The URI Transportation Center was established in 1999 to conduct multidisciplinary education, research, technology transfer and outreach for surface transportation systems and advanced transportation infrastructure.

The Center is one of 66 national centers supported by the U.S. Department of Transportation through the University Transportation Centers Program.

An Executive Director manages the overall operations of the Center, an Outreach Director directs all technology transfer activities and the assistant director oversees the research process. The Center has an Executive Board, chaired by the URI Vice President for Administration, whose members represent all of the Center’s stakeholder groups.

**Theme**
Surface Intermodal Transportation Systems and Advanced Transportation Infrastructure with Special Reference to the Marine Environment.

**Mission**
To advance U.S. technology and expertise in the many disciplines composing transportation through the mechanisms of education, research, and technology transfer at a university-based center of excellence.

**National UTC Goals**

**Education:** a multidisciplinary program of course work and experiential learning that reinforces the transportation theme of the Center.

**Human Resources:** an increased number of students, faculty and staff who are attracted to and substantively involved in the undergraduate, graduate, and professional programs of the Center.

**Diversity:** students, faculty, and staff who reflect the growing diversity of the U.S. workforce and are substantively involved in the undergraduate, graduate, and professional programs of the Center.

**Research Selection:** an objective process for selecting and reviewing research that balances multiple objectives of the program.

**Research Performance:** an ongoing program of basic and applied research, the products of which are judged by peers or other experts in the field to advance the body of knowledge in transportation.

**Technology Transfer:** availability of research results to potential users in a form that can be directly implemented, utilized, or otherwise applied.

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**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>About the Center</td>
<td>2</td>
</tr>
<tr>
<td>Executive Director’s Message</td>
<td>3</td>
</tr>
<tr>
<td>Executive Board &amp; Staff</td>
<td>4</td>
</tr>
<tr>
<td>Research</td>
<td>5-14</td>
</tr>
<tr>
<td>URITC Researcher of the Year</td>
<td>6</td>
</tr>
<tr>
<td>Achievements</td>
<td>7</td>
</tr>
<tr>
<td>Projects</td>
<td>8-14</td>
</tr>
<tr>
<td>Highlights</td>
<td>15-28</td>
</tr>
<tr>
<td>Intervention Pilot Project</td>
<td>16</td>
</tr>
<tr>
<td>National Transportation Week Breakfast</td>
<td>17</td>
</tr>
<tr>
<td>Engineering Career Day</td>
<td>18</td>
</tr>
<tr>
<td>Rhode Island Construction Career Days</td>
<td>19</td>
</tr>
<tr>
<td>National Construction Career Days Center</td>
<td>20</td>
</tr>
<tr>
<td>Middle School Engineering Challenge</td>
<td>21</td>
</tr>
<tr>
<td>Transportation Fellowship Program</td>
<td>22</td>
</tr>
<tr>
<td>Central European Technical Tour</td>
<td>23</td>
</tr>
<tr>
<td>Outstanding Student of the Year</td>
<td>24</td>
</tr>
<tr>
<td>Student Success Stories</td>
<td>25</td>
</tr>
<tr>
<td>Summer Transportation Institute</td>
<td>26</td>
</tr>
<tr>
<td>Summer Academies</td>
<td>27-28</td>
</tr>
<tr>
<td>LTAP / RIT2 Workshops</td>
<td>29</td>
</tr>
<tr>
<td>Financial Report</td>
<td>30-31</td>
</tr>
</tbody>
</table>
Our accomplishments for 2010 continue the URITC’s tradition of excellence. Our programs have continued to build on our strong foundation in all areas, research, education and outreach. Importantly, our network of collaborations continues to grow to help in all these efforts.

Our joint research program with the Rhode Island Department of Transportation was initiated and seven proposals are going to be funded as a result of the first year of our research partnership. Several of these are highlighted in this report. We are going to be reviewing 10 proposals for the 2011 program.

One of the highlights of our two years working on a joint research program is the breadth of these projects. We are entertaining, or have funded, proposals from a variety of researchers representing colleges across the URI campus including Arts and Sciences, Business, Engineering, and Environmental Life Sciences. This breadth highlights the fact that the transportation sector requires the expertise of a wide variety of individuals trained in many disciplines.

Our network for reaching out to the transportation workforce of tomorrow continues to grow. We recognized that it was not good enough to just inform the K-12 students about these great career opportunities; that we had to also reach out to their teachers.

In 2010, we ran our first teacher externship with five Rhode Island High School teachers whose experiences are now being translated into curriculum pieces that will be shared with other instructors. One of our participants actually started an Engineering Academy at his high school this year. Obviously the program is having an impact. We are currently recruiting teachers for our 2011 program.

We also had a most satisfying meeting of the Central European Technology Transfer Exchange (CETE) partners in Prague in the fall. This partnership has resulted in several technology transfer/research projects. Currently URI and RIDOT are testing a CETE technology to be used to facilitate mergers around construction sites and other congestion zones. Our recent meeting is highlighted in this issue.

Of course none of these accomplishments would be possible without our partners. We have been fortunate to have the continued support of Rhode Island Department of Transportation and Federal Highway, Federal Highway, and many industry professionals.

Having a dedicated, professional staff is the other ingredient that makes all of this possible so a big thank you to Tory Perrotta, Nancy Murphy, Neil Nachbar, Ron Giles and Gema Vinuales.

While in the Czech Republic, the contingent from Rhode Island were given a presentation by Martin Pipa on a device that helps traffic merge safely. 

Photo by Jeff Cathcart
EXECUTIVE BOARD

The URITC Executive Board is composed of the principal University and public sector stakeholders. The group provides advice to the President of the University of Rhode Island and to the URITC Executive Director in terms of the goals and overall objectives of the Center’s programs.

Robert Weygand, Chair
URI Vice President, Administration

Michael Lewis
Director, RIDOT

Peter Osborn
Division Administrator, R.I. Division, Federal Highway Admin. (FHWA)

Mark M. Higgins
Associate Dean, URI College of Business Admin.

Phillip Kydd
Assistant Director, RIDOT

Raymond Wright
Dean, URI College of Engineering

Jared Rhodes
Chief, RI Statewide Planning Program

Peter Alfonso
URI Vice President, Research and Economic Development

Kevin Smith
President & CEO, Sustainable Supply Chain Consulting

STAFF

Deborah Rosen
Executive Director

Ronald Giles
Senior Information Technologist

Nancy Murphy
Fiscal Management Officer

Neil Nachbar
Writer

Tory Perrotta
Senior Wordprocessing Typist

Gema Vinuales
Research Manager

CONSULTANT

Jeff Cathcart

COVER PHOTOS

Commuter Train
Commuter trains began servicing T.F.Green Airport on Dec. 6. The trains, operated by the Massachusetts Bay Transportation Authority (MBTA), began with six northbound runs and five southbound runs on weekdays on the Providence/Stoughton line. The train station, which is attached to the airport via a sky bridge spanning Post Road, opened in November.

Providence Pedestrian Bridge
In December, the winner of the design competition for the pedestrian bridge proposed to replace the old Interstate 195 was announced. Inform Studio of Detroit beat out 46 other firms from as far away as China and Sweden. The bridge is expected to be completed at the same time as the I-way project, in early 2013.

RIPTA Hybrid Bus
In October, the Rhode Island Public Transit Authority (RIPTA) unveiled its new hybrid buses and trolleys. RIPTA bought 63 hybrid buses and 10 hybrid trolleys to replace existing buses in its fleet of about 240 vehicles. Federal economic stimulus money made it possible to buy hybrid buses. The buses cost $625,000 each and the trolleys $697,000 each.

Bike Paths
In June, the Warren Bike Path opened. The 1-mile bikeway extends from the Kickemuit River to Long Lane, close to the Massachusetts border. RIDOT provided $1.2 million for design and construction of the path.

In October, the next segment of the Coventry Greenway opened. The new section connects with the West Warwick Greenway, then the Warwick Bike Path and finally the Cranston Bike Path.
Christopher Baxter

By Jessica Buffi
URITC Intern

The URITC named Christopher Baxter its Researcher of the Year at the 10th Annual Transportation Week Breakfast. Baxter is an associate professor in URI’s Ocean, Civil and Environmental Engineering Departments. He has worked for the University for 10 years.

“Chris brings everything to the table. He is a top notch researcher, a great teacher and an excellent colleague who is always willing to consider new opportunities,” said URITC Executive Director Deborah Rosen. “His research in the realm of transportation has been extremely productive and he is highly respected by our transportation partners in industry.”

Baxter is recognized for his research achievements in numerous projects involving the liquefaction resistance of silts. The overall goal of the projects is to better understand the behavior of Providence silts under dynamic loading, such as what would occur during pile driving or during an earthquake.

“Silts are a difficult material to characterize and underlie much of downtown Providence. As such, they pose a problem for many geotechnical projects in the state,” Baxter explained. “This has been a great opportunity to work on both fundamental research and on a problem that is relevant to practicing engineers in Rhode Island.”

Baxter began work on the liquefaction resistance of silts in 2004 through grants provided by the URITC and Rhode Island Department of Transportation (RIDOT). One of his studies revealed a relationship between shear wave velocity and cyclic resistance for the Providence silts.

“We were able to show that practicing engineers can use standard field-based approaches to evaluate the liquefaction potential of these difficult soils,” Baxter said.

When asked his reaction to being named URITC Researcher of the Year, Baxter made sure to credit the people he works closely with for helping him achieve the award.

“I am honored to be recognized for my work to the geotechnical engineering community. My success comes from the hard work of my excellent graduate students,” Baxter said.

In addition to teaching college students, Baxter conducts learning labs each year at the URITC Engineering Career Day event for high school students.

“High school students have very little exposure to engineering and events like Engineering Career Day show the students how concepts in science and math can be used to solve real-world problems,” said Baxter. “My goal is to introduce the students to the study of soils and geotechnical engineering, and to get them enthusiastic about learning.”

The subject of Baxter’s current research projects include the settlement of adjacent ground due to pile driving in silts, the cyclic behavior of sands and clays related to offshore wind farms in Rhode Island, the relationship between shear wave velocity and effective stresses at failure for dilatant soils, and the development of load transfer curves for piles in silt.
For FY2010 (and those not previously reported)

Christopher Baxter

**Volumetric Change of Silts Following Cyclic Loading**

**Publications**


**Presentations**


**Awards**


Vinka Craver

**Phase I - Pervious Pavement Research Facility**

**Presentation**


James Kroes

**Port of Davisville Utilization Study: Phase II**

**Presentation**


Norbert Mundorf

**Increasing Seatbelt Usage Rate Among High School Students**

**Outreach**

Norbert Mundorf, URI, and Erika McCormick, Scituate HS (July, 2010). Seatbelt Safety and Distracted Driving for High School Students. Presentation at MADD Team Spirit Event, Bryant College, Smithfield, RI. Reached student leaders from RI High Schools; Norbert Mundorf, URI. Outreach to three RI High Schools (Narragansett, North Kingstown, Scituate) to promote Seatbelt Safety and Distracted Driving prevention.

Creating Sustainable Transportation Awareness in Communication Courses

**Outreach**

Promoted Sustainable Transportation as part of the innovative Grand Challenges Freshmen teaching initiative at URI (Teaching Module, Group Project). Will be Grand Challenges mentor in 2011/12; Supervised Transportation Related Independent Study projects for Communication Studies students.

Manbir Sodhi

**Transportation for Sustainability: Phase II**

**Publications**

Husen, T., A Branch and Bound Algorithm for the stochastic replacement problem, M.S. MCISE, URI August 2010; Palau, Ramon, How people read graphs - a preliminary study, M.S., MCISE, URI, August 2010.

**Presentations**


Jyh-Hone Wang

**Studying the Vehicle Headway Issue and its impact on the Slow-Down Effect**

**Publications**


**Presentations**

**Concrete That Heals Itself**

This research project, led by URI Chemical Engineering Professors Arijit Bose and Richard Brown, aims at increasing the lifespan of concrete by imparting self-healing properties to repair cracks that form during loading.

If cracks aren’t repaired, water can make its way through the material, causing corrosion of steel reinforcement bars and adding stress to the concrete due to freeze-thaw cycles.

Besides the positive effect on the structural integrity and lifespan of the concrete, “smart” concrete could have a tremendous environmental impact.

The process of blasting, mining, transporting and producing concrete is an energy intensive process that releases a significant amount of carbon dioxide. Concrete production is responsible for almost 10 percent of the carbon dioxide emissions in the United States.

“We expect this ‘self-healing’ concrete to reduce consumption, which in turn will also reduce greenhouse gas emission,” stated Bose.

**New Projects in 2010**

**Development and Validation of a Predictive Settlement Model for Pile Driving in Silts**
Dr. Christopher D.P. Baxter  
URI Department of Civil and Env. Engineering and Department of Ocean Engineering  
Year Initiated: 2010 – 002812

**Self-healing Concrete**
Dr. Arijit Bose  
URI Department of Chemical Engineering  
Year Initiated: 2010 – 002813

**Creating a Road Map for Diesel Emissions Reduction in R.I.: A Pilot Program to Reduce Pollution from Heavy Duty Vehicles Used to Perform State Work**
Dr. Marion Gold  
URI CELS Outreach Center Director  
Year Initiated: 2010 – 000118

**Ongoing Projects as of Dec. 31, 2010**

**Phase I: Pervious Pavement Research Facility**
Dr. Vinka Craver  
URI Department of Civil and Environmental Engineering  
Year Initiated: 2010 – 002595

**Transportation for Sustainability: Phase II**
Dr. Manbir Sodhi  
URI Department of Industrial and Systems Engineering  
Year Initiated: 2009 – 002021

**Simulation, Modeling and Interpretation of Asphalt Rheology**
Dr. Michael L. Greenfield  
URI Department of Chemical Engineering  
Year Initiated: 2008 – 001850

**Modeling Molecular Level Actions of Asphalt Modifiers**
Dr. Michael Greenfield  
URI Department of Chemical Engineering  
Year Initiated: 2005 – 001025

**Settlement of Adjacent Ground from Pile Driving in Silts**
Dr. Christopher D.P. Baxter  
URI Department of Civil and Env. Engineering and Department of Ocean Engineering  
Year Initiated: 2008 – 001851

**Transportation for Sustainability: Phase I**
Dr. Manbir Sodhi  
URI Department of Industrial and Systems Engineering  
Year Initiated: 2008 – 001869
**Directional Synthesis of Lead Selenide-Titania Core-Shell Nanowire Heterostructures for High-Efficiency Low-Cost Solar Cells**
Dr. Arijit Bose
URI Department of Chemical Engineering
Year Initiated: 2008 – 001891

**Global Transportation Network and Supply Chain Management: An Integrative Approach**
Dr. Mary Krome Hamilton
URI College of Business Administration
Year Initiated: 2005 – 001030

**Multi-Modal Hurricane Evacuation Plan**
Dr. Natacha Thomas
URI Department of Civil and Environmental Engineering
Year Initiated: 2005 – 001051

**Completed Projects**

**Feasibility Study to Increase Utilization at the Port of Davisville (Quonset, RI)**
Dr. James Kroes
URI College of Business Administration
Year Initiated: 2009 – 002035

**Feasibility Study to Utilize the Port of Davisville (Quonset, RI) as a Port of Entry**
Dr. James Kroes
URI College of Business Administration
Year Initiated: 2009 – 002315

**Feasibility Study to Increase Utilization at the Port of Davisville (Quonset, RI)**
Dr. James Kroes
URI College of Business Administration
Year Initiated: 2009 – 002035

**Consumer Behavior, Transportation, Energy Use and Greenhouse Gas Emissions at URI**
Dr. Frederick Meyerson
URI Dept. of Environmental Science & Management
Year Initiated: 2008 – 001943

**Researching Sustainable Communities: Design, Layout and Transportation Systems**
Dr. William A. Green
URI Dept. of Community Planning & Landscape Architecture
Year Initiated: 2008 – 001845

**Studying the Vehicle Headway Issue and Its Impact on the Slow-Down Effect**
Dr. Jyh-Hone Wang
URI Dept. of Industrial and Manufacturing Engineering
Year Initiated: 2008 – 001852

**Increasing Seatbelt Usage Rate Among High School Students**
Dr. Norbert Mundorf
URI Department of Communication Studies
Year Initiated: 2008 – 001897

**Creating Sustainable Transportation Awareness in Communication Courses**
Dr. Norbert Mundorf
URI Department of Communication Studies
Year Initiated: 2008 – 001857

**Study of an Overload Truck Screening System for a Sustainable Highway Bridge Network**
Dr. Mayrai Gindy
URI Department of Civil and Environmental Engineering
Year Initiated: 2008 – 001900

**Enhancing the Preparedness and Response of the Transportation System in Case of Natural or Human-Caused Disasters**
Dr. Jyh-Hone Wang
URI Dept. of Industrial and Manufacturing Engineering
Year Initiated: 2006 – 001031

**Synthesis of Nanocatalyst-Support Composites for Transportation Applications**
Dr. Arijit Bose
URI Department of Chemical Engineering
Year Initiated: 2005 – 001024

**Assisting Elder Driver’s Comprehension of Dynamic Message Sign Messages**
Dr. Jyh-Hone Wang
URI Dept. of Industrial and Manufacturing Engineering
Year Initiated: 2005 – 001026

**New Anti-Fouling Coatings Based on Conductive Polymers**
Dr. Richard Brown
URI Department of Chemical Engineering
Year Initiated: 2006 – 001032

**Understanding the Activity and Travel Patterns of Teenagers Living in Providence, R.I.**
Dr. Talia McCray
URI College of Business Administration
Year Initiated: 2006 – 001033
Research Projects

Improving Safe Transportation and Alcohol Awareness Messages
Dr. Norbert Mundorf
URI Department of Communication Studies
Year Initiated: 2006 – 001034

Transportation System Research Program Development
Dr. Christopher Hunter
URI Department of Civil and Environmental Engineering
Year Initiated: 2006 – 001385

A Strategic Model for Optimal Scaling of International Container Ports
Dr. Christopher Anderson
URI Graduate School of Oceanography
Year Initiated: 2005 – 001028

Integrity Assessment of Composite and Timber Piles in the Marine Environment Using Nondestructive Testing
Dr. Mayrai Gindy
URI Department of Civil and Environmental Engineering
Year Initiated: 2005 – 001027

Co-Utilization of Narragansett Bay by Maritime Commerce, Tourism, Recreational and Commercial Industries
Dr. Candace Oviatt
URI Graduate School of Oceanography
Year Initiated: 2005 – 001029

Commuter Behavior, Transportation, Energy Use and Greenhouse Gas Emissions at the University of Rhode Island (Summer 2006)
Dr. Frederick Meyerson
URI Department of Natural Resources Science
Year Initiated: 2005 – 001162

Nanostructured Materials for Advanced Transportation Applications
Dr. Arijit Bose
URI Department of Chemical Engineering
Year Initiated: 2004 – 000464

The Impact of Truck Driver Hours-of-Service Regulations on Retail Warehouse Operations
Dr. Valerie Maier-Speredelozzi
URI Dept. of Industrial and Manufacturing Engineering
Year Initiated: 2004 – 000466

Acoustic Detection and Monitoring for Transportation Infrastructure Security
Dr. James Miller
URI Department of Ocean Engineering
Year Initiated: 2004 – 000471

Employing Graphics to aid Message Display on Dynamic Message Signs
Dr. Jyh-Hone Wang
URI Dept. of Industrial and Manufacturing Engineering
Year Initiated: 2004 – 000472

Testing Models of Asphalt System Modification Using Molecular Simulation
Dr. Michael Greenfield
URI Department of Chemical Engineering
Year Initiated: 2004 – 000506

Comparative Performance of Explosion Shielding Materials Used in Transportation
Dr. Carl-Ernst Rousseau
URI Department of Mechanical Engineering
Year Initiated: 2004 – 000507

Developing Intermodal Transportation Station Projects: A Public-Private Partnership Approach
Dr. Farhad Atash
URI Dept. of Community Planning & Landscape Architecture
Year Initiated: 2004 – 000557

Evaluation of Nonviolence Training for Offenders
Dr. Charles Collyer
URI Department of Psychology
Year Initiated: 2004 – 000562

Highway Flares and Runoff: a Potential Source of Perchlorate to Surface Water in Rhode Island
Dr. Anne Veeger
URI Department of Geosciences
Year Initiated: 2004 – 000563

Liquefaction Potential of Inorganic and Organic Silts
Dr. Christopher Baxter
URI Departments of Ocean Engineering & Civil and Environmental Engineering
Year Initiated: 2003 – 000060

Web Based Relational Database Portal for Subsurface Geotechnical Data
Dr. Daniel Murray
URI Department of Geosciences
Year Initiated: 2003 – 000158

Designing Model Asphalt Systems Using Molecular Simulation
Dr. Michael Greenfield
URI Department of Chemical Engineering
Year Initiated: 2003 – 000216
Research Projects

Promoting Bike-Riding on the Kingston Campus of URI: Overcoming Barriers to Change
Dr. Lorraine Keeney
URI Department of Nutrition and Food Sciences
Year Initiated: 2003 – 536170

Harnessing the Power of Relational Databases for Management of Geotechnical and Geologic Data
Dr. Daniel Murray
URI Department of Geosciences
Year Initiated: 2002 – 536176

Determining the Effectiveness of New Technology Data Collection Devices for Real-Time Transportation System Management
Dr. Chris Hunter
URI Department of Civil and Environmental Engineering
Year Initiated: 2002 – 536177

Development of Thermochromic Paints, Plastics and Rubbers for Rapid Visual Assessment of Temperature
Dr. Brett Lucht
URI Department of Chemistry
Year Initiated: 2002 – 536183

Replacement of Chromate in Paints and Corrosion Protection Systems
Dr. Mercedes Rivero-Hudec
URI Department of Chemical Engineering
Year Initiated: 2002 – 000514

Development of Thermochromic Paints, Plastics, and Rubbers for Rapid Visual Assessment of Temperature
Dr. Brett Lucht
URI Department of Chemistry
Year Initiated: 2001 – 536152

Contamination of Urban Lakes by Storm Runoff from Highway and Railway Drainage Systems
Dr. John King
URI School of Oceanography
Year Initiated: 2001 – 536155

Development of an Advanced Pavement Deicing System
Dr. David Taggart
URI Department of Mechanical Engineering
Year Initiated: 2001 – 536156

Investigation of Potential for Intermodalizing Paratransit in Rhode Island
Dr. Christopher Hunter
URI Department of Civil and Environmental Engineering
Year Initiated: 2001 – 536157

Rethinking the Region
Dr. Maureen Moakley
URI Department of Political Science
Year Initiated: 2001 – 536168

Intermodal Transport of Petroleum Products- Smart Terminals
Dr. Winston Knight
URI Dept. of Industrial and Manufacturing Engineering
Year Initiated: 2000 – 536133

Safety Belt Usage Rates at High Schools and Colleges in Rhode Island
Daniel Berman
Executive in Residence & FHWA RI Division
Dr. Jerome Schaffran, Professor
URI Human Development and Family Studies
Year Initiated: 2004 – 000318

Quonset Point (QP) Multi-Modal, Mixed-Use Ferry Terminal Study
Dr. Richard Burroughs
URI Department of Marine Affairs
Year Initiated: 2004 – 000470

Challenges and Prospects of the Proposed Intermodal Transportation Hub at T.F. Green Airport
Dr. Farhad Atash
URI Dept. of Community Planning & Landscape Architecture
Year Initiated: 2004 – 000564

Narragansett Bay High Speed Ferry Network - Phase 2: Engineering, Marketing and Economic Development
Dr. Angelo Simeoni
URI Dept. of Community Planning & Landscape Architecture
Year Initiated: 2004 – 000592

Enhancing Driving Safety through Proper Message Design on Variable Message Signs
Dr. Jyh-Hone Wang
URI Dept. of Industrial and Manufacturing Engineering
Year Initiated: 2003 – 000052

Experimental Evaluation of Novel Composites for Use in Transport of Explosive Materials
Dr. Carl-Ernst Rousseau
URI Department of Mechanical Engineering
Year Initiated: 2003 – 000057
**Research Projects**

**Calibration of Scour Models Using Advanced Sonar Technology for Bridge Safety**  
Dr. James Miller  
URI Department of Ocean Engineering  
Year Initiated: 2003 – 000059

**Porous Pavement and Water Quality: Investigation of a Newly Constructed Parking Lot and Its Potential Impact on Subsurface Water**  
Dr. Thomas Boving  
URI Department of Geosciences  
Year Initiated: 2003 – 000163

**Narragansett Bay High Speed Ferry Network Phase 1 - Site Selections and Site Designs**  
Dr. Angelo Simeoni  
URI Dept. of Community Planning & Landscape Architecture  
Year Initiated: 2003 – 000188

**Stretching Ability of Chip Seal Membranes**  
(Project Cancelled Due to the Death of PI)  
Milton Huston  
URI Department of Civil and Environmental Engineering  
Year Initiated: 2002 – 536175

**Developing and Applying a Transportation Model for Aquidneck Island**  
Dr. Farhad Atash  
URI Dept. of Community Planning & Landscape Architecture  
Year Initiated: 2002 – 536178

**Integrated Transportation Pricing Strategy for Newport**  
Dr. Timothy Tyrrell  
URI Dept. of Environmental & Natural Resource Economics  
Year Initiated: 2002 – 536179

**Development of a Course on Bridge Management**  
Dr. George Tsiatas  
URI Department of Civil and Environmental Engineering  
Year Initiated: 2002 – 536180

**Wood Filters as an Innovative Treatment Method for Roadway Runoff Pollutants**  
Dr. Thomas Boving  
URI Department of Geosciences  
Year Initiated: 2002 – 536181

**RIDOT 2002 Bicycle Transportation User Survey; Dev. Intermodal Connections for the 21st Century**  
Dr. R. Choudary Hanumara  
URI Department of Computer Science and Statistics  
Year Initiated: 2002 – 536182

**Dredging in a Changing Scientific and Regulatory Environment - Year 2**  
Dr. Richard Burroughs  
URI Department of Marine Affairs  
Year Initiated: 2002 – 536184

**Application of a Multimodal Demand Simulation Model to Assess Container Transportation Policy Issues in the Northeast**  
Dr. Thomas Grigalunas  
URI Dept. of Environmental & Natural Resource Economics  
Year Initiated: 2002 – 536185

**Mechanical Behavior of Recycled Asphalt Material Under Dynamic Loading Conditions**  
Dr. Martin Sadd  
URI Department of Mechanical Engineering  
Year Initiated: 2002 – 536186

**Dredging in a Changing Scientific and Regulatory Environment**  
Dr. Richard Burroughs  
URI Department of Marine Affairs  
Year Initiated: 2001 – 536151

**Field Study of Composite Piles in the Marine Environment**  
Dr. Christopher Baxter  
URI Dept. of Ocean & Civil Engineering  
Year Initiated: 2001 – 536153

**Development of a Customer Satisfaction and Service Quality Measurement Method and Tool for the Rhode Island Public Transit Authority**  
Dr. Albert Della Bitta  
URI College of Business Administration  
Year Initiated: 2001 – 536154

**Replacement of Chromates in Paints and Corrosion Protection Systems**  
Dr. Mercedes Rivero-Hudec  
URI Department of Chemical Engineering  
Year Initiated: 2001 – 536158

**Intelligent Traffic Anomaly Diagnosis Through the Integration of Diverse Information Sources**  
Dr. Joan Peckham  
URI Department of Computer Science  
Year Initiated: 2001 – 536159
### Research Projects

<table>
<thead>
<tr>
<th>Title</th>
<th>Principal Investigator</th>
<th>Department</th>
<th>Year Initiated</th>
<th>Project Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing of Cenosphere-Cement/Asphalt Composite Materials and Evaluation of their Mechanical and Acoustic Properties</td>
<td>Dr. Arijit Bose</td>
<td>URI Department of Chemical Engineering</td>
<td>2001 – 536160</td>
<td></td>
</tr>
<tr>
<td>Multimodal Vehicle Display Design and Analysis</td>
<td>Dr. Manbir Sodhi</td>
<td>URI Department of Industrial Engineering</td>
<td>2001 – 536161</td>
<td></td>
</tr>
<tr>
<td>Creating Safe Transportation Options for College Students</td>
<td>Dr. Norbert Mundorf</td>
<td>URI Department of Communication Studies</td>
<td>2001 – 536162</td>
<td></td>
</tr>
<tr>
<td>Comprehensive Framework for Sustainable Container Ports</td>
<td>Dr. Thomas Grigalunas</td>
<td>URI Dept. of Environmental &amp; Natural Resource Economics</td>
<td>2001 – 536163</td>
<td></td>
</tr>
<tr>
<td>Effect of Microstructure on the Static and Dynamic Behavior of Recycled Asphalt Materials</td>
<td>Dr. Martin Sadd</td>
<td>URI Department of Mechanical Engineering</td>
<td>2001 – 536164</td>
<td></td>
</tr>
<tr>
<td>Exploring Ways of Influencing Transport Behaviors by Using Telecommunications Technologies</td>
<td>Dr. Nikhilesh Dholakia</td>
<td>URI College of Business Administration</td>
<td>2000 – 536131</td>
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</tr>
<tr>
<td>Chemical Retention Capacity of a Newly Constructed Roadway Runoff Detention Pond</td>
<td>Dr. Thomas Boving</td>
<td>URI Department of Geosciences</td>
<td>2000 – 536132</td>
<td></td>
</tr>
<tr>
<td>High Accuracy GPS Base Station and Web Delivery System</td>
<td>Dr. Peter August</td>
<td>URI Department of Natural Resources Science</td>
<td>2000 – 536134</td>
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</tr>
<tr>
<td>Replacement of Chromates in Paints and Corrosion Protection Systems</td>
<td>Dr. Mercedes Rivero-Hudec</td>
<td>URI Department of Chemical Engineering</td>
<td>2000 – 536135</td>
<td></td>
</tr>
<tr>
<td>Fiber Reinforcement of Concrete</td>
<td>Dr. Richard Brown</td>
<td>URI Department of Chemical Engineering</td>
<td>2000 – 536136</td>
<td></td>
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<tr>
<td>A Web-Based Core Library for Rhode Island</td>
<td>Dr. Daniel Murray</td>
<td>URI Department of Geosciences</td>
<td>2000 – 536137</td>
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<td>Effect of Microstructure on the Static and Dynamic Behavior of Recycled Asphalt Materials</td>
<td>Dr. Martin Sadd</td>
<td>URI Department of Mechanical Engineering</td>
<td>2000 – 536138</td>
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<td>TRANSMAP: An Integrated, Real-Time Environmental Monitoring and Forecasting System for Highways and Waterways in RI</td>
<td>Dr. Malcolm Spaulding</td>
<td>URI Department of Ocean Engineering</td>
<td>2000 – 536139</td>
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<tr>
<td>Comprehensive Framework for Sustainable Container Ports</td>
<td>Dr. Thomas Grigalunas</td>
<td>URI Dept. of Environmental &amp; Natural Resource Economics</td>
<td>2000 – 536140</td>
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<tr>
<td>Moving Smart in Rhode Island</td>
<td>Dr. Joan Peckham</td>
<td>URI Department of Computer Science and Statistics</td>
<td>2000 – 536142</td>
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<td>Inorganic and Organic Characterization of Dredged Sediments from the Proposed Quonset Point Channel in Narragansett Bay</td>
<td>Dr. Raymond Wright</td>
<td>URI Department of Civil and Environmental Engineering</td>
<td>2000 – 536143</td>
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<tr>
<td>Performance Improvement &amp; Measurement of Open-Graded Asphalt Mixes</td>
<td>Dr. Mohammad Faghri</td>
<td>URI Department of Mechanical Engineering</td>
<td>2000 – 536144</td>
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</table>
Research Projects

Magnet and Induced Impacts of Quonset Container Port
Dr. Edward Mazze
URI College of Business Administration
Year Initiated: 2000 – 536145

Red Light Running in Rhode Island
Dr. Chris Hunter
URI Department of Civil and Environmental Engineering
Year Initiated: 2000 – 536146

TRANSMAP: An Integrated, Real-Time Environmental Monitoring and Forecasting System for Highways and Waterways in RI
Dr. Malcolm Spaulding
URI Department of Ocean Engineering
Year Initiated: 1999 – 536100

Fiber Reinforcement of Concrete
Dr. Richard Brown
URI Department of Chemical Engineering
Year Initiated: 1999 – 536101

Geologic Transportation Maps for the 21st Century
Dr. O. Don Hermes
URI Department of Geosciences
Year Initiated: 1999 – 536102

Multi Modal Vehicle Display Design and Analysis
Dr. Manbir Sodh
URI Dept. of Industrial & Manufacturing Engineering
Year Initiated: 1999 – 536103

Beneficial Uses of Dredge Material from the QPD Intermodal Port Terminal
Dr. Armand Silva
URI Department of Ocean Engineering
Year Initiated: 1999 – 536104

The Design and Development of Information and Computer Systems for the URITC
Dr. Joan Peckham
URI Department of Computer Science and Statistics
Year Initiated: 1999 – 536105

Comprehensive Framework for Sustainable Container Ports Development of US East Coast in the 21st Century
Dr. Thomas Grigalunas
URI Dept. of Environmental & Natural Resource Economics
Year Initiated: 1999 – 536106

Development of an Advanced Bridge, Highway, and Runway Deicing System
Dr. David Taggart
URI Department of Mechanical Engineering
Year Initiated: 1999 – 536107

Effect of Microstructure on the Static and Dynamic Behavior of Recycled Asphalt Material
Dr. Martin Sadd
URI Department of Mechanical Engineering
Year Initiated: 1999 – 536108

Modeling for Real-Time Traffic Control in the Rhode Island Intelligent Road
Dr. William Palm
URI Department of Mechanical Engineering
Year Initiated: 1999 – 536109

Using Cenospheres to Develop New Asphalt and Cement-Based Concrete Materials
Dr. Arun Shukla
URI Department of Mechanical Engineering
Year Initiated: 1999 – 536110

Interactions of Transportation and Telecommunications Behaviors in Relation to RIIR: Modeling the User Perspective
Dr. Nikhilesh Dholakia
URI College of Business Administration
Year Initiated: 1999 – 536111

Data Analysis and Detection Methods for Online Health Monitoring of Bridge Structures
Dr. Sau-Lon Hu
URI Department of Ocean Engineering
Year Initiated: 1999 – 536112

Dr. David Shao
URI Dept. of Industrial and Manufacturing Engineering
Year Initiated: 1999 – 536113

Smart Speed Bumps
Dr. William Ohley
URI Department of Electrical Engineering
Year Initiated: 1999 – 536114
The Southeast New England Film, Music & Arts Festival (SENE) was awarded a $93,000 grant from the Rhode Island Department of Transportation Office on Highway Safety for its program, “Stay on the SENE...live well, drive safe, be creative!”

The URITC administered the federally-funded grant as part of the Center’s Intervention Pilot Project.

SENE used the funding to sponsor 50 people to attend “Introduction to Filmmaking” classes presented by the Rhode Island Film Collaborative. Each of five classes made a short film on the subject of drunk driving awareness. Alcohol behavioral experts assisted the classes in the making of their films. The first class session will began in late April with four additional class sessions taking place between May and August.

SENE also partnered with Breaking Branches Pictures to produce a “Behind the Scenes” documentary about the program. A free, public screening of the five short films and the documentary was held on Sept. 23 at the RISD Auditorium in Providence.

“We were very excited about this program and were honored to be the recipient of this grant,” said SENE’s Artistic Director, Philip Capobres. “We developed the ‘Stay on the SENE’ program to meet the Intervention Pilot Project’s mission, which was to develop an innovative way of engaging ‘at-risk’ drivers in the state of Rhode Island and make them aware of the risks and consequences of DUI.”

The audience had the opportunity to ask Capobres and the filmmakers questions immediately following the screening.

This “behind the scenes” photo shows the actors and crew working on one of the five films. 

John Pitocco Photography
On May 20, the University of Rhode Island Transportation Center (URITC) held its 10th annual Transportation Week Breakfast. The event, held at the Radisson Airport Hotel in Warwick, R.I., attracted more than 100 members of the Rhode Island transportation community.

Robert Weygand, Chairman of the URITC Executive Board and Vice President of Administration at URI, welcomed the audience and spoke about the role the University plays in conducting transportation-related research and cultivating tomorrow’s transportation workforce.

After Michael Lewis, Director of the Rhode Island Department of Transportation (RIDOT), made a few opening remarks, Deborah Rosen, Executive Director of the URITC, provided an update on URITC research projects, workforce development activities and outreach initiatives.

The guest speaker was Marc Levitt, who gave a multi-media presentation on the history of Interstate 95 in Rhode Island. His research and presentation was sponsored by URITC.

Phillip Kydd, Acting Deputy Director of RIDOT, introduced the presenters of the sixth annual RIDOT Quality Awards. The following is a list of award recipients.

**Transportation Innovation Award**
Jeff Cathcart, URITC
Humberto Martinez, URITC

**Transportation Highway Safety Award**
Robert Murray, AAA of Southern New England

**Transportation Pioneering Award**
Mary L. Murray, RIDOT

**Transportation Excellence Award**
Rhode Island Public Transit Authority (RIPTA)
Rhode Island Bridge and Turnpike Authority (RIBTA)
Traffic Engineering Department of RIDOT
Employees of RIDOT

**URITC Faculty Research Award**
Chris Baxter, Ph.D., University of Rhode Island

Humberto Martinez (right) and Jeff Cathcart (not pictured) were honored for their hard work and dedication to the National Construction Career Days Center. Phillip Kydd, Acting Deputy Director of RIDOT, looks on.

Robert Weygand, Chairman of the URITC Executive Board, addressed the audience.
The University of Rhode Island’s Civil Engineering Department hosted the fourth annual Engineering Career Day on May 21.

The purpose of the event was to develop an interest in high school freshman, sophomores and juniors in engineering as a field of study at the college level and transportation engineering as a career path.

The event welcomed 158 students and 17 teachers from several Rhode Island high schools, including:
- Blackstone Academy Charter School
- East Providence Career & Technical Center
- GAP Program/Talent Development
- Middletown High School
- Mount Pleasant High School
- Newport Area Career and Technical Center
- North Smithfield High School
- The College Crusade of RI
- Times2 Academy
- Tolman High School

Students listened to presentations and participated in hands-on activities conducted by URI professors and industry professionals, representing nine of Rhode Island’s top engineering firms.

The students rotated through four learning labs:
- Bridge and Geotechnical Engineering
- Highway and Traffic Engineering
- Surveys and Geographic Information Systems (GIS)
- Storm Water Management, Hazardous Materials, Environmental Planning

Engineering Career Day was sponsored by the URITC, Rhode Island Department of Transportation (RIDOT), the Rhode Island Consulting Engineers (RICE), the University of Rhode Island’s College of Engineering, and the RI Federal Highway Administration (FHWA).
On May 19-20, the Rhode Island Construction Career Days (RICCD) event was held at the Rhode Island Department of Transportation’s (RIDOT) facility in East Greenwich.

More than 1,080 students from 53 Rhode Island high schools attended the ninth annual event. After receiving a duffle bag with a CCD T-shirt, hard hat, work gloves, safety glasses and career information, students took turns operating more than 30 pieces of construction equipment, including backhoes, excavators, pavers, jackhammers and bucket trucks.

Inside the RIDOT facility, more than 60 industry and DOT professionals shared career information on welding, plumbing, electrical, landscaping, carpentry and other disciplines. Students had an opportunity to operate a backhoe simulator, build a wooden toolbox and design a bridge on a computer.

Highlights of the event included:
- The URITC driver simulator. Students and adults enjoyed testing their skills on the simulator.
- Bridge building competition. Using materials and specs provided by the URITC, teams designed and built bridges made out of balsa wood. The students brought their bridges to RICCD, where the bridges were put to a strength test. The top teams received awards. The following schools entered bridges into the contest: Tolman, Burrillville, Bradley Hospital, the Briggs School and the Spurwink School.

• More than 200 applications were handed out to students for the Construction Academy, Engineering Academy and the Business Academy offered in the summer at the URITC.
• There was great support from Exeter Job Corp Academy, the trade unions, apprenticeship programs, RIDOT and industry professionals.

RICCD is managed by the URITC and sponsored by RIDOT and the Federal Highway Administration. Rhode Island’s event was one of 60 such events held in 28 states throughout the country in 2010.
The number of students who have attended a Construction Career Days event since the program began in 1999 eclipsed the 400,000 mark in fall 2010 thanks to another record-breaking year.

An astounding 66,170 students attended 60 events held in 28 states in 2010. The number of events in one year broke the previous high of 56 in 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).

By far, the largest event in 2010 was held in Mobile, Alabama. The “Worlds of Opportunity Career Expo” featured 11 trades, of which construction was one and engineering & architecture was another. The event, targeted toward eighth graders, drew 8,700 students from eight counties.

New York had another busy year, hosting eight events. Since 2002, New York has hosted 39 events, which is more than any other state.

Also hosting eight events in 2010 was Idaho. Managed by the Idaho Department of Labor, it was the state’s first year as part of the CCD Program.

“One of the tools that helped us out tremendously was the guidance and leadership offered through the National Construction Career Days Center,” said Ben Phillips, the state coordinator of Idaho’s events. “Our region’s liaison, Humberto Martinez, offered wonderful insight behind the vision and history of the CCD events, as well as connecting our staff with the network of other event coordinators nationwide.”

Phillips credited the NCCDC website as one reason for the state’s success. “The website provided a great road map on how to implement an event,” said Phillips.

In 2010, the NCCDC received and posted a record number of sets of photos. Images from 39 events were placed on the website.
SMILE Middle School Engineering Challenge

The 16th annual SMILE Engineering Challenge was held in the Memorial Union Ballroom at URI on April 9-10. The event was sponsored by the URITC and the Federal Highway Administration (FHWA).

SMILE is an acronym for Science and Math Investigative Learning Experiences. The event attracted 91 students from six middle schools, which included:
- Broad Rock Middle School (South Kingstown)
- Calcutt Middle School (Central Falls)
- Curtis Corner Middle School (South Kingstown)
- Davisville Middle School (North Kingstown)
- Deering Middle School (West Warwick)
- Woonsocket Middle School

This year’s Challenge required each team to construct a wind turbine that could produce as much voltage as possible. The students were given materials to build the tower and gearbox, but each team had to brainstorm, design, build and test the best combination of gears and the most efficient blades for their turbines. The participants had to “purchase” their blade materials without exceeding $2.1 million. URI students and volunteers from APC served as mentors.

To participate in SMILE, students have to have good grades (As and Bs), have good attendance and possess good citizenship qualities.

Above, right: A student tests the blades of her turbine by holding it in front of a fan.
Above: A team of students measure the effectiveness of their wind turbine.

Photos by Ron Giles
Since 2005, the Federal Highway Administration’s Dwight D. Eisenhower Fellowship Program has enabled students from the University of Rhode Island (URI) to conduct a transportation-related research study at the University of Puerto Rico at Mayagüez (UPRM) and students from UPRM to do the same at URI.

The program is administered by the URITC and the UPRM Transportation Technology Transfer Center.

In 2010, UPRM students Elinic Almonte, Carlos Calero and Máximo Polanco participated in the summer exchange program, along with URI students John Brito and Juan Martinez.

Almonte did her research project under the guidance of Dr. Jay Wang.

“It was a wonderful experience,” said Almonte. “Besides the technical knowledge that I gained, my research skills and self-discipline improved.”

Almonte expects to complete her master’s degree in Civil Engineering in spring 2011.

“After getting my degree, I want to get a job as a roadway designer or as a traffic engineer,” stated Almonte. “As a long-term plan, I’d like to work with my brother, who’s also a civil engineer. We plan to have a family business in consulting and construction.”

Due to a student strike in Puerto Rico, Brito and Martinez did their fellowships at URI.

Martinez, a Supply Chain Management major who will graduate in 2011, worked under Dr. Doug Hales. He also learned a lot about the process of conducting research.

“I learned how important performance measures are,” said Martinez. “Without a good way of measuring performance, it is very difficult to have a clear view of how much or how little progress has been made by any initiative.”

At the end of the 10-week program, the students presented their research findings and conclusions to faculty, students and staff from both universities.

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<tr>
<th>Student</th>
<th>Research Topic</th>
<th>Mentor</th>
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<tr>
<td>Elinic Almonte</td>
<td>Assessing the Effectiveness of a Portable Dynamic Lane Merging System in Promoting Zip Merging Behavior</td>
<td>Dr. Jay Wang</td>
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<td>John Brito</td>
<td>Environmental Implication of Graffiti removal and Anti-graffiti Techniques</td>
<td>Dr. Vinka Craver</td>
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<td>Carlos Calero</td>
<td>Assembly and Testing of a Portable Weight-in-Motion System for the Structural Monitoring and Remote Testing</td>
<td>Dr. Mayrai Gindy</td>
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<td>Juan Martinez</td>
<td>Rhode Island Department of Transportation: Research on Performance Measurement</td>
<td>Dr. Douglas N. Hales</td>
</tr>
<tr>
<td>Máximo Polanco</td>
<td>Internship at the State of R.I. Traffic Management Center</td>
<td>Joseph Bucci, PE and Michael Wreh</td>
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Under the backdrop of the beautiful city of Prague, the Central European Technology Transfer Exchange (CETE) group held its annual planning meeting in September. In conjunction with our CETE partners, we developed a work plan for 2011 which includes research and technology transfer activities.

As a part of this meeting, research initiatives from the Research Institute of Roads and Bridges (Poland), Transport Research Center (Czech Republic), and Zilinska University’s Department of Operation and Economics of Transport (Slovakia) were presented. Based upon these presentations the Rhode Island Department of Transportation and the URITC decided to collaborate on a project with the Transport Research Center to examine the use of LED lighting on highways.

The project could benefit transportation safety in Rhode Island while simultaneously reducing operating costs for RIDOT and cities and towns throughout the state.

Once again, this partnership has proven to be a win-win arrangement for the CETE members.
Senior Lauren A. Stachowicz of Oxford, Conn. was named Student of the Year for 2010 by the University of Rhode Island Transportation Center.

Stachowicz was selected for the award because of her academic achievements, her efforts on a Rhode Island Department of Transportation-funded research project and her skills as a student-leader in URI’s Supply Chain Management program.

“I was quite surprised when I found out that I received the award,” said Stachowicz. “I knew that past recipients were mostly graduate or PhD students. I’m honored to be recognized for my work and to be put in a category with all the other well-accomplished people.”

A Centennial Scholar, Stachowicz entered URI as a Marketing major, but switched to Supply Chain Management in her freshman year.

“After attending a presentation about Supply Chain Management, I became intrigued about the program. Within weeks I changed my major,” recalled Stachowicz. “The topic is so fascinating to me and is such an important aspect of businesses that no one even thinks about. I also chose the major because of the growth that it could offer me in the future as well as the numerous job opportunities it provides.”

In October 2010, Stachowicz began an internship at RIDOT, where she was responsible for identifying ways to streamline the post-qualification process within the contract administration department. This involved extracting data from Excel documents and developing business process charts.

The research she performed with Dr. Doug Hales, an associate professor in URI’s Supply Chain Management department, had a similar purpose. However, the research data was collected by interviewing RIDOT personnel in order to develop performance metrics.

“Lauren is very bright and provided some great insights into solutions that had not been previously considered on transportation performance measures,” said Hales. “She worked very well with a graduate student to develop the questionnaires, analyze the data, and summarize the results.”

Stachowicz also demonstrated initiative as the vice president of the Supply Chain Management Club.

“I was responsible for organizing events, which included contacting guest speakers, setting things up and cleaning up afterwards,” stated Stachowicz.

As a member of the Business Student Advisory Council, she represented the Supply Chain Management students.

“If there were any problems the students were having within the major, I would bring them up in the monthly meetings,” said Stachowicz.

Stachowicz received her Student of the Year award at the Transportation Research Board’s National Conference in Washington, D.C.

“It was very nice to meet the other award recipients and learn about their research projects,” said Stachowicz. “I also got to meet many different transportation professionals.”
CONSTRUCTION ACADEMY ALUM SAVES A LIFE

By Jessica Buffi
URITC Intern

Max Dinerman, a former participant of the URITC Construction Academy, received the American Red Cross Lifesaving Award of Merit in June 2010. Dinerman, 17, received the award after saving the life of a fellow classmate who experienced a seizure in the middle of a class period.

The purpose of the award is to recognize community members who save a life using skills learned in American Red Cross Health and Safety Service Training. The award is nationally recognized and is the highest award that can be given to a Red Cross member. This is the first time this award has been given out by the Rhode Island chapter of the Red Cross.

“Receiving the award was a great honor. I was very proud of what I had done especially since no one else was there,” Dinerman said.

Dinerman joined the RI Chapter of the American Red Cross last year and is chairman of its Youth Council. The council is in charge of event planning for the youth division of the Red Cross. The group participates in community service activities and charity events.

In addition to Dinerman’s interest in volunteering, his interest in construction developed after taking his first classes in the field his freshman year of high school.

“Construction is a rewarding job because you have the ability to see what you build,” Dinerman explained.

Dinerman attended the URITC Construction Academy in 2009. The URITC hosts the program for high school juniors and seniors each summer. The curriculum allows students to receive Occupational Safety and Health Administration (OSHA) Certification as well as Flag Person Certification during its one-week session.

“The program was very rewarding. The lessons were hands-on and I felt like they were preparing me for the real world,” Dinerman said. “I also made friends and connections; it was great.”

Dinerman began his senior year at the NEL/CPS Construction Career Academy in September. He hopes to one day have a career in either the medical or construction field.

2010 URITC SCHOLARSHIP RECIPIENT

Ailton Vicente’s relationship with URI began in high school as a participant in the Guaranteed Admission Program (GAP). While in the program, the Tolman High School graduate learned about the URITC’s Summer Business Academy for high school students.

“The academy was one of the best things that I’ve done in my life because it really opened my mind to a whole other aspect of business,” said Ailton. “I learned a lot about how the products we use everyday reach consumers.”

Ailton’s involvement in the Business Academy in 2008 partially influenced his decision to declare Supply Chain Management as a major in 2010.
The seventh annual URITC Summer Transportation Institute (STI) was held for two 2-week sessions starting July 6 and August 2 at the URI Kingston campus.

Representing diverse backgrounds, 38 middle school students learned about transportation careers and the respective education and training requirements.

Classroom instruction, guest speakers, field trips and hands-on projects were key components of the academic program.

Activities included:
• Introduction to bridges by a R.I. Department of Transportation bridge engineer
• Computer bridge building contest
• Balsa wood bridge building contest
• Safety sessions at the Kingston Railway Station
• Writing in daily journals
• Work zone safety sessions
• Tour of T.F. Green Airfield
• Tour of RIDOT maintenance facility and sign shop
• Boat tour of Narragansett Bay, including the Jamestown Bridge and Plum Point Lighthouse
• Old Town Trolley tour of Boston
• Photograph activities with a digital camera

As part of the enhancement program, the participants experienced a multi-modal trip on which they rode a commuter rail, a subway, a van, a trolley and walked.

At URI, the students visited dorms, classrooms and sports facilities, met staff and ate in a dining hall.

STI students rode the Sea Princess in Narragansett Bay.

Learning how to read maps came in handy on the trips.

The Old Town Trolley tour was a great way to discover Boston.
In 2009, the URITC hosted three summer academies for high school students: the Construction Academy, the Engineering Academy and the Business Academy. A total of 44 students from diverse backgrounds participated. Transportation was made available from central pick-up points in Providence.

**Goals of the Summer Academies**

These initiatives were designed to:

- give first-hand knowledge of transportation work
- provide many opportunities for mentoring by industry role models
- spread the message that the transportation sector offers many rewarding career options
- make students aware of necessary courses early enough in their education to be prepared to move on to a career or college with the right tool kit
- increase diversity in the transportation workforce

**Engineering Academy**

Nineteen high school freshmen, sophomores and juniors attended this academy from July 26 – 30.

The curriculum included:

- Tour of College of Engineering
- “How Do I Become an Engineer,” led by Ray Wright, Dean of URI’s College of Engineering
- “Speed Dating” with practicing engineers from the Rhode Island Consulting Engineers (RICE)
- Structural Engineering Lab
- Transportation Engineering Lab
- Environmental Engineering Lab
- Geotechnical Engineering Lab
- Tour of Transportation Management Center
- Tour of bridge construction in Narragansett
- Tour of South Kingstown Wastewater Treatment Plant

Students learned about geotechnical engineering by analyzing a core of soil taken from the floor of the Gulf of Mexico.

Students viewed the construction process of the Dillons Corner Bridge in Narragansett.
**Construction Academy**
A one-week Construction Academy for 17 high school juniors and seniors took place July 19 – 23.

The curriculum included:
- OSHA 10-hour certification
- flag person certification
- work zone safety
- hands-on activities at the Operating Engineers Center
- tour of RIDOT construction project
- blueprint reading
- estimating
- construction math
- surveying and layout
- a talk on “Starting Your Own Construction Business”
- preparing for a job interview

The Construction Academy gave the students a much better understanding of the careers available in the construction industry, the benefits these careers offer, the steps required to pursue these careers, and an expanded circle of friends.

**Business Academy**
The Business Academy was attended by 15 high school freshmen, sophomores and juniors from July 26 – 30. The participants learned about all aspects of a company’s supply chain. Classroom instruction, guest speakers, field trips and hands-on training were key components of the program.

Activities included:
- Ropes Confidence Course Team Building Exercise
- Interactive Supply Chain Management Group Exercise
- Tour of an Ocean State Job Lot Distribution Center
- Tour of Ira Green, Inc.
- Tour of the Quonset Point Business Park and Port, including the Port of Davisville
- Transportation Team “Quiz” Competition

Construction Academy students checked on the progress of the IWay project in Providence.

Business Academy students went on a tour of the Ocean State Job Lot Distribution Center.

Students learned first-hand about the Port of Davisville.
Aimed at Rhode Island Department of Public Works employees and other transportation practitioners, LTAP training provides useful assistance and training in workforce development, best practices, and safety. Between 20-40 public works employees and transportation practitioners attend each workshop.

A couple of the workshops offered in 2010 included:

**Estimating Materials for Roadway Projects**
This workshop is for employees involved in roadway operations, maintenance and repair, from crew workers to supervisors. This session examines most of the common projects in local agency roadway activities and how to determine the amount of materials to order to complete the job.

**Mower Safety Training**
This Mower Safety program is a good refresher for veteran operators and applies the basic ground rules for novice operators.

Topics include:
- Mowing Equipment Pre-operational Inspections
- Operator Safety
- Mower Operation Safety
- Rollover Protection Systems and Prevention
- Recommended Mowing Procedures
- Roadside Mowing Traffic Control
- Operator Familiarization – Practical Skills

The RI T2 Center, managed by the URITC, provided the following 101 LTAP workshops in 2010.
FINANCIAL REPORT
Source of Funds as of 12/31/10

This chart represents the composition of funds committed for Grant Year 2009.

- State Grant: 59%
- Federal Grant: 26%
- University Match: 12%
- Third Party Match (industry and public sector partners): 3%

Use of Funds as of 12/31/10

This chart illustrates the composition of allocations against the total source of funds for Grant Year 2009.

- Technical Transfer/Outreach: 43%
- Education: 21%
- Administration: 21%
- Research: 15%
THE UNIVERSITY OF RHODE ISLAND TRANSPORTATION CENTER