

Vector™**Norcure® Chloride Extraction****Project History****Chloride Extraction by Traffic Bearing System on
Starbuck Bridge Deck**

- Structure:** Provincial Trunk Highway 332
Bridge 2165
- Location:** Starbuck, Manitoba, Canada
- Client:** Manitoba Department of Highways
- Area Treated:** 2700 ft² (250m²)
- Duration:** 6 weeks
- Contractor:** Vector Construction Ltd.

**Project Description:**

Traffic management is a common dilemma encountered when considering Norcure Electrochemical Chloride Extraction (ECE) for bridge decks. Therefore, during the fall of 1997 Vector undertook research and testing of the new Norcure Traffic Bearing System (TBS). This new rehabilitation technique is designed specifically to maintain traffic flow during chloride extraction on surfaces such as bridge decks and parking structures. The Starbuck bridge project represented the first full-scale installation of the TBS. The site was selected from several bridges in the vicinity of Winnipeg, for three reasons: it contained moderately high chloride concentration levels, there was reduced traffic speeds through the town of Starbuck, and it had adequate access to electrical power and water supplies. The treatment was performed on a single lane of traffic, so that a post-treatment comparison could be made between the treated and untreated lanes of the bridge.

Installation had begun late in the season, which limited system operation to 4.5 weeks instead of the typical 6-8 week period. Even after this short time, the treatment proved to be quite effective. When comparing the untreated lane and the treated lane there was a 90% reduction in the number of corrosion potential readings that were less than 200mV (passive range). In terms of chloride concentrations, based on a report performed by an independent consultant, they found chloride concentrations were reduced by 60% over the rebar. Using empirically-based service life prediction curves, the same consultant concluded that the bridge deck's life span had been extended by 22 years as a result of the treatment.

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Vector Corrosion Technologies Ltd. 474 Dovercourt Drive Winnipeg, MB R3Y 1G4
Vector Corrosion Technologies, Inc. 13312 N. 56th Street, #102 Tampa, FL 33617

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 **VECTOR
CORROSION
TECHNOLOGIES**
www.vector-corrosion.com

CAN: Phone: (204) 489-6300 Fax: (204) 489-6033
USA: Phone: (813) 830-7566 Fax: (813) 830-7565

Email: info@vector-corrosion.com