



Iowa Bridge Sensor Rating Curve Flood Risk Management Demonstration Projects (FRM/SJ/FPMS)

U.S. ARMY CORPS OF ENGINEERS

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Location

Iowa

State(s)

IA

Congressional District(s)

IA-1, IA-2, IA-3, IA-4

Status

We received word that the Nonstructural Iowa Bridge Sensor Rating Curve Demonstration Project Proposal has been selected for USACE funding. Project tasks are listed below. 1) Criteria for the selection of co-located [bridge sensor / USGS] stream gage sites ~ drainage area, stream slope, period of record, recent HEC-RAS model? Previously suggested locations ~ Four Mile Creek, Squaw Creek, and Indian Creek [USACE] 2) Collect two channel cross-sections at each bridge sensor location [USACE] 3) Rating curve development [IFC/IDNR] 4) Independent technical review of rating curve results [USGS / NWS] 5) Share preliminary products w/ IDOT / NWS, county/city engineers? and others? For real-time testing and critique of usefulness and value added. [USACE/IFC] 6) Evaluate cost to produce rating curves once the process is fine-tuned. [IFC/IDNR]

Description

Iowa's severe flooding in 2008 demonstrated the need for more extensive monitoring of the state's rivers and streams in real time. To address this, the Iowa Flood Center (IFC) developed and maintains a statewide network of stream stage sensors deployed at bridges and designed to measure water surface height. Stage data are transmitted automatically and frequently to the IFC for viewing in real time via the Iowa Flood Information System (IFIS). The IFC maintains a network of 250 stream stage sensors across the state. Support for sensor deployment has come from the Iowa Department of Natural Resources and the Iowa Department of Transportation. This project will leverage the existing IFC bridge sensor network data to demonstrate the need for rating curve development at sensor locations. Study partners (USACE, IFC, NWS, USGS, IDNR, HSEMD) will prioritize state-wide rating curve needs and develop a standard procedure for rating curve data collection by leveraging available data (state LIDAR data, bridge plans). Co-located bridge sensor and USGS gage rating curves will be compared to assess the accuracy of the bridge sensor rating curves. The demonstration study products will be available for flood preparedness planning.

During Phase II, five additional bridge sensor rating curve sites were selected for the application of the methodology to expand the data base for methodology assessment. Phase II provides an opportunity to refine the Phase I application and update the rating curve methodology to better quantify and minimize methodology uncertainties. The demonstration study products will be made available on-line for flood preparedness planning. Project completion date is November 2016 (1 year from funding receipt).



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