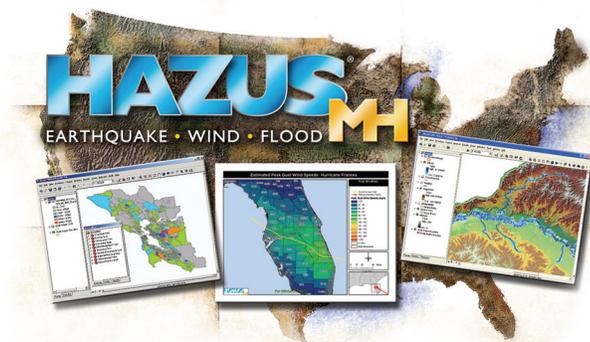


HAZUS User Groups Success Story

FEMA Region VII

Johnson County Emergency Management and Homeland Security Collaborates with the University of Iowa Department of Geography to Assess Flooding Impacts Using HAZUS-MH



Background

On June 9, 2008, forecasts for the Iowa River through Johnson County, Iowa, were expected to approach or exceed the record levels set in 1993. Aware of the benefits of HAZUS-MH for estimating the potential losses from flood disasters, Johnson County Emergency Management Director Dave Wilson consulted Shane Hubbard from the University of Iowa to utilize HAZUS to assess the potential impacts of the approaching flood event. These analyses were coordinated within the Johnson County Emergency Operations Center and shared with each of the Emergency Support Functions (ESFs). With the crest of the river not expected to occur for seven days, the results of the HAZUS-MH analyses were used to assist in planning initiatives throughout the county.



Details

Johnson County GIS staff supplied data which was formatted to create a countywide dataset of building locations with necessary attributes to update the HAZUS-MH building inventory. Initially there were no official forecasts for the water levels along the Iowa River in Johnson County. A preliminary HAZUS-MH analysis began by simulating the 1993 flood event from historical discharges recorded along streams within the county. As the National Weather Service (NWS) and U.S. Army Corps of Engineers (USACE) began to forecast the approximate discharge values for the Iowa River through Johnson County, the model was initialized to reflect those forecasts. Toward the week's end a consensus was reached on a flood forecast. A final HAZUS-MH analysis was generated creating a flood boundary and loss estimate. The updated building information along with the expert-supplied discharge data represented a Level II analysis.

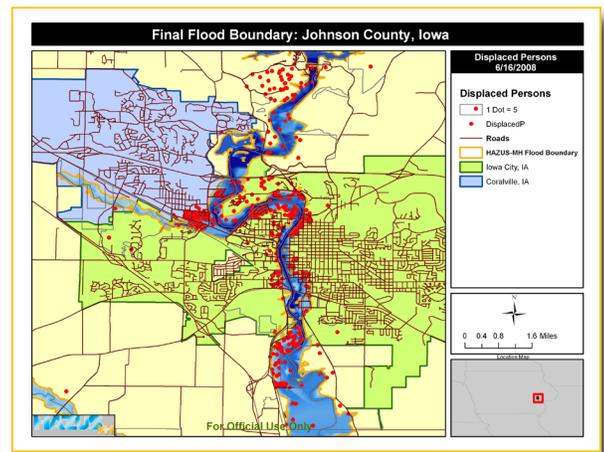
In the days leading up to the final crest, numerous roads were closed due to high water. Road closures inhibited the ability for Emergency Medical Services (EMS) to serve the county during the disaster. EMS turned to HAZUS-MH for answers. HAZUS-MH flood boundaries were intersected with local GIS road networks and elevation data to create an estimate of upcoming road closures. Creating this analysis days before the event gave EMS staff time to prepare for alternative routes to navigate around the county.



HAZUS-MH was used to highlight critical facilities which might be affected by flooding and this information was used to navigate sandbagging efforts. It was determined the Johnson County Administration Building, home to the County Board of Supervisors, the Auditor's Office, GIS staff, and other offices crucial to the functionality of county services could be affected. Based upon historical flooding and the HAZUS-MH analysis, the building was protected with sandbags. Mid American Energy was concerned with the inundation of an electric substation that supplied power to Iowa City, which contains 56 percent of the population of the county. HAZUS-MH was used as one tool to assist in the protection of the power substation.

HAZUS-MH Statistics

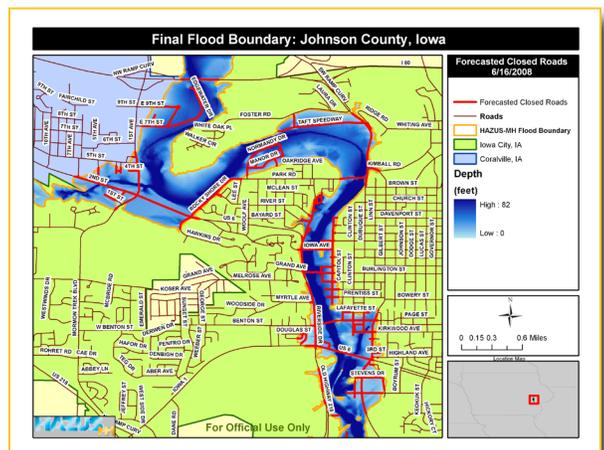
A final HAZUS-MH analysis created on the day of the flood crest calculated 265 buildings would be moderately damaged and estimated 1,100 households would be displaced from the flood. Preliminary damage assessments from the Iowa Department of Homeland Security Division of Emergency Management estimated 303 buildings sustained at least moderate damage. An analysis of the structures evacuated within Johnson County by the Johnson County GIS staff resulted in nearly 1,300 households evacuated. Once again, HAZUS-MH proves to be highly accurate.



Collaborations

HAZUS outputs—such as the maps on this page—facilitated the collaboration of federal, state and nonprofit organizations during this disaster. HAZUS-MH results quantified the numbers of displaced households which allowed for the American Red Cross and the Salvation Army to plan their response efforts in terms of resources required based on need. HAZUS maps showing the location of the flooding event expedited the process of getting help to people in need.

The Emergency Management Division of Iowa Homeland Security used HAZUS-MH maps and data to understand the severity of flood damage likely to affect the area. The HAZUS data and maps provided situational awareness above and beyond what was available for the county during the statewide response.



FEMA Community Relations Cadre Staff contacts residents in person in areas which have sustained damage during a disaster to be sure they are aware of FEMA and other agency disaster assistance. Being able to accurately predict which structures were affected greatly increases their efficiency, as well as their confidence in knowing they can locate disaster victims in a systematic way. The HAZUS-MH maps and data provided to the FEMA Community Relations staff were extremely useful and, so far in their experience, have accurately

predicted which structures were damaged by the flood event. The HAZUS-MH data allowed the staff to prioritize their efforts in Johnson County and reach as many people as possible.

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