UTC PROJECT DESCRIPTION

PROJECT NUMBER:
03226

PROJECT TITLE:
Regional Traffic Simulation for Emergency Preparedness

PRINCIPAL INVESTIGATOR:
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PROJECT OBJECTIVE:
The goal of the project is to showcase the utility of microscopic traffic simulation for regional emergency preparedness. The project will use traffic simulation to model the major traffic corridors in and out of the Birmingham area.

PROJECT ABSTRACT:
This project will develop and test emergency response scenarios for the Birmingham region. Testing will be performed through simulation modeling. First, the local transportation network will be coded into CORSIM microscopic simulation model. The comprehensive, region-wide emergency/traffic management tool developed as part of the proposed project will then be used to test emergency response procedures such as evacuation routing, emergency response routing, and traffic control strategies. Appropriate preparedness and response measures of effectiveness (MOEs) will be selected to support the assessment process at the region-wide and/or corridor-level. Using these MOE’s candidate response actions will be evaluated and recommendations will be developed on best practices and needs for further technology deployment.

PROJECT TASK DESCRIPTIONS:
Task 1 - Review existing regional ITS architecture, and past projects and identify emergency preparedness steering committee members.
Task 2 - Examine simulation studies and data collection activities in the Birmingham area.
Task 3 - Define study boundaries to develop emergency preparedness simulation test bed.
Task 4 - Collect data for study corridors not already covered in previous studies
Task 5 - Code regional test bed into CORSIM
Task 6 - Develop realistic emergency scenarios and candidate response actions.
Task 7 - Develop appropriate preparedness and response measures of effectiveness.
Task 8 - Evaluate candidate response actions via region-wide and corridor-level MOE’s.
Task 9 - Develop recommendations on best practices and/or needs for technology deployment.
Task 10 - Document the findings from the previous tasks in a final report.

MILESTONES AND DATES:
- Task 1 January 2003
- Task 2 March
- Task 3 May
- Task 4 July
- Task 5 October
- Task 6 December
- Task 7-10 December 2003

TOTAL BUDGET:
One-year project: UTCA $51,997; total budget $104,064.

STUDENT INVOLVEMENT:
The project will fund one full time graduate Civil Engineering student for twelve months

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
The proposed project builds on the foundation of UTCA Project 02413 - “Traffic Simulation Models Comparison Study” that focuses on the comparison and review of three commercially available traffic simulation software packages, including CORSIM. Moreover results from UTCA Project 01101 - “Integrated Traffic and Emergency Response: Success Factors” will be reviewed and recommendations will be considered as inputs to the scenario development process.

TECHNOLOGY TRANSFER ACTIVITIES:
The research effort will result in a final report to be made available to UTCA and other interested parties at the local and state levels (e.g., Alabama Department of Transportation, Regional Planning Commission for Greater Birmingham, other metropolitan planning organizations, Emergency Management Agency, etc). Moreover, the results from this project have the potential for presentation at professional conferences and publication in scholarly journals. The investigators and participating students will explore this opportunity in an effort to support UTCA’s technology transfer goal and increase the Center’s visibility at the national level.

POTENTIAL BENEFITS OF THE PROJECT:
The project incorporates both traffic management and safety related issues consistent with UTCA’s central theme and supports several priority topics from the 2003 UTCA’s Annual Research/Training Program including the new emphasis area in Transportation Security Issues.
TRB KEYWORDS:
Emergency Preparedness, Emergency Management, CORSIM, ITS Traffic Simulation