



SMART Bridge: Fort Plain Bridge -- NYS DOT

PROBLEM

A 100 year old bridge that was rehabilitated but still under load restriction due to lack of measured information on the performance of the bridge. How to measure actual bridge performance and manage the bridge more effectively.

DECISION

NYS DOT implemented **IntelliStruct** Bridge Performance Management Platform on the Fort Plain Bridge for structural monitoring, analysis with a digital twin and calibration of performance using live load testing to determine if they could open the bridge with no restrictions.

DESIGN AND IMPLEMENTATION

Working with Intelligent Structures the team used the digital twin to locate areas of highest stress combined with a review of the inspection report to select and layout the sensors on the bridge. **IntelliStruct** was configured and 75 sensors, I-Bridge Modules and I-Bridge Controllers were installed in 5 days as a bridge sensor and computer network. A Live Load Test was performed using **IntelliStruct** real time monitoring and all measurements archived for further analysis.

ANALYTICS

Using **IntelliStruct** analytics results show that the measured performance was closely correlated with the digital twin as new bridge structural performance. Load distribution and element composite support was higher than load rating factors. Allowing the opening of the bridge.

RESULTS

Results indicate the load restriction should be lifted due to better condition, distribution and composite action load rating factors used in NYS DOT bridge rating program

COST-BENEFIT

Transportation mobility return with over \$1,000,000 net saved annually for reduction in detour for trucks. Increased safety for citizen allowing emergency vehicle access.