UTC PROJECT DESCRIPTION

PROJECT NUMBER:
00214

PROJECT TITLE:
Environmental Health, Public Safety, and Social Impacts Associated with Transportation Accidents Involving Hazardous Substances

PRINCIPAL INVESTIGATORS:
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PROJECT OBJECTIVES:
The purpose of the project is to: (1) quantify the frequency and magnitude of transportation-related accidents involving hazardous materials in the state, and (2) develop approaches that can be taken to identify potential long-term environmental health, public safety, and social impacts that may occur after a major accident. The project directly addresses the safety issues and technology transfer themes of UTCA. It will improve the use of existing data, maximize its educational value, and utilize it in a core course in the planned graduate concentration in Disaster and Emergency Management (also available as a short-course).

PROJECT ABSTRACT:
Recent research demonstrates that major accidents involving hazardous materials can profoundly affect the well-being of individuals, families and communities long after the incident is officially declared to be over. However, these potential longer-term problems are sometimes overlooked after the more dramatic acute problems are addressed. This project focuses on the longer-term impacts of major transportation-related accidents involving hazardous materials. More specifically, its aim is to quantify the frequency and magnitude of transportation-related accidents involving hazardous materials in Alabama, and to develop approaches for identifying potential long-term community impacts. The project consists of four tasks: consultation with key stakeholders; summarizing and
analyzing representative transportation-related accidents involving hazardous materials; presentation of simplified chemical transport and fate models; and development of planning tools and information to identify potential long-term adverse community impacts.

PROJECT TASK DESCRIPTIONS:
Task 1: Consultation with Key Stakeholders
Task 2: Diversity, Frequency and Magnitude of Transportation Accidents Involving Hazardous Materials -- This project task will quantify and describe the major types of transportation-related accidents involving hazardous materials in Alabama.
Task 3: Simplified Chemical Transport and Fate Models -- This task will involve preparing aids to predict exposure of these hazardous conditions.
Task 4: Planning Materials to Identify Potential Longer-term Community Impacts -- The final task in the project will draw on the information developed above, plus discussions with the stakeholders, in order to develop planning and information tools to help identify the environmental health, public safety and social impacts of major accidents.

MILESTONES AND DATES:
Jan 1 - Mar 31 - Task 1
Mar 1- May 31 - Task 2
Jun 1 - Aug 31 - Task 3
Sept 1- Dec 31 - Task 4

TOTAL BUDGET:
One-year project: UTCA $60,664; total budget $121,580.

STUDENT INVOLVEMENT:
Two graduate students will be funded during this research for one year each. One will be a major in the Civil & Environmental Engineering Department and the other will be a major in the Department of Government and Public Service, in the School of Social and Behavioral Sciences, at UAB.

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
This project can be viewed as a stand-alone project as it does not tie into any other UTCA projects.

TECHNOLOGY TRANSFER ACTIVITIES:
Information compiled in the study will be utilized in the multi-disciplinary course on Environmental Disasters that is offered every year at the University of Alabama at Birmingham. The project materials will also be used in the development of a new cornerstone graduate course in the proposed MPA concentration in Disaster and Emergency Management. Selected components of this material can also be presented in a short course format as part of the ongoing technology transfer UTCA projects.

POTENTIAL BENEFITS OF THE PROJECT:
The outcome of this project will be a workbook presenting techniques and tools for predicting the frequency and magnitude of accidents involving hazardous materials in the state. Methods will be presented to enable estimates to be made of resulting environmental concentrations of any released materials. Guidance materials will also be presented to identify the social and economic impacts of these potential accidents.

TRB KEYWORDS:
Hazardous materials spills, risk assessment, hazard analysis, hazard evaluation.