Leaside Bridge

Don Valley Parkway, Toronto, ON; 1997

Bridge & Highway

A Galvanized Steel Application Report

Subject

All the structural steel used for the widening of the Leaside Bridge, a 1,300 foot (400 meter) long, four lane highway bridge, was hot-dip galvanized. This bridge was originally built with painted steel in 1927. The bridge was widened to six lanes in 1969 using over 1,000 tons (907 metric tons) of galvanized girders, rolled steel beams, tubular bracing members, and fasteners in outrigger structures attached on each side of the original construction.

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Environment

Located in urban Toronto, the bridge is exposed to a moderate industrial atmosphere. The bridge is sheltered from direct contact with rain or snow, but does receive spray from traffic on the parkway below, as well as some water run-off from the road surface that leaks through cracks in the concrete.

Details

In accessible areas, galvanized coating thicknesses ranged from 7 to 20 mils in 1988. No statistical difference in coating thickness was found during inspections in 1995. Based on atmospheric corrosion rates in this environment, the life expectancy is 40 years before first maintenance. When galvanizing was chosen in 1969, its cost was 40% less than the two-coat paint system (zinc rich primer plus vinyl topcoat) that had been considered. The original painted steel has been repainted many times, including once in 1969, once in 1980, again in 1991 and has already started to fail.