

# TORONTO TRANSIT COMMISSION REPORT NO.

**MEETING DATE:** February 2, 2011

**SUBJECT:** TORONTO-YORK SPADINA SUBWAY EXTENSION PROJECT  
STEELES WEST STATION  
APPROVAL OF FINAL DESIGN, FINISHES AND ARTWORK

## **ACTION ITEM**

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### **RECOMMENDATION**

It is recommended that the Commission approve the following changes to the previously approved conceptual design, and the station finishes and artwork for Steeles West Station, which will be presented through the public consultation process:

- Relocation of the main entrance located on the north side of Steeles Avenue;
- Redesign of the two station entrances;
- Relocation of TTC traction power substation to grade; and
- The addition of a new east-west road linking Northwest Gate to Track & Field Road, and an additional bus driveway from Northwest Gate to the north end of the TTC bus terminal.

### **FUNDING**

Sufficient funds for this expenditure are included in the Toronto-York Spadina Subway Extension (TYSSE) Project, as set out on pages 1447 to 1449R of the TTC 2011-2015 Capital Program (Category - Expansion) which was approved by the Commission on January 12, 2011.

### **BACKGROUND**

The TTC is planning the design and construction of a subway line from the existing Downsview Station on the Spadina Line located in the City of Toronto, to the future Vaughan Metropolitan Centre located in the City of Vaughan, Region of York, as shown in Exhibit 1. The new 8.6 km long line will include both tunnelled and cut and cover sections.

The YYSSE project is being funded by the Government of Canada, the Province of Ontario, the City of Toronto, and the Regional Municipality of York. The TTC is managing the design and construction of the YYSSE project and will own and operate the subway extension.

At the Commission meeting of October 23, 2008, Contract A85-75A for the design of Steeles West Station was awarded to the design team lead by The Spadina Group Associates (TSGA). The architectural teams are Richard Stevens Architects and Will Alsop.

At its meeting of September 24, 2009, the Commission approved the TYSSE Station Design Philosophy with additional emphasis on achieving high quality architecture, urban design, streetscape, and landscape architecture as follows:

- Integrated design of all elements with strong aesthetics and public artwork;
- Column-free structures wherever possible with high ceilings and simple flow of space;
- Bright, open spaces with daylight penetrating deep into stations where possible;
- Barrier-free with at least one fully accessible entrance;
- Use of TTC standard elements; and
- Sustainable design to meet the Toronto Green Standard.

At the Commission Meeting of October 29, 2009, the Commission approved the conceptual design for this station. Value engineering and the continued development of the station design resulted in changes to the approved conceptual design.

Recently identified property constraints on the north side of Steeles Avenue necessitated the relocation of the main entrance including the associated reconfiguration of the north end of the subway station, the reconfiguration of the York Region Bus Terminal, the relocation the TTC traction power substation to grade level and the redesign of the light cone. In order to improve TTC bus operations, a new east-west road linking Northwest Gate to Track & Field Road, and an additional bus driveway from Northwest Gate to the north end of the bus terminal have been provided. The two entrances on Steeles Avenue were redesigned to a concept which was acceptable to both City of Toronto and City of Vaughan planning staff.

The project has been reviewed by the public and all stakeholders, including the City of Toronto and the City of Vaughan Planning Departments. The station elements north of Steeles Avenue West were presented to Vaughan Council on January 10, 2011.

## **DISCUSSION**

Steeles West Station straddles the boundary between York Region and the City of Toronto at an oblique angle to Steeles Avenue West. The station will comprise:

- A 2-track box structure with an island platform located between the tracks;
- Concourses located at both ends of the platform providing a connection between the platform and the entrance structures at grade;

- Entrance structures located north of Steeles Avenue West in York Region and south of Steeles Avenue in the City of Toronto;
- A TTC bus terminal located south of Steeles Avenue West and located on top of the subway running structure;
- A YRT bus terminal located north of Steeles Avenue West and separated from TTC facilities;
- A traction power substation at grade;
- A passenger pick-up and drop-off (PPUDO) facility north of Steeles Avenue in the form of street parking opposite the bus terminal; and
- A surface parking lot in the hydro corridor with 1850 parking spaces.

Elements associated with this station as shown on Exhibit 2 include:

- A new north-south road on York University lands (Track & Field Road), parallel to Northwest Gate from Steeles Avenue to a new east-west road, providing access to the bus terminal for buses and pedestrians;
- A new north-south road (Proposed Street C), between Steeles Avenue and the hydro corridor as an extension of Northwest Gate, providing access to the parking lot, PPUDO and YRT bus terminal;
- A new road from Jane Street parallel to the hydro corridor, providing access to the commuter parking lot;
- A bus driveway from the access road identified above to facilitate access for buses only to the YRT bus terminal;
- Emergency exit building (EEB #5) relocated from the tunnel structure between York University Station and Steeles West Station into the Steeles West Station TTC bus terminal.

The design of the York Region Transit (YRT) bus terminal has yet to be finalized. The design shows buses will enter from Jane Street via the bus driveway and circulate through a perimeter bus terminal with canopied bus platforms. Patrons from the parking lot cross the bus driveway and walk under the canopied platforms, joining with bus passengers, to the main entrance via a covered pedestrian route.

**DESIGN:**                      **Exhibit 2 – Overall Site Plan**  
   **Exhibit 3 – Longitudinal Section**

Steeles West Station is diagonally located under the intersection of Steeles Avenue West and Northwest Gate and is intended to provide access for existing and future facilities and developments, particularly along Steeles Avenue West. Station surface elements have been laid out in workshops with stakeholders to maximize the potential for transit oriented development (TOD) to occur.

Located in the hydro corridor to the north of the station is commuter parking for 1,850 vehicles and associated access roads. The main entrance is located on the north side of Steeles Avenue West and provides access to the TTC from the 5-bay YRT bus terminal, the on-street PPUDO and the commuter parking. Between the main entrance and the YRT bus terminal is the TTC substation and associated service rooms located at grade. The YRT bus terminal will be operated and maintained by York Region. A pedestrian route from the commuter parking lot through the YRT bus terminal will be designed to provide a protected route to passengers moving to and from the main entrance. A light cone structure is located between the main entrance and Steeles Avenue West to allow daylight to penetrate down to the concourse fareline.

An automatic entrance is located south of Steeles Avenue West on the east side of Northwest Gate, adjacent to the 12-bay TTC bus terminal with bus access off Track & Field Road, Northwest Gate, and a new East-West Road link south of the bus terminal. A second automatic entrance is located at the south end of the TTC bus terminal. It will be necessary to design for this entrance to be staffed at certain times; for example, following special events, and the final design will provide for this requirement.

There are two concourses, one at each end of the station, allowing utilities and future underground LRT tunnels, if required, to cross over the top of the station. The additional weight of backfill also helps reduce the impact of buoyancy caused by the high water table. The Steeles West Station project incorporates the following environmental initiatives:

- Cool roofs and green roofs;
- Increased daylight levels to reduce electric lighting power usage;
- LED lighting in pylon signs, and energy efficient lighting in illuminated wayfinding signage to reduce power consumption;
- Water efficient plumbing fixtures;
- Energy efficient HVAC system;
- Reduced stormwater runoff into the municipal drainage system by utilizing green roof landscaping and soft landscaping areas adjacent to other building runoff areas;
- Short term bicycle parking spaces; and
- Landscape with native and drought tolerant species provided.

#### **EXTERNAL AND PUBLIC REVIEW:**

The Steeles West Station functional design concept has been reviewed with, and is supported by, the planning departments of the City of Vaughan and the City of Toronto.

The Steeles West Station functional design concept has been reviewed with the public as follows:

- Advisory Committee on Accessible Transportation (ACAT) on October 26, 2009;
- Commission meeting on October 29, 2009;

- Public open house on February 3, 2010;
- Public presentation of TYSSE station designs on April 28, 2010; and
- Advisory Committee on Accessible Transportation (ACAT) on December 8, 2010.

The conceptual design was reviewed with the ACAT Design Subcommittee on October 26, 2009, at which time they recommended providing a barrier-free route to enter the station at the bus terminal automatic entrance, and expressed concern on the connection between para-transit systems. The final design was reviewed with ACAT on December 8, 2010, and contains an easier access portal unit (EAPU) to address their recommendation. Staff will confirm the location of the para-transit connection to a future ACAT meeting.

The February 3, 2010 open house was held specifically to exhibit functional design. There were approximately 25 attendees with 5 written comment forms submitted. All comments received were supportive of the station's functional design. Of the comment cards completed, two commented on the need for green roofs; one specifically for the YRT bus terminal. One comment suggested an underground walkway from the closest York University building.

The station design, finishes, and artwork will be taken to a second public open house in March 2011.

#### **STATION DESIGN AND FINISHES:**

**Exterior:**                    **Exhibit 4 – Exterior View – Main Entrance**  
                                      **Exhibit 5 – Exterior View – Bus Terminal Entrance**

The roofs over the entrance buildings and substation are cool roofs, and the roofs to the TTC bus terminal and substation building are green roofs. Glazing is clear bird-friendly fritted glass. The façades are clad with weathering steel metal panels with matching porcelain enamel panels in the touch zone. The TTC bus terminal, entrance buildings and substation are clad in solid weathering steel panels above the touch zone with glass or porcelain enamel in the touch zone.

Hard landscaping will be white and grey concrete in a pattern to match the architecture. Soft landscaping will be generally hardy and low maintenance for durability in the local environment.

**Grade Level:**            **Exhibit 6 – Plan at Grade – Main & Automatic Entrance**  
                                      **Exhibit 7 – Interior View – Main Entrance**  
                                      **Exhibit 8 – Plan at Grade – Bus Terminal**  
                                      **Exhibit 9 – Interior View – Bus Terminal**

Passengers arriving at the station from the commuter parking, PPUDO, or the YRT bus terminal will enter the main entrance through doors at the north end of the building with views down to the fareline at concourse level below. Passengers approaching from the north will be sheltered by canopies linking the main entrance to the bus terminal. The main entrance is fully accessible with an elevator, two escalators and a stair. Passengers from Steeles Avenue West will enter the main entrance through doors on the south side of the building.

An automatic entrance is located at the intersection of Northwest Gate and Steeles Avenue West and contains an automatic fareline with stairs to the concourse level.

A second automatic entrance is located at the southern end of the bus terminal off Track & Field Road and is fully accessible with an EAPU. Passengers entering through this entrance move through the automatic fareline and the bus terminal to access the subway. Similarly, passengers from the TTC bus terminal paid area move to concourse level using stairs, escalators and an elevator at the northwest end of the bus terminal.

The interior walls of the entrance buildings are also clad in weathering steel panels with matching porcelain enamel panels in the touch zone. The bus terminal interior walls are clad with porcelain enamel panels in a blue/grey colour. Floors are grey terrazzo with brick-coloured aggregate and stairs are dark grey with nosings in a paler colour to provide the contrast required to meet TTC design standards. A field of TTC detectable warning tile is located at the top landing. The guardrails around the vertical circulation openings are tempered-laminated glass panels with stainless steel railings.

Structural steel columns in the bus terminal are painted with intumescent paint and finished in an iron-oxide colour. Ceilings will be painted aluminium acoustic panels and the exterior soffit will be weathering steel panels.

**Concourse:                    Exhibit 10 – Upper Concourse Plan  
                                     Exhibit 11 – Lower Concourse Plan**

The north concourse contains the collector's booth and low fareline and directs passengers from the parking, PPUDO, and YRT bus terminal to the platform level by stairs, escalators, and elevator. From the top of the escalators there is a view through the large open space over the platform toward the south concourse. A knockout panel in the unpaid side of the concourse protects for future connection to transit oriented development (TOD) to the east. The concourse level also contains TTC service spaces.

The south concourse level is fully fare paid to allow free movement of TTC passengers, and links the passengers coming from the TTC bus terminal with passengers from the automatic entrance at the Steeles Avenue West and Northwest Gate intersection. From here there is an elevator, two escalators and a stair to platform level. From the top of the escalators there is a view through the large open space over the platform towards the north concourse.

Knockout panels in the south concourse protect for future connection to TOD to the east and west. The concourse level also contains TTC service spaces.

Walls are clad with porcelain enamel panels in a blue/grey colour. Floors are grey terrazzo with brick-coloured aggregate and stairs are dark grey with nosings in a paler colour to provide the contrast required to meet TTC design standards. A field of TTC detectable warning tile is located at the top landing. The guardrails around the vertical circulation openings are tempered-laminated glass panels with stainless steel railings. Ceilings are exposed concrete in the main box with gold coloured acoustic panel ceilings in other areas.

**Platform:**                    **Exhibit 12 – Platform Plan**  
                                      **Exhibit 13 – Interior View – Platform**

Two elevators, four escalators, and two sets of stairs serve the subway platform level from the north and south concourses. Walls around the vertical circulation elements and the platform end walls are clad with blue/grey porcelain enamel panels.

Trainway walls and ceiling soffit will be exposed architectural concrete, with the ceiling of the trainway treated with spray applied acoustic treatment. Floors are grey terrazzo with brick-coloured aggregate with TTC standard wayfinding tile and yellow platform edge tiles. Stairs are dark grey terrazzo with nosings in a paler colour to provide the contrast required to meet TTC design standards. The guardrails around the vertical circulation openings and the mezzanine walkway are tempered-laminated glass panels with stainless steel railings. The ultimate location for the platform edge sign band is to have it integrated into the header of the future platform edge doors. In the interim, the information is contained on the signs mounted on the train wall.

**Artwork:**                    **Exhibit 14 – Artwork –*LightSpell***

A public art selection process resulted in the selection of realities: united, a studio led by brothers Jan and Tim Edler, as the public artist for Steeles West Station. The artists have worked in close collaboration with the architectural design team to develop a concept for a public art that is called "*LightSpell*".

*LightSpell* is a "super sculpture"; a hybrid between art installation and the lighting of the subway station. The interactive installation consists of a suspended array of 62 light elements. Each element is made of 16 individually controllable luminaires and can produce all letters of the alphabet, as well as special characters and numerals from 0 to 9.

Regardless of the character displayed, the light intensity of the active segments is automatically adjusted so that the illumination of the space below is kept at a constant level. The artists have stated:

*"LightSpell is an experiment in public interaction and will entail various aspects regarding the freedom of the individual versus the interest of the larger group. It is a democratic installation: Whatever message by an individual is projected the installation always serves the demands of the community of other waiting people by providing light for everybody."*

This concept has been developed and approved by the Steeles West Station Art Design Review Committee (ADRC).

**Project Impacts:**

This site and the surrounding area are partly developed with potential for impact on the surrounding community during the construction period. Steeles West Station will be the site of the tunnel boring machine (TBM) launch shaft for construction of the twin tunnels south through York University Station to Finch West Station, and the retrieval shaft for the tunnels from Highway 407 Station.

To address these impacts, the following steps have been taken during design development:

- A report detailing the potential impacts to Black Creek Pioneer Village (BCPV) from construction and operation of the Toronto-York Spadina Subway Extension Project has been completed (October 2010). Noise, vibration, dust, stormwater, erosion and sediment control and construction traffic were evaluated for both the construction of Steeles West Station and north tunnel construction, on the BCPV and surround areas. No permanent effects were identified, and construction effects can be mitigated through contract requirements for erosion, noise and dust controls and the implementation of traffic management plan;
- The York University Woodlot Environmental Management Plan (EMP) is being completed and proactive mitigation will be incorporated into contract specifications to address the effects of dewatering, stormwater management, and erosion and sediment control. A year of preconstruction monitoring of effects on the Boyer and Boynton Woodlots precedes construction monitoring. Monitoring will continue during launch shaft, north tunnel, EEB 5 and the Steeles West Station construction dewatering. Post construction monitoring will continue for an additional year;
- Instrumentation, inspection and response procedures will be in place to monitor and mitigate construction noise, vibration and dust control;



- A noise and vibration analysis was completed for all station and tunnel construction, (J.E. Coulter, September 17, 2010) which confirmed no permanent noise effects from the Steeles West Station and no particular construction noise effects. Detailed considerations of subway operation across the York University Campus were looked at through a specialized additional study, York University Vibration Sensitive Equipment Impact Study (September 2010);
- A traffic management staging plan will be developed in consultation with York University to address traffic issues for the northwest quadrant of their campus; and
- The traffic staging plan will be developed in consultation with the City of Toronto and the City of Vaughan to address traffic issues on Steeles Avenue.

**Cost and Schedule:**

The design changes on the north side of Steeles Avenue will result in cost avoidance related to property issues. However, this will result in increased fees for the station designer which will be the subject of a future Commission report.

The estimated final cost of construction costs for Steeles West Station is \$159 million, exclusive of taxes. Steeles West Station is scheduled for award in the summer of 2011 with substantial completion by spring of 2015.

**Next Steps:**

A second public open house will be held in March 2011.

**JUSTIFICATION**

Approval is required to allow the station design to be finalized.

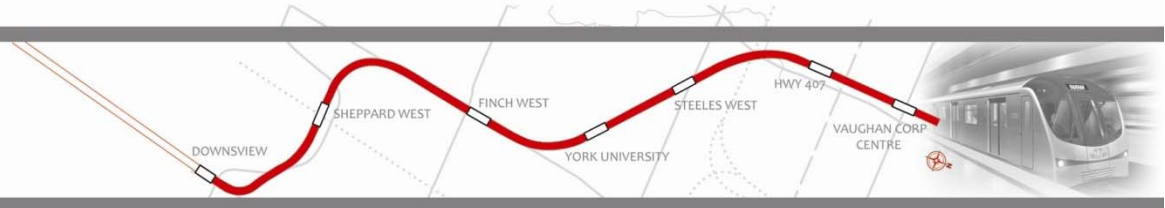
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January 12, 2011

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Attachments: Exhibits 1 to 14



# Steeles West Station

Located under the intersection of Steeles Avenue West and Northwest Gate:

- 1850 space Commuter Parking Lot
- Passenger Pick Up and Drop Off (PPUDO)
- 12 bay TTC bus terminal
- 5 bay YRT bus terminal

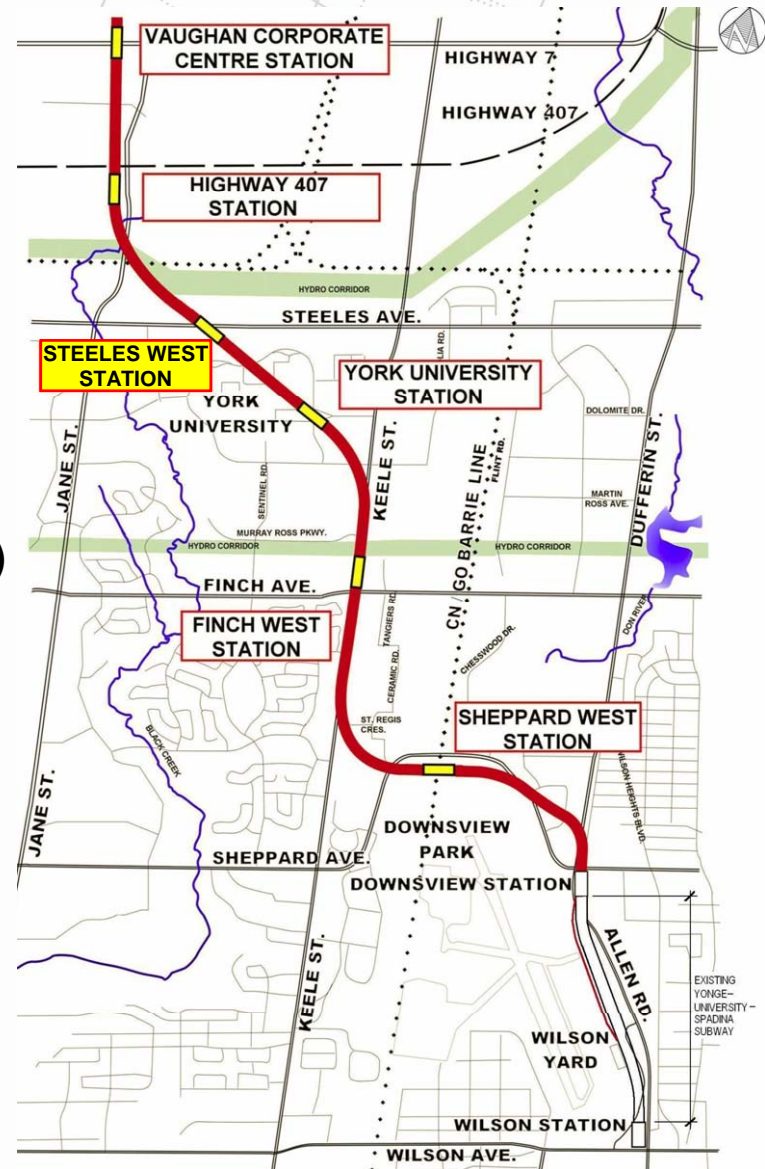
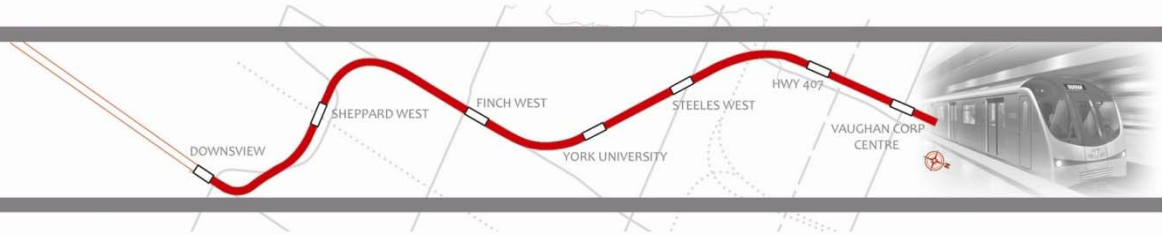


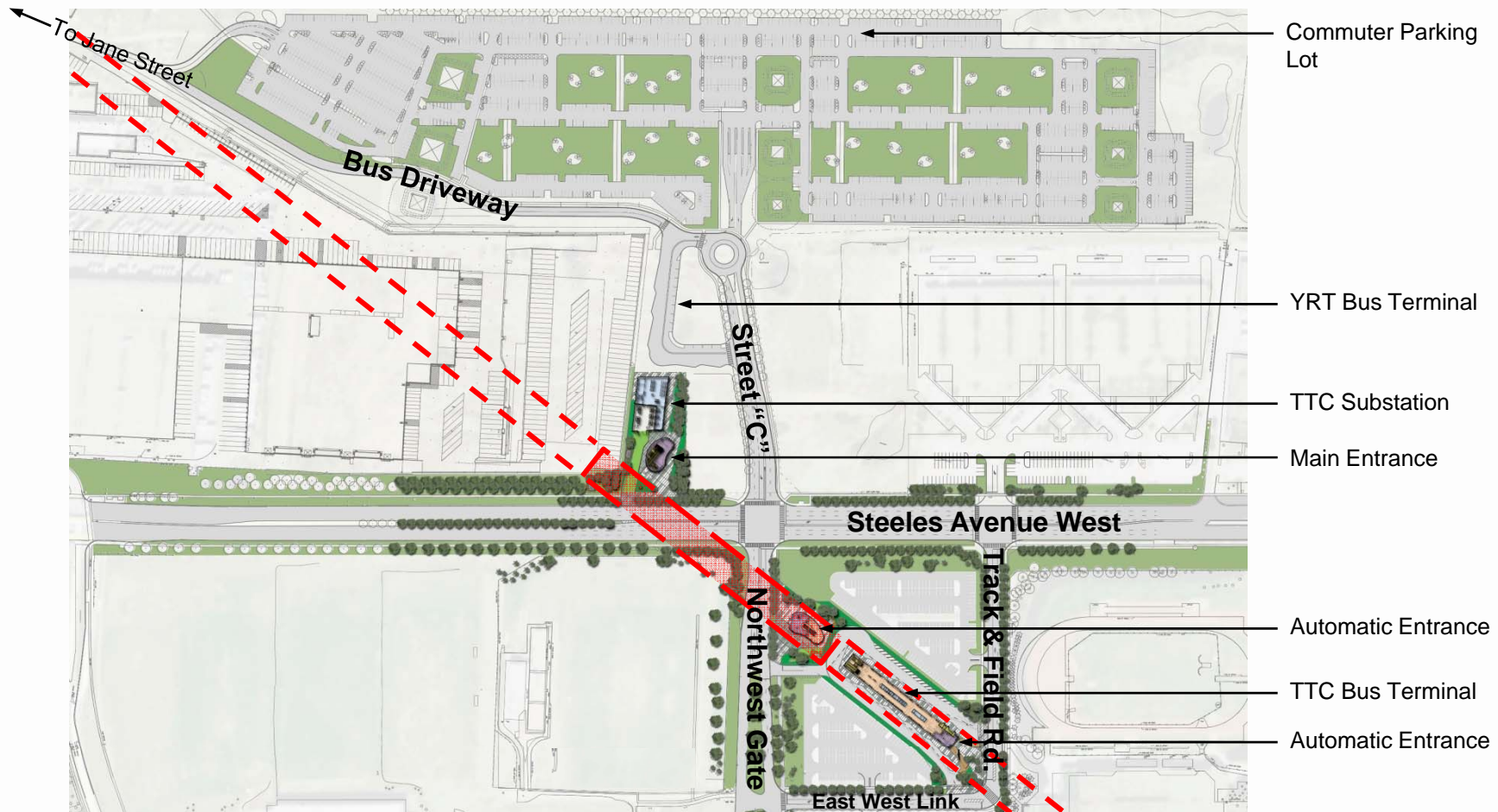
Exhibit 1 – TYSSE Map



# Toronto-York Spadina Subway Extension



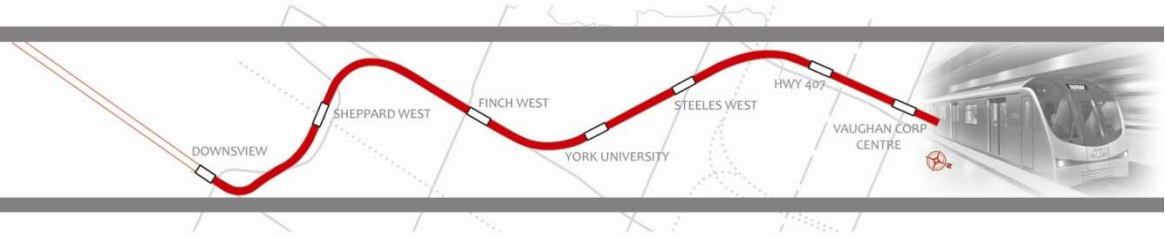
## Steeles West Station



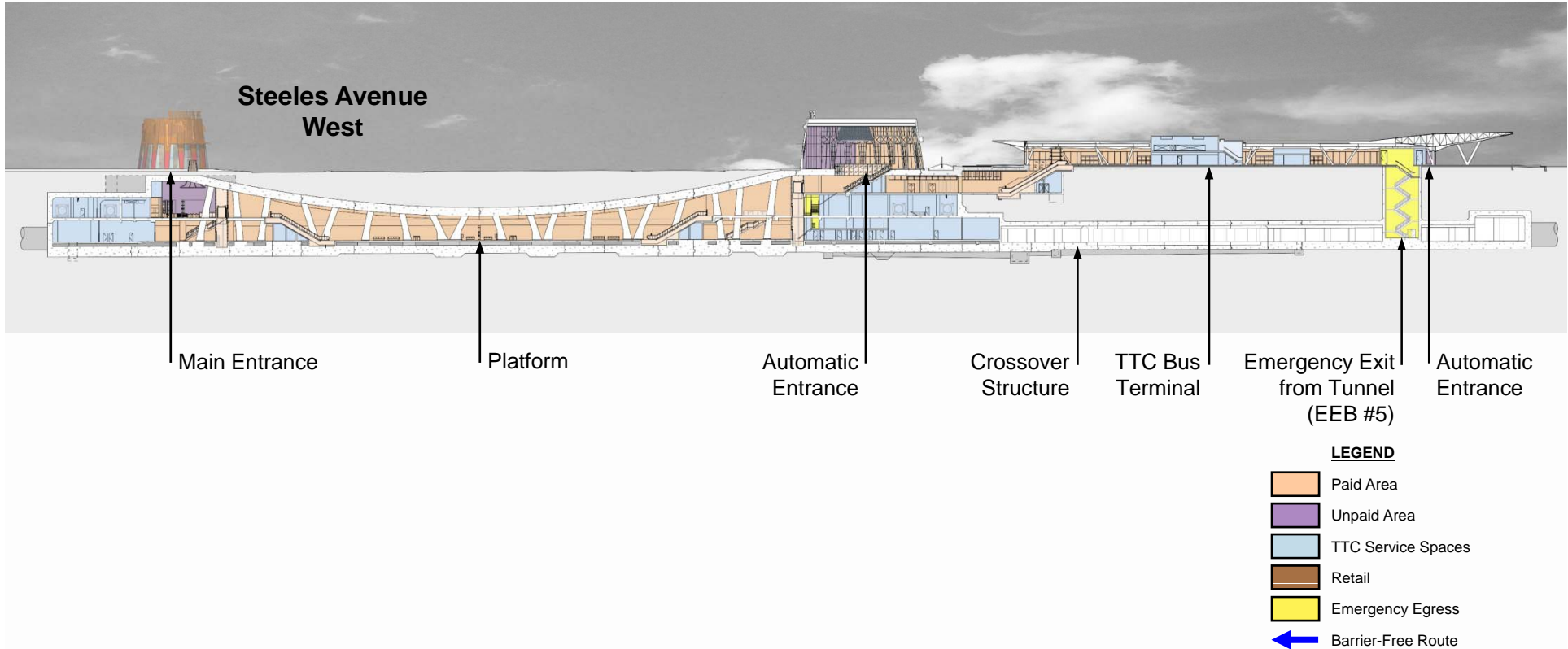
### Exhibit 2 – Overall Site Plan



Toronto-York Spadina  
Subway Extension



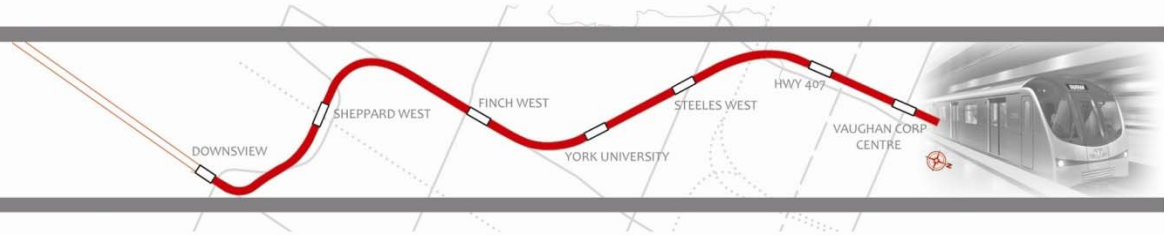
# Steeles West Station



## Exhibit 3 – Longitudinal Section



Toronto-York Spadina  
Subway Extension



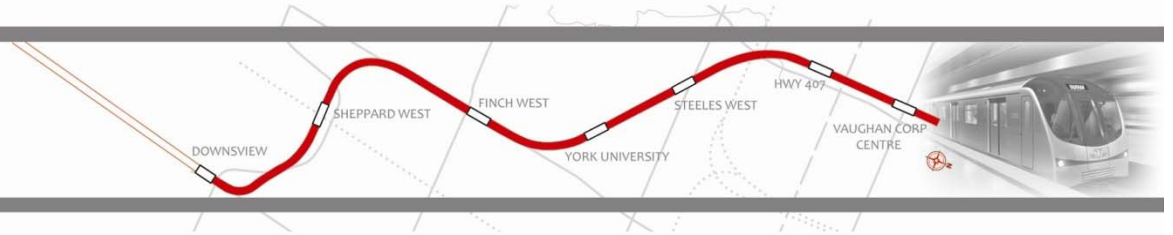
## Steeles West Station



**Exhibit 4 – Exterior View – Main Entrance**



Toronto-York Spadina  
Subway Extension



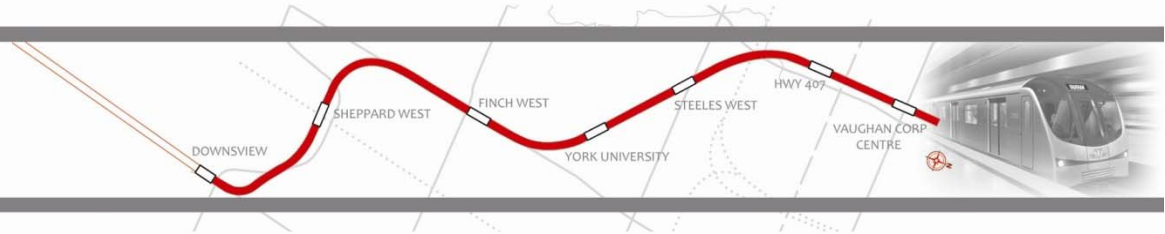
## Steeles West Station



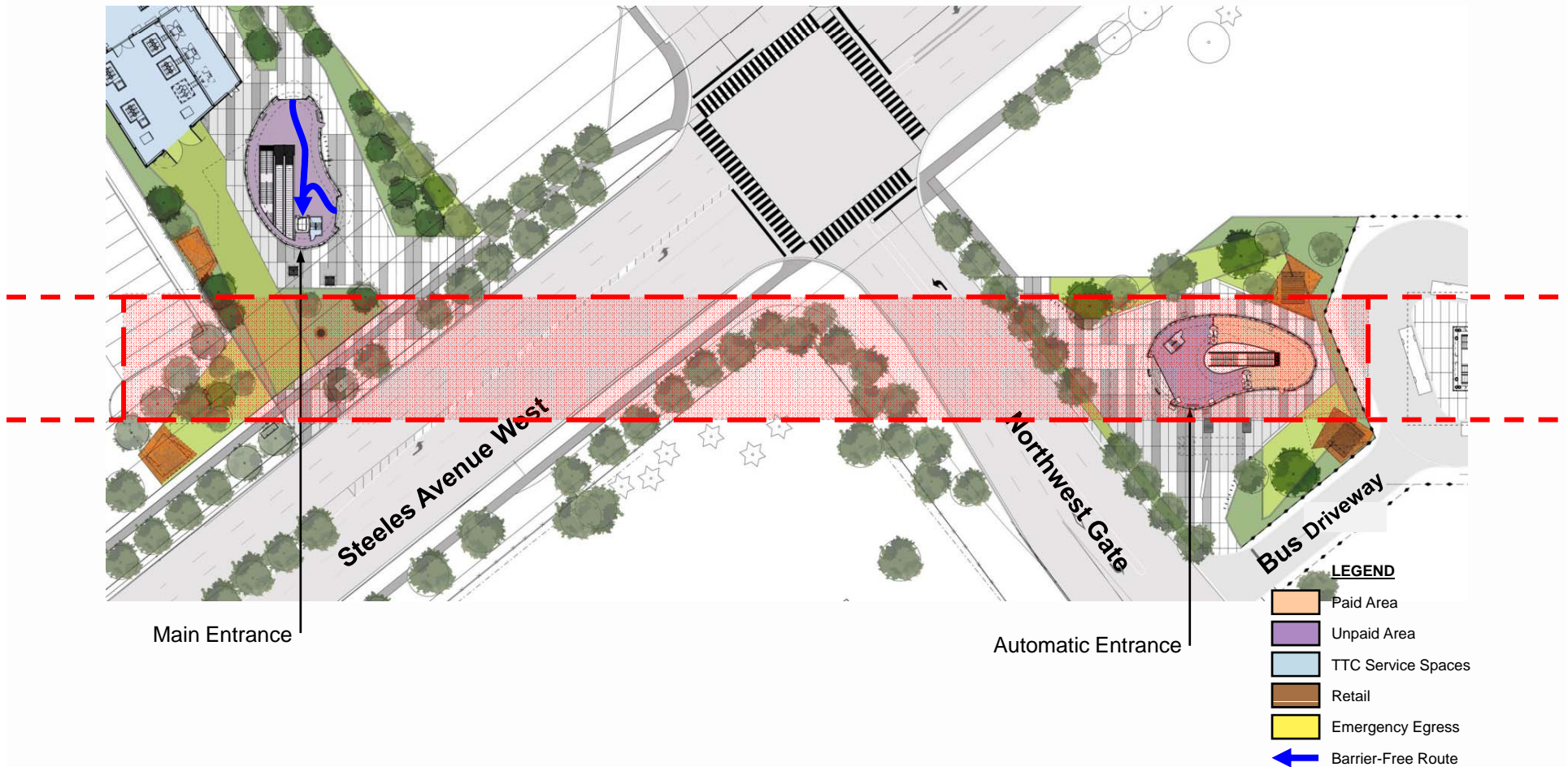
**Exhibit 5 – Exterior View – Bus Terminal Entrance**



Toronto-York Spadina  
Subway Extension



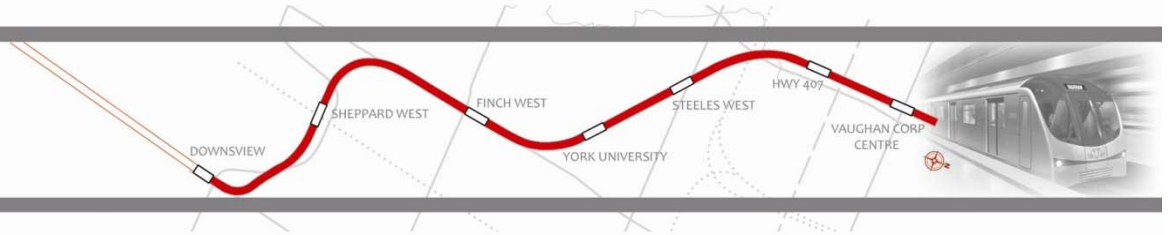
# Steeles West Station



## Exhibit 6 – Plan at Grade – Main & Automatic Entrance



Toronto-York Spadina  
Subway Extension



## Steeles West Station

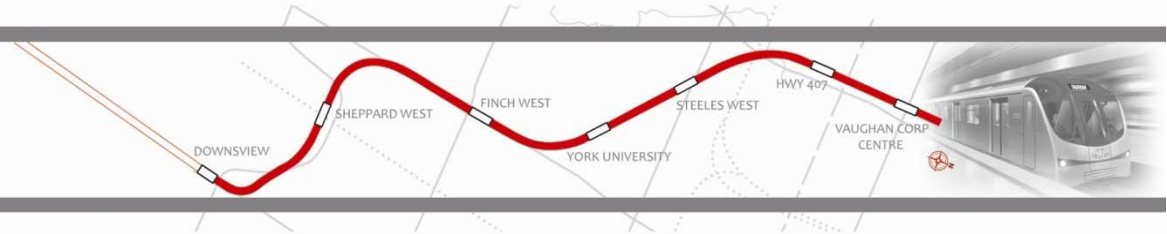


**Exhibit 7 – Interior View – Main Entrance**

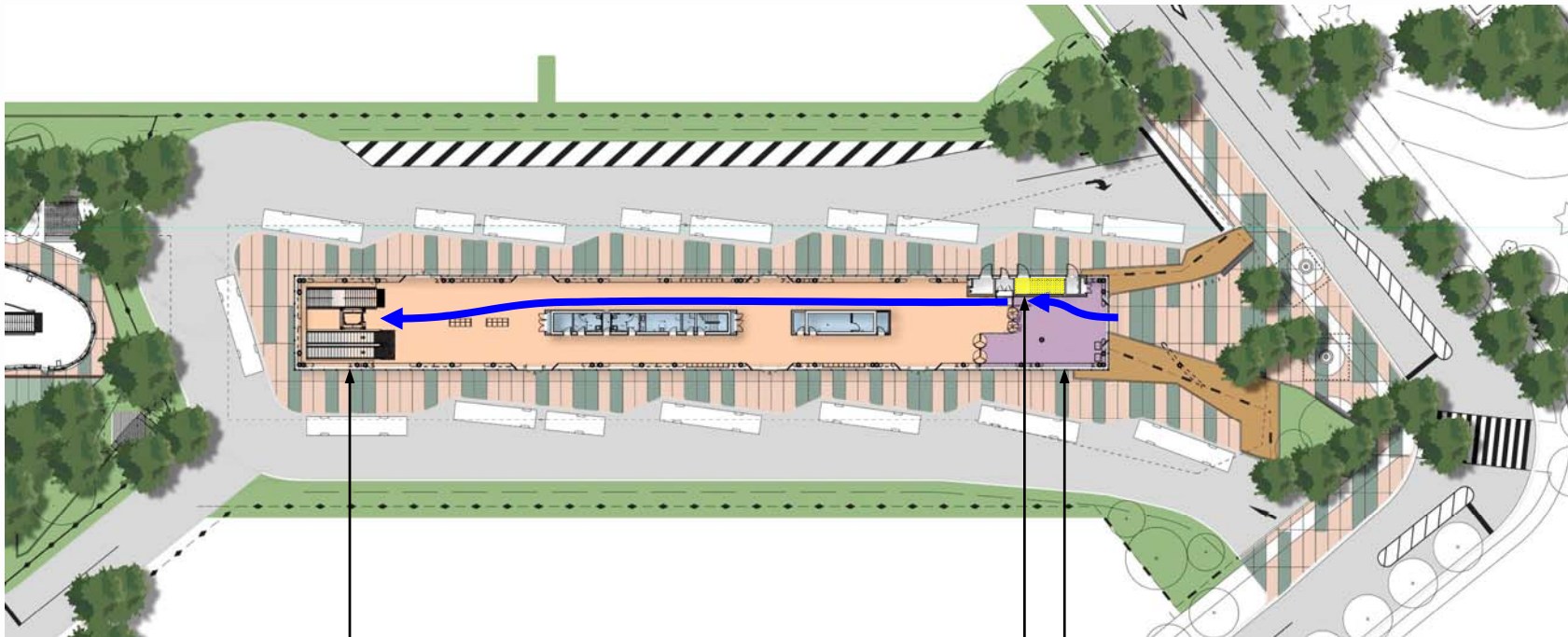




Toronto-York Spadina  
Subway Extension



# Steeles West Station



Stairs, elevator and  
escalators to  
Upper Concourse

Emergency Exit  
from Tunnel  
(EEB #5)

Automatic Entrance

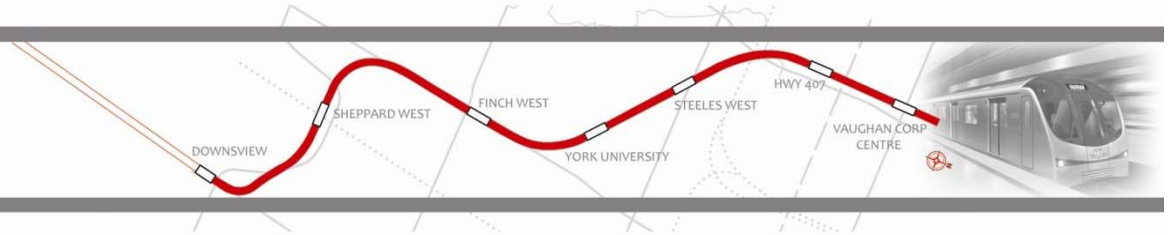
**LEGEND**

- Paid Area
- Unpaid Area
- TTC Service Spaces
- Retail
- Emergency Egress
- Barrier-Free Route

## Exhibit 8 – Plan at Grade – Bus Terminal



Toronto-York Spadina  
Subway Extension



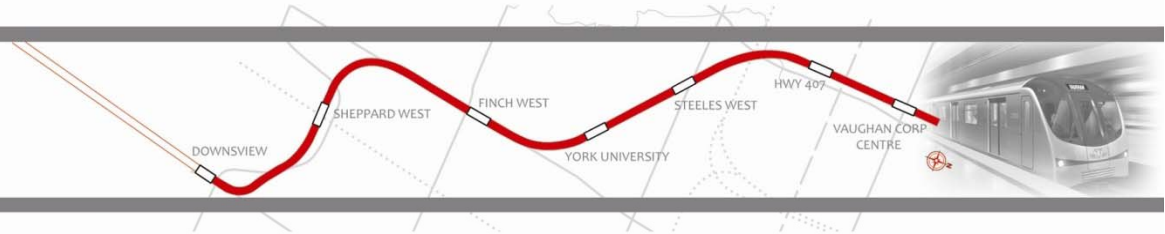
## Steeles West Station



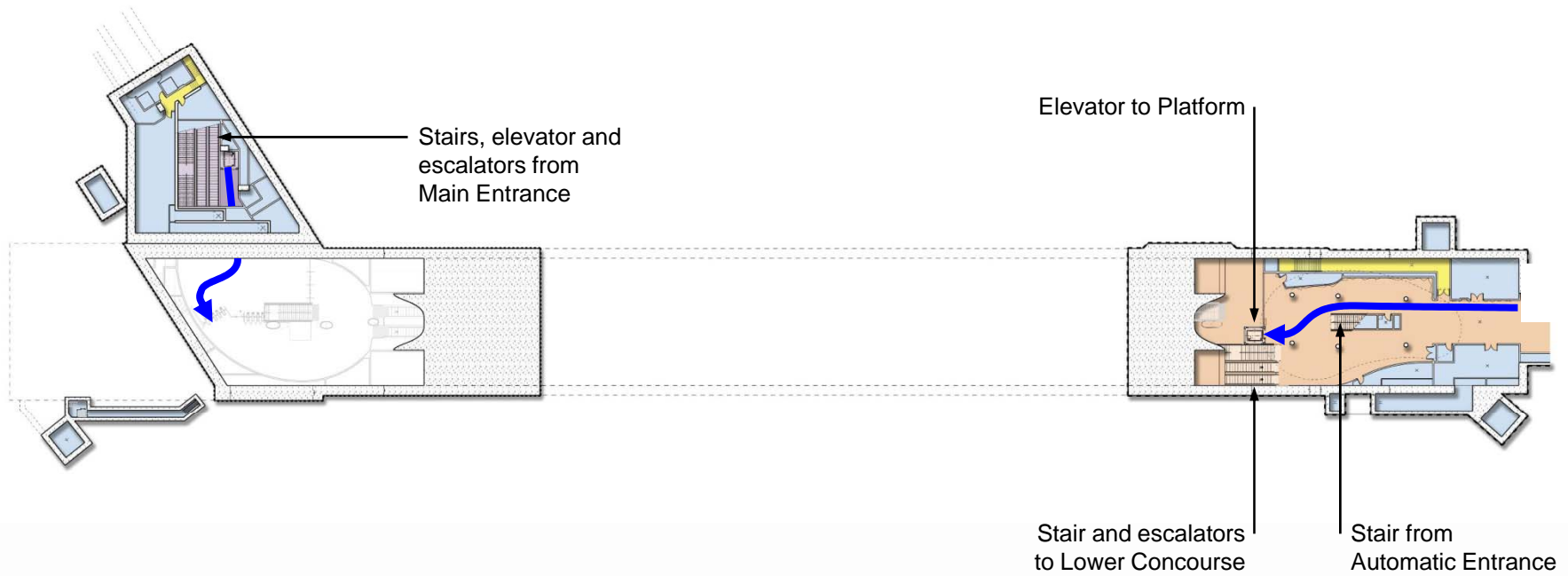
**Exhibit 9 – Interior View – Bus Terminal**



Toronto-York Spadina  
Subway Extension



# Steeles West Station



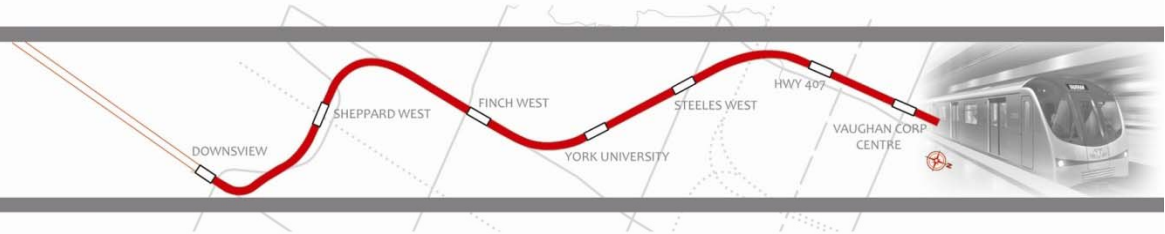
**LEGEND**

- Paid Area
- Unpaid Area
- TTC Service Spaces
- Retail
- Emergency Egress
- Barrier-Free Route

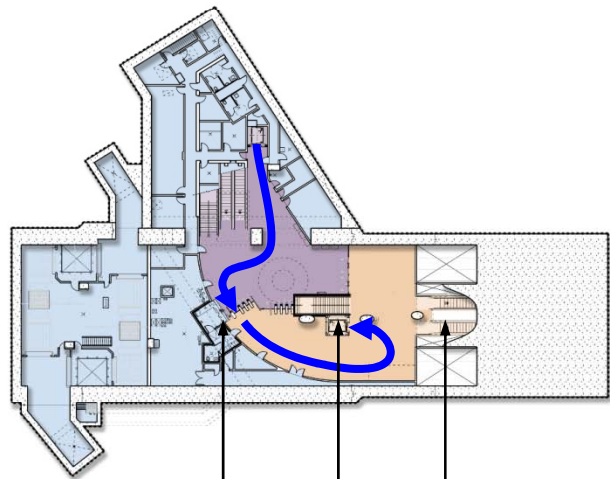
## Exhibit 10 – Upper Concourse Plan



Toronto-York Spadina  
Subway Extension



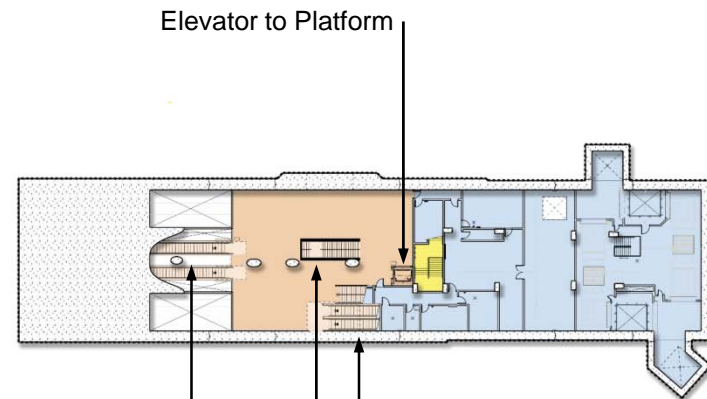
# Steeles West Station



Collectors Booth

Escalators to Platform

Stair and elevator to Platform



Elevator to Platform

Escalators to Platform

Stair to Platform

Stair and escalators from Upper Concourse

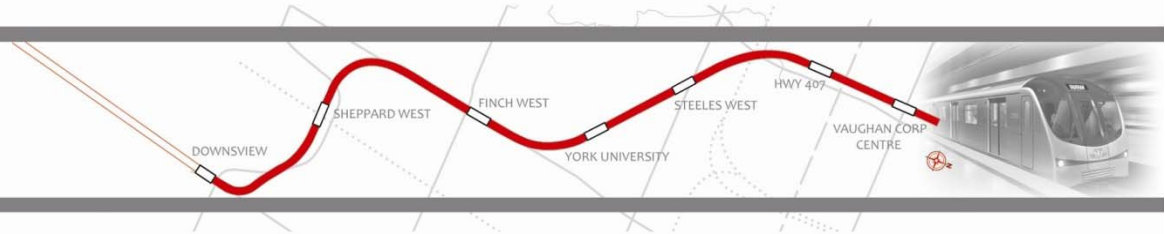
**LEGEND**

- Paid Area
- Unpaid Area
- TTC Service Spaces
- Retail
- Emergency Egress
- Barrier-Free Route

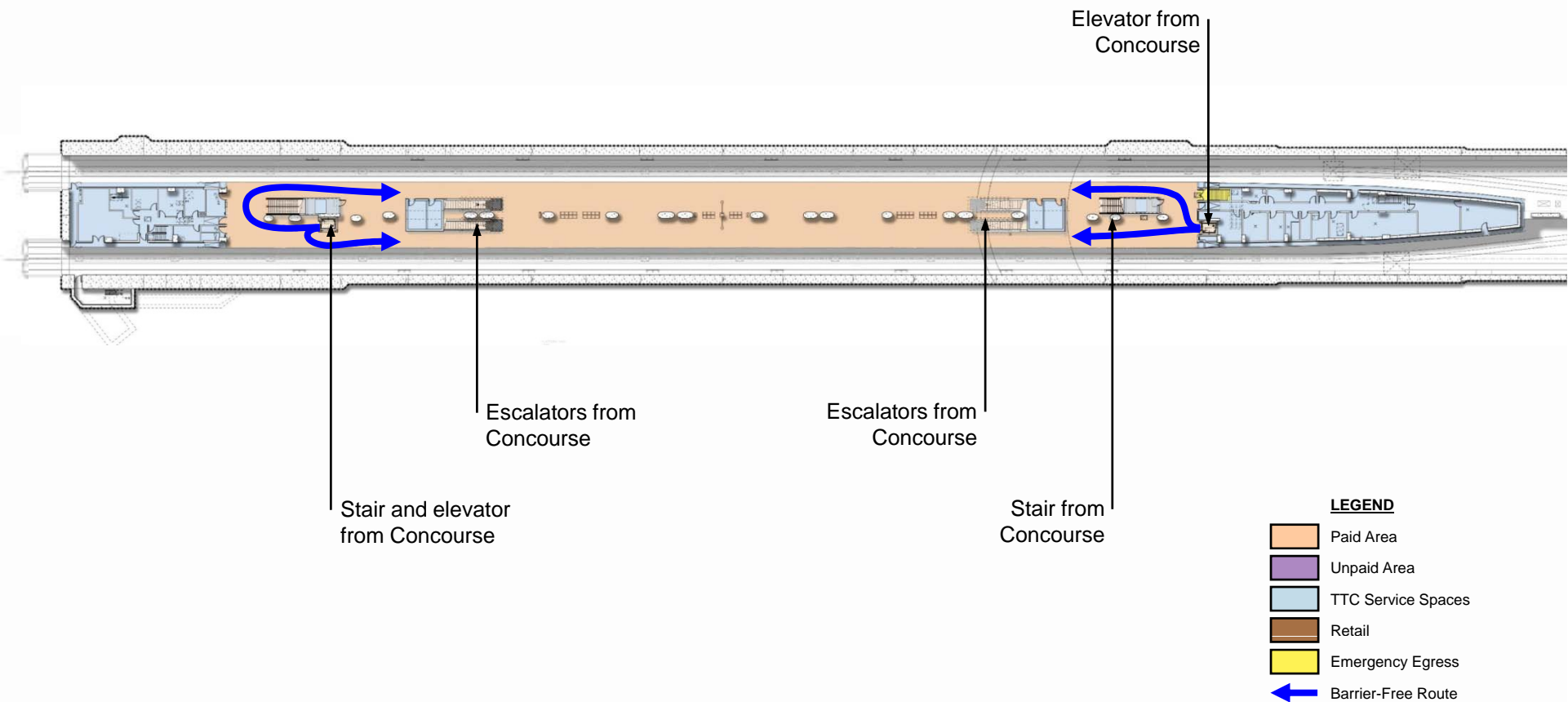
## Exhibit 11 – Lower Concourse Plan



Toronto-York Spadina  
Subway Extension



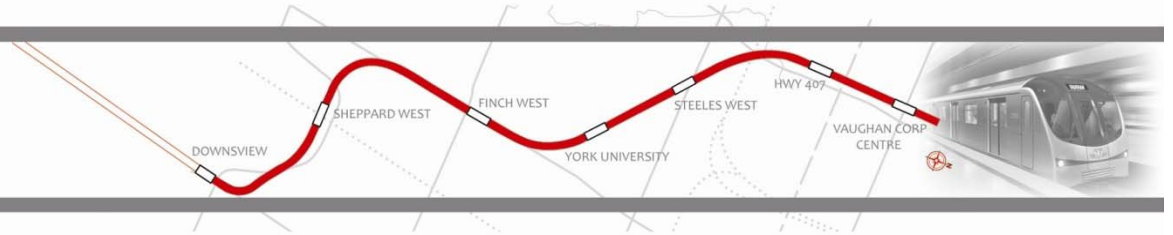
# Steeles West Station



## Exhibit 12 – Platform Plan



Toronto-York Spadina  
Subway Extension



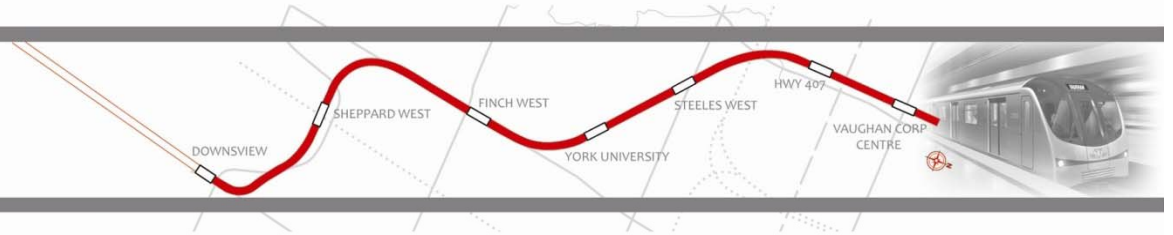
## Steeles West Station



**Exhibit 13 – Interior View – Platform**



Toronto-York Spadina  
Subway Extension



## Steeles West Station

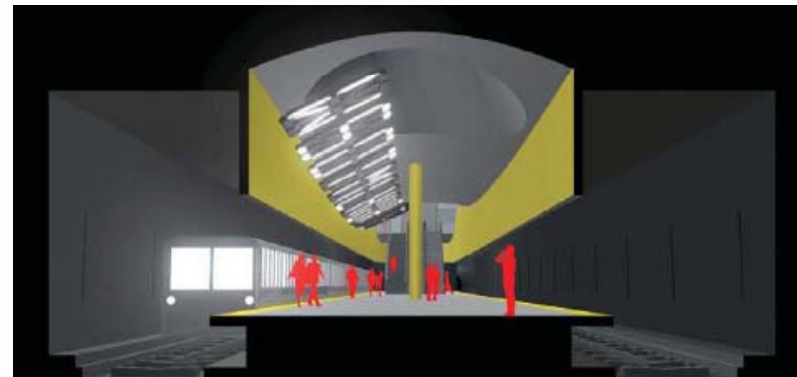
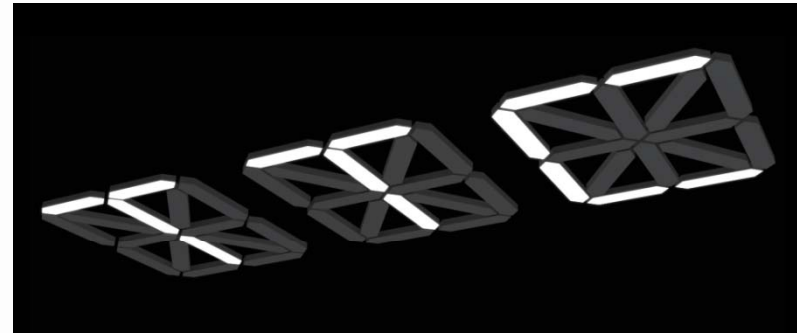
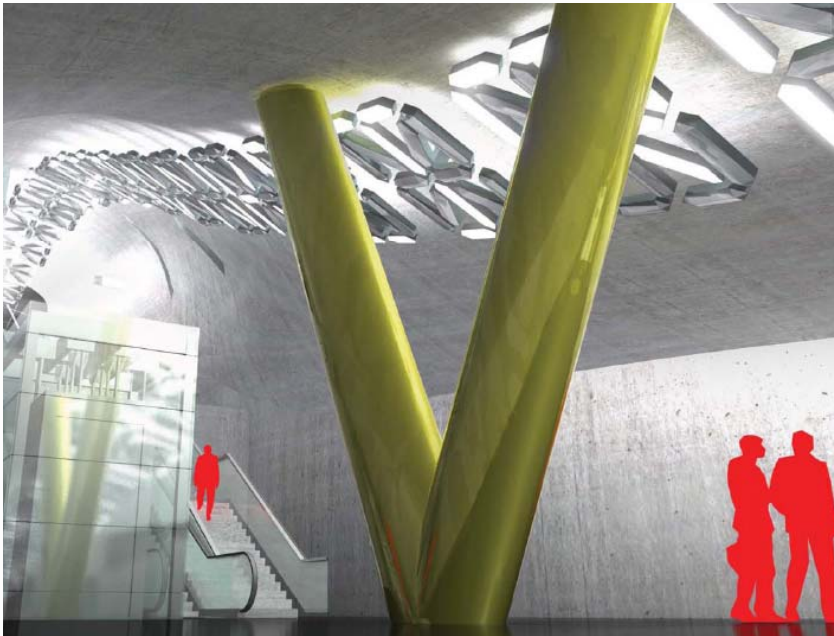


Exhibit 14 – Artwork – *LightSpell*