URI Transportation Center

Semiannual Report

January 1 to June 29

2005
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About the URI Transportation Center

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 26 national centers supported by the U.S. Department of Transportation through the University Transportation Centers Program.

The Center has a full time staff of six, headed by an Executive Director. The Center also has an Executive Board chaired by the URI Vice President for Administration and composed of senior member of the Center’s stakeholder groups.

THEME
“The 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.
During the first six months of 2005, the URI Transportation Center (URITC) continued efforts in our three primary areas of activity: education, research and outreach/technology transfer and made significant additions to our programs in these areas.

Educational initiatives include the provision of six short courses through the National Highway Institute/URITC Training Partnership to transportation professionals primarily in the public sector. We also began working with the College of Business to create a transportation and logistics specialization in the MBA program to serve the private sector. This complements a similar specialization in the Masters of Public Administration program that was working its way through the University's approval cycle.

In the research program, as of June 30, 2005, forty-eight previously funded projects are complete with final reports available on the URITC web site and thirty projects are on-going. The completed and on-going research efforts resulted in numerous presentations and publications, and requests for URITC researchers to serve as experts on transportation topics. As an adjunct to our research programs, the student exchange program with the University of Puerto Rico-Mayagüez, which was offered as a pilot project last year, became operational this year. With the support from the D. D. Eisenhower Transportation Fellowship Program, we were able to have three undergraduate students from each university work with researchers at the other university.

The Transportation Center's outreach and technology transfer efforts include the URITC-sponsored Fifth Annual National Transportation Week Breakfast, with the J. Richard Capka, Associate Administrator of the FHWA, as the keynote speaker. The breakfast was one of three events sponsored during National Transportation Week. We also held Construction Career Days at which high school students were made aware of the range of opportunities in the construction industries and a Robotics Transportation Challenge at which ten middle school teams had student-designed robots compete in completing a series of transportation tasks. Finally, the URITC Tech Transfer Center continued to offer courses and training sessions to State and local transportation officials and employees. In the first six months of 2005, over fifty programs were provided.

These and other accomplishments during the period January 1 to June 30, 2005, are discussed in the following report.
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Richard J. Horn</td>
<td>Executive Director</td>
</tr>
<tr>
<td>Maria Amador</td>
<td>Assistant Director</td>
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<tr>
<td>Ilene Payne</td>
<td>Executive in Residence</td>
</tr>
<tr>
<td>Jeff Cathcart</td>
<td>Director, Transportation Technical Assistance and Outreach</td>
</tr>
<tr>
<td>Tory Perrotta</td>
<td>Principal Clerk Stenographer</td>
</tr>
<tr>
<td>John S. Peterson</td>
<td>Senior Information Technologist</td>
</tr>
<tr>
<td>Ying Qin</td>
<td>Research Associate</td>
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<tr>
<td>Judith Watson</td>
<td>Fiscal Management Officer</td>
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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.

Executive Board

Robert Weygand, Chair  
URI Vice President, Administration

James Capaldi  
Director, RI Department of Transportation

Lucy Garliauskas  
Division Administrator, RI Div. FHWA

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

Phillip Kydd  
Assistant Director, RI Dept. of Transportation

Bahram Nassershari  
Dean, URI College of Engineering

John O’Brien  
Chief, RI Statewide Planning Program

Lynn Pasquerella  
URI Vice Provost of Graduate Studies, Research & Outreach

Kevin Smith  
CVS Senior Vice President of Supply Chain and Logistics
5th Annual National Transportation Week Breakfast

As part of the celebration of National Transportation Week, the URITC sponsored the 5th annual national transportation week breakfast. The event was held at the Sheraton Providence Airport Hotel in Warwick, and was entitled “International Experiences in Transportation for the 21st Century.”

This year’s event attracted more than 150 members of the Rhode Island transportation community including leaders from federal and state transportation agencies and transportation practitioners from private industry.

URI President Dr. Robert Carothers welcomed the group. James R. Capaldi, Director, Rhode Island Department of Transportation (RIDOT) made opening remarks, highlighting the “state of transportation” in Rhode Island.

Executive Director of the Transportation Center Richard Horn gave the audience an update of research and outreach progress made during the year.

Lucy Garliauskas, FHWA’s Rhode Island Division Administrator, introduced the keynote speaker, J. Richard Capka, Associate Administrator of the Federal Highway Administration who updated the audience on transportation funding “Beyond SAFETEA.”

The breakfast concluded with the presentation of the FHWA 2004 Award for Excellence in Highway Design and the First Annual RIDOT Quality awards.
Robotics Transportation Challenge

As a part of National Transportation Week, the transportation community joins together for greater awareness of the importance of transportation and focuses on helping youth appreciate career options in transportation. Robots were built by student teams from middle schools throughout Rhode Island, and the groups competed using the robots to perform transportation functions, like moving a disabled vehicle, plowing snow on an airstrip, crossing railroad tracks, unloading cargo etc.

Challenge Participants

- Riverside Middle School, East Providence
- Martin Middle School, East Providence
- Barrington Middle School, Barrington
- Parkview Middle School, Cranston
- Ricci Middle School, North Providence
- Nathan Bishop Middle School, Providence
- Thompson Middle School, Newport
- Flat River Middle School, Coventry
“Awesome, awesome, awesome” is the general consensus regarding this year’s Rhode Island Construction Career Days. For two days during National Transportation Week, the Rhode Island Department of Transportation’s Coventry facility was once again home to the RIDOT and Federal Highway Administration sponsored program. The idea for this event came about as a result of the severe shortage of skilled workers in the construction industry in Texas. The Construction Labor Research Council has also recently reported that, in order to meet growing demands and to replace retirees, the industry is in need of 185,000 skilled workers each year for the next ten years. So, in an effort to increase youth awareness of job opportunities in the construction industry, Construction Career Days were born. Construction Career Days present the construction industry with an opportunity to educate youth about the rewarding careers available in the industry and to give them a more positive opinion of the industry.

This year’s events received about 1100 students from 42 different schools, ten of which are alternative learning programs such as Job Core and Harmony Hill School. The students were able to observe and participate in over 60 exhibits, including hands-on activities such as welding, operating excavators, and riding in tree buckets. Jeff Cathcart, coordinator of Construction Career Days and LTAP director, says that the overall response to the event has been great. A student from Lincoln called the event “a good experience...You’re always wondering what the people are doing when [you see them] on the road.” This year’s Construction Career Days were certainly one way to find out. With so many exhibits, the students were constantly occupied and engaged, which Cathcart believes was a key factor to the smooth running of the event - there truly never was never a dull moment.

The 2005 Construction Career Days also provided a chance for students to learn more about safety. Cathcart explains that “the focus was and is not safety, but any time you have the opportunity to have that many students you can certainly get it in.” Not only were the students required to wear typical work zone hardhats and safety goggles, but there were also numerous safety exhibits. The Rhode Island state police were equipped with drunk-driving goggles, which distort vision in a similar manner as being under the influence. A “Click It or Ticket” program video and a large work zone safety board further promoted safe driving practices, to the benefit of drivers and highway workers alike.

So far, Construction Career Days have been incredibly successful. Happily, Cathcart says, “We’ve had schools and exhibitors contacting us now to come, saying ‘we heard about the event, can we get in?’ This is good; it means that [the] event is getting out there and being publicized.” Already, there are stories of students who have attended one of the state’s Construction Career Days and are now employed in the industry. Several students at this year’s event shared that they are now considering careers in the construction industry, a field that they had not previously thought of. If past success is any indication, we can expect many more Construction Career Days and an overall increased interest in the rewarding careers that the industry has to offer.
2004 Outstanding Student of the Year

Each year at the annual winter meeting of the Transportation Research Board the Department honors the most outstanding student from each participating University Transportation Center for her/his achievements and promise for future contributions to the transportation field. Students of the Year are selected based on their accomplishments in such areas as technical merit and research, academic performance, professionalism, and leadership.

Aaron Bradshaw is the 2004 Student of the Year from URI Transportation Center. Mr. Bradshaw is currently working towards his Ph.D. in Ocean Engineering. He earned his Master's degree in Ocean Engineering in 1999 from the University of Rhode Island and his Bachelor's in Civil Engineering in 1996 from Tufts University. Prior to his return to the University of Rhode Island for his Ph.D. in 2003, he worked for Hart Crowser, Inc. in Seattle, Washington, as a geotechnical engineer. He was involved with projects involving the capping and remediation of contaminated dredged sediments and seismic retrofitting of marine port facilities.

Since his return to URI, he has worked on a variety of transportation related research projects. He has worked on a FHWA sponsored study on the performance of driven piles for the Central Artery Project in Boston and presented the study results at the ASCE Geofrontiers geotechnical engineering conference in January. He is currently working on a URITC and Rhode Island Department of Transportation sponsored project on the liquefaction potential of the silts commonly found in Rhode Island.

Mr. Bradshaw was selected for the 2004 URITC Outstanding Student of the Year award because of his excellent and varied research achievements and his professional background. Mr. Bradshaw will have a highly successful career in academia or as a practicing engineer.
WTS Career Opportunities Seminar

The Rhode Island affiliate of Women’s Transportation Seminar (WTS) and the University of Rhode Island Transportation Center sponsored the second annual joint event “Women in Transportation: Career Paths and Scholarship Opportunities” that took place Tuesday, February 15 from 5:30 to 8 PM at the URI Memorial Union.

The event provided area college and university students with the opportunity to hear career advice from women transportation professionals. Speakers included representatives from Rhode Island's major transportation engineering firms, the RI Department of Transportation, and the RI Airport Corporation.

Transportation professionals provided first-hand accounts of jobs in their fields.

The presentations were followed by a Q & A session and networking.
Eisenhower Summer Student Research Internships

As part of a collaborative effort between the Dwight David Eisenhower Transportation Fellowship Program, the University of Puerto Rico-Mayagüez (UPR-M) and the URITC, six students participated in summer internships in Rhode Island and Puerto Rico. The students were selected through a competitive process and received Dwight David Eisenhower Transportation Fellowships.

Ms. Elizabeth Negrón Díaz (University of Puerto Rico at Mayagüez)
Employing Graphics to Aid Message Display in Dynamic Message Signs

Mr. Manuel Ochoa (University of Puerto Rico at Mayagüez)
Employing Graphics to Aid Message Display in Dynamic Message Signs

Ms. Iris Rodríguez Pagán (University of Puerto Rico at Mayagüez)
Evaluation of Undrained Shear Strength of Organic Silts in Rhode Island

Mr. David Kurowski (University of Rhode Island)
Pedestrian Safety in Puerto Rico: A Socio-Demographic Analysis of Pedestrian Crossing Movements in High-Traffic Areas of Puerto Rico

Ms. Sharon Ruggieri (University of Rhode Island)
Modeling of Concrete-Filled Fiber-Reinforced Polymeric Tubes

Ana Maria Hagan (University of Rhode Island)
Preliminary Evaluation of Instability in Unsaturated Soil Slopes During Heavy Rainfall: A Case Study in Mayagüez, Puerto Rico

Students from Puerto Rico participated in ongoing URITC research projects.
Aimed at Rhode Island public works employees and other transportation practitioners, LTAP training provides useful assistance in workforce development, best practices, and safety.

The RIT2 Center at the URITC provided the following programs during the first six months of 2005:

1/5/2005  Sander Calibration
1/5/2005  Sander Calibration
1/10/2005 WORD Level 1
1/11/2005 Introduction to Blue Print Reading - Week 2
1/13/2005 Winter Planning and Organization
1/14/2005 Introduction to Computer Aided Design - Week 2
1/19/2005 Indoor EXPO
1/20/2005 AASHTO Roadside Design Guide
1/21/2005 Introduction to Computer Aided Design - Week 3
1/24/2005 Design & Operation of Workzone Traffic Control
1/25/2005 Introduction to Blue Print Reading - Week 4
1/26/2005 Systems Security Awareness
2/1/2005 Introduction to Blue Print Reading - Week 3
2/7/2005 Introduction to Systems Engineering for Advanced Transportation
2/8/2005 Traffic Calming Web Broadcast - Part 1
2/11/2005 Introduction to Computer Aided Design - Week 4
2/14/2005 Access Level 1
2/15/2005 Access Management, Location & Design
2/15/2005 Traffic Calming Web Broadcast - Part 2
2/17/2005 Coffee Break
2/22/2005 The Modern Roundabout As A Traffic Signal Alternative
3/1/2005 Chain Saw Operating Techniques
3/2/2005 EXCEL Level 1
3/3/2005 OSHA 10 Hour Certification for Roadway Workers - Week 1
3/8/2005 Coaching Your Employees
3/10/2005 OSHA 10 Hour Certification for Roadway Workers - Week 2
3/15/2005 Flagger Certification
3/15/2005 Flagger Certification
3/16/2005 Principles of Writing Highway Construction Specifications
3/18/2005 Excel Level 1
3/22/2005 Conflict Management

T2 Training helps Rhode Island public works employees work better and more safely.
## LTAP / T2 Workshops Continued

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>3/23/2005</td>
<td>Flagger Certification</td>
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<tr>
<td>3/24/2005</td>
<td>Access Level 1</td>
</tr>
<tr>
<td>3/28/2005</td>
<td>Managing Your Public Works Department</td>
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<tr>
<td>3/29/2005</td>
<td>Excel Level 1</td>
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<tr>
<td>3/30/2005</td>
<td>Flagger Certification</td>
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<tr>
<td>3/31/2005</td>
<td>Access Level II</td>
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<tr>
<td>4/5/2005</td>
<td>Presentation Skills</td>
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<td>4/7/2005</td>
<td>Excel Level II</td>
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<td>4/26/2005</td>
<td>Flagger Certification</td>
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<td>4/28/2005</td>
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<td>4/28/2005</td>
<td>Coffee Break</td>
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<td>5/3/2005</td>
<td>Chain Saw Skills &amp; Safety</td>
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<tr>
<td>5/5/2005</td>
<td>Small Engine Repair and Maintenance</td>
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<td>5/6/2005</td>
<td>Line Trimmer - Brush Cutter Workshop</td>
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<td>5/12/2005</td>
<td>EXCEL Level I</td>
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<td>5/13/2005</td>
<td>EXCEL Level I</td>
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<td>5/18/2005</td>
<td>Construction Career Days</td>
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<td>5/20/2005</td>
<td>Chain Saw Operating Techniques</td>
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<td>6/6/2005</td>
<td>Advanced Relocation</td>
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<td>6/7/2005</td>
<td>Flagger Certification</td>
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<tr>
<td>6/17/2005</td>
<td>Flagger Certification</td>
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<tr>
<td>6/20/2005</td>
<td>Time Management</td>
</tr>
<tr>
<td>6/22/2005</td>
<td>Massachusetts Highway Association Equipment Show</td>
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The mission of the National Highway Institute (NHI) is to provide proactive leadership, expertise, resources, and information to improve the quality of the U.S. highway system in order to enhance economic growth, quality of life, and the environment. The NHI develops and delivers training and education in cooperation with its partners to sustain and expand the transportation community's professional capacity in technologies and strategies, thereby accelerating the implementation of the state-of-the-art and continuing to advance the state-of-the-practice.

NHI Course Offerings

Through its unique partnering agreement with NHI, the URI Transportation Center offered six professional development training sessions with more than 150 total attendees. The URITC/NHI partnership is an important regional asset, affording quality continuing education to public and private transportation practitioners.

- AASHTO Roadside Design Guide
- Design & Operation of Workzones
- Introduction to Systems Engineering
- Access Management
- Specification Writing
- Advanced Relocation
Publications, Presentations & Success Stories
Publications, Presentations & Success Stories

Reported Publications, Presentations & Success Stories

FY 2004 URITC 000318 Mr. Daniel Berman
Safety Belt Usage Rates at High Schools and Colleges in Rhode Island

5/19/2005 Award: RIDOT Annual Highway Safety Award was awarded to the PIs of this project for leadership in highway safety based on research work on seatbelt safety and interventions program


FY 2004 URITC 000466 Dr. Valerie Maier-Speredelozzi
The Impact of Truck Driver Hours-of-Service Regulations on Retail Warehouse Operations

3/30/2005 Success Story: Presented preliminary results to logistics managers and director from industrial sponsor. The result with greatest impact was that only 16% of their deliveries are expected to unload within the contracted time that the transportation carriers desire.

FY 2004 URITC 000470 Dr. Richard Burroughs
Quonset Point (QP) Multi-Modal, Mixed-Use Ferry Terminal Study

2/25/2005 Award: Research Assistant Tiffany Smythe was awarded the Ann M. Hershfang Graduate Scholarship by the Boston Chapter of the Women’s Transportation Seminar in recognition of her work on this project as well as her prior professional experience in marine transportation. At the annual awards dinner Smythe spoke briefly to the large gathering of WTS-Boston members and guests in attendance. The story made the URI News Administration Online Press Releases shortly after.

5/24/2005 An abstract for a paper on this project, to be authored by Thompson and Burroughs, was accepted for presentation at the Association of Collegiate Schools of Planning 2005 Annual Conference during October 27-30, 2005, in Kansas City, Missouri.

FY 2004 URITC 000471 Dr. James Miller
Acoustic Detection and Monitoring for Transportation Infrastructure Security

6/21/2005 Poster and lecture presentation entitled “Measurement and Modeling of Target Strength of Divers” by Sairajan Sarangapani, James Miller and Gopu Potty was presented at the OCEANS-2005 conference in Brest, France.
Publications, Presentations & Success Stories

Reported Publications, Presentations & Success Stories

**FY 2004 URITC 000472 Dr. Jyh-Hone Wang**
Employing Graphics to aid Message Display on Dynamic Message Signs


**FY 2004 URITC 000514 Dr. Mercedes Rivero-Hudec**
Replacement of Chromate in Paints and Corrosion Protection Systems


**FY 2004 URITC 000563 Dr. Anne Veeger**
Highway Flares and Runoff: a Potential Source of Perchlorate to Surface Water in Rhode Island

6/30/2005  An abstract was accepted for oral presentation by Veeger etc. at the National Geological Society of America meeting in Salt Lake City during October 2005.

**FY 2004 URITC 000564 Dr. Farhad Atash**
Challenges and Prospects of the Proposed Intermodal Transportation Hub at T.F. Green Airport in Warwick, Rhode Island

4/30/2005  Article entitled “URI Report Details Merits of Station Plan” by Alicia Korney and Staff Writer on the work done by graduate students in Community Planning Program at URI under Farhad’s instruction in the project was published in Providence Business News Online and in hardcopy May 9-15, 2005, Vol. 20, No. 4..

5/1/2005  Publication entitled “Community Planning Students Urge Development of Intermodal Transportation” by Todd McLeish published in the May 2005 (Vol. 22, No. 7) issue of the URI PACER.
Project Achievements

Publications, Presentations & Success Stories

Reported Publications, Presentations & Success Stories

5/11/2005   Presentation: The students in Community Planning Program at URI presented the findings of their study to the Rhode Island Airport Corporation (RIAC) Sub-Committee on Operations and Capital.

FY 2003 URITC 000052 Dr. Jyh-Hone Wang
Enhancing Driving Safety through Proper Message Design on Variable Message Signs


FY 2003 URITC 000163 Dr. Thomas Boving
Porous Pavement and Water Quality: Investigation of a Newly Constructed Parking Lot and its potential Impact on Subsurface Water


6/1/2005   Success Story: PI Thomas Boving was invited to provide technical advise to Gilbane Inc., which is the contractor for the University of Rhode Island in charge for building a second permeable parking lot. Boving met with Gilbane, URI and RI DEM representatives to discuss the result of his URITC study and possible enhancements to the planned new parking lot construction.

6/1/2005   An abstract of the paper “Investigation of the University of Rhode Island, Kingston RI, Porous Pavement Parking Lot and its impact on Subsurface Water Quality” presented at the XXXIII International Congress, Groundwater Flow Understanding: from Local to Regional Scales, carried out in Zacatecas, Mexico in October 2004, was selected to be considered as a full paper for publication by the Journal of Environmental Geology.
Publications, Presentations & Success Stories

Reported Publications, Presentations & Success Stories

FY 2002 URITC 536184 Dr. Richard Burroughs
Dredging in a Changing Scientific and Regulatory Environment - Year 2


FY 2002 URITC 536185 Dr. Thomas Grigalunas
Application of a Multimodal Demand Simulation Model to Access Container Transportation Policy Issues in the Northeast


FY 2002 URITC 536186 Dr. Martin Sadd
Mechanical Behavior of Recycled Asphalt Material under Dynamic Loading Conditions


FY 2001 URITC 536162 Dr. Norbert Mundorf
Creating Safe Transportation Options for College Students

5/18/2005 Presentation entitled “Drunk Driving and Seatbelt Video Demonstration” by Norbert Mundorf at Construction Career Day, Coventry, RI.

5/19/2005 Presentation entitled “Drunk Driving and Seatbelt Video Demonstration” by Norbert Mundorf at URITC National Transportation Week Breakfast, Warwick, RI.
Publications, Presentations & Success Stories

Reported Publications, Presentations & Success Stories

**FY 2001 URITC 536161 Dr. Manbir Sodhi**
**Multimodal Vehicle Display Design and Analysis**

12/1/2004 Paper entitled “Driver Performance Evaluation: Considerations Underlying Selection and Design of Routes” by Manbir Sodhi, etc. was presented at the 2004 Vision and Vehicles Conference X in Granada, Spain.

**FY 2001 URITC 536153 Dr. Christopher Baxter**
**Field Study of Composite Piles in the Marine Environment**

6/1/2005 Paper entitled “Field Study of Composite Piles in the Marine Environment” on the results of the study was submitted for publication to the ASCE Journal of Waterway, Port, Coastal, and Ocean Engineering.

**FY 2000 URITC 536131 Dr. Norbert Mundorf**
**Exploring Ways of Influencing Transport Behaviors by Using Telecommunications Technologies**

**Ongoing Projects as of June 30th 2005**

- **Nanostructured Materials for Advanced Transportation Applications**
  - Dr. Arijit Bose, Professor
  - University of Rhode Island 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, Assistant Professor
  - University of Rhode Island Department of Industrial and Manufacturing Engineering
  - Year Initiated: 2004-000466

- **Quonset Point (QP) Multi-Modal, Mixed-Use Ferry Terminal Study**
  - Dr. Richard Burroughs, Professor
  - University of Rhode Island Department of Marine Affairs
  - Year Initiated: 2004-000470

- **Acoustic Detection and Monitoring for Transportation Infrastructure Security**
  - Dr. James Miller, Professor
  - University of Rhode Island Department of Ocean Engineering
  - Year Initiated: 2004-000471

- **Employing Graphics to aid Message Display on Dynamic Message Signs**
  - Dr. Jyh-Hone Wang, Associate Professor
  - University of Rhode Island Department of Industrial and Manufacturing Engineering
  - Year Initiated: 2004-000472

- **Testing Models of Asphalt System Modification Using Molecular Simulation**
  - Dr. Michael Greenfield, Associate Professor
  - University of Rhode Island Department of Chemical Engineering
  - Year Initiated: 2004-000506

**New Projects as of June 30th 2005**

- **Testing Models of Asphalt System Modification Using Molecular Simulation**
  - Dr. Michael Greenfield, Associate Professor
  - University of Rhode Island Department of Chemical Engineering
  - Year Initiated: 2004-000506
Ongoing Projects as of June 30th 2005

**Comparative Performance of Explosion Shielding Materials Used in Transportation**
Dr. Carl-Ernst Rousseau, Assistant Professor
University of Rhode Island Department of Mechanical Engineering
Year Initiated: 2004-000507

**Developing Intermodal Transportation Station Projects: A Public-Private Partnership Approach**
Dr. Farhad Atash, Professor
University of Rhode Island Department of Community Planning & Landscape Architecture
Year Initiated: 2004-000557

**Evaluation of Nonviolence Training for Offenders**
Dr. Charles Collyer, Professor
University of Rhode Island 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, Associate Professor
University of Rhode Island Department of Geosciences
Year Initiated: 2004-000563

**Challenges and Prospects of the Proposed Intermodal Transportation Hub at T.F. Green Airport in Warwick, Rhode Island**
Dr. Farhad Atash, Professor
University of Rhode Island Department 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, Professor
University of Rhode Island Department of Community Planning & Landscape Architecture
Year Initiated: 2004-000592

**Enhancing Driving Safety through Proper Message Design on Variable Message Signs**
Dr. Jyh-Hone Wang, Associate Professor
University of Rhode Island Department of Industrial and Manufacturing Engineering
Year Initiated: 2003 -000052
Ongoing Projects as of June 30th 2005

**Liquefaction Potential of Inorganic and Organic Silts**
Dr. Christopher Baxter, Assistant Professor
University of Rhode Island Departments of Ocean Engineering & Civil and Environmental Engineering
Year Initiated: 2003 -000060

**Web Based Relational Database Portal for Subsurface Geotechnical Data**
Dr. Daniel Murray, Professor
University of Rhode Island Department of Geosciences
Year Initiated: 2003 -000158

**Porous Pavement and Water Quality: Investigation of a Newly Constructed Parking Lot and Its Potential Impact on Subsurface Water**
Dr. Thomas Boving, Assistant Professor
University of Rhode Island Department of Geosciences
Year Initiated: 2003 -000163

**Narragansett Bay High Speed Ferry Network Phase 1 - Site Selections and Site Designs**
Dr. Angelo Simeoni, Professor
University of Rhode Island Department of Community Planning & Landscape Architecture
Year Initiated: 2003 -000188

**Designing Model Asphalt Systems Using Molecular Simulation**
Dr. Michael Greenfield, Associate Professor
University of Rhode Island Department of Chemical Engineering
Year Initiated: 2003 -000216

**Harnessing the Power of Relational Databases for Management of Geotechnical and Geologic Data**
Dr. Daniel Murray, Professor
University of Rhode Island 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, Assistant Professor
University of Rhode Island Department of Civil and Environmental Engineering
Year Initiated: 2002 -536177
Ongoing Projects as of June 30th 2005

Development of Thermochromic Paints, Plastics and Rubbers for Rapid Visual Assessment of Temperature
Dr. Brett Lucht, Associate Professor
University of Rhode Island Department of Chemistry
Year Initiated: 2002 - 536183

Application of a Multimodal Demand Simulation Model to Assess Container Transportation Policy Issues in the Northeast
Dr. Thomas Grigalunas, Professor
University of Rhode Island Department of Environmental and Natural Resource Economics
Year Initiated: 2002 - 536185

Replacement of Chromate in Paints and Corrosion Protection Systems
Dr. Mercedes Rivero-Hudec, Associate Professor
University of Rhode Island Department of Chemical Engineering
Year Initiated: 2002 - 000514

Development of Thermochromic Paints, Plastics, and Rubbers for Rapid Visual Assessment of Temperature
Dr. Brett Lucht, Associate Professor
University of Rhode Island Department of Chemistry
Year Initiated: 2001 - 536152

Contamination of Urban Lakes by Storm Runoff from Highway and Railway Drainage Systems
Dr. John King, Professor
University of Rhode Island School of Oceanography
Year Initiated: 2001 - 536155

Development of an Advanced Pavement Deicing System
Dr. David Taggart, Professor
University of Rhode Island Department of Mechanical Engineering
Year Initiated: 2001 - 536156

Investigation of Potential for Intermodalizing Paratransit in Rhode Island
Dr. Christopher Hunter, Assistant Professor
University of Rhode Island Department of Civil and Environmental Engineering
Year Initiated: 2001 - 536157
## Ongoing Projects as of June 30th 2005

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Leader</th>
<th>Department</th>
<th>Year Initiated</th>
<th>Project Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating Safe Transportation Options for College Students</td>
<td>Dr. Norbert Mundorf, Professor</td>
<td>University of Rhode Island Department of Communication Studies</td>
<td>2001</td>
<td>536162</td>
</tr>
<tr>
<td>Rethinking the Region</td>
<td>Dr. Maureen Moakley, Professor</td>
<td>University of Rhode Island Department of Political Science</td>
<td>2001</td>
<td>536168</td>
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<tr>
<td>Intermodal Transport of Petroleum Products- Smart Terminals</td>
<td>Dr. Winston Knight, Professor</td>
<td>University of Rhode Island Department of Industrial and Manufacturing Engineering</td>
<td>2000</td>
<td>536133</td>
</tr>
</tbody>
</table>
Completed Projects

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

**Experimental Evaluation of Novel Composites for Use in Transport of Explosive Materials**
Dr. Carl-Ernst Rousseau, Assistant Professor  
University of Rhode Island Department of Mechanical Engineering  
Year Initiated: 2003-000057

**Calibration of Scour Models Using Advanced Sonar Technology for Bridge Safety**
Dr. James Miller, Professor  
University of Rhode Island Department of Ocean Engineering  
Year Initiated: 2003-000059

**Stretching Ability of Chip Seal Membranes** (Project Cancelled Due to the Death of PI)  
Dr. Milton Huston, Adjunct Associate Professor  
University of Rhode Island Department of Civil and Environmental Engineering  
Year Initiated: 2002-536175

**Developing and Applying a Transportation Model for Aquidneck Island**
Dr. Farhad Atash, Professor  
University of Rhode Island Department of Community Planning & Landscape Architecture  
Year Initiated: 2002-536179

**Integrated Transportation Pricing Strategy for Newport**
Dr. Timothy Tyrrell, Professor  
University of Rhode Island Department of Environmental and Natural Resources Economics  
Year Initiated: 2002-536179

**Development of a Course on Bridge Management**
Prof. George Tsiatas, Professor  
University of Rhode Island Department of Civil and Environmental Engineering  
Year Initiated: 2002-536180
Completed Projects

Wood Filters as an Innovative Treatment Method for Roadway Runoff Pollutants
Dr. Thomas Boving
University of Rhode Island Department of Geosciences
Year Initiated: 2002 -536181

RI DOT 2002 Bicycle Transportation User Survey; Developing Intermodal Connections for the 21st Century
Prof. R. Choudary Hanumara, Professor
University of Rhode Island Department of Computer Science and Statistics
Year Initiated: 2002 -536182

Dredging in a Changing Scientific and Regulatory Environment -Year 2
Prof. Richard Burroughs, Professor
University of Rhode Island Department of Marine Affairs
Year Initiated: 2002 -536184

Mechanical Behavior of Recycled Asphalt Material Under Dynamic Loading Conditions
Professor Martin Sadd
University of Rhode Island Department of Mechanical Engineering
Year Initiated: 2002 -536186

Dredging in a Changing Scientific and Regulatory Environment
Prof. Richard Burroughs, Professor
University of Rhode Island Department of Marine Affairs
Year Initiated: 2001 -536151

Field Study of Composite Piles in the Marine Environment
Dr. Christopher Baxter
University of Rhode Island Department 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
Prof. Albert Della Bitta, Professor
University of Rhode Island College of Business Administration
Year Initiated: 2001 -536154
Completed Projects

Replacement of Chromates in Paints and Corrosion Protection Systems
Dr. Mercedes Rivero-Hudec, Associate Dean
University of Rhode Island Department of Chemical Engineering
Year Initiated: 2001 - 536158

Intelligent Traffic Anomaly Diagnosis Through the Integration of Diverse Information Sources
Prof. Joan Peckham
University of Rhode Island Department of Computer Science
Year Initiated: 2001 - 536159

Processing of Cenosphere-Cement/Asphalt Composite Materials and Evaluation of their Mechanical and Acoustic Properties
Prof. Arijit Bose, Professor
University of Rhode Island Department of Chemical Engineering
Year Initiated: 2001 - 536160

Multimodal Vehicle Display Design and Analysis
Prof. Manbir Sodhi
University of Rhode Island Department of Industrial Engineering
Year Initiated: 2001 - 536161

Comprehensive Framework for Sustainable Container Ports Development of U.S. East Coast in the 21st Century (Year 3)
Prof. Thomas Grigalunas, Professor
University of Rhode Island Department of Environmental & Natural Resource Economics
Year Initiated: 2001 - 536163

Effect of Microstructure on the Static and Dynamic Behavior of Recycled Asphalt Material
Prof. Martin Sadd, Professor
University of Rhode Island Department of Mechanical Engineering
Year Initiated: 2001 - 536164

Exploring Ways of Influencing Transport Behaviors by Using Telecommunications Technologies
Prof. Nikhilsh Dholakia, Professor
University of Rhode Island College of Business Administration
Year Initiated: 2000 - 536131
Completed Projects

**Chemical Retention Capacity of a Newly Constructed Roadway Runoff Detention Pond**  
Dr. Thomas Boving, Assistant Professor  
University of Rhode Island Department of Geosciences  
Year Initiated: 2000 -536132

**High Accuracy GPS Base Station and Web Delivery System**  
Prof. Peter August, Professor  
University of Rhode Island Department of Natural Resources Science  
Year Initiated: 2000 -536134

**Replacement of Chromates in Paints and Corrosion Protection Systems**  
Dr. Mercedes Rivero-Hudec, Associate Dean  
University of Rhode Island Department of Chemical Engineering  
Year Initiated: 2000 -536135

**Fiber Reinforcement of Concrete**  
Prof. Richard Brown, Professor  
University of Rhode Island Department of Chemical Engineering  
Year Initiated: 2000 -536136

**A Web-Based Core Library for Rhode Island**  
Prof. Daniel Murray, Professor  
University of Rhode Island Department of Geosciences  
Year Initiated: 2000 -536137

**Effect of Microstructure on the Static and Dynamic Behavior of Recycled Asphalt Materials**  
Prof. Martin Sadd, Professor  
University of Rhode Island Department of Mechanical Engineering  
Year Initiated: 2000 -536138

**TRANSMAP: An Integrated, Real-Time Environmental Monitoring and Forecasting System for Highways and Waterways in RI**  
Prof. Malcolm Spaulding, Professor  
University of Rhode Island Department of Ocean Engineering  
Year Initiated: 2000 -536139

**Comprehensive Framework for Sustainable Container Ports Development of US East Coast in the 21st Century**  
Prof. Thomas Grigalunas, Professor  
University of Rhode Island Department of Environmental and Natural Resource Economics  
Year Initiated: 2000 -536140
Completed Projects

Implementation of a Highway Monitoring Program Utilizing Intelligent Transportation Systems (ITS)
Dr. Milton Huston, Adjunct Associate Professor
University of Rhode Island Department of Civil and Environmental Engineering
Year Initiated: 2000 - 536141

Moving Smart in Rhode Island
Prof. Joan Peckham, Professor
University of Rhode Island Department of Computer Science and Statistics
Year Initiated: 2000 - 536142

Inorganic and Organic Characterization of Dredged Sediments from the Proposed Quonset Point Channel in Narragansett Bay
Prof. Raymond Wright, Professor
University of Rhode Island Department of Civil and Environmental Engineering
Year Initiated: 2000 - 536143

Performance Improvement & Measurement of Open-Graded Asphalt Mixes
Prof. Mohammad Faghri, Professor
University of Rhode Island Department of Mechanical Engineering
Year Initiated: 2000 - 536144

Magnet and Induced Impacts of Quonset Container Port
Dr. Edward Mazze, Dean
University of Rhode Island College of Business Administration
Year Initiated: 2000 - 536145

Red Light Running in Rhode Island
Dr. Chris Hunter, Assistant Professor
University of Rhode Island 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
Prof. Malcolm Spaulding, Professor
University of Rhode Island Department of Ocean Engineering
Year Initiated: 1999 - 536100
<table>
<thead>
<tr>
<th>Project Status</th>
<th>Completed Projects</th>
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</table>
|                | Fiber Reinforcement of Concrete  
Prof. Richard Brown, Professor  
University of Rhode Island Department of Chemical Engineering  
Year Initiated: 1999 -536101 |
|                | Geologic Transportation Maps for the 21st Century  
Prof. O.Don Hermes, Professor  
University of Rhode Island Department of Geosciences  
Year Initiated: 1999 -536102 |
|                | Multi Modal Vehicle Display Design and Analysis  
Prof. Manbir Sodh, Professor  
University of Rhode Island Department of Industrial & Manufacturing Engineering  
Year Initiated: 1999 -536103 |
|                | Beneficial Uses of Dredge Material from the QPD Intermodal Port Terminal  
Prof. Armand Silva, Professor  
University of Rhode Island Department of Ocean Engineering  
Year Initiated: 1999 -536104 |
|                | The Design and Development of Information and Computer Systems for the URITC  
Prof. Joan Peckham, Professor  
University of Rhode Island 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  
Prof. Thomas Grigalunas, Professor  
University of Rhode Island Department of Environmental and Natural Resource Economics  
Year Initiated: 1999 -536106 |
|                | Development of an Advanced Bridge, Highway, and Runway Deicing System  
Prof. David Taggart, Professor  
University of Rhode Island Department of Mechanical Engineering  
Year Initiated: 1999 -536107 |
Effect of Microstructure on the Static and Dynamic Behavior of Recycled Asphalt Material
Prof. Martin Sadd, Professor
University of Rhode Island Department of Mechanical Engineering
Year Initiated: 1999 -536108

Modeling for Real-Time Traffic Control in the Rhode Island Intelligent Road
Prof. William Palm, Professor
University of Rhode Island Department of Mechanical Engineering
Year Initiated: 1999 -536109

Using Cenospheres to Develop New Asphalt and Cement-Based Concrete Materials
Prof. Arun Shukla, Professor
University of Rhode Island Department of Mechanical Engineering
Year Initiated: 1999 -536110

Interactions of Transportation and Telecommunications Behaviors in Relation to RIIR: Modeling the User Perspective
Prof. Nikhillesh Dholakia, Professor
University of Rhode Island College of Business Administration
Year Initiated: 1999 -536111

Data Analysis and Detection Methods for Online Health Monitoring of Bridge Structures
Prof. Sau-Lon Hu, Professor
University of Rhode Island Department of Ocean Engineering
Year Initiated: 1999 -536112

Prof. David Shao, Professor
University of Rhode Island Department of Industrial and Manufacturing Engineering
Year Initiated: 1999 -536113

Smart Speed Bumps
Prof. William Ohley, Professor
University of Rhode Island Department of Electrical Engineering
Year Initiated: 1999 -536114