HMGP Provides Safer and More Reliable Roadway

Full Mitigation Best Practice Story

State-wide, Michigan

The State of Michigan - A 1,320 foot stretch of M-35 was recently restructured using funds from FEMA's Hazard Mitigation Grant Program (HMGP). The roadway had a history of flooding, which caused hassles for drivers and cost the state thousands of dollars. The hazard mitigation was a roadway grade raise in conjunction with the installation of two larger culverts to provide adequate hydraulic capacity under the thoroughfare. The project successfully reduced the hazard of water overtopping the roadway and, as a result, improved the structural capacity of the roadway.

The star of this success story is not necessarily a single person or group, but instead arose from the cooperation of numerous people, groups and agencies, along with the HMGP. Without every one of these players, the project would not have been as successful as it was. MDOT and FEMA Region V in paricular worked closely to rehab the roadway. From the initial application through construction, and eventual closeout, the agencies worked closely to see the project completed in the best way possible.

The project was a two-fold improvement of the stretch of road. First, two 24-foot culverts were replaced with 36-foot and 48-foot culverts. This allowed necessary drainage between the wetlands dissected by the M-35 roadway.

The second phase consisted of an aggregate grade lift that was placed on the existing road surface to allow sufficient drainage to stop the continued erosion during high run-off periods. The roadway was then repaved to allow acceptable traffic conditions for the traveling public. Now the run during peak events no longer saturates the sub-base and degrades the structural integrity of the roadway.

This project has greatly improved the safety of this stretch of M-35. Less flooding, along with faster drainage when flooding does occur, means safer travel conditions for the thousands who traverse the road. The repetitive roadwork that was previously required was also drastically reduced. With an estimated benefit of over $600,000 during the project's 20-year expected use, the Michigan Department of Transportation will save $30,000 annually.

This project is an excellent example of FEMA's ability to cooperate and work with numerous agencies and groups. Here FEMA Region V worked directly with the state department of transportation to secure the roadway; however, other groups and individuals should still take note of the flexibility of the HMGP.

The greatest benefit of the project, public safety, can have no price tag attached to it. Thanks to the cooperation of FEMA, Marquette County and the Michigan Department of Transportation, the HMGP was used to make M-35 not only more cost-effective, but also, more importantly, a safer road.

Activity/Project Location	
Geographical Area:	**State-wide**
FEMA Region:	**Region V**
State:	**Michigan**

Key Activity/Project Information

Sector:	**Public**
Hazard Type:	**Winter Storm; Severe Storm; Flooding**
Activity/Project Type:	**Flood-proofing; Elevation, Structural; Flood Control**
Structure Type:	**Concrete, Reinforced**
Activity/Project Start Date:	**10/2003**
Activity/Project End Date:	**07/2007**
Funding Source:	**Hazard Mitigation Grant Program (HMGP)**
Funding Recipient:	**Transportation**
Funding Recipient Name:	**Michigan Department of Transportation**

Activity/Project Economic Analysis

Cost:	**$205,980.00 (Actual)**

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster?	**Yes**
Federal Disaster #:	**1413 , 05/06/2002**
Value Tested By Disaster?	**Unknown**
Repetitive Loss Property?	**Unknown**

Reference URLs

Reference URL 1:	**http://www.michigan.gov/**
Reference URL 2:	**http://www.fema.gov/government/grant/hmgp/index.shtm**

Main Points

- A 1,320 foot stretch of M-35 was recently restructured using funds from FEMA's HMGP.
- The hazard mitigation was a roadway grade raise in conjunction with the installation of two larger culverts to provide adequate hydraulic capacity under the thoroughfare.
- The project successfully reduced the hazard of water overtopping the roadway and, as a result, improved the structural capacity of the roadway.
- With an estimated benefit of over $600,000 during the project's 20-year expected use, the Michigan Department of Transportation will save $30,000 annually.

Before mitigation.

After Mitigation.

After Mitigation.