

CASE STUDY

Montreal CPP Water Main Relining

**CURED-IN-PLACE PIPE INSTALLATION PROVIDES FULLY
STRUCTURAL REHABILITATION FOR AGING PRESSURE
PIPE BENEATH RAILWAY**

**VORTEX
PRODUCTS
USED**



UnitedBLUE™
From United Felts, A Vortex Company

THE CHALLENGE

Recent failures of aging pre-stressed concrete pipes across North America have underscored the urgency of preventative rehabilitation. Minor defects can destabilize and erode soil, leading to voids and sinkholes, while larger breaks in concrete pressure pipes (CPPs) often result in major localized flooding, damaging nearby structures and utilities.

With these risks in mind, a 30-inch, pre-stressed CPP in the City of Longueuil on the South Shore of Montreal, Canada, was identified for preventative rehabilitation. Used for potable water, the section in question was 150 feet long and designed to operate at 125 psi.

The pipe's original design parameters included Cooper's E90 live load for railway, as it runs beneath a critical train route. Any rehabilitation would need to meet these specified operational pressure and load design requirements, and the work could not significantly disrupt railway schedules.

Additionally, the pipe's proximity to the St. Lawrence River presented additional environmental concerns.



The liner installation portion of the work was completed in only five days.

PROJECT SNAPSHOT

PROJECT

Hyprescon Watermain CIPP Installation

PROBLEM

A 30-inch, pre-stressed CPP watermain was nearing the end of its service life. The line's location beneath a railway and proximity to the St. Lawrence River created unique load design requirements and eliminated open-cut replacement as a viable rehab option.

CONTRACTOR

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CASE STUDY



THE SOLUTION

These logistical and environmental considerations eliminated traditional open-cut replacement as a rehab option. Trenchless methods, and more specifically Cured-in-Place Pipe (CIPP) lining, was identified as an ideal solution for extending the pipe's service life. CIPP rehabilitation promised a faster return to service and less impact on railway operations, all at a lower price point than dig and replace.

NSF-61 certified United**BLUE**[™], a fully structural pressure pipe CIPP liner was installed using the inversion method. The liner was developed and manufactured by United Felts, a Vortex Company, and while Vortex Infrastructure Services Inc. (formerly Foraction) managed the installation.

THE RESULTS

The new liner extended the asset's life by a minimum of 50 additional years, ensuring reliable water service and mitigating the risk of catastrophic pipe failure.

The project required only a small amount of excavation, preserving the existing infrastructure and reducing environmental impact. The liner installation portion of the work — which included pipe cleaning, pre-lining CCTV inspection, liner installation, pressure testing, and post-lining CCTV inspection — took only five days. From mobilization to final restoration, the complete effort was wrapped up in approximately four weeks.

The contract was completed on budget, with no unexpected claims or costs. The asset owners were satisfied with the final results, the efficiency of the repair, and the significant cost-savings using United**BLUE** CIPP lining over other rehab or replacement methods.



The pipe's location beneath a rail line added higher operational pressure and load design requirements.



*United**BLUE** CIPP required only minimal excavation, reducing costs and ensuring a faster return to service.*

IMPACT

1 The fully structural watermain repair utilized the United**BLUE** CIPP liner, that has been third-party tested to have a 100-year design life.

2 Liner installation work was completed in only five days, with minimal disruption to the rail line and waterways.

3 CIPP rehabilitation was significantly more cost-effective than open-cut replacement methods.