UNIVERSITY TRANSPORTATION RESEARCH CENTER

RESEARCH BRIEF

PROJECT TITLE: ENHANCING RESOURCE COORDINATION FOR MULTI-MODAL EVACUATION PLANNING

PRINCIPAL INVESTIGATORS: DR. DANIEL B. HESS, ASSOCIATE PROFESSOR

INSTITUTION: UNIVERSITY AT BUFFALO, SUNY

COMPLETION DATE: APRIL 2013

SPONSOR: RESEARCH AND INNOVATIVE TECHNOLOGY ADMINISTRATION / USDOT

Key Elements of Project

The research team conducted more than 35 in-depth face-to-face interviews (with individuals representing more than 20 agencies) throughout New York State with experts in disaster planning, urban planning, and transportation planning. A workshop discussion, attended by 15 experts, was held in November 2012 at the Regional Planning Association in New York City. The project team also participated in the StormWest Exercise sponsored by the Erie County Department of Emergency Services.

One undergraduate and three graduate students in the School of Architecture and Planning at the University at Buffalo received financial support from this project. Students research assistants participated in all aspects of the research project, including the outreach activities mentioned above.

Research Products

Published technical report:
Hess, Daniel Baldwin, with Brian Conley and Christina Farrrell. 2013. Barriers to Resource Coordination for Multi-Modal Evacuation Planning. Buffalo, New York: Multidisciplinary Center for Earthquake Engineering Research, University at Buffalo. [funded by University Transportation Research Center – Region II]. http://www.utrc2.org/publications/multi-modal-evacuation-planning-final

Journal article manuscript:
Hess, Daniel Baldwin, Brian Conley, and Christina Farrell. 2013. Improving Transportation Resource Coordination for Multi-Modal Evacuation Planning: A Literature Review and Research Agenda. Transportation Research Record: Journal of The Transportation Research Board. (forthcoming)

One invited lecture:
Hess, Daniel Baldwin. 2012. Older Adults' Vulnerabilities to Extreme Weather in Western New York: Results from a Survey of Meals on Wheels Clients. UB Civic Engagement and Public Policy Research Initiative. Buffalo, New York. November, 2012.

Two conference presentations:

(1) Hess, Daniel Baldwin, Brian Conley, and Christina Farrell. 2013. Improving Transportation Resource Coordination for Multi-Modal Evacuation Planning: A Literature Review and Research Agenda. Transportation Research Board Annual Meeting. Washington, D.C., January, 2013.

(2) Hess, Daniel Baldwin. 2012. Barriers to Resource Coordination for Multi-modal Evacuation Planning. Association of Collegiate Schools of Planning. Cincinnati, Ohio. November, 2012.

Project Summary

The University Transportation Research Center - Region 2, supported a study entitled "Barriers to Resource Coordination for Multi-Modal Evacuation Planning." Extreme events that require large-scale evacuation are a great concern for disaster planners and emergency managers; most state and local municipalities are ill-prepared to handle large-scale evacuations. A lesson repeatedly learned from previous disasters (such as Hurricane Katrina) is that residents without access to automobiles and residents in need of special assistance are more likely to lack the means to evacuate independently. Developing integrated plans for jurisdictions and agencies to share resources (vehicles, equipment, communication networks, drivers and other personnel) for high-capacity evacuation methods and modes is difficult because of insurance, liability, and other legal and contractual matters. This research examines a unique combination of elements: disaster planning, large-scale urban evacuation, and coordination of volunteer transportation professionals to increase knowledge about coordinating effective multi- modal evacuation for disasters.

This report presents the findings of the research project. It identifies strategies for evacuation of all residents, including carless residents during a disaster. It also addresses the challenges of effectively incorporating multi-modalism into local emergency plans by enhancing transportation resource coordination through exploration of the feasibility of a new concept—a Transportation Reserve Corps (TRC). A TRC seeks to integrate planning for households without automobiles, multi-modal evacuation, and coordinated volunteerism with disaster preparedness, response and recovery. Specific action steps needed to conduct a pilot test of a TRC are provided.