

# NIATT Successes Generate Partnerships

## ITS Comes to Moscow, Idaho

NIATT will be working hand in hand with the Idaho Transportation Department (ITD) and the City of Moscow, utilizing Federal ITS Deployment Program funds of \$694,413 that were recently awarded by the Federal Highway Administration to the state of Idaho.

FHWA funds will be matched with \$294,834 of Idaho's State Planning and Research Program funds. Additional match of \$570,213 will come from a combination of University of Idaho, NIATT's UTC funds and donations of equipment from McCain Traffic Supply and Northwest Signal Supply.

The objective of the new project is to provide a more efficient and manageable signal control system for ITD by providing real time information on the status of system components. The project will test the use of NTCIP standards, the development of a project and regional ITS architecture, and the use of the Spec Wizard in a small-town setting.

NIATT will be responsible for the development of the standards and architecture for the signal systems, for the design of the signal timing plans in its laboratory, for the development of the training materials and protocol, and for the overall evaluation of the project.

## UTC Funds to Upgrade Traffic Lab

NIATT will utilize University Transportation Centers funding to complete an upgrade of its Traffic Controller Laboratory. This will provide the necessary infrastructure to support the application of NIATT's Controller Interface Device (CID) technology to the testing and deployment of Moscow's traffic signal systems. The laboratory will be expanded to include a configurable system of 20 traffic signal controllers and CIDs, instead of the current 12 systems

The improved laboratory will provide the most up to date training facility for students, Idaho Transportation Department engineers, students attending NIATT's Traffic Signal Summer Workshop, and other engineers from around the country.

## NCHRP Funds Development of HCM Application Guide

NIATT teamed with Kittelson & Associates, Inc., Rensselaer Polytechnic Institute, and other senior engineering professionals to successfully apply for funding from the National Cooperative Highway Research Program. NIATT's share of the \$249,997 grant will be \$33,851.

The project objective is to develop a fully functional, stand-alone guidebook for the *Highway Capacity Manual*. The supplementary guidebook will use sample problems to assist users in developing suitable input data sets, identify an appropriate analysis methodology, and reasonably apply and interpret the results of the selected analysis methodology.

NIATT will be involved in four areas of the project: identifying the learning objectives, recommending applications to be included in the guidebook, assembling data and resources, and fully developing the applications. Michael Kyte, NIATT director, will be the primary lead in identifying the learning objectives and the technical area leader for capacity analysis procedures for unsignalized intersections. This project will build on an on-going UTC-funded project, "Development of Internet-Based Laboratory Materials."



# Controller Interface Device to be Unveiled in January 2002

## Intensive Beta Testing Completed

Although initial beta testing of NIATT's Controller Interface Device (CID) began in August 2000 during Traffic Signal Summer Camp, an intensive period of testing started in late fall 2000 when 12 CIDs were sent to potential users. Beta testers included government agencies such as the City of Portland, the Ada County Highway District, the Florida DOT, and the Idaho Transportation Department. Other beta testers included consulting firms, traffic signal manufacturers and both Darcy Bullock of Purdue University and Roelof Engelbrecht of Texas A&M University, experts on hardware-in-the-loop simulation.

Six CIDs were used to interface traffic controllers to TSIS/CORSIM simulation during NIATT's Traffic Signal Summer Camp II in August 2001.

Feedback from beta testing was used to modify the software applications and make improvements to the *User's Manual*. In addition, recommendations from the beta testers led to several enhancements to the CID firmware that will make it an even more valuable tool for traffic engineers.

## CID Links CORSIM to Traffic Controller

The concept behind the CID is quite simple. CORSIM simulates traffic flow based on traffic demand, street geometry and signal control plans for a given set of intersections. When vehicles approach a signalized intersection in the simulation, CORSIM sends a signal to the controller that vehicles have been detected. The controller reacts to these signals as it would react to real detector actuations and sends back to CORSIM indications of the signal changes it will make in response to those actuations. Both the simulation and the controller run in real time, i.e., one second of simulation takes one second of actual time. It is the CID that makes this real-time exchange of data possible.

The logo for the National Institute for Advanced Transportation Technology (NIATT). It features the letters "NIATT" in a bold, black, sans-serif font. The letters are slightly shadowed and have a horizontal line passing through the middle of them, giving it a three-dimensional appearance.

National Institute for Advanced Transportation Technology

"The CID II could actually be called a 'flight simulator' for traffic signal systems. Using the CID, students--or engineers--can experience the real issues involved with implementing a timing plan without risking the liability or gridlock issues associated with making a mistake."

Darcy Bullock  
Purdue University

## NIATT Partners with McCain Traffic Supply

Early in the development of the CID, McCain Traffic Supply, Inc., of Vista, CA, was identified as a potential partner to commercialize the CID II design. Negotiations led to a license agreement and subsequent transfer of the production prototype design.

Two review meetings were held with engineers from McCain. These meetings proved to be a valuable source of feedback and led to several changes in the design of the CID II so that it would better fit McCain's manufacturing process.

In addition, the students working on the design had support from engineers and technicians at McCain. This support not only facilitated the design of CID, but also provided the students with an insight into the design of commercial hardware.

McCain also provided assistance with fabricating cases for the prototypes, assembling cable harnesses, and suggesting PC board fabrication houses. McCain expects the commercial CID to be ready for market in the first quarter of 2002. A product unveiling is scheduled for the annual Transportation Research Board meeting in January 2002.

"We are very proud to be partners in this project. For quite a small investment, the CID can make major improvements in the way we manage our transportation systems."

Raj Gahman  
Research Engineer  
Federal Highway Administration

For more information, contact Michael Kyte  
[mkyte@uidaho.edu](mailto:mkyte@uidaho.edu) or Peter Kohl at McCain Traffic,  
[pkohl@mccaintraffic.com](mailto:pkohl@mccaintraffic.com)

Semi-Annual Report—July 2001—December 2001

# Traffic Signal Summer Camp Goes Professional



## Engineers from Idaho Transportation Department Go “Camping”

No bears or pup tents for engineers from the Idaho Transportation Department (ITD) as they prepare to take part in NIATT’s unique traffic signal training program.

Impressed by what they have heard, ITD managers asked NIATT to hold a special “Traffic Signal Winter Workshop” to provide their staff with the basics of signal design. A dozen traffic technicians are expected to attend the condensed session at the University of Idaho in February 2002.

John Ringert of Kittelson and Associates and Joseph Marek from Clackamas County will lead the participants through the field in preparation for intersection design.

Michael Dixon and Ahmed Abdel-Rahim, UI faculty, will introduce capacity analysis at signalized intersections and signal timing optimization. Mike Boydstun of the Ada County Highway District will discuss actuated controller and coordinated signal operations.

The third day will include a session on video traffic detection, taught by Michael Kyte, NIATT director, and one on loop detectors, taught by Dale Moore of ITD. Harold Bleil, also of ITD, will discuss ITD design practices.

All sessions will follow the Traffic Signal Summer Camp hands-on practices.

“I learned about the most basic problems in the realization of a traffic signal system. Going into the field was worthwhile, seeing the interferences with profiles, urban services such as electricity or cable TV.”

Albert Bove Chic  
Barcelona, Spain

## Second Traffic Signal Summer Camp for Students Held in August 2001

The twelve participants who participated in NIATT’s second Traffic Signal Summer Camp reported that the experience more than met their expectations. Not only did they learn how to use an Autoscope video detection system, how a loop detector should be wired, and the idiosyncracies of Synchro, but they said one benefit of attending was making great contacts that would be helpful in their future careers. Many also mentioned that the experience gave them a broader view of transportation. The integration of practical experience and theoretical knowledge allowed them to understand better what a traffic engineer is expected to know in practice.

The Department of Transportation’s new Intelligent Transportation System (ITS) program mandates that computing, communications, electronics and other advanced technologies be applied to improving the capacity and safety of the nation’s transportation system. To put these technologies into practice, new generation transportation engineers need a set of multidisciplinary engineering skills that are not typically included in a civil engineering-based education program.

In response to this need, NIATT developed Traffic Signal Summer Camp (TSSC), an intensive five-day experience in which twelve top transportation engineering students from the U.S. and abroad have the opportunity to work hands-on with the latest traffic signal control hardware and software. Each of the camp’s five days focus on a specific aspect of advanced traffic signal systems. The schedule includes a blend of lecture, labs and hands-on exercises.

NIATT conducted two TSSC camps, both held on the University of Idaho campus in Moscow, ID. The first was held in August of 2000 and the second in August of 2001.

“I feel that the more exposure I get to professional practice in the traffic engineering field, the more prepared I’ll be to pursue a career in this field.”

Chhang Ream  
Boise, Idaho



National Institute for Advanced Transportation Technology

For more information, contact Michael Kyte  
[mkyte@uidaho.edu](mailto:mkyte@uidaho.edu)

Semi-Annual Report—July 2001—December 2001

# AVCT Works to Solve Air Pollution Problems

## FutureTruck 2002 Reengineering Underway

The Advanced Vehicle Concepts team (AVCT) of more than 40 students, led by club president, have started their work on a 2002 Ford Explorer as part of the FutureTruck competitions set for 2002 and 2003.

Ford Motor Company and the U.S. Department of Energy are the title sponsors of FutureTruck. Teams selected for the competition receive a check of \$10,000 from Ford to subsidize the costs. Argonne National Laboratory, a DOE research facility, provides competition management, team evaluation, and technical and logistical support. Fifteen private and public organizations are joining DOE and Ford to support this innovative engineering program. More than 300 participants from mechanical and electrical engineering, computer science, and other disciplines will participate.

The competition challenges the 15 university teams to increase fuel efficiency, reduce emissions and continue to meet customer expectations for performance and comfort. The FutureTruck website lists thirteen significant benefits of the competition.

NIATT values its participation as a way to educate young engineers and to keep clean vehicle issues in the public eye.

“The FutureTruck program gives students an experience similar to what they would in an aggressive private engineering firm. The program requires that students combine technical knowledge with hands-on skills to produce a final product.”

Donald Blackketter, Director  
Center for Clean Vehicle Technology

“We wanted the governor to experience firsthand how amazing it feels to pull up to a stop light and not hear a sound, or to blast away from the green light with just a faint hum of the motor.”

Scott Kahre  
Advanced Vehicle Concepts Team Member

## “We’ll Pick You Up at the Capital Steps”

The AVCT invited Governor Dirk Kempthorne for a demo ride in their hybrid electric General Motors Suburban 2001 FutureTruck entry. Other legislators and the public were also invited to “learn about one of the cleanest, most efficient sport utility vehicles in the world.”

The Idaho State Department of Air Quality in Boise sponsored a public information meeting that same evening of July 2001, where the team shared their experiences with and conclusions about clean vehicle technology.

## UI Awarded Spirit of the Challenge

Although they were disappointed that the UI’s hybrid electric-diesel Suburban didn’t place at the June FutureTruck competition in Milford, Michigan, the team did take pride in accepting the trophy for the Spirit of the Challenge Award.

Following the weeklong competition, vehicles moved to a finish line ceremony and media event on June 13 at the U.S. Department of Energy headquarters in Washington, DC. Later that day, members of Congress met with the university teams and had a chance to look at the vehicles on display at the U.S. Capitol Building.

# NIATT

National Institute for Advanced Transportation Technology

For more information, contact Donald Blackketter  
[dblack@uidaho.edu](mailto:dblack@uidaho.edu) or visit <http://www.futuretruck.org>;  
[http://www.its.uidaho.edu/niatt/Research/  
UTC\\_projects/year4](http://www.its.uidaho.edu/niatt/Research/UTC_projects/year4)

Semi-Annual Report—July 2001—December 2001

# Peer Review Members Contribute to Recompetition Strategy

## Peer Review Panels Meet in October 2001

The 25 members of NIATT's peer review panels continue to be actively involved in both our planning and review processes. We strongly believe that a wise use of our peer review panel members allows us to recognize and define our abilities, interests, strengths, and weaknesses.

The joint meeting of the peer review panels for the Center for Traffic Operations and Control and the Center for Clean Vehicle Technology held in October 2001 provided a unique opportunity to revisit NIATT's *Strategic Plan*, assess its continuing relevancy and discuss possible adjustments or changes.

During the two-day session, the peer review panel members also reviewed an early draft of NIATT's recompetition proposal and suggested ways to make it stronger.

"Keep visualizing the ideal outcome for each initiative (research area). If there is not enough payoff (or probability of success), let it go. If the potential results are really significant, try to structure the program to make sure it happens."

Bill Kloos  
City of Portland  
Traffic Signal Systems Engineer  
Peer Review Panel Member

## Panel Completes Assessment of Program

The final activity for the October Peer Review Panel meeting was completion by the peers of an assessment of NIATT's program. Responses to the five questions are summarized below:

- √ Have we grown our multidisciplinary program of coursework and experiential learning that reinforces our theme?  
To a large degree 91% To some degree 9%
- √ Have we increased the number of students, faculty, and staff who are attracted to and involved in our programs?  
To a large degree 45% To some degree 55%
- √ Have we established an objective process for selecting and reviewing research that balances multiple UTC objectives?  
To a large degree 68% To some degree 32%
- √ Have we made our research results available to potential users in a form that can be directly applied?  
To a large degree 55% To some degree 45%
- √ Have we established an program of research judged by peers to advance the body of knowledge of transportation?  
To a large degree 59% To some degree 41%



# Clean Snowmobile Work Leads to FHWA Funding

## Addressing Transportation Issues in National Parks

NIATT's Center for Clean Vehicle Technology was the recipient of \$300,000 in funding from the Federal Highway Administration to support the development of solutions that will mitigate the traffic problems in National Parks. The funds will support the design, development, and demonstration of clean and sustainable, small engine technologies for recreational vehicles.

Montana State University's Western Transportation Institute (WTI) will partner with NIATT. WTI will quantitatively evaluate current visitor experiences, identifying user wants and needs in order to determine the potential effect of technology aids on visitor choice of transportation modes.

The grant will help NIATT finish development of its Snowmobile Research and Development laboratory. The laboratory will allow researchers to measure noise and exhaust emissions of UI's alternative powered snowmobile. The clean snowmobile will be demonstrated in the greater Yellowstone-Teton National Park system.

## Undergraduate Grabbed by Polaris

When Patrick Hess starting working with the clean snowmobile project, he had no idea that it would result in a summer job opportunity

But after a representative from Polaris Industries had a chance to talk with him at the March 2001 Clean Snowmobile Contest, that's just what resulted.

Patrick spent the summer in Polaris's plant in Roseau, Minnesota, as a technical engineering aide. During the summer, he had an opportunity to work in several different areas: engines, quality control, and dynamometer testing. He also spent time on the manufacturing line where he could see engineering decisions being put into practice.

“Engaging students to utilize innovation and technology in making sleds that are more environmentally friendly is what this competition is all about.”

Dr. Lori Fussell  
CSSC Co-Founder

## Team Prepares for March 2002 Competition

Karen Den Braven, faculty advisor, reports that the UI's Clean Snowmobile Team is hard at work preparing for the 3rd Annual Clean Snowmobile Challenge (CSC2002). The Society of Automotive Engineers (SAE) Clean Snowmobile Challenge, scheduled for March 2002 in Jackson Hole, Wyoming, is part of the society's Collegiate Design Series which engages teams of student engineers to find solutions to real world challenges by designing, building, and operating a vehicle within a strict set of contest rules.

This year's team has the benefit of baseline measurements of power and emissions so they can compare the results of last year's snowmobile and competitor's snowmobiles with their new prototype. New this year will be a drivetrain design that the team hopes will result in less weight and more fuel efficiency.

Events scheduled to take place during the CSC2002 include emission testing, acceleration, hill climb, cold start, handling, noise measurement, fuel economy/range events, and oral/written design presentations.

The Institute of Science, Ecology, and the Environment (ISEE) has joined SAE as a sponsor during this third year competition. Competition sponsors include the Wyoming Department of Environmental Quality, the International Snowmobile Manufacturers Association, the American Council of Snowmobile Associations, the US Department of Energy--Western Regional Biomass Energy Program, and other local resorts and snowmobile associations.

The logo for NIATT (National Institute for Advanced Transportation Technology) features the letters "NIATT" in a bold, black, sans-serif font. A thick, horizontal green bar is positioned directly beneath the letters.

National Institute for Advanced Transportation Technology

For more information, contact Karen Den Braven  
[mkyte@uidaho.edu](mailto:mkyte@uidaho.edu)

Semi-Annual Report—July 2001—December 2001

# Hats Off! to NIATT Students

## Alexander Accepts Student-of-the-Year Award

David Alexander was one of 33 students honored at the Eleventh Annual Outstanding Student of the Year Awards ceremony held on Monday, January 14, 2002, at the 81st Annual Meeting of the Transportation Research Board (TRB) in Washington, D.C. Each year, the US Department of Transportation honors the most outstanding student from each participating University Transportation Center for his or her achievements and promise for future contributions in the transportation field.

After completing his master's degree at the University of Idaho, Alexander decided to pursue a Ph.D. His research involves the development of mathematical algorithms used for solving engineering design problems and the application of the algorithms to software for modeling hybrid electric vehicles.

Alexander worked closely with FutureTruck program as a team leader for the data acquisition and modeling group. His hybrid vehicle modeling software was used to design and analyze vehicle modification for the hybrid SUV. His other work includes interfacing a global positioning system with a programmable logic controller to monitor vehicle energy use, developing a testing procedure to evaluate the effects of design changes, and testing vehicles on a chassis dynamometer for determining fuel efficiency and emissions.

Alexander presented a paper and poster at the ADVISOR Users Conference in Costa Mesa, CA, August 22-24, 2000 titled, "A Logic-Based, Performance-Driven Electric Vehicle Software Design Tool." He coauthored a paper submitted to the Society of Automotive Engineers describing the FutureTruck 2001 hybrid electric vehicle design concept.

Alexander earned his BS in physical science from California State University, Chico. He worked as an environmental consultant developing environmental impact statements before returning to school to pursue an advanced degree in mechanical engineering. Alexander's 1999 MS thesis focused on designing a hands-on mechanics of materials laboratory course for distance education.



National Institute for Advanced Transportation Technology

## NIATT ITE Chapter Wins Traffic Bowl Again

On November 1, 2001, eleven students from NIATT's chapter of the Institute of Transportation Engineers joined students from five other universities for the annual traffic bowl competition in Portland, Oregon.

The UI team of Craig Dierling, Chhang Ream, Murali Basavaraju and Philip S. Rust captured first place again this year, making this NIATT's second year at the top.

The students also had an opportunity to visit traffic management centers at the City of Portland and Oregon's Department of Transportation, a transportation engineering consulting firm (Kittelson and Associates) and Portland's Transit Dispatch Center (Tri-Met).

## Rust and Hanenburg Receive Coral Sales Honor

Melissa Hanenburg and Phil Rust received the Coral Sales Company/Douglas P. Daniels 2001 scholarship of \$1000, recognized for their outstanding leadership qualities and participation in extracurricular activities.

Rust, a graduate student working in traffic operations and ITS design, has been an active member of UI's chapter of Institute of Transportation Engineers (ITE). He held an internship at Six Mile Engineering in Boise in summer 2001. A graduate of NIATT's first Traffic Signal Summer Camp, Rust assisted instructors during the second one.

Hanenburg began her career in transportation engineering as an intern at JUB Engineers in Hayden, Idaho. Although she will only complete her BS in spring 2002, she has already begun taking graduate classes. While remaining active in the American Society of Civil Engineers and the Concrete Canoe Competition, Hanenburg has managed to stay on the UI Dean's list.

## Scholarships Awarded to Hanenburg and Cronin

Melissa Hanenburg was chosen by the Idaho Chapter of the Institute of Transportation Engineers to receive this year's ITE Scholarship. She was recognized at a UI chapter meeting and received a check for \$500.

Eric Cronin, who is beginning an internship with NIATT, has been awarded the 2002 Road Builder's Clinic Scholarship. He will be honored at the annual conference in Coeur d'Alene, Idaho, where he will receive a check for \$500.

# Summer Internship Program Established

## Research Continues Year-Round

Just because summer means fewer undergraduates on campus and smaller classes, research projects don't slow down. And NIATT research projects translates into undergraduate experience.

In the summer of 2001, five students traded surfing for transportation engineering. Students worked closely with faculty advisors on continuing projects.

√ Eugene Bordenkircher, a senior in computer engineering, found his summer challenging. His efforts included firmware support for NIATT's Controller Interface Device, work on an SDLC interface, and design work for the next generation CID.

√ Richard Duldulao worked on the testing of CID II and hardware development for the next generation CID. Richard is an electrical engineering undergraduate. He and Eugene will work with Dr. Brian Johnson

√ Tamara Cougar helped complete freeway traffic and incident data analysis for Dr. Ahmed Abdel-Rahim.

√ Erik Skaugset also worked for Dr. Abdel-Rahim, developing and testing an integrated simulation model for Idaho's Ada County.

√ Kevin Young worked with Dr. Michael Dixon collecting traffic data and completing simulation runs, contributing to a project sponsored by the Idaho Transportation Department.

“Working on this project was the most valuable engineering experience I've had thus far in my career. I consider the experience much more valuable than spending the whole summer surveying--an offer I turned down this summer.”

Kevin Young  
Civil Engineering undergraduate





# Bits and Pieces . . .

## Idaho T2 Center Opens a Boise Office

The Idaho Technology Transfer (T2) Center opened a new office in Boise, Idaho, in the summer of 2001. The office is being staffed by Bruce Drewes, who accepted the new position of Training and Research Manager. Expansion to the Boise area will help the T2 Center better serve a larger portion of the state.

Drewes has many years of experience in highway construction and maintenance with the Idaho Transportation Department. He often helped bring T2's training programs to practicing engineers in ITD. As ITD's representative to the Idaho T2 Center Advisory Board, Bruce became familiar with the Idaho local public agencies.

Announcing the new position, NIATT Director Michael Kyte said, "I have known Bruce for a number of years and know that he will continue his strong commitment to bringing transportation technology to local agencies throughout Idaho."

## New Director Takes T2 Reins

Douglas R. Moore (BSCE, Oregon State University) was hired as the new director of the Idaho Technology Transfer Center. Moore is a civil engineer with more than 30 years experience. He most recently was the assistant district engineer in District II of the Idaho Transportation Department. He has also worked in the construction section of ITD.

"The search committee reviewed a number of highly qualified applicants for this position, and Doug turned out to be the top candidate," NIATT Director Michael Kyte said. He added that Moore is a natural communicator who knows the engineering community throughout the state.

## Online Lab Manual Featured by ITE

The summer 2001 edition of *TEC*, the Institute of Transportation Engineers Transportation Education Council Newsletter, named NIATT's Transportation Engineering Online Lab Manual its featured website.

The transportation engineering manual is a step towards providing realistic laboratory exercises and problems available to instructors of junior-level courses. The supplemental material helps make courses challenging and meaningful.

The website is available on the NIATT site at <http://www.its.uidaho.edu/niatt/labmanual>. The project was a collaborative project of NIATT and TransNow and funded by the University Transportation Centers program.

## Three NIATT Researchers Receive Honors

### *Steven Beyerlein*

Associate Professor of Mechanical Engineering and NIATT researcher Steven Beyerlein, was one of three UI faculty to be awarded a Teaching Excellence Award in 2001.

"Excellent teachers are at the heart of our living and learning environment. Their willingness to give of themselves in the classroom and in settings outside the formal classroom add to the total educational experience of a residential campus of choice," says Jeanne Christiansen, interim vice provost for academic affairs. The awards for teaching excellence are a tangible way to show the value superb teachers hold for our university.

### *Judi Steciak*

The UI College of Engineering recognized Judith A. Steciak by presenting her with the Outstanding Young Faculty Award for the 2001 academic year.

Steciak, assistant professor of mechanical engineering, has been at the UI-Boise Center since 1995, specializing in education, industrial outreach, and professional programs.

### *Charles Peterson*

Charles Peterson, agricultural engineering professor, received the 2001 National Park Partnership Award for Environmental Conservation. This honorable mention is only one of two awards given nationally. The Yellowstone "Truck in the Park" project has been in effect since 1995.



# Undergraduate Internship Program Attracts Students

## Thirteen Internships Awarded for Academic Year

Undergraduate students not only earn some cash to help with expenses; many of them also gain practical engineering experience by putting classroom theory into practice. Interns support projects in NIATT's Center for Traffic Operations and Control, Center for Clean Vehicle Technology, and Center for Transportation Infrastructure.

Eleven undergraduates were awarded NIATT internships for the 2001-2002 academic year:

- √ Rahim Abbasi--civil engineering--Rahim's internship will be with Dr. Edwin Schmeckpeper, trying to determine why concrete has a tendency to crack more than it did 20 years ago.
- √ Scott Anderson--mechanical engineering--Current president of the Advanced Vehicles Concept Team (AVCT), Scott aims to raise public awareness of hybrid electric vehicles: "My main goal is to show people that owning an electric vehicle is a reality, and sometimes more cost effective than a conventional vehicle."
- √ Joseph Howard--civil engineering--Joseph applied for an internship in transportation engineering because he feels the field provides an opportunity to put new ideas into practice.
- √ Scott Kahre--chemical engineering--Scott, a veteran member of the AVCT, will be working with Dr. David Drown, analyzing emission data on the 2002 FutureTruck.
- √ Yuri Mereszczak--civil engineering--Yuri said he was curious about transportation engineering and thought that an internship would provide him some hand-on experience.

"I plan to apply my chemical engineering skills to a position in the development of alternative energy sources that can provide our society with clean, affordable transportation for as long as people and goods need to get from place to place."

Scott Kahre  
NIATT Intern

- √ Brent Orton--civil engineering--Brent will help develop a database containing data for AADT prediction for Michael Dixon's project for the Idaho Transportation Department. Like other interns, Brent looks at the internship as an opportunity to determine his possible interest in transportation engineering.
- √ Jennifer Poole--civil engineering--Jennifer plans to enter a master's program after graduation. She will be assisting Dr. Edwin Schmeckpeper as they try to determine the acceptability of weathering steel faying surfaces.
- √ Christina Ryan--civil engineering--Christina will put her engineering skills to work this year analyzing and compiling data for a soil moisture monitoring project being conducted by Dr. Fouad Bayomy.
- √ Tara Tschauder--marketing--When Tara heard about the opportunity for a business student to work with the FutureTruck team, she immediately applied. She says she plans to use all she has learned of direct marketing to attract and retain companies as sponsors for the project and keep them informed of the team's progress.
- √ Chris Vair--mechanical engineering--Chris looks forward to contributing to both the FutureTruck and the Clean Snowmobile projects.
- √ Audra Wright--civil engineering--Audra spent three summers working in environmental and electrical engineering, but never had an opportunity to work in the area of transportation. "I am very excited to see if transportation is for me!" she wrote in her application.

