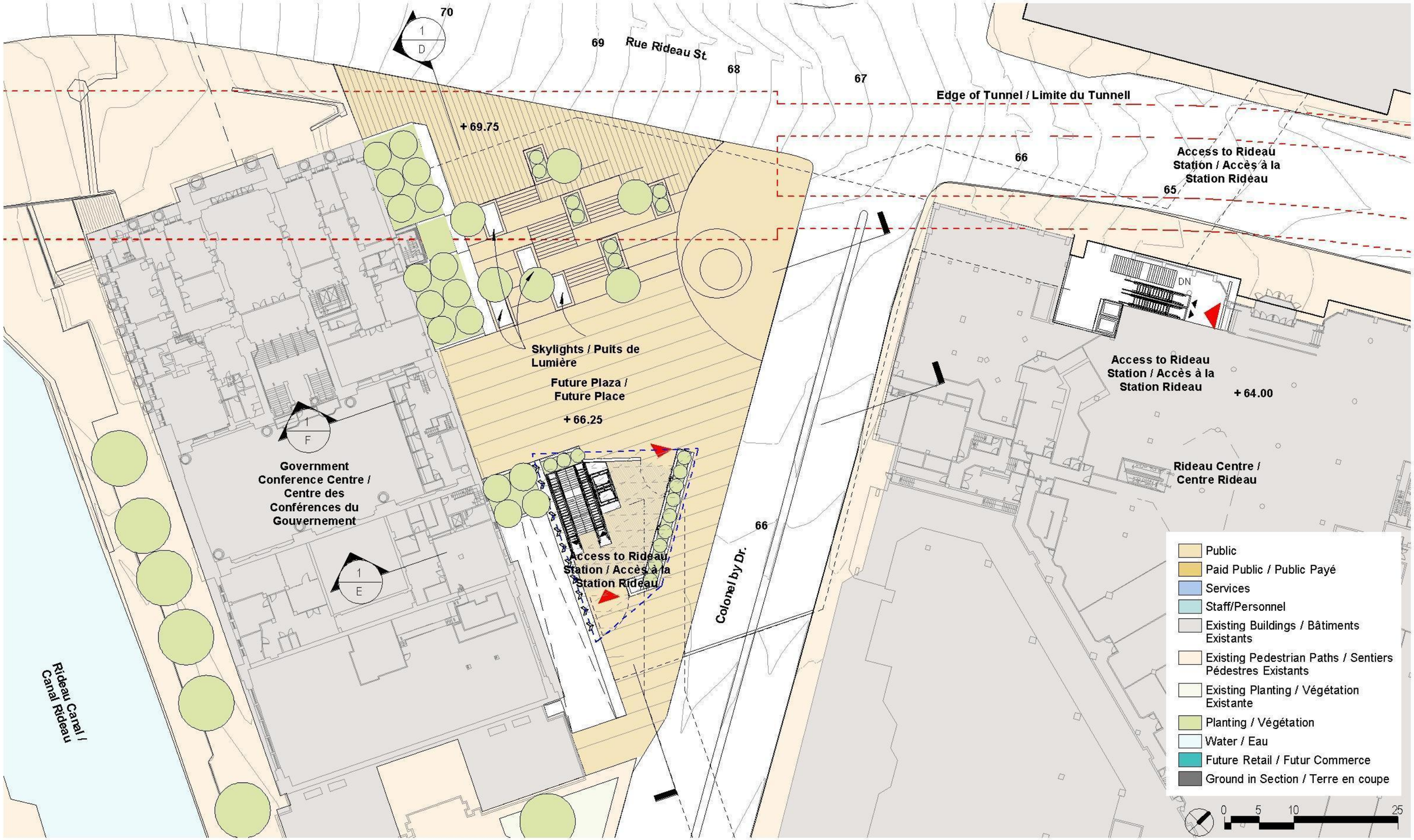
Rideau Station – Rideau Centre Entry Mezzanine Plan

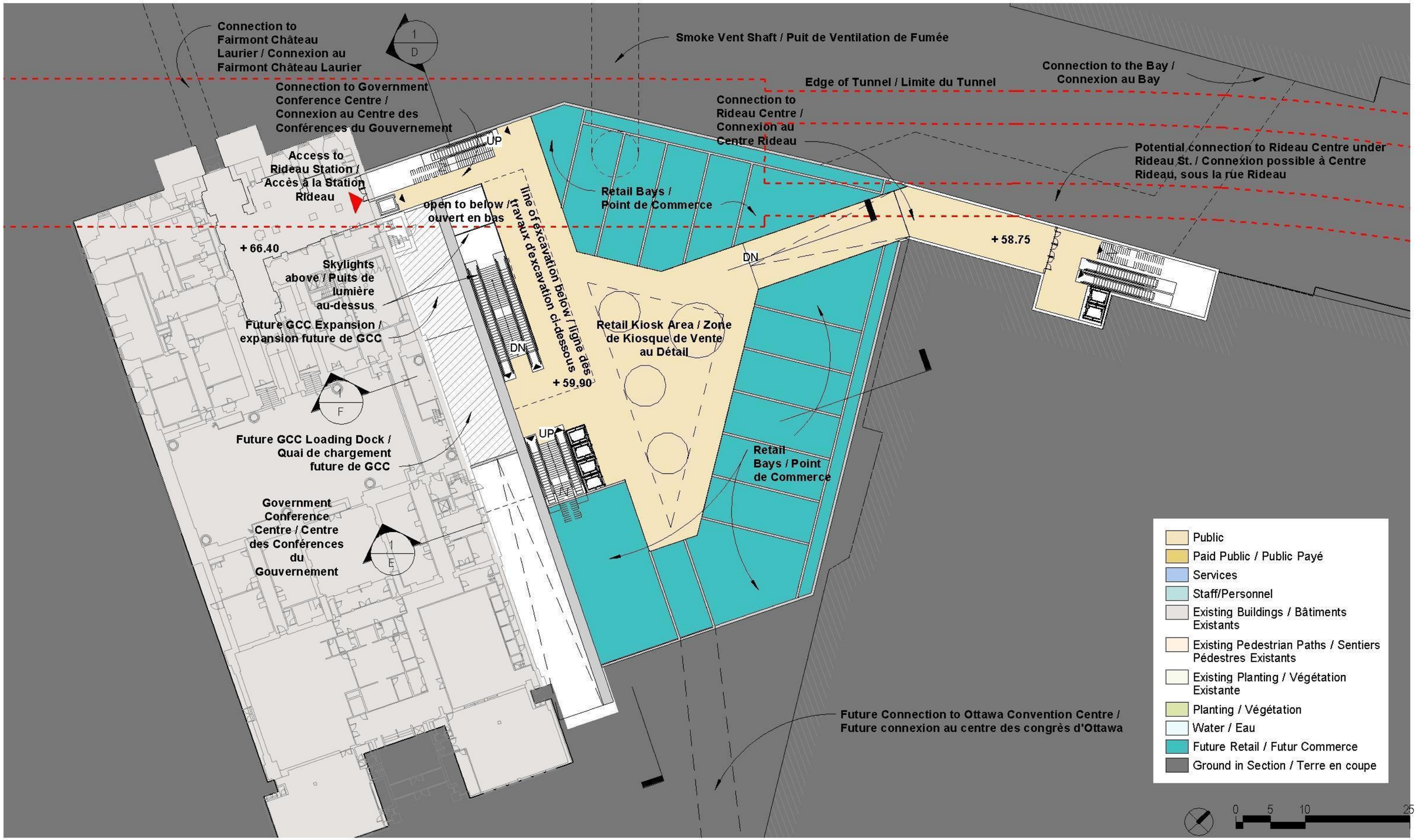


Rideau Station – Rideau Centre Entry – Axonometric View

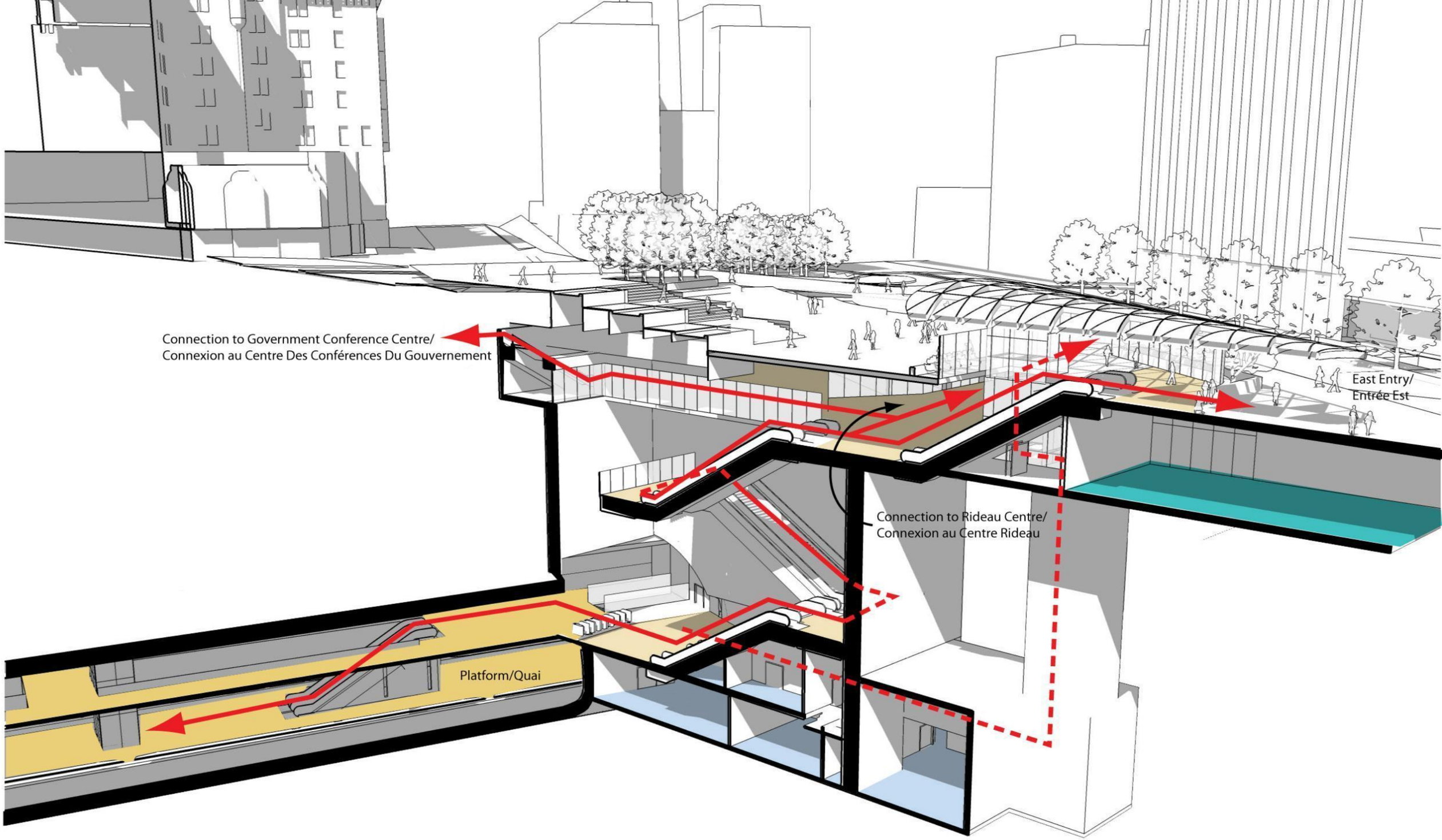
Rideau Station – Landscape Design Future East Entry

Rideau Station – Future East Entry Plan



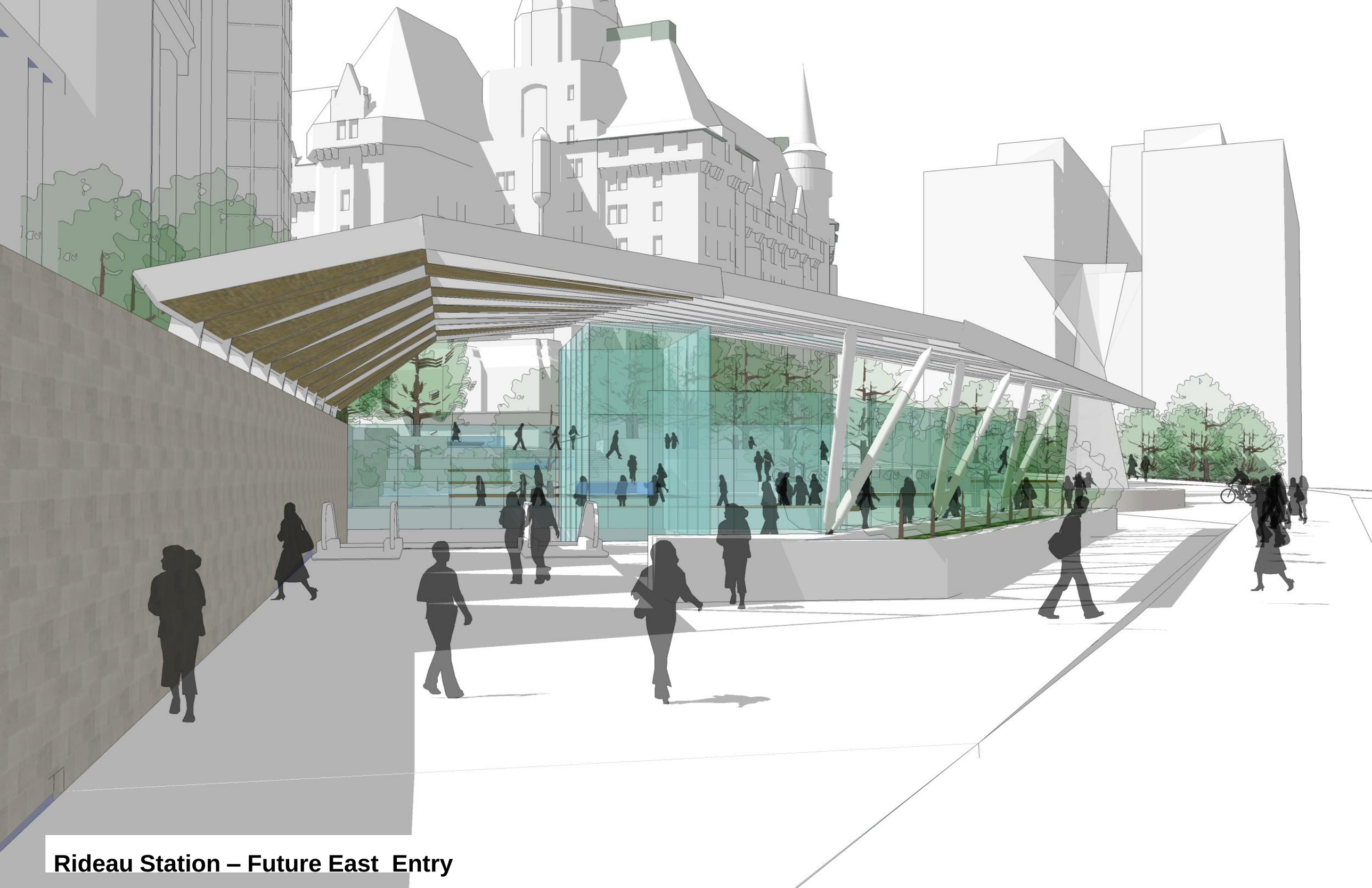


Rideau Station – Future East Entry Mezzanine Plan



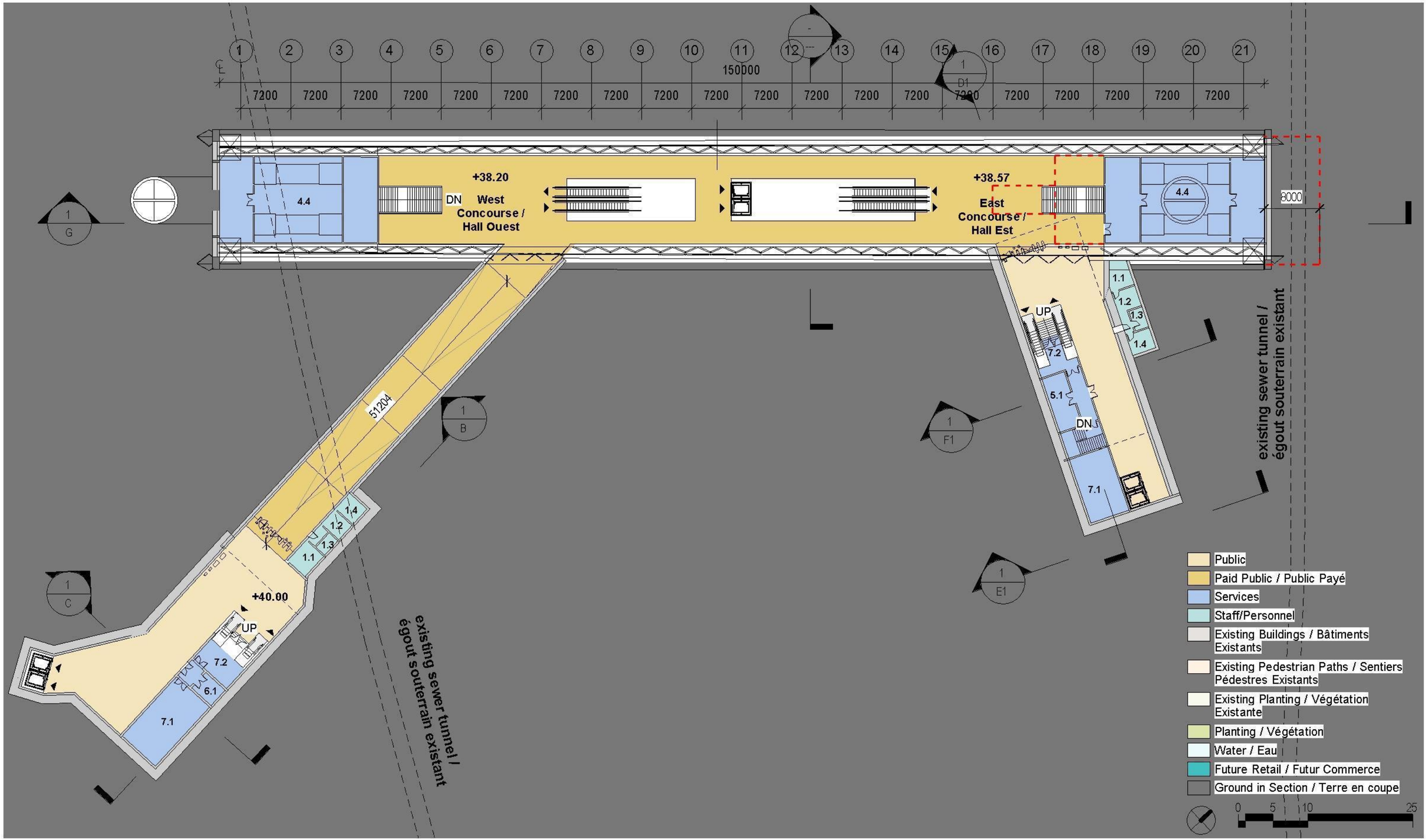
Rideau Station – Future East Entry Axonometric View

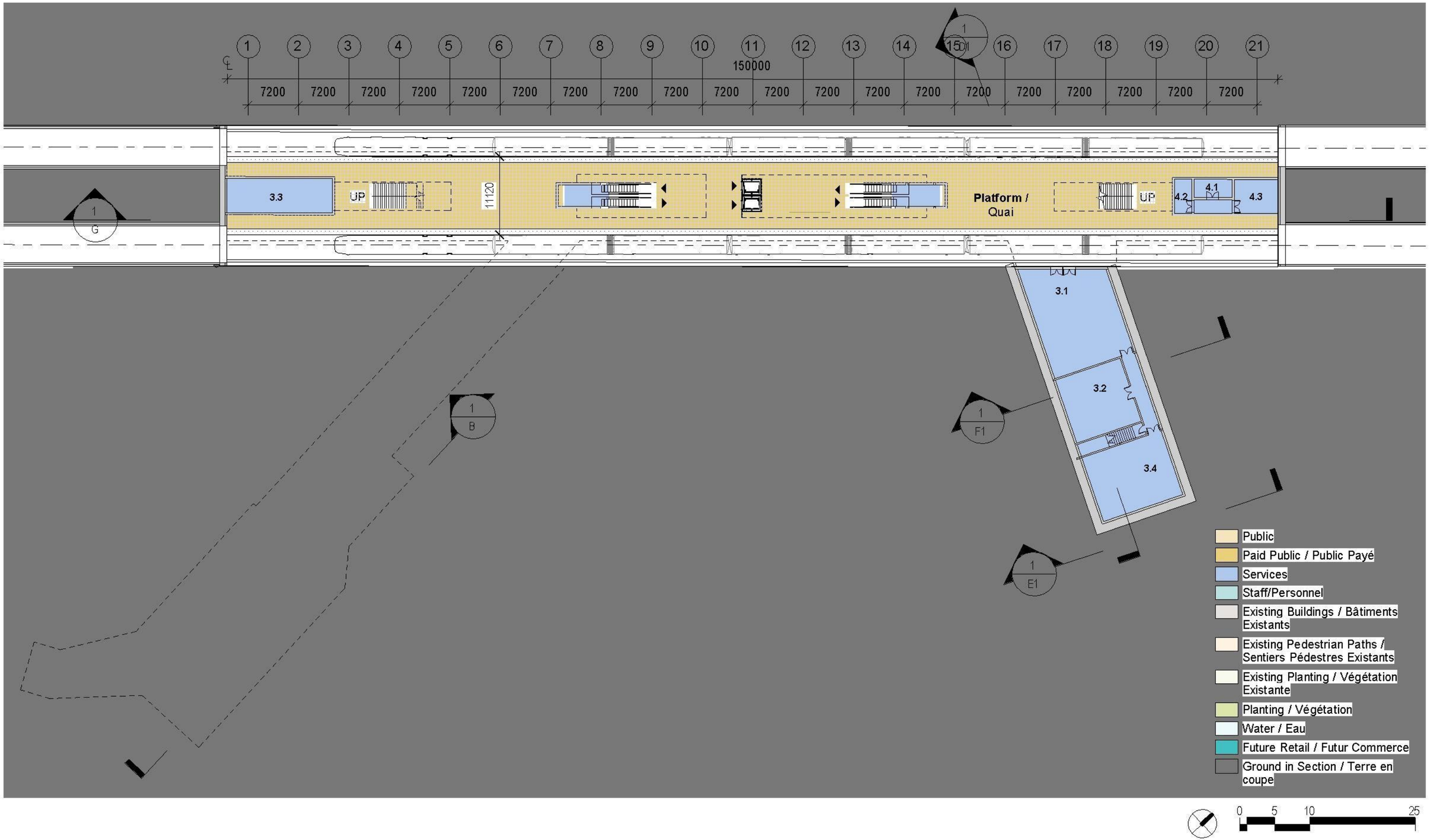
Rideau Station – Future East Entry



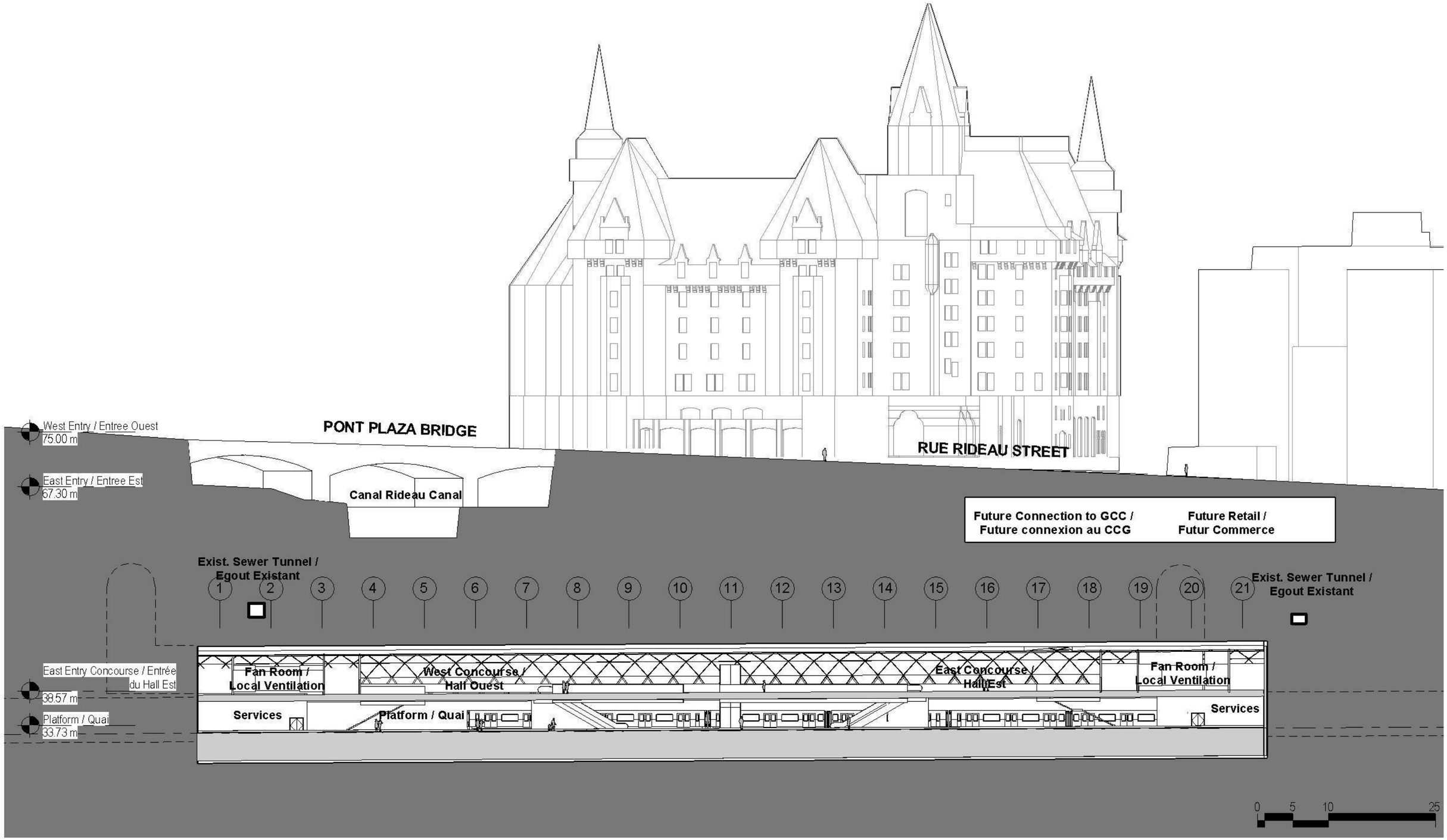
Rideau Station – Future East Entry

Rideau Station – Concourse Level Plan

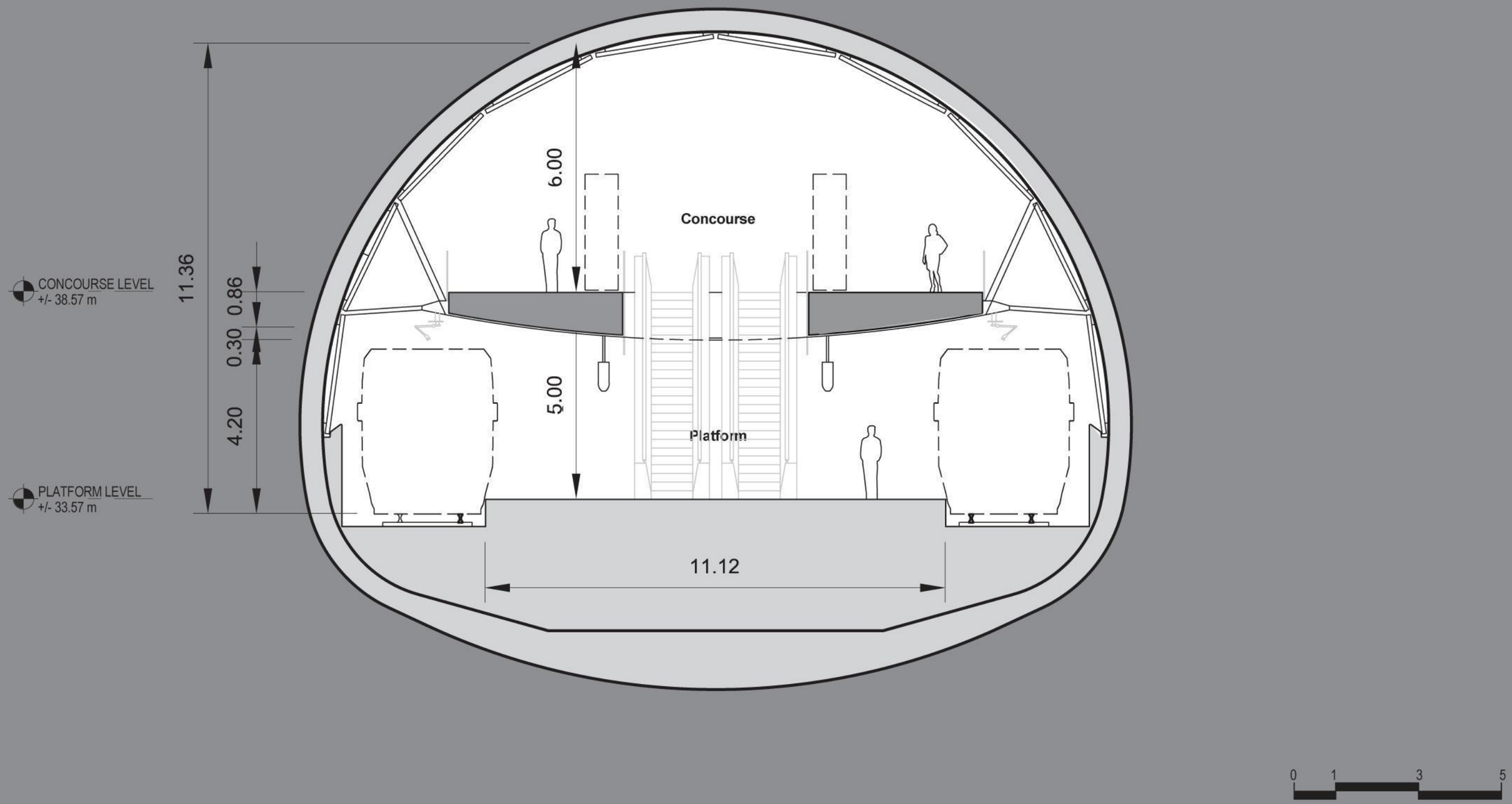




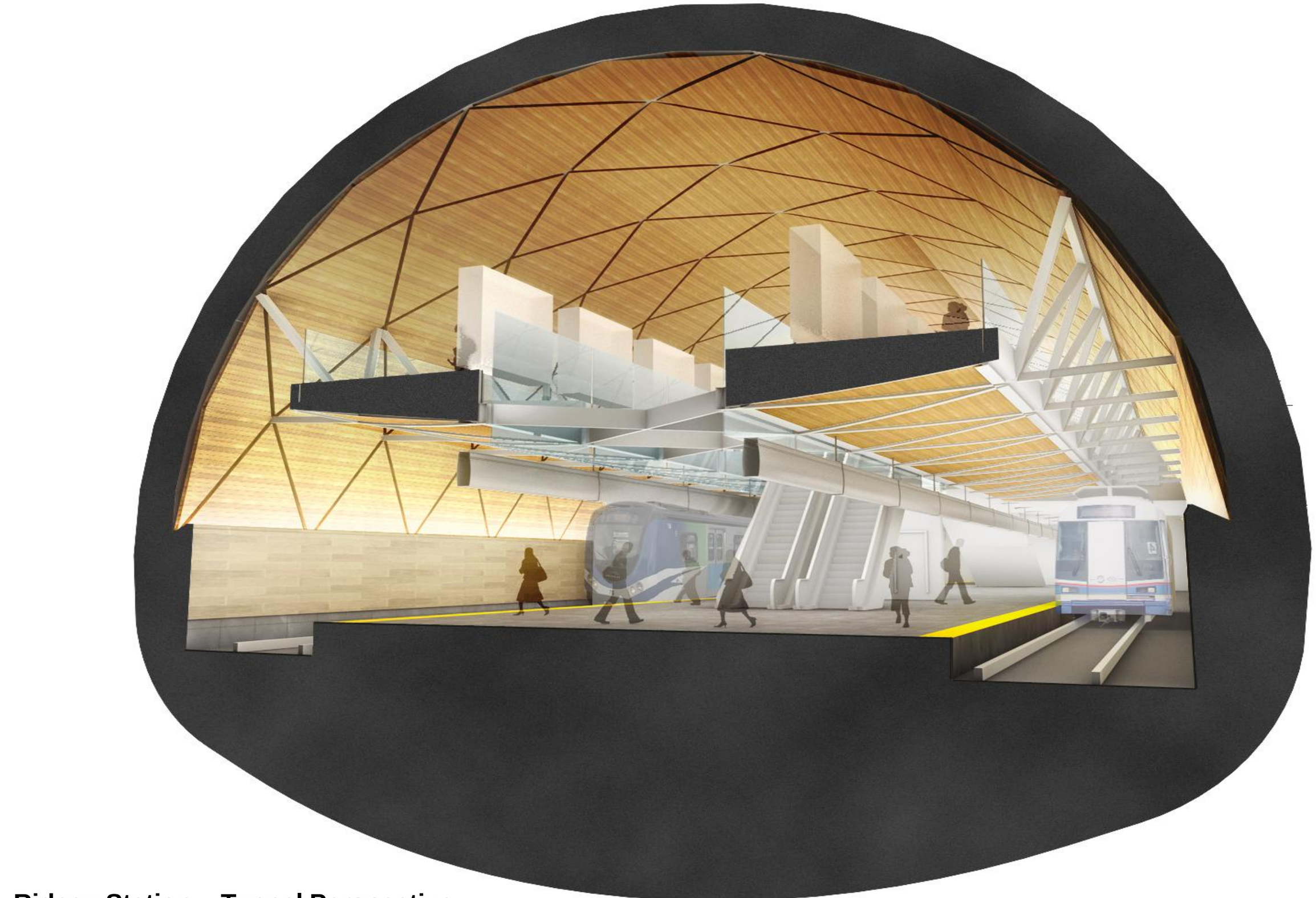
Rideau Station – Platform Level Plan



Rideau Station – Longitudinal Section



Rideau Station – Tunnel Cross Section



Rideau Station – Tunnel Perspective

Tunney’s Pasture Station

Tunney's Pasture Station – Site Context

Tunney's Pasture Station – Site Context – Existing Conditions

KISS AND RIDE &
TAXI STAND/
POSTE D'ATTENTE
ET ZONE DE TAXI

ENTRY PLAZA/
PLAZA D'ENTRÉE

BUS LAY-BY/
VOIE AUXILIAIRE
POUR ARRÊT
D'AUTOBUS

YARROW

TUNEY'S PASTURE

PROPOSED 1.5 m
WIDE BIKE LANE/
BANDE CYCLABLE
1.5m DE LARGE
PRÉVU

PROPOSED 4.0 m WIDE
MIXED-USE PATHWAY/
SENTIER POLYVALENT
4m DE LARGE PRÉVU

HOLLAND

GOLDENROAD

SCOTT

BUS LAY-BY/
VOIE AUXILIAIRE POUR
ARRÊT D'AUTOBUS

HURON

BUS STAGING
LOCATION/
EMPLACEMENT
INTERMÉDIAIRE
D'AUTOBUS

PROPOSED 4.0 m WIDE
MIXED-USE PATHWAY/
SENTIER POLYVALENT
4m DE LARGE PRÉVU

CAROLINE

LEGEND/ LÉGENDE :

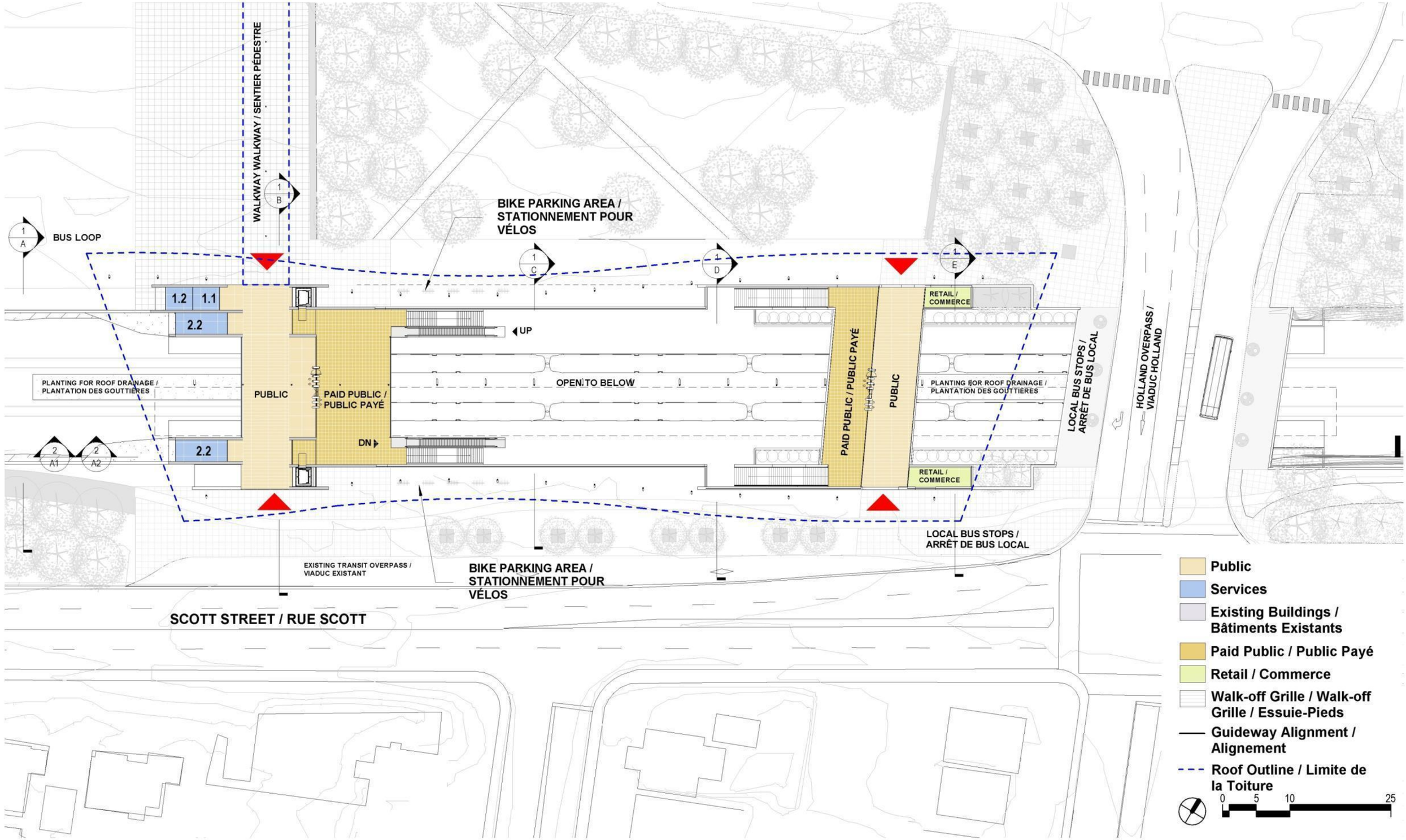
- Proposed Public Buildings & Station Platforms/ Édifices Publics Prévu et Quai de Gare
- Existing Buildings/ Bâtiments Existants
- Proposed Buildings/ Bâtiments Prévu
- Tracks/ Rails
- Proposed Retaining or Sitting Wall/ Mur de Soutènement ou Pour S'Assoir
- Existing Pedestrian Paths/ Sentiers Piétonniers Existants
- Proposed Pedestrian Paths Type 1/ Sentiers Piétonniers Prévu de Type 1
- Proposed Pedestrian Plaza/ Plaza Piétonnière Prévu
- Existing Roads/ Chemins Existants
- Proposed Roads/ Chemins Prévu
- Proposed Multi-Use 4m Wide Pedestrian Path & Bike Lane/ Sentier Polyvalent 4m de Large Prévu et Bande Cyclable
- Water/ Eau
- Existing Planting/ Végétaux Existants
- Proposed Planting/ Végétaux Prévu
- Proposed Trees/ Arbres Prévu
- Existing Trees/ Arbres Existants
- Proposed Shrubs/ Arbustes Prévu

NORTH/ NORD

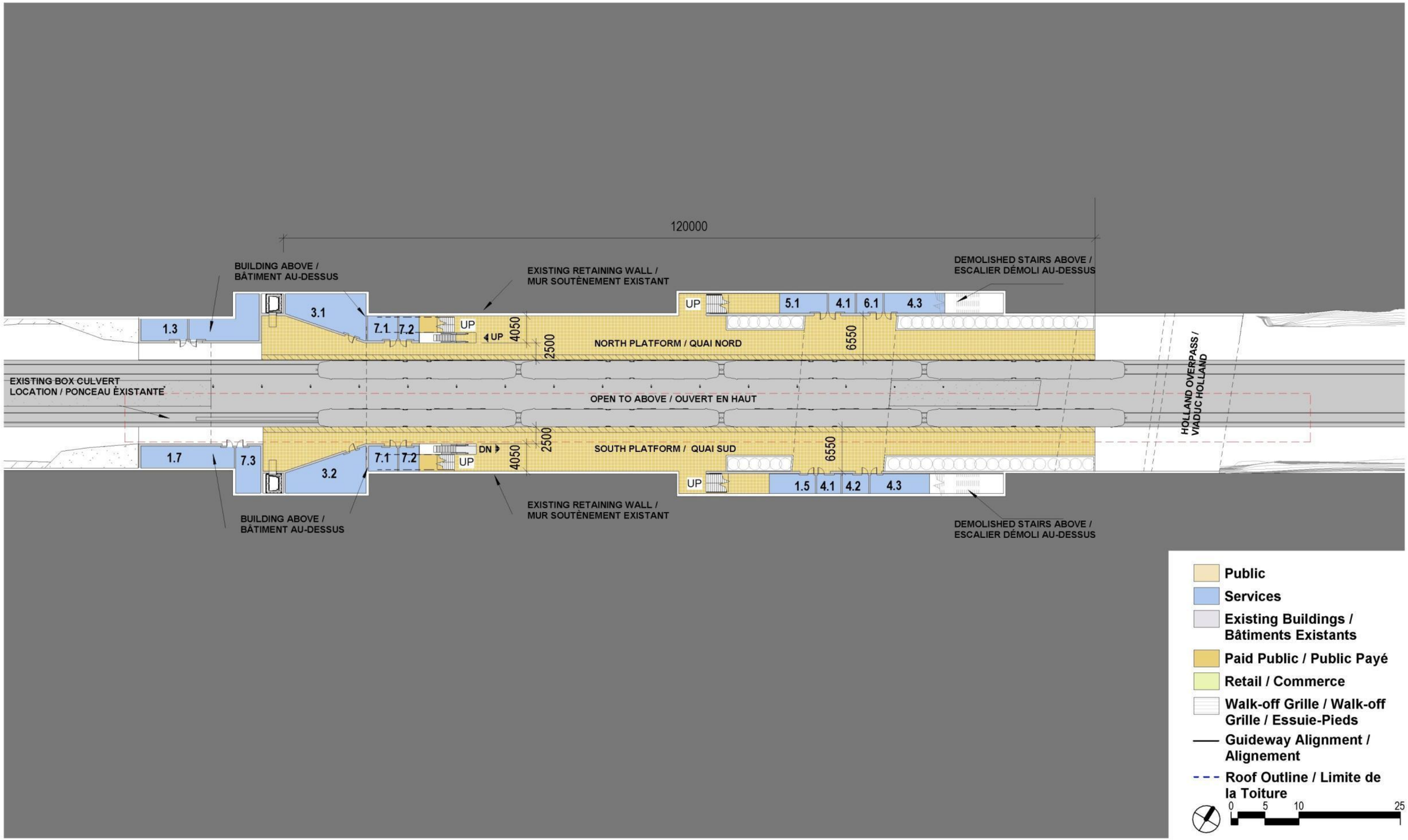
0 5 10 20 30

Tunney’s Pasture Station – Landscape Design

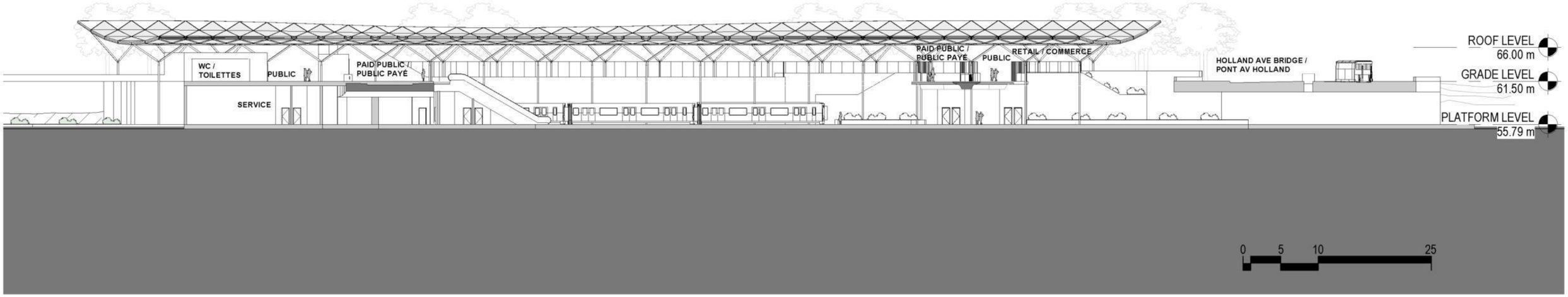
Tunney's Pasture Station – Site Context – Initial Build Out



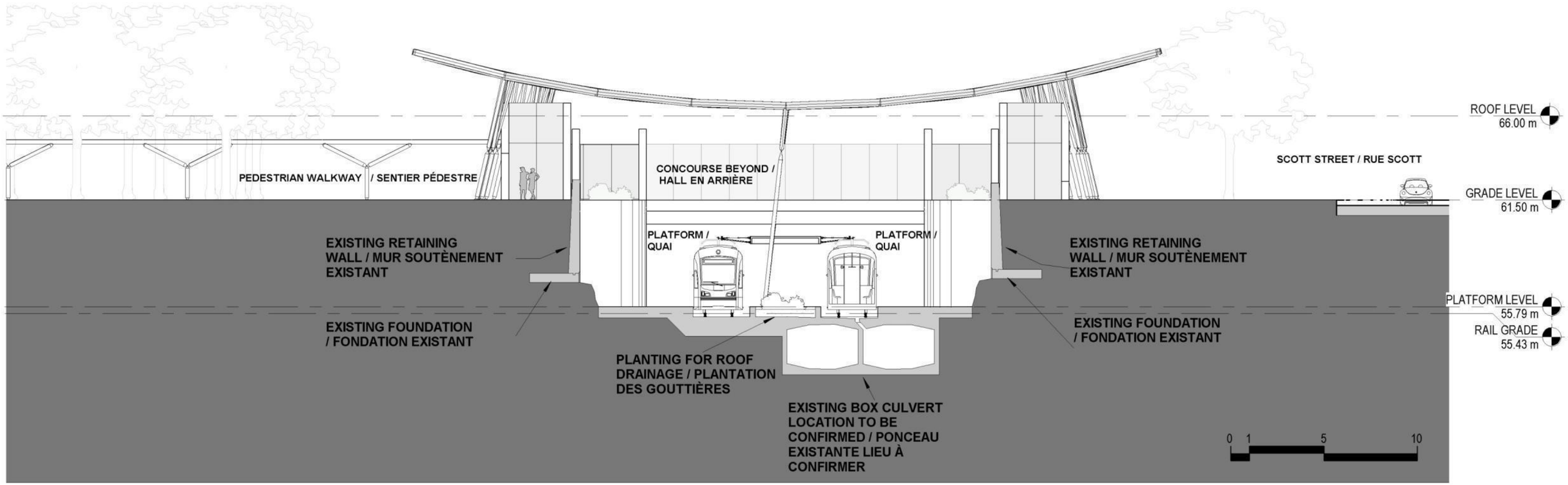
Tunney's Pasture Station – Concourse Level – Initial Build Out



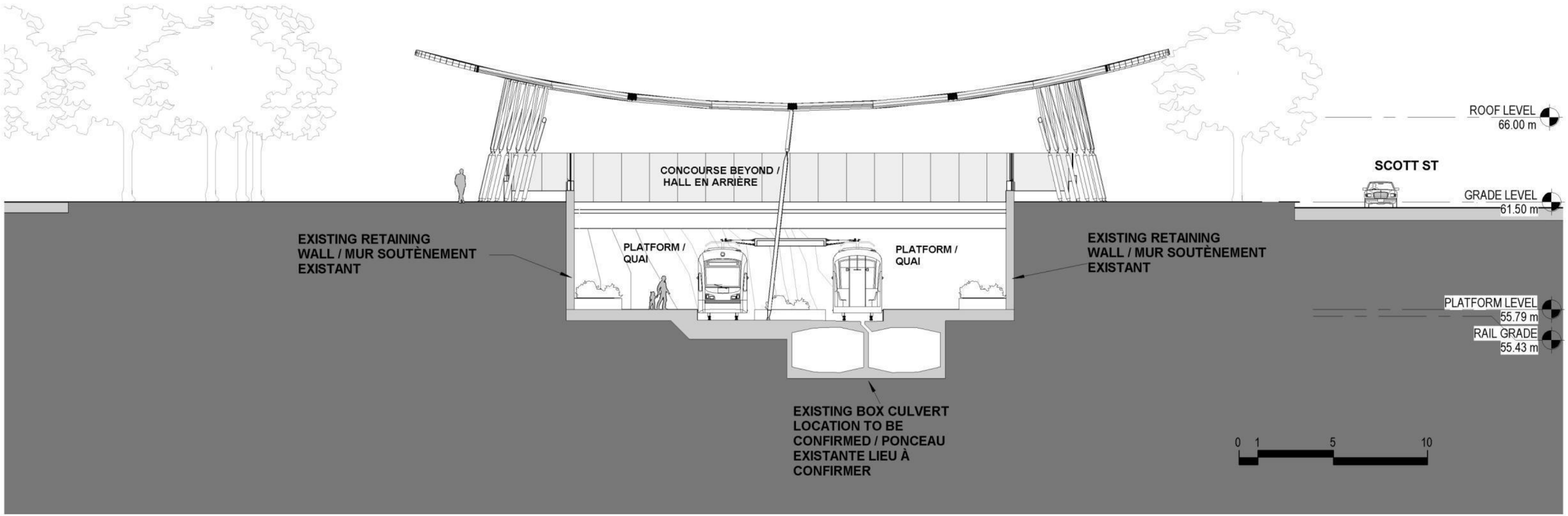
Tunney's Pasture Station – Platform Level – Initial Build Out



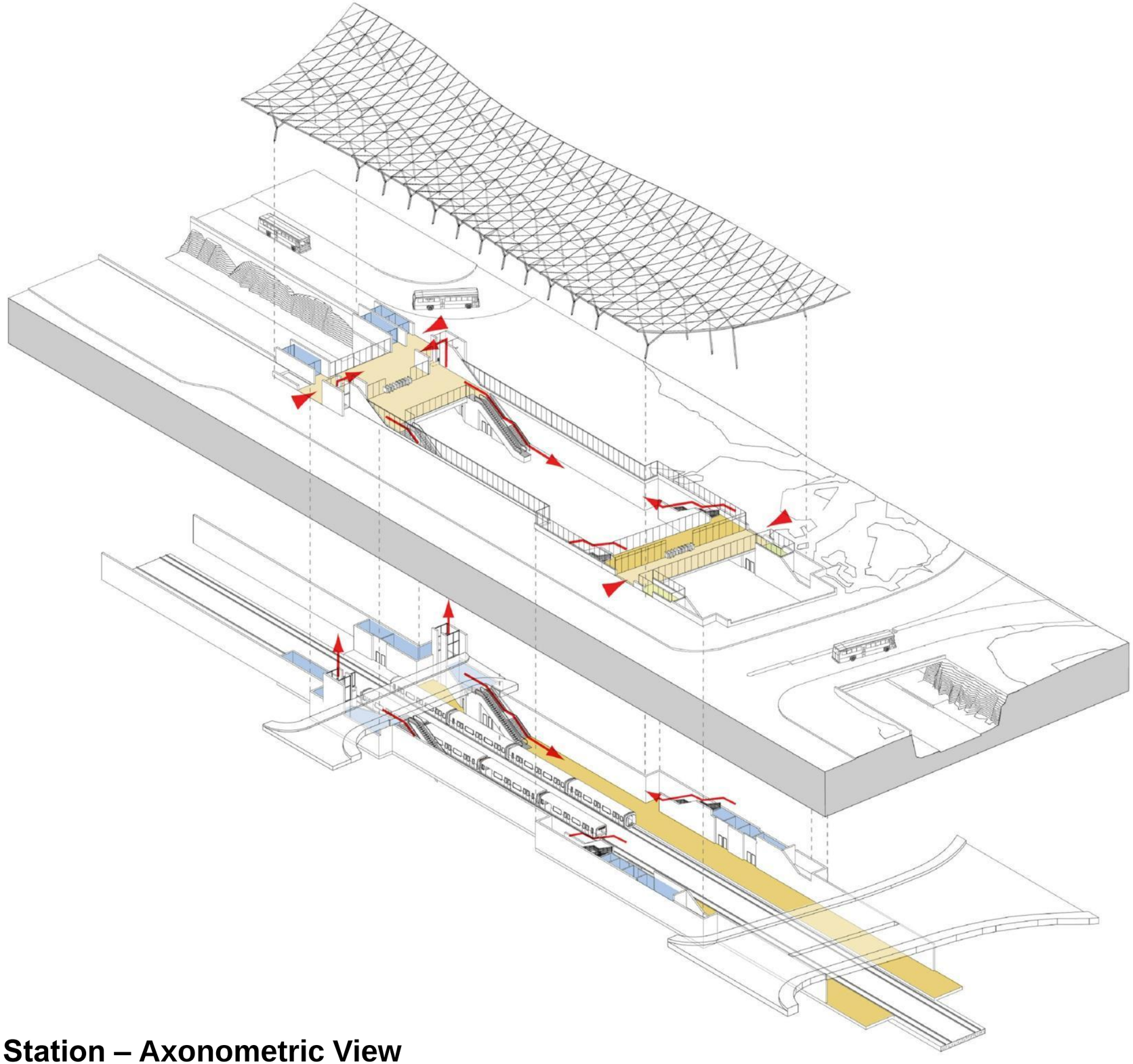
Tunney’s Pasture Station – Longitudinal Section – Initial Build Out



Tunney’s Pasture Station – Cross Section – Initial and Full Build Out

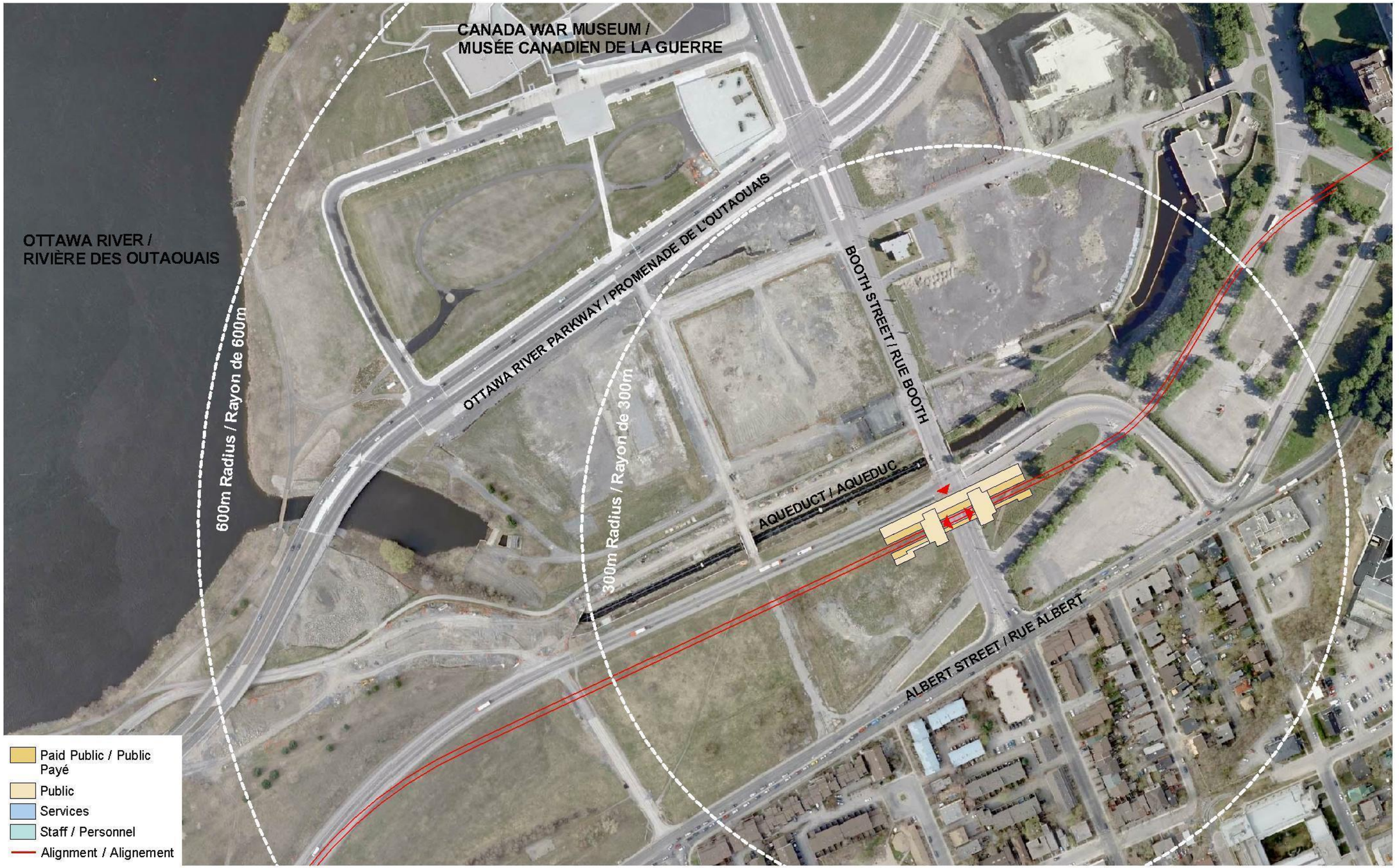


Tunney’s Pasture Station – Cross Section – Initial and Full Build Out

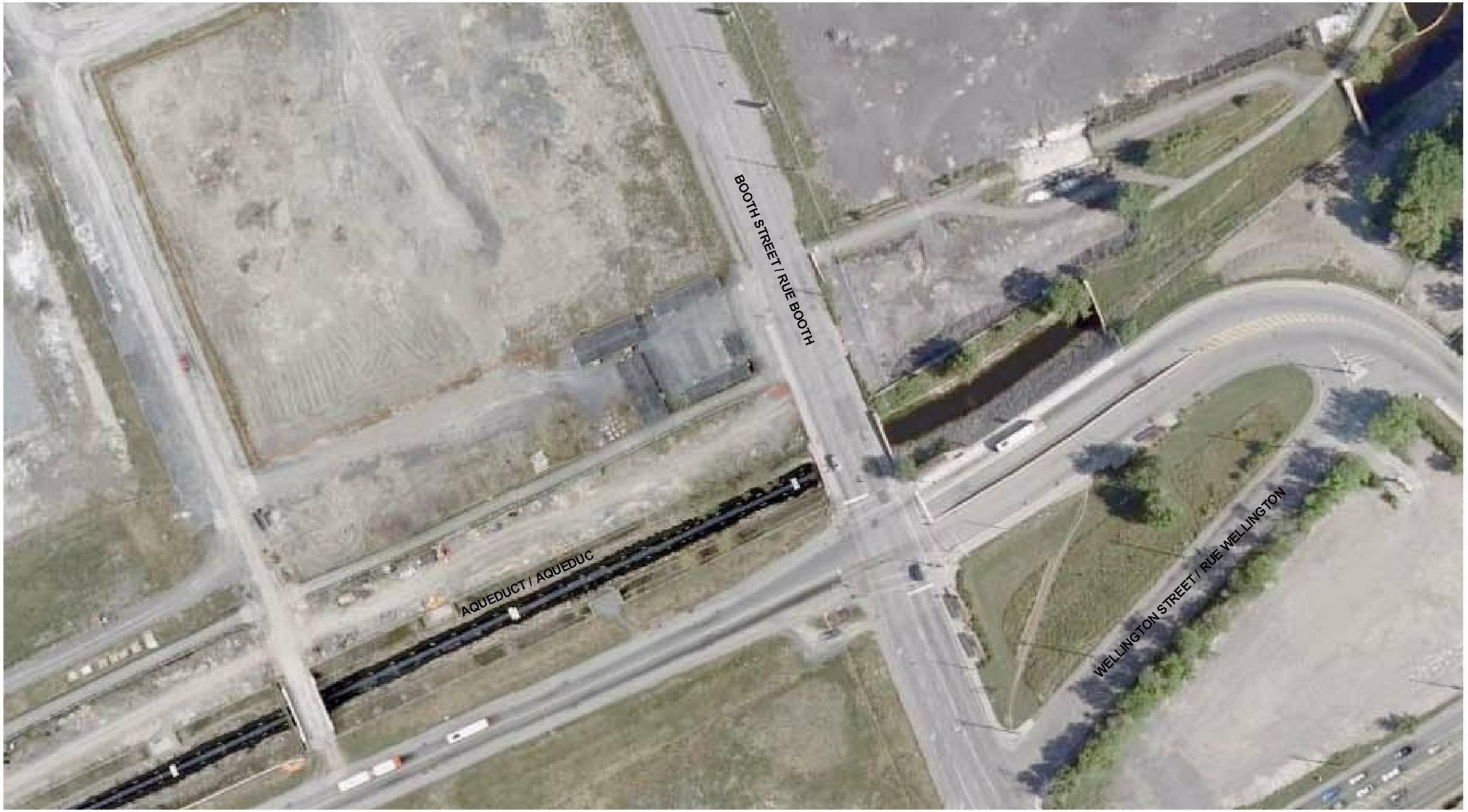


Tunney’s Pasture Station – Axonometric View

LeBreton Station

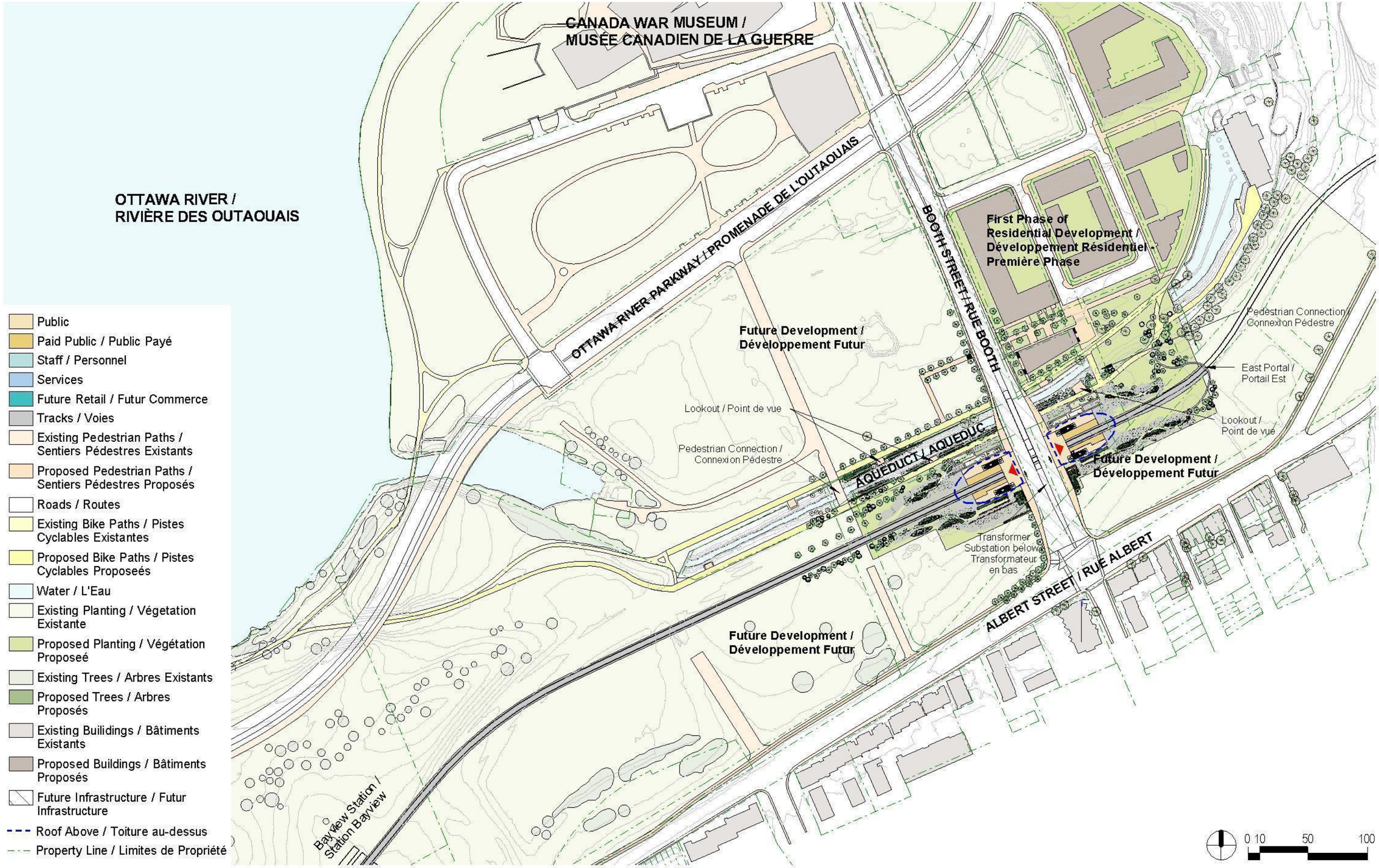


LeBreton Station – Site Context

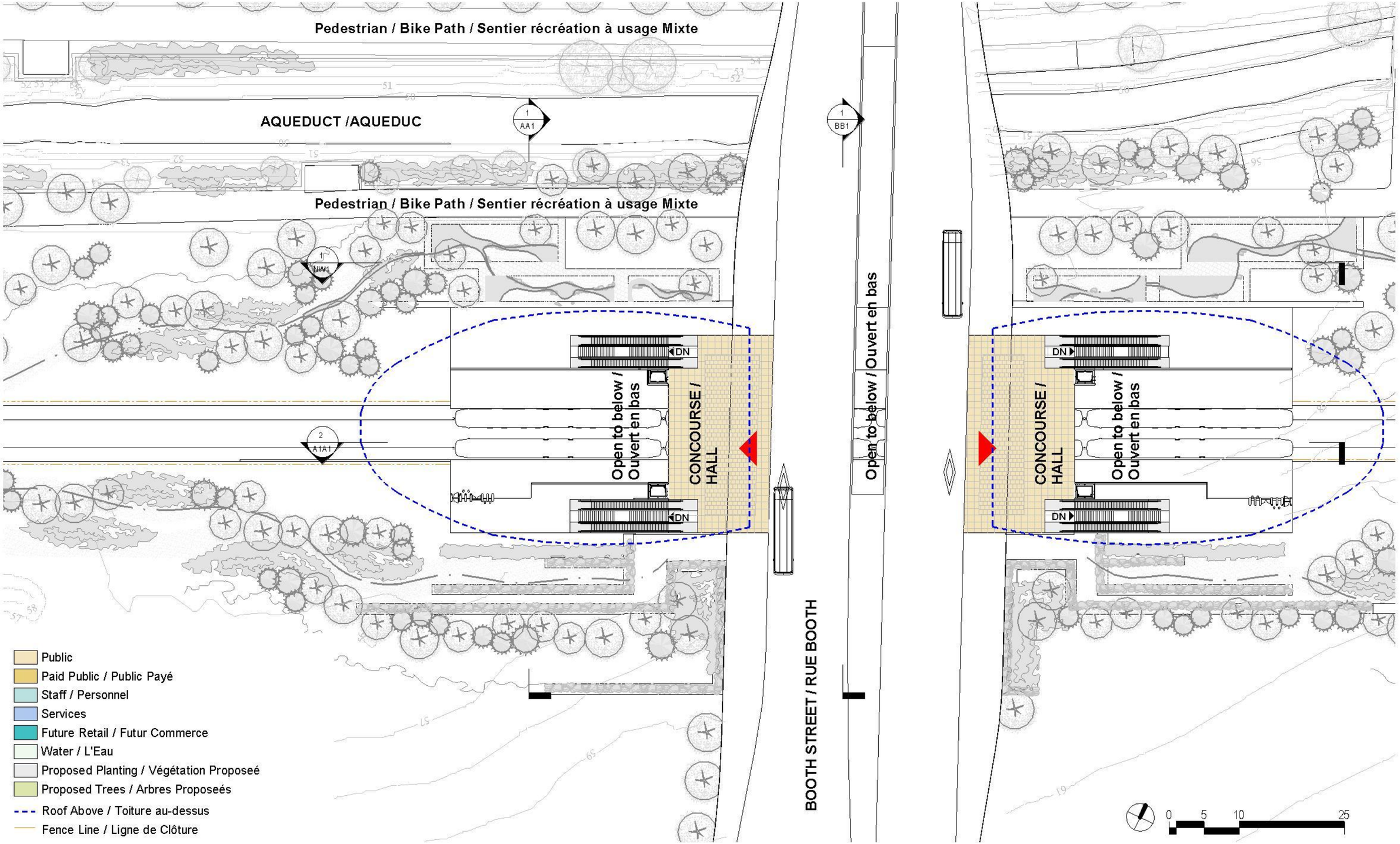


LeBreton Station – Existing Conditions

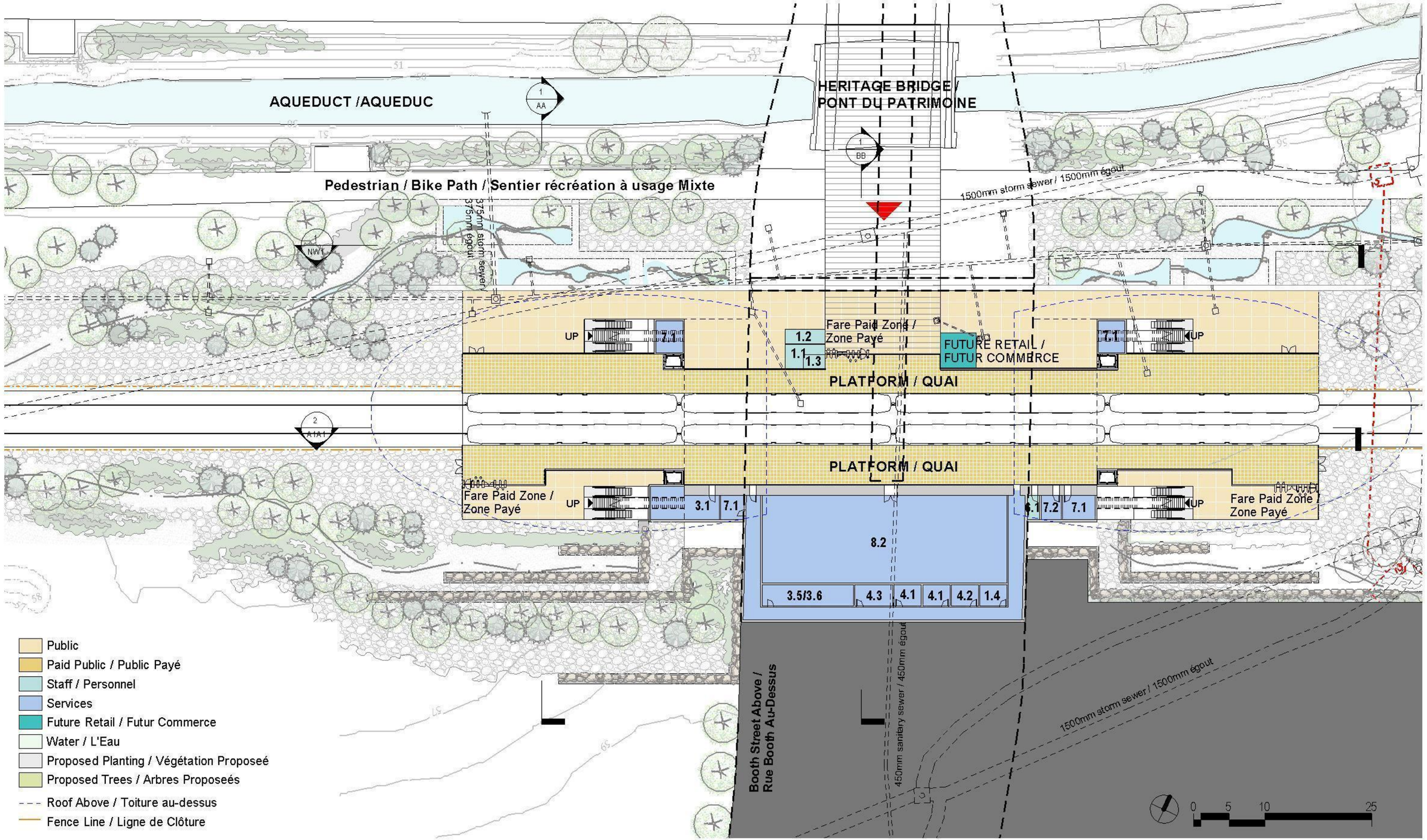
LeBreton Station – Landscape and Portal Design



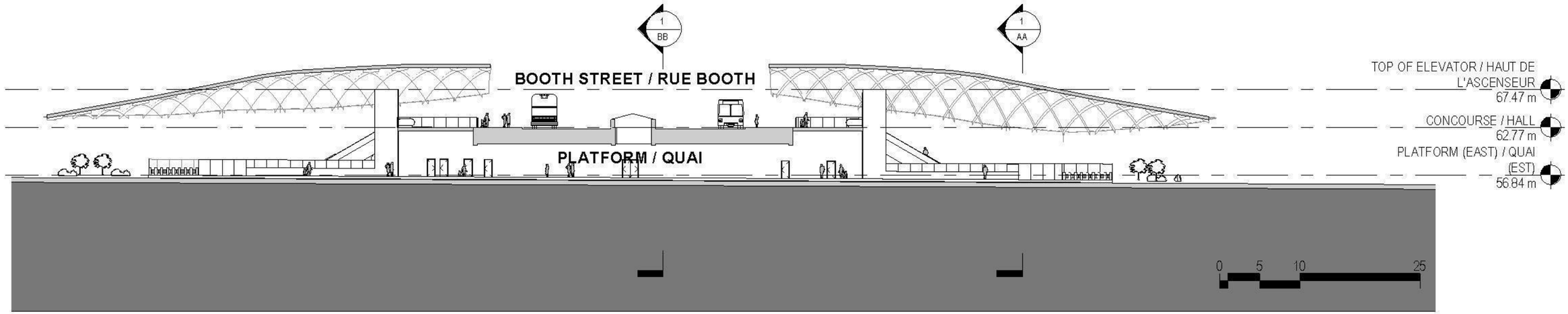
LeBreton Station – Site Context– Initial Build Out



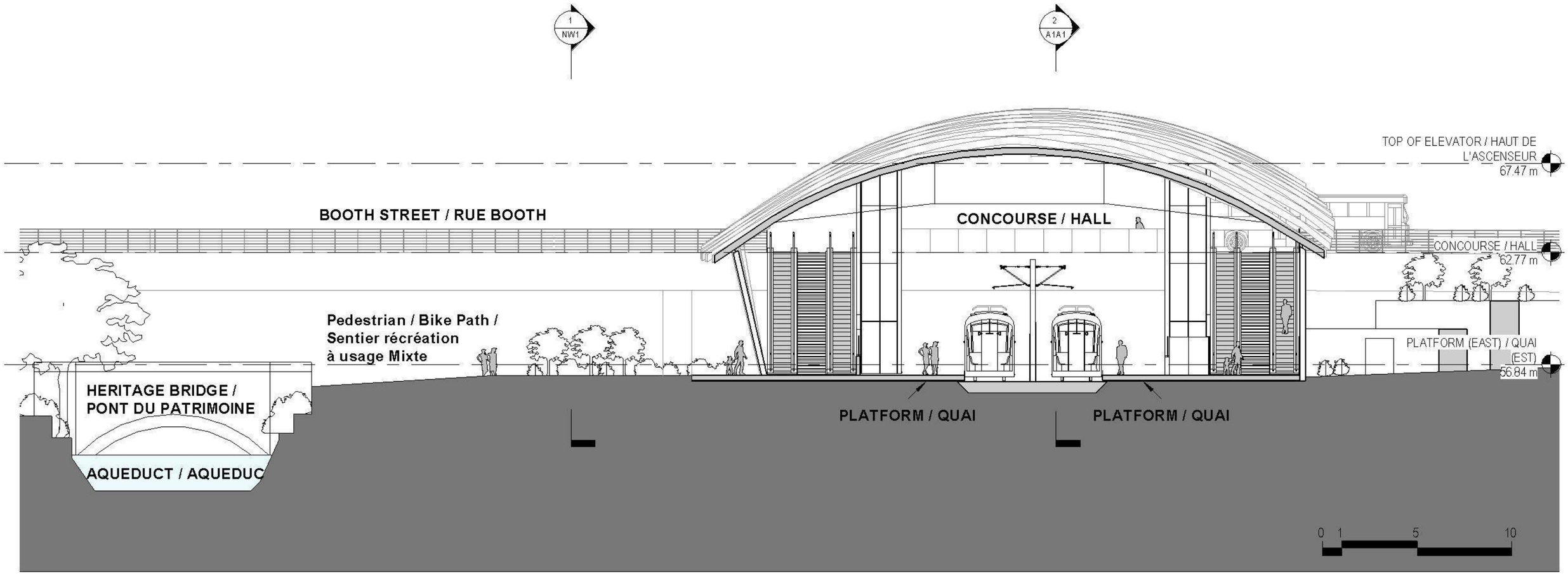
LeBreton Station – Concourse Level – Initial Build Out



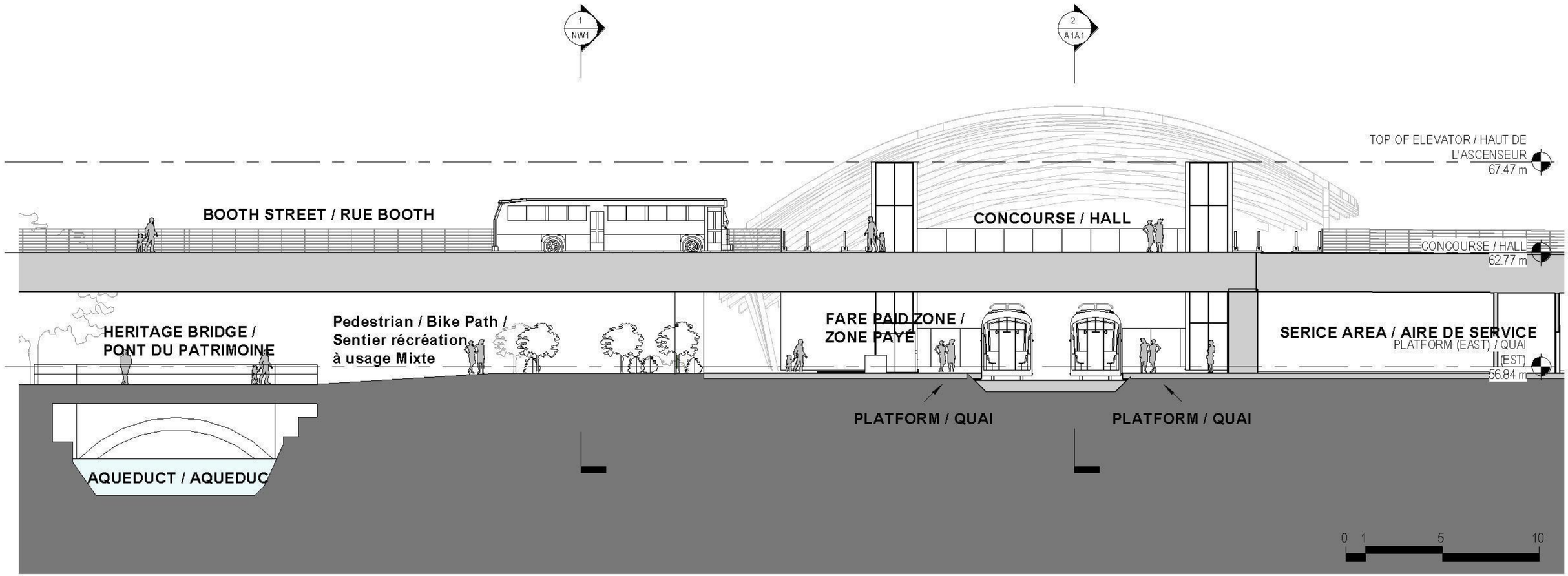
LeBreton Station – Platform Level – Initial Build Out



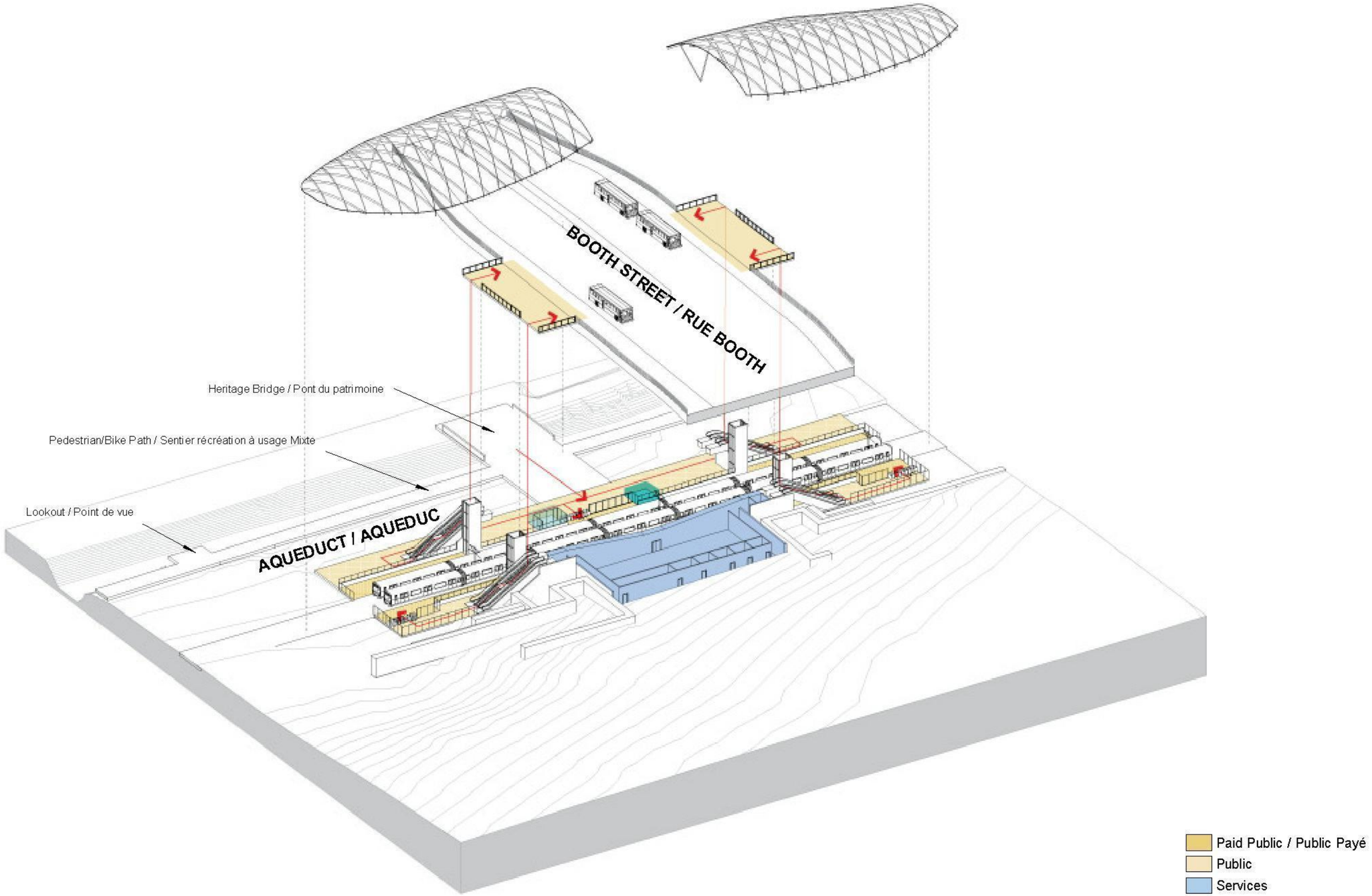
LeBreton Station – Longitudinal Section – Initial Build Out



LeBreton Station – Cross Section – Initial Build Out

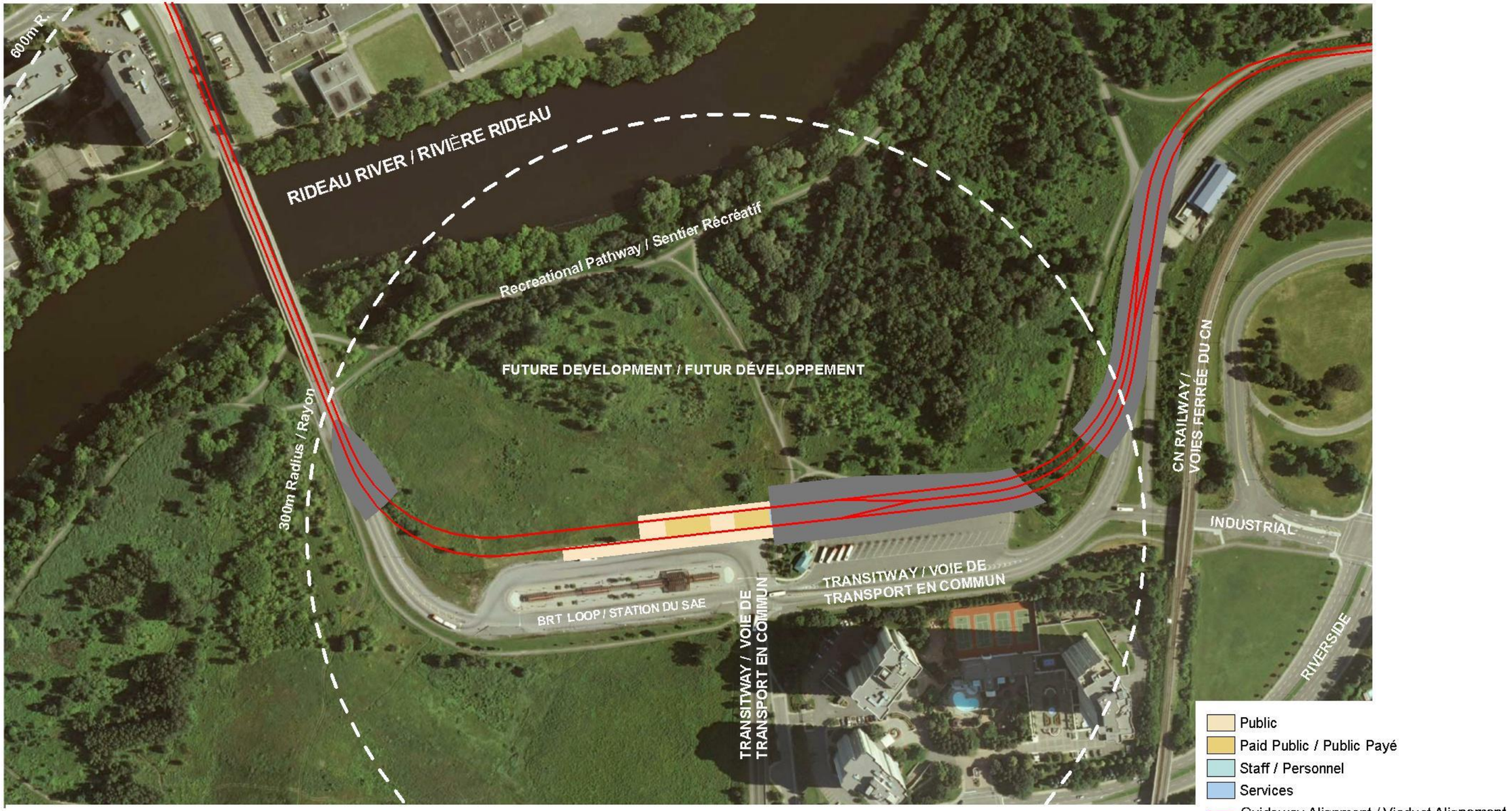


LeBreton Station – Cross Section – Initial Build Out



LeBreton Station – Axonometric View – Initial Build Out

Hurdman Station



Hurdman Station – Site Context

0 5 10 25

Hurdman Station – Site Context – Existing Conditions

FUTURE DEVELOPMENT LANDS/ TERRAINS PRÉVUS POUR DE FUTURS AMÉNAGEMENTS

EXISTING MIXED-USE PATHWAY/ SENTIER POLYVALENT EXISTANT

BREEZEWAY PEDESTRIAN CONNECTION UNDER PLATFORM/ PASSAGE RECOUVERT PIÉTONNIER SOUS LA PLATFORM

STORMWATER BIO-SWALE/ DÉNIVELLATION ÉCOLOGIQUE

STORMWATER BIO-SWALE/ DÉNIVELLATION ÉCOLOGIQUE

3.0M MIXED-USE PATHWAY/ SENTIER POLYVALENT DE 3m

EDGE OF STATION BUILDING OVERHEAD/ LIMITE DU TOIT DE LA STATION

BUS SHELTERS/ ABRIBUS

3m HT RETAINING WALL/ MUR DE SOUTÈNEMENT (3m DE HAUT)

2.5:1 SLOPE/ PENTE DE 2.5:1

ARRIVAL PLAZA PLAZA D'ARRIVÉE

TRANSITWAY

STORMWATER BIO-SWALE/ DÉNIVELLATION ÉCOLOGIQUE

KISS AND RIDE & TAXI STAND/ POSTE D'ATTENTE ET ZONE DE TAXI

FUTURE/ FUTUR

STORMWATER BIO-SWALE/ DÉNIVELLATION ÉCOLOGIQUE

BUS STAGING LOCATION/ AIRE DE STATIONNEMENT DES AUTOBUS

SOUTHEAST TRANSITWAY SUD-EST

FIRE ROUTE/ COULOIRE RÉSERVÉ AUX POMPIERS

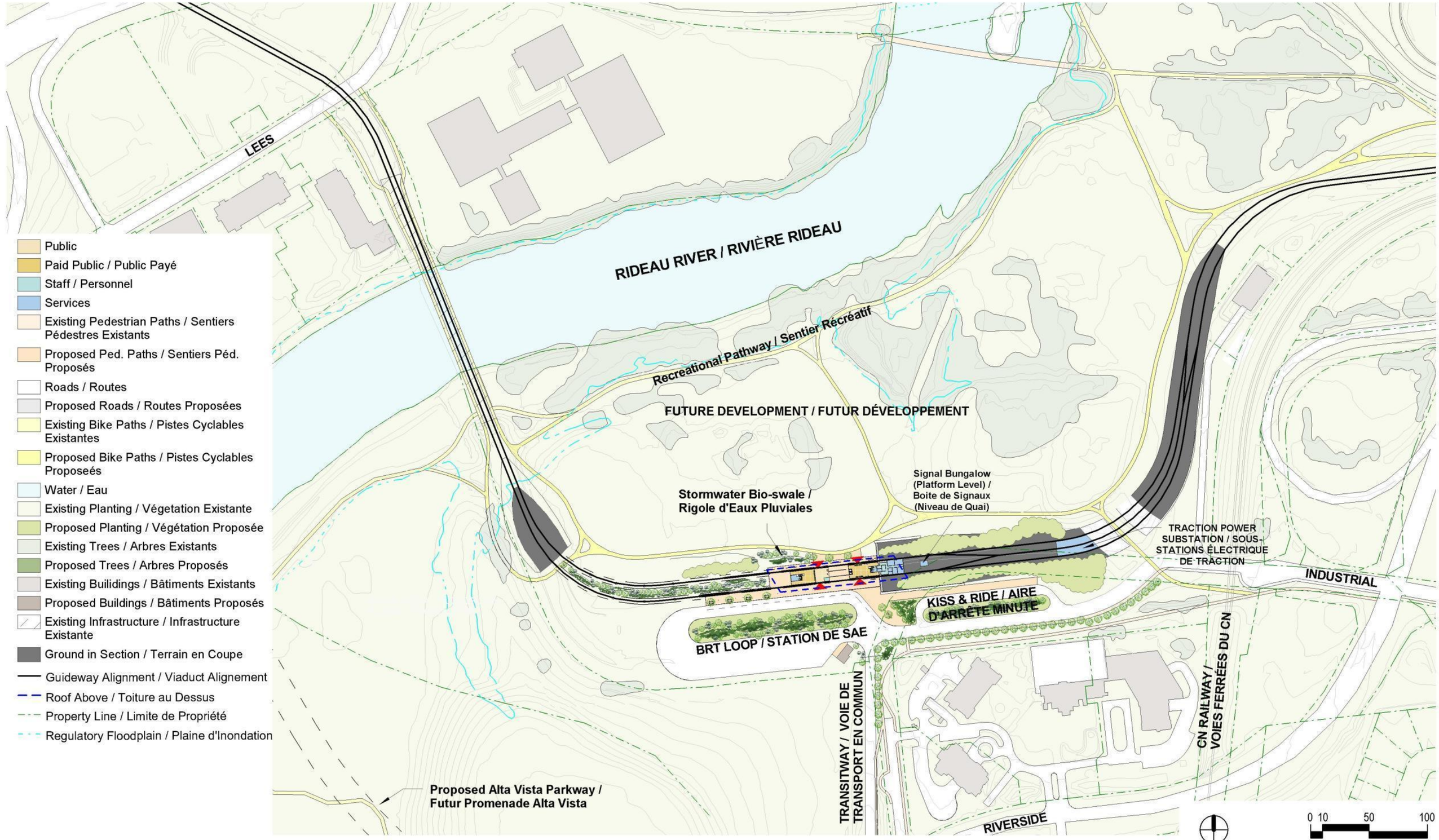
LEGEND:

- Proposed Public Builldings/ Édifices Publics Prévu et Quai de Gare
- Existing Buildings/ Bâtiments Existants
- Proposed Buildings/ Bâtiments Prévu
- Tracks/ Rails
- Tracks Ground Floor/ Couvre-Sol des Rails
- Existing Pedestrian Paths/ Sentiers Piétonniers Existants
- Proposed Pedestrian Paths/ Sentiers Piétonniers Prévu
- Proposed Pedestrian Plaza/ Plaza Piétonnière Prévu
- Existing Roads/ Chemins Existants
- Proposed Roads/ Chemins Prévu
- Water/ Eau
- Existing Planting/ Végétaux Existants
- Proposed Planting/ Végétaux Prévu
- Proposed Trees/ Arbres Prévu
- Proposed Shrubs/ Arbustes Prévu
- Proposed Woodlot/ Boisé Prévu
- Proposed Bioswale/ Dénivellation Écologique
- Peagravel/ Gravillon Petit

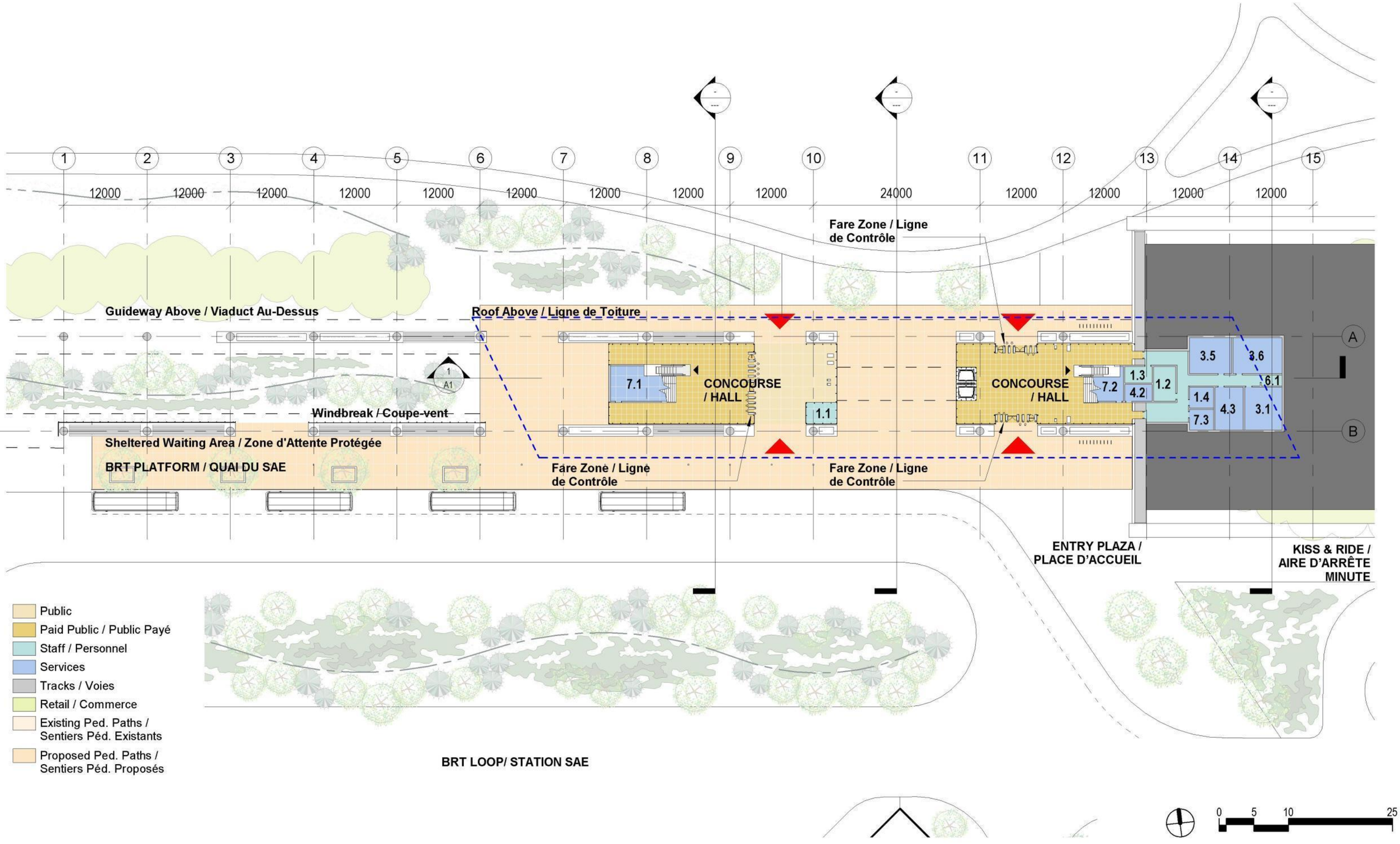
NORTH

0 5 10 20 30

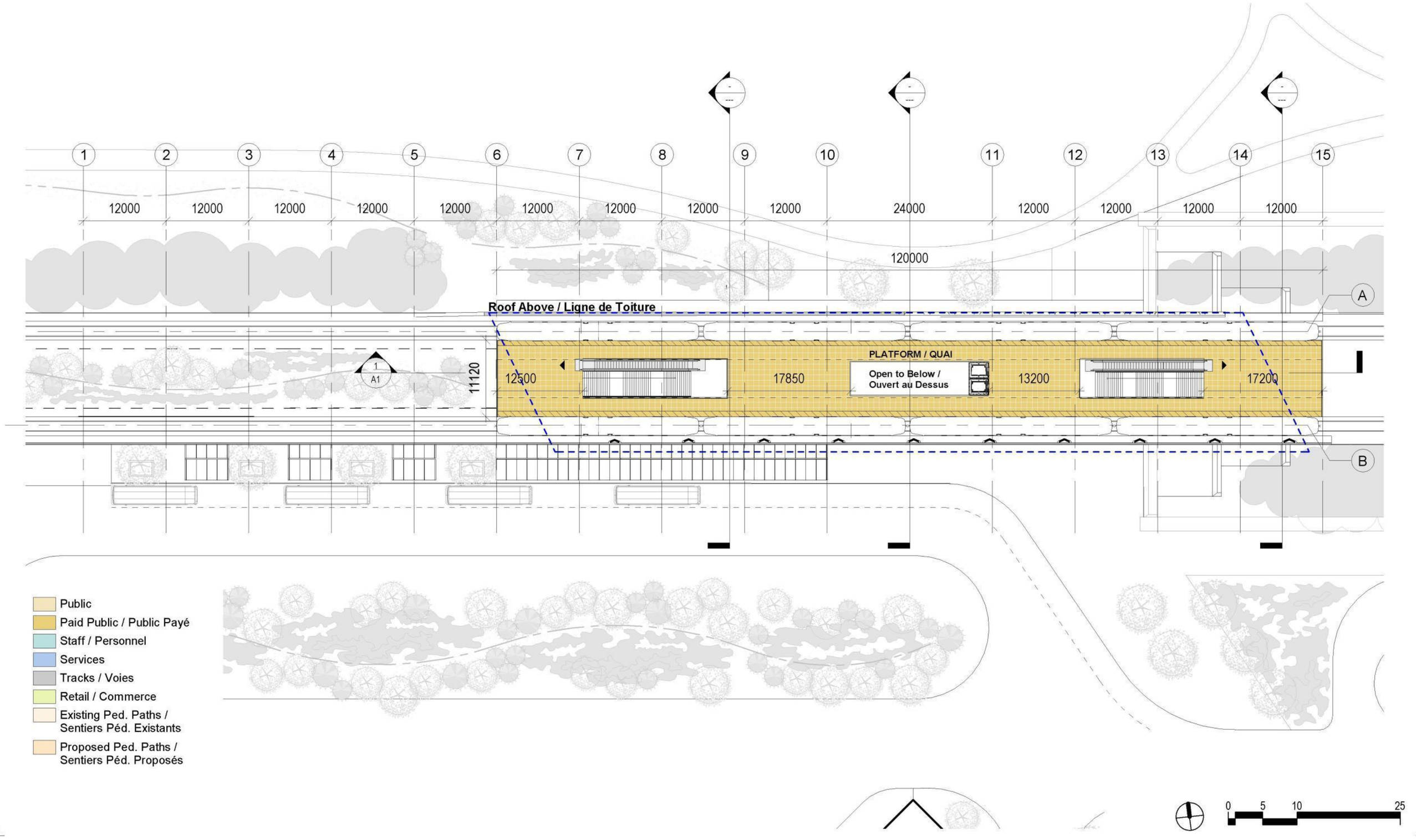
Hurdman Station – Landscape Design – Initial Build Out



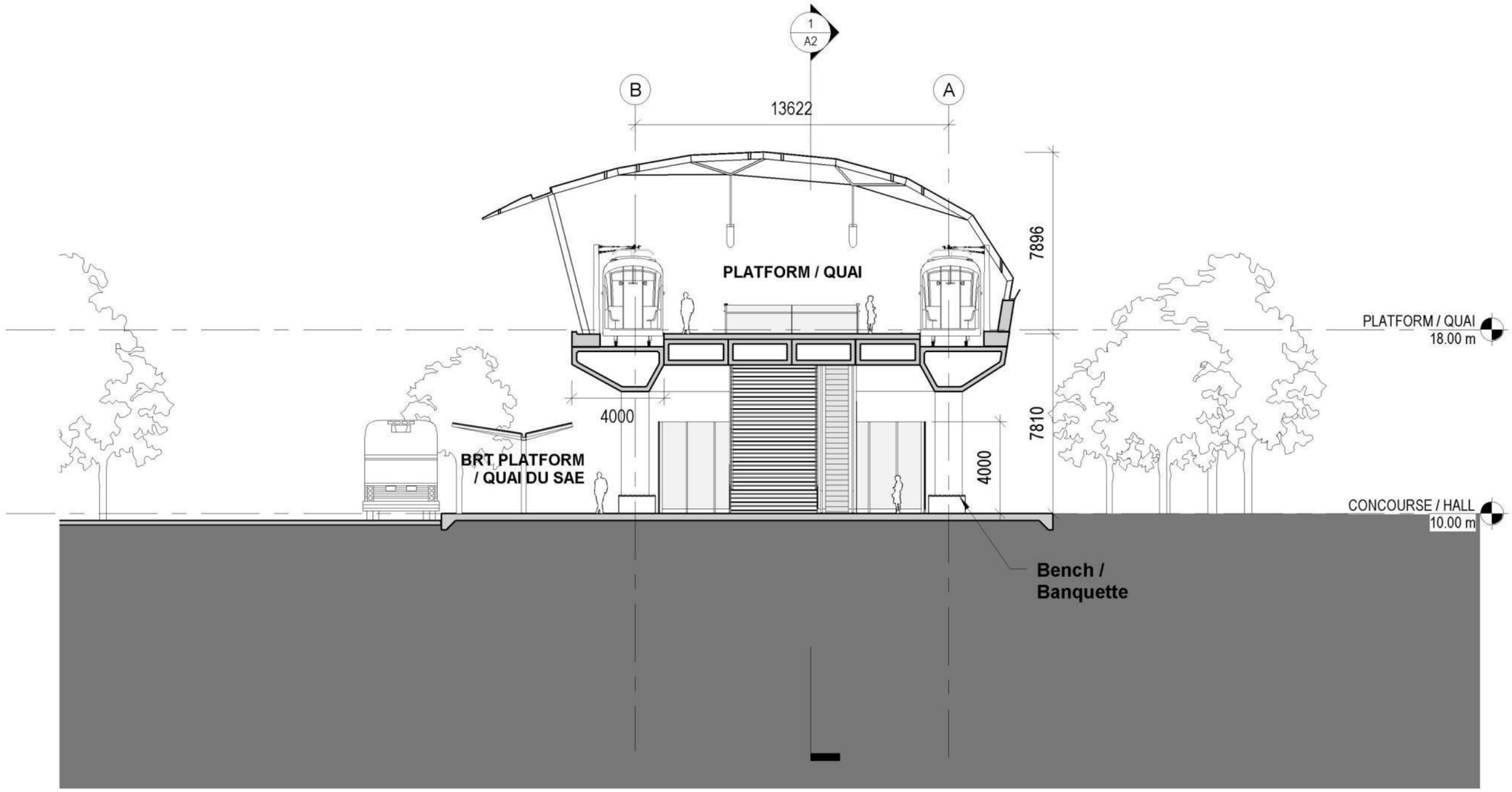
Hurdman Station – Site Context - Initial Build Out



Hurdman Station – Concourse Level – Initial Build Out

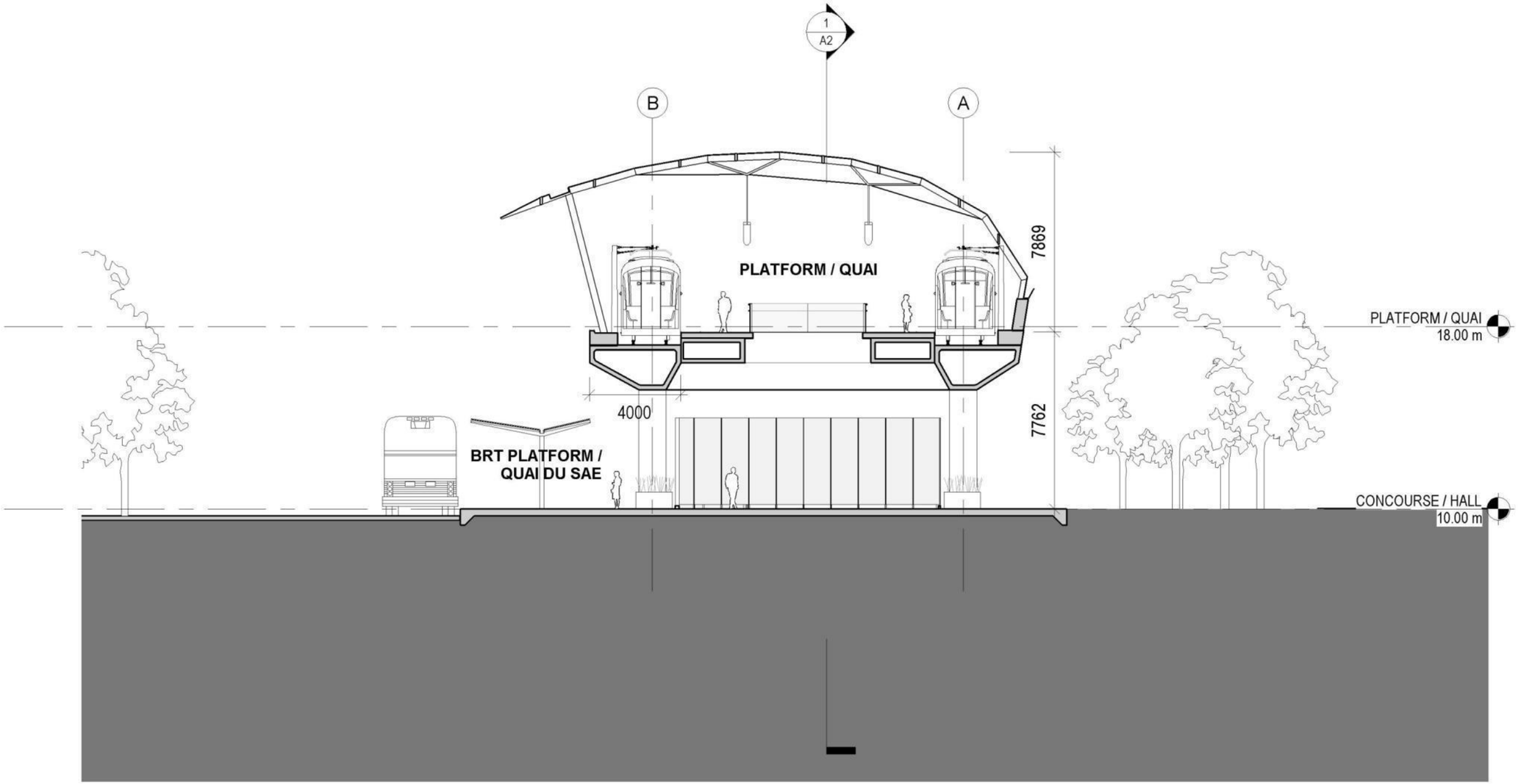


Hurdman Station – Platform Level – Initial Build Out

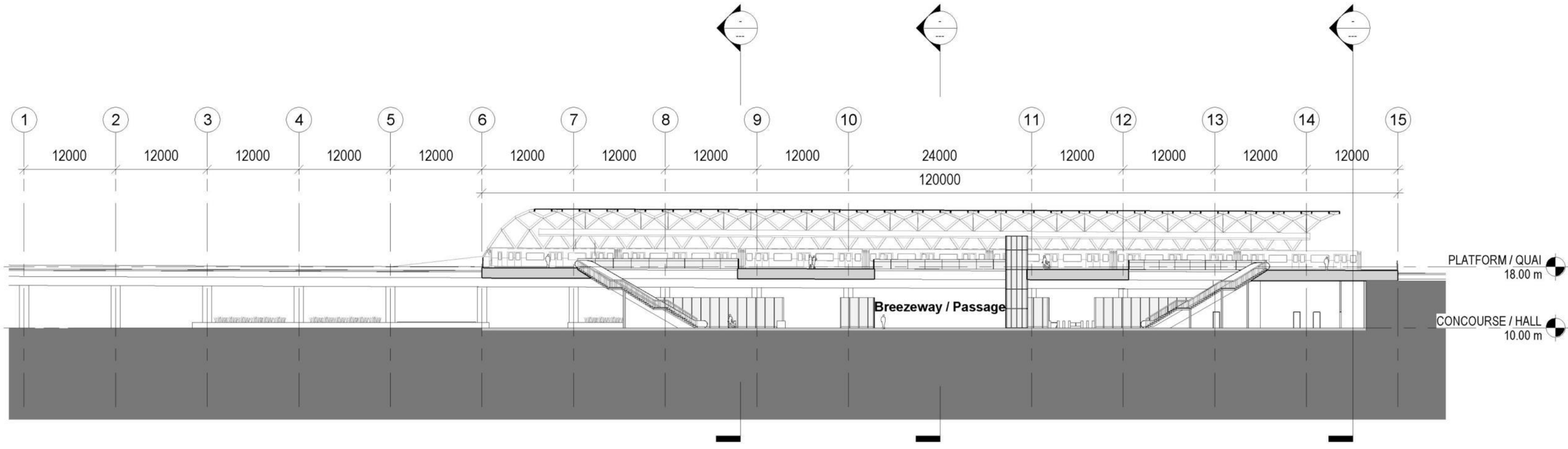


0 1 5 10

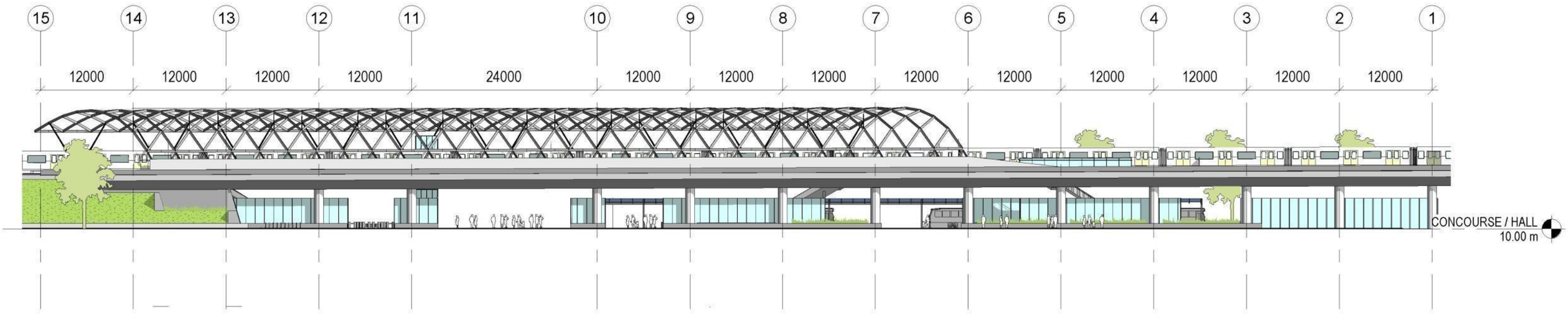
Hurdman Station – Cross Section– Initial and Full Build Out

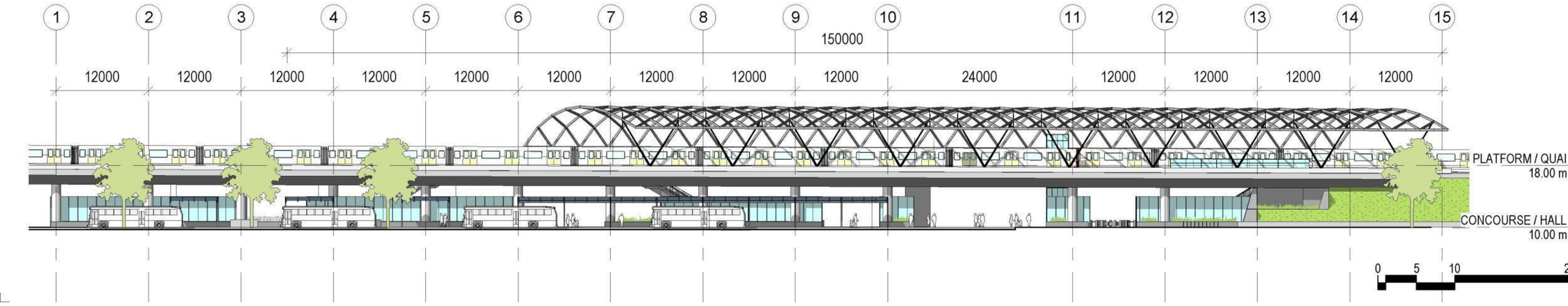


Hurdman Station – Cross Section – Initial and Full Build Out

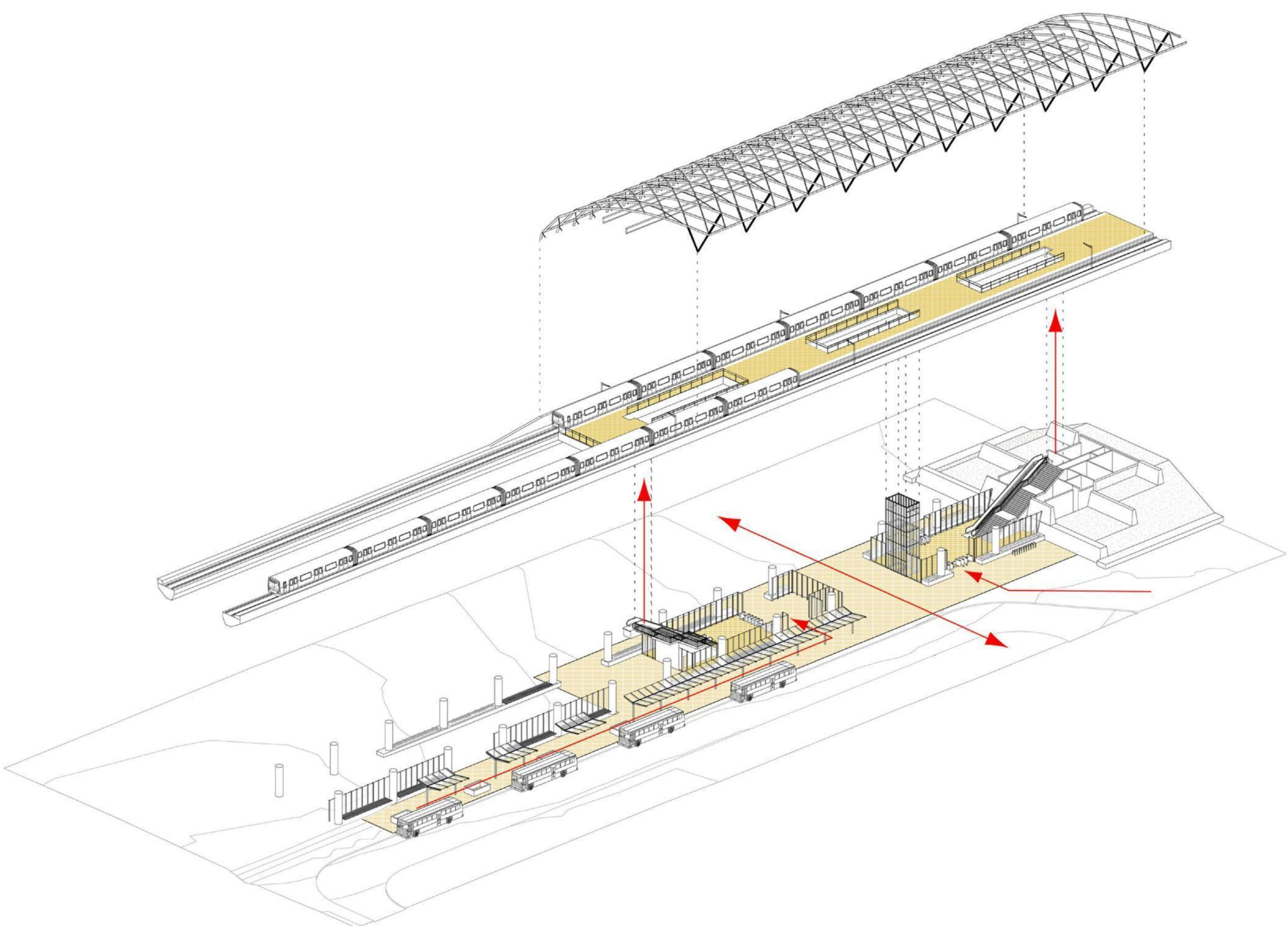


Hurdman Station – Longitudinal Section – Initial Build Out

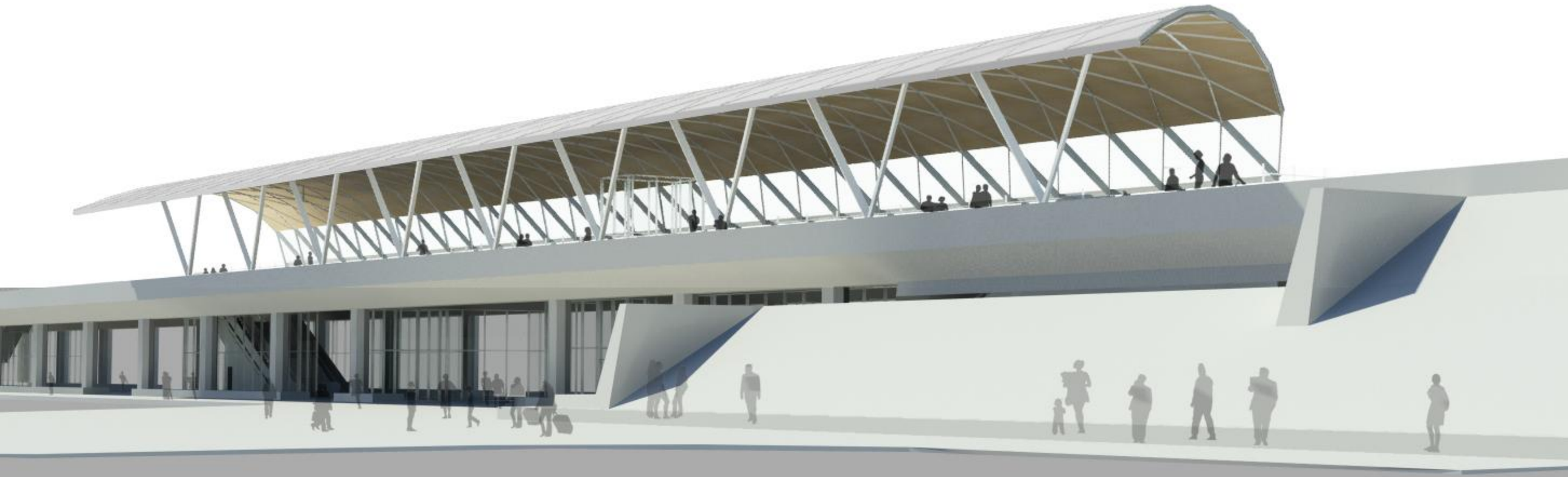


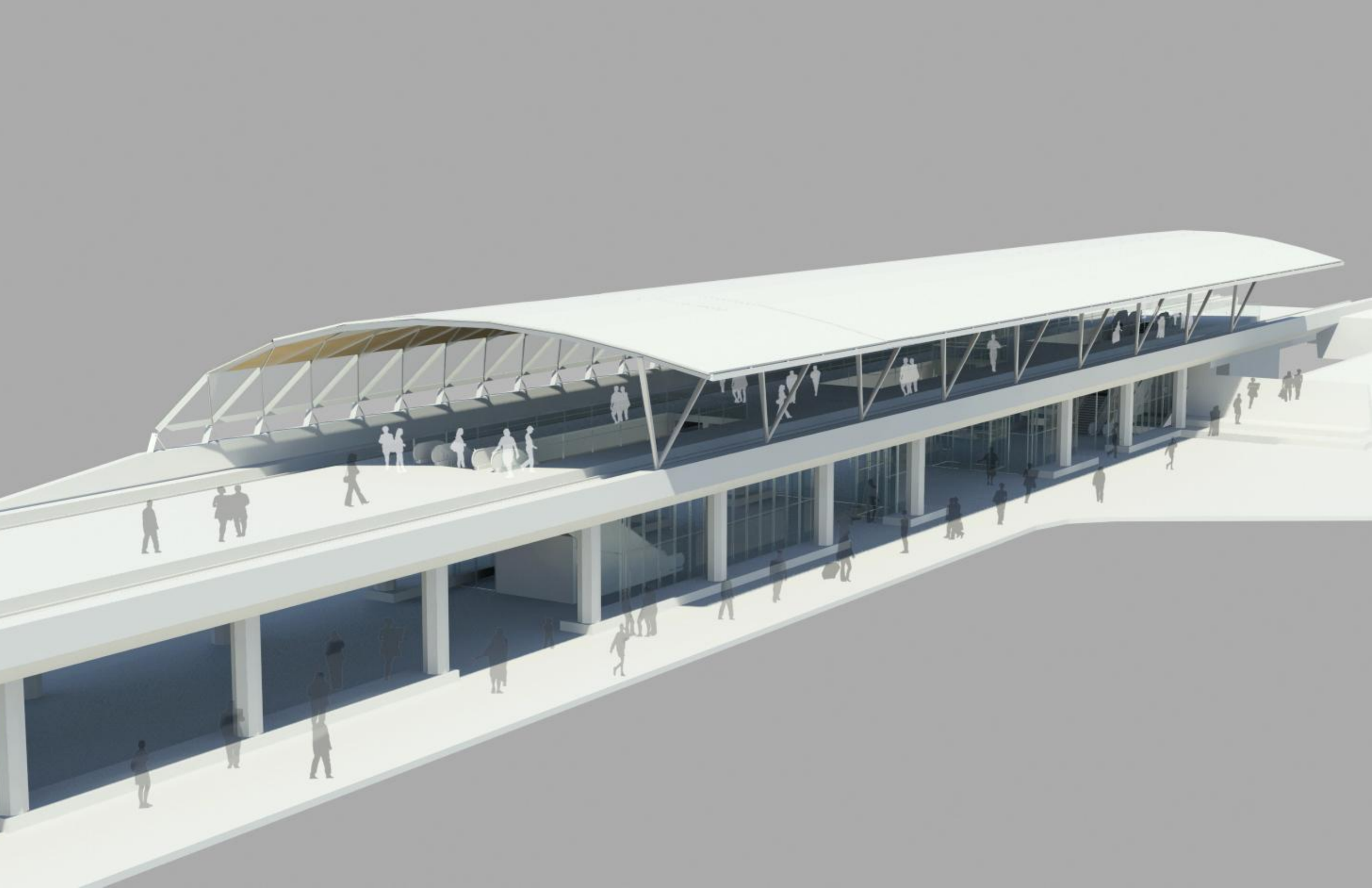


Hurdman Station – Building Elevations – North and South



Hurdman Station – Axonometric View – Initial Build Out





Discussion