

Problem Title:

Evaluation of Fiberglass Wrapped Concrete Bridge Columns

Background and Problem Statement:

As part of maintenance operations several standard round concrete bridge columns were wrapped with fiberglass after doing concrete surface repair to delaminated portions of the columns. The intent of the wrap was keep moisture out and holds the repaired portion of the column together for a long period of time. The possibility exists that further corrosion of the reinforcing steel may still be taking place. This has been shown to happen in very harsh environment in costal areas. If further degradation of the concrete and steel is taking place the amount and rate of this process is of great importance to future maintenance activities on these bridges.

Scope: The intent of the proposed research is to gain an understanding of what if anything is going on inside of these wrapped columns from a degradation standpoint. Nondestructive or destructive (coring) techniques would be involved in the investigation to document the existing condition of enough columns to gain a statistical confidence of the overall condition of similar columns around the state.

Specific Results, Findings, Tools, Etc.:

The condition found inside of all columns investigated would be presented in a report. If the columns exhibit degradation, the current rate and expected life before the condition of the columns becomes a structural concern would be documented. The need for further investigation of other columns depending on results of this investigation would be included in the final report.

Length of Research Project and Approximate Cost to Complete:

The investigation must be completed in 12 months with a budget not exceeding \$25,000.

Urgency and Potential Benefits:

The successful completion of this investigation will provide the Department with needed facts to base future maintenance actions on. The need to take action on the existing installations would also be based on the findings of this investigation. The integrity of the Departments existing bridges is of critical importance.

What is Needed to Implement and Use the Results:

The final report from this investigation will be used by the Central Office Bridge Maintenance staff along with the Regional Bridge Maintenance staff to properly address any structural issues that using the fiberglass repair technique may have caused. Future maintenance activities on columns will be based on the facts as found by the proposed research.

Wisconsin DOT Sponsor:

Structures Technical Oversight Committee, Finn Hubbard, Bureau of Structures