saskarc
BRIDGING THE GAP

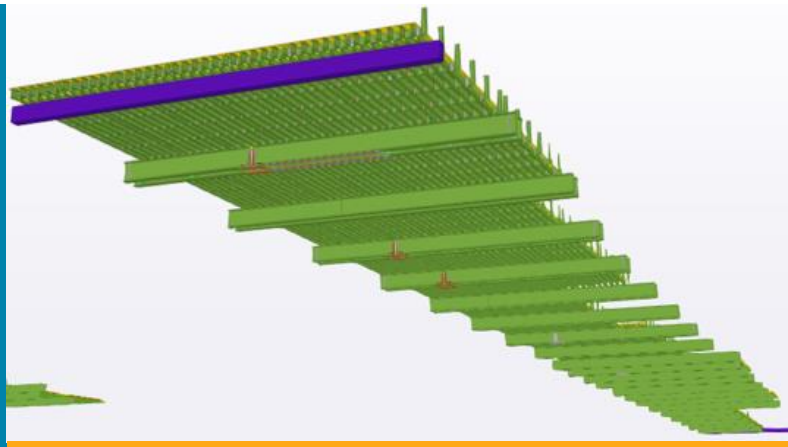
CASE STUDY

Structural Support Steel for Broadway Subway Extension Project

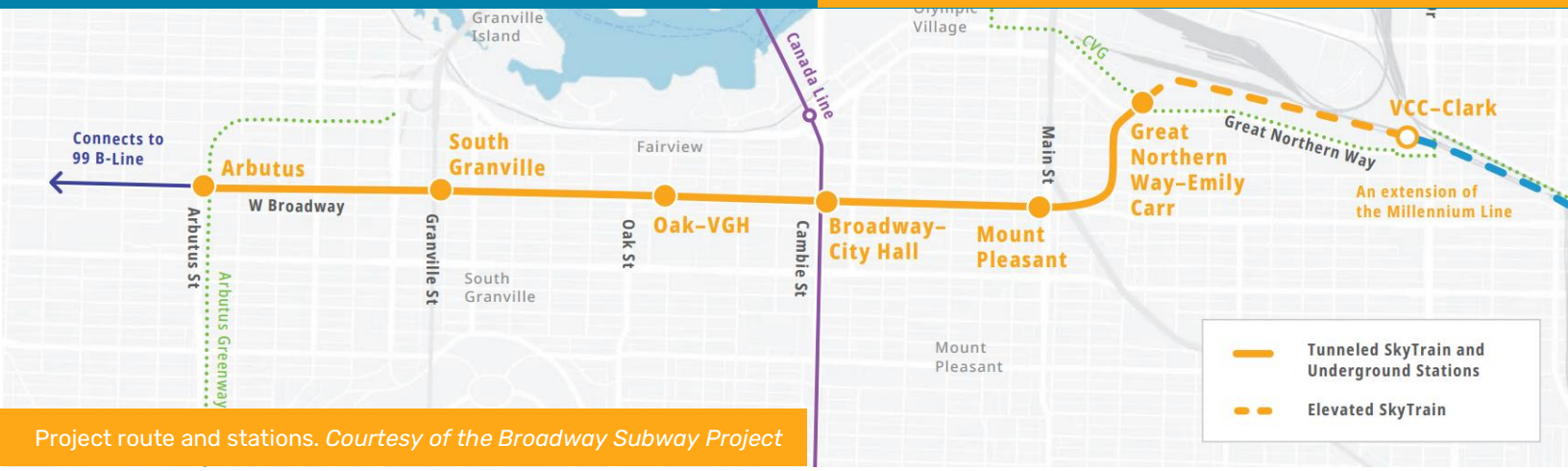
OWNER	City Government of Vancouver
LOCATION	Vancouver, BC, Canada

THE **CHALLENGE**

The city of Vancouver was extending one of its train lines and required a structural steel solution to maintain uninterrupted traffic flow while excavating various busy intersections along Broadway Avenue.



CAD model of the transverse girders for the deck panels



Project route and stations. *Courtesy of the Broadway Subway Project*

THE **PROJECT**

The Broadway Subway Project is a 5.7 km extension of the Millennium Line, from VCC-Clark Station to Broadway and Arbutus. It will provide fast, frequent, and convenient SkyTrain service to B.C.'s second-largest jobs center, world-class health services, emerging innovation & research hub, and growing residential communities.

The project is on schedule for the new line to open in 2025.

- 700 meters will be elevated, extending from VCC-Clark Station to a tunnel portal near Great Northern Way.
- Five kilometers will be tunneled below the Broadway Corridor from Great Northern Way to Arbutus Street.
- Six underground stations will connect communities and the region, including a direct underground connection to the Canada Line at Cambie Street.
- The 99 B-Line bus service will connect from Arbutus Street to the University of British Columbia.

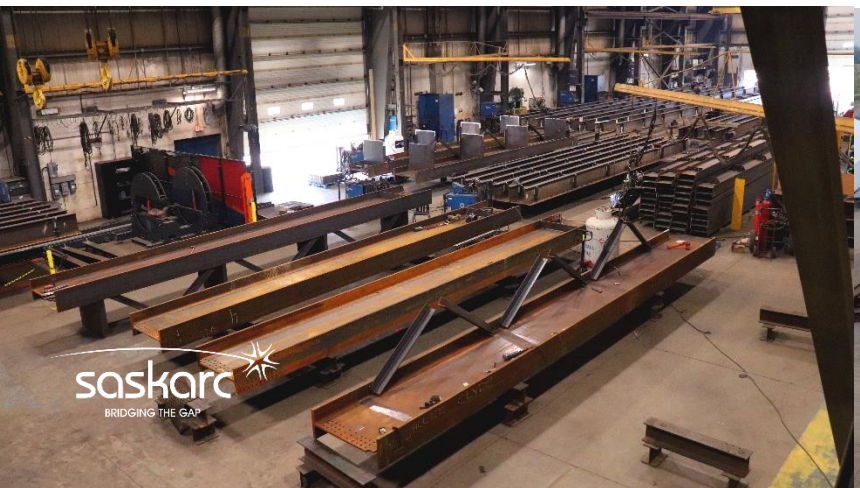
THE **STRATEGIES**

This combination of planning, coordination and execution is integral to the success of a steel fabrication project to ensure accuracy and efficiency. This was the case with the Broadway Subway project. The innovative solution to maintain ground-level vehicular traffic during construction involved the installation of deck panels and transfer girders that would create a temporary road surface above the excavation. The structure will support the temporary road surfaces for the next 3 years while the subway construction is ongoing.

Saskarc was awarded the opportunity to design and build the deck panels and transfer girders. The scope of the project involves over 7000 metric tons of steel.

For the design phase, Saskarc mobilized a trusted partner to work closely on the structural plan and for all the design adjustments to manage the cost while maintaining the design quality.

During the build stage, the efficient state-of-the-art robotic fabrication process, SpeedArc, greatly reduced manual welding hours. It is also the first time that Saskarc specifically retrofitted coating equipment used for the application of the deck panel aggregate and epoxy system, a process that is commonly done on a concrete road surface. This allows the deck panels readily available for use after installation.



THE **RESULTS**

Saskarc is constantly innovating new systems and procedures to fabricate structural steel for complex structures and spent considerable time & planning for fabricating the structural steel.

The final design and fabrication of structural components allowed for the timely installation of girders and deck panels under strict scheduled constraints for night shift work. The components were designed and installed with minimum field welding to reduce labor costs on site and allow for efficient disassembly after project completion.

Saskarc Inc. worked in collaboration with the customer to achieve tight deadlines and budgets while managing ongoing design changes throughout the project.