



## Wisconsin Emergency Management-HAZUS Used to Evaluate Flood Risk and Losses

### Full Mitigation Best Practice Story

#### *State-wide, Wisconsin*

**The State of Wisconsin** - In 2005, the agency charged with helping safeguard the State of Wisconsin against the impacts of all types of disasters initiated a significant undertaking: to conduct a 100-year flood risk-and-loss estimate that could apply to the entire state. While still engaged in that ambitious project, Wisconsin Emergency Management (WEM) has also been preparing for the launch of a second statewide assessment, one that will utilize the powerful processing abilities of HAZUS-MH methodology.



A comprehensive study of flood risks and losses can prove particularly useful in a state such as Wisconsin, which contains many lakes and rivers. Wisconsin features a varied topography that ranges from lowlands to highlands and is bordered by Lakes Superior and Michigan. When rainfall or snowmelt exceeds normal levels, the State can suddenly find itself facing a flood threat of huge proportions—underscoring the pressing need for analytical research and predictive models.

Under requirements of the Disaster Mitigation Act of 2000 (DMA 2000), states and local jurisdictions must now calculate the amount of risk present and estimate the potential damage that could occur during a flood event, in order to retain eligibility for mitigation funds. However, quantifying the magnitude of flood threat has previously proven difficult, due to the highly subjective nature of calculating risk and loss.

Wisconsin Emergency Management (WEM) first became aware of HAZUS-MH in the mid-90s, back when the program was specifically being used to calculate damage estimates about losses from earthquakes. In 2002, after learning about the HAZUS flood model, the agency sent one of its planners to the Emergency Management Institute (EMI) to receive training about the program. At that time, WEM utilized HAZUS software in order to analyze a limited selection of counties and watersheds.

The possible applications and utility of HAZUS-MH were so varied and intriguing that in 2006, WEM, in conjunction with FEMA Region V, sponsored a training seminar for potential HAZUS-MH users located in the Midwest. More than 30 participants assembled at the Emergency Management Headquarters in Madison, WI to receive expert instruction from Mr. Kevin Mickey, Director of Professional Education and Outreach for the POLIS Center in Indianapolis, IN (at IUPUI). The training culminated in the students performing a HAZUS-MH flood run for the jurisdiction of their choice.

After sending another planner to EMI to receive HAZUS-MH Advanced Flood training, WEM began its statewide 100-year flood risk-and-loss estimate. About one-fourth of the state's 72 counties have been analyzed using HAZUS-MH, and planners report successful results, while working with HAZUS software developers to identify ways to bolster the program's functionality.

While continuing to work on the 100-Year Flood-Risk Assessment, WEM has requested funding from FEMA's Pre-Disaster Mitigation (PDM) program so it can contract with the University of Wisconsin and the POLIS Center to complete a Level 1.5 HAZUS-MH flood-risk assessment for the entire state. The goal of this second assessment is to incorporate local data in order to create more accurate estimates. The results from both studies will be compared and used in developing future strategies, including those outlined in the Wisconsin State Hazard Mitigation Plan.

HAZUS-MH methodology is already making a positive impact on the State. For example, the GIS Coordinator of the Bay-Lake Regional Planning Commission, Mr. Tony Bellovary, is combining HAZUS-MH data along with other data from Federal, State, and other sources to create critical facility maps for use in all-hazard mitigation planning.

As the use of HAZUS-MH becomes more prevalent, WEM will be searching for even more ways to leverage the methodology's considerable utility. Agency representatives have already suggested that the flood model acquire the ability to generate reports, tables, and maps that are specifically designed to meet requirements of DMA 2000.

Wisconsin Emergency Management has only begun to reap the benefits offered by HAZUS-MH and is already considering performing another statewide flood risk-assessment, after the current assessments have been completed.

### Activity/Project Location

Geographical Area: **State-wide**

FEMA Region: **Region V**

State: **Wisconsin**

### Key Activity/Project Information

Sector: **Public**

Hazard Type: **Flooding**

Activity/Project Type: **HAZUS-MH**

Activity/Project Start Date: **01/2005**

Activity/Project End Date: **Ongoing**

Funding Source: **State sources**

### Activity/Project Economic Analysis

Cost: **Amount Not Available**

### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Unknown**

Value Tested By Disaster? **Unknown**

Repetitive Loss Property? **Unknown**

### Reference URLs

Reference URL 1: <http://www.hazus.org>

Reference URL 2: <http://emergencymanagement.wi.gov/>

## Main Points

- In 2005, the agency charged with helping safeguard the State of Wisconsin against the impacts of all types of disasters initiated a significant undertaking: to conduct a 100-year flood risk and loss estimate that could apply to the entire state.
- While still engaged in that project, Wisconsin Emergency Management (WEM) has also been preparing for the launch of a second statewide assessment, one that will utilize the processing abilities of HAZUS-MH methodology.
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- After sending planners to EMI to receive HAZUS-MH Advanced Flood training, WEM began its statewide 100-year flood risk and loss estimate.
- HAZUS-MH methodology is already making a positive impact on the State. For example, the GIS Coordinator of the Bay-Lake Regional Planning Commission is combining HAZUS-MH data along with other data from Federal, State, and other sources to create critical facility maps for use in all-hazard mitigation planning.