

LA CROSSE BRIDGE

WISCONSIN - USA

Real time monitoring of the bridge structure

The Canadian Pacific Railway company decided to replace a century-old trussed swing span (307 foot long) with a more modern 147-foot rolling bascule span, transforming the La Crosse bridge structure into a lift bridge. Construction began in November 2002 and the new bridge which crosses the Black River will handle increased train traffic between Wisconsin and Minnesota.

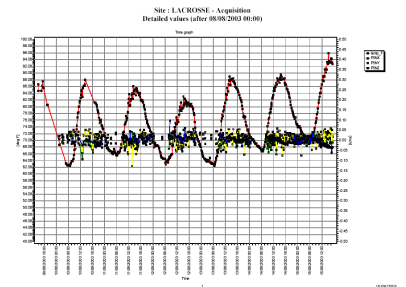
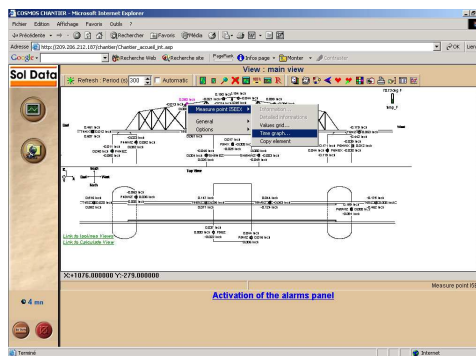
The project involved the monitoring of an active pivot pier railway bridge, as piles were installed for the replacement bridge. Cyclops monitoring was utilized to monitor the main structural elements of the bridge.



View of the "La Crosse" Swing Bridge

Prisms were placed on the trusses and piers of the bridge and different relative movement vectors were calculated in real-time.

The maximum allowable movements and alarm trigger levels were pre-calculated for each of the movement vectors and the system alarms were set accordingly.



Real time visualization of movements

Users in New York, Toronto, Calgary, Kansas City and Paris could all view the data in real-time during the construction phase.

The monitoring data was valuable in understanding how the pile installations were affecting the existing structure and allowed for the re-sequencing of the work in A manner that reduced the effects on the bridge.

OWNER :	CANADIAN PACIFIC RAILWAYS
CONTRACTOR :	HNTB CORP
CONSULTANT :	EDWARD KRAEMER
PROJECT DURATION :	AUGUST 2003 – NOVEMBER 2003
SCOPE OF WORKS :	
	<ul style="list-style-type: none"> • Installation of one CYCLOPS • Installation of 50 target prisms on active pivot pier railway bridge • Real time visualization of movements and alarms.