PROJECT NUMBER: 05303

PROJECT TITLE: Summer Transportation Engineering Institute – Phase VI

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PROJECT OBJECTIVE:
The objective of this research is to develop a summer program for encouraging diversity in transportation-related educational programs in Alabama.

PROJECT ABSTRACT:
The numbers of female and minority students are increasing overall in engineering, however there is still a relatively small percentage drawn to the field of transportation engineering. As a consequence, there is a need to educate young people about the profession to encourage under-represented individuals to become engineers. Therefore, the major goal of this program is to introduce middle school students (with preference to under-represented groups) to basic engineering and transportation-related concepts. An additional goal of the project will be to draft local minority and female engineers to act as mentors. Students will use real world examples and new technologies in their hands-on activities.

Instructional and interactive experiences will be developed with this grant to motivate interest in transportation engineering and related science topics. The strategy of this program is aimed at producing students who know "how to find out" and "how to examine and evaluate evidence." The summer program will involve inviting middle school students, referred by their teachers, to UAH for a one-week intensive transportation engineering seminar. Another week will be devoted to alumni students and involve advanced research-oriented experiments. New for this year: Outreach Program
The instructors have developed two activities from the five previous versions of the Institute that will be implemented to develop a countywide “Civil Engineering Challenge.” Letters will be sent to algebra and physics teachers with information on the challenge, and students will be invited to participate in a one-day CE event. Institute instructors will be available to help the teachers with the design and also coordinate the competition at UAH in the Fall.

Since this proposal is the commencement of sixth year for this UTCA project we have an alumni-base of over 180 students, with some at college entry age. Thus a survey of the alumni from the first two years will be conducted to determine if the past participants have entered engineering or science studies to quantify the impacts of this program in North Alabama.

PROJECT TASKS AND SCHEDULE:

- Task 1 - Receive funding, Jan 1 - 31, 2005
- Task 2 - Send letters to schools Feb 1 - 28
- Task 3 - Formal commitments with schools, Mar 1 - 31
- Task 4 - Select participants, Apr 1 - 31
- Task 5 - Confirm dates and send letters to students, May 1 - 31
- Task 6 - Set up experiments, trips & lab materials, Apr 1 - Jul 1
- Task 7 - Select mentors (professionals & assistants), May 1 - 31
- Task 8 - Finalize schedule-send to participants, Jun 1 - Jul 15
- Task 9 - Implement program, Jul 15 - Aug 15
- Task 10 - Survey Alumni and Evaluation, Aug 1 - Oct 1
- Task 11 - Conduct CE Challenge at UAH, Oct 1 - 31
- Task 12 - Deliverables: final report, Sep 1 - Dec 31, 2005

BUDGET:
One-year project—UTCA $49,605 UAH cost share: 51,449 Total Budget $101,054

STUDENT INVOLVEMENT:
The project will employ two graduate students and four undergraduate student assistants (with preference to students who are either minority or from an under-represented group) to help in designing the projects, documenting plans, laboratory set-ups, and assist with the participating instructors at the institute. Other university students will act as volunteers through the SWE, ASCE and NSBE student chapters. These students will use their design experiences to complete a selected topic course in fall.

TECHNOLOGY TRANSFER ACTIVITIES:
The team members will prepare documents of lab activities in manual form (both student activity guide and teacher instruction guide) and 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, safety, outreach, diversity