

Turcot Interchange CFRP Repairs

Montreal, QC, Canada

Submitted by service CarbonFibre+



The Turcot Interchange is a three-level stack freeway interchange within the city of Montreal, QC, Canada. It takes its name from the currently abandoned Turcot rail yards over which it was built. Turcot is the largest and third busiest interchange in Montreal. Construction started in October 1965 and Turcot was built in time for the 1967 Montreal Expo.

When originally constructed, the interchange was built high above the ground as a dramatic demonstration of Montreal's status as a modern global metropolis and to accommodate ships passing through the Lachine Canal.

In 2000, more than 300,000 vehicles used the interchange on a daily basis—far more than the 50,000 to 60,000 vehicles it was designed to carry daily.

In June 2007, the Quebec government announced the demolition and reconstruction of the structure. The announcement came 4 years after a study showed that the Turcot interchange structure was crumbling with pieces of concrete slabs falling from the overpasses. Concrete deterioration was attributed to corrosion of reinforcing steel and increased live loads. Evaluation of structural capacity was performed according to the S6 Canadian Highway Bridge Design Code.

Since 2010, the most heavily accessed interchange ramps have undergone major repairs. One of the long- and short-term rehabilitation solutions

chosen by the Ministry of Transportation of Quebec was to use carbon fiber-reinforced polymer (CFRP) to stop critical cracks from extending, and reinforce sections that demonstrated structural weakness. CFRP strengthening was implemented within and on the sides of multi-cellular box girders, having no effect on traffic and avoiding temporary partial or complete closures. Prior to CFRP panel installation, concrete deterioration was repaired and cracks were injected. The repair program is scheduled to continue through 2013.

Turcot Interchange

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REPAIR CONTRACTOR

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2013 Award of Merit