PROJECT NUMBER:
02215

PROJECT TITLE:
Hazmat Accident Education: An Integrated Approach

PRINCIPAL INVESTIGATOR:
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PROJECT OBJECTIVE:
The objective of this project is to develop materials, for use in both workshops and classrooms (and available on an Internet site), that will present an integrated approach to Hazmat accident planning and response, and to deliver these materials to planners, responders, and the interested public. The project consists of three broad components: (1) Development of multi-disciplinary modules for use in several classes at UAB, UA and UAH, with potential future use as a stand-alone course at one or more of the campuses; (2) Presentation of a series of seminars in the state; and (3) Preparation of an Internet site.

PROJECT ABSTRACT:
The report, “Environmental Health, Public Safety, and Social Impacts Associated with Transportation Accidents Involving Hazardous Substances,” was ground-breaking because it presented planners and responders with information on both the potential fate and transport of hazardous materials released in an accident and the potential long-term community impacts resulting from an accident. Recent research has demonstrated that major accidents involving hazardous materials can profoundly affect the well being of communities long after the incident is officially declared to be over. However, these potential longer-term problems are sometimes overlooked. This project will take the information presented in the “Environmental Health, Public Safety, and Social Impacts Associated with Transportation Accidents Involving Hazardous Substances” report, and deliver the information to emergency planners and responders. This information is extremely important for planners, especially for anticipating possible social and environmental problems resulting from these accidents.

PROJECT TASK DESCRIPTIONS:
Task 1. Develop multi-disciplinary modules for use in engineering and public health classes at UAB, UA and UAH. Several already-existing courses at the UAB, UA and UAH campuses touch upon transportation-accident issues, but lack the curricular materials for a more detailed examination of the subject. The aim of the first component of the proposed project is to develop focused modules by using the data, case studies, and pollutant models previously compiled. These ready-made modules could then be incorporated into such engineering and public health courses as Introductory Environmental Engineering (UA, UAH & UAB), Environmental Disasters (UAB), Environmental Management (UAB), and transportation classes at UA, UAB and UAH.

Task 2. Conduct Statewide Workshops on Key Topics (Spill Losses & Movement; Long-Term Community Problems). Three workshops will be presented at key locations throughout Alabama.
Their aim will be (1) to provide up-to-date information on potential effects of these accidents to professionals involved in the field; (2) educate workshop participants about the topic of longer-term community impacts; and (3) bring together participants that do not normally have the opportunity to interact. The workshop will provide participants with an overview of medium and long-term impact issues and their potential significance for the state.

Task 3. Preparation of an Internet Site To Support the Course Modules and Workshops and Serve as a Stand-Alone Information Source. The purpose of the site will be to complement the course modules and workshops and provide a stand-alone source of up-to-date information, including information presented at the seminars. It will also be a mechanism for providing updated information and important new resources. The Internet site will be designed to reach a multi-disciplinary audience.

MILESTONES AND DATES:
This proposed one-year project is assumed to have a start date of January 2002. Quarterly milestones are as follows: 1st Quarter (Jan-March 2002) – Module & Content Development; 2nd Quarter (April-June 2002) – Completion of Module & Content Development and Begin Development of Internet Site; 3rd Quarter (July-Sept 2002) – Completion of Internet Site and Conducting Workshop 1; and 4th Quarter (Oct-Dec 2002) – Incorporation of Modules into Fall Classes and Conducting Workshops 2 & 3.

TOTAL BUDGET:
Year 1 and Total Budget: $100,102

STUDENT INVOLVEMENT:
Development of course and workshop modules will require the direct involvement of the PIs. Although there is no need for a paid student assistant, there are other aspects of this project in which students will be involved. Minority students (from UAB’s summer research programs) will be recruited for assistance on this project. The prior UTCA project appealed to several minority summer students from Birmingham, and it is anticipated that they can be recruited to work on the project. Another dimension of student involvement will be through the Environmental Management course at UAB. This class, which is scheduled to be taught by a member of our UTCA project team in Fall 2002, includes student projects. A number of students in the course will be focusing their projects on hazardous-materials transportation accidents.

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
This project builds upon the work presented in the final report of UTCA Project 00214. This project is designed to develop the modules necessary to encourage the use of the report material in more classes, and especially to encourage the use in non-elective classes. Also, the prior project report/workbook did not include information regarding the planning of transportation routes for hazardous materials. This information was incorporated in a prior UTCA project (Report 99244) entitled “GIS-Based Hazardous Materials Routing.” We also plan to incorporate that material into our course modules, workshops, and Internet site.

TECHNOLOGY TRANSFER ACTIVITIES:
College-level courses. It is important that the issues investigated during the prior project be incorporated into advanced education for individuals in fields that are concerned with hazardous material incidents. Toward this end, information compiled in the proposed study will be used in several courses at UAB and UA, and UAH will be informed of the modules so that they may be incorporated into classes at that campus. For example, materials and information produced in
connection with the proposed research will be utilized to enhance the UAB Environmental Disaster
course’s content on transportation-related accidents.

**Education of Emergency Planners and Responders.** Our prior project, UTCA Project 00214, had a
final outcome of a report/workbook that would “include guidance materials for identifying possible
long-term exposure problems associated with transportation-related accidents involving hazardous
substances.” That report accomplished that goal. However, for many planners and responders,
incorporating that material into their regular activities is not as easy as it would be if the material were
available in a presentation/outline format. It is proposed that the website would provide a location
where these easy-to-incorporate materials would be available for download.

**POTENTIAL BENEFITS OF THE PROJECT:**
The project team diversity (UAB Schools of Engineering and Public Health and UA School of
Engineering) will enable these researchers to enhance their understanding of the transportation
operations in the state, as well as to enhance their understanding of the emergency response planning
that is ongoing in the state. Through the series of workshops, it will also provide an opportunity to
involve stakeholders in this issue and to allow them to interact with one another. UTCA’s goals of
human resources and diversity are also promoted through the involvement of students on the projects,
both through the summer internship program and through the class projects. The development of these
educational tools should help not only the members of the project team but other faculty in the state to
incorporate the timely topic of hazardous-material transportation.

**TRB KEYWORDS:**
Transportation accident, Hazardous materials, Emergency response, Technology transfer