

Metrolinx Georgetown South Corridor (Weston Division) Track & Signal Construction Rail Corridor Mile 0.91 to 10.41 and USRC at Bathurst Street

CLIENT

Metrolinx

LOCATION

Toronto, Ontario

Project Description

Metrolinx is undertaking the largest transportation investment in Ontario's history while also operating GO Transit, UP Express and PRESTO. It plans a unique opportunity to plan, build, operate and connect transportation in the Greater Toronto and Hamilton Area.

When the Province of Ontario created Metrolinx as a new regional transportation agency in 2006, the challenges of under-investments in transit were mounting. Metrolinx was tasked to work with federal, provincial and municipal partners, the private sector and other stakeholders to create an integrated transportation system that would support a higher quality of life, a more prosperous economy and a healthier environment.

Connecting Toronto Pearson International Airport with Union Station in downtown Toronto, the Union Pearson Express (UP Express) simplifies how Canada's busiest airport is linked to its largest city.

Undertaken as part of the Georgetown South Project, overall construction in the UP Express corridor consists of five new road overpasses and two road underpasses, one railway grade separation, one bridge reconstruction and the widening of 15 other bridges, construction/re-construction of four stations, major track and grading construction, signal installations utility relocations, as well as the new 3.3 km spur to and from the airport.

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B&M Scope of Work

Black & McDonald's scope of work included the supply, installation, testing, and commissioning of power, civil utility and signal works for the Metrolinx Georgetown Corridor (mile 0.91 to 10.41) as well as for the Union Station Rail Corridor (USRC).

The work involved:

- Design, supply, and installation of all civil piping, man holes and hand holes, directional drilling, and jack and bore works under and alongside existing and newly installed tracks.
- Provision of new concrete foundations and pads complete with grounding for all substation and signal bungalows comprising the project.
- Supply, installation, testing, and commissioning of new power substations, generators, and mini-substations along the rail corridor for the new signalling system.
- Supply, installation, testing, and termination of new high-voltage, low-voltage and fibre cabling along the rail corridor.
- Supply, installation, testing, and termination of low-voltage power and signal cables for all snow clearing devices, signals, signal devices, and signal bungalows.
- Supply and installation of all signalling systems including masts, signals, and other signalling-related devices along the rail corridor.
- Installation, connection and termination of all owner-supplied signal bungalows and snow clearing devices.
- Installation and commissioning of a 60 ft. folding communication tower for train communication.
- Testing and commissioning of all electrical, communication and signalling systems for the project.

All cabling for electrical, placement of grounding, connection of new systems to existing as well as commissioning and verification of systems.

Benefits to Client or Problem(s) Solved

Challenges & Innovation:

The project was delivered in a busy operating rail corridor with severe time restrictions and operating constraints. In order to achieve the highest safety standards while under the constraints of an aggressive construction schedule, ongoing train operations and congested underground utilities, we implemented a comprehensive critical path schedule analysis and safety plan (with particular attention to ROW protocol and mandatory documentation) at the outset of the project.

The work also involved identifying, working around and relocating existing underground utilities with due consideration for safety and operations requirements. Additional care was taken while excavating (using Hydrovac equipment support) around congested areas so as not to damage any of the existing cables, which could have contributed to a catastrophic failure of the existing signaling systems.

All City of Toronto bylaws such as noise regulations were fully complied with during this period by undertaking specific tasks during specific time frames in order to mitigate disruption.

Challenge

Cable pulling in underground utility pipes in winter was a challenge because of blocked conduits due to frozen water, ice, etc.

Solution

The solution for this was to design and install manholes closer to each other rather than the normal design criteria of 300 metres. This minimized the tension on the cables and cable pulling went much smoother.