



# TRANSPORTATION

## Building Jobs through Transportation FOCUS Spring 2003

News and Information from the Rahall Transportation Institute



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### Partner Schools:



### RTI, MCTC Workforce Development Programs Graduate New Railroad Conductor, Towboat Deckhand Classes



by Brandon Totten

Workforce Development continues through the Marshall Community and Technical College, with support from RTI, with students graduating from two programs that prepare them for careers in transportation.

"These students are going to local jobs in local communities, working a job in which they can make a living wage."

*Ashley Burcham, Program Coordinator for the Railroad Conductor Training Program.*

The "Railroad Conductor Training Program," which is a five-week course in railroad safety, operating rules, signals, equipment and topics essential for success, graduated all 25 stu-



Above: Students learn to maneuver on RR cars. Left: RR Conductor graduates receive applause from family and friends.

Continued on 3: WORKFORCE

### RTI, USDOE Partnership Helps Secure Funds to Build 21<sup>st</sup> Century Industrial Park, May Bring up to 1000 Jobs to Southern W.Va.

by Brandon Totten

RTI, state legislators, the U.S. Department of Energy, and national research and development businesses committed to build an upcoming \$215 million clean coal co-production energy plant that could ignite a new spark to the Southern West Virginia economy.

The funds will be used to build a co-generation electrical generation plant that will be the anchor tenant in an ecologically-balanced industrial park at Rainelle,



W.Va. The grant will be matched through bonds for projects to initiate the development of the "eco" park.

Continued on 3: INDUSTRIAL PARK

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## Plymale's Perspective: *The Director's Report*

# "Creating Synergy in the Appalachian Region"



According to the American Heritage Dictionary, "synergy" is defined as "the interaction of two or more agents or forces so that their combined effect is greater than the sum of their individual effects."

Since 1998, RTI has consistently worked to "synergize" with researchers, educators, government officials and workers from the Appalachian region and throughout the United States. This symbiotic relationship allows RTI to achieve the goals of a University Transportation Center in the areas of research, education and technology transfer.

Principal investigators from RTI have cooperated with individuals from various institutions of higher learning and government agencies on various research projects. This research has contributed to safer highways, railroads and infrastructure and also created new technologies including more visible road signs, user-friendly GIS software

and improved infrastructure components.

Through partnerships with Marshall University, our four partner schools in West Virginia, and more recently, University of Nebraska-Lincoln and Colorado State University, RTI has developed new transportation degrees and emphases on the graduate level, and created new minors and individual courses on the undergraduate level.

Professionals are entering the railroad and maritime industries thanks to new technology transfer activities. This synergy has also been carried over to pre-K-12 outreach activities, which allow graduate education majors to gain hands-on, classroom experience while teaching students transportation concepts and technologies and encouraging them to pursue transportation careers.

Interaction among RTI and local, regional and national organizations

can add to a tech-savvy workforce, which has the potential to contribute to the region's economic development.

In conclusion, RTI has been fortunate to create synergy with representatives from various disciplines and organizations that have not only benefitted citizens of Appalachia, but the United States as a whole.

*Sincerely,*  
*Bob Plymale, RTI Director*

\*The American Heritage® Dictionary of the English Language, Fourth Edition  
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*All principal investigators, faculty, staff, students and other individuals who are or have been employed by RTI from August 2001 to the present are asked to submit a current photograph by Sept. 1, 2003, for RTI records. Head and shoulder shots taken in a professional setting are preferable and may be submitted as hard copies or electronically as .PDFs, .JPGS, .TIFFs or .PSDs. Photographs may be used in RTI publications including, but not limited to, annual reports, brochures, newsletters, research reports, online publications and presentations. For more information, contact Errin Jewell at (304) 696-7165 or jewell4@marshall.edu.*



## RTI Designated National Maritime Enhancement Institute



by Brian Dowler

RTI, in association with Marshall University, was recently designated the seventh National Maritime Enhancement Institute in the country.

NMEI institutes are authorized by the U.S. Transportation Secretary to undertake a variety of activities including: conducting research about ways to improve the performance of maritime industries, improving the international competitiveness of American maritime industries, assessing technological advancements, developing maritime management initiatives and training maritime workers and improving maritime

economics and finance.

Some of the issues with which the NMEI centers are involved include: port and terminal design and operation, including methods to evaluate land use conflicts centering on port location and procedures to improve the efficiency of docking and loading; integration of information technology to enhance the economic viability of the inland waterway system; vessel design improvements to optimize the efficiency of both towboats and tow barge systems; and infrastructure optimization including methods for evaluating lock and dam operations and prioritizing needed improvements.

From page 1: WORKFORCE

“These students are going to local jobs in local communities, working a job in which they can make a living wage,” Ashley Burcham, Coordinator of MCTC Railroad Conductor Training Program, said.

The Inland Waterways Academy graduated nine students from the deckhand training course, which prepares students for entry level jobs in the towing industry.

“This course allows the barge industry to conduct training locally,” Dana Robertson, coordinator, Inland Waterways Academy, said. “MCTC and RTI provide support for the industry through this program.”

Students were exposed to an overview of the towing industry, the different companies and types of work they will experience, the basic skills that are required to perform these jobs and orientation to life on the river aboard towboats. The students received training in first aid, CPR, basic firefighting and job interview skills. The 40 hours of training also emphasized safety and hands-on training in handling and using lines and hard rigging.

The second “Railroad Conductor Training Program” began March 3, and others are scheduled to begin April 7 and May 12, 2003.

From page 1: INDUSTRIAL PARK

The plant would burn coal waste in an environmentally friendly way to produce energy and create by-products that could be marketed. The plant would convert 1,160 tons per day of coal waste materials. A mixture of coal and limestone would be burned, and fly ash produced will be mixed with more limestone to produce up to 300 tons of structural bricks on a daily basis. Heat used from the burning of the coal will be used to produce 20,000 pounds per hour of steam for energy.





## Norfolk Southern Donates Highrail Vehicle to Assist RTI Researchers



by Errin Jewell

Norfolk Southern Corporation has donated a three-quarter ton truck fitted with high-rail equipment to the Nick J. Rahall, II Appalachian Transportation Institute to assist transportation researchers in completing rail safety research projects funded by the Federal Railroad Administration.

The high-rail vehicle will be used to complete research on projects including a three-phase study of inte-

*"We look forward to using this equipment to advance the body of research that will increase railroad safety and increase economic development in Appalachia."*

grated railroad track stability assessment and monitoring system.

"Track-related problems caused more than one-third of railroad accidents during one year," Dr. Richard Begley, project engineer and RTI assistant director, said.

"We look forward to using this equip-



ment to advance the body of research that will increase railroad safety and increase economic development in Appalachia."

## Rail-Track Research Presented during TRB, Engineering Geophysical Society Annual Meetings

by Brian Dowler

Two RTI staff members presented papers at the Transportation Research Board's 82<sup>nd</sup> annual meeting January 12-16, 2003, in Washington D.C.

Tony Szwilski, Ph.D., and Richard Begley, Ph.D., presented **Application of Geophysical Methods to Evaluate Rail-Track Subsurface**.

The TRB Annual Meeting program covered all transportation modes with more than 2,200 exhibitors in 450 sessions.

Four RTI staff members also presented papers at the Symposium on the Application of Geophysics to Environmental and Engineering Problems (SAGEEP), the annual

meeting of the Environmental and Engineering Geophysical Society (EEGS), April 6-10, 2003 in San Antonio.

Tony Szwilski, Ph.D., Richard Begley, Ph.D., John Ball, P.E., and Peter Dailey, Research Associate, presented **Application of Geographical Methods to Evaluate Rail-Track Subsurface**.

Since 1988, SAGEEP has been the premier conference for the transfer of technology between geophysicists and

end-users in mining, engineering and environmental sciences.

*Left: Dr. Richard Begley, RTI Associate Director, helped present "Application of Geophysical Methods to Evaluate Rail-Track Subsurface."*



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Read *Transportation Focus* online at [www.marshall.edu/ati/news/newsletter.htmlx](http://www.marshall.edu/ati/news/newsletter.htmlx)



## E. David Cartwright, Research Associate in Engineering, Welcomed to RTI Staff



by Brian Dowler

E. David Cartwright joined RTI during summer 2002 as a Research Associate in Engineering.

As a full-time assistant professor in the college of science, he taught integrated science and technology with manufacturing emphasis and pre-engineering courses.

He earned a master's degree in mechanical engineering from the University of Dayton and has met the course requirements for a Ph.D. from Ohio State University.

Cartwright is working on several projects at RTI that involve modeling and computer simulation in addition to supporting pre-K-12 activities, and he serves as RTI webmaster. He previously worked as principal investigator on the "Design a Future Vehicle short course" and the "K-12 Design a Future Vehicle website."

*DID YOU KNOW.....  
More than 30 educators from colleges and universities in West Virginia have served as Principal Investigators for RTI research projects.*

## Summer, Fall Transportation-Related Courses Offered at Marshall through RTI

A partnership between RTI and Marshall University provides graduate and undergraduate students with opportunities to enroll in transportation-related courses in disciplines including: technology management, industrial engineering, economics, engineering management, safety, finance, marketing, geography and information systems. Additional courses are under development.

### Courses offered Summer 2003 include:

#### Session B:

- IS 645 Geographic Information Systems
- TM 651 Special Topics: Modern Manufacturing Methods
- EM 660 Project Management

### Courses offered Fall 2003 include:

- EM 660 Project Management
- GEO 510 Urban Geography
- TM 600 Program Introduction Seminar
- TM 610 Management of Innovation Technology
- TM 620 Technology Planning

## New MBA-Transportation Course Offered at MUGC

by Brian Dowler

Dr. Mark Burton of the Center for Business and Economic Research will instruct the Economics 651 course, **Transportation and Logistics II**, during Session A of Marshall University summer school.

The class is the second part of a two course concentration that allows MBA students to graduate with a concentration in transportation and logistics.

The first course of the duo was an overview of transportation and logistics. The second course is directed toward transportation research and is an applied course that will acquaint students with research methods and transportation data.

"By offering this type of course, our MBA students are afforded an opportunity that will allow them to step into the job market with a specialization that they probably couldn't get elsewhere," Burton said.





## Transportation, Railroad Professionals Explore Design, Construction, Maintenance, Temporary Traffic Control at Transportation Professional Development Seminar

by Errin Jewell

On March 18-19, 2003, professionals from the transportation and railroad industries explored the basic aspects of design, construction, maintenance and temporary traffic control issues during a "Railroad and Highway Traffic Safety and Operations" Transportation Professional Development seminar at Bluefield, W.Va.

LeAndria Reed, graduate safety major, helped organize this course at one of RTI's partner schools, Bluefield State College, and previous courses at South Charleston and Cacapon State Park.

"We are fortunate to be able to provide industry professionals from the region with essential information that helps them keep our railroads and highways operating safely," Reed said.

"This seminar is a valuable service



in improving the transportation infrastructure in Appalachia."

Participants received 1.55 Continuing Education Units (CEUs) for completing the course.

RTI, CSX, Norfolk Southern Corporation, West Virginia Department of Transportation, West Virginia Department of Highways, Federal Highway Administration and Marshall University Division of Environmental Science and Safety Technology sponsored the seminar, which may be repeated Nov. 2003 in Pittsburgh. Register online at [www.marshall.edu/rti](http://www.marshall.edu/rti) or call (304) 696-7098.

Participants received information that equips them to:

- Understand the physical and operational characteristics of railroad locomotives/cars and highway vehicles.
- Be aware and understand the mission and organization of railroad companies and state highway agencies.
- Understand normal maintenance practices employed by the railroad and state highway.
- Be aware of the basic principles of highway traffic control devices and railroad signaling devices.
- Be able to identify and establish key communications between the two entities.

## RTI Co-Sponsors National Conference, Focuses on Curriculum Development

by Brandon Totten

A national conference co-sponsored by RTI exposed national experts to a new Marshall University curriculum on off-highway vehicle trail management during the National Off-Highway Vehicle Conservation Council Annual Conference March 27-30, 2003, in Charlotte, N.C.

Off-highway vehicle (OHV) experts attended an invitation only session entitled "Marshall University Off-highway Vehicle Curriculum" which also solicited a national advisory team to help further guide the curriculum to a distance education format for students across the nation.



"The NOHVCC has committed to assist in the design and development of these courses," Dr. Raymond L. Busbee, a principal investigator for RTI, and a professor of Parks Recreation and Leisure Services at Marshall University, said.

The conference was sponsored by the United States Department of Transportation, Federal Highway Administration and North Carolina Parks Services.

*Right: Dr. Raymond L. Busbee spoke during the The National OHV Program Managers Conference & NOHVCC Conference in Charlotte, N.C.*





## Summer Engineering Workshop Allows High School Juniors to Explore Careers



Above: A student learns to integrate data into GIS software at the EEAE 2002 summer workshop.

by **Brandon Totten**

High school students from West Virginia, Kentucky and Ohio who are entering their junior year are invited to apply for the "Exploring Engineering: Academy of Excellence 2003" June 22-27 at Marshall University.

The Academy is designed to encourage high school students to explore career options in engineering by participating in hands-on engineering activities, touring engineering related facilities and interacting with engineering professionals.

RTI, Society of American Military Engineers Huntington Post, Marshall University, and other organizations and individual engineers sponsor the event.

Approximately 32 students are selected based on their academic transcripts and letters of recommendation. Students must be enrolled in a college preparatory curriculum.

Applications are available online at [www.marshall.edu/eeae](http://www.marshall.edu/eeae). For more information, contact the EEAE Committee at [eeae@marshall.edu](mailto:eeae@marshall.edu) or (304) 746-2042 or (304) 696-5453.

## Online TO<sup>2</sup>W Lesson Plans May be Used to Provide Students Hands-on Technology Training

by **Errin Jewell**

Dr. Bill Carter, Marshall University Associate Professor of Education and RTI Transportation Outreach on Wheels (TO<sup>2</sup>W) coordinator, has created a series of online lesson plans to assist teachers in instructing students in computer programming, and other technologies.

The lesson plans coordinate with TO<sup>2</sup>W LEGO Robotics activities, which are conducted throughout the tri-state by graduate education majors from Marshall University. West Virginia IGOs, hands-on learning, technol-



ogy objectives and transportation concepts are integrated into the plans.

A pre-visit package that helps teachers prepare for TO<sup>2</sup>W visits and eight lesson plans are online at <http://www.marshall.edu/ati/TOWII/k12.htm>. Additional plans will be available in the future.

Contact Carter at [bicarter@marshall.edu](mailto:bicarter@marshall.edu) or (304) 696-2879 David Cartwright, RTI Webmaster, at [cartwig@marshall.edu](mailto:cartwig@marshall.edu) or (304) 696-2525 for more information.

## Students Learn to Construct Roads, Bridges during Outreach

by **Brandon Totten**

Two Professional Engineers, John Ball of RTI, and Jeff Ball of the West Virginia DOT, guided 13 students from Marshall University's Child Development Academy through the process of constructing roads and bridges Feb. 2003.

RTI's "On the Road With the Little



Above: Engineers and students at Marshall University's Child Development Academy discuss transportation during National Engineer's Week.

Lambs" program informed students about transportation through discussions and hands-on learning.

The program took place in recognition of National Engineer's Week. RTI graduate assistants and MU student teachers discussed the history of roads, vehicle construction and transportation careers. Students learned to identify modes



of transportation such as cars, trains, bicycles and trucks, and also built rail cars for the "Rahall Express."





## We welcome your questions and input!

RTI wants your input on future research topics and activities including:

- Intermodal Transportation
- Transportation Professional Development Courses
- Transportation and Economic Development
- College Degree Programs or Courses

To submit your feedback, please call us at (304) 696-7098 or click the "Contact Us" link at [www.marshall.edu/rti](http://www.marshall.edu/rti).

## Upcoming Events at RTI

### Conferences

#### August 7, 2003

Geological Hazards in Transportation in the Appalachian Region; University of Kentucky, Lexington, Ky.

### Transportation Professional Development Courses

#### May 12 and June 16, 2003

Railroad Conductor Training Program (First Day of Class); Cabell County Career and Technology Center; Huntington, W.Va.

#### June 10-11, 2003

Application of FHWA Traffic Monitoring Guide; MUGC, South Charleston, W.Va.

#### June 18-20, 2003

Train the Trainer for the Transportation Industry Workshop, MU, Huntington, W.Va.

#### July 15, 2003

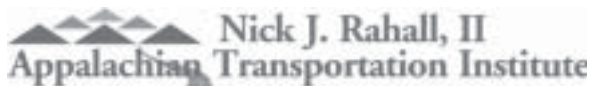
Survey and Image Map Base Integration with GIS; MU, Huntington, W.Va.

### Pre-K-12 Outreach

#### June 27-28, 2003

Exploring Engineering Academy of Excellence (for high school juniors); MU, Huntington, W.Va.

Register online at [www.marshall.edu/rti](http://www.marshall.edu/rti) or call Sandra Jones at (304) 696-7098.



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