

Advanced Transportation Institute 2004

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For

UTCA

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16. Abstract The third Advanced Transportation Institute was conducted in 2004 (ATI-04) 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 was open to rising high school juniors and seniors, with preference given to African Americans 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 guidance counselors, using criteria provided by ALDOT. Institute presentations, lab experiences, and field trips were designed to give 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. ATI2 was very successful. The 18 student participants indicated that they enjoyed the experience, that they learned about transportation careers and ALDOT, and that (as a group) they were favorably influenced to consider transportation careers.					
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Executive Summary

The third Advanced Transportation Institute was conducted in 2004 (ATI-04) 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.

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Section 1

Introduction

Problem Statement

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

ALDOT has lost large numbers of transportation professionals to retirement 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 the transportation profession. 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 not increasing 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 companies, along with practicing transportation professionals, to interact with students in a “real world” situation, and to provide insight into rewarding transportation careers. The institute was 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, especially 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 and 03305). The 2003 version of ATI was improved in response to suggestions from 2001 and 2002 institute attendees, and in response to the availability of the ALDOT presenters and facilities with expertise in particular fields. 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 mentoring, field trips, 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 ATI2 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 in the development of marketing materials for ATI-04. Well in advance of the initial planning effort, several schools from the ALDOT recruiting area were contacted about their willingness to participate. Initially, the response rate was lower than anticipated. This led to a primary strategy of increasing the amount of written material provided to teachers and guidance counselors for delivery to interested students. Not only was an announcement sent to publicize the event, but UTCA and the Personnel Bureau developed and distributed a brochure to show all of the excitement.

Care was taken to make the distributed material 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-04. 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-04 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. Each school was allowed to recommend up to five students and one alternate to participate in the Institute. The idea was to identify a sizeable pool of candidates to increase participation above the previous year's attendance, and to guarantee 20 to 30 ATI2 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. UTCA contacted 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-04. Next, phone calls were made as time was available, to confirm each student's degree of interest in the Institute. During this call, the students' interest in ATI-04 was stimulated, questions were answered, and uncertainties of the students and their parents were addressed. A second letter was later sent, 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 three schools that were located outside of the immediate Montgomery vicinity (more than an hour 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. Several schools were contacted and many students had an opportunity to respond to the ATI-04 invitation. These were busy students with several options on how to spend their summer (leadership conferences, athletic camps, family vacations, etc.). The actual number that attended was 18, 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 ATI in the future.

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 2003 ATI sessions. In keeping with the strengths of last year's Institute, 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. 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, PEED, and other ALDOT bureaus (explained in more detail in Table 3-1):

- asphalt plant site visit;
- 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 had been to allow students to get outside the ALDOT building for recreation, like a visit the Montgomery Zoo. This was added to the curriculum and was well received by 2003 students, because it allowed time to relax and encourage further bonding, so the zoo visit was retained for ATI-04. 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.
Asphalt Plant Overview and Field Trip	An introduction to roadway construction was provided by ATI2 co-sponsors. An asphalt plant tour was used to illustrate mix design and plant operation.
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.
Environmental/Archeological Field Trip	This session addressed how proper road design recognizes and incorporates environmental concerns. Students were taken to a typical site to identify animals and plants important to the design process.
Intelligent Transportation Systems (ITS)	A University of Alabama graduate student outlined technology advancements and potential applications of ITS.
Materials and Testing	This session reiterated roadway construction materials. Demonstrations were given to show ALDOT's role in inspection and materials testing.
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 second traffic safety module 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 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 adjacent conference rooms at ALDOT headquarters. The rooms were easily accessible to the students and their parents. The rooms had excellent audiovisual equipment, and had ample space for presentations and student interaction sessions (breaks, snacks, and meals).

Presenters were transportation professionals recruited from the University of Alabama, ALDOT, and the co-sponsors (the Alabama Road Builders Association and the Alabama Asphalt Pavers Association). 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 entire 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.

To make the students feel more welcome and appreciated, packets were given to each participant during the initial registration. This consisted of the following items provided by the sponsors and co-sponsors:

- institute agenda;
- t-shirt;
- pens, pencils, folders, etc.; and
- several other gifts.

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 very 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, who attended the meal along with invited ALDOT representatives and the participants’ parents. Prior to 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 17 students. The results for presentations, field trips/laboratories, and general topics are shown in Tables 3-1 through 3-3.

Table 3-1 indicates that all 17 presentations received average scores between 4.00 and 5.00 (i.e. good to great). This implies high acceptance of the presenters and topics by the students. The most popular topic was university/admissions overview, presented by the Director of the Office of Undergraduate Student Services of the College of Engineering at the University of Alabama. That presentation also had the lowest standard deviation, which indicated that the virtually all students had the same opinion about it.

Table 4-1 Evaluation scores for presentations

Presentation Topic	Mean	Std. Dev.	Range: +/- Std. Dev.	Mean
University/Admissions Overview	<u>4.88</u>	<u>0.34</u>	5.22	4.53
Intro to Computer Bridge Design	<u>4.80</u>	<u>0.41</u>	5.21	4.39
Prof Development/Business Etiquette	<u>4.75</u>	0.77	5.52	3.98
Alabama Traffic Crash Facts	<u>4.73</u>	0.80	5.53	3.93
Roadway Design Modeling	<u>4.73</u>	<u>0.46</u>	5.19	4.28
Safety Management	4.69	0.60	5.29	4.09
Road Safety/Barriers	4.69	0.48	5.17	4.21
Intelligent Transportation Systems	4.64	<u>0.50</u>	5.14	4.15
Traffic Engineering (signs/signals)	4.63	0.62	5.24	4.01
Bridges	4.60	<i>0.91</i>	5.51	3.69
Intro to Straw Bridge Design	4.60	0.83	5.43	3.77
Materials & Tests Intro	4.53	0.64	5.17	3.89
Overview of Asphalt Field Trip	4.53	0.64	5.17	3.89
ALDOT Careers	4.40	0.83	5.23	3.57
Intro to Environmental Field Trip	<i>(4.31)</i>	<i>0.95</i>	5.26	3.37
Underwater Bridge Inspection	<i>(4.25)</i>	<i>0.93</i>	5.18	3.32
Project and Plans Design	<i>(4.00)</i>	<i>0.89</i>	4.89	3.11

So many presentations received high ratings that it is clear that the curriculum was well designed and particularly 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 also good (Table 3-2), although they were not quite as high as for the presentations. The students gave the highest average evaluation scores to the “pin and straw” bridge contest. After listening to a short presentation on how bridge loads are converted to stresses, and how bridges carry these stresses, students constructed their own bridges from soda straws and pins. They worked on the bridges in their spare time over several days, and the bridges were tested on Friday.

Table 4-2: Evaluation scores for field trips and laboratories

Presentation Topic	Mean	Std. Dev.	Range: +/- Std. Dev.	Mean
Pin & Straw Bridge Design	<u>4.93</u>	0.26	5.19	4.68
Sign & Signal Shop	<u>4.75</u>	0.45	5.20	4.30
Egg Drop Contest	<u>4.60</u>	1.06	5.66	3.54
Computer Bridge Design	<u>4.53</u>	0.52	5.05	4.02
Zoo	4.38	0.62	4.99	3.76
Concrete Cylinder Testing	4.13	1.25	5.38	2.89
Materials Lab	4.13	0.81	4.93	3.32
Asphalt Plant/Materials Site Visit	(3.69)	1.08	4.77	2.61
Environmental-archaeological Site Visit	(3.31)	1.45	4.76	1.86

Two of the field trips received average scores below 4.00 (“good”). Since these have been rated very high in past years, it is probable that the weather contributed to this year’s low scores. It was a blistering day during the asphalt plant/borrow pit visit, and the students struggled to enjoy it. During the environmental-archeological trip there was a deluge and many students were soaked by the rain.

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 3-3.

Table 4-3 Evaluation scores for general topics

General Topics	Mean	Std. Dev.	Range: Mean +/- Std. Dev.	Mean
Institute Staff Members Helpful?	<u>4.94</u>	0.25	5.19	4.69
Overall Experience at Institute	<u>4.63</u>	0.50	5.13	4.13
Session Lengths about Right?	(4.13)	0.96	5.08	3.17
Lunch and Breaks?	(4.00)	1.10	5.10	2.90

Students were encouraged to write comments on their evaluation sheets to explain their evaluation scores or to emphasize certain issues. Ten students took the time to prepare comments, implying that certain things were important to them. ATI staff members examined these remarks, and paid special attention when several students made the same remarks about any item. Six students wrote comments that were complimentary to ATI-04, its staff and its instructors. Four indicated that they enjoyed the Institute, but that the weather influenced their scores for field trips (very hot of the asphalt plant/materials pit and raining for the environmental

field trip). Three students expressed a desire for more variety in the daily lunches. This helped explain one of the puzzling evaluation scores each year. Students have always given meals lower evaluation scores than other issues, even though it was obvious to ATI staff that the participants were enjoying the meals (and consuming lots and lots of food!). The final item that received comments from more than one participant involved presenters who were especially dynamic; the students expressed a desire for more speakers of that type.

Perhaps the most important component of the evaluation involved the impact that ATI-04 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 3-4, the answer was an overwhelming “yes!”

Table 4-4 Impact of ATI-04 on Participants

Considering Transportation Career?	No	Yes	Very Much
Considering Transportation Before ATI-04	13	4	0
Considering Transportation After ATI-04	4	10	3
Recommend ATI-05 to Friends	17	0	

Both UTCA and ALDOT were very pleased with the Advanced Transportation Institute conducted in 2004. And even better, the students were impressed and appreciative.

Section 5

Expansion of ATI

Background

The initial plans for 2004 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-04 planning sessions were directed at the feasibility of having the additional session in Tuscaloosa. In addition to the general ATI2 planning meetings, 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-04 session to be conducted at the Fifth Division. Both UTCA and ALDOT Fifth Division agreed to cancel the 2004 session, and to start earlier in 2005.

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-04 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 the 2002 and 2003 ATIs was used to improvement the 2004 Institute.
- Instructive demonstrations reinforced key concepts.
- Key transportation engineering principals were integrated with business and other non-engineering factors.
- 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.
- 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.

Initial plans to conduct a session of ATI-04 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 2005 ATI should make the second week of Institute a particular goal.

Recommendations

- 1) The 2004 Advanced Transportation Institute was very 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 2005 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.
- Recruiting can be expanded to additional schools to increase the number of applicants. Contacts with the schools should be conducted earlier and the contact persons should be informed of responsibilities to prevent confusion. By doing this, students can be recruited earlier and applications will be forwarded and processed more quickly.
- Course evaluations should continue to be used to modify the curriculum. ATI-04 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

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Section 8 Acknowledgements

Many individuals participated in the planning and execution of the Advanced Transportation Institute. Special thanks is extended to ALDOT, especially staff members of the Personnel Bureau (Ms. Cleo Daniel, Transportation Recruiting Manager; and Mr. Jerome McReynolds, Recruiting Supervisor; Ms. Alma Harper, Ms. Shelia Ford, Ms. Irene Moore, Ms. Ginny Anderson, Mr. Pierre Blackman, and others). Ms. Linda Crocket of the ALDOT Public Relations Bureau was the official photographer.

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 deliver his presentation (which was rated as the best presentation by the students).

The Alabama Road Builders Association and the Alabama Asphalt Pavement Association cosponsored ATI-04. Mr. Billy Norrell, Executive Director of ARBA, and Mr. Harry Curlin, Vice President of APAC, Inc. deserve special credit for arranging keepsakes, a field trip, and an excellent closing dinner.

At the University of Alabama, deep appreciation is extended to Ms. Joy Curry of UTCA and Mrs. Nell Vice of the Civil & Environmental Engineering Department for their 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-04. 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.

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 2004

June 21-25 (tentative dates)
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:

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Appendix A: Samples of Correspondence with Student Participants

September 29, 2004

Ms. Ebony Jones
3532 Kings Cliff Rd
Montgomery, AL 36116

Dear Ebony,

Greetings from The University of Alabama! We would like to thank you for your interest in the annual Advanced Transportation Institute. As you may know, UTCA and the Alabama Department of Transportation (ALDOT) are sponsoring this free program to promote diversity and interest in transportation careers. You have been accepted as an Institute participant because your sponsor identified you as showing a desire to excel in an engineering related career, which means that Transportation Engineering could be your match!

WHAT: The Advanced Transportation Institute
WHEN: June 21-25, 2004
WHERE: ALDOT Headquarters, 1409 Coliseum Blvd., Montgomery
ATTIRE: Clothes acceptable at your school (casual)

By taking part you will learn about university scholarships and opportunities; participate in group activities and field trips to become familiar with roads, bridges, traffic safety, and environmental conservation; hear professionals speak about the transportation industry; and even learn how information technology is changing the future of transportation.

Remember that all activities (even meals) associated with the Institute are free. You can learn more by reviewing the attached documents: Daily Overview sheet, Student Acceptance form, Parental Permission form, and Travel Directions. The **STUDENT ACCEPTANCE** and **PARENTAL PERMISSION** forms should be **returned by May 31st**, using the attached envelope.

Even though this packet highlights many of the important details of this weeklong event, you may still have unanswered questions. If so, please feel free to contact us.

Sincerely yours,

Daniel S. Turner

cc: Mr. Jerome McReynolds, ALDOT
Attach: Daily Overview Sheet, Student Acceptance Form,
Parental Permission Form, Travel Directions

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	Personnel Bureau
9:00 - 9:30 AM	Icebreaker, Program Overview	Conf Room	Cleo Daniel-Dan Turner
9:30 - 10:00 AM	ALDOT Speaker - ALDOT Careers	Conf Room	Pat Alford
10:00-10:30 AM	Alabama Traffic Crash Facts		Dan Turner
10:30-10:45 AM	BREAK (refreshments)	Conf Room	
10:45-11:45 AM	University - Intelligent Transportation Systems	Conf Room	Walter Anderson
11:45 -12:00 AM	Class Photo	Outside	Linda Crockett
12:00 -12:45 AM	LUNCH	Conf Room	
12:45 - 1:45 PM	ALDOT Speaker - Bridge Bureau	Conf Room	Randall Mullins
1:45 - 3:30 PM	PROJECT 1-B: start Straw Bridge Design	Conf Room	Dr. Dan Turner
3:30 - 4:00 PM	Wrap Up Discussion - 'What We Learned'		Walter Anderson
4:00 PM	Depart		
Tuesday, June 22, 2004			
9:00 - 9:15 AM	Daily Overview and Ice-Breaker	Con Room	Irene Moore
9:15 - 9:45 AM	ALDOT Speaker - Roadway Design Modeling	Conf Room	Ivy Harris
9:45 – 10:15 AM	PROJECT 1-A: presentation- Computer Bridge Design	Conf Room	Dr. Dan Turner
10:15-11:00 AM	ALDOT Speaker - materials demo (concrete + asphalt)	Materials Lab	Lynn Wolfe
11:00 -12:00 AM	PROJECT 2: - Concrete Analysis Design - cylinder mix	Materials Lab	Charles Walker
12:00 -12:30 AM	LUNCH - (Overview of Field Trip (Road Construction)	Conf Room	Harry Curlin, ARBA, AAPA.
12:30 - 3:30 PM	Field trip (bridge, road building & paving projects)	ARBA Field Site	Ala Road Builders, etc.
3:30 - 4:00 PM	Return to ALDOT HQ; Wrap Up Discussion		Walter Anderson
4:00 PM	Depart		
Wednesday, June 23, 2004			
9:00 - 9:15 AM	Daily Overview and Ice-Breaker	Conf Room	Sheila Ford
9:15 - 10:15 AM	ALDOT Speaker - Safety Management	Conf Room	Craig Thomas
10:15 -11:45 AM	ZOO	Montgomery Zoo	Sheila Ford/J. McReynolds
11:45 -12:30 AM	LUNCH - (During Zoo Visit)	Montgomery Zoo	Sheila Ford/J. McReynolds
12:30 - 1:00 PM	Return to ALDOT HQ		
1:00 - 1:45 PM	University of Alabama Speaker - Road Safety/Barriers	Conf Room	Dan Turner
1:45 - 3:30 PM	PROJECT 3: start Safety project – egg drop	Conf Room	Dan Turner
3:30 - 4:00 PM	Test egg drop devices; Wrap Up Discussion	Outside	Ray Johnson/W. Anderson
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	Ginny Anderson
9:15 - 10:45 AM	ALDOT Speaker - Traffic Engineering	Conf Room	Stephanie Traywick
10:45 - 11:00 AM	BREAK (refreshments)	Conf Room	
11:00-12:00 AM	University Speaker- University admissions/scholarships	Conf Room	Greg singleton
12:00 - 1:00 PM	LUNCH	Conf Room	
1:00-1:30 PM	ALDOT - Professional Development/Business Etiquette	Conf Room	Willie Franklin
1:30 - 3:30 PM	PROJECTS 1-A, 1-B: Conclude and test bridge designs	Conf Room	Walter Anderson
3:30 - 4:00 PM	Return to ALDOT HQ; Wrap Up Discussion	Conf Room	Peire BlackmanJ.McReynolds
4:00 PM	Depart		
Friday, June 25, 2004			
9:00 - 9:15 AM	Daily Overview and Ice-Breaker	Conf Room	Jerome McReynolds
9:15 - 10:15 AM	ALDOT SPEAKER - The Project and Plans Design	Conf Room	Steve Walker
10:15-11 :15 AM	ALDOT Speaker - Underwater Bridge Inspection	Maint. Building	Bill Waddail
11:15 -12:00 PM	PROJECT 2: Strength test of concrete cylinders	Mats-Tests Lab	Bart Pickett
12:00-12:45 PM	LUNCH - ALDOT - Overview Environmental Field Trip	Conf Room	James Blanding
12:45 - 1:45 PM	Travel to environmental site	Enviro Site	
1:45 - 3:30 PM	Environmental/archeological field trip	Enviro Site	Pierce Blackman
3:30 - 4:30 PM	Closure - summary, student comments, evaluation	Conf Room	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 on asphalt plant field trip



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

Appendix C: Examples of Photos Taken During Institute



Figure C-3 Egg drop competition

Appendix D: Evaluation Form

PRESENTATIONS	Great	Good	Ave.	Fair	Poor
Monday					
ALDOT Careers					
Alabama Traffic Crash Facts					
Intelligent Transportation Systems					
Bridges					
Intro to Straw Bridge Design					
Tuesday					
Roadway Design Modeling					
Intro to Computer Bridge Design					
Materials & Tests Intro					
Overview of Field Trip					
Wednesday					
Safety Management					
Road Safety/Barriers					
Thursday					
Traffic Engineering (signs/signals)					
University/Admissions Overview					
Prof Development/Business Etiquette					
Friday					
Project and Plans Design					
Underwater Bridge Inspection					
Intro to Environmental Field Trip					
SITE VISITS					
Asphalt Plant/Materials Site Visit					
Materials Lab					
Sign & Signal Shop					
Environmental-archeological Site Visit					
Zoo					
LAB PROJECTS					
Computer Bridge Design					
Pin & Straw Bridge Design					
Concrete Cylinder Testing					
Egg Drop Contest					
GENERAL QUESTIONS					
How good was your overall experience this week?					
How good was the food at lunch and breaks?					
Were the Institute staff members helpful?					
Was the length of individual sessions about right?					
Which were your favorite three sessions? _____					
Which were your three least favorite Sessions? _____					
Were you considering engineering/transportation prior to the Institute? ___ yes ___ no					
Are you considering engineering/transportation now? ___ yes ___ no ___ strongly considering					
Would you recommend the Institute to your friends? ___ yes ___ no					
If you wish to make recommendations for improving the Institute, please write your comments on the other side of the form. THANK YOU FOR A GREAT WEEK!					