

New England University Transportation Center



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Final Report

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Teaching Case Studies on Emergency Evacuation

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Problem Addressed:

Through the development of four Harvard Kennedy School case studies, this project explored the policy and institutional dimensions of emergency evacuation planning and implementation in two major metropolitan areas – Houston and New Orleans. By providing in-depth descriptions of how regional authorities prepared for and managed the relocation of large numbers of people during two particularly intense hurricane seasons (2005 and 2008), the cases enable students of public policy and administration to examine a critical emergency management function and to improve their ability to deal with the issue in their future professional work.

Research Approach and Methodology:

The methodology employed by the research team followed the standard Harvard Kennedy School case-development process. Researchers first collected and assessed information from government reports, news accounts, and other documents concerning evacuation implementation and planning in the Houston and New Orleans areas. The researchers also conducted semi-structured, elite interviews with government officials involved in various aspects of evacuation management. They then analyzed data from the literature assembled and the interview transcripts, determining the main thematic issues and developing corresponding case outlines. The case writer next produced drafts of the cases, which were reviewed and edited by the principal investigator. Interview subjects were given the chance to read the cases in draft form, and their comments were taken into consideration during the final round of edits. Additional feedback was provided by experts in the fields of evacuation planning and transportation policy.

Research Findings/Conclusions/Recommendations:

The first case (*Gridlock in Texas (A): Evacuating the Houston-Galveston Region in Advance of Hurricane Rita*) looks at the evacuation of the Houston-Galveston area in the days leading up to Hurricane Rita, which threatened the Texas coast in September 2005. It opens by providing background information on the region and discussing coastal Texas's previous experiences with evacuating from major hurricanes. It also reviews key developments in regard to mass evacuation plans and policies before 2005. The core of the case focuses on what took place as Hurricane Rita bore down on greater Houston, describing how millions of area residents -- many of whom were heavily influenced by witnessing the collapse of the evacuation from Katrina in New Orleans -- took to the roads at roughly the same time, quickly overwhelming highway capacity and throwing evacuation plans into disarray. The case raises important points about planning sufficiently for worst-case scenarios, anticipating the capacity of regional transportation networks, the need for multi-jurisdictional coordination among neighboring communities and between different levels of government, the importance of effective risk communication, and the usefulness of a traffic management measure known as contra-flow (i.e., the movement of traffic in one direction along both sides of a highway).

The second case (*Gridlock in Texas (B): Evacuation Planning in the Houston-Galveston Region after Hurricane Rita*) focuses on the work conducted by authorities in the Houston area, along with their State of Texas counterparts, in the aftermath of Rita and explores how the revised plans measured up when Hurricane Ike crashed ashore in September 2008. It points to improved approaches to multi-jurisdictional coordination as well as to more nuanced methods of risk communication and better preparedness for implementing contra-flow measures as major advances. All the same, the evacuation was not perfect. Among other things, too many residents stayed behind, particularly in Galveston, which forced the organization of a large-scale search and rescue effort, entailing the costly deployment of public resources.

A second pairing of cases, funded through additional sources but developed as part of this research project, specifically examines the relocation of *medical special needs individuals* – that is, people with conditions that preclude them from getting out of an area by their own means – during the same time period (2005-2008). The first case in this series (*Moving People Out of Danger [A]*) focuses on the failure of authorities in New Orleans and in the State of Louisiana to adequately prepare for an evacuation of the city's special needs residents in advance of Hurricane Katrina. As a consequence, once the city flooded in the storm's immediate aftermath, local, state, and national agencies were forced to undertake a costly and time-consuming search and rescue operation to find and relocate tens of thousands of people stranded in the city. Among the issues raised in this case are the inadequacies of special needs evacuation planning prior to 2005, the challenges of inter-agency and multi-jurisdictional coordination in the face of a major disaster, and the special problems of evacuating citizens, including those with serious medical conditions, out of a disaster zone post-event.

The second case in this series (*Moving People out of Danger [B]*) examines post-Katrina special needs evacuation planning and its effectiveness in the face of Hurricanes Gustav and Ike, which threatened greater New Orleans and metropolitan Houston, respectively, in the summer of 2008. It highlights major advances made since 2005, including a significantly heightened reliance on mass transit to evacuate special needs individuals out of New Orleans and the deployment of electronic special needs evacuee tracking systems, which were used for the first time during the 2008 evacuations in both Louisiana and Texas. It also points to some continued challenges, such as the need for better reentry planning and complications with the tracking systems (including technological failures and insufficient training).

Copies of the case studies mentioned in this report can be obtained by contacting the Harvard Kennedy School case program at caseadmin@hks.harvard.edu.