UTC RESEARCH PROJECT DESCRIPTION

PROJECT NUMBER:
03304

PROJECT TITLE:
Study of a GIS Accident System to Accompany Care

PRINCIPAL INVESTIGATOR:
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PROJECT OBJECTIVES:
The objectives of this project are to examine the development of a Geographic Information Systems (GIS)-based system to interface with the CARE® software, and using a two-county test case, perform a statistical study and quality analysis of the data included in the potential system.

PROJECT ABSTRACT:
This project will develop a GIS interface to access the crash data contained in the CARE® package. With advanced spatial query and display capabilities, a GIS-based system would enhance crash data query and display features. Such a system will include instant graphical access, enabling viewing and selecting of desired network locations (nodes and links). The goal of this project is to design and implement a GIS-based system to interface with CARE® for two counties in Alabama. The system developed in this research will be subject to extensive quality review to ensure the appropriateness of such a system.

PROJECT TASK DESCRIPTIONS:
1: Review current state of the art/state of the practice and the CARE® System.
2: Examination of the data currently stored within the CARE® System.
3: Design a methodology to interface the roadway infrastructure data and the CARE node and link data into the single system.
4: The fourth task involves incorporating the CARE® data into the GIS using the methodology developed in task three.

5: Test the quality and accuracy of the data incorporated into the system.

6: Develop applications within the GIS system to analyze the accident data – focusing on display and query techniques as well as statistical tests to identify high accident locations.

7: Make recommendations, draw conclusions, and prepare final report.

MILESTONE DATES:
1. Task 1 - Jan 31, 2003
2. Task 2 - Mar 31
3. Task 3 - May 31
4. Task 4 - Jun 30
5. Task 5 - Sep 30
6. Task 6 - Nov 30
7. Task 7 - Dec 31 2003

TOTAL BUDGET:
One-year project: UTCA funds $29,744; total budget $59,492.

STUDENT INVOLVEMENT:
Two graduate students will be hired to work on this project. One will be full-time and the other will be half-time. The work will be incorporated into either a Thesis and/or Capstone project.

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
This project relates closely to another project (03202, “GIS Display and Analysis of Crash Data”) currently being funded by the UTCA for calendar year 2003. The projects are similar in that they both examine the development of a GIS-based interface to incorporate CARE® data into GIS. The two projects have enough fundamental differences to warrant simultaneous studies, and the Principle Investigators will ensure a high level of collaboration between the two projects to ensure that both make the maximum obtainable advancement in the state of practice.

TECHNOLOGY TRANSFER ACTIVITIES:
Technology transfer stemming from the research endeavor will be the development of a prototype GIS-based system to interface with the CARE® data. This system will be accompanied by a report documenting the system and data quality and issues that need to be addressed to support full, statewide implementation of such a system.

POTENTIAL BENEFITS OF THE PROJECT:
This project advances the UTCA’s goals focusing on diversity and human resources as it brings an interdepartmental research team together and will support two graduate students in transportation related research. In addition, if this project is successful, it will allow CARE® data to be incorporated into a GIS system that will be available for application statewide. The ultimate benefit of this project will be a system capable of allocating safety funds to deliver the maximum benefit for safety funding investments.

TRB KEYWORDS:
Data Analysis, Quality Control, Geographic Information Systems, CARE.