

New England University Transportation Center



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Final Report

Project Title:

**Improving Emergency Evacuation Preparedness:
Policy and Organizational Implications for Transportation Agencies**

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The New England University Transportation Center is a consortium of 8 universities funded by the U.S. Department of Transportation, University Transportation Centers Program. Members of the consortium are MIT, the University of Connecticut, University of Maine, University of Massachusetts, University of New Hampshire, University of Rhode Island, University of Vermont and Harvard University. MIT is the lead university.

Problem Addressed:

When Hurricanes Katrina and Rita ravaged the United States' Gulf Coast in 2005, the storms revealed woeful inadequacies in our nation's emergency preparedness and response capacities, including – notably – how we plan for and execute large-scale evacuations. Since then, all levels of government have striven to improve the ways in which the public sector manages the mass movement of people in the face of a major disaster. Building on previous work conducted by the investigators, this project explored changes select metropolitan areas have made in planning for and implementing emergency evacuations in the post-Katrina era, placing particular emphasis on how transportation and emergency management officials across multiple levels of government have collaborated in developing and refining regional mass evacuation plans and procedures.

Given the complications disasters can cause for traffic management and infrastructure, along with the pivotal role surface transportation plays in support of emergency evacuations, this study directly addressed the NEUTC's theme of *strategic management of disruptive change in transportation systems* – with a specific focus on *disruptive environments*.

Research Approach and Methodology:

Project researchers used several different methods employed by political scientists and policy analysts to comparatively study decision-making and institutional processes.

The study team conducted a systematic review of academic literature, government reports, and other materials pertaining to mass evacuation planning and implementation. Relevant materials were identified and obtained, catalogued, reviewed, and summarized. Team members then produced a literature review that explored the general state of research and identified key themes pertaining to the topic.

The researchers also organized a set of personal interviews with city, state, and federal officials familiar with evacuations operations in select metropolitan areas. To prepare for these interviews, they conducted background research on the sites and developed semi-structured, elite interview protocols appropriate for officials by type of job position. (Although *not* quantitatively analyzable, as would be the case in survey research, these types of interviews permit extended answers by respondents and subsequent follow-up questions by the interviewer, providing researchers with valuable data that informs project findings.)

Based on information collected through the literature review, additional background research, and interviews, the investigators developed an integrative framework encompassing a range of key issues pertaining to evacuation preparedness and implementation. This framework served as the basis for analysis and writings developed by the team.

Research Findings/Conclusions/Recommendations:

To date, the investigators have produced several publications exploring various policy, organizational, and operational issues relating to emergency mass evacuations. These include two sets of Harvard Kennedy School case studies, one of which explores how officials have dealt with the challenges of evacuating “special needs populations” – i.e., individuals who may require additional support to relocate during actual or potential crisis events.¹ The second set focuses specifically on the Houston-Galveston area and examines how officials there revised multi-jurisdictional evacuation plans and transportation operations in the aftermath of Hurricane Rita. In addition, research conducted as part of this project has informed several other publications by the principal investigator and his colleagues on various crisis response issues,² and additional papers are forthcoming. Related concepts were also presented and discussed in a suite of Harvard executive education programs and extension school classes offered by the principal investigator that focus on emergency preparedness, crisis leadership, and disaster recovery.³

Through their research, project investigators identified a range of issues policymakers need to consider in planning for and carrying evacuations, including (but not limited to):

- how best to track “special needs” individuals as they move through multiple jurisdictions (and how to account for possible obstacles to extensive tracking efforts);
- how to anticipate and accommodate the complex care needs that these evacuees may require throughout the evacuation and sheltering processes;
- how to effectively communicate with different types of evacuees (and their families), some of whom may have difficulty understanding standard messaging due to language barriers, cultural differences, medical conditions, age, etc.;
- how to communicate clearly, but in a nuanced manner, the exact nature of the threat, level of risk, and related evacuation needs;
- how to coordinate among multiple neighboring jurisdictions (and beyond) to ensure as seamless an evacuation and provision of shelter as possible; and
- how to minimize disruptions to the repatriation of all types of evacuees once the crisis has been resolved.

¹ <http://hbr.org/product/moving-people-out-of-danger-a-special-needs-evacuations-from-gulf-coast-hurricanes/an/HKS682-PDF-ENG>),

² For a list of publications produced during the period of performance for this grant, please visit <http://www.hks.harvard.edu/programs/crisisleadership/publications/articles>.

³ For a listing of the courses, please visit <http://www.hks.harvard.edu/programs/crisisleadership/education>.