

Advanced Transportation Institute 2005

By

Daniel S. Turner, Marlo Wright, and Walter T. Anderson
Department of Civil and Environmental Engineering
The University of Alabama
Tuscaloosa, Alabama

For

UTCA

University Transportation Center for Alabama

The University of Alabama, The University of Alabama at Birmingham,
And The University of Alabama in Huntsville

Report Number 05107
December 31, 2005

Technical Report Documentation Page

1. Report No FHWA/CA/OR-		2. Government Accession No.		3. Recipient Catalog No.	
4. Title and Subtitle Advanced Transportation Summer Institute 2004			5. Report Date		
7. Authors Daniel S. Turner, Marlo Wright and Walter T. Anderson			6. Performing Organization Code		
9. Performing Organization Name and Address Department of Civil and Environmental Engineering The University of Alabama P O Box 870205 Tuscaloosa, Alabama 35487-0205			8. Performing Organization Report No. UTCA Final Report 05107		
12. Sponsoring Agency Name and Address University Transportation Center for Alabama P O Box 870205 University of Alabama Tuscaloosa, AL 35487-0205			10. Work Unit No.		
			11. Contract or Grant No. DTSR0023424		
			13. Type of Report and Period Covered Final Report: January 1, 2005 – December 31, 2005		
			14. Sponsoring Agency Code		
15. Supplementary Notes					
16. Abstract The fourth Advanced Transportation Institute was conducted in 2005 (ATI-05) to encourage high school students to pursue careers in the field of transportation engineering. The University Transportation Center for Alabama partnered with the Alabama Department of Transportation (ALDOT) to teach a one-week institute at ALDOT's central office headquarters in Montgomery, Alabama. The headquarters location provided access to practicing transportation professionals who served as lecturers, and it provided a real-life transportation, working environment. ATI-05 included a new feature, a field trip to the ALDOT Fourth Division office in Alexander City to observe a different aspect of ALDOT operations. ATI was open to rising high school juniors and seniors, with preference given to minorities and females. Participants came from high schools in west central Alabama from which ALDOT typically recruits. Students were nominated to attend the Institute by their high school teachers and counselors, using criteria provided by ALDOT. Institute presentations, lab experiences, and field trips gave participants a general overview of ALDOT, an introduction to transportation engineering as a career, and hands-on examples and challenges. The comprehensive evaluation conducted at the end of the Institute indicated that the students enjoyed their experiences, and that they were influenced to consider transportation careers. ATI-05 was very successful. The 17 student participants indicated they enjoyed the experience, learned about transportation careers and ALDOT, and (as a group) were favorably influenced to consider transportation careers.					
17. Key Words Transportation Education, Human Resources, Outreach, Diversity			18. Distribution Statement		
19. Security Class (of report)		20. Security Class. (Of page)		21. No of Pages	
				22. Price	

Contents

Contents.....	iii
Tables.....	iv
Figures.....	iv
Executive Summary.....	v
1.0 Introduction.....	1
Problem Statement.....	1
Project Approach.....	1
2.0 Recruiting Students.....	2
Marketing.....	2
Selection of Attendees.....	2
Contacts with Students.....	3
Summary of Recruiting.....	3
3.0 Curriculum and Instruction Issues.....	4
Curriculum Development.....	4
Conducting the Institute.....	5
Closing Session.....	6
4.0 Evaluation of Institute.....	7
Analysis of Evaluations.....	7
5.0 Expansion of ATI.....	10
Background.....	10
Planning, Marketing, and Recruiting.....	10
6.0 Summary and Recommendations.....	11
Noteworthy Areas.....	11
Areas of Concern.....	11
Recommendations.....	11
7.0 References.....	13
8.0 Acknowledgements.....	14
9.0 Appendices.....	15
Appendix A: Samples of Correspondence with Student Participants.....	16
Appendix B: Institute Daily Curriculum, Instructors, and Locations.....	18
Appendix C: Examples of Photos Taken During Institute.....	20
Appendix D: Evaluation Form.....	21

Tables

Number		Page
3-1	Curriculum topics and session contents.....	5
4-1	Evaluation scores for presentations.....	7
4-2	Evaluation scores for field trips and laboratories.....	8
4-3	Evaluation scores for general topics.....	8
4-4	Impact of ATI-04 on Participants.....	9

Figures

Number		Page
C-1	ATI students at ALDOT 4 th Division Offices	20
C-2	ATI students testing “pins and straws” bridges	20
C-3	Egg drop competition.....	21
C-4	Look who “escaped” from the zoo.....	21

Executive Summary

The fourth Advanced Transportation Institute was conducted in 2005 (ATI-05) to encourage high school students to pursue careers in the field of transportation engineering. The University Transportation Center for Alabama partnered with the Alabama Department of Transportation (ALDOT) to teach a one-week institute at ALDOT's central office headquarters in Montgomery, Alabama. The headquarters location provided access to practicing transportation professionals who served as lecturers, and it provided a real-life transportation, working environment. ATI-05 included a new feature, a field trip to the ALDOT Fourth Division office in Alexander City to observe a different aspect of ALDOT operations.

ATI was open to rising high school juniors and seniors, with preference given to minorities and females. Participants came from high schools in west central Alabama from which ALDOT typically recruits. Students were nominated to attend the Institute by their high school teachers and counselors, using criteria provided by ALDOT.

Institute presentations, lab experiences, and field trips gave participants a general overview of ALDOT, an introduction to transportation engineering as a career, and hands-on examples and challenges. The comprehensive evaluation conducted at the end of the Institute indicated that the students enjoyed their experiences, and that they were influenced to consider transportation careers.

ATI-05 was very successful. The 17 student participants indicated they enjoyed the experience, learned about transportation careers and ALDOT, and (as a group) were favorably influenced to consider transportation careers.

Section 1

Introduction

Problem Statement

The University Transportation Center for Alabama (UTCA) has six goals to guide its development. Two of these goals involve human resources and diversity, and are intended to help Alabama cope with future transportation needs.

Across the nation, large numbers of transportation professionals have retired in the past decade, and the number of young people entering the transportation profession is far below the future need. African Americans and females are particularly underrepresented in the transportation profession, especially at the upper levels. The pool of candidates in these groups is not currently large enough to significantly increase the number of professionals practicing transportation. African Americans and female students are now experiencing “a closing but continuing gap in degree conferral rates...compared to their percentages in the general population” (Black Issues in Higher Education). In other words, the supply is increasing but not fast enough to meet the demand.

Project Approach

After trying other approaches (scholarship offers, assistantships, etc.), UTCA determined that the most appropriate course of action to expand transportation human resources and to improve diversity was to increase the awareness of high school students about rewarding opportunities in the transportation profession, with preference given to minority and female students.

A summer program called the Advanced Transportation Institute (ATI) was created in 2002 to allow representatives of transportation agencies and transportation professionals to interact with students in a “real world” situation, and to provide insight into rewarding transportation careers. ATI was designed to be as informative and influential as possible. This required that Institute staff members, ALDOT speakers and other professionals devote time to classroom and laboratory settings to present information, answer questions, and mentor individual students.

UTCA partnered with the Alabama Department of Transportation (ALDOT) in this effort. The Personnel Bureau was ALDOT’s designated action group, since it was already charged with recruiting high school students, with preference to minorities and females. This made the partnership a win-win effort.

The initial ATI was patterned after UTCA transportation institutes conducted by Dr. Kathleen M. Leonard at the University of Alabama in Huntsville (UTCA reports 00304, 01326, 02301, 03305, and 04301). The 2005 version was improved in response to suggestions from previous institute attendees, and in response to the availability of the ALDOT presenters and facilities. In general, the morning sessions were filled with informative presentations, and the afternoon sessions featured projects, competitions, and field trips. The Alabama Road Builders Association and the Alabama Asphalt Pavement Association served as co-sponsors, and provided mementos and an award dinner at the conclusion of the week.

Section 2

Recruiting Students

Marketing

Based on prior efforts, UTCA and ALDOT knew that marketing would be a critical element of the Institute. With ATI-05 immediately following the end of the high school academic year, obtaining early student commitments was extremely important. Primary efforts were focused on making the Institute more exciting and memorable for students to maximize its impact and to increase its marketability.

The approaches utilized in previous Institutes provided good background materials for the marketing materials for ATI-05. At the beginning of the initial planning effort, several schools from the City of Montgomery and the central-west Alabama region (ALDOT recruiting areas) were contacted about their willingness to participate. Initially, the response rate was lower than anticipated. Consequently the Personnel Bureau initiated another round of contacts with the schools, concentrating on the teachers, counselors and coaches who had previously been supportive.

The recruiting material was straightforward and informative to increase its effectiveness. The material had numerous pictures illustrating the demographics of the program and to show how different and exciting events planned for ATI-05. General information about the Institute included the following topics:

- The overall objective
- The procedure for student nomination and selection
- Transportation career and transportation educational opportunities
- ATI activities, laboratories, and competitions
- Field trips
- Institute staff
- The overall experience

The program was advertised as an opportunity to learn about stimulating careers in the transportation profession and to learn how to prepare for college. ATI-05 was free of charge to participants to increase the program's attractiveness and to strengthen its reputation.

Selection of Attendees

Emphasis was placed on acquiring students who had potential, open minds, and genuine interest in the program. ALDOT took this message to school principals and guidance counselors, as well as county school system superintendents from within the typical ALDOT recruiting area. Focus was placed on participating schools from the previous year from Lowdnes, Montgomery,

Wilcox, and Dallas counties. Multiple schools were encouraged to nominate students to participate in the Institute. The goal was to identify a sizeable pool of candidates to increase participation above the previous year's attendance, and to select 20 to 30 ATI-05 participants.

The recruiting process was tedious, partially because of a late start and partially because of turnover among the teachers at the candidate high schools.

Contacts with Students

In contacting the target schools, ALDOT provided an informative letter, program announcement, flyer, and an informative brochure. Students selected by the schools completed an application form, which was returned to either ALDOT or UTCA. The application form was a critical element because it allowed UTCA to begin a series of contacts with the students. A UTCA staff member telephoned the students to inform them of the program's opportunities, to stimulate their interest, and to answer questions. Appendix A contains samples of this correspondence.

First, the participants received a welcoming letter containing information about the Institute and a registration form that they could return to indicate their acceptance of a position in ATI-05. Next, phone calls were conducted as time was available, to confirm each student's commitment to the Institute. During this call, the students' interest in ATI-05 was stimulated, questions were answered, and uncertainties of the students and their parents were addressed. A second letter was sent later, which included an acceptance form, a parental permission form, an overview of planned daily activities, and a map with detailed directions to ALDOT headquarters.

To alleviate the concerns of extensive travel, UTCA made travel arrangements for students from schools that were located outside of the immediate Montgomery vicinity (more than an hours drive from the instructional site). This included housing, travel, meals, and chaperone expenses. Additional letters and updates were sent to the affected students and their school's principals or sponsors.

Summary of Recruiting

UTCA and ALDOT were pleased with the recruiting results. The actual number that attended was 17, which was good but lower than the target number of 20 to 30 students. At some schools, names and confirmation of attendance were received, but problems occurred from not having the application form available for student contact. These issues will be addressed during planning for future ATIs.

Section 3

Curriculum and Instruction Issues

Curriculum Development

A balanced curriculum with informative sessions was desired, to make the Institute meaningful to all of the students and participants. The intent was important to provide a view of the wide range of transportation employment opportunities, and to illustrate how a technical education could put those jobs within reach.

A draft agenda was derived from the 2004 ATI sessions. Each day had a theme, or several related themes. For example, one day might emphasize bridges issues, and the next day might feature design issues. The draft schedule was updated to reflect recommendations from the previous year's students, speakers and facilitators. A major change was insertion of a field trip to the ALDOT 4th Division office in Alexander City. This provided a different prospective of ALDOT to the students, and it accommodated a major field trip along US 280, which was being widened to four lanes. Once the draft agenda was approved, presenters and facilitators for the topics and field trips were identified and secured. The following list of major topics resulted from several iterations between UTCA, the Personnel Bureau, and other ALDOT bureaus (explained in more detail in Table 3-1):

- bridges/bridge design/underwater inspection of bridges;
- roadway materials;
- environmental-archeology;
- intelligent transportation systems;
- professional development/business etiquette
- roadway design and construction;
- traffic engineering
- transportation career opportunities;
- transportation safety/safety enhancements; and
- University of Alabama/college admissions overview.

The starting and ending times (9:00 a.m. - 4:00 p.m.) were arranged so that commuter students could avoid rush hour traffic, and to keep the Institute short enough to prevent overburdening the participants. Efforts were made to simplify each day as much as possible to prevent confusion and to further streamline the schedule. One of the recommendations from 2002 was to allow students to get outside the ALDOT building for recreation, like a visit the Montgomery Zoo. This was added to the curriculum in 2003 and was well received by 2003 and 2004 students because it allowed time to relax and encouraged further bonding. A copy of each day's finalized agenda, including speakers, may be found in Appendix B.

Table 3-1: Curriculum topics and session contents

Session Title	Session Description
ALDOT Careers	This presentation offered an overview of ALDOT, including its mission and career options in many exciting transportation-related fields.
Alabama Traffic Crash Facts	This session reviewed ALDOT's role in traffic safety by examining crash statistics and trends, and by applying them to the participants' lives.
Bridge Overview	This topic reviewed the variety of bridge types, construction methods and materials, and emphasized the importance of bridge inspection.
Computer Bridge Design	This presentation and lab session demonstrated the role of cost-effectiveness in the design of basic truss bridges, using the West Point Bridge Designer® computer software.
Materials and Testing	This session reiterated roadway construction materials. Demonstrations were given to show ALDOT's role in inspection and materials testing.
Preconstruction	This presentation and lab demonstrated surveying, mapping, preliminary design and right-of-way acquisition principles.
Pin and Straw Bridge Design	This lab session was used to show the importance of key design concepts like bridge symmetry, joint placement, and quality of construction.
Professional Development/Business Etiquette	Students were briefed on the importance of using proper etiquette in the business setting. Examples were given to further illustrate key concepts.
Program Overview	The purpose, goals and content of ATI-04 were explained to students in this initial session.
Roadway Design Modeling	This presentation illustrated the initial phases of roadway design by using computer modeling and simulation.
Roadway Safety	The session detailed the risks involved with everyday driving, and how barrier and other safety devices reduce crash fatalities and injuries.
Safety Design Lab (Egg Drop Competition)	Students designed a safety container using the principles of energy absorption, to protect an egg dropped from the boom of a utility truck. The winning design achieved a 25-foot drop!
Safety Management	This session answered some of the participant's earlier safety questions. It also outlined cost/benefit warrants for traffic improvements.
Traffic Engineering	This lab session included reviews of signs, signals and pavement markings to illustrate how they are manufactured and used.
Underwater Bridge Inspection	ALDOT divers gave an overview of underwater bridge inspection. Students were able to try on equipment and learn about key requirements and risks.
University Life	Advice from two civil engineering students about how to choose a career path, what courses to take, and similar issues.
University Overview	A University of Alabama recruiting specialist gave a short overview detailing college admission procedures, engineering courses, and university life.

Conducting the Institute

The Institute was held in a large video conference room at ALDOT headquarters. The room was easily accessible to the students and their parents. It had reasonable audiovisual equipment, and ample space for presentations and student interaction sessions (competitions, breaks, snacks, and meals).

Presenters were transportation professionals recruited from the University of Alabama, ALDOT and other organizations. Assistance with registration (and for all activities during the week) was provided by members of the Personnel Bureau. One or more Personnel Bureau employees remained with the students throughout the duration of the Institute. They were available in the classroom each day, encouraged individual students, transported students to and from the field trip sites, distributed lunches and snacks, and provided presentation materials and other “as-needed” resources.

During the week, the students were allowed to show their school spirit and to congregate throughout the presentations, but they were placed with members of different schools for the group projects. Most of the sessions were interactive, which allowed students to ask questions and instigate deeper discussion. This was quite effective. Some of the presenters even provided additional mementos to increase their lasting impact on the students. A flexible timetable was used to allow extension of individual sessions so that discussions could address all concerns and questions of the students.

All things considered, the week ran rather smoothly. Students genuinely enjoyed interacting with ALDOT professionals in hand-on situations like concrete mix design/concrete cylinder testing, computer bridge design, and field trips. Group bonding occurred, and the students were receptive to presentations.

Closing Session

The closing session was the culmination of a week of learning, friendship, and excitement. A barbeque dinner was provided by the co-sponsors, and the meal was attended by the students, ALDOT representatives and the participants’ parents. During the meal, a slide presentation was shown, featuring highlights of the students in the week’s workshops, presentations, and field trips. (Sample photos from the slide show may be found in Appendix C).

Following the dinner, certificates and awards were presented for each of the competitions, contributing sponsors, and staff members. Motivational speakers provided insights and accounts of the Institute’s successes. The casual atmosphere and slide show set a positive tone that sent the participants and their parents home with wonderful memories of a week well spent.

Section 4 Evaluation of the Institute

The last activity on Friday afternoon was distribution of an evaluation form to gather information about the level of success of the Institute. There were four major portions of the form: presentations, site visits and lab projects, general success of the Institute, and whether it influenced students to consider transportation careers. A copy of the survey form has been included in Appendix D of this report.

Analysis of Evaluations

For analysis purposes, the evaluation scores were converted to numerical values of 1 to 5, where 1 indicated “poor” and 5 indicated “great.” The evaluation form was completed by 14 students. The results for presentations, field trips/laboratories, and general topics are shown in Tables 4-1 through 4-3.

Table 1-1 indicates that the presentations received average scores between 2.57 and 4.50 (i.e. average to great). This implies acceptance of the presenters and topics by the students. The highest rated presentation was “Professional Development/Business Etiquette” presented by Mr. Willie Franklin, a young and highly motivated ALDOT manager. Other highly rated presentations were “Road Safety and Traffic Barriers,” and “Preconstruction Surveys and Mapping” (the latter presentation was at the Fourth Division headquarters, and “Admissions overview,” presented by Mr. Greg Singleton, the Director of the Office of Undergraduate Student Services of the College of Engineering at the University of Alabama.

Presentation	Mean
Prof Development/Business Etiquette	4.50
Road Safety/Barriers	4.07
Preconstruction-survey/map/guide	3.79
University/Admissions Overview	3.79
Intro to Pin & Straw Bridge Design	3.71
Roadway Design Modeling	3.57
Safety Management	3.57
Intro to ALDOT Careers	3.50
Intelligent Transportation Systems	3.36
Underwater Bridge Inspection	3.36
Intro to ALDOT 4 th Division	3.07
Construction Field Trip Overview	2.93
Overview of Bridges	2.71
Traffic Engineering (Signs/Signals)	2.71
Environmental Surveys	2.57
Introduction to Material Testing	2.50

Many presentations received good ratings, which implies that the curriculum was well designed and well suited to this group of participants. Credit must also be given to the presenters.

Average evaluation scores for field trips and laboratory work were good (Table 4-2). Four of these stood out: the pin and straw bridge contest, the computer bridge design, the egg drop, and the zoo trip. They all scored above or near a score of 4.00 (good). Interest in the pin and straw contest started slowly, as the students worked on the bridges in their spare time over several days. By Friday, it had become quite popular and the “load testing,” was an exciting time.

Table 4-2 Evaluation scores for field trips and labs

Presentation	Mean
Pin & Straw Bridge Design	4.07
Computer Bridge Design	4.00
Egg Drop Contest	4.00
Zoo	3.93
Concrete Cylinder Testing	3.57
Sign & Signal Shop	3.21
Construction Site Visit	2.79
Materials Lab	2.64

Three of the field trips received average scores above 4.00 (“good”). Since these have been rated very high in past years, and should be continued in future ATIs. The relatively low score for the field trip was probably caused by the long ride to Alexander City, the long field trip, and the long ride back to ALDOT headquarters.

The highest evaluation score for any question was given in the “general topic” category, in response to a question about whether staff members were helpful. This is reflected in Table 4-3. This year a variety of meals were ordered, and the evaluation showed quite clearly which were the students’ favorites.

Table 4-3 Evaluation scored for general topics

Topic	Mean
Overall Experience	3.93
Food (Lunch and Breaks)	3.29
Barbeque	3.71
Hot Lunch	3.57
At Zoo	3.29
Pizza	2.00
Sandwiches	1.86
Institute Staff Members Helpful?	4.00
Session Lengths about Right?	2.86

Students were encouraged to write comments on their evaluation sheets to explain their evaluation scores or to emphasize certain issues. This year there were not as many comments as in prior years. The comments that were received were similar to the evaluation scores, which reinforced their validity.

Perhaps the most important component of the evaluation involved the impact that ATI-05 had on the students. In other words, did exposure to transportation organizations like ALDOT and ARBA, to transportation professionals and transportation issues influence the students to consider transportation careers? As shown in Table 4-4, the answer was “yes,” but not an overwhelming yes. Institute staff will analyze this and determine the reason during the design of the ATI-06.

Table 4-4 Impact of ATI-05 on participants

Considering Transportation Career?	No	Yes
Before ATI-05?	7	7
Transportation After ATI-05?	5	8
Recommend ATI-05 to Friends?	0	14

Section 5

Expansion of ATI

Background

The initial plans for 2005 included investigating a second week-long session, at the ALDOT Fifth Division office in Tuscaloosa. The Institute was to include the same successful elements of the Montgomery version and personnel were to be utilized from the ALDOT Fifth Division, ALDOT Central Office, and UTCA would participate as instructors.

Planning, Marketing, and Recruiting

Many of the early ATI-05 planning sessions were devoted to adding a section session in Tuscaloosa. In addition to the general ATI-05 planning meetings in Montgomery, supplemental meetings were held specifically for the Tuscaloosa session.

One of the initial concerns of the Fifth Division was that staff not be overburdened with recruiting and planning efforts, because the Division office had many less employees than the ALDOT central office. This concern was handled by meetings with the Division staff, modifying the Montgomery recruiting materials, and establishing recruiting dates and guidelines. High schools in Tuscaloosa and Hale counties were identified as the source for potential students. As planning continued, a draft schedule emerged, with the students spending alternate days at the Fifth Division complex and on the University of Alabama campus. By April a satisfactory plan had been devised for recruiting students, making presentations and teaching lab exercises, and conducting field trips

Unfortunately, the planning efforts consumed the prime recruiting period and there were insufficient responses to allow the ATI-05 session to be conducted at the Fifth Division. Both UTCA and ALDOT Fifth Division agreed to cancel the 2005 session, and to start earlier in 2006.

Section 6

Summary and Recommendations

Noteworthy Areas

Since its initial offering, the goals of the Advanced Transportation Institute have always been to inform and educate high school students and to encourage them to pursue careers in the field of transportation, to improve the transportation human resources and diversity picture in Alabama. ATI-05 was successful in meeting these goals, with the assistance of the ALDOT Personnel Bureau. Successful elements of the program are detailed below:

- The partnership of UTCA and ALDOT again proved to be a potent method to deliver a successful Institute.
- Feedback from previous ATIs was used to improvement the 2005 Institute.
- Instructive demonstrations reinforced key concepts.
- The students interacted daily with transportation professionals.
- Mentoring occurred daily.
- Two professional organizations, the Alabama Road Builders Association and the Alabama Asphalt Pavement Association, cosponsored ATI-04 and enriched the students' experiences during the Institute.
- A field trip was used to introduce new aspects of ALDOT careers, along with a major field trip.
- The end-of-course evaluation showed that students enjoyed the Institute and had been influenced towards careers in transportation.

Areas of Concern

The Institute was excellent from the standpoint of its characteristics and quality. However, there is still some concern with the timeliness of recruiting and with confirming that accepted students would attend the Institute. The name, address and other contact information for each participant is needed earlier in the process. Furthermore, the number of participants is near the minimum to justify the expense associated with conducting it.

Initial plans to conduct a session of ATI-05 in the ALDOT Fifth Division were not successful. An agreement was reached on how to recruit and host an additional week of the Institute in Tuscaloosa, but not until the recruiting window closed. The 2006 ATI should make the second week of the Institute a particular goal.

Recommendations

- 1) The 2005 Advanced Transportation Institute was successful, and it should be repeated.

2) The partnership with the ALDOT Personnel Bureau was successful, and a similar partnership should be established for the 2006 year.

3) The ALDOT central office was an excellent location for the Institute. The instant access to the job environment, materials labs, computers, and practicing professionals was excellent, and should be retained.

4) Although the Institute was successful, several improvements should be considered:

- The most important improvement should be to start ATI-05 recruiting earlier. Selecting participants earlier will alleviate problems with planning workshops, ordering supplies and materials, determining the costs of transportation and housing, and estimating catering costs.
- Course evaluations should continue to be used to modify the curriculum. ATI-05 presentations and lab sessions that were not effective should be deleted or modified. Those that were highly effective should be expanded.
- Speakers, lab instructors and field trip guides should be encouraged to provide written materials to the students. This might be as simple as an outline of the presentation, lab or trip. The written materials could be more specific, and can provide names for the students to contact in the future for additional information or for career guidance.

Section 7

References

- Borden, Victor M. H., "The Top 100: Interpreting the Data (Top 100 Degree Producers, 2000-2001)," *Black Issues in Higher Education*, Vol. 19, No. 9, Cox, Matthews & Associates, Fairfax, Virginia, June 20, 2003.
- Leonard, Kathleen, Michael Anderson, John A. Gilbert, Houssam Toutanji, and Norbert Delatte, "Gearing up for Transportation Engineering, a Summer Institute," UTCA Report 00304, The University of Alabama, Tuscaloosa, Alabama, 17 pages, December 31, 2000.
- Leonard, Kathleen, Michael Anderson, John A. Gilbert, Houssam Toutanji, and Norbert Delatte, "Gearing up for Transportation Engineering, a Summer Institute, Phase II," UTCA Report 01326, The University of Alabama, Tuscaloosa, Alabama, 33 pages, December 31, 2001.
- Leonard, Kathleen, Michael Anderson, Houssam Toutanji, and Norbert Delatte, "Gearing up for Transportation Engineering, a Summer Institute, Phase III," UTCA Report 02301, The University of Alabama, Tuscaloosa, Alabama, 29 pages, December 31, 2002.
- Leonard, Kathleen, Michael Anderson, Lois Schartz, Houssam Toutanji, and Norbert Delatte, "Gearing up for Transportation Engineering, a Summer Institute, Phase IV," UTCA Report 03305, The University of Alabama, Tuscaloosa, Alabama, 28 pages, December 31, 2003.
- Leonard, Kathleen, Michael Anderson, Lois Schartz, and Houssam Toutanji, "Gearing up for Transportation Engineering, a Summer Institute, Phase V," UTCA Report 04301, The University of Alabama, Tuscaloosa, Alabama, 22 pages, December 31, 2004.
- Turner, Daniel S. and Walter Anderson, "Advanced Transportation Institute," UTCA Report 02113, The University of Alabama, Tuscaloosa, Alabama, 34 pages, December 31, 2002.
- Turner, Daniel S. and Walter Anderson, "Advanced Transportation Institute," UTCA Report 03113, The University of Alabama, Tuscaloosa, Alabama, 35 pages, December 31, 2003.
- Turner, Daniel S. and Walter Anderson, "Advanced Transportation Institute," UTCA Report 04115, The University of Alabama, Tuscaloosa, Alabama, 28 pages, December 31, 2004.

Section 8

Acknowledgements

Many individuals participated in the planning and execution of the Advanced Transportation Institute. A special thank you is extended to ALDOT, especially staff members of the Personnel Bureau (Ms. Cleo Daniel, Transportation Recruitment Manager; and Mr. Jerome McReynolds, Recruitment Supervisor; Ms. Shelia Ford, Ms. Ginny Anderson, Mr. Pierre Blackman, Ms. Betty Scott, and others). Ms. Linda Crocket was the public information specialist.

The speakers, lab session instructors, and others who assisted in presentations and work sessions were deeply appreciated. The names of many of them may be found in Appendix B of this report. One of these individuals should be singled out for praise. Mr. Greg Singleton, Director of Engineering Student Services at the University of Alabama took the time to drive to Montgomery to deliver his presentation (which students evaluations rated highly).

The Alabama Road Builders Association and the Alabama Asphalt Pavement Association cosponsored ATI-05. Mr. Billy Norrell, Executive Director of ARBA deserves special credit for arranging keepsakes and an excellent closing dinner.

At the University of Alabama, deep appreciation is extended to Ms. Joy Curry of UTCA for her assistance with administrative issues.

A special thanks is extended to the superintendents, teachers, guidance counselors, chaperones and parents who helped select the students and who made travel arrangements so that they could attend ATI-05. Finally, as always, we must thank and give our deepest appreciation to the class of students who participated so freely and so fully, and who helped to get the most out of the Institute and to further strengthen its foundation.

Section 9

Appendices

- Appendix A: Samples of Correspondence with Student Participants
- Appendix B: Institute Daily Curriculum, Instructors, and Locations
- Appendix C: Examples of Photos Taken During Institute
- Appendix D: Evaluation Form.

Appendix A: Samples of Correspondence with Student Participants

**** ANNOUNCEMENT ****

Advanced Transportation Institute 2005

June 19-23

Alabama DOT Headquarters
Montgomery, Alabama

Sponsored by

**The University Transportation Center for Alabama, University of Alabama
The Alabama Department of Transportation**

Co-sponsored by the

Alabama Road Builders Association and other organizations

High school students (rising juniors and seniors) can learn about career opportunities, programs of study, scholarships, internships, work-study jobs, co-operative employment programs, summer jobs and other useful information. The curriculum will include topics like:

- Transportation careers
- University applications, curricula and scholarships
- The Alabama DOT and its programs
- Transportation design and construction, environmental issues, transportation safety, and other related topics.
- Field trips to construction sites and environmental/archeological sites
- Student teams will compete in design contests (bridge analysis and design, vehicle safety, concrete design, etc.
- Awards dinner

For more information contact either of the following individuals:

Dr. Daniel S. Turner
University Trans Center for Ala (UTCA)
The University of Alabama
P O Box 870205
Tuscaloosa, AL 35487
(205) 348-9925
(205) 348-6862 fax
utca@coe.eng.ua.edu

Ms. Cleo Daniel
Personnel Bureau
Alabama Department of Transportation
1409 Coliseum Boulevard
Montgomery, AL 36130
(334) 242-6334
(800) 290-4119
(334) 353-6521 fax
recruiting@dot.state.al.us

Appendix A: Samples of Correspondence with Student Participants

June 3, 2005

Parents of Mr _____ _____,
323 Tenth Avenue
Selma, AL 36701

Dear Mr/Mrs. _____,

Greetings from the University of Alabama! Your child has been selected to participate in Advanced Transportation Institute 2005. The following information will help you understand our Institute and give you an overview of the activities we have planned for the week.

Background Information – The Advanced Transportation Institute is co-sponsored by the University of Alabama and the Alabama Department of Transportation (ALDOT). It is for rising junior and senior high school students.

Institute Location The Institute will be taught in Montgomery, at the headquarters complex of ALDOT. The address is shown below, and two maps are included with this letter to help locate the site.

Alabama Department of Transportation
1409 Coliseum Boulevard
Montgomery, Alabama

Institute Dates/Times The Institute will meet daily, Monday-Friday, June 19-23. Students will need to meet at the ALDOT complex by 8:30 am each morning. Normally, the institute will finish by about 4:00-4:30 each afternoon.

On Friday, we will have a (free) barbeque dinner for the participants and you are also invited. It will last from 5:30 pm - 7:30 pm.

Contact Person If you have any questions, please contact the following individuals:

The University of Alabama
Dr. Dan Turner, or Mrs. Joy Curry
University Transportation Center for Alabama
(205) 348-9925

Alabama Department of Transportation
Mr. Jerome McReynolds
Personnel Bureau
(334) 242-6919

Appendix B: Institute Daily Curriculum, Instructors, and Locations

Time	Event	Location/Room	Instructor
Monday, June 21, 2004			
8:30 - 9:00 AM	Check-in / Refreshments	ALDOT	
9:00 - 9:15 AM	Program Overview	Conf Room	ALDOT-Cleo Daniel
9:15 - 10:00 AM	Roadway Design Modeling	Conf Room	ALDOT-Ivy Harris
10:00 - 10:15 AM	Refreshments, travel to materials lab		
10:15-11:00 AM	Materials demo (concrete + asphalt)	Mtls & Tests Lab	ALDOT-Lynn Wolfe
11:00 - 11:45 AM	PROJECT 2: - Prepare Concrete Cylinders	Mtls & Tests Lab	ALDOT-Bart Pickett
11:45 - 12:00 PM	Class Photo	Outside	ALDOT-Linda Crockett
12:00 - 12:45 PM	LUNCH	Conf Room	
12:45 - 1:45 PM	ALDOT Speaker - Bridge Bureau	Conf Room	ALDOT-Randall Mullins
1:45 - 3:30 PM	PROJECT 1-A: start Computer Bridge Design	Conf Room	Univ of Ala -Dr. Dan Turner
1:45 - 3:30 PM	PROJECT 1-B: start Straw Bridge Design	Conf Room	UA-Wright/ALDOT-Anderson
3:30 - 4:00 PM	Wrap Up Discussion - 'What We Learned'		UA-Wright/ALDOT-Anderson
4:00 PM	Depart		
Tuesday, June 22, 2004			
9:00 - 9:15 AM	Arrive at ALDOT headquarters class room	Conf Room	ALDOT - Irene Moore
9:15 AM	Depart for field trip, ALDOT 4 th Division, Alexander City		
10:15 - 11 AM	Welcome to Fourth Division	4th Div HQ	ALDOT - DeJarvis Leonard
11:00 - 11:45	Tour of Division Facilities, Highway Software Demo	4th Div HQ	ALDOT - 4th Division Staff
noon - 1:00 pm	Lunch		
1:00-3:00	Field Trip (construction sites, district office)	US 280, I-85	4 th Division Construction Engr
3:00 PM	Return to ALDOT headquarters, Montgomery		All ATI staff members
4:00 PM	Depart		
Wednesday, June 23, 2004			
9:00 - 9:15 AM	Daily Overview and Ice-Breaker	Conf Room	ALDOT - Ginny Anderson
9:15 - 10:45 AM	Traffic Engineering (MUTCD, Sign shop visit)	Conf Room	ALDOT - Sean Mobley
10:45-11:00 AM	BREAK (refreshments)	Conf Room	
11:00-11:45 AM	UA Speaker - University / Admissions Overview	Conf Room	UA - Greg Singleton
12:00 - 1:00 PM	LUNCH		
1:00-1:45	University of Alabama Speaker - Road Safety/Barriers	Conf Room	UA - Dr. Dan Turner
1:45 - 2:30 PM	PROJECT 3: Safety project - egg drop	Conf Room	UA-Turner/ALDOT-Anderson
2:30-2:45	Test egg drop devices	Outside	UA-Turner ALDOT-bucket truck
3:00 - 4:00 PM	Depart		

Note: The curriculum was dynamic. Items were added, expanded, or deleted as needed to provide a full day of exciting activities.

Appendix B: Institute Daily Curriculum, Instructors, and Locations (continued)

Time	Event	Location/Room	Instructor
Thursday, June 24, 2004			
9:00 - 9:15 AM	Daily Overview and Ice-Breaker	Conf Room	ALDOT - Sheila Ford
9:15 - 10:15 AM	ALDOT Speaker - Safety Management	Conf Room	ALDOT - Craig Thomas
10:15-11:45 AM	Morning entertainment - ZOO	Montgomery Zoo	ALDOT-S.Ford, J.McReynolds
11:45-12:30 AM	LUNCH - (During Zoo Visit)	Montgomery Zoo	ALDOT-S.Ford, J.McReynolds
12:30 - 1:00 PM	Return to ALDOT HQ		
1:00 - 1:45 PM	ALDOT Speaker - ALDOT Careers	Conf Room	ALDOT-T Rose, W. Benefield
1:45 - 3:30 PM	Intelligent Transportation Systems	Conf Room	ALDOT - Anderson
	BREAK (refreshments)		
3:30 - 4:00 PM	Environmental speaker		ALDOT – N. Clay, et al
Friday, June 25, 2004			
9:00 - 9:15 AM	Daily Overview and Ice-Breaker	Conf Room	ALDOT- Jerome McReynolds
9:15 - 10:15 AM	Professional Development/Business Etiquette	Conf Room	ALDOT - Willie Franklin
10:15-11 :15 AM	Underwater Bridge Inspection	Maint Building	ALDOT - Bill Woddail
11:15-12:00 PM	PROJECT 2: Strength test of concrete cylinders	Mtls & Tests Lab	ALDOT - Bart Pickett
12:00-12:45 PM	LUNCH	Conf Room	
1:45-3:30 PM	PROJECTS 1-A & 1-B: Build and test bridge designs	Conf Room	ALDOT - Anderson
3:30-4:30 PM	Closure- Summary of Institute, evaluation	Conf Room	UA - Dr. Dan Turner
4:30-5:30 PM	Free time		
5:30-7:30 PM	Closing Session / BBQ Dinner by Alabama Road Builders Association & Ala Asphalt Pavement Assn	Conf Room	Jeff Brown-Dan Turner

Note: The curriculum was dynamic. Items were added, expanded, or deleted as needed to provide a full day of exciting activities.

Appendix C: Examples of Photos Taken During Institute



Figure C-1 ATI-04 Students at ALDOT 4th Division offices

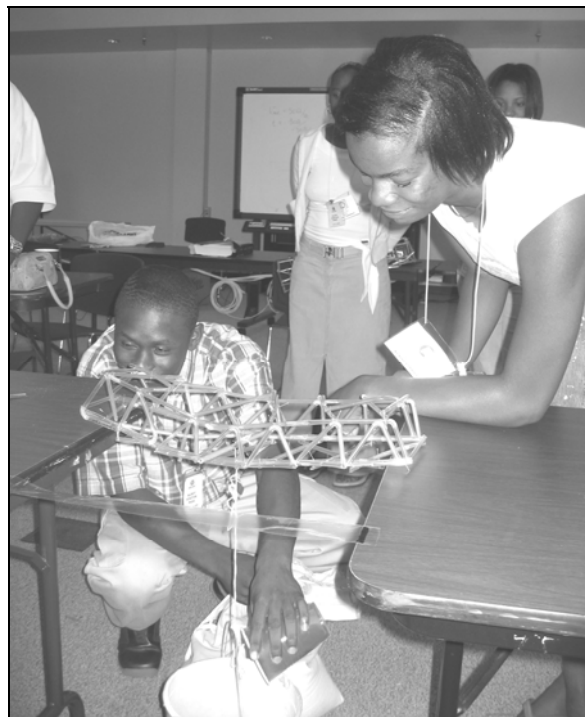


Figure C-2 ATI-04 Students testing “pins and straws” bridge

Appendix C: Examples of Photos Taken During Institute (continued)



Figure C-3 Egg drop competition



Figure C-4 Look who “escaped” from the zoo