Jacques Cartier Bridge – Montreal, Quebec, Canada
Project Summary

People travel across bridges every day in their automobiles without giving much thought to how efficiently and safely they are transiting rivers or other waterways. In Montreal, Quebec, more than 95,000 people a day (35.4 million a year) cross the St. Lawrence River on the Jacques Cartier Bridge that connects Montreal Island with the south shore of Longueuil, Quebec. Constructed between 1925 and1930, the 5-lane highway bridge spans a distance of 2,725 meters (9,272 feet) and includes an additional bicycle lane.

In 2009, Jacques Cartier and Champlain Bridges, Inc., the administrators of the bridge, awarded a contract to Concordia Construction to take care of any emergency repairs and other minor restorations that are needed to the bridge. To help them, minimize the time when any lanes need to be closed, Concordia selected MAPEI concrete repair and restoration products, including *Planitop 12, Planitop 15, Planitop 18* and *Planigrout 750*.

The concrete abutments that support the bridge wear over time from changes in temperature and from the sheer volume of traffic crossing the bridge. When the concrete becomes degraded, the Concordia crew uses *Planitop 15.* This fluid repair mortar contains a corrosion inhibitor and silica fume, and is well-suited for form-and-pour applications where high early strength and flowability are required.

When the decks of the bridge were rehabilitated in 2001-2002, the engineering firm of Buckland and Taylor assembled 1,680 prefabricated, pre-cast reinforced concrete deck units at a temporary plant near the Longueuil end of the bridge, and then shipped them to the work site, where they were installed during off-peak nighttime and weekend travel periods. The constant movement of the bridge due to traffic and to temperature changes occasionally causes breaks in the joints between the deck units, and Concordia uses *Planigrout 750* to fill and repair these mechanical joints.

Because so many vehicles use and service the bridge, accidents do occur, which cause damage to the concrete decks of the bridge and the “jerseys” – the movable concrete dividers that are used to separate the traffic lanes from the bicycle lanes. For emergency deck repairs, Concordia must close one or more lanes to traffic. Because they want to keep travelers happy, especially during rush hour, the crews use fast-setting *Planitop 18* with its high-early-strength characteristics for horizontal surfaces.

For the upright surfaces of the jerseys, the crews use *Planitop 12*, a thixotropic repair mortar intended for these vertical repairs. Both products contain a corrosion inhibitor to help maintain the strength of the repair. “The workers enjoy using the *Planitop 12* because it can go from zero to 2” in a single lift, and it is creamy and easy to use,” said Michel Lafortune, the MAPEI CRS representative who provides sales and technical support for Concordia.