UTC RESEARCH PROJECT DESCRIPTION

PROJECT NUMBER
04301

PROJECT TITLE
Summer Transportation Engineering Institute – Phase 5

PRINCIPAL INVESTIGATORS
Kathleen M. Leonard, Ph.D., PE; Civil & Environmental Engineering Department
The University of Alabama in Huntsville, Huntsville, AL 35899
Voice 256-824-6423; Fax 256-824-6724; Email leonard@cee.uah.edu

Michael Anderson, Ph.D., PE; Civil & Environmental Engineering Department
The University of Alabama in Huntsville, Huntsville, AL 35899

Edgar Blevins, MSE; Industrial and Systems Engineering Department
The University of Alabama in Huntsville, Huntsville, AL 35899

Lois Schwartz, Ph.D.; Civil & Environmental Engineering Department
The University of Alabama in Huntsville, Huntsville, AL 35899

Houssam Toutanji, Ph.D., PE; Civil & Environmental Engineering Department
The University of Alabama in Huntsville, Huntsville, AL 35899

PROJECT OBJECTIVE
The objective of this research is to conduct a summer program to increase human resources and encourage diversity in transportation-related educational programs in Alabama.

PROJECT ABSTRACT
There is a shortage of professionals in the transportation field, and forecasts indicate that the shortage will become more severe in the future. This is especially applicable for female and minority professionals. As a consequence there is a need to educate young people about transportation careers, to encourage them to enter the profession, and to seek a diverse future workforce. Therefore, the major goal of this program is to introduce middle school students to basic engineering and transportation-related concepts. An additional goal of the project is to increase diversity by drafting local minority and female engineers to act as mentors.

Instructional and interactive experiences will be developed to build interest in transportation engineering and related science topics. Students will use real world examples and new technologies in their hands-on activities. The strategy of this program is to produce students who know "how to find out" and "how to examine and evaluate evidence."

This is the fifth year of conducting the Institute through UTCA, and there is an alumni-base of over 140 students. In 2004 the faculty will invite 12 of the alumni to participate in research activities at UAH. Each of the program faculty will devise a project to encourage students to
become actively involved in transportation engineering. The alumni program will operate one day per week for five weeks, using the following topics:

1. Traffic Simulation - Anderson
2. Environmental Impacts of Transportation - Leonard
3. Concrete and weathering - Toutanji
4. Geotechnical Research - Schwarz
5. Robotic cars and Safety Constraints – Blevins

PROJECT TASKS AND SCHEDULE
1. Initiate project: Jan, 2004
2. Contact schools, receive commitments: Feb-Mar
3. Select participants: Apr
4. Confirm dates, notify students: May
5. Set up experiments, trips, and lab materials: Apr-Jul
6. Select mentors: Jun
7. Finalize schedule-send to participants
8. Conduct program: Jul
9. Evaluate program: Sep

BUDGET
One year project – UTCA 49,949; cost share $50,007; total budget $99,986.

STUDENT INVOLVEMENT
The project will employ four undergraduate student assistants to help in designing the projects, documenting plans, setting up the laboratories, and assisting instructors at the institute. Other university students will act as volunteers through student chapters of the Society of Women Engineers, American Society of Civil Engineers, and the National Society of Black Engineers. These students will use their design experiences to complete a selected topic course in fall.

TECHNOLOGY TRANSFER ACTIVITIES
The team members will prepare lab activities descriptions in manual form (both student activity guide and teacher instruction guide) and an electronic version as a teacher resource. The research findings of this study will be incorporated into a final report and will be distributed to transportation professionals throughout the state.

TRB KEYWORDS
Transportation, education, human resources, diversity, outreach