Moving Forward with Another Productive Year

By Deborah Rosen, Ph.D.
URITC Executive Director

The URITC continues to make progress in research, education and outreach. Sponsored research projects launched this year include Dr. Jhy-Hone Wang’s “Studying Bottleneck Issue at Work Zones and Assessing the Effectiveness of a Portable Dynamic Lane Merging System in Promoting Zip Merging Behavior.” This project introduces a new approach to managing merging behavior based upon research from our partners in the Czech Republic. This is a great example of the type of technology transfer activities our international partnership has nurtured.

Another project, “Strategic Management System with Performance Measures for Rhode Island Department of Transportation,” involves Professors Douglas Hales, Henry Schwarzbach and Anthony Wheeler. As he indicated in his recent visit to Rhode Island, performance management is a hot topic for Victor Mendez, Administrator of the Federal Highway Administration. The performance management system resulting from this project will contribute to continued improvement in RIDOT operations.

Further emphasizing the importance of workforce development, the URITC is one of the sponsors of next year’s Transportation Workforce Summit, to be held in Washington, D.C. New technologies, the retirement of the baby boomers and strong competition from other industry sectors makes coordination of these efforts even more necessary if we are to develop and attract individuals with the right skills for tomorrow’s transportation workforce.

Finally, transportation funding is still in turmoil on the state and national level. We are fortunate that Lincoln Chafee recognizes the importance of addressing this issue and proposes assigning state revenue sources to fund transportation. Like the current pension crisis, funding transportation in Rhode Island is something which can no longer be put on the back burner.

URITC Transportation Week Breakfast

On May 19, the URITC hosted its 11th Annual Transportation Week Breakfast at the Airport Radisson in Warwick.

The keynote speaker was the Administrator of the Federal Highway Administration (FHWA), Victor M. Mendez. His message to the audience was about the future of transportation and how to build and maintain a first-class transportation system during challenging economic times.

Phil Kydd, deputy director of the Rhode Island Department of Transportation and URITC board member, presented RIDOT’s 7th Annual Quality Award. The recipients were:

**Excellence Award**
- David E. Capalbo, RIDOT
- Lisa Hill, RIDOT
- R.I. Division of Purchases
- The Employees of RIDOT Maintenance Division

**Quality Award**
- Russell B. Holt, P.E., RIDOT

**Innovation Award**
- The Town of Burrillville

**Highway Safety Award**
- Janis E. Loiselle, RIDOT

**Pioneering Award**
- Steven L. Drager, RIDOT
- R.I. Airport Corp.
- Gilbane Building Co.

**Transportation Safety Award**
- Luanne Nevitt, P.E., RIDOT
- Maguire Group Inc.

From left: FHWA Administrator Victor Mendez, URI Co-Researcher of the Year Yuwen Chen, URI College of Business Administration Dean Mark Higgins, RIDOT Director Michael Lewis, Governor Lincoln Chafee and URI President David Dooley.

*Photo by Ron Giles*
KROES AND CHEN NAMED RESEARCHERS OF THE YEAR

Each year, the URITC awards research grants with the goal of making a positive impact in the transportation field. In many cases, the research results are difficult to quantify.

In the case of the “Feasibility Study to Increase Utilization at the Port of Davisville,” the research resulted in Rhode Island receiving a $22.3 million Federal Transportation Investment Generating Economic Recovery (TIGER) grant. The grant will be used to increase the port’s capacity, allowing for the staging for off-shore wind equipment and the handling of cargo for short sea shipping.

In recognition of the hard work that James Kroes and Yuwen Chen put into the study, which led directly to the TIGER grant, the two URI professors were named the 2010 Co-researchers of the Year by the URITC.

“This award recognizes the impact these researchers have had on their students, the state and the New England corridor,” said URITC Executive Director Deborah Rosen.

The idea for the research study was initiated when Kroes met Port Director Evan Matthews while visiting Davisville on a tour of the port for the URITC’s Business Academy.

“Evan asked if I knew anyone at URI that might be interested in working on a research project to evaluate the feasibility of using the port for containerized freight shipments,” explained Kroes. “The project was a great supply chain and transportation study that would allow us to involve students in innovative research.”

Aside from the professors, several URI students played important roles in the study.

“The outcome of the URITC research project is strong evidence to the caliber of faculty and students which URI has been able to attract to the Supply Chain program,” said Rosen. “This major was started with a grant from the URITC and the fact that it led to a substantial federal grant is a testament to the wisdom of initiating this program.”

In the nomination letter for the URITC award, Matthews wrote, “As a transportation professional and adjunct faculty for the University, it has been a pleasure to work with Professors Chen and Kroes, and to be a part of the research experiences they have created for URI students.”

Porsche Moves to Davisville

On Sept. 14, 2010, Porsche Cars North America (PCNA) announced that it is moving its port of operations from the Port of Baltimore to the Port of Davisville in North Kingstown.

On an annual basis, the port will serve as the entry point for some 11,000 Porsches that are bound for dealerships throughout the Northeast.
UPDATE: Educating Drivers Using the Simulator

Teenagers from eight driver’s education classes during the 2010-2011 academic year were invited to participate in the URITC-sponsored research study, “Developing Training and Educational Materials for the TranSim IV Driving Simulator.”

The project investigators included Associate Professor Valerie Maier-Speredelozzi, Professor Jyh-Hone Wang, Professor Charles Collyer and Emilio Colantonio, director of the Center for Workforce and Community Education at the Community College of Rhode Island.

The teenagers completed three driving scenarios using the simulator. The first was a practice scenario, for the driver to become familiar with the equipment. The second was in a suburban environment, where the drivers had to interact with other traffic. In the third scenario, the teens had to drive in a highway environment, including negotiating on-ramps and off-ramps during snowy and icy weather.

“The simulator gives teens the opportunity to practice driving before they are legally allowed to get behind the wheel of a real vehicle,” said Maier-Speredelozzi. “More importantly, it allows them to practice situations that would not be safe or practical to test on the road.”

Of the 21 participants in the pilot study, the DMV reported that 19 have taken and passed the road test, and no violations or crashes were recorded in the first eight months after the class. The research team is working on analysis of the other seven classes which were held in the spring.

Investigators will request DMV records for the teens who participated in the study until their 18th birthday, to see if those students ultimately have fewer citations or crashes.

2011 URITC-Sponsored Research Projects

Studying Bottleneck Issue at Work Zones and Assessing the Effectiveness of a Portable Dynamic Lane Merging System in Promoting Zip Merging Behavior

PI: Dr. Jhy-Hone Wang

This study examines the vehicle bottleneck issue at work zones by testing the effectiveness of a portable dynamic lane merging system to facilitate “zip merge” behavior. Travel time, queue length, number of aggressive behaviors, and roadway accidents are increased at work zones. A strategy called “zip merging” was employed by several states to encourage drivers to take turns when merging into reduced lanes at work zones. It is considered an effective tactic for merging traffic from several to fewer lanes.

However, operational difficulties are often experienced by transportation authorities since most motorists in open lanes would not give up their right-of-way at the merge point. As a result, heavy congestion or “bottlenecks” are formed in closed lanes and thus increases the accident potential and road rage among drivers.

Strategic Management System with Performance Measures for Rhode Island Dept. of Transportation

PI: Douglas Hales, Henry Schwarzbach and Anthony Wheeler

Performance measures provide accountability as well as feedback on the effectiveness of long-term strategies, and can drive improvement in processes for the delivery of transportation services. Performance measures in planning are used in reporting trends, conditions, and outcomes resulting from improvements to the transportation system.

The aim of this project is to develop a mission, vision, shared values, agency-level strategy with selected strategic initiatives and key performance indicators that are consistent with the Federal Highway Administration (FHWA) Strategic Plan and that of the State of Rhode Island.
**URITC Introduces the Green Design Academy**

The newest workforce development program offered by the URITC to secondary students is the Green Design Academy. Scheduled for July 11-15, the program will introduce high school students to careers involving sustainable landscape architecture.

Like the Engineering Academy, Business Academy, Construction Academy and Summer Transportation Institute, the Green Design Academy is sponsored by the Rhode Island Department of Transportation and Federal Highway Administration.

The URITC has supported several projects in the design classes of the URI Landscape Architecture program. The Green Design Academy is a natural extension of the relationship that the URITC has built with this program.

“Every landscape architecture project begins with some element of transportation, whether it is a road or a parking lot, so there is a natural match in terms of our interest in the built environment,” said URITC Executive Director Deborah Rosen. “This academy gives students an opportunity to learn about another transportation-related career field, while also exploring the topic of sustainability.”

According to U.S. Department of Labor statistics, employment of landscape architects is expected to grow 20 percent through the year 2018, which is much faster than the average for all design professions.

“The planning and development of new construction, along with the continued redevelopment of existing buildings and sites, will together create more opportunities for landscape architects,” said URI Professor Will Green. “Environmental concerns and an increased demand for sustainable sites will also increase the demand for the services provided by landscape architects.”

Green, who teaches in URI’s Department of Landscape Architecture, will direct the academy. Topics will include sustainable practices, design and communication, sustainable transportation, and coastal ecology.

URI professors and practicing architects will serve as guest speakers. Field trips in the community will provide students with examples in which landscape architecture plays a prominent role.

An example of how landscape architecture plays a role in a local transportation-related project is the proposed pedestrian bridge that will link the Fox Point and College Hill sections of Providence to downtown. InFORM Studio of Detroit beat out 46 other firms from all over the world for the $2 million project, which will be completed in 2013.

*Image: Providence Planning & inFORM Studio*
SMILE Middle School Engineering Challenge

On March 11, 80 students from six middle schools gathered at URI for the SMILE Transportation Engineering Challenge. SMILE is an acronym for Science and Math Investigative Learning Experiences.

The future engineers were asked to design and build a model truss bridge using chopsticks and glue. Each team was given specifications and a budget for supplies. Once completed, the bridges were weighed, specifications were checked and the structures were put to the strength test.

Rather than working with classmates, the students are placed into groups with those from other schools.

“We try and mix up the genders, grades and schools as much as possible,” said SMILE Program Coordinator Lacey Feeley. “We do this so that the students can meet new people who have similar interests. It is another way for students to build confidence and realize that there are many people who value learning.”

Having students from different schools work closely together also fosters teamwork and creativity.

“My students participated in meaningful discussions, used problem-solving strategies that they practiced throughout the year, and worked collaboratively with other students to produce a product that they would be proud of,” said Karen Fiore of Calcutt Middle School in Central Falls.

Volunteers and mentors included URI students from the National Society of Black Engineers (NSBE), the Society of Hispanic Professional Engineers (SHPE), students from the Center for Student Leadership, SMILE alumni now studying at URI, RIDOT employees, and employees of Steere Engineering, Schneider Electric and Toray Plastics.

Students work together to glue a piece of their bridge in place. 

Photo by Neil Nachbar

A URI student mentor (center) works with two middle school students.

Photo by Neil Nachbar

Each bridge, such as the one pictured above, had a distinct style.

Photo by Neil Nachbar

Participating Schools

<table>
<thead>
<tr>
<th>School</th>
<th>City/Town</th>
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<tbody>
<tr>
<td>Broad Rock Middle School</td>
<td>South Kingstown</td>
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<tr>
<td>Calcutt Middle School</td>
<td>Central Falls</td>
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<tr>
<td>Curtis Corner Middle Schools</td>
<td>South Kingstown</td>
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<tr>
<td>Davisville Middle School</td>
<td>North Kingstown</td>
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<td>Deering Middle School</td>
<td>West Warwick</td>
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<tr>
<td>Woonsocket Middle School</td>
<td>Woonsocket</td>
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Engineering Career Day

Close to 150 high school students from 14 schools participated in the URITC’s 5th Annual Engineering Career Day on May 20 at URI’s Kingston campus.

Divided into groups, the participants rotated through four learning labs: bridge and geotechnical engineering; traffic engineering and highway design; field survey, GIS and asset management; and water resources, environmental planning, hazardous materials and drainage.

“For five years, we have given students the opportunity to learn more about civil engineering, with workshops specifically designed to provide insight into the many diverse areas of study and design,” said Rhode Island Department of Transportation (RIDOT) Director Michael P. Lewis.

A new feature to this year’s event was the bridge building contest. Students were asked to design and construct a model bridge out of balsa wood and glue according to the specification provided. The bridges were completed ahead of time and tested for strength at the event.

Besides URITC and RIDOT, Engineering Career Day was sponsored by the Federal Highway Administration (FHWA), RI Consulting Engineers (RICE), and the University of Rhode Island College of Engineering.

Students took turns using a device which measures the reflectivity of road signs. 

Students learn about storm water management. 

Above: Danny Monteiro and Karen Mejias of Tolman won first and third place respectively in the bridge building contest. 

Below: The North Smithfield Northmen Builders captured second place. 

Photos by Neil Nachbar
Rhode Island Construction Career Days

Over 1,000 students from more than 50 technical schools and high schools throughout the state attended the 11th annual Construction Career Days on April 27 and 28.

Students received hands-on experience in a wide range of construction-related trades, including welding, carpentry and pipefitting. They also used heavy construction equipment, such as backhoes and bucket trucks.

One of the highlights was the 2nd annual bridge building contest. Twenty-seven teams from 15 schools entered.

RICCD was held at RIDOT’s midstate maintenance facility.

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<thead>
<tr>
<th>Bridge Building Results</th>
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<tbody>
<tr>
<td><strong>First Day</strong></td>
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<td><strong>Place</strong></td>
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<td><strong>Second Day</strong></td>
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<td><strong>Place</strong></td>
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<td>1st</td>
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A student operates a jackhammer.  
Photo by Neil Nachbar

A student learns how to operate a an excavator simulator.  
Photo by Neil Nachbar

National Construction Career Days Center

The Construction Career Days program had another record-breaking year in 2010. The number of events held (60) broke the previous high of 56 for events in one year (2009 and 2008). Girls accounted for 32 percent of the participants in 2010, which is an improvement over the presence that they’ve had overall since the program began (26 percent).

The 66,170 students who attended events in 2010 pushed the total number of students who have participated in the program since 1999 over the 400,000 mark.

In the first half of 2011, 25 events were scheduled throughout the country. Events continue to be held nationwide due, in large part, to the momentum created by the NCCDC though the program is currently on hiatus.

The CCD event held in Boise, ID on Feb. 1 was named “Rigs & Gigs – A Hands-on Career Exploration Event.”

Photo by Neil Nachbar
Rhode Island Technology Transfer Center

The Rhode Island Technology Transfer Center offered 85 trainings and workshops for public works and transportation officials through the first half of 2011. Some of the trainings included Chainsaw Skills and Safety, Disaster Management, Stress Management, Flagger Certification.

In response to many cities and towns exceeding their snow removal budgets this winter, a series of summits were held throughout the state to discuss better utilization of municipal and state resources with regards to snow removal.

As a result of the conversations, the Rhode Island Department of Transportation (RIDOT) agreed to let municipalities borrow or purchase salt from the RIDOT facility closest to that city or town, which in many cases, will be more convenient than returning to the municipality’s maintenance facility to reload their trucks with salt.

The chart to the right shows where the summits took place and which RIDOT facilities were discussed.

<table>
<thead>
<tr>
<th>Date</th>
<th>Meeting Location</th>
<th>RIDOT Division</th>
<th>Facility Location</th>
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<tbody>
<tr>
<td>March 25</td>
<td>Richmond Fire Dept.</td>
<td>Division</td>
<td>Hope Valley</td>
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<tr>
<td>April 8</td>
<td>Middletown Town Hall</td>
<td>Washington South</td>
<td>Providence</td>
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<td>April 15</td>
<td>Coventry Town Hall</td>
<td>Newport</td>
<td>Rivera</td>
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<td>April 29</td>
<td>RIDOT Training Center</td>
<td>Kent</td>
<td>Middletown</td>
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<td>May 6</td>
<td>RIDOT Training Center</td>
<td>Washington North</td>
<td>Bristol</td>
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<tr>
<td>May 13</td>
<td>RIDOT Training Center</td>
<td>Kent</td>
<td>Westerly</td>
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<tr>
<td>May 26</td>
<td>RIDOT Training Center</td>
<td>Providence</td>
<td>Smithfield</td>
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Bruce LaFluer (right), of J&R Precast, was one of the many vendors on hand at the 14th annual Indoor Expo on Feb. 9.

Photo by Neil Nachbar

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Peter Osborn
Division Administrator, Rhode Island Div. FHWA

Mark M. Higgins
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