

# New study shows evacuation plans need to incorporate family perspectives

December 8 2011

---



Pamela Murray-Tuite, assistant professor of civil and environmental engineering at Virginia Tech, led an NSF-funded study that looked at social science and transportation issues related to evacuation. Credit: Virginia Tech Photo

A study sponsored by the National Science Foundation found that most respondents felt the evacuation of New Orleans residents to the Superdome after Hurricane Katrina was a "failure" and this opinion has shaped their willingness to accept shelter if offered in an emergency evacuation.

This finding, as well as many others, was derived from interviews of residents in the Chicago metropolitan area, with particular focus in two areas where neighborhood [evacuations](#) are likely due to large amounts of [toxic materials](#) that are transported nearby Logan Square and Blue Island, Ill. Logan Square is a predominantly Latino, low-income

community with a high concentration of recent arrivals to this region from Mexico and Puerto Rico. By contrast, Blue Island is a mixed-race, predominantly low to middle income community on Chicago's south side.

Pamela Murray-Tuite, an assistant professor of civil and environmental engineering at Virginia Tech, led this study that she calls the first of its kind. "We took an integrated, interdisciplinary approach to evacuation study. This approach is absolutely critical to the development of transportation evacuation models, but in practice, it was virtually non-existent until our work," she said.

In the past, officials have "made overly optimistic evacuation time predictions that could have potentially devastating consequences," she added.

Murray-Tuite's study was unique because it integrated social science perspectives with transportation engineering. It used in-depth personal interviews to gather household decision-making data and to model household member interactions and decision-making when faced with an immediate, no-notice evacuation. The study also estimated the resulting effects on traffic and evacuation times, and considered the relocation of school children to sites within the communities to facilitate pick up.

Working with Murray Tuite was Lisa Schweitzer of the University of Southern California, an associate professor in its school of policy, planning and development. She has expertise in sustainable transportation and hazardous materials in urban environments. The late Janice Metzger, a senior program manager at the Center for Neighborhood Technology (CNT) in Chicago, also served as a co-principal investigator on the NSF project. Henry Sullivan of this center finished the study.

Schweitzer described one of the influencing factors their team found regarding emergency evacuations was that in the Logan Square area nearly 60 percent of the immigrant mothers were stay-at-home, whereas U.S. Bureau of Labor Statistics has put the average percentage of mothers outside of the paid workforce at a little less than 10 percent. Anecdotal evidence suggested that the U.S. recession was responsible for this much higher than average number.

"Foreign born women who are engaged in traditional care giving roles may be exceptionally vulnerable to events that disrupt their neighborhood. However, native-born women, though far more mobile due to their higher car usage and roles outside the home, also have dimensions upon which they may be more vulnerable," since they retain the primary role for securing their children, the researchers wrote in their report to NSF.

Some 300 households participated in the research project. Approximately 50 questions were posed in each of the interviews. Personal information about such issues as education level and income were answered separately and included in an anonymous sealed envelope.

The interviews covered topics from everyday commuting habits, child-transportation both before and after school, to thoughts about how they might handle short to long-term evacuations.

Murray-Tuite presented some initial findings at the Fourth International Conference on Women's Issues in Transportation. Her doctoral student Sirui Liu of Falls Church, Va., presented the relocation model at the 90th Annual Meeting of the Transportation Research Board.

She and her colleagues are also publishing several technical papers on emergency evacuations that include emphasis on scenarios such as child

pick-up from another location, as well as one on how the effect of spouses attempting to find each other impacts a hasty exit from a community.

"We know from our study that everyday travel behavior and neighborhood environments shape what people believe they would do when they envision disaster conditions," Murray-Tuite said. "We now have a series of discrete choice analyses that we are working on to uncover systematic differences in everyday travel behavior in men and women, parents and non-parents, and how those systematic differences in everyday travel behavior affect how individuals view their disaster resources."

Provided by Virginia Tech

Citation: New study shows evacuation plans need to incorporate family perspectives (2011, December 8) retrieved 27 April 2024 from <https://phys.org/news/2011-12-evacuation-incorporate-family-perspectives.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.