



Use of HAZUS to Support FEMA Playbooks

HAZUS has become an important tool in the development of “playbooks” under FEMA’s program to provide support for mass care and housing recovery following a Presidential disaster declaration. The purpose of FEMA playbooks under the Individual Assistance Program (IA) is to test the effectiveness of FEMA plans and capabilities to meet shelter, emergency assistance, and temporary housing needs following a major disaster. Playbooks describe various disaster scenarios, and detailed plans for carrying out mass care and housing missions.

HAZUS has several features that make it well suited for the preparation of playbooks:

- Outputs include geographic information system (GIS) maps and tables that depict losses from floods (coastal and riverine), hurricanes, and earthquakes.
- HAZUS is a national model. Uniformity and consistency is important in assessing and comparing losses from one region or state to another.
- HAZUS allows the area to be scalable. Losses can be assessed for neighborhoods or communities, entire states, or multiple states.
- HAZUS provides estimates that are important to IA missions, including:
 - Spatial boundaries of the hazard,
 - Population exposed to wind, surge, flooding, and ground shaking,
 - Residential losses,
 - Displaced households,
 - Short-term shelter requirements,
 - Economic losses, and
 - Damage and loss of functionality to essential facilities (police, fire, medical, emergency operations center (EOC), and schools).

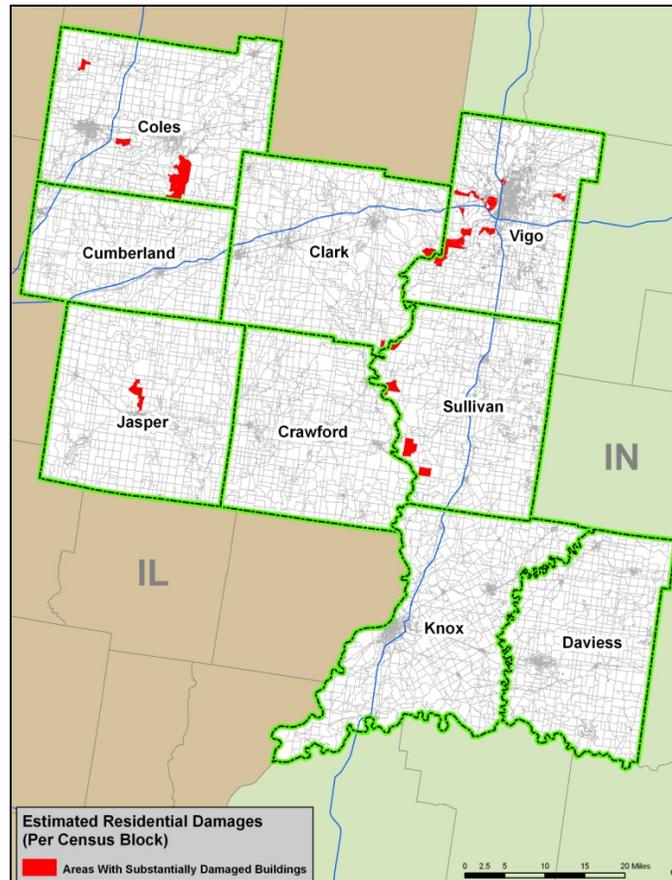
FEMA Region V Playbook

The playbook for FEMA Region V focuses on floods. Since 1981, 99 of Illinois’ 102 counties have been declared by the President as major disaster areas due to flooding. Ten counties were declared in both the 1993 and 1995 floods. In Indiana, flooding is a recurring problem. Historically, the state experiences flooding on an annual basis along one or more of its rivers and streams. Its last major disaster declaration for flooding was January 2008 in the northern third of the state.

The scenario for the first FEMA Region V Playbook is a 500-year riverine flood event that impacts five counties in Illinois and four counties in Indiana. The flooding occurs in the Wabash River watershed. HAZUS was used to estimate residential losses, including the number of residential buildings that were substantially damaged which is defined as when the cost of restoring a structure to its pre-disaster condition exceeds 50% of market value of the structure before the damage occurred. Under the National Flood Insurance Program (NFIP), substantially damaged structures that receive NFIP funding must be elevated to minimize future flood damage.

HAZUS estimates determined that over 600 residential structures would be damaged from this flood event, with approximately 400 of the damaged buildings occurring in Vigo County, Indiana. Approximately 85 of these

structures would be in the substantially damaged category. The total estimate of residential building damage would be \$85.4 million. The distribution of substantially damaged residential buildings is shown in the figure below.

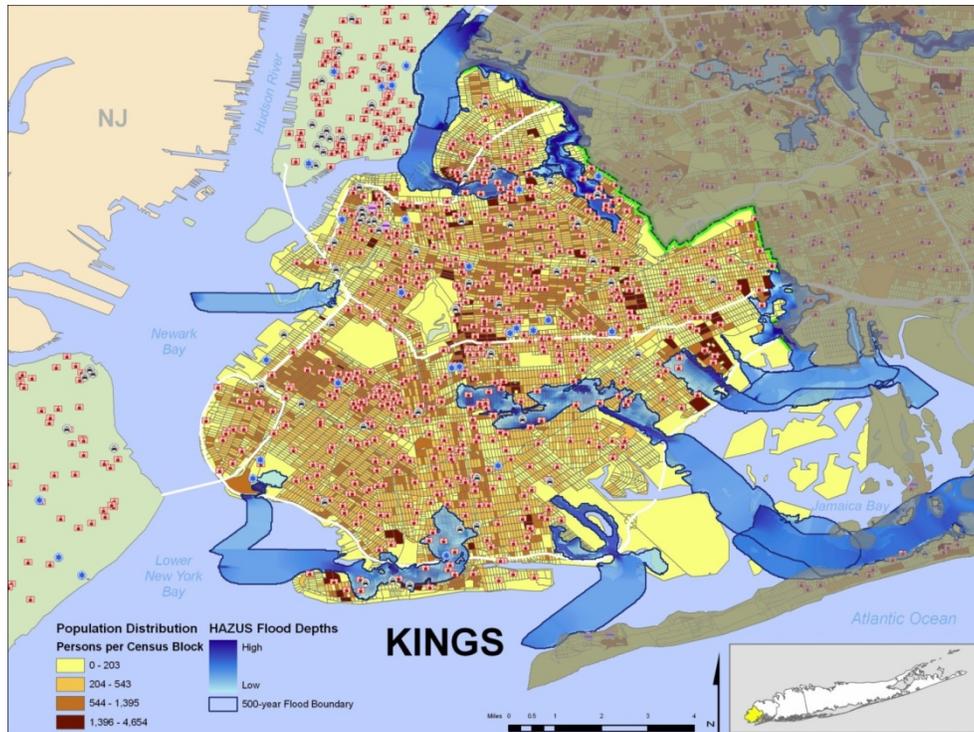


The HAZUS estimates enable FEMA and its contractors to develop a Mission Execution Plan that:

- Depicts the location and parameters of flood damage, and
- Identifies the staffing requirements for the Incident Management Teams (IMTs) that will manage the Temporary Housing Task Order.

Use of HAZUS for Mass Care Mission Planning

The FEMA Region II Playbook uses a scenario of a major flood in a densely populated urban county to identify mass care requirements and to test the Mission Execution Plan. HAZUS was used to estimate shelter requirements and the number of displaced households from a 100-year flood event that impacted Kings County, New York. Since shelter requirements are largely driven by income levels of the impacted population and other socio-economic factors, it is an important feature of the Region II Playbook.



The figure above shows the boundaries of both the 500-year and 100-year flood events. Preliminary damage assessments (PDA) and ESF #6 (Mass Care) analyses from this scenario event determined the following:

- Approximately 50,000 households will be displaced in a 100-year flood event. (The figure above shows the distribution of displaced households in Kings County from a 100-year flood.)
- Approximately 2,700 residential buildings will be impacted from a 100-year flood event.
- Approximately 150,000 people will seek temporary shelter in public shelters following a flood.

FEMA contractors used these estimates to develop a Mass Care Mission Execution Plan, including plans for staffing multiple shelters for 24 days, a Feeding Plan for up to 150,000 evacuees, and a plan for establishing up to 150 bulk distribution sites or points of distribution (POD).

HAZUS will continue to play a prominent role in the preparation of playbooks under FEMA's Individual Assistance Program. One of the advantages of using HAZUS for scenario development and the preparation of playbooks is when an actual mission occurs, FEMA and state officials in the Joint Field Office (JFO) will be more familiar with the HAZUS analysis process and outputs, which will facilitate their use as a decision-making tool.