

Conceptual rendering, subject to change; does not reflect future transit-oriented development

Langley City Centre Station

Initiating Station Design Submission





Surrey Langley SkyTrain

	Revision Record								
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Project Overview

Surrey Langley SkyTrain

The Surrey Langley SkyTrain will extend the Expo Line 16 kilometres from King George Station in Surrey to 203 Street in Langley City. The Surrey Langley SkyTrain will improve regional connections and provide fast, frequent, and reliable transit service for people and businesses across Metro Vancouver, especially south of the Fraser River.

Once opened, the commute from Langley City Centre to King George Station will be 22 minutes, saving the average transit commuter approximately 40 minutes a day, relieving congestion along Fraser Highway.





Design Rationale

Architectural Principles and Approach

Current design approach will address two important aspects for the Surrey Langley SkyTrain Project:

- To reinforce systemwide identity such that the stations are seen as part of the SkyTrain System and as a family of stations for the SLS extension to Expo Line; and
- To develop station and plaza designs that celebrate connections to adjoining communities, anticipates future integration to corridor wide pedestrian systems, and elevates the passenger movement experience.

At the community level, our approach to local identity and placemaking will be organized according to distinct community areas within each of the Three Municipalities of the City of Surrey, the Township of Langley and the City of Langley. For the City of Surrey with the largest number of stations, the approach to community identity is further developed to reflect the finer grain of the specific neighbourhood within each community.

Community and Neighbourhood Character



The opportunities and architectural design approach for unique features that express local identity and neighbourhood character will be focused on the transit passenger/pedestrian experience of the ground plane elements, with key design features introduced at the street level pedestrian scale that are station specific.



Design elements such as the station plazas and the surrounding public realm will be developed with greater variability to respond to the surrounding context and contribute to placemaking and neighbourhood identity.



Areas such as the Commercial Retail Unit and the station plazas will respond strongest to the creation of local community identity, including use of varied plaza paving patterns and a unique canopy design at the CRU that sets itself apart from that at the station entrance. Our approach to street furnishings such as benches or lighting will be developed to balance municipal standards with systemwide consistency for public realm enhancements at all stations.



For the stations architecture, the design team supports an architectural design approach that balances systemwide recognition with neighbourhood level differentiation, using key experiential elements of each station that are recognizable as a SkyTrain Station, but exploring potential for design variation of these elements to enhance passenger experience and reinforce local neighbourhood character.



Each station will have a unique approach for the entrance canopy which differentiates between stations through articulation of its shape and orientation, while maintaining consistency in the use of wood and steel for recognizable transit specific materiality.

Design RationaleSystemwide Identity

From its first phase constructed for the 1986 World Exposition on Transportation and Communication, Vancouver's unique and world-class SkyTrain System has been expanded upon through three consecutive phases, and the SLS extension will be its fourth major expansion. Each expansion has taken cues from the Expo Line's architectural character. This original approach to modular and systems (kit-of-parts) design, in addition to the later use of mass timber elements, gives SkyTrain an identity that is unique and identifiable relative to any other transit system in the world. Further, the elevated station typology has a distinct set of recognizable components that respond and mediate between the most standardized functional requirements, to the unique attributes of topography and community.

The fundamental components are organized according to a sequence connecting the station platform that respond to vehicle dimensions and the associated boarding/alighting requirements, to the vertical circulation and concourse/entry spaces that must support wayfinding and ease of movement, and finally to the station plazas that facilitate placemaking and wayfinding to and from each station as the hub of a transit-oriented environment.

Our approach to the identity of the next SkyTrain expansion intends to build on this legacy of elegant and refined systemwide elements for continuity, while recognizing opportunity for unique expression and community variability where these stations support interface with passengers, neighbours and the surrounding community. Each of the station designs will reinforce its urban presence and the SLS systemwide identity through a consistent approach to the appearance and overall massing of the platform roof between all stations. By adopting a co-planar geometry and a similar material palette of structural heavy timber wood deck across the main station roof over the platform and the associated vertical circulation, the SLS family of stations will share a similar architectural language and materiality for the primary transit element represented by the station platform roof. The use of wood will be replicated at the station entry canopies, providing a similar ceiling appearance that visually and experientially links the at grade transit entrance with the platform above.





Design Rationale

Focus on Passenger Experience

At the level of the passenger and pedestrian, the proposed design approach will introduce opportunities for design variability that support systemwide clarity, while offering the potential for community enhancement and neighbourhood identity. The focus at the pedestrian scale will support design opportunities that benefit the SLS Stations in a number of ways, aligning with the vision in the previously developed concept design:

- Design legibility to enhance wayfinding, creating a convenient, safe, and easy to navigate environment for passengers and pedestrians
- Focus on human scale design variability to celebrate diversity and neighbourhood character at each stations
- Transforming transit stations into a community asset with a public realm design that celebrates connections to adjoining communities and corridor wide pedestrian systems
- Elevating the movement experience at grade through seamless integration for intermodal transfers and connections with adjacent and future transit-oriented developments
- · Creating an enhanced public realm to promote shared public use and a sense of place

More specifically, our Station design approach aims to develop elegance through simplicity, organized around key areas of a transit user's experience: Platform, Circulation and Entrance at the Station Plaza. The public realm interface, beginning with the Entrance at the Station Plaza is an important element in the experience between the local neighbourhood and the passengers arriving at or leaving the transit station, during daytime or evening.

















Design RationaleQuality and Type of Materials

Long term resiliency for operations and maintenance is a key consideration in Station and PPS designs, and in the selection of material type and quality, recognizing the need for best practice approach to support ongoing maintenance, refurbishment and renovations. For example, replaceable components shall be selected to meet minimum specified Service Life, and be designed for ease of maintenance and replacement change during the Service Life period.

In addition to durability, maintainability, performance and safety, the systemwide approach means establishing commonality to the palette of systemwide materials for all stations. This includes:

- Platform Ceiling: Exposed heavy timber wood soffit providing consistent appearance for all stations
- Station Entry Canopy: Exposed heavy timber wood soffit with a finer grain appearance and finish, along with form and geometry that is variable between stations
- Station primary exterior materials: steel, glass and CIP concrete
- Station back-of-house and PPS exterior: stone or concrete panel
- · Bike Parkade exterior: steel, glass and CIP concrete
- · CRU exterior: metal panel system with glazed curtain wall
- Station interior: floor tile, wall tile, and perforated metal panel (ceiling)

Component Assembly	Description	Date	
Platform Roofing	TPO roofing membrane	A material which is known for excellent resistance to ozone, UV radiation and certain chemical damage. Other benefits that contribute to the overall extension of design life is its durability to rips, impacts and punctures, therefore an ideal roofing surface without the need of additional top protection.	
Headhouse Roofing	Standing seam metal	Metal roof is known to have an excellent service life of 50+ years when water pooling on the face is mitigated; henceforth this material is only proposed for areas where roof slope is steep	
Platform Roof Deck	Engineer timber (ie. CLT, NLT)	Produced from renewable source, the natural finish of the material provides a visually pror appearance without the need for a separate ceiling soffit. The structural integrity of the parallows two-way span to minimizing additional supporting structure and connection details the needs to maintain and replace parts.	
Platform / Concourse Floor	Porcelain floor tile & tactile wayfinding tile Porcelain floor tile & tactile wayfinding tile The selection and type of floor tile used at the Platform shall meet at minimum the followastety (non-slip surface), durability (to withstand heavy foot traffic), maintainability (to be easily with water) and replaceability (can be done one or many at a time).		
	Cast-in-place concrete	The use of architectural concrete provides an aesthetically cohesive look between the Guideway, the Concourse and the Platform which is also the uniform identifier for all current SkyTrair System. The use of exposed concrete as building perimeter curb creates a strong define edge on the interior and exterior Station functional zone and is a durable material that can stand up to impacts from luggage, bicycles, and routine maintenance. In addition, the structural property enables the vertical steel members to land on the curb instead of the floor slab creating better protection for steel connections.	
	Stone veneer / concrete panel	To match a similar understated colour and finish of the cast-in-place architectural concrete of Station structures, the back-of-house ancillary area and PPS utilizing large format stone venior high-performance concrete panels as the exterior cladding of the rainscreen assembly. The materials are durable and can withstand aging in harsh environment and have excellent fire sistant property which provide an extra layer of protection for critical assets reside in the PP and the ancillary area.	
Exterior Walls	Composite metal panel	The composite metal system is a versatile exterior cladding for areas such as the CRU to pro a polished and modern look. The material is resistant to stain but can accept surface applied films to suit the branding needs of the CRU business or provide an opportunity for public art. The panelized nature allows easy mix-and-match of colour to create unique look at each CRU location or to reflect station neighbourhood character.	
	Glazing: point support & curtain wall	The transparency of glazing provides abundant natural light into the stations for energy s and to allow for great visibility to activities taking place in-and-around the stations, giving sengers a sense of safety and security day and night. In addition, the material itself is rus stain resistant with minimal maintenance required. The lamination can be specified to me design versatility as well as additional safety and the glass surface can receive post-appl for advertisement or public art installation yet be removed easily. When applied with progreating, the material can help to reflect UV without losing access to light and view. When is constructed as a seal unit, the assembly provide enhanced insulation property.	

Design Rationale

Station Materiality (Exterior and Interior)







2

Metal panel



Stone panel





Spider clip & laminated glazing

٥

Slip-resistant field porcelain tile



Perforated metal ceiling panel



Wayfinding tile



Glazed porcelain wall tile

Precedents







Coquitlam Central Station

Moody Centre Station

Design RationaleVision for the Station Plaza

Our vision for the design of the Station Plaza is to enhance neighbourhood identity, promote community integration, and support ease of wayfinding to station entry from surrounding community. Design variability will focus on the ground plane elements - station entrance, bicycle parkade, retail, PPSs, and plaza surface treatment, to support clear differentiation between main station entry and other plaza amenities.

We recognizes that a high quality public realm design will generate greater animation of the plaza to celebrate each station's unique neighbourhood context. The image to the right illustrate qualities of planting and design. In the following page, the diagram shows where the plaza design provides for a systemwide paving treatment of the entry pathway leading to the station entrance, patterned for directionality and consistent across all SLS Stations. This is framed on either side by decorative surface paving treatment, with the potential for design variability to support local neighbourhood identity and public gather around the CRU and other passive use areas for meeting and resting.



Diverse planting palette



Urban canopy



Landscaping seasonal interest



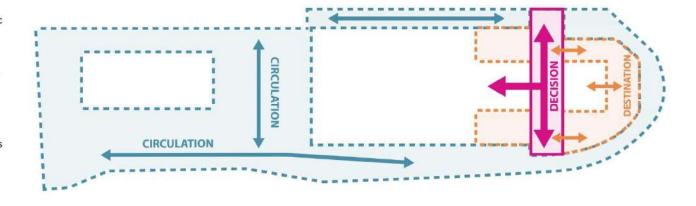
Combination of pavement finishes define use

Design Rationale Public Realm & Plaza Design

At each station, the public realm design will embrace a clear hierarchy of spaces, materials and architectural features that contribute to wayfinding clarity. The exterior circulation elements will follow clearly defined functional goals that reinforce the overall approach to transit network and station design. The exterior public areas with the highest concentration of movement will be designed to support widest options for wayfinding, accessibility and public art that enhance passenger experience. Building on the principles articulated in the previously developed concept design, our urban design approach to the public realm will organize the Station Plaza and Transit Exchange along three primary zones as described below and by the illustrative diagram:

Decision Zone: Comprised primarily of the immediate station entrance areas leading to the interior fare gates/fare paid zones. This zone is a critical interconnection between transit functions and the arrival/departure sequence, and must support clarity for transit interchange, ample space for seamless movement, and clear sightlines. Our design will provide a systemwide paving pattern and material as a key signifier of arrival at the station entrance, strongly aligned with the systemwide use of exposed wood at the canopy soffit.

Circulation Zone: Comprised of all areas required to facilitate pedestrian movement, this zone supports transit interconnections, interface with neighbourhood pedestrian networks, connection to multi-use pathways and general circulation within the Station Plaza areas. Our design will be focused on elements that enhance pedestrian experience including clear wayfinding, a CPTED responsive design to support a sense of pedestrian safety, ample but not excessive lighting, street furnishings & plantings that pro-



vide areas of respite, and paving patterns that contribute to ease of movement and wayfinding. This zone will provide limited opportunities design variability to create neighbourhood identity.

Destination Zone: Clearly associated with the exterior areas around the CRU and the Station Plaza, this zone offers the highest level of design variability to support local neighbourhood identity. Our design envisions that that this zone supports both Opportu-

nity areas and Flex areas as defined in the Reference Concept Design, providing a clearly delineated area as an outdoor 'living room' that serves multiple functions including neighbourhood meeting place, transit user rendezvous, and future interconnection to adjoining TODs. We recognize that each Municipality may have valuable design input related to this zone to support public realm animation and celebrate each unique neighbourhood context as part of the DAP process.

Design RationaleSustainability

Energy and Water Conservation

The project is designed to maximize the concept of the Walkable City. This is achieved by reducing energy usage through the following:

Low Carbon Transportation

Using transit and transit oriented development (TOD) through multimodal transportation links such as bicycles, taxis, rideshares, foot traffic, and so on for the "last mile" being micro modal forms. This reduces private automobile use to and around the stations as well as offering a viable alternative to the traveling public that is low carbon across longer distances, through the use of light rail.

Energy Efficient Vertical Transportation

 Creating vertical transportation including elevators and escalators using energy saving and low maintenance components that are energy efficient, and with low energy LED lights. Energy saving lower speeds will be programmed. Variable voltage/variable frequency (VVVF) drive systems will be provided for energy savings.

Sustainable Daylighting

Providing a lighting strategy that offers highly reduced energy usage by maximizing daylighting through a fully glazed curtain wall system that amplifies wayfinding, safety and views to outside. All glazing is compliant with the Province's strict energy standards.

Sustainable Materials

The project includes sustainable and renewable materials and processes, with preference given to a higher proportion of natural material and native planting selections where possible. These include:

Sustainable Wood Products

 Maximized use of Cross-laminated timber (CLT) which is produced using energy efficient manufacturing processes renewable materials, with a structural strength amply suited to project needs. This also provides a natural biophilic element that is intended to amplify a sense of well-being throughout the user experience.

Selective Use of Aluminum and Steel

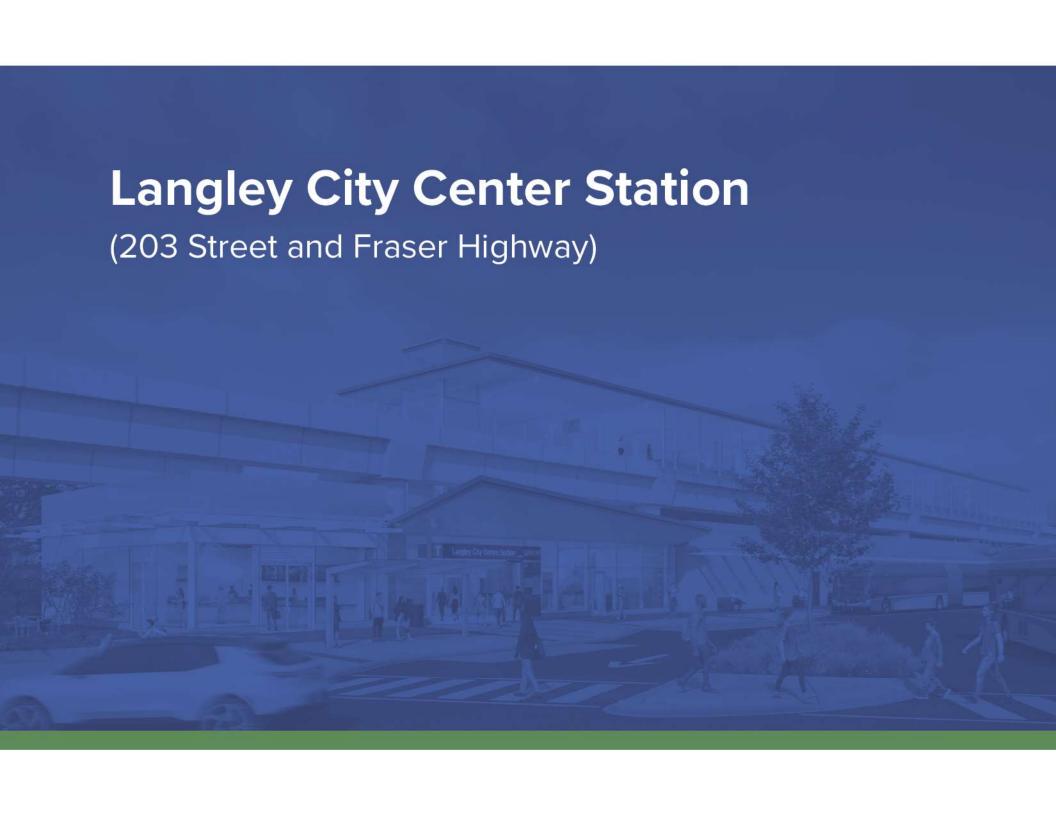
 Aluminum and steel chosen selectively on an as-needed basis and with high performance coatings for low maintenance and reduced need for replacement; panelized for ease of future reconfiguration. The balance of material selection is given to wood instead of metals, with metals being used to create a biophilic reflectivity that creates a sense flow.

Durable Composite Panels

Sustainably produced and durable composite panels in place
of mined stone for long life span and low maintenance,
panelized for ease of future reconfigurations. These composite
panels are engineering to withstand high traffic, thereby
reducing the need for extensive chemical cleaning and use
of water for maintenance.

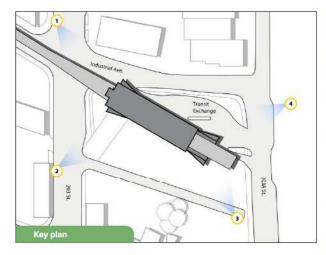


Inlet Centre Station



Station Site & Context

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1 North West



North East

Station Site & Context

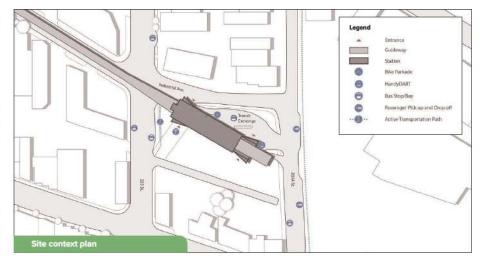
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North elevation streetscape

Rendering does not reflect future transit-oriented development





City of Langley Official Community Plan 2021

Station Site & Context

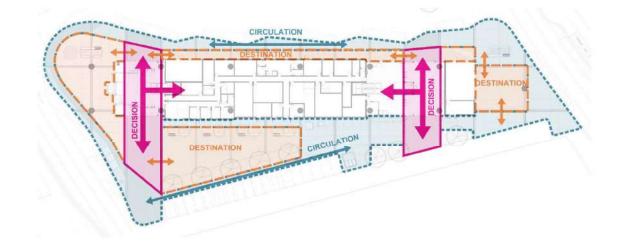
Urban Context & Development

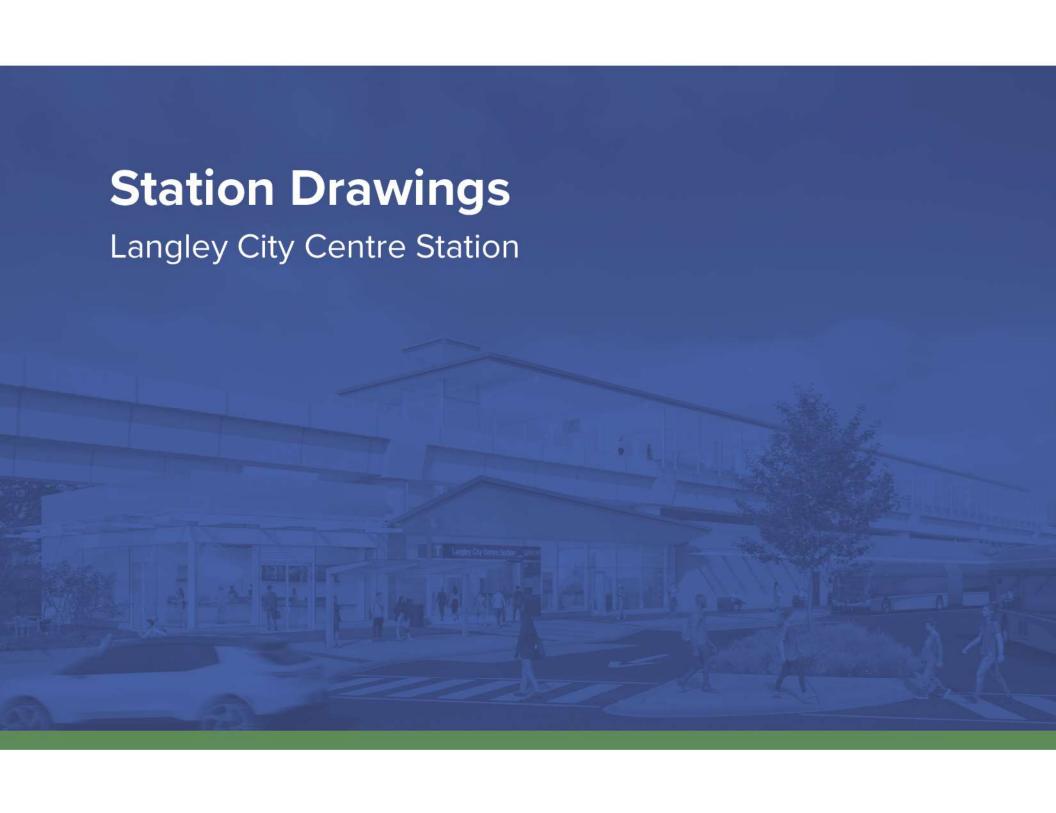
This is the terminus station located at the heart of City of Langley, the surrounding land use is designated as transit-oriented Core by the OCP, permitting the highest densities of mixed-use residential commercial development. A new Park/Open Space is indicated for the lands immediately south of the station which may be developed to include outdoor recreation spaces and small-scale institutional use. The station site is currently undeveloped, and the surroundings are characterized by low-density light industrial and commercial uses.

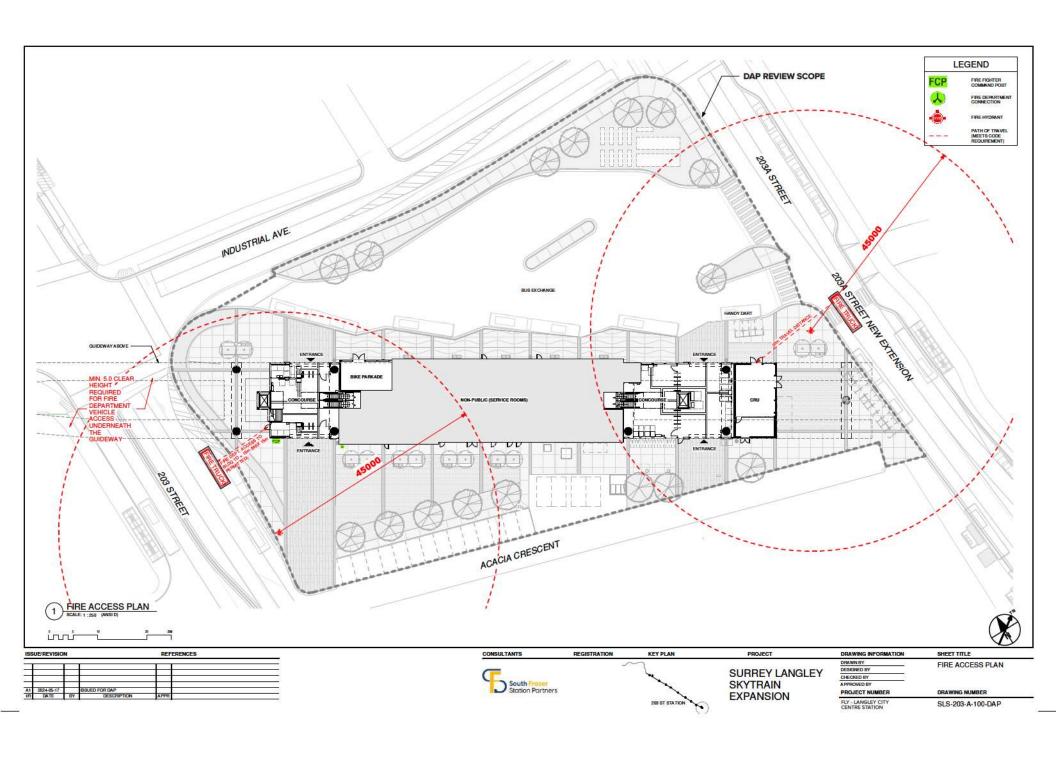
The public realm design will respond to the function of the station as both the terminus of the SLS system and an integrated transit hub. Generous Circulation Zones around the perimeter will support bus transit interchange as well as facilitating connection to the municipal pedestrian network and future adjoining developments. Decision zones are clearly delineated as a systemwide surface paving treatment to connect the station entrances with Circulation Zones. Destination zones are located strategically at the station entrances and to the south, offering a variety of flex and opportunity uses for CRU, for the public plaza interface with future developments to the south, and to support informal meeting and gathering for transit users and neighbour residents.

The station design is a unique centre-platform configuration on the SLS system, offering two double-sided through entrances at both ends of the station to support the Transit Exchange to the north and a public plaza to the south. The double entrances will be defined by signature canopy shapes that will serve as primary wayfinding signifiers, with the wood ceiling soffit continuing through the station entrance zone to visually connect all sides of the plaza interface with the heart of the station entrances. Aligned with design team's design partit to differentiate the transit specific elements, the canopy coverage for the CRU will be visually and physically separated from the station entrance canopy through a change in materiality, assembly, and shape.

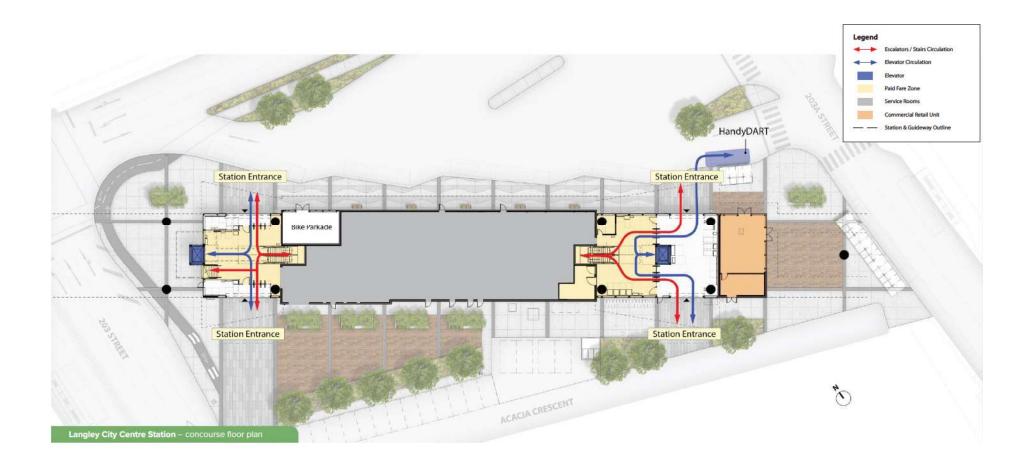
Langley City Centre Station

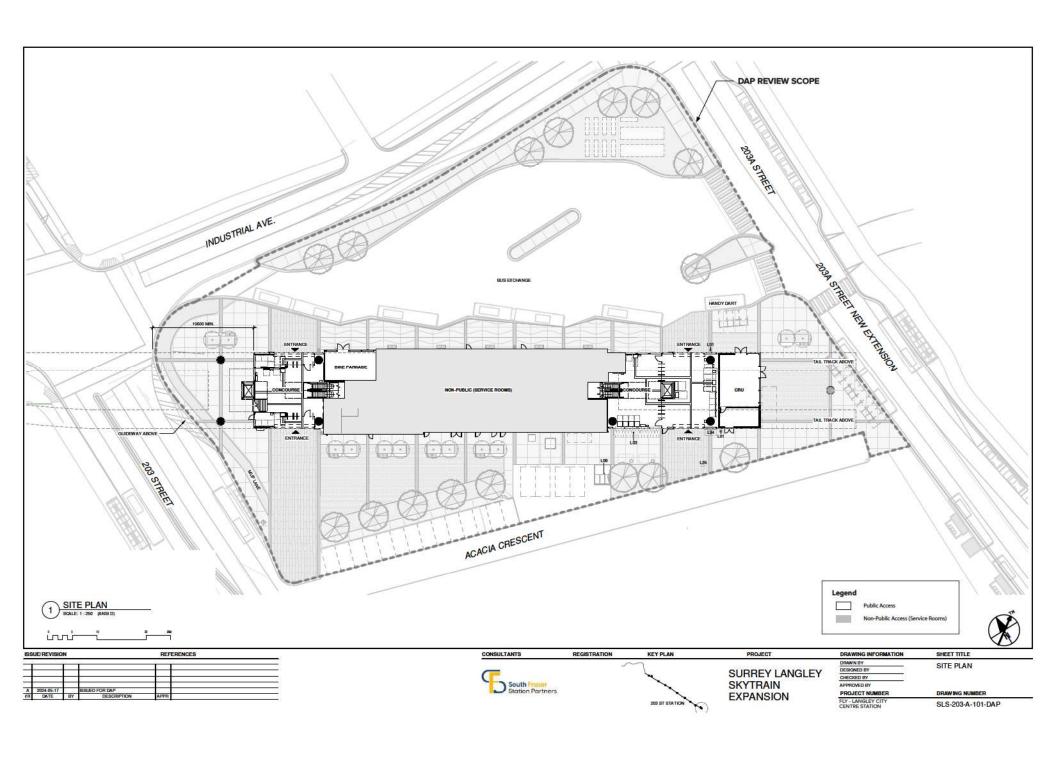


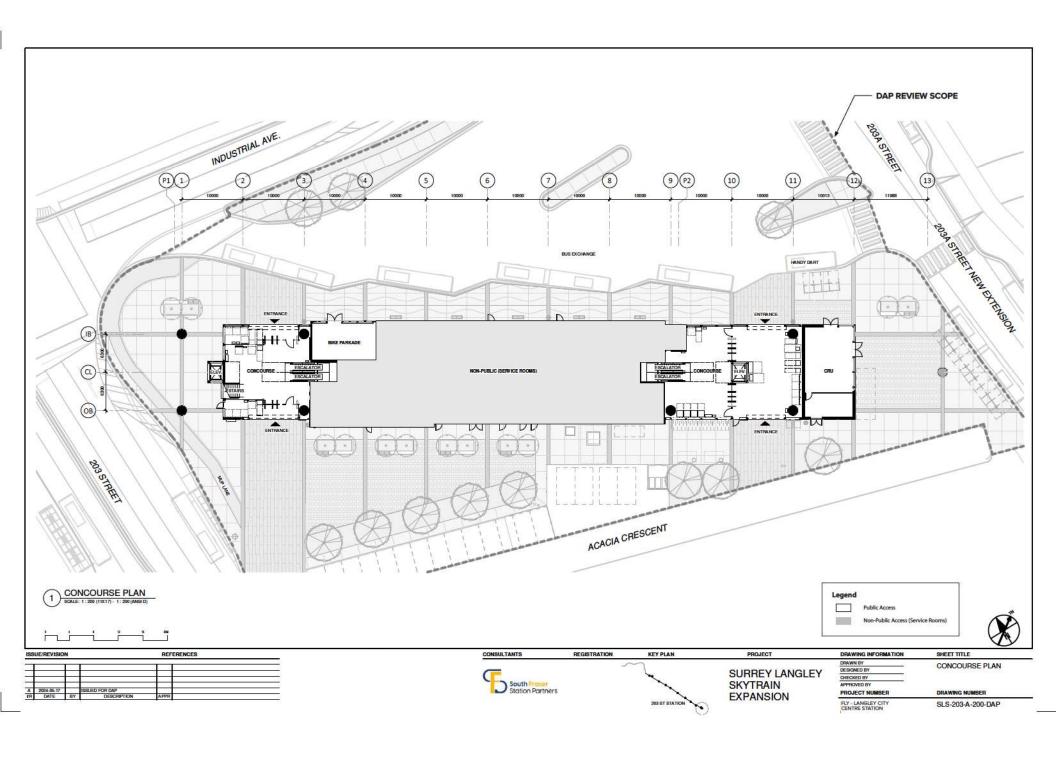


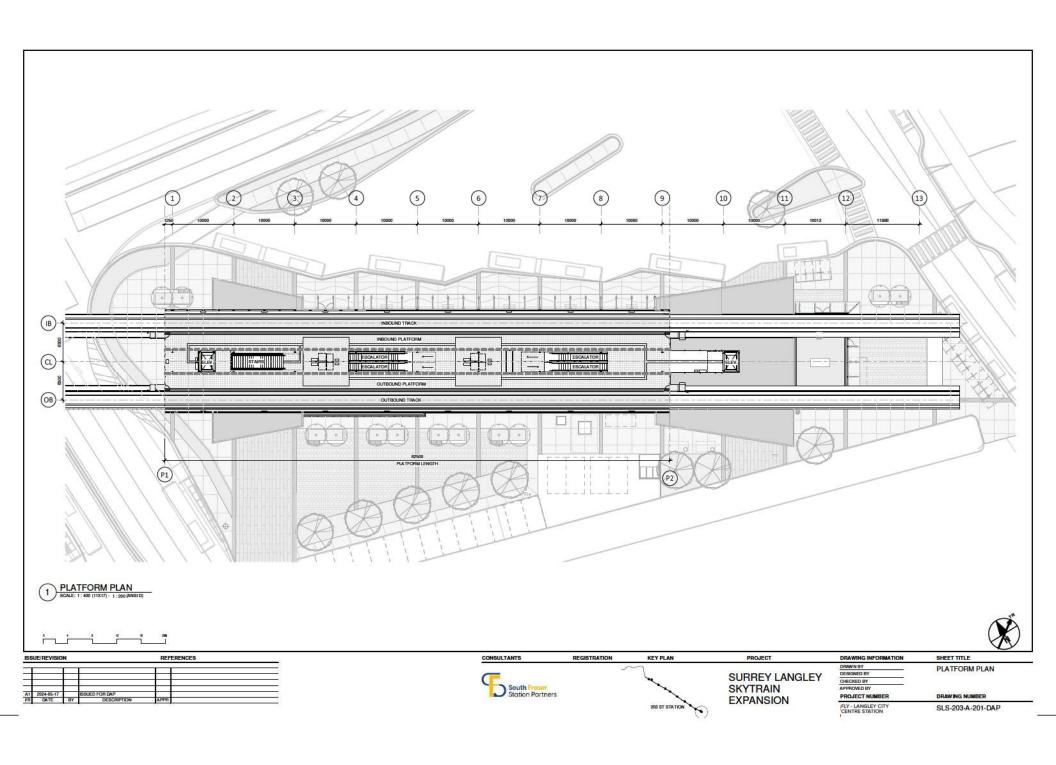


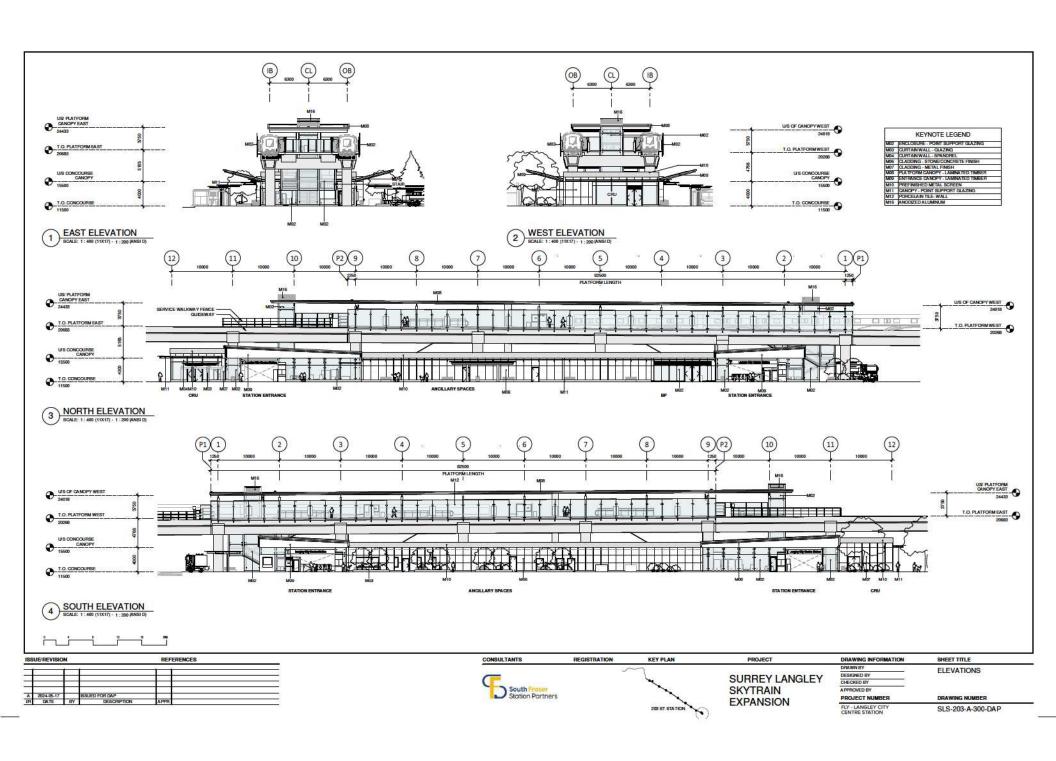
Accessibility & Connectivity Plan

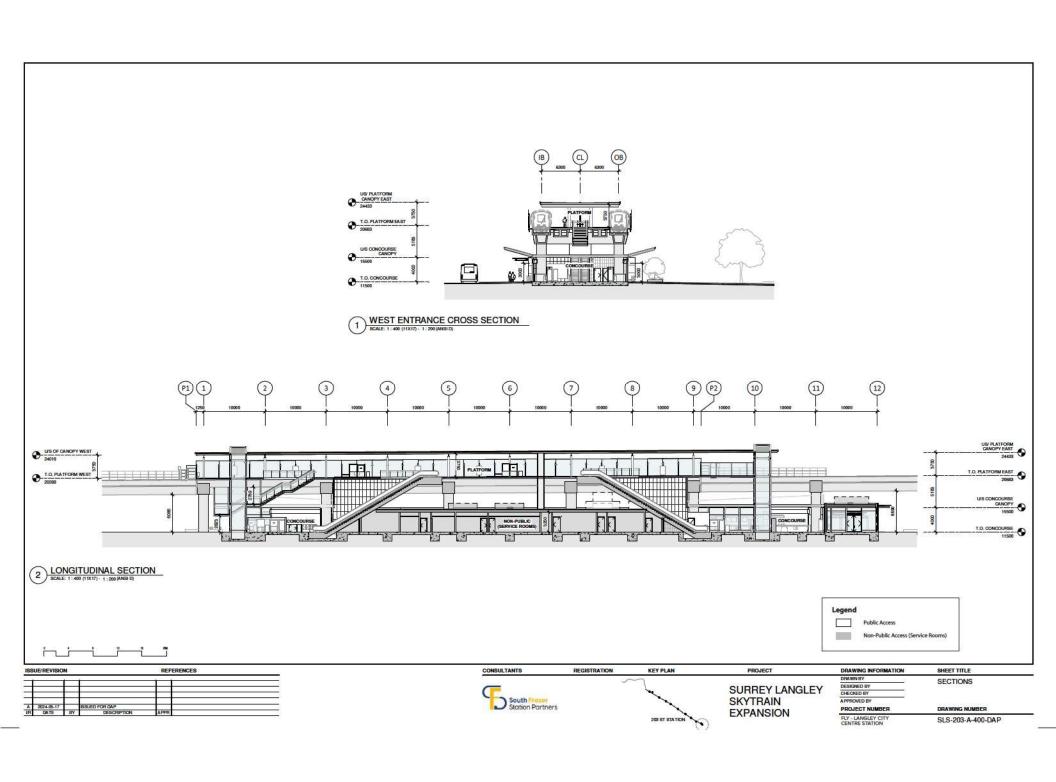












Station Circulation

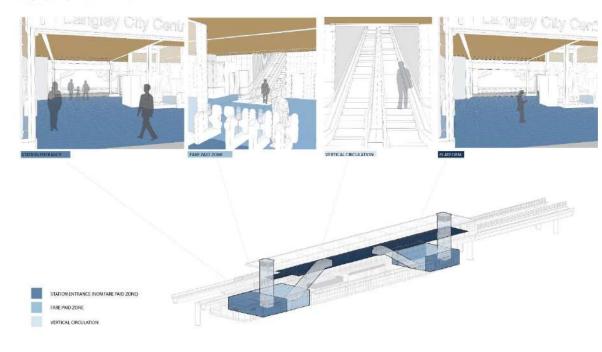
Station Interior Sequence of Spaces

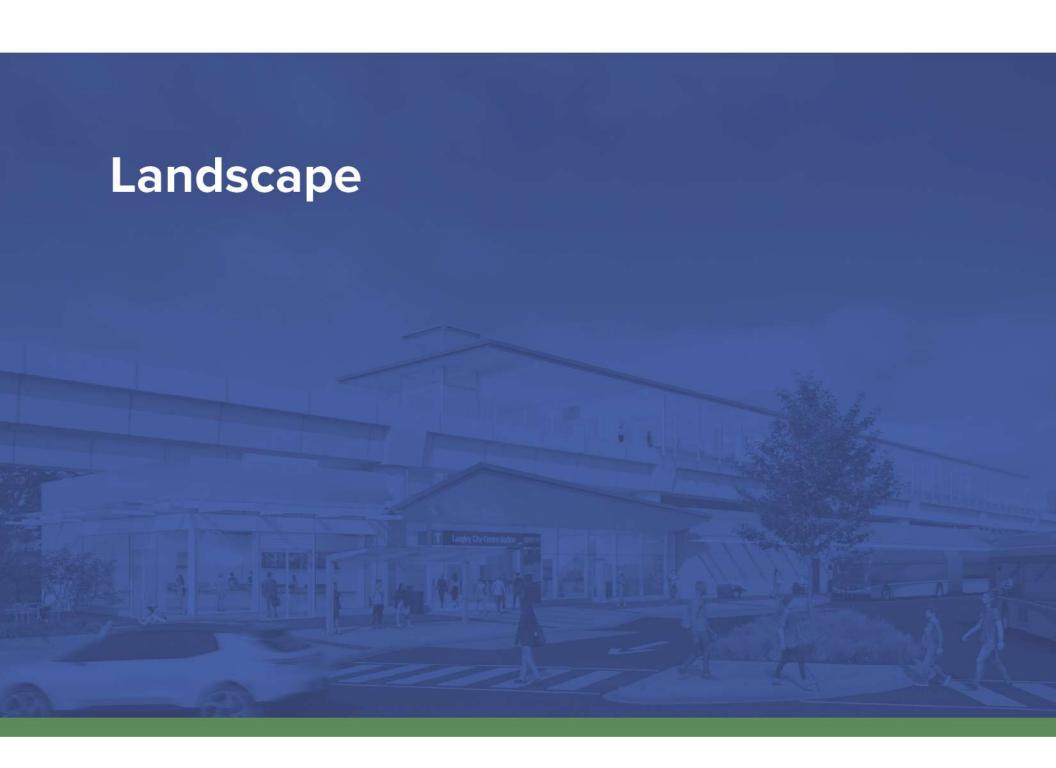
Entering the Station, the circulation areas will focus on transit user experience, allowing design variability between stations as an elegant response to differentiate designs at the pedestrian scale that does not impede wayfinding and clarity of movement. The areas of highest concentration of movement will be designed as generous circulation spaces that not only promote ease of movement, but also offers opportunity for the areas of highest public exposure to be punctuated with public art or other design and wayfinding devices.

The Platform environments will be developed with a high degree of consistency to reinforce systemwide legibility and promote ease of use. A standardized approach to materiality, assemblies and high quality finish will support durability, constructability, while clear station identification signage visible to passengers from train and platform alike will support an iconic identity for SLS Stations along the Expo Line extension.

Once inside and moving through the above-described areas of a typical station, transit passengers will navigate a hierarchy of spaces that are mapped out according to the zones of interaction described by the figures below. These zones will serve to inform materiality choices that enhance passenger experience, support wayfinding, create station identity and promote systemwide legibility.

Langley City Centre Station





Illustrative Landscape Plan





Decorative cast-in-place concrete pavement



Cast-in-place concrete pavement



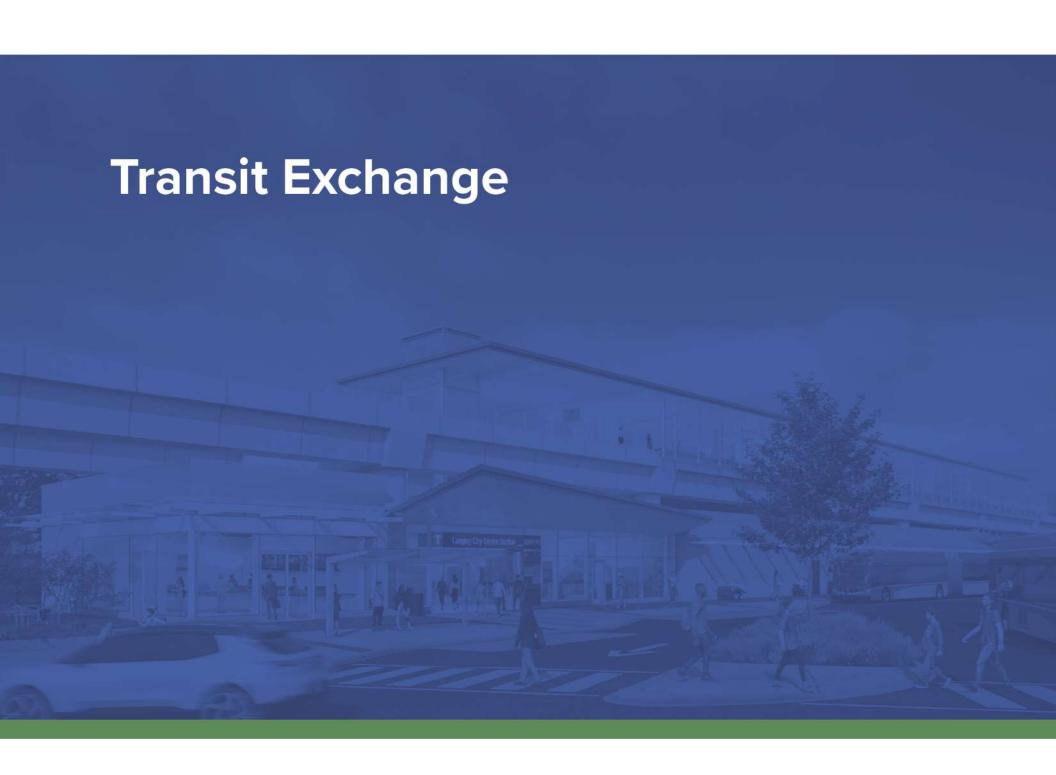
Exposed aggregate concrete bands

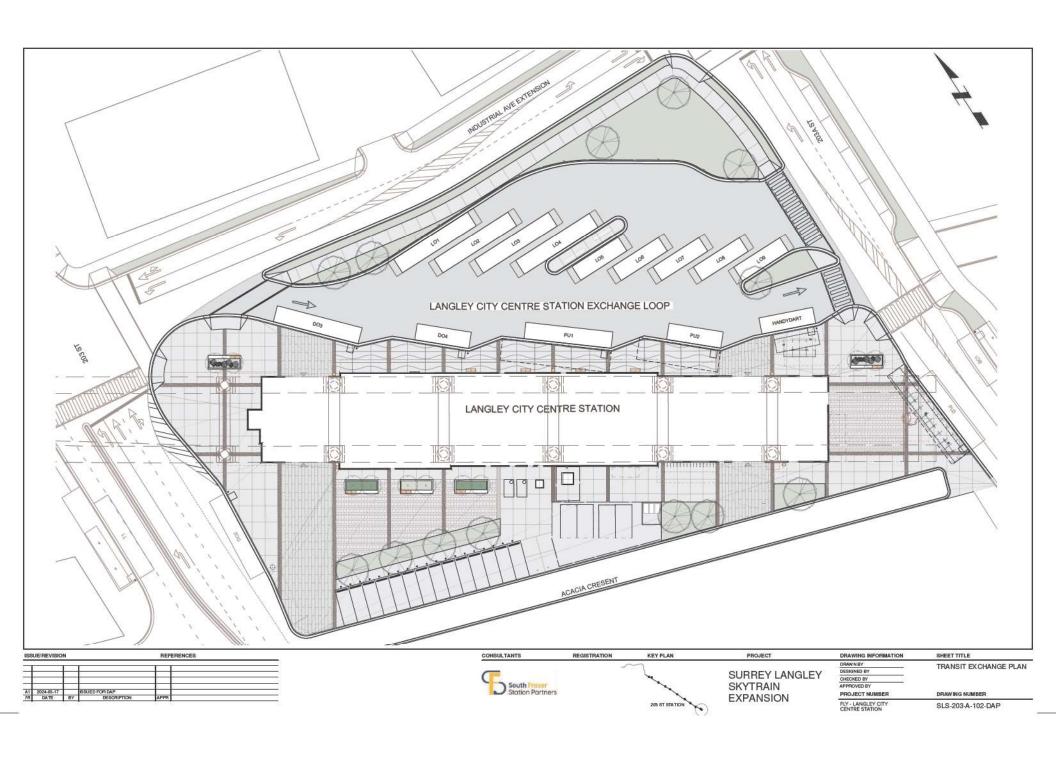


Unit paver pavement



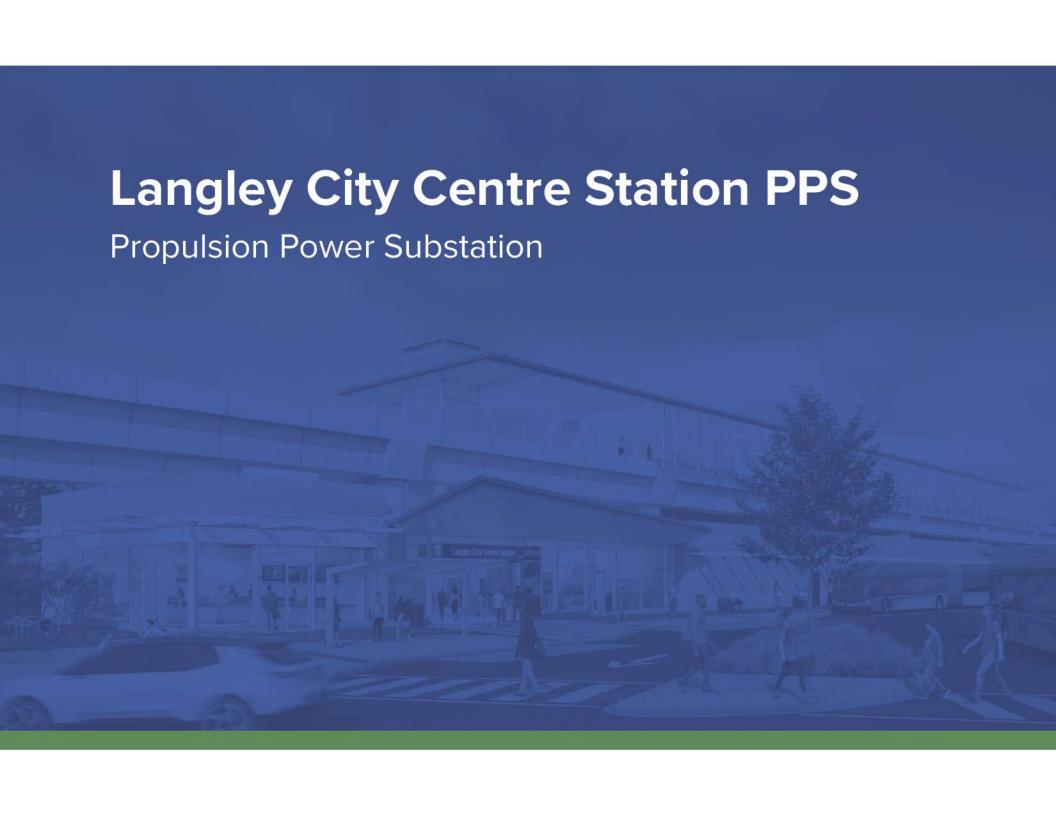
Decorative wave pattern





Transit Exchange





Propulsion Power Substation 201A St. & Industrial Ave.

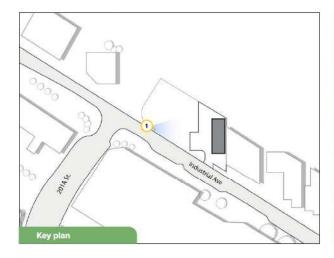
The Propulsion Power Substations (PPS) are required as part of the critical infrastructure that supplies electrical power to the SkyTrain system. The locations for each PPS are generally determined by functional requirements arising from such issues as service frequency, distance between PPS, power load demand, overall system expansion and sufficient power to address redundancy and resiliency. For the SLS project, the PPS are generally co-located with the stations, except in 3 locations where additional stand-alone PPS buildings are required to support the service levels expected of the SLS project.

Langley City Centre PPS is in an industrial part of the City along Industrial Avenue. The PPS site is opposite to the guideway and is adjacent to an existing one storey industrial building to the east and a vacant land to the west. The PPS building and site are arranged to respect the front yard setback and side yard setback to the east. The site accommodates space for two service parking, BC Hydro vista switch vault, and typical fenced AARU area.



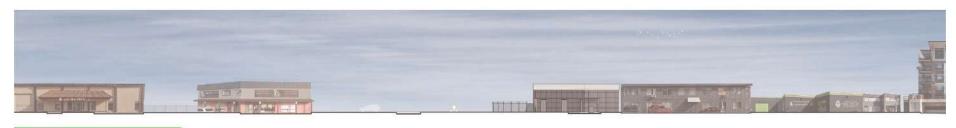
Conceptual rendering, subject to change; does not reflect future transit-oriented development

Urban Context & Development





1 West



South streetscape







