

NST 2000



2000 National Summer Transportation Institute, National Resource Center Final Report



U.S. Department of Transportation
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FOREWARD

This report summarizes the accomplishments of the 2000 National Summer Transportation Institute (NSTI) and the National Resource Center (NRC). It is a final report and includes program management, finance and budget, and data collection activities. It also contains a summary of the 34 summer transportation institutes, their associated costs, and other pertinent information.

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NOTICE

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Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views or opinions of the Federal Highway Administration.

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I. EXECUTIVE SUMMARY

This document summarizes the accomplishments of the 2000 National Summer Transportation Institute (NSTI) and the National Resource Center (NRC). Program management, budget and finance, and data collection activities are included, along with a synopsis of each of these components of the NSTI. Program overviews for individual Summer Transportation Institutes (STI) and recommendations are also provided.

A total of 694 secondary school students explored transportation careers and completed the 2000 NSTI. The total number of youth exposed to career opportunities in the transportation industry as a result of the NSTI increased to 2,631. Thirty-four colleges and universities in twenty-three states and the District of Columbia served as host sites.

The success of the NSTI demonstrates how this partnership between the higher education community, FHWA, state DOTs, and private industry can attract youth to the transportation field. The establishment of additional institutes at other colleges and universities has significantly enhanced this outreach effort to encourage youth to pursue career opportunities in transportation. With minimal financial investment, the FHWA and state transportation agencies can effectively change the diversity of the transportation community. To reach the program's full potential, continued support and funding is also needed from the FHWA and state DOTs.



II. HISTORY OF THE NSTI

To implement the mandates of Executive Orders 12876, 12900, and 13021, the United States Department of Transportation (USDOT) and Federal Highway Administration (FHWA) partnered to establish the NSTI, one of several educational initiatives under the Garrett A. Morgan Technology and Transportation Futures Program (GAMTTFP). Congress affirmed its support of the NSTI by authorizing funding in TEA-21 under the FHWA On-the-Job Training / Support Services (OJT/SS) program.

The NSTI addresses the need to:

- Expose secondary school students to, and allow participation in, a series of academic and practical experiences designed to motivate them toward professions in the transportation industry; and
- Provide secondary school students with mathematics, science, and technical enrichment to enable them to pursue a transportation industry career.

The Executive Orders direct Federal Agencies to advance the development of human potential and strengthen the capacity of Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), and Tribal Colleges and Universities (TCUs), collectively known as Minority Institutions of Higher Education (MIHEs). The NSTI is championed through public and private partnerships among FHWA division offices, state DOTs, private corporations, community-based organizations (CBOs), and colleges and universities.

The purpose of the NSTI is to stimulate awareness and interest in secondary school students of career opportunities in the transportation industry. The concept for the STI was developed through the cooperative effort of South Carolina State University (SCSU), the South Carolina Department of Transportation (SCDOT), and the South Carolina Division Office FHWA. In summer 1993, twenty students from across South Carolina attended the first pilot summer transportation institute at SCSU. A number of colleges and universities were added to the 2000 program: Hampton University, the University of Maryland Eastern Shore, College of the Menominee Nation, Prairie View A&M University, and Fond du Lac Tribal and Community College.

III. THE NSTI NATIONAL RESOURCE CENTER (NRC)

On February 5, 1999, FHWA Deputy Administrator Gloria Jeff and SCSU President Leroy Davis signed a cooperative agreement establishing the NSTI and designating SCSU as the NRC, responsible for managing the NSTI and ensuring consistency among host sites and procedures. The NRC serves as the program management center, financial center, and data reporting clearinghouse.

SCSU, in its role as the NRC, developed, published and distributed curriculum, instructional, and resource material; conducted workshops to train host site staff; provided ongoing technical support; and established program guidelines for participating colleges and universities. Budget and finance activities included developing an overall budget for the NSTI, developing reimbursement procedures, working with the financial requirements of 34 colleges and universities, and reimbursing them for expenses associated with conducting the 2000 summer transportation institutes. Several databases containing information about host sites, STI participants, and advisory committees were created and maintained. The NRC also continued to market and develop partnerships with transportation-related agencies, businesses, and national and community organizations. A website is available to assist with marketing and managing the NSTI.

PROGRAM MANAGEMENT CENTER

The NRC, as program management center for the NSTI, is responsible for:

- Developing procedures and guidelines for conducting STIs;
- Training host site staff;
- Providing technical support to colleges and universities that serve as host sites; and
- Maintaining the NSTI website.

PROCEDURES AND GUIDELINES

The NRC developed procedures and guidelines for host sites to successfully conduct STIs, including: financial reporting and reimbursement, selecting participants, securing speakers and presenters, evaluating programs, and scheduling field trips. In addition, guidelines were developed for evaluations, financial reports, final report preparation, curriculum, evening/enhancement programs, sports/recreation/weekend programs, and staffing. The procedures and guidelines were incorporated in the *2000 Administrative Manual*.

TRAINING

Workshop. The NRC conducted the 2000 NSTI Kickoff Training Workshop April 5–7, 2000 at the Renaissance Waverly Hotel in Marietta, Georgia. In addition to representatives from participating colleges and universities,

state DOT representatives, division office FHWA representatives, and USDOT representatives attended. NRC staff presented sessions on program management, data collection, financial management, evaluations, the STI Sub-agreement, and the final report. An orientation session was held on April 5 for new project directors and their partners. STI project directors were trained in selecting key staff, preparing materials, selecting participants, publicizing activities, and scheduling field trips. Mr. Ed Morris, Director of the Civil Rights Service Business Unit, FHWA, facilitated a series of Open Space Workshops, which provided opportunities for exchanges among NSTI staff and workshop participants. An exhibit room featured displays from participating colleges, universities, and vendors. An NSTI booth featuring a website demonstration was set up in the exhibit room. The FHWA technology truck was also available for tours throughout the workshop. (The training workshop agenda and attendee roster are included as appendixes A and B.)

Technical Assistance. The NRC provided technical assistance to host sites with curriculum development, budget and final report preparation, conducting required evaluations, and submitting required information (such as participant profiles and participants' evaluations) via the NSTI website. As needed, site visits were made to host site campuses. A list of host sites visited in 2000 is included later in this report.

As the program management center for the NSTI, the NRC ensured that all host sites presented high-quality academic programs that introduced participants to all modes of transportation and related careers. While host sites were given technical assistance and guidance, some flexibility was allowed in the delivery of their STIs. A detailed curriculum including all modes of transportation was required of each site for either a high school or middle school program. Residential programs required three components: an academic program, an evening/enhancement program, and a weekend/recreation program. Nonresidential programs required an academic and an enhancement program.

Each site established an Intermodal Advisory Committee to review program proposals and curriculum, help with planning and securing funding, and provide technical assistance.

All sites used student selection criteria designed by the NRC, but sites were allowed to raise (though not lower) the GPA requirement. Sites were required to mail applications to public and private secondary schools in their states.

Host sites administered weekly evaluations (for internal program assessment) and overall participant evaluations at the end of their STIs. Overall evaluations were submitted via the secure NSTI website. In addition, raw data were required to be submitted to the NRC. The results of the participants' evaluations are presented in a later section of this report.

Each institute was conducted under the leadership of a project director whose minimum duties were described in Part I of the *2000 Administrative Manual*. The project director created job descriptions, supervised STI staff members, and hosted an orientation program and a closing/awards program. The director also collected demographic data for each participant: name, home address, high school name, and guidance counselor's name.

Monthly progress reports were required of each project director, as well as a Final Report, to be submitted within 45 days of completion of the STI. The preliminary Final Financial Report was due 30 days after the Final Report. The Final Financial Report for each institute is due January 31, 2001.

STI SUMMARY REPORTS

Colleges and universities selected to participate in the 2000 NSTI entered into a sub-agreement with SCSU to conduct STIs on their campuses. The following summaries of the activities of each host site include Intermodal Advisory Committee members; descriptions of the academic program, evening enhancement/enrichment program, and sports/recreation program; and recommendations. Appendix C provides general information about each host site.



ALABAMA A&M UNIVERSITY

Location:	Normal, AL
Type of Program:	Nonresidential
Start Date:	June 19, 2000
Number and Year of Students:	20 Middle School Students
Project Director:	Eugene Black
Partners and IAB:	Alabama Department of Transportation (ALDOT) and the Federal Highway Administration (FHWA)

OVERVIEW

During the spring semester of 2000, Alabama A&M University (AAMU) entered into a partnership agreement to develop the AAMU/DOT Summer Transportation Institute (STI) with ALDOT and FHWA. ALDOT and FHWA funded the first STI in 1996 on the university campus.

PRESS COVERAGE

Alabama A&M University released information about the institute to area radio stations, newspapers, and schools. Prior to the program starting, the *Huntsville Times* published a half-page article on the STI, interviewed several participants, and took pictures.

ACADEMIC PROGRAM

Participants engaged in goals and values workshops, college entrance test-taking skills, drug awareness education, a variety of field trips, and student projects.

Each week's activities focused on one of the following modes of transportation: land transportation, rail and mass transit, air and space transportation, and water transportation. Presentations were made by professionals who worked in areas related to the four modes of transportation, and participants were transported to business or government agencies to observe operations and to speak with persons working in those areas.

Participants attended classes in the mornings, and received hands-on practice in various transportation technologies. There were also classes in bridge design and an introduction to civil engineering.

At the end of the course, participants were tested on their knowledge of the transportation industry; awards for outstanding students were presented at the closing ceremony.

FIELD TRIPS

Field trips included a trip to an ALDOT construction project in Hartselle, AL; a visit to the City of Huntsville Planning Office; the Civil War Railroad Depot; the new Mercedes-Benz plant in Tuscaloosa; the Tennessee Valley Railroad Museum in Chattanooga; the Huntsville International Airport and Control Tower

and Intermodal Facility; a boat ride down the Tennessee River; a ride on the "Chattanooga Choo-Choo"; a visit to the Guntersville Locks and TVA Power Station; and a tour of the Boeing Plant in Decatur, where the new Delta Expendable Launch Vehicles are manufactured. The STI participants were the first to tour the facility.

GUEST SPEAKERS

Speakers during the STI included:

- James Moore, Huntsville Planning Department, "Transportation Planning;"
- Mark Yokley, Highway Consultant, "Highway Engineering as a Career;"
- Mrs. Van Luchene, Office of Motor Carriers and Trucking Industry, "Share the Road Program;"
- Johnny Harris, Alabama Department of Transportation, "Highway Planning and Construction;"
- Tommy Brown, Director of Transportation for the City of Huntsville, "Public Transportation;"
- Barbie Peek, Huntsville International Airport, "Air Transportation;"
- Rick Terry, Decatur Transit, "Water Transportation;" and
- Sonoyia Williams, Counselor, AAMU, presented two workshops on connecting values and goals.

EVALUATIONS

Educational components of the Institute were evaluated by all participants and the faculty. Participants also evaluated programs and faculty each week to elaborate on course content, student projects, laboratory experiences, and unit objectives.

AWARDS/CLOSING CEREMONY

The Awards Program, held on the last Friday of the Institute, was attended by relatives and friends of participants and Alabama A&M University representatives. Administrators, division heads, and individuals from ALDOT and FHWA received agency and individual awards. All participants received Certificates of Participation. Individuals received trophies, certificates, and recognition for outstanding achievements during the Institute.

RECOMMENDATIONS

- Identify funds to establish a response center for the STI at AAMU;
- Expand the curriculum to non-technical areas related to the transportation industry;
- Identify and allocate funds for 2001 AAMU STI by December 2000;
- Seek additional sponsors for the institute; and
- Continue to identify sources of funding from FHWA and other sponsors to expand the institute as a national program.

ALBANY STATE UNIVERSITY

Location:	Albany, GA
Type of Program:	Nonresidential
Start Date:	June 5, 2000
Number and Year of Students:	15 High School Students
Project Director:	Dr. Thomas J. Perry
Partners and IAB:	Unavailable

ACADEMIC PROGRAM

The 2000 Albany State University STI introduced a diverse population of high school students to transportation by land, air, and water. The Institute consisted of an orientation day, where participants were introduced to the modes of transportation and were assigned a five-page (typed) research paper with full references covering one mode. The papers were collected during the last week of the Institute. A test covering the three modal areas was administered.

GUEST SPEAKERS

Speakers were presented from all three modal areas. Students took notes in a daily journal and asked questions following each presentation.

SPORTS/RECREATION PROGRAM

Participants had a daily one-hour recreational period at the Student Union at Albany State University. A visit to Jekyll Island in Brunswick, Georgia, was included.

RECOMMENDATIONS

- Conduct training workshop in January 2001;
- Expand program objectives to include student mentoring and follow-up; and
- Improve marketing strategies to include direct contact with secondary schools.

ARIZONA STATE UNIVERSITY

Location:	Tempe, AZ
Type of Program:	Residential
Start Date:	June 19, 2000
Number and Year of Students:	40 High School Students
Project Director:	Ms. Cathryne Jordan
Partners and IAB:	Intermodal Advisory Committee included representatives from Arizona Division Office FHWA, Arizona Department of Transportation (ADOT), and Arizona State University

OVERVIEW

Arizona State University's (ASU) College of Engineering and Applied Sciences (CEAS), hosted two 2-week STIs, sponsored by the U.S. Department of Transportation (USDOT) and the ADOT, to raise awareness and excitement about the diversity of careers in Transportation Engineering and the importance of mathematics and science as tools in technology development. The STI used the ASU Mathematics Engineering Science Achievement (MESA) program to reach secondary students and provide the option of Transportation Engineering as an academic and professional career. University faculty and engineering students, local FHWA and ADOT employees, and other technical industry members collaborated to develop a comprehensive program to increase interest in transportation.

PARTICIPANTS

Participants were rising freshmen and sophomore students from area high schools.

OBJECTIVES

The objectives for the STI were delivered by using technology, instruction, and research which included modes of transportation, transportation design, Civil Engineering, developing team and analytical skills, mathematics and science instruction, and critical thinking.

ACADEMIC PROGRAM

Classroom. Classroom instruction exposed participants to transportation terminology, factors considered in the design of various transportation facilities, and different modes of transportation. Classes were given by Civil Engineering faculty and industry volunteers through presentations, lectures, labs, computer exercises, and project design and building. Classroom instruction exposed participants to transportation terminology, factors considered in the design of various transportation facilities, and different modes of transportation. The instruction was delivered and presented by Civil Engineering faculty and industry volunteers through presentations, lectures, labs, computer exercises, and project design and building.

To track progress, participants were directed to take notes on classes, labs, and tours. Participants were placed into teams, and prepared group presentations on an assigned classroom topic, tour, or lab to present at the closing/awards ceremony. Notebooks were collected the last day of instruction, and were graded on completion, organization, and thoroughness.

Classroom topics, lectures, and presentations included highway materials, highway design and AutoCad, introduction to civil engineering, introduction to transportation terminology, intelligent transportation systems (ITS), mapping and GIS transportation modes (aviation, pedestrian, water, surface, railways), transportation facilities design, and team diversity advantage.

Mathematics Class. Math principles and concepts were reviewed or introduced on a daily basis. The curriculum was facilitated by one of the ASU high school MESA Teachers. Lesson plans were designed with a focus on pre-SAT preparation and Arizona's Instrument to Measure Standards (AIMS) testing criteria. A placement test was administered on the first day of the Institute to assess each student's level of understanding. Quizzes and tests were incorporated to measure progress. Tutors and math instructors were senior undergraduate engineering students.

Laboratory Activities. Labs gave participants the opportunity to work with graduate students and engineering faculty on a project, such as the Atomic Force and Microscopy Lab and the Soil and Industrial Engineering Labs. Participants toured the engineering wind tunnel labs, where they studied the concepts of drag, buoyancy, and weight.

PROJECTS

Concrete Pouring and Testing. After a presentation on concrete, participants were given the opportunity to mix concrete. After curing, they returned to the lab to run designated tests for strength and endurance.

Cardboard Cars. This project exposed participants to design and manufacturing processes related to transportation. Participants designed and constructed a vehicle using cardboard and glue, which could carry a team member down a ramp and across a parking lot. Each participant designed and built a prototype, identifying dimensions and materials needed. Prototypes were tested; the teams then selected an individual model to build to full scale. Participants were graded on both the individual and team model and a product development exercise notebook.

Bridge Building. Teams designed and constructed a cost-effective bridge from materials provided to support a specified weight and within a limited time frame.

Project Display Board. The teams created a project display board on a classroom topic, industry tour, or lab. Displays were designed from information

received through lectures, industry tours, handouts, and research. Project boards were presented at the closing/awards ceremony. Teams were judged on creativity, originality, delivery, and content.

FIELD TRIPS

The Arizona Department of Transportation (ADOT) and the Maricopa County Department of Transportation (MCDOT) Traffic Operations Centers. These tours provided an insight into how real-world traffic is managed, and how information gathered through camera monitors helps control traffic and handle emergency situations in the city and surrounding counties.

ADOT Highway Construction Sites. ADOT personnel hosted tours of several freeway construction sites. Participants were shown what construction of a transportation facility encompasses, materials used, design plans, and the impact on surrounding areas and overall traffic operations of Arizona freeways.

Phoenix Sky Harbor Airport. A presentation on the history, layout, and design of the Phoenix Sky Harbor Airport, the importance of the Federal Aviation Administration (FAA), and career opportunities within aerospace and aeronautical fields was shared. A tour of the airport allowed participants to learn about its daily operations. They had the opportunity to go into the airport tower and interact, not only with traffic controllers, but with pilots coming in for a landing.

Phoenix Valley Metro Public Transit System. Participants and counselors divided into several groups to ride the Phoenix Valley Metro public transit system from the university to the Phoenix Sky Harbor airport for a tour. Each group was given a starting point from the university and was required to locate and track their bus and its route using the web page or bus book provided.

Hoover Dam. Participants in Session I traveled to the Hoover Dam in Nevada following a classroom presentation from FHWA officials on the history of the dam, present traffic problems, and future design plans. Participants were required to map out the route of travel to include miles, freeways, markers, cities along the way, and so on. Participants had a courtesy Hard Hat tour of the dam and a one-on-one presentation with a project engineer for a proposed bridge to alleviate traffic congestion.

Including field trips in the program reinforced the objectives of the STI. Participants had opportunities to visualize the continuous impact and influence of transportation and engineering on their daily lives, as well as the array of career opportunities available to them.

ENHANCEMENT/ENRICHMENT PROGRAM

Enhancement/enrichment activities exposed participants to various aspects of college life that were not necessarily introduced within a classroom environment.

Library Research included presentations and tours of the ASU Library and its computer systems. Participants were given a general research assignment which included using not only the library computers, but microfilm and microfiche, journals, and resource manuals.

Techniques of Writing included techniques on listening well and taking notes for academic success. Compiling and processing verbal information through a personal internal “think pad,” and creation and organization of a useful journal or notebook via hard copy and a web page were encouraged.

Computer Exposure included using Microsoft Word to complete essays and journals for notebooks; participants also used the Internet to search for topics covering transportation and engineering disciplines.

Life Skills exposed participants to information and ideas on developing effective leadership and team building techniques, as well as working in, learning within, appreciating, and respecting a diverse environment.

GUEST SPEAKERS

Transportation industry volunteers and engineering faculty coordinated with the project director to enhance instruction with real-world applications. The presenters prepared their topics of choice within broad guidelines and incorporated innovative and interactive learning techniques.

SPORTS/RECREATION PROGRAM

Sports/Recreation activities were organized to give the participants time to relax, work on social skills, practice and strengthen team building skills. The program counselors were engineering students as well as members of the CEAS Coalition of Engineering Minority Societies and Society of Women Engineers (CEMSWE) student groups (e.g., AISES, NSBE, SHPE, SWE). As a result, STI participants were exposed daily to information about college preparation, transition from high school to college, goal setting, and time management, as well as student organizations and support groups. Activities included: swimming, basketball, and volleyball at the Student Recreation Center (SRC); bowling or billiards at the student Memorial Union; evening at the movies on Mill Avenue; board game night at the residence hall with STI participants competing against counselors; and participating in other summer programs.

CLOSING/AWARDS CEREMONY

To measure the success of the Institute, the closing ceremony was a vehicle for participants to present projects and assignments to parents, industry and university supporters, and STI staff. Each team was allotted time to display individual projects and team group projects. Delivery was at the teams' discretion—participants were allowed to use overheads, pictures, flip charts, and any technology available. The STI project director and attending FHWA/ADOT officials offered thanks to parents for their support and acknowledged STI friends and partners. Participants received Certificates of Participation and an STI T-shirt. Other certificates and awards (calculators, ASU key ropes, mugs, and T-shirts) were disseminated in the following categories:

- Best Cardboard Car Competition (individual and group);
- Best Team Projects; and
- Best Notebooks.

Participants also received a copy of the textbook "I Want To Be an Engineer," as well as handouts provided by FHWA (Washington D.C.) on USDOT and Transportation Engineering.

RECOMMENDATIONS

- Continue to seek additional friends and/or sources for funding;
- Expand the ASU STI Intermodal Advisory Board for 2001 to include representatives from the Phoenix Sky Harbor Airport; cities of Tempe, Phoenix, and Scottsdale Transportation Departments; local civil engineering firm(s); the local FAA; and the National Association of Black Pilots;
- Restructure the delivery of programming (ASU STI). The intensive growth of the summer programs facilitated by ASU, specifically CEAS Student Support Services, combined with the ASU regular summer session, have created constraints on classrooms and lab space, equipment, and resources. In addition, scheduled renovations have decreased residence hall availability; and
- Continue offering a combination of four weeks of programming, of which two weeks will be a commuter program and two weeks a residential program. This will help maintain the integrity of the program and serve a greater number of students. The proposed commuter program will expand to include rising seventh- through ninth-grade students and seek to serve up to 60 students. The residential program will be open to rising sophomores and juniors and maintain a manageable number to continue a high-quality program.

BENEDICT COLLEGE

Location:	Columbia, SC
Type of Program:	Residential
Start Date:	June 18, 2000
Number and Year of Students:	20 High School Students
Project Director:	Dr. Robert L. Scott
Partners and IAB:	Intermodal Advisory Committee included representatives from South Carolina State University, South Carolina Division Office FHWA, South Carolina Department of Transportation (SCDOT), Columbia Metropolitan Airport, South Carolina Department of Public Safety, Richland County School District One, Hayward Career and Technology Center, and Benedict College

PARTICIPANTS

Ninth- and tenth-grade students from across South Carolina, Georgia, and one from Maryland participated in the program.

ACADEMIC PROGRAM

The STI focused on a careful, critical and systematic educational endeavor to explore all aspects of the transportation industry and its role in society, based on an assumption that this would attract students to careers in the industry. The four-week program consisted of classroom instruction, laboratories, field trips, speakers, and recreational activities. The Institute exposed the participants to intermodalism, land transportation, air transportation, and water transportation.

FIELD TRIPS

A wide range of activities exposed the participants to transportation modes of land, air, and water travel. Partners who provided speakers, activities, and field trips were: South Carolina Police Academy Hall of Fame; South Carolina Port Authority; Columbia Metropolitan Airport; South Carolina Department of Public Safety; Metropolitan Atlanta Rapid Transit Authority (MARTA); United Parcel Service (UPS); South Carolina State Museum; South Carolina Parks, Recreation, and Tourism; FHWA; SCDOT; Benedict College; Gourmet Service; and South Carolina Criminal Justice Academy.

RECOMMENDATIONS

- Maintain present, well-planned format;
- Maintain similar staffing;
- Maintain practice of leasing vans for transporting participants; and
- Authorize a petty cash system to cover minor expenses that cannot wait for the regular requisition process.

BETHUNE–COOKMAN COLLEGE

Location:	Daytona Beach, FL
Type of Program:	Residential
Start Date:	June 25, 2000
Number and Year of Students:	16 High School Students
Project Director:	Clifford Barnes
Partners and IAB:	Intermodal Advisory Committee included representatives from Florida Division Office FHWA, Florida Department of Transportation (FLDOT), Florida East Coast Railway Company, and Volusia Transit Authority

PARTICIPANTS

Fourteen participants and their parents arrived on Sunday, June 25. The orientation program was enthusiastically received by all. Two participants withdrew from the program, and two others were enrolled from the local community.

OBJECTIVES

The objectives, performance measures, and results of the Bethune–Cookman College STI included:

- Admit 16 participants throughout the state into the Institute.
Performance Measure: Number admitted.
Results: Objective accomplished.
- Provide 40 hours of instruction dealing with the transportation industry and careers in transportation.
Performance Measure: Pre- and post-tests administered to participants.
Results: Participants showed an increase of 90% knowledge gained.
- Provide 60 hours of instruction in mathematics, science, and leadership/ computer training to enhance participants' learning in their respective schools.
Performance Measure: As scheduled.
Results: Objective accomplished.
- Provide a minimum of four field trips during the Institute.
Performance Measure: As scheduled.
Results: Accomplished with field trips to Watkins Motor Lines; Daytona Beach; Broadway Bridge (currently under construction); NASA; and transit rides for all participants.

- Provide supplementary programs during the evening program, Monday through Friday.
Performance Measure: As scheduled.
Results: SAT preparation and educational board games were an integral part of the evening program.
- Provide recreational activities for the participants on weekends.
Performance Measure: As scheduled.
Results: Accomplished.
- Develop participant interest in transportation careers by having four guest speakers from the transportation industry give lectures.
Performance Measure: As scheduled.
Results: Accomplished.

ENHANCEMENT/ENRICHMENT PROGRAM

The objectives of the evening enhancement program were to: help increase participants' vocabulary by using board games; provide an outlet for relaxation; develop interpersonal skills via role-playing; and improve decision-making skills relative to what is "right" or "wrong." The evening enhancement program was an effective tool, relative to the goals of the Institute. It was used not only to keep the participants engaged, but also as a learning period.

The enrichment program included the following modules: science; mathematics and geography; leadership/computer training; and transportation.

SPORTS/RECREATION PROGRAM

The recreational program's objectives were to develop a sense of group cohesiveness and to provide an outlet for play outside the classroom.

CALIFORNIA STATE UNIVERSITY

Location:	Los Angeles, CA
Type of Program:	Nonresidential
Start Date:	July 10, 2000
Number and Year of Students:	19 High School Students
Project Director:	Dr. Hassan Hashemian
Partners and IAB:	Intermodal Advisory Committee included representatives from the City of Los Angeles, California Department of Transportation (CALTRANS), and California Division Office FHWA

OVERVIEW

California State University, Los Angeles (CSLA) hosted its second annual STI sponsored by the FHWA. Tailored to specific capabilities of the campus, the program enabled CSLA to provide an orientation to engineering and technology programs and to create an awareness of career choices and opportunities in the transportation industry.

The Institute was developed through the cooperative effort of CSLA, FHWA, the NSTI Resource Center at South Carolina State University, the California Division Office of the FHWA, and CALTRANS. The institute provided the participants with a greater awareness of how transportation services are planned, designed, and organized as well as the many functions, resources, and relationships that must be coordinated to deliver transportation services in a large metropolitan area.

The Institute introduced participants to topics such as transportation systems; transportation of people and cargo; management of transportation systems; innovations in transportation; careers in transportation; intermodalism; social, economic, and environmental impact of transportation systems; transportation safety; construction skills and technology; and research, technology, and their applications in the transportation industry, aided by the FAA, the U.S. Coast Guard, the American Society of Civil Engineers (ASCE), the Institute of Transportation Engineers (ITE), the Mathematics Engineering Science Achievement (MESA) program, and many other public and private transportation agencies.

ACADEMIC PROGRAM

Participants were introduced to a wide range of transportation activities in land, air, water, and space transportation, and intermodalism.

PROJECTS

Activities included a number of competitive group projects such as constructing and testing pop bottle rockets, solar-powered vehicles, and towers and bridges, supplemented with presentations by professionals and field trips to transportation facilities.

ENHANCEMENT/ENRICHMENT PROGRAM

Participants also engaged in enhancement and enrichment workshops such as preparatory sessions in mathematics, physics, writing, computer and study skills, and college preparation.

AWARDS/CLOSING CEREMONY

The closing program was well attended by participants, their parents, and faculty and university staff. California State University, Los Angeles has accomplished its goal of meeting the STI objectives to stimulate transportation career interest in secondary school students. The University has a continuing commitment to provide quality educational opportunities and seeks to expand its efforts to assist all students.

RECOMMENDATIONS

- Select the host sites early and conduct the STI training workshop in January 2001;
- Provide university scholarships to former STI participants;
- Increase funding for universities in major metropolitan areas;
- Allow the participants to receive a stipend from the grant; and
- Allow more time for submission of final and financial reports.

CHEYNEY UNIVERSITY OF PENNSYLVANIA

Location:	Cheyney, PA
Type of Program:	Residential
Start Date:	June 25, 2000
Number and Year of Students:	22 High School Students
Project Director:	Dr. Kwo-Sun Chu
Partners and IAB:	Intermodal Advisory Committee included representatives from the Pennsylvania Department of Transportation (PennDOT), Philadelphia School District, FHWA Eastern Resource Center, McTish, Kunkel & Associates, Association of Pennsylvania Contractors, Coatesville School District, and KRAPF Coaches

OVERVIEW

The Cheyney University of Pennsylvania hosted its second STI. The curriculum centered around four different modes of transportation and career opportunities in transportation industry. It included classroom lectures, videos, computer activities, hands-on activities, individual and group projects, field trips, and speakers. Activities focused on broadening the concept of transportation, introducing basic scientific concepts in interactive ways, transportation's history and importance in modern life, careers in transportation, necessary skills, and educational preparation required to pursue a career in transportation.

PARTICIPANTS

The STI began with 25 students from the Philadelphia area. Three students left the program by the end of the first week. Of the remaining students, there were twelve males and ten females. STI staff consisted of seven university faculty from four departments; three students served as resident counselors for the program.

OBJECTIVES

The objectives, performance measures, and results of the Cheyney University STI were to:

- Recruit 25 high-school students to participate in Cheyney's 2000 STI program.

Performance Measure: The number of students recruited.

Results: Twenty-five students were recruited for the program, mostly through faculty's personal contacts. Two other methods were used for recruitment. The first involved sending information to schools or meeting with counselors. This did not prove effective, since most schools did not contribute much beyond posting the recruitment announcement on the

school bulletin board. The second method involved sending out letters to Cheyney faculty and staff requesting them to contact prospective STI participants for recruitment. This had limited success.

- Introduce a select group of college-bound high school students to the field of transportation and to careers in transportation.

Performance Measure: Poster project, model dragster project, and model bridge project.

Results: Accomplished.

- Make the select group of participants aware of skills needed to pursue careers in transportation.

Performance Measure: Poster project, model dragster project, and model bridge project.

Results: Accomplished.

- Strengthen the mathematics background and language skills of the selected group.

Performance Measure: SAT post-test.

Results: Successful.

- Expose college-bound high school students to a college environment.

Performance Measure: Ability of the students to use facilities on campus.

Results: Most students used computer labs, library, and recreational facilities on the campus of Cheyney University.

- Establish linkages with communities for publicizing the importance of the STI and for their support.

Performance Measure: Number of students that applied for STI 2000.

Results: We need to better plan to establish linkages with community.

- To use the 2000 STI as a learning experience to identify our strengths and weaknesses.

Performance Measure: Faculty/staff meetings, participant evaluations, and Advisory Committee input.

Results: To be determined.

ACADEMIC PROGRAM

The first week began with an introduction to transportation, three modes of transportation, their interrelations, and careers in transportation. Trips were taken to the SEPTA headquarters and the Franklin Institute in Philadelphia. Participants began building softwood model dragsters later that week. They were introduced to the basic concept of energy in science, instructed on aspects of our lives that involve energy, and how energy is produced today.

During the second week, students were introduced to water transportation. An engineer working with the TRAC was a guest speaker. The students

worked on a project that required them to develop a resume. Every two students were given one disposable camera to take pictures based on a transportation theme.

The third week began with a trip to the Delaware Airway Science Airport. Participants learned about careers in aviation and had the opportunity to fly trainer airplanes. They also began work on model bridges in groups of two. A project to design and make a poster to advertise a transportation-related job was begun. Participants searched the Internet to find pertinent information for their projects. A second field trip was taken to a PennDOT construction site. The students were also taken to a local amusement center.

Air and space transportation was discussed in the fourth week. Participants finished their bridge project. There was a trip to Washington, D.C., to visit the SMART Transportation Museum and the Smithsonian. A second trip was taken to observe the construction of the Atlantic City tunnel and to the Coast Guard training facility in the city.

ENHANCEMENT/ENRICHMENT PROGRAM

After dinner there were three hours of scheduled activities. The first two hours consisted of SAT preparation in math or language arts. Each participant was given an SAT preparation book. A pre- and post-test was given in mathematics. Participants received certificates of achievement based on results. The third hour was dedicated to resume preparation and the poster project. The resume and the posters were showcased during the closing ceremony.

Cultural enhancement activities were also provided and coordinated with the Fine Arts Department. Piano lessons were provided to participants. An STI rap and a skit with Cheyney STI were developed and presented by participants during the closing ceremony.

SPORTS/RECREATION PROGRAM

On days with no field trip scheduled, students spent an hour and a half in the university recreation facility. Participants had the option of using an indoor and outdoor basketball court, swimming pool, and volleyball court.

SUMMARY

In this second year of STI, recruitment still posed some difficulty. The program needs to be publicized more effectively. However, the introduction of a student stipend did help.

The STI is institutionalized, receiving full support of Cheyney University's administration, business office, facilities, and academic departments.

CITY COLLEGE OF NEW YORK

Location:	New York, NY
Type of Program:	Nonresidential
Start Date:	July 3, 2000
Number and Year of Students:	27 High School Students
Project Director:	Dr. Neville Parker
Partners and IAB:	Intermodal Advisory Committee included representatives from J. Alssid Associates, PANY & NJ, MTA/NYCT, NYC Board of Education, Con Edison, New York State Department of Transportation (NYSDOT), FHWA, CCNY, and Jackson and Tull, Ltd.

PARTICIPANTS

The City College of New York (CCNY) hosted its STI with 27 students, eight of them returning students (interns) from a cross-section of schools across the New York Metropolitan area.

ACADEMIC PROGRAM

Since 1997, the Institute has acquired two components: an academic program and an intern program—the latter for graduates of the former. This monitoring and follow-up mechanism identifies the stimulus conferred on participants by their attendance at the Institute. This year's stimulating academic program introduced participants to: transportation systems; transportation of people, goods, energy and information; management of transportation systems; innovations in transportation; careers in transportation; intermodalism; social, economic and environmental impacts of transportation systems; construction engineering issues; and research, technology, and its application in the transportation industry.

EVALUATION

At the conclusion of the program, an evaluation was administered to gather information as to the effectiveness of the Institute. Participants were asked to respond to questions related to the quality of the speakers, field trips, activities, staff, and a general category. Results of the evaluations are included in the 2000 NSTI Resource Center Final Report.

RECOMMENDATIONS

- Increase challenges on student projects;
- Incorporate recreational activities on selected weekends or afternoons during weekdays;
- Increase the number of computers with Internet connections for participants;
- Schedule no more than two to three field trips/site visits per week;
- Investigate possibilities for field trips/site visits such as bridge construction;
- Motivate counselors to continue to work in the program next year;
- Develop internship opportunities for counselors with transportation providers;
- Expand active participation of sponsors/contributors;
- Expand pool of applicants;
- Contact principals as well as guidance counselors;
- Identify and allocate early all support funds from institutions other than the FHWA; and
- Develop monitoring and tracking systems for all STI graduates since the inception of the NSTI.



CLARK ATLANTA UNIVERSITY

Location:	Atlanta, GA
Type of Program:	Nonresidential
Start Date:	July 19, 2000
Number and Year of Students:	12 High School Students
Project Director:	Dr. Peter Molnar
Partners and IAB:	Intermodal Advisory Committee included representatives from USWA, En Pointe Technologies, Parsons, Brinkerhoff, Quaid & Douglas, Spelman College, Georgia Institute of Technology, Georgia Division Office FHWA, Georgia Department of Transportation (GDOT), FHWA, and Delta Airlines

OVERVIEW

Clark Atlanta University (CAU) has hosted the STI for four summers. Participants from high schools throughout the Atlanta Metro area were introduced to the various aspects of transportation and skills necessary for successful careers.

OBJECTIVES

The purpose of the Clark Atlanta University STI was to create awareness and stimulate interest in secondary school students to explore transportation industry. Clark Atlanta University has a continuing commitment to provide high-quality education for all students and openly seeks every opportunity to expand efforts to assist them. In conjunction with the mission of CAU, the GDOT, FHWA, and the National Science Foundation (NSF), we seek to provide educational experiences for secondary school students to enhance career awareness in the transportation industry.

There were two major objectives of the STI:

- To expose secondary school students to a series of academic experiences designed to motivate them toward professions in the transportation industry; and
- To provide students with mathematics, science, and technological enrichment to enable them to pursue a career in the transportation industry.

ACADEMIC PROGRAM

The morning session included mathematics, science, and computer-related topics. The course in Mathematics and Physical Science covered basic statistical concepts and techniques and their application to transportation

decision making. Topics included the descriptive aspects of statistics involving data collection, organization, and presentation. In the second part of the course, concepts from algebra, trigonometry, and physics were applied in the design of highways and bridges. Topics included tension and compression, collisions, friction, and curvilinear motion.

Computing introduced participants to various software applications such as word processing, spreadsheets, graphics, and presentation. These skills were used during the Institute for reports and presentations. The course also covered web page design with HTML, which taught participants how to create their own home page.

PROJECTS

In the afternoons, participants worked as individuals or in small groups to complete hands-on projects. With each project, a theoretical introduction was given, and the participants learned how to use the particular software or tools. Participants learned how to use the World Wide Web to access factual statistical data pertaining to NASA Space Shuttles, then used this information to analyze mathematical equations. The automated vehicles and the concept of sensors and data communication between the vehicles has been demonstrated on model vehicles that the participants constructed with LEGO Mindstorm Construction Kits, a programmable computer equipped with various sensors and motor control.

FIELD TRIPS

Atlanta Hartsfield International Airport; Host: Officer Joe Villafane.

On July 5, the participants visited Atlanta Hartsfield International Airport. The tour began with a visit to the mechanical area where participants were able to see how planes are maintained and sit in the cockpit. A tour was also given of the mechanical shop and the fire station. A demonstration of airport security was given, and participants met one of the airport security dogs.

Bridge Building Exercise; Instructor: Edward Parker. Participants were taught that bridges are built out of wood, concrete, aluminum, steel, and glass, and were instructed on the four different types of bridges: beam, arch, cable, and suspension. After the lecture, participants had an opportunity to build their own bridge out of popsicle sticks and glue guns. Various bridges were tested to determine how much they could hold in relation to their own weight.

“No Zone” Truck Presentation; Presenter: Steve Barden. The “no zones” of a truck are areas in which crashes are more likely to occur, in the immediate front, rear, and left and right sides of the truck. The “no zones” get their names because they are blind spots; they are areas in which the driver has little or no view of traffic.

Georgia 400 Toll Booth; Host: Robert Smith. At the Georgia 400 Toll Booth, the participants were able to see the transfer of money from the main toll to the collection toll. Thousands of dollars are generated every day via the toll booths. Participants now know what occurs when people “accidentally” forget to pay.

Traffic Management Center; Host: Kimberly Law. The Georgia Navigator is a program that allows the Department of Transportation (DOT) to monitor traffic. A network of fiber-optic cables allows operators to monitor all major roads and intersections for potential problems. Operators can dispatch Highway Emergency Response Officers (HERO), who are highly trained in first aid, traffic control, and auto repair. Many radio, TV, and cable stations use traffic reports compiled by the Georgia Navigator. The DOT plans to extend Navigator outside of the metropolitan area.

RECOMMENDATIONS

The Intermodal Advisory Committee is strong in land, transit, and planning.

- Seek additional members who support water and air transportation.



COLLEGE OF THE MENOMINEE NATION

Location:	Keshena, Wisconsin
Type of Program:	Nonresidential
Start Date:	July 10, 2000
Number and Year of Students:	18 Middle School Students
Project Director:	Sylvia Wilber
Partners and IAB:	Intermodal Advisory Committee included representatives from Division of Transportation Districts, Menominee County Highway Department, Menominee Forestry Center, Wisconsin Department of Transportation (WisDOT), and College of the Menominee Nation

OVERVIEW

This was the first year that the College of the Menominee Nation (CMN) participated in the NSTI. The College was established by the Menominee Tribal Legislature in 1992 as a tribally-controlled college. During the 1999–2000 school year, CMN served nearly 800 students, of whom 80 percent are members of the Menominee Tribe. The College of Menominee Nation received accreditation from the North Central Association of Colleges and Schools Commission on Higher Education in 1998.

OBJECTIVES

The main objectives were:

- To introduce the students to careers in the transportation industry through field trips, outside speakers, and presentations by CMN instructors and staff;
- To explore the range and variety of occupations, qualifications, and safety issues in the transportation industry;
- To provide diverse field trips to businesses and governmental agencies to offer participants and parents a broad learning experience;
- To teach basic concepts associated with the transportation industry and its importance within the community and society; and
- To provide hands-on activities such as bridge making and rocket design and examine the importance that math, science, communications, and technology play in these projects.

ACADEMIC PROGRAM

The multimodal academic program included land, water, and air transportation as well as safety. The program was designed to supply basic information regarding occupations, qualifications, safety, and general transportation concepts.

Specific topics included: highway and bridge design; transportation of people and cargo; laws; safety factors within each area; regulations; and career opportunities (including administrative, office, technological, scientific, engineering, service, communications, and technical) within the transportation industry. These topics were explored in many ways including videos that covered careers in transportation and bridge design.

Curriculum. To accomplish the goals of the program, a curriculum was designed in a format that would provide the participants with fun while learning and maintaining their interest throughout.

An added benefit was that the program provided students the opportunity to become aware of a much broader world and how the Menominee Reservation fit into the overall area and surrounding cities and communities. The students' view of the Reservation was expanded to understand how other industries are linked to services that their families rely on daily and most take for granted.

PROJECTS

Bridge Building. Students designed and built their own bridges. Most worked in teams and competed against other teams using balsa wood sticks and glue. The finished bridges were stress tested by placing weights on them until they broke. The team whose bridge supported the greatest weight without breaking received a gold medal. Other participants whose bridges didn't hold up to the test received a silver or bronze medal.

Summaries. To emphasize language and communication skills, students were required to summarize what they learned during the Institute. Through the students' weekly summaries, instructors and staff evaluated their progress. The outcome evaluation provided measurable evidence that all students improved in their computer, verbal, and writing skills.

FIELD TRIPS

Field trips were taken to enhance classroom discussion and speaker presentations. These proved extremely valuable and popular with the students. STI participants took several field trips to organizations and agencies both on and off the Menominee Reservation. The focus of each field trip was to obtain information regarding education and training for all levels of job opportunities within the transportation industry.

Forestry and the Importance of Transportation. Students toured the Menominee Logging Museum. The Menominee Forest has long been a treasured asset by the Menominee Tribe.

Tribal Court. They met with Tribal Prosecutor Andy Pyatskowitz. Judge Waukau allowed the students to sit in the various areas of the courtroom. Students were able to learn about the careers of the Tribal Courts.

Wisconsin Department of Transportation. WisDOT in Green Bay offered a wealth of information including redesigning roads and road safety.

Menominee Transit System. Many participants rode the transit system to and from the Institute. They were surprised to know that a lot of planning and communicating takes place when developing bus routes. One student made a comment that the Menominee Transit's pricing was very reasonable compared to Green Bay and Milwaukee Transit.

Menominee Forestry and Sawmill. The students were able to extend their learning about the Menominee Logging Industry.

Menominee Tribal Enterprises. The students were better able to understand the important role transportation plays in the tribal forestry and sawmill industry, and they learned about careers in logging and at the sawmill. Students were able to see a cable skidder move logs out of the way. They learned that, in the past, the logging industry didn't have women in the workforce; however, today some women are working in the sawmill.

Menominee County Highway Department. Students were able to sit inside a grader, dump truck, and front-end loader. They learned that the Highway Department offers summer jobs to students in JTPA programs and individuals who attend college or technical school. The students found out about the work and planning that it takes to repair the roadways on the Reservation, and to keep the roads passable in the winter.

Schneider National Trucking Firm. The students were able to climb into a semi-tractor and watched as a student driver learned how to get the truck back under control when it skidded out of control. They demonstrated their interest by asking several questions regarding education, training, and rate of pay as a truck driver.

Menominee Nation Casino/Fun Bus. The students learned about the Fun Bus Tours that the Casino has for clients in the surrounding communities. The bus driver told them the requirements for driving a bus, safety factors that must be followed, and the price.

Manitowoc Submarine. The students were very impressed with the submarine and the small amount of space available for seamen. They learned what careers were available and how the men on submarines live. When asked which position they would choose, it was unanimous they would want to be the cook because that was the only person who could shower twice a week. A female student asked if women were allowed to work on submarines; to her disappointment, they still aren't.

Experimental Aircraft Aviation (EAA–Oshkosh, Wisconsin). The students toured the museum and learned about different types of aircraft. The students spent most of their time in Kid Venture, where they

had the opportunity to design airplanes and build rockets. The students could also participate in a lecture about aviation and see and touch several aircraft on display at the EAA grounds. U.S. Marine Corps and Army representatives were available and answered many questions regarding careers and qualifications. The representative from the U.S. Marine Corps was very impressed with the questions the students asked for their age level.

National Railroad Museum. The students learned the importance the railroad played in the early days of the transportation industry and its current importance in transporting logs and lumber produced by the Menominee Sawmill.

Camp 5 Museum in Laona. The students learned about qualifications to be a train engineer. They discovered how important the railroad was to people in this northern region in Wisconsin and how they were connected to other regions of the nation by the railroad system. They took a ride on the Laona Train through Forest County in Wisconsin.

ENHANCEMENT/ENRICHMENT PROGRAM

An evening program was held on July 13, 2000. Parents and guardians were invited to dinner and to a program to learn more about STI and upcoming events. Students participated by explaining what they had learned about redesigning roads from the WisDOT. A Powerpoint presentation explained STI to the parents.

GUEST SPEAKERS

Several speakers also graciously donated their time. Tom Strock, an FHWA bridge engineer, spoke to students about bridge planning, design, construction, repair, and use, and he brought hands-on activities. Steve Arnold, Menominee Forestry, spoke to the group about forestry practices, transportation of timber, and safety. He also gave the students a tour of a small portion of the forest. Frank McLellen, from Menominee Environmental, discussed the transportation of hazardous materials and safety issues. He showed the students signs on the trucks that transport hazardous materials. The students watched a slide show about a truck that was in an accident on the reservation. Frank showed the materials and equipment that he uses to clean up hazardous material. A representative of Wisconsin Motor Carriers spoke to the students about his job, qualifications, and other careers in relation to the truck driving industry.

SPORTS/RECREATION PROGRAM

Team Building/Ropes Challenge Course. To assist the students with effective communication skills, team building and self-esteem, students were scheduled to participate in the ROPES Challenge Course through the Menominee Housing Authority. The students wanted to immediately start climbing the wall without learning about rules and safety. By the end of the day, they were asking for more time on the course and requesting to use it at a later date. The students encouraged each other and overall had a positive learning experience.

Neville Public Museum.

Rainbow Falls Amusement Park.

Six Flags Great America. (Some students had never had the opportunity to experience a theme park before.)

Recreational Activities and Team Effort. During the entire STI, the students divided into teams and played volleyball during break and lunch periods.

Last Day of the STI. On the last day of the STI, the students went to eat breakfast at the Menominee Forest Island Restaurant. Each student had a chance to share what they learned during the summer and what they enjoyed the most. Students were given gold, silver, or bronze medals for their bridge designs. The students presented thank-you cards to instructors, staff, and the bus driver in appreciation for their fun-filled and educational experience.

AWARDS/CLOSING CEREMONY

Parents and guardians were invited back for closing ceremonies on August 3. Bernie Vigue, Primary Instructor, introduced the STI staff. Participants were also introduced. The students introduced their parents or guardians and family members in attendance. Guest speaker Phil Barnes from the WisDOT spoke to parents and students about careers in transportation. The parents asked many questions regarding what education/training would be needed. The participants presented a computerized slide show on the events of the past four weeks and what they learned. Each was given a certificate of completion.

SUMMARY

Overall, this project provided a unique learning experience to this Native American Community. The College of Menominee Nation was able to create an Institute that linked the outside world and expand the students' understanding. The local newspapers provided media coverage of the students' experiences. The classroom instruction and field trips were very beneficial to participants and their families. Parents and grandparents commented on how valuable the experience was.

Students and families were given an opportunity to participate in a program with a learning style that was experiential and provided a meaningful link to the outside world. In addition, students were held accountable for their daily attendance. The program made connections that were often taken for granted before the College of Menominee Nation offered the program to the community.

An individual catered the food for the students because the College does not have food service on the campus.

The bus driver took the time to explain why the students were to behave appropriately while riding the bus and how their behavior contributed to safety for themselves and others. He explained why he was required to drive the way he did and why the children had to sit in seats and keep the isles of the bus clear and free of cargo.

The students learned not only the different career opportunities within the transportation industry, but the importance school subjects play in planning for job opportunities. This program allowed the students to explore many careers and participate in activities that enhanced their self-esteem, social development, and computer and communication skills.



DELAWARE STATE UNIVERSITY

Location:	Dover, DE
Type of Program:	Residential
Start Date:	July 9, 2000
Number and Year of Students:	26 Middle and High School Students
Project Director:	Dr. Jan E. Christopher
Partners and IAB:	Intermodal Advisory Committee included representatives from Delaware Division Office FHWA, Delaware Department of Transportation (DelDOT), FHWA, and Delaware State University

OVERVIEW

The Delaware State University (DSU) STI curriculum introduced secondary school students to the various modes of transportation and how transportation plays an integral role in everyday life.

ACADEMIC PROGRAM

The academic program focused on exposing students to career opportunities through a series of guest speakers from DelDOT, Metropolitan Planning Organizations, and Federal agencies. The academic program consists of mathematics, science, English, French and Spanish, and PSAT/SAT test preparation. The technology program focused on instruction using textbooks in the classroom as well as three "hands-on" technology projects, including magnetic levitation (Maglev) vehicles, balsa wood bridges, and crash-test cars (krash cars).

SUMMARY

DSU has a commitment to provide quality education for all students and openly seeks every opportunity to expand efforts to assist them. In the summer of 2000, DSU offered five internships to past participants who worked in administrative offices throughout the university. Keeping to its commitment, DSU, in conjunction with the FHWA and the DelDOT, continues to provide educational experiences for secondary school students to enhance career awareness of the transportation industry.

ELIZABETH CITY STATE UNIVERSITY

Location:	Elizabeth City, NC
Type of Program:	Residential
Start Date:	June 14, 2000
Number and Year of Students:	19 High School Students
Project Director:	Dr. Ellis E. Lawrence
Partners and IAB:	Intermodal Advisory Committee included representatives from North Carolina Department of Transportation (NCDOT), FHWA, Fayetteville State University, UNC at Pembroke, and Elizabeth City State University

PARTICIPANTS

The participants for this Institute were selected from the following counties in the northeastern region of North Carolina: Bertie, Chowan, Gates, Pasquotank, and Perquimans. Most were participants in the 1999 STI.

OBJECTIVE

The objective of the Institute was to create awareness and stimulate interest in secondary school students to take advantage of opportunities in the transportation industry. This was achieved by providing an intense and structured learning environment.

ACADEMIC PROGRAM

A curriculum was developed at ECSU that exposed participants to new ventures such as highway design, transportation of people and cargo, laws, regulations, safety requirements, and careers in the industry. Mathematical and computer-aided design skills needed for the highly technical positions in the transportation environment were emphasized.

The participants spent four hours a day, four days per week, learning geometry needed to design a part for prototyping. The mathematics taught during this Institute also fulfilled North Carolina guidelines for geometry by the state. As participants explored certain geometric concepts, they applied their mastery of the subject in the NASA-funded Computer-Aided Design (CAD) Lab. Participants also spent two hours a day, four days per week, for four weeks in the CAD lab. Each participant designed a part and uploaded the files to the Stereolithography Lab (SLA) at NASA Langley Research Center (NASA/LaRC). Three of the highest ranking participants actually went to the Stereolithography Lab to observe the models being built. Afterwards, they applied finishing touches to their prototypes. Evaluations and changes to models were also made. The procedures, CAD software, and hardware that participants used to design their models are used by NASA and aviation industries.

FIELD TRIPS

Four field trips were taken to expose the participants to careers and opportunities in the transportation industry.

Wright Brothers Memorial. The trip to the Wright Brothers Memorial exposed participants to the engineering used to design the first plane and provided a history of aviation.

Virginia Space and Air Center. The field trip to the Virginia Space and Air Center further exposed participants to careers in transportation and its importance to society. The tour guides made certain that the participants were aware of the present and future mathematical skills required to advance or progress in the transportation arena and aviation.

North Carolina Department of Transportation (Concrete Testing and Asphalt Testing Lab). The trip to the North Carolina Department of Transportation (Concrete Testing and Asphalt Testing Lab) exposed the participants to careers in highway construction. The guest speaker emphasized that there are positions in highway construction that range from truck drivers to engineers. Additionally, it was stressed that mathematical skills are needed through each phase of highway construction. The guest speaker required students to bring their calculators and actually develop the mathematical models needed in the field of highway construction.

North Carolina A&T State University. The final field trip was to North Carolina A&T State University. Since ECSU does not offer a degree program in transportation, this trip was planned to further expose the students to careers in the industry and the educational requirements. The guest speaker challenged them to grasp career opportunities extended to them.



FLORIDA INTERNATIONAL UNIVERSITY

Location:	Miami, FL
Type of Program:	Nonresidential
Start Date:	June 29, 2000
Number and Year of Students:	16 High School Students
Project Director:	Dr. Sylvan C. Jolibois
Partners and IAB:	Intermodal Advisory Committee included representatives from Consul-Tech Engineering, Office of Congressman Alcee Hastings, Citizen Crime Watch Miami/Dade, the Conference of Minority Transportation Officials, Florida Department of Transportation (FLDOT), and Florida Division Office FHWA

OVERVIEW

The Florida International University (FIU) STI 2000 in Intelligent Transportation Systems focused on preparing students of primarily economically disadvantaged backgrounds for college or vocational studies in the field of transportation. This was the second consecutive year in which the Lehman Center for Transportation Research (LCTR) at FIU had the opportunity to host the Institute. The USDOT through the South Carolina State University (SCSU) NRC funded the STI.

The Institute made a concerted effort to reach out to a spectrum of students encompassing various academic skills. This was critical because it allowed us to introduce students, who might otherwise not have the opportunity, to a potentially rewarding academic experience. The students were motivated through close social and intellectual interaction with faculty, transportation professionals, and peers. Participation was viewed as both a reward and an incentive.

ACADEMIC PROGRAM

The STI had two main thrusts: the first addressed the socio-political component of transportation; the second dissected the technical and scientific components of transportation systems. Relevant issues were analyzed through faculty, staff, and guest speakers' lectures, workshops, seminars, field trips, weekly field work, and students' work on transportation projects.

PROJECTS

The Institute challenged the students into completing an Intermodal Transit Center research project. The seminars, workshops and lectures provided an intellectual framework within which the students were able to accomplish tasks similar to those in real-life engineering projects. Participants divided into four groups; each worked on assigned projects and presented a final report and the project to a panel of outside experts at the end of the STI.

FIELD TRIPS

To complement classroom instruction, several field trips were incorporated in the curriculum. Four local trips and a trip to Washington, D.C., were offered to the participants.

Miami Dade, Metro Bus and Metro-mover Traffic Control Center.

Participants learned about state-of-the-art technology used by the Miami Dade Transit Agency to control and monitor its fleet of buses, metro-rail, and metro-mover trains.

Consul-Tech Engineering, Inc. Participants had the opportunity to see an ongoing transportation project.

United Parcel Services. Students visited a United Parcel Services facility at Miami International Airport. Participants had the opportunity to interview Captain Paul Bunt and to explore navigational equipment inside the cockpit of a 757 UPS aircraft.

Seventh Coast Guard District. Responsibilities and activities of the Seventh Coast Guard District headquarters on Miami Beach were described to the students. Participants boarded a Coast Guard cutter for a 45-minute tour of Biscayne Bay.

Washington D.C. Several activities were scheduled for the trip to Washington D.C. The STI group visited the National Highway Institute in Arlington, Virginia, where Dr. Ilene Payne and her staff provided a detailed description of scholarship and fellowship opportunities available within the FHWA. Additionally, Dr. Payne provided a very constructive dialogue on the various career opportunities available in transportation. The Maryland Department of Transportation (MDOT), in Hanover, MD, also hosted the group. Students received a tour of the state of the art ITS Control Center at MDOT. The highlight of the trip occurred when the FIU delegation was invited to a Transportation Careers Presentation at the USDOT and had the opportunity to meet Secretary of Transportation Rodney Slater. The session was moderated by Dr. Ilene Payne and presenters talked about the various agencies in the USDOT and their roles and functions. In addition, Kentucky State University STI students participated via satellite. The Secretary joined the event and gave a very informative and motivational speech. Students then had the opportunity to ask questions.

The participants and staff also had the opportunity to visit the United Cerebral Palsy Group Home in North Miami. This event was designed as an extension of the STI and the Garrett Morgan Transportation and Technology Futures program. The goal was for the STI participants to reach out to other students and share their experiences. The participants received a tour of the facilities, where 16 special needs children are cared for 24 hours a day.

SUMMARY

We believe that for the second year, the FIU STI program was an exceptional success. The added element of the students working on an assigned transportation project proved to be a very successful component. The STI provided the opportunity to sharpen the mathematics and science skills of youth, as well as to introduce young people to the challenging opportunities in the transportation arena, while giving them a trip to Washington, D.C., and a chance to meet USDOT Secretary Rodney Slater. One of the most important measures of the Program's success was the final evaluation, performed by the students, which gave the STI excellent ratings.

RECOMMENDATIONS

- Improve the student recruitment process;
- Organize a workshop/luncheon for high school officials in February or March of next year;
- Keep in close contact with the high schools to get necessary documentation and information for all students participating in the program;
- Increase the number of hours assigned for group projects;
- Form the project groups earlier (first week of the Institute);
- Provide an air-conditioned bus; and
- Create an account for each student so they will be able to choose their own lunch in the university cafeteria.



FOND DU LAC TRIBAL AND COMMUNITY COLLEGE

Location:	Cloquet, Minnesota
Type of Program:	Nonresidential
Start Date:	July 17, 2000
Number and Year of Students:	9 High School Students
Project Director:	Donna Statzell
Partners and IAB:	Intermodal Advisory Committee included representatives from Minnesota Division Office FHWA, Minnesota Department of Transportation (MNDOT), Federal Motor Carrier Safety Division, Duluth Seaway Ports Authority, Fond du Lac Reservation Transportation, Center for Transportation Studies, University of Minnesota, and the University of Wisconsin

RECRUITMENT

Recruitment of students to participate in this activity was of great concern, due to the late start and notice of funding. Many students wanted to be involved in this program; however, their commitments already in place included other camps, summer school, or work. We are hoping that an earlier notification and recruiting schedule will allow increased participation and minimize conflicting schedules.

ACADEMIC PROGRAM

Fond du Lac Tribal and Community College (FDLTCC)'s STI program included several field trips as well as on-campus lectures and activities. An underlying theme of "following the taconite" was woven into the schedule. Taconite is mined in Minnesota and transported via truck, rail, and ship.

Transportation to and from the college as well as field trips was provided by the Fond du Lac (FDL) Reservation transportation department. The FDL Reservation provided breakfast and lunches for students since FDL does not have on-campus food service. Without the support of the Institute, the participants would have not been able to attend since this was a nonresidential program, and we live in a rural area.

PROJECTS

On-campus support was provided through the United States Department of Agriculture Center of Excellence Soil map compilation center. This program, located on the FDLTCC campus, offered participants experience in map drawing; they realized how this relates to the importance of soil and maps in road construction, air flights, and ground transportation. Sr. Therese provided instruction on PowerPoint and basic word processing in a session held early in the STI; Nancy Broughton provided a brief tour of the FDLTCC library facilities, and opportunities to research modes of transportation were also provided. Daily writing in journals provided the opportunity to work on writing skills—

so vital in today's education and so important to reinforce during the summer months. Participants were encouraged to submit handwritten as well as electronic versions of their journals; program coordinator Betty Anderson and intern Bonnie Eisenfeld worked with the students in basic punctuation and sentence structure.

These journals were displayed at the closing program, following a luncheon for the advisory committee, friends, and family. Within the journals, participants related their reaction to the various field trips and information provided during the STI. They wrote about the impact of weather and the Doppler on air transportation as well as water transportation; the economic impact of the ports of Duluth and Superior and seaway transportation in this area; the opportunity to see the future use of computers as well as environmental concerns in the transportation industry; and their trip to the University of Minnesota's Smart Transportation Center.

FIELD TRIPS

Participants made a trip to the Iron World Museum in Chisholm, Minnesota, where they observed the history of mining. They also toured the Wm. A. Irvin ore carrier in the Duluth harbor. In keeping with the "taconite theme," a trip was taken to the Duluth/Mesabe & Iron Range railroad round house. Participants began to see the importance of a variety of modes of transportation. While we believe we offered the participants a good variety of field trips and exposure to various transportation modes, we also know that as we have made more contacts in the transportation world, other areas are available for future tours.

AWARDS/CLOSING CEREMONY

The closing program was designed by students and included a luncheon and the Little Spirit Wind Singers drum group. The participants' PowerPoint presentation highlighted their four-week experience. Recognition of the support of the Advisory Committee was given with gifts of rice plus a T-shirt and an FDLTCC millennium mug, both designed by the participants. The bus drivers received STI baseball caps. Participants were recognized by the Advisory Committee with a certificate and the student-designed T-shirt. Participants paid special thanks to Project Director Donna Statzell, Program Coordinator Betty Anderson, and Student Intern Bonnie Eisenfeld.

SUMMARY

While we did not meet the target population of 15, we feel the 9 students who graduated represented the community that we serve and greatly benefitted from this opportunity.

RECOMMENDATIONS

- Recruit early; and
- Announce funds earlier.

HAMPTON UNIVERSITY

Location:	Hampton, VA
Type of Program:	Residential
Start Date:	July 5, 2000
Number and Year of Students:	14 High School Students
Project Director:	Thomas Harris
Partners and IAB:	Intermodal Advisory Committee included representatives from the Virginia Department of Transportation (VDOT), FHWA, United Parcel Service, Fort Eustis, and Hampton University

OVERVIEW

Understanding the need to educate tomorrow's transportation workforce has been the underlying theme for Hampton University as its School of Business hosted its first STI. The purpose of the Institute was to support the implementation of the national educational initiative to ensure that today's generation is prepared to become the transportation workforce of the 21st century. The mission of the Institute was to outline a comprehensive, integrated approach to career opportunities in transportation while bringing an awareness to young people regarding the need for transportation solutions to communities.

Hampton University STI had the great opportunity of exposing participants in a comprehensive educational program which focused on various aspects of the transportation industry and its role in the lives of citizens. The Institute enabled the participants to understand transportation accessibility and efficiency, safety, and enhanced mobility among communities.

ACADEMIC PROGRAM

The academic program introduced the participants to the transportation industry, gave a preview of college life with university professors, and presented an opportunity to improve their academic skills. The curriculum also exposed participants to intermodalism, laws, regulations, safety, and career opportunities. The Institute was composed of four components: hands-on projects, field trips, guest speakers, and academic readiness.

Academic classes were held from 8:00 a.m. to 12:00 noon, primarily on Monday, Wednesday, and Friday mornings, allowing time for field trips and guest speakers during the afternoon and on Tuesdays and Thursdays. A typical day's schedule:

8:00–8:50 a.m., Computer Science Class

9:00–9:50 a.m., Mathematics Class

10:00–10:50 a.m., Science Class

11:00–11:50 a.m., English Class

Computer Science. The computer science class was designed to illustrate how computers can enhance academic and professional lives. A hands-on approach using computer exercises introduced participants to software applications such as word processing, spreadsheets, PowerPoint presentations, and the Internet and e-mail.

Mathematics. The area needing the most improvement was mathematics. The instructional approach for the mathematics class was based on the concept that participants would bring to the class varied math skills. The objectives of this course included helping students to overcome “math fear,” encouraging them to continue to learn about mathematics by taking more advanced courses, demonstrating how math is used in the real world and that it is worth their time to learn it, and teaching students how to develop sound study habits to be successful when taking math.

Participants studied basic algebra (including order of operations, algebraic expressions, fractions, power laws, radicals, linear and quadratic equations) and practiced SAT sample tests. They were given an assessment test at the beginning of the program and a post-test at the end involving basic algebra. Test scores improved by 13 percent.

Science. The objectives of the science class were to demonstrate the relationship of science and energy to transportation systems. Participants studied the basic theory of mechanics in physics and atoms in chemistry. They also performed experiments from energy and physics books. They assembled solar vehicles to demonstrate how light can be used as a sole source of energy to power a vehicle.

English. The English class focused on improving the writing skills of participants. They reviewed the fundamentals of writing, including the organization and development of ideas, grammar, mechanics, and style. An essay competition between the students was established to provide an incentive to write a formal essay that included the development of a research component. Participants also practiced taking SAT sample tests.

FIELD TRIPS

The STI sponsored 11 transportation-related field trips for participants, giving first-hand experience about the numerous careers available in transportation ranging from engineers to public relations officers, and how people and cargo are transported, including space travel.

The Aerospace Center of Hampton University housed at the Newport News/Williamsburg International Airport in Newport News, Virginia. Participants were introduced to the Aviation Maintenance Technology Program, with knowledge and experience to satisfy the requirements for the FAA Aviation Maintenance Technician Certificate, with the Airframe and Powerplant Ratings. It was explained that the aviation industry is growing

faster than the general economy and that, each year, airlines require more planes and more technicians to keep them well-maintained and flying safely.

Virginia Air and Space Center, the Official NASA Langley Visitor Center, showcases national achievements in air and space exploration with its permanent exhibit collection. The collection features many of the most fascinating space-related memorabilia. The participants were exposed to a three-billion-year-old moon rock acquired on the Apollo 17 mission. They saw the actual Apollo 12 Command Module that journeyed to the moon, as well as a replica of the Viking Mars Lander on a simulated Martian surface.

NASA Langley Research Center and Langley Air Force Base Tour gave the STI participants an informative tour exploring the birthplace of our nation's aerospace history, including NASA's wind tunnels, research labs, and Langley Air Force Base's Flight Line.

SMART Transportation Center is the nerve center for traffic management in the Hampton Roads area. Participants were able to view how advanced technology is used to monitor traffic, keep it moving, and keep motorists informed of conditions.

United Parcel Service (UPS) helps tourists, shippers, and local commuters navigate the highways, bridges, and underwater tunnels throughout the Hampton Roads area. Visiting UPS's processing facility in Newport News, Virginia, was an eye-opener as to how this 92-year-old company processes packages for delivery within the U.S. and the world. The students learned that UPS is the largest express carrier and largest package carrier in the world. It was explained by UPS representatives that UPS continues to develop the frontiers of logistics, supply chain, management and e-Commerce, combining the flow of goods, information, and funds.

The Monitor–Merrimac Memorial Bridge Tunnel is one of the three bridge–tunnel facilities in Virginia. The tunnel is 4.6 miles long, four lanes wide, and runs from Newport News to Suffolk, Virginia. The students had the opportunity to talk to engineers, and view monitors and computer systems that regulate the underground traffic.

The United States Army Transportation Center in Fort Eustis, Virginia, was an extraordinary experience giving participants the opportunity to observe where enlisted soldiers receive education and on-the-job training in all modes of transportation, aviation maintenance, and logistics. Participants boarded several Army vessels, learned about navigation technology, had hands-on experience with the Full Mission Bridge Simulator and the Crane Simulator.

The Chesapeake Bay Bridge–Tunnel is a 17-mile link between Virginia Beach/Norfolk and Virginia Eastern Shore. The participants traveled the entire length of the tunnel, and it was explained that the Chesapeake Bay Bridge Tunnel has captured worldwide attention as a modern engineering wonder and an important East Coast travel convenience.

The U.S. Coast Guard in Portsmouth, Virginia provided participants with the opportunity to explore vessels used to protect the public, the environment, and U.S. economic and security interests in inland waterways, ports, and harbors. The Coast Guard discussed maritime safety, law enforcement, environmental protection, maritime mobility, and national defense.

Goddard Space Flight Center/Wallops Flight Facility gave participants an opportunity to explore the world of past, present, and future flight. They viewed how sounding rockets were manufactured and their uses. A presentation was given of what it is like to live and work in space, a review of what astronauts eat, and their wardrobes in space. One participant actually tried on an astronaut's space suit.

Hampton University Sail Boat Cruise was quite an experience. Many participants had been on a sailboat. A university professor and a Certified Captain took participants for a cruise on the Hampton University Research Vessel. They were taught about water safety and given a historical perspective of the Hampton Roads area and how important travel by water was at one time.

Hampton Roads Transit (HRT) exposed participants to the complex nature of a transportation network in the Hampton Roads area. Mr. Michael Townes assured participants that HRT is committed to providing safe, dependable, convenient service. He noted that public transportation is the link that draws communities together, as the use of the bus system reduces demands on roads and highways. Mr. Townes also mentioned other African–American executives who serve as role models in the bus service industry. Quite a few participants commented they did not realize that a transit system was much more than riding a bus.

ENHANCEMENT/ENRICHMENT PROGRAM

The evening enhancement program centered around not only the development of academic skills, but interpersonal skills. Evening activities took place after dinner and were designed to engage students in seminar discussions, provide feedback regarding seminar topics, and discuss concerns with regard to the program. Another component of the enhancement activities was attending chapel as a group to reinforce the students' spiritual well-being.

Participants took part in a number of enhancement activities. Hampton University Museum was introduced as one of the most important collections of its kind in the southeast and is considered one of America's unique museum resources. The Museum houses many outstanding works of art and cultural objects and is exceptionally strong in the areas of African, American Indian, and African–American art.

The SAT Preparation seminars were designed to introduce participants to the book entitled *10 Real SATs*, the only test-prep manual with actual SAT

questions cover to cover. Participants practiced on SAT questions, which helped them gauge their current abilities and show areas that needed strengthening.

The Garrett A. Morgan Essay Competition transportation-related essay was required of all participants. The English class provided an opportunity for students to ask about any questions or concerns they had regarding their essays. The essay required students to conduct research during evening hours.

How To Prepare For College was a seminar designed to provide participants with a checklist for college: becoming familiar with entrance requirements, setting career goals, identifying important factors in choosing a college, weighing the pros and cons of colleges, applying for financial aid, and campus visits.

How To Get A's was a seminar to help participants realize that by applying some sure-fire techniques, they could obtain better grades. The seminar emphasized the importance of studying daily, practicing studying techniques, and realizing homework should only be 25 percent of their total study time. Participants told how to practice time management, how to read textbooks, and were given tips to improve their memory.

STI Newsletter. The STI Newsletter was another way to promote team-building skills and provide a vehicle for participants to express their ideas about the STI. Participants were given a choice of topics to write about and were teamed up with other members with the same interest.

GUEST SPEAKERS

Speakers during the Institute included:

- Lauris Finney, Vice President, Feeder Operations, United Parcel Service. Mr. Finney spoke about the movement of goods throughout the country and the world. He told them of the importance of logistics management and how UPS is the largest transportation company in the United States.
- Ken Lantz, Jr., State Transportation Planning Engineer, Virginia Department of Transportation. Mr. Lantz explained transportation planning and how it provides the framework for the development of a safe, efficient, and effective transportation system. He also explained how transportation planning serves the mobility needs of people and freight while fostering economic growth.
- Charles Vaughn, Virginia Department of Transportation. Mr. Vaughn gave the participants an overview regarding the history of bridges, modern bridge designs, and different types of trusses. He explained the factors taken into consideration when an engineer is designing a bridge. Mr. Vaughn also related technology, science, and math principles in the design and construction of bridges. Some of the terms he explained were torsion, stress, compression, and truss design. Mr. Vaughn's expertise as a bridge engineer was used to

help prepare the students for their bridge-building competition. He tested the bridges in the competition and declared a winner.

- Virginia Department of Transportation. A presentation on The Garrett A. Morgan Technology and Transportation Futures Program. The purpose of the program is to establish an educational initiative to ensure that today's generation is prepared to enter the transportation workforce of the 21st century. The importance of learning math, science, and technology to move into the transportation workforce and to help solve everyday transportation problems was stressed.

SPORTS/RECREATION PROGRAM

Even with the formal classroom and evening enhancement activities, we also found time for the STI participants to have some additional fun. The STI collaborated with other summer programs on campus, and participants had limited interaction with college students who were attending summer school. As a result of the sports and recreation program, the participants were exposed to all aspects of campus life. The participants enjoyed: Union Fusion dance, movies, a talent show, Busch Gardens Amusement Park, billiards tournament, Greek exhibition, ice cream social, cookouts, pool parties, all-star basketball game, and a day at Virginia Beach.

The activities were Hampton University-sponsored and opened to participants of other summer programs, pre-college students, and University students. The interaction with others provided a tremendous experience in developing interpersonal and leadership skills

HOWARD UNIVERSITY

Location:	Washington, D.C.
Type of Program:	Nonresidential
Start Date:	June 26, 2000
Number and Year of Students:	16 High School Students
Project Director:	Dr. Errol C. Noel
Partners and IAB:	Intermodal Advisory Committee included representatives from FHWA, TransTech Academy at Cardozo Senior High School, Washington Metro Area Transit Authority, District of Columbia Department of Transportation (DCDOT), and Howard University

OVERVIEW

Ninth- and tenth-grade students from the Washington, D.C., metropolitan area participated in the program. The participants were involved in a number of planned activities focusing on broadening their knowledge about the fields of transportation engineering, sharpening their awareness of the opportunities for employment in the transportation industry, and the preparation needed to become a transportation professional.

PARTICIPANTS AND STAFF

The program targeted students who attended the TransTech Academy at Cardozo Senior High School in Washington, D.C. Students from the Maryland and Virginia suburbs of Washington, D.C., were also involved in the Institute. The STI staff included a Project Director, an experienced transportation engineer and Chairman of the Civil Engineering Department at Howard University; an Associate Director, a faculty member at the University with practical experiences in computer science and operations research; and other faculty members, students, and staff at the University.

ACADEMIC PROGRAM

The Institute included stimulating activities involving guest speakers; courses that included English, Engineering (Civil, Electrical, Computer Science, and Mechanical), and Physics; design projects involving teamwork, presentations, mathematics, and statistical data analysis using computer software tools; educational videos; and multimodal field trips in the Baltimore/Washington areas.

Howard University staff coordinated Institute activities and administered grant affairs. Faculty and participants developed transportation projects and activities, assisted by the Advisory Committee and TransTech staff. Faculty from the College of Engineering, Architecture, and Computer Sciences (CEACS) provided seminars on careers, ethics, and experiences from an engineering

perspective. Projects and field trips were led by students and faculty of the Civil, Electrical, and Computer Science departments. The Office of Recruitment and recruitment staff from CEACS provided forums regarding the transition from high school of college. Every participant had direct access to a personal computer for preparing reports, exhibits for presentations, and graphics associated with the Math and Science projects.

STI staff provided computer training using various programs that prepared participants for conducting research projects and making effective presentations. Hands-on training sessions were provided in the computer lab in the College of Engineering, Architecture and Computer Sciences. Microsoft Word and PowerPoint were introduced to students to aid in preparing reports, graphs, and presentations. Internet training was also provided for research.

PROJECTS

STI projects were designed to provide interactive experiences that will build skills for critical thinking, problem solving, team interaction, and communication, in addition to exposure to innovative technology. Participants were divided into groups, assigned projects, and guided through each step of project development. The projects were divided into research and presentation. Participants used the library and the Internet to obtain background information. Data was collected to determine outcomes of studies regarding traffic patterns. Participants prepared written reports as well as poster and computer-generated charts of their findings.

Students prepared presentations on project assignments, using visual aids and oral presentations developed by each group. Participants prepared charts using graphs and diagrams in addition to the speeches written with the assistance of the English instructor. Special sessions were scheduled to allow participants to work in groups to organize individual roles, brainstorm, research, construct visual aids, plan presentations, and give feedback. Practice sessions were also scheduled to obtain feedback from staff and peers. After careful preparation, participants gave presentations during the closing ceremony.

Intermodal Travel Time. Gathered and analyzed time travel data during an intermodal trip from Washington, D.C., to Baltimore Harbor. Participants, working in groups, recorded the time to commute between transit stations during an intermodal trip involving rapid transit, commuter rail, and light rail. Participants learned how to collect travel time data for transit service management. Using inter-station distances, speed statistics were also calculated.

Electricity Experiment. Studied a number of brands of AA batteries to determine which one will hold a charge longest. Participants designed circuit boards and used voltmeters to measure the voltage of the batteries in the live circuit. Graphs were plotted by hand and by using Microsoft presentation software.

Pedestrian Bridge. Used problem-solving techniques and teamwork during the construction of a steel bridge designed by Civil Engineering seniors. The participants engaged in a seminar and in the construction of the model bridge.

Solar Car. Constructed miniature solar cars using team-based engineering design experiences that included research, brainstorming, construction, problem solving, and competition. Participants also learned about energy and environmental issues related to solar energy.

Poster Project. Developed posters for presentation and display during the closing ceremony. Participants developed themes and created visual presentations regarding experiences during the STI.

Traffic Volume Counting. Conducted traffic signal timing study at a local intersection. The data was charted and conclusions drawn.

Intersection Drawing. Prepared condition diagram on intersection—lane lines, parking, stop lines, utility, signal head positions, bus stops, signs, adjacent building, vegetation, curb cuts handicap, and drainage inlets.

Newsletter. Produced articles on field trips, projects, and other experiences by integrating the English class with the STI. This included instruction in grammar, sentence structure, spelling, layout, and other software programs.

FIELD TRIPS

The focus of the field trips was to provide students first-hand exposure to various transportation modes. Participants learned about the different modes of transporting people and cargo, road construction, security, and business-related issues associated with mass transit. The participants utilized rapid transit (Metro), bus (Metro), light rail (MTART), and heavy rail (AMTRAK) systems to get to and from their field trip sites.

Port of Baltimore (tour by boat). Participants were able to see the Tall Ships from foreign countries on their way to mark the 224th birthday of the United States in New York Harbor. Ships were seen handling cargo from across the country and around the world. Historic vessels, including the USS Constellation (the last all-sail warship built by the U.S. Navy and the only surviving Civil War era vessel afloat) and the U.S. Submarine Torsk (torpedoed the last enemy warships sunk during World War II), are stationed at the port.

Maryland State Highway Administration. Informed participants about Intelligent Transportation Systems (ITS) as well as the structure and management function of the Administration. Transportation careers were discussed. Visits were also made to Maryland's Statewide Traffic Operations Center and the Sign and Signal Division.

Dulles International Airport. Participants were given an insider's view of the workings of a Boeing 777. The instruments of the cockpit and the role of the pilot were discussed. Participants were exposed to the roles of ground control personnel, air traffic controllers, and other airline personnel.

Montgomery County Airpark. The second busiest general aviation airport in the state of Maryland introduced students to the multi-faceted role of the small airport in the matrix of air transportation. Participants were exposed to small air charter companies, and met with pilots, airplane mechanics, and other maintenance personnel.

College Park Airport. The oldest continuously running airfield in the country introduced students to small-scale air travel as a mode of personal transportation. Participants were familiarized with various types of single-engine as well as twin-engine planes.

College Park Aviation Museum. Traced the history of aviation through its exhibits. The Wright brothers and their contributions to air transportation were discussed. There were exhibits of the earliest aircraft as well as the first airplane used to transport mail across the country.

Federal Highway Administration. Served to enlighten students to opportunities for individuals in the transportation profession. The participants were greeted by Secretary of Transportation Rodney Slater. The demand for personnel with various skills to implement and maintain transportation systems was discussed.

Turner–Fairbanks Transportation Research Center. Awakened students to the scope of research performed in hopes of modernizing and improving transportation systems. Participants learned about systematic and scientific solutions to transportation problems.

Smart Route. Exposed participants to commercial aspects of transportation monitoring. Participants learned that traffic information is an important factor in efficiency, making traffic information a valuable commodity.

GUEST SPEAKERS

Most speakers gave seminars at the end of scheduled field trips. This provided more scheduling time for other activities and gave students valuable exposure to the different career opportunities in the field of transportation.

AWARDS/CLOSING CEREMONY

The Closing Ceremony was held in the Armour J. Blackburn Center on the main campus of Howard University. Attendees included members of the Advisory Committee and the transportation industry, invited guests, participants, family members, Howard University officials, and STI staff.

Participants planned and conducted the ceremony. Committees were established to organize the agenda, certificates, programs, hosts, and decorations. Meetings were held to select chairpersons and assign tasks for each committee. The participants developed the agenda and elected the mistresses of ceremony. Technology skills developed during the STI were used to prepare the program and certificates. Participants created decorations for the program that included table displays of activities and projects.

The ceremony included comments from Dr. Errol Noel, Program Director, and presentations of group projects. The ceremony ended with special awards conferred to exemplary students and a certificate of completion for all participants.

RECOMMENDATIONS

- Resolve STI concerns early. (The STI program is inherently intensive and administrative or contractual incompatibilities must be resolved before the time for report preparation. Directors must work within the protocol of their various Universities.);
- Launch a special effort to make potential students aware of the program before submitting applications. (Overall, the program created the awareness expected of the students about the transportation industry and other related professions. The Howard University STI will work with Cardoza TransTech personnel to improve on this concern.);
- Select students early enough to avoid late and early dropout;
- Expand selection of Howard's STI 2001 to include more students from outside the limits of Washington, D.C.; and
- Increase involvement of the Associate Director in the advance planning of the next STI.

JACKSON STATE UNIVERSITY

Location:	Jackson, MS
Type of Program:	Residential
Start Date:	May 30, 2000
Number and Year of Students:	20 High School Students
Project Director:	Dr. Sheila C. Porterfield
Partners and IAB:	Intermodal Advisory Committee included representatives from the Mississippi Division Office FHWA, Mississippi Department of Transportation (MDOT), ERGON, Inc., Jackson Urban League, and Jackson State University

OVERVIEW

The Institute at Jackson State University (JSU) was held with participants selected from across the state.

The program engaged participants in a series of academic enhancement sessions such as ACT preparation, computer laboratories, communication development, and leadership skills. The academic program was augmented by the expertise of speakers from transportation and related businesses and industries. Field trips reinforced the academic program. In addition, participants engaged in sports and recreational events. Evaluation results indicated that participants gained immensely from the program.

The academic curriculum conformed to the general curriculum developed by the NSTI NRC. It included all aspects of the transportation industry and its role in society. Its design and delivery made participants fully aware of opportunities in the transportation industry.

ACADEMIC PROGRAM

Registration and Orientation. The project director hosted a Student–Parent Orientation Session immediately after registration. Participants and parents were required to attend to discuss important issues concerning the STI.

Opening Session. The STI’s Opening Session occurred on the first day. Representatives were present from the “Partners in Education” team. Each representative provided opening remarks. STI staff provided an overview of the Institute’s purpose and activities. Participants introduced themselves and shared some of their traits and characteristics. Others on hand included parents, guest speakers from FHWA, MDOT, ERGON, Hinds Community College, and WLBT-TV3, as well as JSU faculty, staff, and administrators. The keynote speaker was Ms. Barbarie Bassett, Anchor, WLBT-TV3, Inc., Jackson, Mississippi, who provided a motivational talk to the participants as they prepared for their month-long journey.

Classroom Sessions. The academic program was designed to provide a stimulating introduction to the transportation industry and all modes of transportation. The curricula exposed participants to in-depth facts and new frontiers such as highway design, the transportation of people and cargo, intermodalism, law enforcement, regulations, safety, environmentalism, intelligent transportation systems, and career opportunities.

The classroom sessions included career research projects with oral presentations, using the library, and other research avenues; map projects with oral presentations; research projects on a special transportation issue with oral presentations, using the library and other research avenues; and discussions on an array of transportation and transportation-related subjects along with questions and answers.

To strengthen the academic program, students participated in classroom sessions, classroom speaker seminars, laboratory sessions, field trips, and student projects, as well as ACT preparation courses and other self-development sessions.

PROJECTS

Participants were given the opportunity to participate in hands-on projects in a laboratory setting.

Computer-Aided Drafting (CAD). Participants gained hands-on experiences with AutoCad, using the software to execute simple sketches and drawings.

Metric 500 Race Car. Participants constructed race cars by designing a sketch, then using styrofoam blocks to make a model. Upon completion of models, race cars were painted.

Gliders. Participants were given the opportunity to design their own glider as a result of classroom discussions and their own creativity. The gliders were judged by experts from the MDOT.

Bridges. Participants had a great time developing their own bridges after studying the engineering involved. Experts from the Bridge Division of the MDOT delivered presentations on engineering and technology and helped the participants design their bridges. The experts served as judges in the bridge competition.

Boats. As part of the laboratory phase of the academic program, the STI participants were given the opportunity to build their own boats. They had fun determining which boats were considered "seaworthy."

TRAC Projects. For a special session, TRAC engineers from the MDOT led participants in team TRAC projects, which called for thinking, researching, creativity, and problem-solving skills. During this session, the TRAC project dealt with cooperative learning, in which each team researched a transportation topic and designed a presentation based on it. Participants were required to

use the computer laboratories to complete TRAC reports. Upon completion, participants presented their projects before a team of experts at the MDOT. Winners were presented with certificates at the closing ceremony.

FIELD TRIPS

The Institute granted opportunities for participants to go on field trips to a number of transportation facilities where interaction with professionals was encouraged.

Jackson State University H.T. Sampson Library, Jackson. Participants visited the Jackson State University H.T. Sampson Library as part of the academic program. This provided them with an opportunity to tour the library and get started on research projects.

Mississippi Department of Transportation Sign Shop, Jackson. The first major field trip was to the MDOT Sign Shop. Participants saw how road signs are made and used on the highways; they were impressed with the process and the level of technology involved.

Mississippi Department of Transportation Materials Shop, Jackson. During the field trip to MDOT's Materials Shop, participants saw how materials such as soil were tested for highway development.

Mississippi Department of Transportation, Photogrammetry Lab, Jackson. Participants gained insight on the role that the Photogrammetry Lab plays in transportation.

Federal Highway Administration, Mississippi Division Office, Jackson. Participants were able to tour the Mississippi Division of the FHWA. Presentations were made by FHWA officials in various positions, including Motor Carrier.

Air Traffic Control, Jackson International Airport, Jackson. Participants were briefed on careers and opportunities with the Airport Authority and the FAA. After the briefing, a tour was taken of the air traffic and radar towers. Participants especially enjoyed observing air traffic controllers communicating with the pilots, seeing aircrafts on the monitor screens with the aid of radars, and observing planes landing from the observation tower.

ERGON Asphalt and Emulsions Plant, Richland, Mississippi. During the tour of ERGON, participants learned about the importance of safety in a laboratory. They wore safety glasses to observe the stages of asphalt development and testing, and were able to touch the asphalt.

Port Bienville, Hancock County Port, Pearlinton, Mississippi. Capt. David Humphreys provided the participants with an overview of the Port's purpose. He shared the many places from which the Port receives

goods, many of which are shipped back as different finished products. Participants saw workers unloading freight from a barge that traveled from international waters and saw workers preparing to load freight onto railcars.

Mississippi Welcome Center, Bay St. Louis, Mississippi. Participants were able to share and receive a “bit of Mississippi hospitality.”

Stennis Space Center, Bay St. Louis, Mississippi. Participants had educational opportunities with the motion simulator, the test control center, and the international space station as they toured the “StenniSphere.” They had hands-on experience in learning about space transportation.

World Trade Center, New Orleans. During the Intermodal Tour to New Orleans, the first stop was the World Trade Center on the banks of the Mississippi River. The participants were informed about the history and purposes of World Trade Centers and were impressed with the display of flags from around the world.

Aquarium of the Americas, New Orleans. The Aquarium of the Americas is located on the Mississippi River bank in scenic Woldenberg Riverfront Park. Participants viewed aquatic habitats of North and South America.

Port of New Orleans. During the field trip to the Port of New Orleans, participants met with key staff for a workshop, where they received a crash course and viewed a video on the Port’s operations. After the workshop, participants were allowed to board the *General Kelly* for a tour down the Mississippi River. During the ride, the tour guides pointed out facts regarding the various docks and other vessels on the river. The Port’s mission is to maximize the flow of foreign and domestic waterborne commerce throughout the Port of New Orleans.

AMTRAK, New Orleans to Jackson. The participants rode the AMTRAK train on the return trip to Jackson, Mississippi.

Mercedes–Benz International Manufacturing Plant, Tuscaloosa, Alabama. The Mercedes–Benz International Manufacturing Plant is Daimler’s only U.S. manufacturing plant. This gave the participants an opportunity to view the mass production of automobiles.

McWane Center, Birmingham, Alabama. The McWane Center proved to be an experimental classroom. Participants were able to use their academic background as they worked through various math and science lessons.

International Motor Sports Hall of Fame, Talladega, Alabama. The Hall of Fame and Museum complex included over 100 vehicles that were valued at more than \$20 million. Students saw the world-famous Talladega Super Speedway, the fastest closed circuit track in the world and home of the Winston Select 500 and Diehard 500 races.

Transportation Management Center—NAVIGATOR, Atlanta.

NAVIGATOR is Georgia's intelligent transportation system, designed to gather information from a variety of sources such as a video monitoring and detection system, Highway Emergency Response Operators (HEROs), and the public. NAVIGATOR processes information using Geographic Information System software, then formulates an appropriate response plan. The satellite facilities manage surface–street–monitoring cameras and traffic signals within their jurisdictions. This system allows local, regional, state, and Federal officials to communicate more effectively, and manage Georgia's transportation system more efficiently.

Delta Airlines, Delta Corporate Headquarters, Atlanta. At Delta Airlines, a tour guide carried MSTI participants in groups through a flight simulator—the same simulator in which Delta's aircraft pilots are required to log hours to maintain their training.

MARTA Rail System, Atlanta. MSTI participants rode the MARTA from the downtown Five Points Rail Station and to the Rail Control Facility at the Avondale Station site. While at the Rail Control Facility, the participants viewed a filmstrip related to the MARTA system and the Rail Control Room where the trains were monitored.

Georgia Department of Transportation GA 400 Toll Facility. The plaza is one of the most advanced computer-integrated electronic toll collection facilities in the nation. Participants were able to see the automatic coin machines for collecting cash tolls and automatic vehicle identification (AVI/cruise card) for electronic collection.

Cumberland Mall, Atlanta, Georgia, Area; The Galleria Mall, Birmingham, Alabama; Bonita Lakes Mall, Meridian, Mississippi. Trips to these malls provided participants with a balanced meal as well as recreational activities.

Southern Resource Center, Federal Highway Administration, Atlanta. MSTI participants collaborated with STI participants from Albany State University. Staff of the Southern Resource Center, FHWA, led by Judith Johnson, provided a half-day workshop which was highlighted with a thought-provoking lecture by Eugene W. Cleckley, Director, Southern Resource Center.

The Southern Museum of Flight, Birmingham. The field trip to the Southern Museum of Flight represented an opportunity to learn about the history and future of flight. The museum included replicas of monoplanes from 1903 to 1912 and a Delta Airlines plane originally used for crop dusting.

Birmingham Civil Rights Institute. Participants viewed exhibits that portrayed the struggle for civil rights in Birmingham and across the nation. The museum

tour consisted of displays, multi-media presentations, music, and storytelling to depict historical events from life in the 1920's through current race relations. The MSTI participants were also given the opportunity to tour and view a videotape at the 16th Street Baptist Church.

ERGON Refinery, Vicksburg, Mississippi. Participants gained insight on the various operations and functions of each unit within the refinery. They observed day-to-day operations and the monitoring process controlled by technology, and were informed of career opportunities and educational requirements for employment.

Mississippi State Capitol, Jackson. Participants were informed about many topics, including civic responsibilities, laws, and the duties and responsibilities of policymakers.

Jackson City Hall. MSTI participants learned firsthand what is involved in managing a city. A tour was taken of the historic facility, and participants received motivational talks from several individuals, including the mayor of Jackson.

Mississippi Department of Transportation, Jackson. The field trip to MDOT provided participants with a backdrop for their TRAC project presentations along with judges for their projects. Following presentations, participants were given opportunities to tour various divisions within the headquarters.

ENHANCEMENT/ENRICHMENT PROGRAM

The enhancement program was designed to expose participants to methods and activities to help them improve study habits. Participants engaged in leadership and professional development training, which consisted of activities to enhance and refine communication, leadership, and critical thinking skills. They worked in teams and were taught how to be active and contributing team members. In addition, participants were exposed to activities and training to assist in setting goals and planning for careers.

Specific areas covered included: Leadership – Youth Leadership Conference; study habits; ACT preparation; preparing for college; test-taking skills; library research; resume writing and job applications; sex education; diabetes education; computer skills enhancement; library research skills; journal writing; and presentation skills.

Civic and cultural opportunities were presented to STI participants to continue becoming informed citizens. Participants visited government facilities, heard from various officials in local and state government, and visited cultural facilities.

GUEST SPEAKERS

Each week's activities included an introduction to a module (air, land, and water). Professionals who worked in areas related to the unit made presentations on the following topics: Leadership Training; Overview of FHWA; Overview of all Divisions in the MDOT; Highway Design and Construction; Information Systems in Transportation; Bridge Design; Hydrology; Public Transit; Rail Division; Planning Division; Right-of-Way; Air Traffic Control; Technology Transfer; Driving Safety; Boating Safety; Ports and Waterways; Seat Belt Safety; Aeronautics; Highway Safety and Environment; Public Affairs and Communications; Vehicle Safety; Intelligent Transportation Systems; and Information Technology.

SPORTS/RECREATION PROGRAM

The weekend, sports, and recreational program was a vital component of the Institute. This phase of the program was designed to expose students to sports and recreation for life, rules and regulations, and to encourage good sportsmanship. Participants were also encouraged to maintain a healthy competitive attitude during recreational programs. The program included bowling, basketball, board games, movies, and Frisbee. Participants also engaged in travel and shopping excursions.

CLOSING/AWARDS CEREMONY

The Closing/Awards Ceremony was held on the last Friday of the Institute, and was well attended by participants, parents and relatives, and Partners in Education from FHWA, MDOT, ERGON, Inc., and JSU. Joy Portera, State Research Engineer, MDOT, served as keynote speaker. She shared positive comments with the participants including how much she enjoyed accompanying them during their "Mississippi Gulf Coast and New Orleans Intermodal Tour."

During the ceremony, several participants indicated that they had learned a great deal about the transportation industry and expressed appreciation to the director, staff, guest speakers, supporting transportation entities, and partners for providing such a rewarding and challenging experience.

A major part of the closing ceremony was ERGON's awarding of scholarships in the amount of \$100 to each participant. As a partner, ERGON, Inc., graciously sponsored the Institute and provided theme T-shirts as well.

All participants received a Certificate of Participation while individual participants received recognition for outstanding achievements during the program. Additionally, each of the "Partners in Education" received an agency certificate.

SUMMARY

The MSTI project director is currently preparing a proposal to submit to the Jackson State University Curriculum Committee requesting that students who have enrolled in the Mississippi STI be allowed to earn two-semester Jackson State University college credits for the guidance classes required for entering freshman. This proposal stems from the fact that MSTI participants are exposed to the same content covered in the guidance course, along with other academic enhancement opportunities, in addition to the transportation topics covered. This would serve as an incentive for the students to continue their educational pursuits beyond high school and might continue to spark an interest in transportation-related programs.

RECOMMENDATIONS

- Seek additional funding from the funding agency;
- Seek sponsors for the MSTI; and
- Continue to refine the program.



LAC COURTE OREILLES OJIBWA COMMUNITY COLLEGE

Location:	Hayward, WI
Type of Program:	Nonresidential
Start Date:	June 5, 2000
Number and Year of Students:	14 Junior High School Students
Project Director:	Eric Vilhauer
Partners and IAB:	Intermodal Advisory Committee included representatives from the Wisconsin Department of Transportation (WisDOT), Wisconsin Division Office FHWA, and Lac Courte Oreilles Ojibwa Community College

OVERVIEW

This year, junior high students were recruited instead of high school students, as was done last year. Since many reservation youth have had limited exposure to the outside world, the STI provided many field trips. Most field trips explored transportation occupations that were close to the reservation. The Institute also sought to expose students to as many Native Americans working in transportation-related careers as possible to establish mentoring relationships. The emphasis was *not* on exploring careers which would entail leaving the reservation for good. Instead, curricular experiences were designed to encourage participants to explore career possibilities that would allow them to keep connections with their cultural roots. Despite this emphasis, participants were also made aware of many career options in transportation that exist throughout the United States.

RECRUITMENT

It should be noted that the design of Lac Courte Oreilles Ojibwa Community College (LCOOCC)'s STI had to take into account that LCOOCC is a commuter school with no dorms or student housing. When recruitment expanded to a wider geographical area, we had to locate housing for potential students from outside the immediate area. Four rooms were reserved at the nearby Convention Center and a counselor selected to interact with the students in the evenings.

ACADEMIC PROGRAM

The academic program was designed to provide a stimulating introduction to the transportation industry. Classroom activities exposed students to all modes of transportation, including air, land, water, and safety. Specific topics included highway and bridge design, the transportation of people and cargo, intermodalism, laws, regulations, safety, environmentalism, and career opportunities. These topics were explored in various ways.

A video on the building of the bridge at Alton went into great detail about all the aspects involved in building a major bridge, including environmentalism and revenue sources, besides planning, dredging, setting pilings, pouring concrete, laying decking and suspension wires, and so on. Another video explored the state of bridges across the country and the repair and upkeep involved in infrastructure. There were also several videos on space and NASA. Two specifically targeted job opportunities for women and minorities in the space industry.

PROJECTS

Participants were given the opportunity to engage in several hands-on activities in a laboratory setting. One activity was computer-aided drafting. The students gained hands-on experience with QuickCad software and were able to design sample cities with SimCity software. The participants competed to develop the best city with the largest population with a budget in the black (no bonds) by the year 2050. Participants were able to build model bridges using balsa wood sticks and glue. The finished bridges were stress-tested by hanging weights on them; the student whose bridge supported the greatest weight before breaking received a plaque. A new activity this year was building and flying model rockets. The students had a great deal of fun building them, but, by far, the greatest fun was launching them! The participants also built and raced model solar cars.

FIELD TRIPS

United Parcel Service (UPS). Participants saw how many packages were sent locally each day, as well as learning about the national statistics. There was a demonstration of how the computers tracked packages and warehouse operations.

Minnesota Air National Guard. Participants were given a tour of the facilities and were shown the various jobs necessary to keep the station operational. They were able to look at several fighter jets and even flew in the F-16 flight simulator. A tour of the FAA's tower complex was also given. Participants were able to see how planes are tracked, how they communicate by radio, and the logistics in planning incoming and outgoing flights as well as directing planes in the air for safety.

Wisconsin Operating Engineers Center and Laborers Training Center. On the first day, a trip was taken to the Wisconsin Operating Engineers Center where the skills and training necessary to become a heavy equipment operator were explained. Participants saw a trainer operate several large bulldozers and backhoes. On the second day, participants went to the Wisconsin Laborers Training Center where the various skills needed to become a laborer were taught. The students had fun working with the surveying equipment.

District 5 MNDOT Office. Participants were informed about the State Department of Transportation's activities and responsibilities. Students were exposed to road maintenance (snow plows and road repair equipment), the sign shop, CAD, Planning, and also given an office tour.

Field Trip to Various Places. This field trip was three days. The first stop was the Duluth Port Authority where participants were informed how goods and materials are brought in and shipped out of the Duluth /Superior harbor. This was followed by a harbor cruise. A tour of a lock and dam on the Mississippi River in Trempealeau, MN was taken the next morning. At the dam, participants saw a barge enter and pass through the locks. The third day, the group was able to tour the Ford Motor Company Facility which exposed them to all the different processes involved in assembling a car, including quality control.

GUEST SPEAKERS

Several speakers graciously donated their time to speak to our group.

- Mary Williams, FHWA, spoke to participants about her job as a Civil Rights Program Manager, as well as other job opportunities with the FHWA; and
- Tom Blackstone, truck driver for CCX, spoke to the students about a career as a short- or long-haul truck driver.

SPORTS/RECREATION PROGRAM

The participants engaged in several recreational activities. During the first week, the participants spent one day at the nearby Copper Falls State Park for sightseeing and a picnic. After a field trip to the Wisconsin Operating Engineers Center, the participants went to Noah's Ark Water Park in Wisconsin Dells. At the end of the second week, everyone went horseback riding. Participants were exposed to a bit of history on the use of horses for transportation. During the third week, the group went for a pontoon trip on the Chippewa Flowage. A canoe trip down the Namaquagon River was taken. During the fourth week the participants took a train ride from Spooner to Trego and back (40 miles) that included a meal.

AWARDS CEREMONY

An awards ceremony was held on the last day of the program. Parents, FHWA representatives, State DOT representatives, and STI staff were all invited. Eric Vilhauer, the Project Director, introduced Bill Fung, the FHWA representative, who spoke to the participants about the Institute. The staff was introduced. Awards were given to participants and staff in appreciation of their efforts.

RECOMMENDATIONS

- Begin recruitment earlier to target a more extensive area than just schools near the reservation;
- Seek in-kind donations of lodging from area resorts, hotels/motels or campgrounds; and
- Offer stipends to participants.

LINCOLN UNIVERSITY (PENNSYLVANIA)

Location:	Chester, PA
Type of Program:	Residential
Start Date:	July 3, 2000
Number and Year of Students:	14 High School Students
Project Director:	Dr. Iz. Osayimwese
Partners and IAB:	Intermodal Advisory Committee included representatives from Lincoln University, Pennsylvania Department of Transportation (PennDOT), USDOT, Pennsylvania Division Office FHWA, Pennsylvania Turnpike Commission, Ushakant Gandhi McTish, Kunkle & Associates, Krapf's Coaches, and Cheyney University

OVERVIEW

Building on the previous year's experience, the 2000 STI at Lincoln University continued to implement the FHWA's initiative to accelerate the growth of the transportation workforce in the new century. The financial and material support of the FHWA and PennDOT, as well as the support of Lincoln University and other establishments, made the 2000 Lincoln University STI a success.

PARTICIPANTS AND STAFF

Participants were selected from nine schools in Philadelphia, Chester City, and Oxford. The 2000 participants were more ethnically diverse than the previous year. The personnel consisted of five faculty members and four staff.

OBJECTIVE

The objective of the STI was to expose secondary school students to careers in transportation, while providing them with opportunities for an enjoyable and educationally beneficial summer.

ACADEMIC PROGRAM

The academic program, as in the previous year, emphasized field trips and guest speakers. There were 10 field trips and 13 guest lectures. Of these, three site visits and two guest lectures were new, including the memorable visit to the Division Office FHWA in Washington, D.C., and the classroom presentation by an instructor from General Motors' technical school in Michigan. Participants were exposed to many hours of transportation modeling and other hands-on activities in science and technology.

ENHANCEMENT/ENRICHMENT PROGRAM

The evening enhancement and recreation programs were implemented with much success. The participants found the computer lab sessions enjoyable and valuable. Thanks to the enthusiasm of the counselors and recreation coordinator, the participants had more varied and exciting recreational activities and sports this year.

EVALUATIONS

The evaluations were more accurate this year due to improvements in questionnaire design and a stronger academic group of participants.

AWARDS/CLOSING CEREMONY

The closing ceremony and awards program was well attended and was the capstone activity of the STI. The participants were creative and effective in both the planning and organization of the closing ceremony.

RECOMMENDATIONS

- Provide compensation and provisions for hiring a student (e.g., on an hourly basis) to provide clerical and technical support during the semester.

MORGAN STATE UNIVERSITY

Location:	Baltimore, MD
Type of Program:	Nonresidential
Start Date:	July 17, 2000
Number and Year of Students:	20 High School Students
Project Director:	Joyce Trussell
Partners and IAB:	Intermodal Advisory Committee included representatives from Baltimore City Public Schools, the Maryland State Highway Association, Maryland Department of Transportation (MDOT), Maryland Division Office FHWA, National Highway Traffic and Safety Administration, the Office of Congressman Elijah Cunningham, and Morgan State University

OVERVIEW

For the fourth consecutive year, the Morgan State University (MSU) National Transportation Center and the FHWA sponsored the STI. After in-depth recruiting, select high school students from Baltimore City and Baltimore County school districts were invited to participate. In the fall of 1999, the Project Director and the Advisory Committee (formerly known as the Working Committee) began to envision more for the STI. A proposal was submitted and accepted by the NSTI and the FHWA, which allowed MSU to implement the first partnership venture between two colleges / universities and host its first STI reunion. To successfully create awareness and stimulate interest in secondary school students, STI 2000 participants were introduced to: careers in transportation; transportation systems and transportation safety; transportation of people and cargo; management of transportation systems; social, economic, and environmental impacts of transportation systems; and effective communication skills.

OBJECTIVE

The objective was to recruit 15 to 20 secondary school students with an interest in math, science, and technology and to create a substantial program to ensure a positive impact.

The transportation industry is expanding rapidly, and the need to educate and equip America's youth about this dynamic, yet competitive, industry is upon us. MSU continues to promote itself to Baltimore's ninth- and tenth-graders to empower them with knowledge of transportation-related career opportunities.

ACADEMIC PROGRAM

Each week, participants were saturated with transportation-related information. To successfully achieve the objectives, STI participants went on field trips.

FIELD TRIPS

Baltimore Washington International Airport. A tour was taken of the control tower and the on-site fire station. Participants also met with U.S. Customs Service staff and representatives of the Maryland Transportation Authority.

General Motors Truck Group, Baltimore. While touring the plant where Astro minivans are assembled, participants talked with engineers, welders, and machinists.

Chesapeake Highway Advisory Routing Traffic (CHART) Center. Participants received a briefing on surveillance, incident response, traveler information, and traffic management.

State Highway Administration Sign Shop. Participants were shown a demo of the designing and printing of highway signs and also had an opportunity to make personalized signs.

Full Moon Horse Farm. This two-day adventure was tailored specifically for Morgan's STI participants. It was designed to promote hands-on learning and to investigate the "transportation" theme in the world of horses. Participants were briefed on stable management and maintenance, dressing a horse for trailering, loading and unloading a horse, and horseback riding.

The National Air and Space Museum. Participants saw artifacts such as the Wright Brothers' plane and Apollo I. They also viewed a film in the IMAX Theater entitled "To Fly."

Turner-Fairbanks Highway Research Tour. At this federally-owned and operated research facility in McLean, Virginia, researchers focus on providing solutions to complex, technical, real-world problems. The end result is a safer, more reliable highway transportation system.

Department of Transportation, Washington, D.C. The presenters included Chief Wayne Harris, United States Coast Guard, and Edward Thomas, Associate Administrator for Research Demonstration and Innovation, Federal Transit Administration.

The *Mildred Belle* Experience. The *Mildred Belle* is a Chesapeake Bay buyboat, built in 1948 for the transport of oysters and other cargo. Today, it serves as an environmental research vessel where students can use state-of-the-art scientific equipment.

Overnight Trip to West Virginia. A high point for the MSU STI was the adventure to West Virginia State College (WVSC) where another STI was being held. On Thursday, July 28, participants and five chaperones boarded a chartered bus and headed to Charleston, WV, to experience transportation in a rural setting. Upon arrival, we were greeted by Ms. Kellie Dunlap, West Virginia STI Program Coordinator, who provided an outline of our itinerary.

The first night was spent swimming and relaxing in the dorm lounge. The second day started at 7:30 a.m., when we visited the Berkeley Coal Mines. The participants discovered how coal miners labored in dark caves and lived in quarters the size of a modern bathroom. (Visits were scheduled to Hawk's Nest and the New River Gorge, but, due to inclement weather, both trips were cancelled.)

ENHANCEMENT/ENRICHMENT PROGRAM

Reunion. As an outreach activity, the STI Advisory Committee coordinated an STI Reunion at the Milford Mill Park and Swim Club, on Saturday, August 5. STI alumni and the class of 2000 were invited to attend and encouraged to "bring a friend." This event allowed some to get reacquainted and others to learn about the STI. About 55 people attended the catered affair.

Every new recruit received an STI information packet and transportation-related printed materials. Alumni were asked to complete a questionnaire and were given an STI 2000 Reunion backpack before leaving. The reunion was a great success.

Classroom. Participants also went to the computer lab at least twice a week, worked on the STI Newsletter, and took part in other exercises, such as the Internet scavenger hunt.

GUEST SPEAKERS

Presentations were also incorporated by:

- Lisa Matsinger, Railroad Safety Inspector for U.S. Department of Transportation, Federal Railroad Administration, Office of Safety;
- Dr. Engdawork Desta, MSU National Transportation Center, who introduced geographical concepts;
- Percy Dangerfield, Coordinator, Graduate Engineer, State Highway Administration, who informed students about the TRAC Summer Internship Program. (Dami Martin, STI alumni Class of '99 and TRAC 2000 intern, assisted Mr. Dangerfield.);
- Richard Dignan, Baltimore City Community College, who discussed effective communications; and
- Carl Highsmith, Bridge Engineer, FHWA Region 3. Participants were faced with challenges when instructed to design and construct model bridges and airplanes.

SPORTS/RECREATION PROGRAM

To promote teamwork and good communication skills, recreational activities were included in the STI curriculum. At least once a week, participants spent about two hours in the MSU weight room or gym playing basketball, volleyball, or swimming.

AWARDS CEREMONY

On the last day of the Institute, STI participants and family and friends attended the Fourth Annual Awards Banquet. The guest speaker was John D. Porcari, Secretary, MDOT.

Participants displayed their model airplanes and bridges, as well as two poster boards overlaid with STI photographs. Several participants were involved in the awards program, performing such tasks as Master/Mistress of Ceremony and Introduction of Speaker.

Participants received certificates; awards were also presented to Ronald Freeland, Mass Transit Administration (MTA) and to Mr. Porcari for their outstanding support. Well-wishers included ten administrators from MTA and several high school counselors.

RECOMMENDATIONS

- Hire a field trip coordinator to focus on scheduling field trips and coordinating transportation activities;
- Begin program one week earlier to avoid concluding too late in the summer; and
- Extend program to five weeks to allow a weekend trip and more time for classroom instruction.

NORTH CAROLINA A&T STATE UNIVERSITY

Location:	Greensboro, NC
Type of Program:	Residential
Start Date:	June 3, 2000
Number and Year of Students:	8 High School Students
Project Director:	Joyce Johnson
Partners and IAB:	Intermodal Advisory Committee included representatives from North Carolina Division Office FHWA, North Carolina Department of Transportation (NCDOT), The Joseph E. Seagram Company, Greensboro Transit Authority, and North Carolina A&T State University

OVERVIEW

The Institute provides high school students with opportunities to interact with transportation professionals, and to discuss theory and practice in a classroom setting. It fosters diversity in educational and career opportunities in transportation by providing skills that will enable participants to make knowledgeable decisions concerning transportation as a major.

Each participant receives a weekly stipend and a college-level English course, tuition-free. Course credit can be “banked” toward future enrollment at NC A&T State University (NCA&TSU) as a transportation management or transportation engineering major. It is also transferable to other universities.

Upon successful completion of the STI, participants are awarded certificates acknowledging their participation and achievement.

PARTICIPANTS AND STAFF

The STI relies heavily on area high school guidance counselors, teachers, and former participants to recruit eligible students. Counselors and teachers at schools in a four-county area in North Carolina (Alamance–Burlington, Forsyth, Guilford, and Rockingham) were contacted by mail, phone, and word-of-mouth early in the spring semester to inform students about the program. Area churches and community groups were also contacted to gain access to a greater pool of applicants. Since the STI is a day program, a prerequisite is the ability to commute daily.

Participants were selected based on academic achievement, expression of interest in transportation, and written recommendations from high school counselors and instructors. Where students did not demonstrate exceptional academic performance, special consideration was given to those who displayed potential in other areas (e.g., maturity, well-developed character, and integrity) to provide an outstanding learning experience to a more diverse group of young people.

Eight distinguished high school students (four rising seniors and four rising juniors) were accepted. The group (three males and five females) had an average GPA of 3.0 on a 4.0 scale. The students represented the following Greensboro schools: James B. Dudley High School, Eastern Guilford High School, and Southern Guilford High School. Also represented were Cummings High School in Graham, North Carolina, Greer High School in Greer, South Carolina, Dutch Fork High School in Irmo, South Carolina, and Patton Academy of Christian Education in Oakland, California.

OBJECTIVES

The 2000 STI provided students with:

- Basic information on the significance of the transportation industry;
- Awareness of career opportunities in the public and private sectors of transportation;
- Exposure to all modes of transportation; and
- An understanding of business and engineering options in transportation education at the university level.

SUMMARY

Several methods were used to measure whether the objectives were met:

- Prior to beginning the program, participants were given a pre-test to gain perspective on their knowledge of transportation. Over half the students failed. The same test, given at the conclusion of the program, yielded an average 50 percent increase in the cumulative score;
- Quizzes were given after the introduction of each mode of transportation to ensure understanding;
- Enrollment of former STI participants into the transportation / logistics or engineering curriculum at NCA&TSU is monitored;
- Papers and projects were assigned requiring in-depth research into the transportation industry; and
- Participants successfully completed the Corporate Days Simulation that incorporated all material covered throughout the five-week program.

PRAIRIE VIEW A&M UNIVERSITY

Location:	Prairie View, Texas
Type of Program:	Residential
Start Date:	June 11, 2000
Number and Year of Students:	17 High School Students
Project Director:	Dr. Ramalingam Radhakrishnan
Partners and IAB:	Intermodal Advisory Committee included representatives from FHWA, Texas Department of Transportation (TXDOT), Klotz Associates, Texas Water Development Board, Kennedy & Associates, and Texas Space Consortium

OVERVIEW

Upon arrival, each student was greeted by members of the central staff, peer counselors, and, when possible, his or her Program Director and Coordinator. A general welcome and residential orientation was scheduled on opening day with a get-acquainted mixer in the evening; an overview of Prairie View A&M University (PVAMU) and orientation to the campus was offered.

This is the first year that PVAMU participated in the NSTI, sponsored by the FHWA. The PVAMU STI attracted a diverse selection of bright minds and was able to acquaint the participants with various aspects of the transportation industry. The Institute was intended to benefit high school students, including underrepresented minority students such as African-Americans and Hispanics, by introducing them to transportation as a career, enhancing their interest in engineering or science-related study in college.

The PVAMU STI recruited students who would have completed tenth- and eleventh-grades at the start of the STI and those who showed interest in science and technology or transportation-related careers.

ACADEMIC PROGRAM

The Institute developed a curriculum which ensured that all aspects of the transportation industry and its role in society were explored and that awareness and interest was instilled in the participants. The academic program introduced students to interdisciplinary aspects of transportation and developed interest in higher education and careers in transportation. The topics covered four modules: land transportation; air transportation; water transportation; and safety issues in the transportation industry, in addition to several other topics covering mathematics, engineering, and environmental studies. Some specific topics discussed were: transportation and society; intelligent transportation systems; application of high tech in transportation industry; careers in transportation; management of transportation systems; general aviation,

including spaceships and rockets; intermodalism; safety; social, economic, and environmental impacts of transportation systems; construction and engineering issues; and computer and information technology in the transportation industry.

The program coordinator, along with faculty and student aides, scheduled activities to explore land, air, water, and space transportation and included hands-on activities and field trips to reinforce classroom activities. Attempts were made to spend one week on each module, but scheduling difficulties and availability of guest speakers made it impossible to adhere to that format. However, participants were exposed to all modes of transportation and safety issues.

PROJECTS

The participants were divided into four teams for class projects. The first project was to build a canoe, which could float in water, using cement mortar, wire mesh, and cardboard. The second included constructing and launching a rocket. For the third project, participants were trained to use software called "SimCity" to design and construct a bridge. The fourth project required participants to build the strongest bridge with a minimal amount of raw materials. Criteria used for selecting the best bridge included weight, aesthetics, and the load that it could support.

The two teams with the highest overall score in all four projects received a certificate and other awards. Participants were also rewarded for performance on classroom tests, quizzes, journals, good behavior, and team spirit. The top three individuals were chosen for the director's award for excellence, FHWA award for outstanding achievement, and the TXDOT award. Two other awards, one to a male participant and the other to a female, were given for model behavior and congeniality.

FIELD TRIPS

Houston Intercontinental Airport. Participants got a first-hand look at the operation of one of the largest airports in the nation, including the FAA's regional air traffic control facility, the airport central facility, and ground transportation, runways, and the planning and design of new airport facilities. An inter-terminal bus ride and tour of parking facilities were also included. The highlight of the trip was the tour of the airport tower. Participants were able to listen in on communications between pilots and the tower.

NASA. This field trip included a visit to the old spaceships museum, communication center, IMAX movie theater, and a guided tour of NASA facilities.

Houston Port. This field trip included a ride on a ship in the Houston ship channel. Participants saw several commercial cargo ships being docked, loaded, and unloaded in the port; the tour gave an idea of how the port was developed over the years and how important the port is to the Houston economy. During the second part of the tour, participants visited a cable bridge site (Hartman Bridge in Houston) and saw how the bridge was constructed.

TXDOT–Houston District and Houston TRANSTAR. The participants received a lecture on the planning, design, and construction of a bridge. Blueprints, software, and other tools used in the process were displayed for the participants to explore. Then, participants saw the paving of a major highway in Houston. A bridge construction site near Houston was also visited.

ENHANCEMENT/ENRICHMENT PROGRAM

During the first two weeks, participants engaged in sports in the evenings. However, after the first two weeks, they were divided into teams to work on projects in the evenings and on weekends. A computer was used to design bridge models. The teams came up with their own ideas; each produced a different type of bridge with unique architecture. The models and posters prepared by participants were appraised and evaluated by guests attending the closing/awards ceremony.

SPORTS/RECREATION PROGRAM

Peer staff planned on-campus social events and mid-week organized trivia events. Recreational field trips and cultural events were arranged to Astroworld, Waterworld, Herman Park, NASA–Johnson Space Center, Tinseltown, The Museum District, Katy Mills, and Willowbrook Malls. Recreational programs were scheduled for weekends, and a healthy team spirit and competitive attitude were instilled in participants. The coordinator, along with the student aides, scheduled bowling, swimming, board games, movies, basketball, football, tennis, and volleyball. Cultural programs, which included presentations by the Charles Gilpin Players at Hobart Taylor Little Theater, were also included.

AWARDS/CLOSING CEREMONY

The month-long session concluded with an awards banquet, where participants were rewarded for academic achievements and were encouraged to continue their educational endeavors. They were encouraged to invite parents and other relatives to the awards ceremony. The participants conducted the closing ceremony and presented a summary of activities during the STI.

PVAMU alumni, especially those who graduated from the civil engineering program at PVAMU and currently hold senior administrative positions in transportation, were invited to the ceremony to provide networking opportunities. The Institute also had the distinction of having the largest gathering of FHWA professionals participating in the ceremony. NSTI Director, Dr. Clarence W. Hill, was also present. All participants received individual certificates for completion of the Institute.

Dr. Milton Bryant, Dean of the College of Engineering, PVAMU, gave the closing remarks on behalf of the institution. Dr. R. Radha, Director of the PVAMU STI Program, recognized all the Prairie View A&M STI personnel.



SOUTH CAROLINA STATE UNIVERSITY

Location:	Orangeburg, SC
Type of Program:	Residential
Start Date:	June 18, 2000
Number and Year of Students:	30 High School Students
Project Director:	Dr. Ivan Mosley
Partners and IAB:	Intermodal Advisory Committee included representatives from Columbia Metropolitan Airport, Benedict College, South Carolina Department of Transportation (SCDOT), South Carolina Division Office FHWA, and the NSTI NRC, and South Carolina State University

OBJECTIVE

The purpose of the South Carolina State University (SCSU) STI was to create an awareness of, and stimulate interest in, careers in the transportation industry.

ACADEMIC PROGRAM

Classroom projects were designed to enhance problem-solving skills. Self-esteem was improved by the successful completion of all activities. Speakers described their jobs and opportunities in the transportation industry. Field trips emphasized intermodalism as well as career opportunities.

PROJECTS

The Institute offered a wide range of activities that exposed the participants to land, water, and air transportation.

SPORTS/RECREATION PROGRAM

The evening sports and recreation program promoted good sportsmanship and encouraged everyone to participate. A second part of the evening program was computer skills enhancement. A technician assisted the instructor in meeting the objectives of the Institute.

AWARDS/CLOSING CEREMONY

The Institute concluded with a closing ceremony.

SUMMARY

The SCSU STI awarded scholarships to high school students from across South Carolina and was a success.

SOUTHERN UNIVERSITY AND A&M COLLEGE

Location:	Baton Rouge, LA
Type of Program:	Nonresidential
Start Date:	July 5, 2000
Number and Year of Students:	19 High School Students
Project Director:	Dr. Patrick Carriere
Partners and IAB:	Intermodal Advisory Committee included representatives from the Louisiana Transportation Research Center, Louisiana Division Office FHWA, Louisiana Department of Transportation (LADOT), Exxon Company, ABMB Engineers, and Southern University and A&M College

OVERVIEW

The FHWA and the Louisiana Department of Transportation and Development (LADOTD) provide educational experiences and technical expertise that give the secondary school participants insight about opportunities in the transportation industry. The Institute introduced participants to: safety issues; planning and development of transportation systems; transportation of humans and cargo; management of transportation systems; innovations in transportation careers; intermodalism; social, economic, and environmental impacts of transportation systems; construction engineering issues; and research and technology and their applications in the transportation industry.

Substantial support was given by LTRC, LADOTD, FHWA, ABMB Engineers, Inc., and Southern University Department of Civil Engineering personnel in both in-kind funding and participation. South Carolina State University served as the NRC and administered FHWA funding, technical support, leadership, and resources to assist with the development of the 2000 STI. The LADOTD, FHWA, and Southern University provided additional resources.

The Intermodal Surface Transportation Efficiency Act (ISTEA) has created opportunities to change the nature of transportation in America. This creates an enormous opportunity to improve our communities and move our transportation systems in a positive direction. An Intermodal Advisory Council was established to assist with planning and developing the Institute.

The 2000 SUSTI was very successful. The students made tremendous improvements in research and computer skills, ACT test-taking skills, and awareness of opportunities in the industry. The Institute offered a range of activities that exposed participants to the transportation modes of land, water, and air.

OBJECTIVE

The objective of the Southern University (SU) STI was to create an awareness of, and stimulate interest in, opportunities in the transportation industry. The STI, in conjunction with the mission of the University, is a service program seeking to provide resources and services for students interested in careers in the transportation industry. Students entering the Institute have varying levels of preparation and motivation. The Institute sought to provide enrichment services to accommodate their diverse needs and their chances of success.

ACADEMIC PROGRAM

Opening Program. On July 5, 2000, the Institute orientation included a comprehensive discussion of the program. Dr. Patrick Carriere, Project Director, and Dr. Hamid R. Majlesein, Academic Director, hosted the ceremony and gave parents and participants an overview which included rules and regulations, materials needed, and safety tips. The guest speaker was Dr. Kam Movassaghi, Secretary, Department of Transportation and Development, who gave a very informative talk on the industry.

The participants were given a pre-ACT examination on the first day to establish a baseline. The STI staff used the scores to evaluate the improvements of the students on the ACT post-test.

Classroom Instruction. Each week was dedicated to one of the modes of transportation: land, air, and water. The daily schedule throughout the week included: lessons on technical writing of scientific reports; guest speakers; mathematical skills enhancement; ACT preparation; research of safety measures; and innovative techniques in each mode of transportation.

Participants were made aware of current trends and innovative techniques in the following areas: introduction to innovative trends and safety in transportation systems; transportation of humans and cargo; environmental impacts of land transportation; intermodalism; safety of dams; the science of flight ports and waterways; and introduction to ISTE A.

PROJECTS

Every week, the participants had to research the history, safety measures, and innovative trends of popular means of transportation in the mode studied that week, then develop research papers to be collected by staff. Projects such as model planes, rockets, and bridges were conducted to supplement the research. These projects gave participants an opportunity to do research using the library and the Internet. The projects were presented during the closing program.

Supplemental activities included computer lab activities, where each student was asked to investigate a mode of transportation and prepare a PowerPoint presentation for the closing program, and innovative bridge construction.

FIELD TRIPS

Each Friday, the participants were transported to area sites important to the mode of transportation discussed that week. The field trip usually encompassed the entire day with experts giving lectures on techniques, equipment, and future research and projects. Field trips included visits to the ALF Testing Lab, Louisiana Transportation Research Center, Baton Rouge Port Authority, Federal Aviation Association Control Traffic Tower, Interstate I-10/I-12 expansion project, Department of Transportation and Development Materials Testing Lab, BMB Engineers, Inc., and the Baton Rouge Airport Expansion Project VII.

ENHANCEMENT/ENRICHMENT PROGRAM

The American College Testing (ACT) examination is a multiple-choice test required for admission to many colleges. It emphasizes skills based on subjects studied in high school and serves as a standard for predicting students' success in college courses. The instructors provided activities to promote critical thinking and emphasized techniques that afforded students the opportunity and skills needed to solve problems.

Participants were given ACT practice tests. The students, mostly ninth- and tenth-graders, showed great enthusiasm while learning techniques and strategies in courses they had not yet taken. Higher scores were expected on the ACT post-test.

GUEST SPEAKERS

Speakers excited, informed, and encouraged the participants. Most brought visual aids, tools of the trade, and souvenirs to capture the participants' attention. Some of the speakers were:

- Anthony Culp, DOTD, Aviation Director;
- Frank Grabski, FHWA;
- Gerald McKinney, Baton Rouge Airport;
- Jerry Klier, EBR, DPW;
- Turhan, AKEBR, DPW;
- Phil Jones, Public Information Officer, LHSC;
- Fred Raiford, EBR, DPW;
- Seve Serna, FHWA, Safety Engineer;
- Lt. L. Presley, U.S. Coast Guard;
- Lt. M. Taylor, U.S. Coast Guard;
- Jeff Broussard, EBR, DPW;

- Sylvan Jolibois, Jr., Florida International University; and
- Jim Champagne, Executive Director of Louisiana Highway Safety Commission.

SPORTS/RECREATION PROGRAM

The recreation program exposed participants to sports and recreation activities, and encouraged good sportsmanship. Activities included bowling, tennis, basketball, swimming, aerobics, cards, and videogames.

AWARDS CEREMONY

The awards program, held on July 27, 2000, was attended by relatives and friends of participants and staff. The keynote speaker was Tony Sussman, LA FHWA Administrator, who provided the audience with an inspiring address on the future of transportation. Participants received certificates and souvenirs; staff and advisory committee members also received awards of appreciation. Individual participants received trophies for outstanding achievements on their transportation projects.

RECOMMENDATIONS

- Identify and allocate funds for the 2001 Southern University STI by January 2001;
- Increase the level of FHWA funding;
- Seek additional sponsors for the Institute;
- Invite outstanding STI alumni to serve as mentors and/or academic aids;
- Investigate the possibilities of advanced classes with actual coursework pertinent to civil engineering taught by CE faculty; and
- Investigate the feasibility of a pre-college program with opportunities for college credit.

TENNESSEE STATE UNIVERSITY

Location:	Nashville, TN
Type of Program:	Residential
Start Date:	June 4, 2000
Number and Year of Students:	24 High School Students
Project Director:	Dr. Decatur B. Rogers
Partners and IAB:	Intermodal Advisory Committee included representatives from the Tennessee Department of Transportation (TDOT), U.S. Army Corps of Engineers, FHWA, and Metropolitan Nashville Airport Authority

OVERVIEW

The College of Engineering and Technology at Tennessee State University (TSU) in partnership with the Metropolitan Nashville Airport Authority, FHWA, TDOT, the U.S. Corps of Engineers, and South Carolina State University sponsored a STI on the campus of TSU. The 2000 STI is the fifth campus-based residential Institute held at TSU.

The STI began with an orientation for participants and their parents. The rules, procedures, goals, and objectives of the Institute were discussed. Parents were provided with information concerning opportunities in transportation and other areas of engineering.

STI 2000 introduced participants to transportation systems, the transportation of people and cargo, management of transportation systems, innovations in transportation, careers in transportation, intermodalism, social, economic, energy, and environmental impacts of transportation systems, construction of engineering, and safety.

The STI offered a broad range of activities that exposed participants to: introduction to transportation systems and associated energy use; water transportation; air transportation; surface transportation organizations; and, surface transportation systems.

Enhancement classes in algebra, geometry, and computer science were part of the participants' daily routine. In addition, participants took ACT preparation courses, laboratory courses, viewed videos, and attended daily seminars conducted by transportation professionals. Speakers addressed a range of transportation issues including career opportunities and the necessary educational background. Participants also visited transportation-related organizations.

The Metropolitan Nashville Airport, FHWA, U.S. Corps of Engineers, and the TDOT collaborated with the University's Intermodal Advisory Council to provide excellent support for STI 2000. The Council planned daily speakers and organized weekly field trips to transportation businesses and industries.

Highlights of the 2000 STI included participation in the dedication service of Tennessee State University's Ryan–Turman Aviation Education Resource Center and the Transportation Summit, chaired by Tennessee Congressman Bob Clement.

The STI concluded with a Closing Awards Ceremony featuring TDOT Deputy Commissioner Tommy Hart as the keynote speaker. The Institute was successful in stimulating interest in transportation professions for its ninth- and tenth-grade participants.

OBJECTIVES

The purpose of the 2000 TSU STI was to generate awareness of the transportation industry for secondary school students and to academically challenge them to pursue career opportunities in the transportation field.

The objectives of the 2000 STI were:

- To provide secondary school students and their parents with a series of academic experiences designed to introduce them to the transportation industry and profession, and transportation-related career opportunities;
- To provide secondary school students with ACT preparation and enrichment classes in science, mathematics, and computer science to encourage them to prepare for a career in the transportation industry; and
- To motivate youth to make high school graduation, college attendance, and careers in transportation a reality.

ACADEMIC PROGRAM

The Academic Program featured a variety of components.

Enhancement Classes in Algebra and Computer Science. Participants explored all aspects of the transportation industry and its role in our society. Enhancement classes in algebra and computer science provided a foundation to support the study of transportation systems. Participants analyzed transportation systems found in a typical neighborhood—streets used by surface transportation, air carriers, and barges that operate on Tennessee rivers.

Transportation-Related Laboratory Experiences. Academic enrichment included laboratory experiences in propeller thrust tests, engine performance, bridge design, and flight simulation. The laboratory experiences introduced the participants to the tools of the engineer, namely the computer and engineering laboratory.

The laboratory experience had seven objectives:

- To provide hands-on experiential learning activities;
- To introduce experimental methodology;
- To introduce data collection, manipulation, and preparation;

- To develop and write a laboratory report;
- To provide participants with hands-on use of sophisticated instruments;
- To introduce participants to technical areas related to transportation through the laboratory experiences; and
- To let participants learn to work in groups.

The participants spent four days in each laboratory and wrote a report at the completion of each laboratory experience.

Technical and Career Awareness Seminars and Transportation Video Series.

Every day, except Fridays, participants attended technical seminars and viewed videos on transportation-related topics. The seminars addressed topics ranging from introductions to modes of transportation to the economic value of rivers. Professionals from the TDOT, the U.S. Corps of Engineers, the FHWA and the Metropolitan Nashville Airport gave seminars.

Seminars on Current Transportation Issues. Each week, a seminar focused on a transportation topic. Participants researched each topic in the library, gathered information from the Internet to write a paper, and then had an oral discussion of the materials gathered.

ACT Preparatory Classes. Every evening, from 7:30 to 8:20 p.m., participants received training in ACT preparation. The schedule was:

- June 05–08 English and Math
- June 12–22 Reading and Science Reasoning
- June 26–29 English and Math

The sessions acquainted the participants with the ACT format, enhanced test-taking skills, and heightened their knowledge in each area of the ACT.

PROJECTS

Regatta. To incorporate knowledge gained about water transportation during the first week of the Institute, the participants built boats and raced at Hadley Park, located off campus. The boats, built out of styrofoam, popsicle sticks, rubber bands, and plastic propellers, were judged on buoyancy and distance traveled.

The Great Fly-Out. As part of the study of air transportation, the participants constructed airplanes using White Wings Model Airplane kits that were flexible enough to allow them to incorporate concepts they learned during their study of air transportation. Airplanes were judged on aesthetics and distance traveled.

Soap Box Derby. The final week was devoted to land transportation. Laboratory Technician Roger Williams helped design and build soapbox race cars. This allowed participants to incorporate concepts they learned during their study of land transportation. The cars, which were raced on the TSU campus, were judged on design and speed.

Oratorical Contest. The Oratorical Contest, held the last Friday of the Institute, gave participants an opportunity to display what they had learned in a competitive venue. Each selected a topic that had been discussed during classes or laboratories. Their presentations, which required the use of visual aids, were made before an audience that included parents, other pre-college participants, and staff. Presentations were made in: Algebra, Geometry, Computer Science, Engine Performance Lab, Flight Simulator, Propeller Thrust, and Bridge Design. Members of the Intermodal Advisory Council and supporting organizations served as judges. The criteria were articulation, grammar, content, and use of visual aids. Exceptional presenters were recognized during the closing ceremony.

FIELD TRIPS

Participants added real-world experiences to concepts learned in the seminars. They took field trips to various sites, including: The Nashville International Airport, Old Hickory Lock and Dam, Huntsville Space and Rocket Center, Rogers Group Rock Quarry, United Parcel Service, and the Cherokee Marine Terminal. The field trips were coordinated by the Intermodal Advisory Council which permitted interaction with transportation professionals in the work place. A typical field trip began the night before with an orientation session. Each participant thought of at least one question to ask on the field trip. One of the highly-rated field trips was to the Nashville International Airport. With the assistance of air traffic controllers, participants talked to the pilots and thoroughly enjoyed themselves.

SPORTS/RECREATION PROGRAMS

Cultural and spiritual components were included with other recreational activities to supplement the academic programs and provide a comprehensive experience for the participants.

Recreational activities were selected to encourage good sportsmanship and to promote health and wellness. The participants competed in a basketball tournament with participants from several of the University's other summer pre-college programs. They also engaged in cultural activities, which included a visit to the Transportation Summit and the Tennessee State Museum. Participants had the opportunity to attend three local churches: Lee Chapel AME Church, Schrader Lane Church of Christ, and Mount Olive Baptist Church.

AWARDS/CLOSING CEREMONY

The closing ceremony and awards luncheon celebrated a successful Institute and recognized participants' achievements. The top achievers were presented with awards. The keynote speaker was Tommy Hart, Tennessee Department of Transportation Deputy Commissioner.

SUMMARY

The STI activities, which consisted of enhancement classes, engineering laboratories, field trips, and seminars from transportation specialists, resulted in the following achievements:

- Participants became aware of the occupations and career opportunities in the transportation industry;
- Participants became aware of the academic preparation necessary to access transportation careers;
- Participants became aware of the significance of the past, the importance of the present, and the future direction of transportation;
- Participants became familiar with various energy sources and their environmental impact;
- Participants became familiar with various transportation modes for moving people and cargo;
- Participants were introduced to the management of transportation systems;
- Participants were introduced to local, state, and Federal transportation regulations;
- Participants explored many areas of transportation safety;
- Participants became aware of the linkage of one transportation system to another;
- Participants explored the importance of construction technology issues as they relate to the transportation industry;
- Participants were introduced to current technology and applied research in the transportation industry; and
- Parents became aware of occupations and career opportunities in the transportation industry by attending a Parent Orientation at the beginning of the STI.

Funding was received from the College of Engineering and Technology Business and Industry Cluster to help support the 2000 STI at Tennessee State University.

RECOMMENDATIONS

The following refinements in the recruitment process and other areas will be implemented for the 2000 STI:

- Begin the recruitment process in January and conclude in April; and
- Increase interaction between pre-college programs.

TEXAS TRANSPORTATION INSTITUTE

Location:	College Station, TX
Type of Program:	Nonresidential
Start Date:	June 5, 2000
Number and Year of Students:	44 High School Students
Project Director:	Dr. Naomi Lede
Partners and IAB:	Intermodal Advisory Committee included representatives from Southwest UTC, Dallas Area Rapid Transit, Houston–Galveston Area Council, Texas Southern University, Texas Department of Transportation (TXDOT), USDOT, Paul Quinn College, FHWA, North Central Texas Council of Governments, and the Texas Transportation Institute

OVERVIEW

The Texas Transportation Institute (TTI), as part of the Texas A&M University System, served as the lead agency for the 2000 Texas STI, whose partners were Texas Southern University and Paul Quinn College. This organization provided the opportunity to expose secondary students to a diverse group of transportation educators and professionals working in various modes of transport; it maximized expertise and available resources to adequately meet the goals of STI; and it eliminated a duplication of effort. Staff from TTI assumed the role of Institute Director and Program Coordinator.

The 2000 STI emphasized both the quality and quantity of students selecting transportation careers. The STI was designed to create an educational and training delivery system that: attracted middle and secondary school students to careers in transportation; improved mathematics, science, and technology skills; and through creative partnerships, strengthened the links between the transportation sector and public/private institutions. An intermodal advisory board consisting of representatives from the public and private transportation sectors was formed to assist with program development. The two-week institutes addressed the three modes of transportation (air, land, and water) and provided the students with educational field trips to transportation facilities in Houston and Dallas, on-site seminars, lectures by transportation professionals, hands-on technical activities, and networking with leaders in the transportation industry from around the country. Based on feedback from the students, the programs were appropriate in length, and the activities were fun and educational. It is recommended that the STI program continue in subsequent years with financial support from the FHWA being increased to offset the significant cost sharing incurred by the committee.

An Intermodal Advisory Committee was selected by the partnering institutions at the onset of the 2000 TSTI contract. It included 26 representatives from

the partnering institutions, state and Federal agencies, public transit properties, and professionals from the public and private sector. It was the responsibility of the Advisory Committee to assist partnering institutions in all aspects of the 2000 TSTI as appropriate: identifying speakers, coordinating field trips and tours, and providing overall support and guidance in the development of the curriculum and the execution of the graduation ceremonies.

RECRUITMENT

The STI project team promoted the Houston and Dallas STI through a variety of media sources. Promotion efforts worked to recruit students as well as inform the public of the program and encourage support at all levels of the community. Initially, TTI released a press statement to media resources across Texas that announced the program and outlined its goals and objectives. As a result of this press release, an article appeared in the Texas A&M University System hotline and daily news site. This news site, which is on the System's website, is routinely updated for more than 26,000 employees and retirees within the system statewide. The URL is: <http://www.tamu.edu/aggiedaily>.

In the Houston area, the STI received media coverage in a variety of formats. The *Houston Chronicle* published an article about the program in the regional section. Fox 26, a local television affiliate, and several radio stations provided exposure to the program. In Dallas, Paul Quinn College promoted the program on the College's Internet site at <http://www.pqc.edu/sti>. The program was covered in detail in the May, June, and July 2000 issues of TTI's Center for Professional Development newsletter, sent to approximately 150 educators and professionals in the transportation industry across the country as well as posted on the Center's Internet site: <http://cpd.tamu.edu>.

PARTICIPANTS

The education of students in engineering and transportation, mathematics, and the sciences is crucial to supplying the future demand for qualified individuals in these fields. Through the recruitment of high-quality students to the STI, TTI and its partnering institutions worked to attract the best and brightest to the transportation profession. The following sections discuss the manner in which students were recruited for the two 2-week programs.

Recruitment for the 2000 STI began in early April 2000. Students in tenth-, eleventh-, and twelfth-grades at high school campuses in Houston and Dallas were targeted. Recruitment activities included STI staff visiting local high schools, mailing of application materials to high school guidance counselors, direct mailing of applications to students targeted by guidance counselors, STI staff visiting area Civil Air Patrol meetings and meeting with area church leaders, and public service announcements on local radio stations. Student selection was based on criteria provided in the *NSTI 2000 Administrative Manual* including age, grade point average, letters of

recommendation, and a written essay. It was the intent of the project team to recruit approximately 20 students each to participate in both the Houston and Dallas programs.

Forty-six students were selected to participate in the two STI program. Forty-four successfully completed the programs hosted by the partnering institutions.

OBJECTIVES

The following provides a description of the objectives and development of the Houston and Dallas programs and the evaluation of those programs as required by the contract.

The partnering institutions began developing the program curriculum once the sub-agreement was signed. The broad-based, multi-modal program had as its objective to expose students to the following key components of the transportation profession:

- The history and significance of the transportation industry and all modes of travel;
- Career opportunities in public and private sector transportation with an emphasis on emerging and new occupational requirements for the next millennium;
- Various modes of travel, including public transit, automobiles, buses, vans, trains, and airplanes, as well as freight, rail, ports, waterways, and pipelines with an emphasis on intermodalism;
- Advanced technology and intelligent transportation systems including aviation and space technology; and
- Career options in transportation design, engineering, planning, and research.

The overall composition of the Houston and Dallas programs, along with evaluations administered by STI staff, helped determine to what extent the objectives of the STI program were met.

ACADEMIC PROGRAM

The key component of the 2000 TSTI was the academic program.

Curriculum Development. The project team developed two separate but similar programs for the 2000 STI. The Houston program participants spent two weeks on the campus of Texas Southern University, and Dallas participants spent two weeks on the campus of Paul Quinn College. During these two-week programs, students received a core curriculum designed to introduce them to the transportation industry; academic and practical experiences designed to motivate and encourage them to pursue transportation careers; training and exposure to science, mathematics, and technological

enrichment through planned activities; field trips and on-site seminars to introduce them to various transportation services and modes; and an opportunity to participate in leadership and other professional activities designed to introduce them to university life and higher educational requirements.

HOUSTON PROGRAM

The Houston program took place June 5–16, 2000, on the Texas Southern University campus. This nonresidential Institute had a diverse schedule which incorporated a combination of lectures, hands-on exercises, and facility tours and activities.

Participants were exposed to the diverse and multi-modal transportation facilities around the Houston–Galveston area. These included: operations at Houston METRO; the Port of Galveston; the Center for Ports & Waterways at Texas A&M University—Galveston; Houston TranStar; and the George Bush Intercontinental Airport. Participants also gained exposure to research facilities at the Texas Transportation Institute on the Texas A&M University campus in College Station. Houston participants also engaged in technical activities that emphasized the need for such skills in the transportation profession. These included air transportation exercises, traffic signal design and timing exercises, and documentation of their activities and observations over the course of the STI in a paper and presentation. Based on the diversity of the Houston program, including the focus on air, land, and water transportation and the skills needed for careers in these fields, these objectives were met.

Houston Graduation Ceremony. The STI staff hosted a graduation ceremony for participants, which was held on June 9, 2000, on the Texas Southern University campus in Houston. Transportation professionals and family and friends were invited to attend the ceremony. Prior to the ceremony, students were provided an opportunity to network with transportation professionals from across the state. The keynote speakers were a representative from the office of The Honorable Garnet Coleman, Texas State Representative, and a representative from the office of the President of Texas Southern University.

Houston Stipend Ceremony. In addition to the graduation ceremony, a stipend ceremony was held on Friday, June 15, 2000. This ceremony also took place on the Texas Southern University campus in Houston and transportation professionals, as well as each participant's family and friends, were invited to attend. As part of the ceremony, each participant made a presentation regarding the transportation-related information gathered during the 2-week institute. The keynote speakers for this ceremony were Dr. Ilene Payne, National Highway Institute, Dock Burke, Southwest University Transportation Center, and Dr. Daniel Davis, Texas Southern University. At the conclusion of this ceremony, students were presented with a stipend for the completion of the STI.

DALLAS PROGRAM

The Dallas program took place June 12–23, 2000, on the campus of Paul Quinn College. As with the Houston program, this nonresidential institute had a diverse schedule, which incorporated lectures, hands-on exercises, and facility tours and activities.

The participants who attended the Dallas STI were exposed to the diverse transportation facilities around the Dallas area. These included operations at Dallas Area Rapid Transit, the TXDOT Freeway Management Center, the U.S. Army Corps of Engineers, and Southwest Airlines.

Dallas STI participants also participated in technical activities that emphasized the need for such skills in the transportation profession. These included air transportation exercises and traffic signal design and timing exercises. The students entered their observations on the Paul Quinn College Internet site and conducted on-line research for technical papers and a presentation on the three modes of transportation. Based on the diversity of the Dallas STI academic program and the emphasis on the skills to pursue careers in these fields, the program objectives were fulfilled.

Dallas Graduation Ceremony. STI staff hosted a graduation ceremony for the Dallas STI participants, held on July 16, 2000, on the Paul Quinn College campus. Transportation professionals and family and friends were invited. Prior to the ceremony, participants were provided with an opportunity to network with transportation professionals from across the state. The keynote speaker for the ceremony was Dr. Beverly T. Kuhn, P.E., Division Head, Texas Transportation Institute. Other dignitaries included Dr. Dwight Fennell, Vice President for Academic Affairs and Provost at Paul Quinn College and Dr. Lee Monroe, Jr., from Paul Quinn College.

Dallas Stipend Ceremony. As in Houston, a stipend ceremony was held for the Dallas STI attendees. This ceremony was hosted by staff at Paul Quinn College and family and friends were invited to attend as well as transportation professionals. Participants presented research papers they prepared during the two-week program on one of the three modes of transportation, outlining what they had learned about that mode during STI, and how they benefitted from exposure to the profession. The keynote speaker at this event was The Honorable Royce West, Texas State Senator. At the conclusion of this ceremony, participants were presented with a stipend for the completion of the STI program.

SUMMARY

To foster comprehensive approaches and build effective coalitions that address transportation educational and career opportunities for the next century, the NSTI should support the establishment of regional centers within each state. This would call for coalitions of colleges, universities, school districts, business, industry, and other organizations that can contribute to a broad-based recruitment program for transportation education, career development, and advancement. Given the growing diversity of the population and the limited engineering and transportation programs in historically black colleges and universities, every effort must be made to balance educational access and career development opportunities by forming partnerships with other public and private institutions. Such partnerships can strengthen the NSTI and ensure its ultimate success.

The project team met the goals of the program by hosting two 2-week programs in large urban areas in Texas. The 44 participants who attended the Institute were exposed to the gamut of career opportunities within the transportation industry and had the opportunity to gain hands-on technical experience and networking with professionals to learn more about career choices.

RECOMMENDATIONS

- Improve communications between NRC and host sites;
- Increase funding for better STIs;
- Improve travel arrangements to Annual NSTI Workshop;
- Process reimbursements earlier;
- Announce host site acceptance in NSTI; and
- Begin application and proposal process earlier.

TUSKEGEE UNIVERSITY

Location:	Tuskegee, AL
Type of Program:	Residential
Start Date:	July 9, 2000
Number and Year of Students:	20 High School Students
Project Director:	Gary Quinn
Partners and IAB:	Intermodal Advisory Committee included representatives from Alabama Department of Transportation (ALDOT), Alabama Division Office FHWA, Ford Motor Company, Charlie Tee's, Tuskegee University, and Results Management Associates

OVERVIEW

Tuskegee University (TU), in conjunction with the Alabama Division of the FHWA and the ALDOT, created an alliance to address the need for exposure and technical competency in rising tenth-grade students. The opportunity has been provided through the STI to enhance educational experiences and career opportunities in the transportation industry. The Institute had three components: academic program, enhancement/enrichment program, and sports/recreational program. The core curriculum for the classroom component introduced participants to land transportation (human and cargo); inner and outer space; and water transportation.

ACADEMIC PROGRAM

The academic program provided students with an overview of all modes of transportation. The curriculum included: land transportation, African-American contributions, types of land vehicles, topography and map making, building highways and bridges, future of land transportation, alternative fuels for land vehicles, air transportation, basic principles of flight, types of air vehicles, introduction to space program, water transportation, archimedes principle and the physics behind floating objects, and types of water vehicles.

FIELD TRIPS

During the first week, the field trip to Hartsfield International Airport was canceled due to transportation difficulties at the University. The Advisory Committee interceded and Ford Motor Company loaned us two vans and a Ford Explorer for the duration of the Institute.

Alabama Department of Transportation. Participants toured the cartography division, materials test site, and map making division. Afterwards, they enjoyed a brief discussion on current issues in environmental justice stimulated participants.

Ford Motor Plant in Atlanta. Participants were able to see assembly lines in full operation and immediately noticed the differences in cars made for export (with steering wheels on the right-hand side). Participants were impressed with the discussion following the tour, given by the plant manager.

Mobile River Tunnel. The field trip to the minority-owned Ford dealership, and to the Gulf was very successful. Participants were able to see intelligent transportation systems, and the employees at the Mobile River Tunnel eagerly shared their experiences, career opportunities, and educational requirements.

Bay View Lincoln Mercury Dealership. Damon Wickware shared his knowledge and experiences about retail aspects. Participants asked questions about profit margins and actual vehicle costs. Following this trip, a tour of Orange Beach was taken, where students enjoyed swimming, volleyball, and theater.

Shakespeare Theater. A modern interpretation of *The Comedy of Errors* was seen followed by dinner at the Back Forty Restaurant.

ENHANCEMENT/ENRICHMENT PROGRAM

The evening enhancement /enrichment activities were very successful in creating an awareness of self and others, and will lead to ongoing self-assessment by participants as they continue living and learning.

Finance/Chinese. Dr. William Cheng took a global marketplace, multi-cultural approach to diversity. Time, value, and money concepts were applied to the future value of dollars, and a comparison and contrast of spending patterns between the U.S. and Taiwan R.O.C. was charted. Participants were also exposed to Mandarin, learned simple phrases and how to write their names in Chinese characters.

Life Skills. Cardiopulmonary Resuscitation (CPR) training was provided by Sargent Halcome. Nineteen participants received certification, with one receiving additional hours to renew his certification. Additional topics included a campus safety and security video and discussion of crime prevention provided by Sergeant Terri Huffman; decision-making for teens, pregnancy prevention, and stress management were topics covered by Brenda Cherry.

Theater. A primary focus was on the use of voice to express emotion; movement was gradually introduced. Another focus was placed on elocution, phrasing, and speaking from the diaphragm. Participants used the Internet to access information on the history of transportation in order to perform *Episodes: The Transportation Timeline*, written and produced by Georgette Norman. The play was performed at the closing/awards ceremony on August 4. The main purpose for offering theater was to enhance participants' public speaking skills. Because participants were already familiar with computers, they could concentrate on their speaking skills and communication style.

The evening enhancement /enrichment activities were very successful in creating an awareness of self and others, and will lead to ongoing self-assessment by participants as they continue living and learning.

GUEST SPEAKERS

Each week, guest speakers gave presentations on topics related to classroom subjects being discussed. Speakers are listed below.

- Joe Wilkerson, Division Administrator, Federal Highway Administration, "Opportunities in Industry, Preparation to Achieve Life Goals, Overview of FHWA;"
- Linda Guin, Safety and Technology Engineer, FHWA, "Pursuing Goals and Internship Opportunities;"
- Karen Heider, Right-of-Way Specialist, FHWA;
- Bill Johnson, FHWA, "Driving Safety, Share the Road, and No Zone." A video presentation was followed with a demonstration of a professional truck driver with his 18-wheeler truck; and
- Bill Vanluchene, Environment and Technology Engineer, FHWA, "Environmental Impact and the Role of Technology in Industry."

SPORTS/RECREATION PROGRAM

Because of the highly challenging curriculum, participants were encouraged to engage in swimming, basketball, walks, ping-pong, jogging, tennis, softball, soccer, movies, and cookouts.

Mr. Diop, the male counselor, organized some soccer games; however, swimming was the preferred activity. Active participation in recreational activities was encouraged to reinforce health, time management, and the development of balance in life. During evening class breaks, fresh fruit, cookies, potato chips, and sodas were provided.

CLOSING/AWARDS CEREMONY

The closing ceremony was held August 4, 2000, at the Kellogg Conference Center on TU's Campus. Edward W. Morris, Jr., Director of Civil Rights for the FHWA, USDOT, was the keynote speaker. His presentation was followed by presentations from Joe Wilkerson, Alabama Division Administrator; and Frank Topping, Bureau Chief, ALDOT. The participants performed *Episodes: The Transportation Timeline*. Participants conducted the closing ceremony and assisted with the direction of the production. Dr. William Cheng announced the highest grade from the finance exam which was completed in teams of two. The winning team members were awarded financial calculators from Texas Instruments. Awards were given to

the best design project team winners; the team with the best rocket launched it following the ceremony. Each participant was awarded a certificate of participation, presented by Edward W. Morris, Jr., and received TU Bags, Garrett A. Morgan scholarship information cups, and sundries.

The ceremony was well attended by parents, relatives, and university faculty and administrators.

RECOMMENDATIONS

- Announce grant awards earlier. (This would assist host sites in confirming student field trips, as well as facilitating the internal university coordination and collaboration process, creating more timely compensation for work completed under the grant. It would also allow for improved faculty and staff orientation.)
- Extend the STI by an additional week to ensure that the core curriculum is covered and allow for more enhanced field trips. Presently, the time frame is very constrained.

UNIVERSITY OF MARYLAND EASTERN SHORE

Location:	Princess Anne, MD
Type of Program:	Nonresidential
Start Date:	June 26, 2000
Number and Year of Students:	21 High School Students
Project Director:	Dr. Robert Johnson, Jr.
Partners and IAB:	Intermodal Advisory Committee included representatives from the State Highway Administration, Maryland Port Authority, Maryland Department of Transportation (MDOT), Salisbury Regional Airport, and University of Maryland Eastern Shore

OVERVIEW

The University of Maryland Eastern Shore (UMES) is a historically black college or university (HBCU) and the 1890 Land Grant Institution for the State of Maryland. Its mission is to provide a quality foundation for educational pursuits to all willing students. The University also seeks to participate in innovative programs to expose students to careers currently underrepresented in many of the nation's minority groups.

PARTICIPANTS

Students enrolled in public and private secondary schools in the central and southern area of the Eastern Shore of Maryland were recruited to participate in the STI at the University of Maryland Eastern Shore.

Students on the Eastern Shore of Maryland are in critical need of programs and resources that emphasize excellence in education. The economic heartbeat of the Eastern Shore is the poultry, farming, fishing, and vacation industries. A large number of secondary students polled during the Institute have limited information about education and career opportunities, current trends in technology, role models, and trendsetters. Many will be first-generation college students in their families, exposing the need for high-quality counseling on financial assistance for college education and awareness of opportunities for careers outside of the fishing, poultry, and vacation industries.

The UMES STI linked students with common backgrounds and experiences and allowed them to explore beyond the usual secondary education to find information that not only created awareness of opportunities in the transportation industry, but allowed them to showcase their talents to promote confidence in their own abilities. Parents and teachers have expressed gratitude for the activities that the Institute has offered and have committed to help in subsequent summer institutes.

OBJECTIVES

The objectives of the Institute were to:

- Develop and implement effective pedagogical strategies, such as cooperative learning and the use of modern technology in instruction, to help eliminate barriers associated with minority underachievement in science;
- Develop strategies to increase the number of minority students enrolling in college, receiving baccalaureate degrees, pursuing advanced degrees, and entering careers in the transportation industry;
- Recruit the best secondary school students possible;
- Nurture and challenge students to realize their full potential;
- Provide an atmosphere for comfortable cooperative learning between student peers;
- Provide expert assistance in the use of modern technology in the transportation industry; and
- Simulate technologically advanced projects.

ACADEMIC PROGRAM

The academic program was devoted to transportation systems in the modes of land, air, and water. Weekly lectures from area experts and informative field trips to work sites were coordinated to stimulate interest in transportation-related careers. To increase the chance of success in pursuing these technologically advanced careers, the program provided mathematics and science enrichment activities, computer skill enhancement, and relay and drill SAT/ACT test-taking strategies. Local and state agencies and the private sector were involved in promoting transportation industry opportunities to the participants.

ENHANCEMENT/ENRICHMENT PROGRAM

The UMES STI provided field trips, guest speakers, and hands-on activities that informed secondary school students about opportunities in transportation. The four-week summer program:

- Allowed participants to investigate safety, innovative techniques, trends, career opportunities, and governance pertaining to the major modes of transportation;
- Provided hands-on projects that displayed scientific techniques and research opportunities relating to transportation;

- Stimulated interest in participants through “on site” demonstrations;
- Provided a forum with transportation experts from local agencies to discuss job responsibilities and requirements; and
- Strengthened mathematics, science, and English skills necessary for transportation careers.

SUMMARY

Participants responded to the challenges that the faculty presented and surpassed all expectations. They performed the following research activities:

- Explored transportation systems in transportation modes of land, air, and water;
- Explored safety regulations pertaining to transportation of humans as opposed to cargo in different transportation systems;
- Examined literature on early transportation systems leading to the innovative and technologically advanced systems available today;
- Increased their knowledge about the Federal, state, and local governing agencies of the different transportation modes;
- Investigated the uses of computers and other automated devices that are used to manage, schedule, and monitor transportation systems;
- Investigated the importance of intermodalism and how transportation systems coordinate with one another;
- Explored the impact of transportation systems on the social, economic, and environmental welfare of our nation; and
- Shared their knowledge of the industry with other participants, parents, transportation representatives, and guests during the closing program.



UNIVERSITY OF MISSOURI–ROLLA

Location:	Rolla, MO
Type of Program:	Residential
Start Date:	June 25, 2000
Number and Year of Students:	15 High School Students
Project Director:	Dr. Gary S. Spring
Partners and IAB:	Intermodal Advisory Committee included representatives from Civitas Associates, Missouri Division Office FHWA, Missouri Department of Transportation (MODOT), Lincoln University (Missouri), Burns and McDonnell, and the University of Missouri–Rolla

OVERVIEW

The Transportation Institute in the Department of Civil Engineering at the University of Missouri–Rolla (UMR) hosted its second STI, conducted by faculty, staff, and students from the Department of Civil Engineering. Orientation began with a meeting of parents, students, and Institute staff. Copies of the Student Handbook, the agenda for the session, and a detailed curriculum summary were distributed.

PARTICIPANTS

Youths from across the state of Missouri were recruited. E-mail greetings, with program brochure and application attached, were sent to more than 1,000 high school counselors and 1,500 students who had indicated an interest in engineering. More than 300 letters and brochures were mailed to select counselors across the state as well. The National Society of Black Engineers (NSBE) and local MODOT personnel were asked to help identify likely candidates. Eighteen applications were received and 15 were accepted. Applicants were selected based upon academic standing, recommendation letters, and their essays explaining their interest in transportation. The average grade point average was in excess of 3.0 on a 4.0 scale. Nine of the 15 were twelfth graders and 6 were eleventh graders.

OBJECTIVES

The objectives of the Institute were to:

- Expose and stimulate interest in secondary school students to participate in academic and practical experiences designed to motivate them toward professions in the transportation industry; and
- Provide secondary school students with mathematics, science, and technological enrichment to enable them to pursue a career in the transportation industry. This educational experience explored a wide

variety of aspects of the transportation industry and its role in our society. The curriculum provided educational opportunities for its students in critical areas of transportation, math and science, and computers. Participants were exposed to university life, leadership and team building activities, and a series of lectures, seminars, hands-on laboratories, and field trips.

ACADEMIC PROGRAM

The four-week Institute, headquartered at the Transportation Institute in the Civil Engineering's Butler–Carlton Building, consisted of an orientation and highway, public, and intermodal transportation. Classes were held in facilities across campus. Each week began with a half-day introduction to a transportation topic and included field trips, hands-on labs, and seminars. Participants were given ample time, throughout the four-week period, to compose newsletter articles reporting on what they had seen and to work on assignments. Two full three-hour sessions per week were dedicated to the planning and implementation of newsletters. The project website was enhanced to include a photographic chronicle of the Institute's activities. The photos were used extensively for preparation of newsletters and for the final presentation at the closing banquet.

The FHWA's money was used as "seed" money to fund the Institute which totaled more than twice the amount funded. Government agencies and private firms provided substantial support in funding, staff assistance, and educational materials.

ENHANCEMENT/ENRICHMENT PROGRAM

There were several very successful enhancement activities this year. A trip to a "Ropes" course, where participants experienced the need to trust team members, involved walking a tightrope or beam (25 feet above the ground). The Gateway Chapter of the NSBE helped recruit more than half of the students who attended the first Institute, and felt very strongly that STI participants should meet African–American engineers and engineering students, thus encouraging networking relationships. During a NSBE-sponsored cookout dinner at the Cornerstone Partnership in St. Louis, participants were introduced to members of both the Alumni and Junior NSBE groups. A video that emphasized Dr. George Washington Carver's genius, inventions, and sheer dedication was shown. After the meal, participants were taken on a tour of the Cornerstone Partnership facilities by Glenn Harris, the manager of recruitment and placement. Employees at Cornerstone are trained to participate in high-technology manufacturing in tasks ranging from designing in CAD to precision machining of parts in a well-equipped machine shop. During the tour, Mr. Harris stressed the necessity of developing the traits required for successful employment: punctuality, self-motivation, dependability, self-discipline, self-respect, adequate training, and education. Reinforcement of positive traits was woven into the fabric of the STI on many occasions.

The classroom used at Lincoln University (Missouri) displayed the following quotation: “When declaring your rights, don’t forget your responsibilities.”

Participants attended a variety of activities in Rolla: a magic show put on by UMR’s Physics Department, a small town fair/carnival, Lane Springs, where local young people play in the water, and a play titled “Gracie and Glory” at a local theater. Additionally, there were poolside barbecues held in the dormitory.

Dr. Spring offered a session on the “Seven Habits of Highly Effective People,” and led a group exercise on the fifth habit: Seek first to understand, then to be understood. Participants broke into three groups: for, against, and to referee a controversial issue. Each group’s charge was to convince the opposing group that it truly understood the opposing group’s stand. A very lively discussion ensued.

AWARDS/CLOSING CEREMONY

The Institute ended with a banquet at the closing ceremony, to which participants, parents, faculty, staff, advisory committee members, and dignitaries were invited. The program began with welcoming comments from Gary Spring (STI Director), William Schonberg (UMR), Allen Masuda (FHWA), and Ron Moore (NSBE). Each urged the participants to use the information they gained from their experiences during the Institute in positive ways. Their comments were followed by a slide presentation detailing the 2000 STI and lunch. Certificates of completion were given to all who successfully completed the Institute, and two types of special commemorative plaques were awarded:

- *Citizen Award*—Given to three participants for unflagging quests for knowledge, service as mentors to peers, and excellent attitudes during the Institute. Criteria used for this award included number and quality of questions asked, quality of homework, attitude during activities, and willingness to help staff and participants; and
- *Distinguished Service Award*— Given to two participants for contributing to the success of the Institute.

The recipients facilitated Institute activities and eased many potential problems with participants. Closing comments by Dr. Spring included expressions of appreciation to the STI sponsors, Advisory Committee, and staff. Dr. Spring also gave special thanks to parents for taking the initiative to involve their children in the STI, and encouraged participants to use their experiences at the Institute when making career decisions and to keep in contact with him as they proceed with career choices.

VIRGINIA STATE UNIVERSITY

Location:	Petersburg, VA
Type of Program:	Residential
Start Date:	June 19, 2000
Number and Year of Students:	33 High School Students
Project Director:	Dr. Ali Ansari
Partners and IAB:	Intermodal Advisory Committee included representatives from Virginia Division Office FHWA, Virginia Department of Transportation (VDOT), Virginia Road and Transportation Builders Association (VRTBA), Virginia Department of Aviation, and Virginia State University

OVERVIEW

In addition to funding, FHWA also provided guest speakers and sponsored a field trip to Busch Gardens. VDOT arranged speakers, sponsored field trips, provided two instructors to conduct Oral and Written Communication Skills and Computer Aided Presentation sessions, and provided some lab supplies. In addition, the Virginia Department of Aviation contributed \$2,000 and the VRTBA contributed \$1,000 toward the STI.

The purpose of the Virginia State University (VSU) STI was to expose secondary school students to the opportunities that exist in the transportation industry and to stimulate interest in pursuing higher education in this field.

The STI goals were to expose secondary school students to a series of small academic projects designed to motivate them toward higher education in the transportation industry; to provide secondary school students with mathematics, science, SAT, communication, and technical skills to assist them in pursuit of higher education in the transportation industry; and to expose secondary school students to various transportation sites to increase their awareness of professions in the transportation industry.

The Institute included five field trips, hands-on projects, engineering principles, computer training, and oral and written communication skills sessions. The Institute also contained recreational and evening enhancement activities. Students from Washington, D.C., Virginia, North Carolina, Illinois, and Texas participated in the 2000 Institute.

PARTICIPANTS

Participants were selected in two stages. The first screening was done at the secondary school level. Counselors were instructed to select two students among rising ninth, tenth, or eleventh graders and forward their applications with letters of recommendations to the Director. Then the Director and the

faculty screened the applications. Scholarships were awarded to freshmen, sophomores, and juniors based on their GPA, recommendation letters, interest in engineering, science, transportation, and technical fields, and mathematics and science courses.

OBJECTIVES

The STI had the following objectives:

- To expose, stimulate, and sustain interest in transportation at the secondary school level to increase the number of students who pursued higher education and careers in the transportation industry;
- To provide a college life experience to participants; and
- To expose the VSU campus to high school students for future recruitment for the University.

ACADEMIC PROGRAM

The program provided an introduction to the transportation industry as well as mathematics, computer, and SAT preparation. The curriculum exposed students to in-depth facts in such areas as boat design, highway design, airplane design, intermodalism, laws, regulations, safety, environmental impact, and career opportunities. The program also included solar car design and magnetic levitation to expose the participants to future trends in the transportation industry. In general, the program included hands-on projects, oral and written communications skills, guest speakers, and preparation courses. Field trips were also included.

Oral and Written Communications Skills. The basic classroom strategy was to engage each participant in writing and presenting exercises in each session. Writing exercises focused on writing as a process, not a product. Participants were introduced to basic presenting skills such as facing fear, preparing, organizing, practicing, enunciating, and relaxing. Goals were accomplished through the use of various literary genres, strategies, and techniques.

Participants worked in cooperative learning teams with the goal of promoting healthy competition and learning real-life lessons resulting from shared work responsibilities. Also, participants exercised independent study in addition to the classroom activity.

Finally, participants used the computer to prepare classroom assignments and produce a newsletter incorporating many of the skills learned.

Computer Course. The goal of this course was to introduce software for development of presentations as well as production of a newsletter.

PROJECTS

In each project, participants were introduced to the theory. Then, participants designed their project either on paper (bridge design), or on the computer (programming a robot). There were contests to identify the best design. For example, in the bridge design project, the participants designed bridges using popsicle sticks. The criterion for the best design was efficiency, determined by the load a bridge could handle divided by the weight of the bridge. The test was performed by the VDOT bridge design experts at the VDOT material lab facility. In the robot project, participants were introduced to the theory of motion and computer programming, then divided into several groups. Each group assembled, programmed, and operated a robot. Each group developed a presentation using PowerPoint and delivered it during the closing ceremony. Hands-on activities featured projects in computer-aided design, bridge design, programming a robot, solar car design, and rocket design.

FIELD TRIPS

The main purpose of the field trips was to introduce students to real-life projects and daily operations at transportation-related sites.

Virginia Department of Transportation and Science Museum of Virginia.

Richmond, VA, June 21—As in previous years, participants toured special interest operations of the VDOT. The tour included: the Emergency Operations Center, a state coordinating unit responsible for tracking roadway conditions and hazards; the photogrammetry section of the Location & Design Division, which provided an overview of aerial photography techniques; the reproduction lab of the Administrative Services Division, where aerial photographs and plans are printed; and the Photo Lab of Public Affairs, where students were introduced to video production.

Science Museum of Virginia. Participants visited the Science Museum of Virginia which contains over 250 hands-on exhibits for exploration of scientific concepts in areas of aerospace, chemistry, computers, electricity, and physics. Participants also experienced the 3D IMAX theater to view *Zoom On the Moon* and *Michael Jordan to the Max*.

Smithsonian Institution. Washington D.C., June 23—To demonstrate efficient highways, participants were escorted on the interstate to be exposed to some of the social benefits of transportation. They toured the mall in Washington, D.C., viewing the Lincoln Memorial, the White House, and the Capitol. They experienced the Museum of African Art, gaining a broader understanding of global diversity, and the National Air and Space Museum which maintains the largest collection of historic aircraft and spacecraft in the world.

Richmond International Airport. Richmond, VA, June 28—Participants toured the flight control room and tower of Richmond's International Airport. They also saw a film demonstrating research to allow space satellites to control flight departure and landing. Flight tours through Aero Industries, an STI tradition, were prohibited due to unfavorable weather conditions.

Smart Road. Blacksburg, VA, July 10—Participants visited VDOT and Virginia Tech's Center for Transportation Research Smart Road in Blacksburg, VA. Smart Road is a two-mile pilot demonstration of research road technology boasting equipment such as pavement sensors, snow-making towers, and power and communication lines. Participants toured a 30,000-square-foot control center which overlooks the Smart Road. Research at the facility focuses on safety and human factors, pavements and structures, highway lighting and pavement markings, snow and ice control, vehicle dynamics, intelligent transportation systems, and economic development.

Busch Gardens. Williamsburg, VA, July 12—Participants were prepped to experience Busch Gardens through the lens of physics, technology, and math as a result of Busch Gardens' *Understanding Your Thrills* curriculum, which discussed concepts such as force and acceleration. The group adventure peaked as participants rode thrill rides and explored shows, shops, and other park offerings.

ENHANCEMENT/ENRICHMENT PROGRAM

The evening enhancement program was designed to expose participants to methods and activities that improve study habits in a more relaxed atmosphere. Participants were encouraged to engage in group activities and were exposed to time management, newsletter publication, computer labs, and the library.

GUEST SPEAKERS

Lecturers shared their experiences with participants. Topics included environmental impacts (VDOT), air traffic (Virginia Aviation), bridge design (VDOT), and materials.

SPORTS/RECREATION PROGRAM

The recreation program exposed the participants to sports and recreation for life, rules and regulations, and good sportsmanship. Activities included badminton, basketball, swimming, volleyball, soccer, canoeing, and movies.

EVALUATIONS

Each week, educational components of the Institute were evaluated by participants and faculty. Participants evaluated Institute programs and the faculty. All faculty and the project director met the last day of each week to

evaluate course content, student projects, laboratory experiences, and unit objectives, based on the participants' performance during the week.

AWARDS/CLOSING CEREMONY

Official representatives from the FHWA, VDOT, VRTBA, DOA, and VSU took part in the closing ceremony which was held on the VSU campus for the STI students and their families.

The Awards Program was held on the last Friday of the Institute. Approximately 110 relatives and friends of participants and VSU, VDOT, and FHWA representatives were present. Eddie N. Moore, VSU President; Dr. L. Lyons, Dean, School of Agriculture, Science, and Technology at VSU; S. Evans, Department of Aviation; J. Williams, Equal Opportunity Division at VDOT; R. Fonseca, Regional Director of FHWA in Richmond; and officials from the Virginia Road and Transportation Builders Association and the Virginia Department of Aviation made valuable remarks about the Institute. Participants also made presentations on their four-week experiences at the VSU STI.

RECOMMENDATIONS

The VSU STI 2000 was a very successful program. However, the following will improve the implementation of the program for next year.

- Announce the award to the participating institutions in February. This will give more time for the directors to recruit students and plan the Institute;
- Allow the project directors to adjust up to 10% of budget without approval from the NRC; and
- Allow the host sites to budget and spend their funds within one year rather than within four or five months.



WEST VIRGINIA STATE COLLEGE

Location:	Institute, WV
Type of Program:	Residential
Start Date:	June 18, 2000
Number and Year of Students:	30 High School Students
Project Director:	Dr. Robert Harris
Partners and IAB:	Intermodal Advisory Committee included representatives from Federal Railroad Administration, West Virginia Department of Education, West Virginia Division Office FHWA, Appraisal Associates, West Virginia Department of Transportation (WVDOT), and West Virginia State College

OVERVIEW

West Virginia State College (WVSC) hosted its second STI during the summer of 2000. The participants were all residents of West Virginia and represented 25 communities from 15 counties. In keeping with the intent of the NSTI, the main goals of the Institute were to introduce the students to all modes of transportation, create awareness and stimulate interest in the transportation industry as a career option, and provide academic enrichment, especially in the areas of science and technology. In addition to transportation via land, water, and air, the important concept of intermodalism was discussed throughout the program, and safety in transportation was given priority.

Our curriculum dealt with issues that are at the forefront of West Virginia society, namely the need for improved transportation to support a new economy and the protection of our valuable natural resources.

OBJECTIVES

Transportation is about solving problems to design transportation systems that not only enrich our lives and support the economy, but have minimal impact on the environment and address the needs of every citizen. Inasmuch as a comprehensive study of transportation includes these issues, the Institute centered around a study of engineering, ethics, economics, and ecology.

ACADEMIC PROGRAM

On the first day, participants were given an overview of transportation, including the organization of the USDOT and the diversity of career opportunities in the industry. A major goal was to capture the interest of the participants with discussions and videos of innovative road projects and high-tech building materials. This was a reference point throughout the program.

Engineering was discussed by several speakers. On the first day, the participants were told that the job of an engineer was to “focus on a problem and come up with a solution.” This adage was carried throughout the Institute. Several speakers lectured about designing “traditional” transportation projects and introduced participants to advanced technology and engineering of the future.

Ethics in transportation and the workplace were also incorporated throughout the program. In addition to classroom sessions dealing with civil rights programs, equal employment opportunity, and managing diversity, ethics was an important component of several transportation-related discussions. For example, two presentations by right-of-way specialists covered land acquisition and how the process is designed to treat people fairly. In addition, another specialist explained three fundamental principles of environmental justice.

Economics and ecology also received considerable attention. West Virginia is a largely rural state that is mountainous and about 85 percent forested. This not only presents a challenge to engineers working to design cost-effective projects, but often puts economic needs at odds with environmental concerns. As the state moves beyond a coal-dependent economy, there is a need for improved infrastructure to support new economic development. At the heart of any proposed expansion in the transportation system is the need to protect the state’s abundant natural resources. Thus, the curriculum of the WVSC STI focused heavily on ecology and economics as they relate to transportation.

In an endeavor to motivate as many participants as possible to consider transportation as a career option, an effort was made to include as many transportation-related activities as possible. In addition, speakers were asked to talk about their particular career, including educational requirements, general salary, and any special skills or training required.

An effort was made to vary activities as much as possible during a given day, including lectures, videos, and problem-solving activities whenever possible. A full day of classroom work was usually followed by a day of field trips. Active participation was encouraged, and the instructors engaged the participants as much as possible.

In addition to covering the major modes of transportation, the concept of intermodalism was discussed. Intermodal transportation was introduced on the first day and referred to from time-to-time throughout the Institute. During the fourth week, a session gave extensive coverage of intermodalism, including a lab exercise that required the participants to apply their new-found knowledge of the logistics of intermodal shipment to a hypothetical business situation and make intelligent decisions about transporting a product.

Another important component of the Institute was safety. In addition to six sessions dedicated solely to transportation safety, several speakers also addressed the topic.

Finally, the enhancement/enrichment program was substantially improved compared to last year's program. Topics included library use, Internet resources, ACT test-taking and study skills, resume preparation, and communication skills. Since effective communication is vital to any career endeavor, the Institute dedicated four sessions to the subject. Also, several speakers mentioned the need for a well-rounded education including the importance of good communication skills.

The academic program included sixteen transportation-related classroom sessions on topics such as bridge engineering, civil rights, the environmental process, right-of-way, environmental mitigation, intermodalism, motor carrier, railroad, and highway safety. Information was provided by several speakers on careers in the transportation sector and there were classroom lectures on communications, ecology, economics, science, history, and physics.

The coursework included:

- Physics of Flight;
- Economics: Principles of Economics, Economic Geography, and The Nature of Science;
- Science As a Way of Knowing;
- Sociobiology: The Tragedy of the Common Methods of Transportation, Vehicle Subsystems;
- Department of Transportation, Organization Innovative Road Projects;
- Environmental Mitigation, Bridge Engineering;
- Bridge Building, Materials, Railroad Safety;
- Motor Carrier and Highway Safety, Managing Diversity, Civil Rights;
- Intermodal Transportation, West Virginia History;
- Right-of-Way: Property Acquisition and Appraisal, The Environmental Process;
- Ecology: Population Ecology, Human Impact/Conservation, Community Ecology, Global Ecology Reclamation;
- Resource Management, Biodiversity;
- Ecological Succession;
- Communication: Communication Skills and Public Speaking;
- Group Presentations;
- Interpersonal Communications;
- Study Skills;
- Resume Preparation and ACT Preparation; and
- Internet Resources.

PROJECTS

Seven hands-on and problem-solving group activities included model car and airplane competitions, a mock public hearing, a resource management lab, and an intermodalism project.

Participants experienced many forms of transportation: bus, canoe, horseback, train, subway, jetboat “mantrip” car, train, barge, and steamwheeler.

Thirty-three partners, including 19 businesses (8 of which provided in-kind support) and state and Federal offices, all contributed to the success of the Institute. Notably, WVDOT contributed \$10,000. This generous contribution enabled partnering with Morgan State University, and allowed students from both Institutes to share experiences. In addition, alumni activities are expected to be conducted throughout the year, as opportunities become available.

Class projects included model car design, road design project, mock hearing, statistics: data sampling, model airplane competition, medical ethics committee project, resource management project: fish harvesting, and intermodal exercise: shipping a product to market.

FIELD TRIPS

Ten field trips were taken to 21 different locations. Additionally, two companies provided on-campus demonstrations.

Mayflower Vehicle Systems. Stamping Plant, United Parcel Service.

Merrick Creek Interchange Project East. Huntington Cable Bridge.

CSX Locomotive Rebuild Shop. Toyota Plant, Georgetown, KY.

Metlack, Inc. Chemical Tanking Company, Yaeger Airport Terminal.

Executive Air General Aviation Facility. West Virginia Air National Guard Training Facility.

Airport Fire Station. C-130 Cargo Plane, Blennerhassett Island.

Crosslanes Interchange: Traffic patterns & traffic signaling. Bob Evans Farm.

Horseback Riding and Canoeing.

Norfolk Southern Railroad Company: Pocahontas Division Dispatch Center. Dupont Chemical Hazardous Materials Unit, Beckley Exhibition.

Coal Mine and Museum Coal Camp.

Youth Museum of Southern West Virginia. Mountain Homestead.

New River Bridge.

Hawks Nest State Parks. Tram Ride.

Nature Center. Jetboat Ride.

Hurricane Weigh Station.

WVDOT District Headquarters. WVDOT Sign Shop.

Civil Engineering.

FHWA Division Administration. Railroad Industry.

Transportation Specialist: Environmental Process Bridge. Engineering
EEO Officer.

Motor Carrier and Highway Safety. Special Agent.

ENHANCEMENT/ENRICHMENT PROGRAM

The Enhancement/Enrichment program involved library use, Internet resources, ACT test-taking and study skills, managing diversity, and resume preparation.

SITE VISITS

NRC staff visited selected host sites to analyze the resources, program requirements, facilities, and processes developed to implement the institutes. In addition, site reviews were conducted, if necessary, to ensure the quality and integrity of the program. Center staff conducted reviews at the:

- University of Maryland Eastern Shore, May 1;
- Lac Courte Oreilles Ojibwa Community College, June 7;
- South Carolina State University, June 15;
- Southern University and A&M College, June 2;
- Prairie View A&M University, July 6;
- Elizabeth City State University, June 22;
- Hampton University, June 21;
- Virginia State University, June 20; and
- Northwest Indian College, September.

MARKETING THE NSTI

Center staff developed and implemented strategies to market the NSTI to increase the participation of HSIs, TCUs, and other colleges and universities. These activities included development of an NSTI display board, banner, and informational brochure. The Center also collected materials and developed a request for bids to produce an NSTI marketing video. In addition, Center staff marketed the program or met with representatives from the following organizations and colleges:

- The Council of University Transportation Centers meeting, Tampa, Florida;
- The National Urban League Nulites Conference, New York, NY;
- Central State University, Wilberforce, OH, which established a partnership with NSTI;
- The FHWA Michigan Highway Industry HBCU Forum, Lewis College of Business, Detroit, MI;
- New Mexico State University was contacted and an advisory visit was conducted;
- Center staff have provided information to the University of Puerto Rico; an advisory visit to their campus has been requested by university officials;
- Langston University, Langston, Oklahoma has contacted the Center and has tentatively scheduled an advisory visit;
- Representatives from the University of Alabama, Birmingham, visited the NRC.

BUDGET AND FINANCE CENTER

Overall Budget. The NRC established a budgetary process and overall budget for the NSTI. The overall budget was based on project proposals submitted by host sites and the total budget allocated to the NSTI. Funds were distributed among the 34 host sites based on the approved budget for each site. Amounts awarded ranged from \$34,600 to Bethune–Cookman to \$72,649 to South Carolina State University.

Cost of Institutes. The reported cost of individual Institutes varied from Bethune–Cookman’s residential program that served 16 participants at a cost of \$34,600 to Texas Transportation Institute’s nonresidential program that served 43 participants at a total cost of \$189,564. Table 1 shows the FHWA award amount (Federal share) and total reported cost for each institute. Table 1 also reflects the Federal share as a percentage of the total reported cost of the Institute. The estimated total reported cost of each Institute is based on information provided to the NRC by host sites. Analysis shows that the total Federal share represents about 74% of the total reported cost of the program. Texas Transportation Institute reported the lowest ratio of Federal share to total reported cost (24%), while several sites reported the ratio of Federal share to total reported cost to be 100%, indicating that the only source of funding for these Institutes was the Federal award. Of those reporting additional funding sources, SCSU reported the greatest percent of Federal share to total reported cost of the institute (94%).

Federal share per participant ranged from a low of \$1,042 to a high of \$4,789. The average Federal share per participant for residential programs was \$2,216, while for nonresidential programs it was \$2,493. Residential programs’ Federal share per participant ranged from a low of \$1,300 at Virginia State University to \$4,278 at North Carolina A&T State University. For nonresidential programs, the Federal share per participant ranged from \$1,042 at Texas Transportation Institute to \$4,789 at Fond du Lac Tribal and Community College. Table 2 shows the Federal share and total reported cost per participant for residential programs, and Table 3 shows this information for nonresidential programs. The estimated total reported cost of each institute is based on information provided by each host site. In many cases, Project Directors did not report in-kind or other contributions absorbed by host sites.

TABLE 1. COST OF SUMMER TRANSPORTATION INSTITUTES

Federal Cost		Other Reported Cost		Total Cost	Host Site
\$ Amount	%	\$ Amount	%	\$	
40,000	100	0	0	40,000	Lac Courte Oreilles Ojibwa Community College
40,000	100	0	0	40,000	Alabama A&M University
34,600	100	0	0	34,600	Bethune–Cookman College
45,000	100	0	0	45,000	Clark Atlanta University
43,100	100	0	0	43,100	Fond du Lac Tribal and Community College
43,499	100	0	0	43,499	Southern University and A&M College
44,200	100	0	0	44,200	Virginia State University
59,600	100	0	0	59,600	Elizabeth City State University
45,000	100	0	0	45,000	Tennessee State University
45,000	100	0	0	45,000	Albany State University
48,500	100	0	0	48,500	University of Arkansas at Pine Bluff
52,199	100	0	0	52,199	Florida International University
56,144	100	0	0	56,144	Florida A&M University
72,649	94	5,000	6	77,649	South Carolina State University
47,500	90	5,000	10	52,500	Tuskegee University
47,644	82	10,287	18	57,931	College of the Menominee Nation
47,000	79	12,500	21	59,500	Kentucky State University
54,646	74	19,560	26	74,206	Arizona State University
59,700	74	21,175	26	80,875	Jackson State University
49,708	74	17,358	26	67,066	Benedict College
48,395	72	18,845	28	67,240	California State University
46,800	72	18,000	28	64,800	Hampton University
54,465	71	22,400	29	76,865	Howard University
38,000	70	16,175	30	54,175	Morgan State University
47,400	70	20,000	30	67,400	Cheyney University of Pennsylvania
49,979	67	24,380	33	74,359	West Virginia State College
40,787	63	23,713	37	64,500	Delaware State University
34,709	63	20,304	37	55,013	Lincoln University (Pennsylvania)
38,802	61	24,581	39	63,182	University of Missouri–Rolla
36,452	60	24,504	40	60,956	University of Maryland Eastern Shore
46,250	60	31,370	40	77,620	Prairie View A&M University
45,858	57	34,486	43	80,344	City College of New York
38,500	54	32,341	46	70,841	North Carolina A&T State University
44,787	24	144,777	76	189,564	Texas Transportation Institute
1,586,873	74	546,756	26	2,133,427	All Institutes

TABLE 2. COST PER PARTICIPANT: RESIDENTIAL PROGRAMS

Number of Participants	Total \$ Cost	Total \$ Cost per Participant	Federal \$ Cost	Federal \$ Cost per Participant	Host Site
9	70,841	7,871	38,500	4,278	North Carolina A&T State University
14	64,800	4,629	46,800	3,343	Hampton University
17	77,620	4,566	46,250	2,721	Prairie View A&M University
15	63,182	4,212	38,802	2,587	University of Missouri–Rolla
20	67,066	3,353	49,708	2,485	Benedict College
18	59,600	3,311	59,600	3,311	Elizabeth City State University
15	48,500	3,233	48,500	3,233	University of Arkansas at Pine Bluff
19	80,875	4,257	59,700	3,142	Jackson State University
19	59,500	3,132	47,000	2,474	Kentucky State University
20	60,956	3,048	36,452	1,823	University of Maryland Eastern Shore
27	80,344	2,976	45,858	1,698	City College of New York
19	56,144	2,955	56,144	2,955	Florida A&M University
27	77,649	2,876	72,649	2,691	South Carolina State University
20	55,013	2,751	34,709	1,735	Lincoln University (PA)
25	67,400	2,696	47,400	1,896	Cheyney University of Pennsylvania
20	52,500	2,625	47,500	2,375	Tuskegee University
25	64,500	2,580	40,787	1,631	Delaware State University
29	74,359	2,564	49,979	1,723	West Virginia State College
18	43,499	2,417	43,499	2,417	Southern University and A&M College
16	34,600	2,163	34,600	2,163	Bethune–Cookman College
23	45,000	1,957	45,000	1,957	Tennessee State University
42	74,206	1,767	54,646	1,301	Arizona State University
34	44,200	1,300	44,200	1,300	Virginia State University
491	\$1,422,354	\$2,897	\$1,088,283	\$2,216	All Residential Programs

TABLE 3. COST PER PARTICIPANT: NONRESIDENTIAL PROGRAMS

Number of Participants	Total \$ Cost	Total \$ Cost per Participant	Federal \$ Cost	Federal \$ Cost per Participant	Host Site
9	43,100	4,789	43,100	4,789	Fond du Lac Tribal & Community College
13	76,865	5,913	54,465	4,190	Howard University
11	45,000	4,091	45,000	4,091	Clark Atlanta University
16	52,199	3,262	52,199	3,262	Florida International University
15	45,000	3,000	45,000	3,000	Albany State University
18	57,931	3,218	47,644	2,647	College of the Menominee Nation
20	67,240	3,362	48,395	2,420	California State University
17	40,000	2,353	40,000	2,353	Lac Courte Oreilles Ojibwa Community College
18	40,000	2,222	40,000	2,222	Alabama A&M University
20	54,175	2,709	38,000	1,900	Morgan State University
43	189,564	4,408	44,787	1,042	Texas Transportation Institute
200	\$711,073	\$3,555	\$498,590	\$2,493	All Nonresidential Programs

Reimbursements. The NRC designed a process to reimburse host sites for approved STI expenses. The process required signatures from both the university/college financial officer and the STI Project Director. The financial officer is required to request reimbursement on behalf of the grant recipient using the cost reimbursement form NRC 269, provided by NRC. A computer printout of the account activities for the given period must also accompany form NRC 269. Host sites may submit a request for reimbursement no more than twice monthly. Reimbursements are summarized in Table 4, which shows each site's award amount, requests for reimbursements, reimbursements paid, and available balance as of November 20, 2000.

TABLE 4. HOST SITE REIMBURSEMENTS

Host Site	Budget (\$)	Requests to Date (\$)	Reimbursements to Date (\$)	Available Balance (\$)
Alabama A&M University	40,000	0.00	0.00	40,000.00
Albany State University	45,000	44,553.77	0.00	45,000.00
Arizona State University	54,646	17,254.09	17,254.09	37,391.91
Benedict College	49,708	0.00	0.00	49,708.00
Bethune–Cookman College	34,600	0.00	0.00	34,600.00
California State University	48,395	0.00	0.00	48,395.00
Cheyney University of Pennsylvania	47,400	0.00	0.00	47,400.00
City College of New York	45,858	0.00	0.00	45,858.00
Clark Atlanta University	45,000	0.00	0.00	45,000.00
College of the Menominee Nation	47,644	0.00	0.00	47,644.00
Delaware State University	40,787	0.00	0.00	40,787.00
Elizabeth City State University	59,600	27,417.13	27,417.43	32,182.57
Florida International University	52,199	47,296.83	48,450.83	3,748.17
Florida A&M University	56,144	0.00	0.00	56,144.00
Fond du Lac Tribal and Community College	43,100	0.00	0.00	43,100.00
Hampton University	46,800	16,177.00	7,322.00	39,478.00
Howard University	54,465	0.00	0.00	54,464.80
Jackson State University	59,700	11,406.67	6,191.50	53,508.50
Kentucky State University	47,000	0.00	0.00	47,000.00
Lac Courte Oreilles Ojibwa Community College	40,000	0.00	0.00	40,000.00
Lincoln University (Pennsylvania)	34,709	21,642.00	21,642.00	13,067.00
Morgan State University	38,000	0.00	0.00	38,000.00
North Carolina A&T State University	38,500	0.00	0.00	38,500.00
Prairie View A&M University	46,250	20,522.88	20,522.88	25,727.12
South Carolina State University	72,649		55,436.96	17,212.04
Southern University and A&M College	43,499	0.00	0.00	43,499.00
Tennessee State University	45,000	0.00	0.00	45,000.00
Texas Transportation Institute	44,787	39,017.31	39,016.31	5,770.69
Tuskegee University	47,500	2,760.05	0.00	47,500.00
University of Maryland Eastern Shore	36,452	0.00	0.00	36,452.00
University of Missouri–Rolla	40,000	0.00	0.00	40,000.00
University of Arkansas at Pine Bluff	45,500	0.00	0.00	45,500.00
Virginia State University	40,000	0.00	0.00	40,000.00
West Virginia State College	49,979	0.00	0.00	49,979.00
All Institutes	\$1,580,871	\$248,047.73	\$243,254.00	\$1,337,616.80

DATA REPORTING CLEARINGHOUSE

Host Site Data. As the Data Reporting Clearinghouse, the NRC published a directory of STI Project Directors, and collected data on applicants, participants, and graduates of the participating STIs. A database containing participants' names, addresses, phone numbers, parents' names, high school names and addresses, and expected dates of high school graduation is maintained by the NRC, which also collected data for analysis of the NSTI participant population and their potential movement into transportation-related careers.

Diversity. An analysis of the diversity of 2000 STI participants reveals a varied group. The program introduced 694 participants to transportation careers. The minority population included 92 Native Americans, 448 African-Americans, 53 Hispanics, and 17 Asian; others included 38 Caucasians, while 31 indicated Other as their nationality. Secondary school students from 317 cities across the country participated in the 2000 NSTI. Table 5 provides a demographic summary of participants.

Intermodal Advisory Committees. Each host site was required to establish an intermodal advisory committee with, at a minimum, representatives from their state DOT and the FHWA. The committees represent a diverse group of transportation professionals with a demonstrated interest in increasing the number and diversity of individuals entering the transportation profession. Appendix D contains a complete list of committee members.

TABLE 5. 2000 NSTI HOST SITES' DEMOGRAPHICS

Host Sites	Number of Applicants	Number of Participants	Number of Graduates	Number of Native Americans	Number of African-Americans	Number of Caucasians
Alabama A&M University		19	19	0	19	0
Albany State University	80	15	15	0	15	0
Arizona State University		42	42	13	9	0
Benedict College	32	20	20	0	19	1
Bethune-Cookman College	37	16	16	0	13	2
California State University	32	20	19	0	1	1
Cheyney University of Pennsylvania		25	25	0	25	0
City College of New York	30	22	19	0	19	0
Clark Atlanta University		12	12	0	12	0
College of the Menominee Nation	18	18	15	18	0	0
Delaware State University	36	26	26	0	20	4
Elizabeth City State University	24	19	19	0	19	0
Florida A&M University		21	19	17	1	0
Florida International University		16	16	0	9	2
Fond du Lac Tribal and Community College	9	9	9	7	0	2
Hampton University		14	13	0	13	0
Howard University		16	16	0	9	0
Jackson State University		19	19	19	0	0
Kentucky State University		19	19		7	10
Lac Courte Oreilles Ojibwa Community College	20	17	17	15	0	1
Lincoln University (Pennsylvania)	25	20	20	0	15	0
Morgan State University	24	20	20	0	20	0
North Carolina A&T State University		9	9	0	9	0
Prairie View A&M University		17	17	0	11	0
South Carolina State University		30	30	3	30	3
Southern University and A&M College		18	18	0	18	0
Tennessee State University		24	24	0	17	0
Texas Transportation Institute	46	44	44	0	34	3
Tuskegee University		20	20	0	18	0
University of Arkansas at Pine Bluff		15	15			
University of Maryland Eastern Shore		21	21	0	18	2
University of Missouri-Rolla	18	15	15	0	12	1
Virginia State University		34	34	0	23	4
West Virginia State College	43	36	32	0	13	22
All Institutes	474	708	694	92	448	58

(continued)

TABLE 5. 2000 NSTI HOST SITES' DEMOGRAPHICS (CONTINUED)

Host Sites	Number of Hispanics	Number of Asians	Number of Others	Number of Males	Number of Females	Number of Cities	Number of Counties
Alabama A&M University	0	0	0	10	9	7	
Albany State University	0	0	0	4	11	1	1
Arizona State University	17	1	0	27	15	19	
Benedict College	0	0	0	6	14	16	16
Bethune–Cookman College	0	1	0	8	8	13	11
California State University	12	2	3	16	3	9	1
Cheyney University of Pennsylvania	0	0	0	10	15	7	
City College of New York	0	0	0	11	8	5	
Clark Atlanta University	0	0	0	7	5	6	
College of the Menominee Nation	0	0	0	10	8	6	3
Delaware State University	0	1	1	12	14	12	7
Elizabeth City State University	0	0	0	9	10	5	5
Florida A&M University	0	0	1	11	8	14	
Florida International University	3	2	0	10	6	7	2
Fond du Lac Tribal and Community College	0	0	0	7	2	5	
Hampton University	0	0	0	5	8	5	
Howard University	0	2	5	9	7	4	
Jackson State University	0	0	0	9	10	17	
Kentucky State University	2	0	0	8	11	12	
Lac Courte Oreilles Ojibwa Community College	0	0	1	11	6	3	2
Lincoln University (Pennsylvania)	2	0	3	10	10	4	
Morgan State University	0	0	0	8	12	6	2
North Carolina A&T State University	0	0	0	4	5	6	
Prairie View A&M University	3	0	3	8	9	7	
South Carolina State University	3	3	3	12	18	19	8
Southern University and A&M College	0	0	0	7	11	4	
Tennessee State University	0	0	7	10	14	12	
Texas Transportation Institute	6	0	1	23	21	11	7
Tuskegee University	0	0	2	10	10	17	
University of Arkansas at Pine Bluff							
University of Maryland Eastern Shore	0	0	1	12	9	8	
University of Missouri–Rolla	1	1	0	6	9	8	5
Virginia State University	4	3	0	19	15	17	
West Virginia State College	0	1	0	19	17	25	15
All Institutes	53	17	31	348	338	317	85

Senior Year Survey. The NRC sent senior year surveys to six 1999 NSTI participants who were classified as high school seniors during the 1999–2000 academic year. Despite repeated follow-up efforts, only three of the six 1999 participants returned completed survey instruments. Follow-up efforts were terminated upon the decision to include non-respondents in the recently formulated routine participant survey. Follow-up procedures will be adhered to by all Host Sites. The results of the six-item survey appear below. Each query precedes the summary of responses.

Participants were asked to respond to the following queries of the STI Senior Survey:

- Do you plan to go to college?
- How much did the STI program influence your decision to attend college?
- How much did the STI increase your knowledge of transportation-related careers?
- Is your career choice transportation-related?
- What is your career choice?
- How much did the STI influence your interest in transportation?

Summary of Results. All three Senior year participants indicated *plans to attend college after graduation*. All three were in full agreement that the *STI program had little influence on their decision to attend college*; each indicated that they had decided to attend college years ago. All agreed that *the STI increased their knowledge of transportation-related careers very much*. Each indicated prospective career fields/majors that could be considered related to transportation (i.e., Biology, Mathematics, and Pre-Law). Finally, all indicated that *the STI somewhat influenced their interest in transportation*.

Evaluations. An Overall Program Evaluation form was completed by participants from 34 host sites. Data were entered individually via a secure server on the NSTI website. The form was designed to gather the assessments of participants regarding presentations by daily speakers, the functional integrity of the STI staff, the adequacy of program activities, and the efficacy of other unclassified aspects of the STI experience.

Assessment of Speakers. STI participants posted relatively high ratings of speakers invited to present. Speakers earned a mean of 3.4 (standard deviation, 0.54) where potential mean scores across the three-item subscale ranged from 1.00 to 4.0. Specifically, 93.1% (390) of the participants concurred that *speakers were well organized*. Better than eight of ten participants (84.0%, 252) indicated *they were academically challenged by the activities the speakers provided*. Finally, 95.0% (396) participants reported *speakers responded well to the questions posed to them*. Table 6 presents the itemized and subscale statistics for the participants' assessments of speakers.

TABLE 6. ITEMIZED AND SUBSCALE STATISTICS FOR PARTICIPANTS' ASSESSMENT OF SPEAKERS

Subscale Items	Strongly Agree	Agree	Disagree	Strongly Disagree
Speakers were well-organized	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
I was academically challenged by the activities the speakers provided	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
Speakers responded well to the questions posed to them	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)

Total Scale Statistics for Speakers

Mean – 3.39, Mode – 4.0, Median – 3.33, Standard Error/Mean – 2.63
 Standard Deviation – 0.54, Skewness – 0.79, Standard Error/Skewness – 0.12, Kurtosis – 0.49
 Standard Error/Kurtosis – 0.24, Range – 3.0, Minimum – 1.0, Maximum – 4.0

Assessment of STI Staff. Nationally, STI staff earned relatively high marks from Summer 2000 participants. Staff earned a mean of 3.2 (standard deviation, 0.57) where potential mean scores across the eight-item subscale ranged from 1.00 to 4.0. Roughly nine of ten participants (89.0%, 371) agreed that *the staff was very interested in their career awareness*. The same proportion (89.2%, 373) felt *the staff was very helpful when they had problems*. Slightly fewer participants (84.2%, 351) confirmed *the staff encouraged students to strive for excellence in all their academic pursuits*. The vast majority (93.3%, 390) concurred that *staff was always available when they had a question or needed assistance*. Eight of ten concurred that *staff was very friendly at all times*. Nine of ten (90.2%, 360) agreed that *staff was very knowledgeable on transportation-related careers*. About the same proportion (88.7%, 370) agreed that *the staff was very enthusiastic about transportation-related careers*. Roughly nine of ten (91.3%, 278) felt *counselors were helpful in the dormitories*. Table 7 presents the itemized and subscale statistics for participants' assessments of staff.

TABLE 7. ITEMIZED AND SUBSCALE STATISTICS FOR PARTICIPANTS' ASSESSMENT OF STI STAFF

Subscale Items	Strongly Agree	Agree	Disagree	Strongly Disagree
The staff was very interested in my career awareness	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The staff was very helpful when I had problems	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The staff encouraged students to strive for excellence	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The staff was always available when I had a question or needed assistance	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The staff was very friendly at all times	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The staff was very knowledgeable on transportation-related careers	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The staff was very enthusiastic about transportation-related careers	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
Counselors were helpful in the dormitories	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)

Staff Total Scale Statistics

Mean – 3.23, Mode – 4.0, Median – 3.25, Standard Error/Mean – 2.79
 Standard Deviation 0.57, Skewness – 0.71, Standard Error/Skewness – 0.12, Kurtosis – 0.80
 Standard Error/Kurtosis – 0.24, Range – 3.3, Minimum – 1.0, Maximum – 4.0

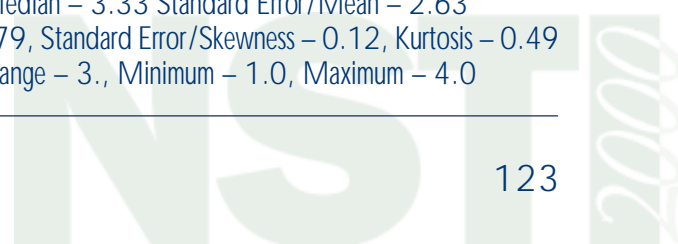
Assessment of STI Activities. STI participants for Summer 2000 rated the activities they took part in moderately high. Activities earned a mean 2.9 (standard deviation, 0.63), where potential mean scores across the six-item subscale ranged from 1.00 to 4.0. A large majority (91.3%, 378) admitted *project activities helped them understand transportation careers better than before*. Slightly fewer (88.5%, 348) felt *generally, adequate time was allotted for project activities*. Better than eight of ten (84.4%, 352) felt *generally, adequate time was allotted for audience participation*. A large majority (93.8%, 391) concurred that the same *project activities gave them some practical experience related to transportation* proportion for only 160 (38.1%) who responded to this item agree that *generally, adequate time was allotted for audience participation*. A majority (86.9%, 339) confirmed that *project activities often included competition between groups*. Table 8 presents the itemized and subscale statistics for participants' assessments of STI activities.

TABLE 8. ITEMIZED AND SUBSCALE STATISTICS FOR PARTICIPANTS' ASSESSMENT OF STI ACTIVITIES

Subscale Items	Strongly Agree	Agree	Disagree	Strongly Disagree
Project activities helped me understand transportation careers better than before	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
Generally, adequate time was allotted for project activities	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
Generally, adequate time was allotted for audience participation	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
Project activities gave me some practical experience related to transportation	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
Project activities often included competition between groups	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)

Activities Total Scale Statistics

Mean – 3.239, Mode – 4.0, Median – 3.33 Standard Error/Mean – 2.63
 Standard Deviation – 0.54, Skewness – 0.79, Standard Error/Skewness – 0.12, Kurtosis – 0.49
 Standard Error/Kurtosis – 0.24, Range – 3., Minimum – 1.0, Maximum – 4.0



Assessment of Other Aspects of STI. Participants for Summer 2000 rated other aspects of their STI experience moderately high. Other aspects earned a mean 2.9 (standard deviation, 0.72), where potential mean scores across the seven-item subscale ranged from 1.00 to 4.0.1. Nearly nine of ten (87.7%, 256) found *life in the dormitory to be fun*. About six of ten (62.5%, 238) rated *the food in the dining halls was delicious*. More than eight of ten (82.3%, 339) felt *the number of speakers was appropriate*. A notable majority (85.6%, 357) thought *the number of field trips was appropriate*. The same proportion (87.9%, 362) felt *the number of projects was appropriate*. Slightly less than nine of ten (88.5%, 276) found the *Evening/Enhancement activities to be beneficial*. Nine of ten (89.7%, 350) rated the *Sports/Recreation activities were fun and worthwhile*. Table 9 presents the itemized and subscale statistics for participants' assessments of other aspects of STI.

TABLE 9. ITEMIZED AND SUBSCALE STATISTICS FOR PARTICIPANTS' ASSESSMENT OF OTHER STI ISSUES

Subscale Items	Strongly Agree	Agree	Disagree	Strongly Disagree
Life in the dormitory was fun	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The food in the dining hall was delicious	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The number of speakers was appropriate	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The number of field trips was appropriate	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
The number of projects was appropriate	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
Evening / Enhancement activities were beneficial	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)
Sports / Recreation activities were fun and worthwhile	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)	25.0% (n = 25)

Other Issues Total Scale Statistics

Mean – 3.39, Mode – 4.0, Median – 3.33, Standard Error/Mean – 2.63
 Standard Deviation – 0.54, Skewness – 0.79, Standard Error/Skewness – 0.12, Kurtosis – 0.49
 Standard Error/Kurtosis – 0.24, Range 3., Minimum – 1.0, Maximum – 4.0

The success of the 2000 NSTI was apparent. The NSTI can be enhanced by implementing the following recommendations.

HOST SITES

Direct Charges. Direct charges on training and education grants at colleges and universities have been found to be as high as 150% of personnel cost. This severely limits the dollars available for Institute activities at host sites. The NRC recommends that indirect charges be limited to 50% of direct costs and charged against personnel costs only.

Standardized Test Scores. Given the controversy surrounding standardized test scores and their ability to predict academic performance, the NRC recommends that standardized test scores be made an optional student selection criterion.

Grade Point Average (GPA). The NRC recommends the minimum GPA to be accepted is 2.7, where 2.7 is a C+ average.

Continuing Programs. Program continuity continues to be problematic for host sites and the NRC. Commitments to fund host sites on a two-year cycle should be considered. This would improve the recruitment process and allow host sites to concentrate on program improvements.

NRC Training Workshop. The NRC annual training workshop can be enhanced by including “breakout sessions” to focus on various program components. To accommodate this and other improvements, the NRC recommends that the workshop be extended to two full days for continuing host sites and two and one-half days for new sites and project directors.

Host Site Evaluations. The NRC should develop evaluation criteria to assess the performance of host sites. The evaluation should be used as a basis for recommending continuance of host site institutes and project directors.

Notice to Proceed. The annual notice to proceed as the NSTI NRC should occur no later than October of each year, or the cooperative agreement should be awarded on a two-year cycle. This should improve management as well as recruitment of students who are “genuinely” interested in transportation, increasing the probability of meeting the NSTI’s objective.

APPENDICES

- A. 2000 NSTI Kickoff and Annual Training Workshop
- B. 2000 Workshop Attendees
- C. 2000 NSTI Host Site Project Directors
- D. Host Site Staff and Intermodal Advisory Boards
- E. Middle and High Schools Represented

APPENDIX A. 2000 NSTI KICKOFF AND ANNUAL TRAINING WORKSHOP

SCHEDULE OF EVENTS AND ACTIVITIES

Registration 1

Wed., April 5, 2000
12:00 pm–5:30 pm

Registration 2

Thurs., April 6, 2000
8:00 am–12:00 pm

Exhibit & Displays

Wed., April 5, 2000
Thurs., April 6, 2000
Fri., April 7, 2000

Grand Ballroom #3

12:00 pm–5:30 pm
12:30 pm–2:30 pm 4:30 pm–7:30 pm
12:30 pm–2:30 pm 4:30 pm–7:30 pm

Technology Truck

Wed., April 5, 2000
Thurs., April 6, 2000
Fri., April 7, 2000

Hotel Parking Lot

12:00 pm–5:30 pm
12:30 pm–2:30 pm 4:30 pm–7:30 pm
12:30 pm–2:30 pm 4:30 pm–7:30 pm

WORKSHOP AGENDA

Wednesday, April 5, 2000

Orientation for New Project Directors and Partners 1:00 pm–5:00 pm
Etalage Room

Reception and One-on-One Meetings 5:30 pm–7:30 pm
Garden Court A

Thursday, April 6, 2000

2000 NSTI Kickoff and Awards Presentation 8:30 am–9:30 am
Grand Ballroom 4

Opening Remarks
Mr. Eugene Cleckley
Director
FHWA Southern Resource Center

Dr. Leroy Davis
President
South Carolina State University

Mr. Edward Morris
Director
FHWA Civil Rights Business Unit

(continued)

APPENDIX A. 2000 NSTI KICKOFF AND ANNUAL TRAINING WORKSHOP

Thursday, April 6, 2000 *(continued)*

Introduction of Participants	Dr. Clarence Hill
Multimedia Presentation	
Awards Presentation	FHWA
NSTI 2000 Administrative Manual Update	9:45 am–12:30 pm Resource Center (RC) Staff
<i>Lunch (On your own)</i>	12:30 pm–1:30 pm
Open Space Workshops	1:30 pm–5:30 pm <i>Ballroom 1, Brayton Room, Chancellor Room</i> Facilitator: Edward W. Morris Director Civil Rights Service Business Unit
Reception and One-on-One Meetings	6:00 pm–8:00 pm <i>Garden Court A</i> RC Staff

Friday, April 7, 2000

Open Space Workshops <i>(continued)</i>	8:00 am–12:00 noon <i>Ballroom 1, Brayton Room Chancellor Room</i>
<i>Luncheon</i>	12:00 noon–1:45 pm <i>Grand Ballroom 2</i> Keynote Speaker: The Honorable James E. Clyburn U.S. House of Representatives Sixth Congressional District
Open Space Workshops Reports	2:00 pm–4:30 pm <i>Grand Ballroom 4</i> Facilitator: Dr. Veretta J. Sabb
Reception and One-on-One Meetings	4:30 pm–6:30 pm <i>Garden Court A</i> RC Staff

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(continued)

APPENDIX D. HOST SITE STAFF AND INTERMODAL ADVISORY BOARDS

Major Mike Howard, Water Safety Patrol Department of Criminal Justice, UMES

Dr. Leon Copeland, Chairman Department of Technology, UMES

33. Virginia State University

Staff Members

A. Ansari, Project Director K. Adom, Faculty, Project Coordinator

J. Williams, Faculty, Evening Enhancement Coordinator

R. Evans, Academic Aide & Recreational Program Coordinator

D. Moore, Counselor

T. Jamison, Counselor

Intermodal Advisory Board

K. Adom, Virginia State University

A. Ansari, Virginia State University

S. Siriharn, Virginia State University

F. Jones, VDOT

J. Williams, VDOT

J. Morehead, VRTBA

D. Seward, Virginia State University

B. Middletown, FHWA

R. Evance, Matoca High School R. Fonseca–Martinez, FHWA

B. Wilson, Department of Aviation

34. West Virginia State College

Staff Members

Dr. Robert Harris, Project Director/Academic Coordinator/Instructor

Mr. Robert Pratt, Project Co-Director/Facilitator/Instructor

Ms. Kellie Dunlap, Enrichment/Recreation Coordinator & Head Counselor

Mr. Dana Glenn, Chair of the STI Advisory Board

Ms. Philippa White, Instructor, WVDOT

Ms. Charmaine Parrish, Resident Student Counselor

Ms. Jeannie Simms, FHWA

Mr. Jason McGhee, Resident Student Counselor

Mr. Andre Metlock, Resident Student Counselor

Mr. Brad Staley, Resident Student Counselor

Ms. Melissa Townsend, Resident Student Counselor

Mr. Timothy Ruhnke, Science/Ecology Instructor

Ms. Robin Brown–Broughton, Communications Instructor

Ms. Crystal May, Instructor

Mr. Gary Lanham, Instructor

Mr. Steve Price, Bus Driver

(continued)

APPENDIX D. HOST SITE STAFF AND INTERMODAL ADVISORY BOARDS

Intermodal Advisory Board

Ms. Kellie Dunlap, Youth Development Extension Specialist,
Department of Land Grant Programs, WVSC

Ms. Jeannie D. Simms, Transportation Specialist, WV Division
Office FHWA

Dr. Robert T. Harris, Assistant Professor of Biology, WVSC

Mr. Dana W. Glenn, Associate Director, Community Programs and
Economic Development, Department of Land Grant Programs, WVSC

Ms. Philippa White, EEO Officer, WVDOT

Mr. Orlando McMeans, Director of Land Grant Programs, WVSC

Dr. Gary Greer, Assistant Professor of Biology, WVSC

Mr. Jim Murnahan, Assistant Airport Director, Yeager Airport

Mr. Paul E. Smailes, Railroad Safety Inspector, Federal Railroad Administration

Mr. Terry R. Whitley, Lockmaster, Winfield Locks and Dam, U.S. Army
Corps of Engineers, Huntington District

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

(MS=Middle School; HS=High School; JH=Junior High; SH=Senior High)

1. Alabama A&M University

Sparkman HS, 2616 Jeff Road, Harvest, AL
Chapman MS, 2006 Ruben Drive, NW, Huntsville, AL 35811
Buckhom HS, 4123 Winchester Road, New Market, AL
Lee HS, 606 Forest Circle, Huntsville, AL 35811
Huntsville HS, 2304 Billie Watkins Road, Huntsville, AL 35801
Davis Hills MS, 3221 Mastin Lake Road, Huntsville, AL 35810
J.O. Johnson, 6201 Pablo, Huntsville, AL 35810

2. Albany State University

Westover HS, 2600 Partridge Avenue, Albany, GA 31707
Monroe HS, 900 Lippitt Drive, Albany, GA 31701
Dougherty HS, 1899 Pearce Avenue, Albany, GA 31707
Westminster Christian Academy, 1400 Evangel Drive, NW,
Huntsville, AL 35816
Albany HS, 801 Residence Avenue, Albany, GA 31701
Mitchell–Baker, 1000 Newton Road, Camilla, GA 31730

3. Arizona State University

1550 West Summit Place, Chandler, AZ 85224
Cibola HS, 4100 West 20th Street, Yuma, AZ 85364
Tochatchi HS, 1 Cougar Trail, Tochatchi, NM 87325
McClintock HS, 1830 East Del Rio, Tempe, AZ 85282
Hendrix JH
Buckeye HS, 902 Eason Avenue, Buckeye, AZ 85326
Chandler HS, 350 North Arizona Avenue, Chandler, AZ 85224
Dysart HS, 11405 North Dysart Road, Dysart, AZ 85335
Metro Tech, 1900 West Thomas Road, Phoenix, AZ 85015

4. Benedict College

C.E. Murray HS, P.O. Box 188, Greeleyville, SC 29056
Rock Hill HS, 320 West Springdale Road, Rock Hill, SC 29730
West Florence HS, 221 North Beltline Drive, Florence, SC 29501
Dreher HS, 701 Adger Road, Columbia, SC 29210
Wade Hampton HS, P.O. Box 338, Hampton, SC 29224
South Florence HS, 3200 South Irby Street, Florence, SC 29505
Orangeburg–Wilkinson HS, 601 Bruin Parkway, Orangeburg, SC 29115
Hemingway HS, P.O. Box 1430, Hemingway, SC 29554
Timmons ville HS, 517 West Market Street, Timmons ville, SC 29161
Columbia HS, 1701 Westchester Drive, Columbia, SC 29210
Ben Lippen, 7401 Monticello Road, Columbia, SC 29203

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

Barnwell HS, 474 Jackson Street, Barnwell, SC 29812
Socastee HS 4900 Socastee Boulevard Myrtle Beach, SC

5. Bethune–Cookman College

South Miami Senior HS, 6856 SW 53rd Street, Miami, FL 33142
Mainland HS, 125 South Clyde Morris Boulevard, Daytona Beach, FL 32114
Forest Glen MS, 6501 Turtle Run Boulevard, Apopka, FL 32712
Apopka HS, 555 West Martin Street
Chocktawhatchee HS, 110 Northwest Racetrak, Fort Walton Beach, FL 32547
Fort Walton Beach HS, 400 SW Hollywood Boulevard, Fort Walton Beach, FL 32548
Manatee HS, 1 Hurricane Lane, Bradenton, FL 34205
Coral Reef Senior HS, 10101 SW 152nd Street, Miami, FL 33157
Suncoast Com. HS, 600 W. 28th Street, Riviera Beach, FL 32548
Miami Northwestern Senior HS, 1100 Northwest 16th Avenue, Sunrise, FL 33351
Land O'Lakes HS, 20325 Gator Lane, Land O'Lakes, FL 34639
Piper HS, 8000 NW 44th, Sunrise, FL 33351
Seabreeze HS, 2700 North Oleander, Daytona Beach, FL 32118
Bellevue HS, 10400 SE 36th Avenue, Bellevue, FL 34420
Sandalwood HS, 2750 John Prom Boulevard, Jacksonville, FL 32225

6. California State University

Blair HS, 1201 South Marengo Avenue, Pasadena, CA 91106
Gabrielino HS, 1440 Lafayette Street, San Gabriel, CA 91776
Los Angeles Glendale SH, 1140 East Broadway, Glendale, CA 91205
John Marshall HS, 3939 Tracy Street, Los Angeles, CA 90027
Bishop Amat Memorial HS, 14301 Fairgrove Avenue, La Puente, CA 91743
Pasadena HS, 2925 E. Sierra Madre Boulevard, Pasadena, CA 91107

7. Cheyney University of Pennsylvania

Central HS, Olney & Ogontz Avenue Philadelphia, PA 19154
Springfield HS, 49 West Leamy Avenue, Springfield, PA 19064
Chichester HS, Chichester Avenue, Boothwyn, PA 19016
Malvern Prep, Warren Road, Malvern, PA
Murray Avenue School, 2551 Murray Avenue, Huntingdon Valley, PA 19006
Stath Haven HS, 205 South Providence Road, Wallingford, PA 19086
Benjamin Franklin HS, Broad & Green Street, Philadelphia, PA 19121
William Penn HS, Excess Avenue, Lansdowne, PA 19050
Coatesville Area HS, 1445 East Lincoln Highway, Coatesville, PA 19320
Chester HS Academy, Perry Building, 7th & Fulton, Chester, PA 19013

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

Coatesville Inter. School, 1445 East Lincoln Highway, Coatesville, PA 19320
Henderson HS, 400 Montgomery Avenue, West Chester, PA 19380
E.T. Richardson MS, 20 West Woodland Avenue, Springfield, PA 19264
Chester HS, 200 West 9th Street, Chester, PA 19013

8. City College of New York

Transit Tech, 1 Wells Street, Brooklyn, NY 11208
Manhattan Center for Science & Math, E116 Street & FDR, New York, NY 10029
W.E. Grady Tech, 25 Brighton, 4th Road Brooklyn, NY 11235
Cathedral HS, 350 East 56th Street, New York, NY 10022

9. Clark–Atlanta University

Fayette County HS, 1 Tiger Trail, Fayetteville, GA
South Atlanta HS, 800 Hutches Road, Atlanta, GA 30354
North Atlanta HS, 2875 Northside Drive NW, Atlanta, GA 30305
St. Augustine College, P.O. Box N-3940, Nassau, Bahamas
Lithonia HS, 2451 Randall Avenue, Lithonia, GA 30058
Sandy Creek HS, 360 Jenkins Road, Tyrone, GA 30290
Prince Williams HS, Cow Pen Road, P.O. Box 2198, Nassau, Bahamas

10. College of Menominee Nation

Men Indian HS, P.O. Box 9, Neopit, WI 54166
Shawano Community HS, 220 County Rd B, Shawano, WI 54166
Menominee Indian HS, P.O. Box 850, Keshena, WI 54135
Menominee Indian MS, P.O. Box 9 Neopit, WI 54150
Sacred Heart School, Shawano, WI 54166
Neopit Intermediate School, 14 Twin Oak Court, Keshena, WI 54135
Eistein MS, 324 E. Florida St., Appleton, WI 54911
Menominee Tribal School, P.O. Box 39, Neopit, WI 54150

11. Delaware State University

Postlethwait MS, S. State Street, Camden, DE 19934
Caesar Rodney SH, 239 Old N. Road Camden, DE 19934
Sussex Technical HS, P.O. Box 351, Georgetown, DE 19947
Polytech HS, P.O. Box 97, Woodside, DE 19980
Milford HS, 1019 N. Walnut Street, Milford, DE 19963
Mt. Pleasant HS, 5201 Washington Street, Wilmington, DE 19809
Christina HS, 190 Salem Church Road, Newark, DE 19713
Dover HS, 1 Pat Lynn Drive, Dover, DE 19904
Eleanor Roosevelt SH, 7601 Hanover Parkway, Greenbelt, MD 20770
Lake Forest SH, 5407 Killens Pond Road, Harrington, DE 19943

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

12. Elizabeth City State University

John A. Holmes HS, Edenton, NC 27932
Northeastern HS, Elizabeth City, NC 27909
Plymouth HS, P.O. Box 827, Plymouth, NC 27962
Gates County HS, 088 Hwy 158 W, Gatesville, NC 27938
Perquimans HS, 305 S. Edenton Road, Hertford, NC 27944

13. Florida A&M University

Navarre HS, 8600 High School Boulevard, Navarre, FL 32566
Williams MS, 5020 N. 47th Street, Tampa, FL 33610
Forest Hill Community HS, 6901 Parker Avenue, West Palm Beach, FL 33405
Greensboro HS, P.O. Box 10, Greensboro, FL 32330
Dearlake MS, 9902 Dearlake West, Tallahassee, FL 32312
A. Philip Randolph Academies of Technology, 1157 Golfair Boulevard, Jacksonville, FL 32209
Chiefland MS, 811 NW 4th Drive, Chiefland, FL 32626
Carter Parramore MS, 631 S. Steward Street, Quincy, FL 32351
Griffin MS, 800 Alabama Street, Tallahassee, FL 32304
Florida State University HS, FSU Box 4420, Tallahassee, FL 32306
Winter Springs HS, 130 Tuscvilla Road, Winter Springs, FL 32708
Middleton MS of Technology, 4302 24th Street, Tampa, FL 33610
Lincoln HS, 3838 Trojan Trail, Tallahassee, FL 32311
Malone HS, 5361 19th Street, Malone, FL 32445
South Lake HS, 15600 Silver Eagle Road, Groveland, FL 34736
R.J. Murray MS, 150 N. Holmes Boulevard, St. Augustine, FL 32095
Brandon HS, 306 Knights Boulevard, Brandon, FL 33510
Florida A&M University HS, P.O. Box A-19, Tallahassee, FL 32307

14. Florida International University

American SH, 18350 NW 67th Avenue, Hialeah, FL 33015
Coral Reef HS, 10101 SW 152nd Street, Miami, FL 33157
Hialeah Miami Lakes SH, 7977 W. 12th Avenue, Hialeah, FL 33012
Miami North Western HS, 7007 NW 12th Avenue, Miami, FL 33150
Miami Edison SH, 6161 NW 5th Court, Miami, FL 33127
Palmetto SH, 7460 SW 118th Street Pine Crest, FL 33156
North Miami SH, 800 NE 137th Street, North Miami, FL 33161

15. Fond du Lac Tribal and Community College

Proctor, 131 North Ninth Street
Cloquet HS, 1000 18th Street, Cloquet, MN 55720
Fond du Lac, 1720 Big Lake Road
Willow River HS, P.O. Box 66, Willow River, MN 55795
Albrook HS, 7427 Seville Road

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

16. Hampton University

I.C. Norcom HS, 1801 London Boulevard
Hampton HS, 1491 West Queen Street, Hampton, VA 23669
Lithonia HS, 2451 Randal Avenue, Lithonia, 30058
Heritage HS, 5800 Marshall Avenue, Newport News, VA 23605
Kecoughtan HS, 522 Woodland Road, Hampton, VA 23669
Gloucester HS, 6680 Short Lane, Gloucester, VA 23061
Bethel, 1067 Big Bethel Road, Hampton, VA 23666

17. Howard University

Cardozo HS, 1300 Clifton Street NW, Washington, DC

18. Jackson State University

Humphrey County HS, 701 Cohn Street, Belzoni, MS 39038
Wilkinson County HS, Woodville, MS 39669
Thomastown Attendance Center
Newton County HS, Decatur, MS 39332
East Marion HS, 527 East Marion Road, Columbia, MS 39429
Coahoma Agriculture HS, Clarksdale, MS 38614
Hattiesburg MS, 501 Hutchinson Avenue, Hattiesburg, MS 39401
South Delta HS, 600 S. Parkway, Rolling Fork, MS 39159
Oklna HS, Oklna, MS 38860
South Panola HS, Batesville, MS 38614

19. Kentucky State University

Lexington Catholic, 2250 Clays Mill Road, Lexington, KY 40503
Owen County HS, Georgetown Road, Owentown, KY 40359
Grant County HS, 715 Warsaw Road, Dry Ridge, KY 41035
Paul Laurence Dunbar, 1600 Man O'War Boulevard, Lexington, KY 41035
Russellville HS, Clarksville Road, Russellville, KY 42276
Roger Bacon HS, 4320 Vine Street, Cincinnati, OH 45217
Dupont Manual HS, 120 W. Lee Street, Louisville, KY 40208
Louisville Male, 4409 Preston Highway, Louisville, KY
Scott County HS, 1080 Longlick Pike, Georgetown, KY 40324
Shawnee HS, 4018 Shawnee Road

20. Lac Courte Oreilles Ojibwa Community College

LCO Ojibwa School, 8575 N. Round Lake Road, Hayward, WI 54843
Winter HS, Winter, WI
Home-Schooling, 12371 W. County Road, Couderay, WI 54828

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

21. Lincoln University

Showalter MS, 9th & Lloyd Street, Chester, PA 19013
Pulaski MS, 2820 W. 7th Street, Chester, PA 19013
Martin Luther King HS, 17th & Spring Garden Street, Philadelphia, PA 19138
Olney HS, Front & Duncannen Street, Philadelphia, PA 19120
Penn Treaty MS, E. Thompson & Montgomery, Philadelphia, PA 19125
Parkway HS, 4901 Chestnut Street, Philadelphia, PA 19125
Jay Cooke MS, 13th & Louden Street, Philadelphia, PA 19141
Roxbough HS, Ridge Avenue and Fountain Street, Philadelphia, PA 19128
Martin Luther King HS, Stenton Avenue & Haines Street, Philadelphia, PA 19130

22. Morgan State University

Baltimore City College & HS, 3320 The Alameda, Baltimore, MD 21218
Carver Center for Arts & Technology, 938 York Road, Towson, MD 21204
Walbrook HS, 2000 Edgewood Street, Baltimore, MD 21216
Institute of Notre Dame, 901 Asquith Street, Baltimore, MD 21202
Western School of Technology & Environmental Science, 101 Kenwood Avenue, Baltimore, MD 21228
Randallstown HS, 4000 Offutt Road, Randallstown, MD 21133
The Catholic HS of Baltimore, 2800 Edison Highway, Baltimore, MD 21218
Western HS, 4600 Falls Road, Baltimore, MD 21209
Patterson HS, 100 North Kane Street, Baltimore, MD 21062
Joppatowne HS, 555 Joppa Farm Road, Joppatowne, MD 21085
Forest Park HS, 3701 Eldorado Avenue, Baltimore, MD 21207
Seton Keough HS, 1201 Caton Avenue, Baltimore, MD 21227
Mergenthaler Vocational HS, Hillen Road & 35th Street, Baltimore, MD 21218

23. North Carolina A&T State University

Southeast Guilford HS, 4530 SE School Road, Greensboro, NC 27406
Reidsville HS, 1901 S. Park Drive, Reidsville, NC 27320
Southwest Guilford HS, 4364 Barrow Road, High Point, NC 27265
Page HS, 201 Alma Pinnix Drive, Greensboro, NC 27405
Dudley HS, 1200 Lincoln Street, Greensboro, NC 27405
NC School of Science & Mathematics, 1219 Broad Street, Durham, NC 27705

24. Prairie View A&M University

Jesse Jones HS, 7414 St. Louis Road, Houston, TX 77084
Heritage HS, 3464 N. Center Road, Saginaw, MI 48603
Mayde Creek HS, 19509 Green Rock, Houston, TX 77084

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

Robert Lee HS, 6529 Beverly Hills Lane, Houston, TX 77057
New Boston HS
Sharpstown SH, 7504 Bissonet, Houston, TX 77074
Waller HS, 20950 Fields Store Rd, Waller, TX 77484
West Brook HS, 8750 Phelan 77706

25. South Carolina State University

Chavis MS, P.O. Box 1449, Hemingway, SC 29554
Wade Hampton, 100 Pine Knoll Drive, Greenville, SC 29069
Loris HS, 301 Heritage Road, Loris, SC 29569
Southside HS, 100 Blassingame Road, Greenville, SC 29652
Greenville Technical Center, P.O. Box 5616, Greenville, SC 29606
Carolina Academy, 2725 Old Anderson Road, Greenville, SC 29611
Berea HS, 515 Berea Drive, Greenville, SC 29617
Hillcrest HS, 3665 S. Industrial Drive, Simpsonville, SC 29681
Sumter HS, 2580 McCray's Mill Road, Sumter, SC 2915
Rock Hill HS, 320 W. Springdale Road, Rock Hill, SC 29730
Columbia HS, 1701 Westchester Drive, Columbia, SC 29210
Lancaster HS, 617 Normandy Road, Lancaster, SC 29720
Kingstree JH, 710 3rd Street, Kingstree, SC 29556
Greer HS, 3000 E. Gap Creek, Road Greer, SC 29651
Parker Academy, 900 Woodside Avenue, Greenville, SC 29611
Lincoln HS, 714 Lincoln Road, McClellanville, SC 29458
Greenville HS
Felton Laboratory School, 300 College Street NE, Orangeburg, SC 29117
Spring Valley HS, 120 Sparkle Berry Lane, Columbia, SC 29223
West Florence HS, Beltline Drive, Florence, SC 29501
James L. Mann, Greenville, SC 29611
Greenville Senior Academy, Greenville, SC 29611
Irmo HS, 6671 St. Andrews Road, Columbia, SC 29212
Dent Middle School, 6950 N. Trenholm Road, Columbia, SC 29206
Mauldin HS, 701 E. Butler Road, Mauldin, SC 29662
Allendale–Fairfax MS, Hwy. 378, Allendale, SC 29810
Orangeburg–Wilkinson HS, 601 Bruin Parkway, Orangeburg, SC 29115
Andrews HS, 201 S. Maple, Andrews, SC 29510
Hunter–Kinard Tyler HS, 7066 Norway Road, Neeses, SC 29107

26. Southern University and A&M College

McKinley SH, 800 E. McKinley, Baton Rouge, LA 70802
Belaire HS, 12121 Tams Drive, Baton Rouge, LA 70815
Istrouma HS, 3739 Winbourne Avenue, Baton Rouge, LA 70805
Redemptorist HS, 4000 Gerard Avenue, Baton Rouge, LA 70805
Baker HS, 3200 Groom Road, Baker, LA 70714

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

LSU Lab, Dalrymple Drive, Baton Rouge, LA 70803
Hazelhurst HS, 101 S. Haley Street, Hazelhurst, MS 39083
Baton Rouge Magnet, 2825 Government Street, Baton Rouge, LA 70806
Broadmoor HS, 10100 Goodwood Boulevard, Baton Rouge, LA 70815
Scotlandville Magnet, 9870 Scotland Drive, Baton Rouge, LA 70807
Woodlawn HS, 14939 Tiger Bend Road, Baton Rouge, LA 70817
Zachary HS, 4100 Bronco Lane, Zachary, LA 70791
SU Lab, 120 Swan Street, Baton Rouge, LA 70813

27. Tennessee State University

J.T. Moore MS, 4425 Granny White Pike, Nashville, TN 37024
Brentwood HS, 5304 Murray Lane, Brentwood, TN 37207
Woodland MS, 1500 Volunteer Parkway, Brentwood, TN 32027
Apollo MS, 631 Richards Road, Antioch, TN
Maplewood Comprehensive HS, 401 Maplewood Lane, Nashville, TN 37216
Cameron MS, 1034 1st Avenue South, Nashville, TN 37210
Hume–Fogg Magnet HS, 700 Broadway, Nashville, TN 37203
Riverside School, P.O. Box 80, Avon, MS 38723
Hillsboro HS, 3812 Hillsboro Pike, Nashville, TN 37215
Antioch HS, 1900 Hobson Pike, Antioch, TN 37012
Jefferson MS, 200 Fairbanks Road, Oak Ridge, TN 37830
East Literature Magnet School, 112 Gallatin Road, Nashville, TN 37206
Goodlettsville MS, 300 S. Main Street, Goodlettsville, TN 37072
Kirby MS, 1725 Brookfield Lane, Birmingham, AL 35214
Centennial HS, 5050 Mallory Lane, Franklin, TN 37067
Pearl Cohn HS, 904 26th Avenue North, Nashville, TN 27208
Austin East HS, 2800 MLK, Jr. Avenue, Knoxville, TN
Martin Luther King Magnet HS, 613 17th Avenue, North Nashville, TN
Raleigh Egypt MS, 4215 Alice Ann, Memphis, TN 38111

28. Texas Transportation Institute

Lake Highlands HS, 9449 Church Road, Dallas, TX 75238
South Oak Cliff HS, 3601 S. Marsalis Avenue, Dallas, TX 75216
Moises Molina HS, 2355 Duncanville Road, Dallas, TX 75211
Yvonne A. Ewell Townview Center, 1201 E. 8th Street, Dallas, TX 75203
Booker T. Washington HS, 2501 Flora Street, Dallas, TX 75215
Berkner HS, 1600 E. Spring Valley, Richardson, TX 75081
Duncanville HS, 7101 W. Wheatland Road, Duncanville, TX 75116
Ross S. Sterling HS, 11625 Martindale Road, Houston, TX 77048
M.B. Smiley HS, 10725 Mesa Road, Houston, TX 77078
Wunderlich HS, 11800 Misty Valley Drive, Houston, TX 77066
Ft. Dorchester HS, 8500 Lincoln Boulevard, Charleston, SC 29420

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

Middle College for Technology Careers, 3100 Cleburne Avenue, Houston, TX 77048

Lincoln HS, 2826 Hatcher Street, Dallas, TX 75215

29. Tuskegee University

Booker T. Washington, 3803 W. Martin Luther King Highway, Tuskegee, AL 36083

East Limestone HS, East Limestone Road, Athens, AL 35613

Fairfield HS, 610 Valley Road, Fairfield, AL 35064

Deshler HS, 200 E. Commons Street

Central HS, 1715 Martin Luther King Jr. Boulevard, Tuscaloosa, AL 35401

John Carroll HS, 300 Lakeshore Parkway, Birmingham, AL 35219

Holy Family HS, 2001 19th Street Ensley, Birmingham, AL 35218

St. Jude Institute, 2048 W. Fairview Avenue, Montgomery, AL 36108

W.D. Muhammed HS, 735 Fayetteville Road, Atlanta, GA 30316

Georgia Washington, Georgia Washington Road, Pike Road, AL 36064

Sandy Creek HS, 360 Jenkins Road, Tyrone, GA 30290

30. University of Arkansas at Pine Bluff

Horace Mann Arts & Sciences JH, 1000 E. Roosevelt Road, Little Rock, AR 72206

Dollarway JH, 2602 Fluker, Pine Bluff, AR 71601

Lakeside MS, 1110 S. Lakeshore Drive, Lake Village, AR 71653

McGehee HS, P.O. Box 767, McGehee, AR 71654

Southwest JH, 3301 Bryant Street, Little Rock, AR 72204

Mabelvale JH, P.O. Box 187, Mabelvale, AR 72103

31. University of Maryland Eastern Shore

Washington HS, 10902 Old Princess Anne Road, Princess Anne, MD

Bennett HS, 200 East College Avenue

Salisbury HS, Jersey Road, Salisbury, MD 21801

Woodson Middle, 281 A Woodson School Road

Crisfield HS, 210 N Somerset Avenue, Crisfield MD 21817

Mardela Springs HS, P.O. Box A, Mardela Springs, MD 21837

Wicomico HS, 201 Long Avenue, Salisbury, MD 21801

32. University of Missouri–Rolla

Mary Institute Country Day, 101 N. Warson Road, St. Louis, MO 63124

Hazelwood East, 11300 Dunn Road, St. Louis, MO 63138

Gateway Institute of Technology, 5101 McRee Avenue, St. Louis, MO 63110

Pattonville Senior HS, 2497 Creve Coeur Mill Road, Maryland Heights, MO 63043

APPENDIX E. MIDDLE AND HIGH SCHOOLS REPRESENTED

Jennings SH, 8850 Cozens Avenue, Jennings, MO 63136
Roll SH, 900 Bulldog Run, Roll, MO 65401
Westminster Christian, 10900 Ladue Road, St. Louis, MO 63141
Clayton HS, 1 Mark Twain Circle, St. Louis, MO 63105
Hazelwood Central, 15975 New Halls Ferry Road, Florissant, MO 63031
McCluer HS, 1896 S. New Florissant Road, Florissant, MO 63031
Metro HS, 4015 McPherson, St. Louis, MO 63108
Parkway West HS, 14653 Clayton Road, Ballwin, MO 65401
St. Louis Career Academy, 3020 B. Ballas Road, St. Louis, MO 63131

33. Virginia State University

Matoaca HS, 6001 Hickory Road, Ettrick, VA 23803
N.B. Clements, 7000 Prince George Drive, Prince George, VA 23875
James River HS, 2701 Robious Crossing Drive, Midlotian, VA 23113
Carver MS, 3800 Cougar Trail, Chester, VA 23831
Chicago HS, for Agricultural Sciences, 3857 W. 111st, Chicago, IL 60655
Dan River HS, 100 Dan River Wildcat, Ringgold, VA 24586
Bayside HS, 4960 Haygood Road, Virginia Beach, VA 23455
Greenville County HS, 403 Harding Street, Emporia, VA 23847
Phoebus HS, 100 Ireland Street, Hampton, VA 23663
St. Albans, Mount St. Albans, Washington, DC 20016
John F. Kennedy HS, 2300 Cool Lane, Richmond, VA 23223
Hopewell HS, 400 S. Mesa Drive, Hopewell, VA 23860
Colonial Heights HS, 3600 Conduit Road, Colonial Heights, VA 23834
Colonial Heights MS, 500 Conduit Road, Colonial Heights, VA 23834
Huguenot HS, 7945 Forest Hill Avenue, Richmond, VA 23225
Mills E. Goodwin HS, 2101 Pump Road, Richmond, VA 23233

34. West Virginia State College

McKinley JH, St. Albans, WV 25177
Scott HS, 1 Skyhawk Place Madison, WV 25130
George Washington HS, 1522 Tennis Club Road Charleston, WV 25314
Nitro HS, 1300 Park Avenue Nitro, WV
Buffalo HS, 3317 Buffalo Road Buffalo, WV 25033
Winfield HS, 3022 Winfield Road Winfield, WV
Spring Valley HS, 1 Timberwolf Lane Huntington, WV 25704
South Charleston HS, 1 Eagle Way South Charleston, WV
Dunbar JH, 325 27th Street Dunbar, WV 25064
Sissonville HS, 6100 Sissonville Drive, Charleston, WV



