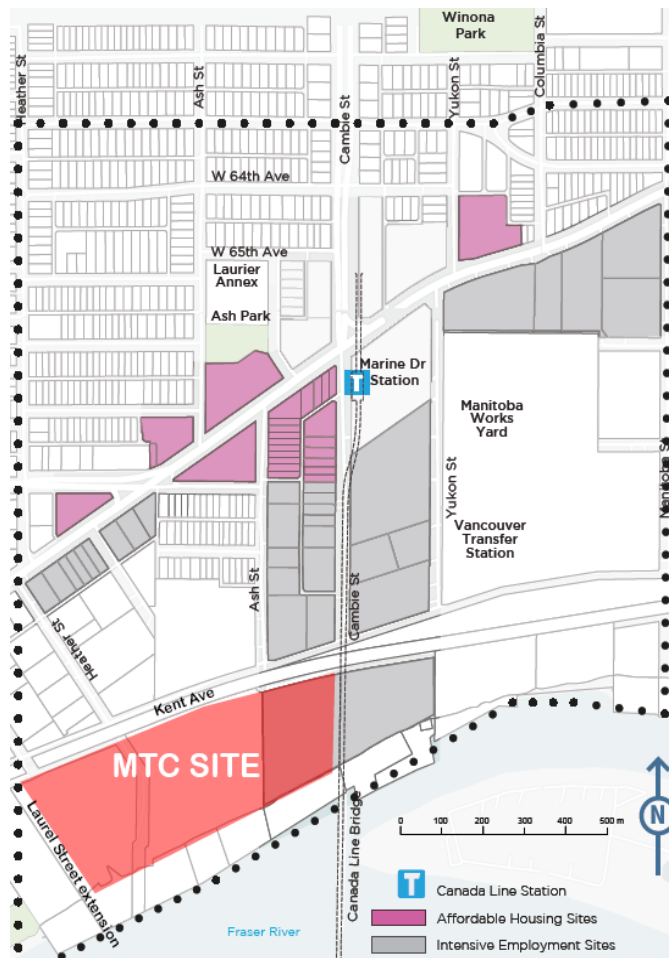


TransLink Marpole Transit Centre project design rationale

Address: 502 W Kent Ave S, Vancouver, BC

To expand service coverage and capacity in the Lower Mainland, TransLink - Metro Vancouver's regional transportation authority - is planning to build the Marpole Transit Centre (MTC), which is designed to facilitate the administration and maintenance of a combined fleet of 300 battery electric and conventionally powered buses, plus 25 agency support vehicles. Operated by the Coast Mountain Bus Company (CMBC), MTC will be located on an 82,612.9 s.m. industrial site located in the Marpole neighbourhood in the south side of the City of Vancouver. As a major job centre, the MTC's proximity to Canada Line Marine Drive station supports the location's designation as a 'Intensive Employment Site' in the CoV Marine Landing Policy Updates (12/2021) of the Cambie Corridor Plan.



Zoning / policy compliance

Zoning: M-2

Site area: 82,612.9 s.m.

Floor area total: 72,273 s.m.

Permitted F.S.R.: 5.00

Proposed F.S.R.: 0.89

Permitted height: 30.5 m

Proposed height: 20.39 m

Proposed Outright Approval Uses:
Motor Vehicle Repair Shop (2.2.S),

Proposed Conditional Approval Uses:
Public Authority Use (3.2.I),
Motor Vehicle Wash
(3.2.S), Transportation Storage (3.2T)

MTC site is within the Marine Landing area of the CoV Cambie Street Corridor Plan, and on north bank of North Arm of Fraser River. Project consists of eight separate structures on the 82,612.9 s.m. site, with total building area of 73,273 s.m.

Located in CoV designated Flood Plain, the site will be built-up to height of +4.6 m required minimum, supported by new flood protection wall along Fraser River foreshore.

Project entails land exchange in which Heather Street R.O.W. and associated storm water infrastructure will be transferred to a dedication for extension of Laurel Street on the west side of the site for site contiguity.

Project also includes:

01 Public Realm Enhancements:

1. **NORTH** – 10 m wide dedication on north side of MTC site to accommodate pedestrian and bicycle pathways, with enhanced public realm landscaping treatment. This dedication is increased by 3 m east of Ash Street.
2. **EAST** - Provision of a 10 m wide dedication / SRW to accommodate a landscaped street-end enhancement, per Marine Landing Policy Updates, providing public access between Kent Street and the waterfront.
3. **WEST** - A 20 m wide road dedication will be provided in exchange for the City's Heather Street property, in order to facilitate bus access to the site, as well as pedestrian and cyclist access to the river. A storm main, relocated from Heather Street, will run under the Laurel Street extension. Street-end enhancement with public realm landscaping treatments will also be provided, per Marine Landing Policy Updates.
4. **SOUTH** - In support of CoV Fraser River and Burrard Inlet Waterfront Policies and Guidelines (amended 08/1988), the project makes accommodations for a landscape riverfront reclamation treatment along the south perimeter flood protection wall, to be located on water lots south of the MTC site, currently owned by FLNRO, with public access secured through an SRW agreement. The design and provision for public access will entail public consultation with the Musqueam Nation.

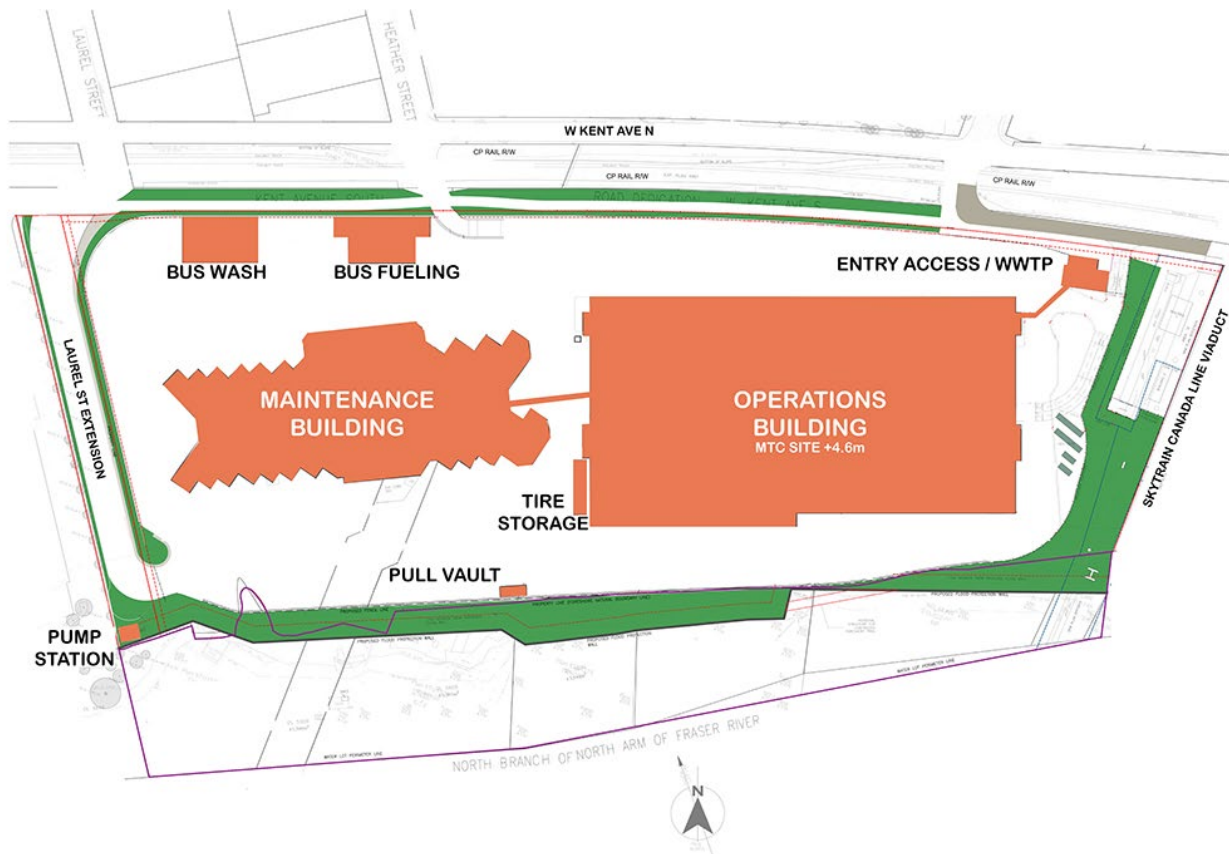
02 Program Summary

The nominally flat existing site (currently +2.5 to 3.3 m) will be built-up to a platform ('superdyke') of +4.6 m above sea level to mitigate against potential flooding (per CoV Flood Plain Standards and Requirements 09/2014). The superdyke is supported on the south perimeter by a flood protection wall along the river foreshore. The MTC campus will comprise of the following eight separate structures of varying heights:

- **Operations** building/ parkade (59,246 s.m.), a three-level structure which hosts bus staging and storage at ground level, bus charging and 60 kV substation on the second level, and administrative and dispatching facilities, as well as employee and visitor parking (325 total vehicle spaces) on the third level, with top of roof not exceeding 21 m higher than the superdyke level.
- **Maintenance** building (11,619 s.m.), a two-level structure including bus maintenance and repair bays, tire shops, body shops, and parts storage and support areas for

mechanics and for the maintenance department administrative staff. Its height will be 14 m, and it will be connected by enclosed pedestrian bridge to the Operations building.

- **Bus fueling** facility (1019 s.m.) in a single-storey structure.
- **Bus wash and detailing** facility (722 s.m.) in a single-storey structure.
- **Vault pull station** (80 s.m.) in a single-storey structure.
- **Entry and access** tower (426 s.m.) that provides a safe and dedicated entry to all MTC facilities, as well as a direct, enclosed travel path to the third level of Operations building – grade separated from non-revenue vehicular traffic – for pedestrians, transit users, and cyclists entering the MTC campus, from the northeast corner of the site. This component not only serves as focal point of entry for users and visitors, but also the public interface between the street level of Kent Avenue, and all the program areas of MTC built atop the raised superdyke level of 4.6 m. Attached to side of this structure is also the **Wastewater treatment** plant, which processes oily wastewater generated by the facility.
- **Tire storage** shed (162 s.m.) in a single-storey structure.
- **Pump station** for City of Vancouver (33 s.m.), sited at the southwest corner of site (located on Laurel Street extension, not on MTC site).



03 Site Analysis

NORTH of the project site is bound by the CP Rail right-of-way and W Kent Avenue N, which itself is bound on the north by I-2 zoning that consists of low-rise light industrial, storage, and

commercial structures. The closest properties zoned as residential (RT-2) to the site are the houses along W 71st Avenue, about 160 m north of the site. The closest arterial road is SW Marine Drive, more than 250 m north of the site. Therefore, the project's public profile from vehicular and foot traffic standpoint is limited by its location in a primarily industrial area.

Because the project will be elevated about 2 m higher than Kent Avenue on a superdyke podium, the facility's bus circulation and maintenance operations are mostly hidden from view of the general public. The superdyke's retaining wall and transitional landscaping along the project's north property line further shield the facility operations. However, due to the site's elevated geometry and the siting of the project buildings, the public will be able to partake in the upper portions of the project's architectural features, thereby further supporting Marine Landing Policy Updates.



Pedestrians, cyclists, and non-revenue vehicular traffic will enter the project's campus from the northeast corner of the site, which is anchored by the aforementioned Entry and access tower that provides a direct path into the Operations building and the rest of the MTC campus. As the only component of the complex that interacts with the street level, it affords its prominence to the project with its architectural pride of place.

EAST of the site is bound by the Canada Line's elevated guideway right-of-way, and by the existing concrete bikeway ramp leading up to the guideway and bridge that cross over the river south to Richmond. BC Hydro's Kidd 1 substation is located east of the SkyTrain elevated guideway. The Canada Line Marine Drive station also sits just ½ km to its north along the elevated guideway. M-2 industrial zoning continues east beyond the elevated guideway. Passengers riding on the Canada Line SkyTrain can view the entire MTC campus from an elevated perspective, particularly as they are crossing the river from the south and entering the City of Vancouver. The MTC campus may very well be the first architectural built form that people notice, as train passengers travelling from the airport to enter the city. Therefore, the southeast portion of the campus, particularly the Operations building, will become the focal public face of the project that acknowledges its Musqueam First Nations heritage, while providing first impressions to visitors to Vancouver.

WEST of the site is bound by the planned extension of Laurel Street to the foreshore of the river. CMBC buses and delivery vehicles will enter the MTC campus from this extension of the street, which acts as a transitional driveway that is completely separated from other traffic (namely, vehicles driven by employees and visitors, pedestrians and cyclists entering MTC campus) for safety and operational concerns.

SOUTH of the site flows the North Arm of the Fraser River, which is about 300 m wide at this point. Industrialized Mitchell Island sits to the southeast of the site, while industrialized areas of the City of Richmond (including Canada Line maintenance yards) occupy the south bank of the river. Other than Canada Line passengers, there is currently no recreational, pedestrian, and

vehicular traffic that interacts with the site from the south. However, the river itself holds significant symbolic, spiritual, and historical importance to the Musqueam First Nation.

04 Traffic Management

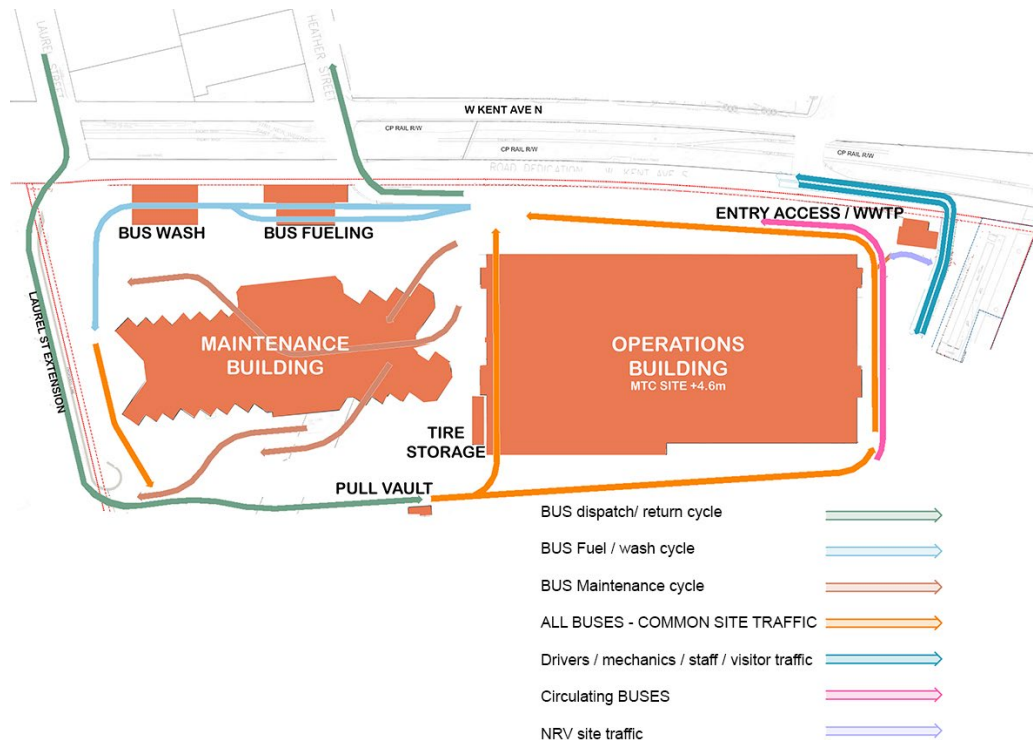
The project circulation scheme addresses three basic realms of operations: bus dispatch (entailing dispatching, administration, coordination, and transit communications), bus service (fueling, washing, and detailing), and bus maintenance (repairs). Agency employee and visitor parking is completely grade separated from bus traffic, and bus dispatch and maintenance functions are systematically separated from each other with their own circulation paths.

Bus drivers will park their cars on the third level of the Operations building, receive their daily assignments from the administration offices on the same level, and then go down to the ground level to collect their buses from the parking lanes, or 'tracks.'

Buses returning to the campus will enter from the Laurel Street extension on the southwest corner of the site. Buses will then deposit revenue at the Vault pull on the south side of the site. They will next move on to the Maintenance building for service or repairs, or park in the ground level tracks in the Operations building. Vehicles due for overnight fueling and washing will be collected from, and returned to, the Operations building parking tracks.

Buses leaving for their runs exit the campus from the dedicated ramp on the north side of the site, leading out onto Heather Street. For safety and efficiency of operations, all the aforementioned traffic patterns as described are designed to flow counter-clockwise direction on the entire MTC campus.

Finally, all employee, visitor, and non-revenue vehicular traffic will enter from the northeast corner of the site (next to the pedestrian entry and access tower), and onto the access ramp that would carry them to the parking area on the third level of the Operations building. This separation from bus circulation and traffic is intended for safety of operations.



05 Architectural Design

The following factors inform the basic tenets of our overall design:

a) The North Arm of Fraser River borders the SOUTH of site. This is where the primary views are, and the exposure to direct sunlight, as well as prevailing southerly breezes. By orientating our employee amenities accordingly, our design allows MTC users to maximize access to them. We seek to integrate our campus with the foreshore of the river with strategies that include restoration of riparian habitats, remediation of the shoreline environment, and water runoff management with bioswales, raingardens, and native green cover. The significance of the Fraser River to the Musqueam First Nation, as well as the perspectives of the passengers on Canada Line, imbues the south and east sides of the MTC campus with architectural prominence as well as the opportunity to acknowledge the culture of the Musqueam First Nation, while serving as a gateway into Vancouver.



b) TransLink or CMBC employees, whether they are driving, biking, commuting via transit, or walking, will enter the project from the NORTHEAST corner of the site. This is their point to entry to the campus, which is anchored by the Access tower and bridge that takes users directly up to the third level of the Operations building, thereby bypassing circulating vehicles on campus. Its prominence on the site, as well as its functional importance of facilitating entry to users, while negotiating the height difference between the street level and the superdyke, reiterates its architectural significance. The architectural expression here naturally reflects those of the other stair and elevator towers in the campus, since they share functional requirements of facilitating user access.

c) We aim to incorporate Musqueam First Nation culture into our project as an integral component of our design, and we view our entire campus as a canvas onto which it can showcase its values, heritage, and forms of visual expression. More specifically, the horizontality of the main Operations building is broken up by individual vertical fins, made up of wire mesh or perforated metal panels, onto which we plan to showcase indigenous art and motifs. Conceptually speaking, as we examined the idea of movement befitting a transit operator, we wondered how architecture can somehow convey and illustrate movement – literally appear to change as one moves and walks alongside the extent of the length of our project. To this end, these individual fins would display one colour or pattern on one side, and another colour or pattern on the other side, so that the building presents a markedly different character, depending on where one stands at the given moment. Essentially, the building ‘moves’ and transforms, as one’s physical location changes. Functionally speaking, these fins afford a certain amount of visual depth to the patterns and motifs being presented, while allowing required ventilation for motorized vehicles, natural lighting, and views to the outside.

d) In our effort to reduce our carbon footprint, the use of mass timber pitched roofs, girders, rafters, glulam beams, and soffits all form a leitmotif that visually unifies all the various disparate building forms that comprise the MTC campus. Acknowledging our geographical context, the use of this timber design vocabulary extends most prominently to the office components of the Operations building and the Maintenance building, with its raised pitched roofs that bring natural light deep into the buildings, as well as to all other auxiliary buildings and structures, such as the stair and access towers, as well as all the various bus servicing elements on the campus.

06 Landscape Design

Immediately bordering the north side of the site, the road dedication of Kent Avenue South will be developed to form a 6 m wide, bi-directional, landscaped bike and pedestrian path. The 3 m wide transition between this path and the project property line will entail soft landscaping elements such as shrubbery, bio swales, and smaller-scaled trees to negotiate the height difference between the built-up project elevation of +4.6 m, and the elevation of the path at +2.55 m. The incorporation of this groundcover may mitigate against the profile of the north perimeter retaining wall supporting the 2 m high project superdyke. The north side of the path is bound by the CP Rail right-of-way, and Kent Avenue North beyond that.



At the west perimeter of the site, Laurel Street is planned to be extended south toward riverfront to allow agency buses to access the campus. There is currently a row of 14 existing deciduous trees on the west side of Laurel Street right-of-way that we seek to mirror and line the western perimeter of our site.

On the south perimeter of site, the construction of the superdyke will facilitate landscape reclamation along the water lots owned by FLNRO, with the goals of riparian habitat restoration and foreshore remediation.

On the east perimeter, public foreshore access is allocated by 10 m wide dedication for landscaped buffer zone between MTC campus and the SkyTrain elevated guideway.

The bus fleet assigned to the MTC facility will initially include diesel hybrid buses and battery electric buses (BEBs), with the balance shifting toward a majority of BEBs. Because diesel buses carry 400 litres of diesel fuel, the site surface features impervious paving, with an underground storm water system designed to collect potential spills and to control the quality of water discharged to the Fraser River. The site also has a Certificate of Compliance to industrial standards, and a high groundwater table. Combined with the flood wall and the requirements to raise the site to 4.6 m elevation, opportunities for rainwater infiltration are limited. However, the incorporation of bio-swales, permeable surfaces, and ground cover plantings will be employed where practical to infiltrate rainwater. These approaches are also incorporated on the third level of the Operations Building/ Parkade where plantings and greenery define pedestrian access routes through parking areas, while facilitating opportunities for respite for employees.