



# The NTC Today

The Biannual Newsletter for the Morgan State University National Center for Transportation Management, Research & Development

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U.S. Deputy Secretary of Transportation John Porcari (front row, sixth from left) told students to "think of education as infrastructure of the mind."

## NTC Hosts Two VIPs from USDOT

The NTC recently showed off its long-standing educational efforts to two high-profile guests from Washington, D.C.

On July 22, John Porcari, the U.S. deputy secretary of transportation, visited Morgan and met with the local teens and teachers participating in the NTC's summer programs.

On April 4, Victor Mendez, the administrator of the Federal Highway Administration (FHWA), helped fete four graduate students who interned in the Maryland Department of Transportation (MDOT).

### *John Porcari Meets STI and TTI*

Porcari's visit was part of an ongoing White House outreach effort. For over an hour, the deputy secretary answered students' questions about current industry trends and emphasized how transit systems connect people with opportunity.

However, the first audience question—why did you choose transportation?—and Porcari's answer underscored the importance of the NTC's summer programs, the

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Left to right: FHWA Administrator Victor Mendez and MDOT-MSU graduate intern Farzin Kermani



## A Message from the NTC Director

DR. ANDREW FARKAS



*From left to right: USDOT Director of Public Engagement Bryna Helfer, U.S. Deputy Secretary of Transportation John Porcari, NTC Director Andrew Farkas. Photo: Morgan State University*

We found out at the end of September that a consortium led by the University of Maryland and including us has been awarded a national center grant of \$2.8 million per year from the Department of Transportation's Research and Innovative Technology Administration. Morgan State University will receive a portion of this grant along with Arizona State University, Louisiana State University, North Carolina State University, Old Dominion University, and University of New Orleans. Research under this grant will promote transportation infrastructure solutions that contribute to economic competitiveness and promote innovative ways to move freight, reduce highway congestion and resulting externalities, and further investments in intercity passenger travel.

While the national center award is certainly good news, the competition results are not all positive. We participated in proposals with our current University Transportation Center (UTC) partners, the Region 3 UTC at Pennsylvania State University and the Connected Vehicle UTC at Virginia Polytechnic and State University. The Region 3 UTC grant will be re-competed this fall because the Penn State consortium appears not to have submitted a compelling proposal; neither did anyone else, so I am cautiously optimistic that the regional center will be awarded to Penn State later. Unfortunately, the Connected Vehicle UTC at Virginia Tech did not win an award this time.

The strategic area of the University of Maryland center is economic competitiveness and the one for Penn State is safety. Our research capabilities fit well within these areas, so I look forward to beneficial outcomes with both UTCs over the next four years.

We are also pleased to announce that the Maryland State Highway Administration has selected four research problem statements from Morgan State researchers through its annual research solicitation. Once approved by Federal Highway Administration, full proposals will be solicited and projects may begin. This state funding will be used as a portion of the non-federal match for UTC funds. We, thus, have many research, education, and technology transfer projects already in hand and in mind to keep us busy for years to come.

### About the Center

The National Transportation Center (NTC) at Morgan State University is committed to transportation research and education that support the well-being and economic development of communities.

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### Clip Art

Pg 4 (concrete): ©iStockphoto.com/AGioulis

# Officials Meet Morgan Students *continued from cover*

Summer Transportation Institute (STI) and the Teacher Transportation Institute (TTI).

When he was in seventh grade, Porcari convinced a teacher to allow him to volunteer in a local airport tower and he's been interested in transportation ever since.

"I wasn't born as a transportation person. I don't think anyone is," Porcari said. He believes that someone becomes a transportation person when someone else opens a door that leads to an internship that leads to an entry level job, and so on.

STI and TTI were designed to open doors. Since 1996, STI has introduced high school students to the many types of

transportation careers through field trips and networking opportunities with industry professionals. Twenty high school students completed this year's program. TTI, now in its fifth year, showed eight middle and high school teachers how to inject real-world relevance into math and

science concepts. Neither program requires participants to be experts, just curious.

And Porcari's closing advice encouraged that type of curiosity: "Learn as much as you can and be passionate about what you do...I guarantee you'll do well."

## *Interns' Power Lunch with FHWA Administrator*

FHWA Administrator Victor Mendez gave similar advice to four Morgan graduate students who interned with MDOT during the 2011-12 academic year.

"You want to find yourself a job that you love doing that really isn't work and you get paid for it. So if you love that, you can't beat that combination," Mendez said.

MDOT usually celebrates the end of the year-long MDOT-Morgan State University (MSU) Graduate School Internship program with a luncheon for participants. Hurricane Sandy interrupted those October plans, but the April 4 rain date allowed Administrator Mendez to

join in the festivities. The NTC hosted the luncheon in the library of Morgan's Center for the Built Environment and Infrastructure Studies.

Established in 1985, the internship program gives Morgan students professional work experience in an MDOT agency that complements their career goals in engineering, transportation, landscape architecture, finance, information technology, or city and regional planning.

Hired as temporary state employees, the interns work full-time during the summer and part-time during the school year. Assignments vary with department

placement, but each student is assigned a mentor who helps them build their resume and understand the mechanics of state government. Over 175 students have participated in the program since its inception.

Darrell Mobley, who until June was Maryland's acting secretary



*At the April 4 luncheon, (from left to right) Farzin Kermani, Sheila Rivers, Ijeoma Ihuoma, and Anam Ardeshiri received certificates that marked their participation in the 2011-12 MDOT-MSU internship program. Cadell Hall, Dionne Hines, and Shaghayegh Shariat also completed the program but were unable to attend the event.*

of transportation, presented the students with their awards.

"This is a great step forward in the program," Mobley said. "For our honorees, it allows them an opportunity to gain an experience to help them in their career for the next step in their career."

The administrator's remarks underscored the importance of transportation careers.

"If we invest in our infrastructure—whether it's roadways, bridges, transit, water, energy—we get people back to work today in today's economic environment, but we're also investing in the future in our infrastructure. So when you put that together along with the support that we get from the educational institutions throughout the nation, it's very, very critical for us as a nation to invest in our nation," Mendez said.



## Summer Program Recap

from Valencia Baker, NTC Education Coordinator

### 2013 Summer Transportation Institute

During the 17th annual Summer Transportation Institute (STI) in July, the 20 high school participants traveled to Virginia Polytechnic Institute and State University in Blacksburg, Virginia. While in Blacksburg, the students toured the Smart Road.

The Smart Road is collaboration between the Virginia Department of Transportation, Virginia Tech Transportation Institute, and Federal Highway Administration. It is a test bed where advanced safety techniques and innovations can be analyzed under a broad range of traffic conditions. It provides researchers and product developers with a state-of-the-art research lab for testing new transportation technologies.

Some of the capabilities and features of the Smart Road will be

- all-weather testing capabilities (snow, ice, rain, etc.)
- various lighting technologies on driving visibility and ITS equipment
- advanced communications
- varied terrain, including a six-percent grade, a range of elevations, and several bridges
- experimental pavement sections to assist in the characterization of pavement lifetime

The STI participants also learned about connected vehicle technology during their visit to Virginia Tech. Connected vehicle technology is wireless technology. Connected vehicles may one day be able to communicate important safety and mobility information to one another that helps save lives, prevent injuries, ease traffic congestion, and improve the environment. The participants were able to browse and see the operation of the connected vehicles.

### 2013 Teacher Transportation Institute

Teachers who participated in the 2013 Teacher Transportation Institute (TTI) have a clearer understanding of the relationship between science, technology, engineering, and mathematics (STEM) and transportation. The teachers participated in a traffic feasibility study at the site of a proposed roundabout. The teachers visited transportation-related sites and spoke with industry professionals. Later, the teachers constructed modern traffic roundabouts and conducted presentations about the relationship between STEM and transportation. During their presentations, the teachers spoke about how they will apply their knowledge of STEM and transportation in their classrooms.



*After they completed a feasibility study for a roundabout at Key Highway and Light Street, TTI participants summarized their data.*



*STI participants received an introduction to connected vehicles.*



*One of the TTI participants completed a scale of a roundabout.*



*STI participants toured a fleet of connected vehicles.*

## NTC STUDENT OF THE YEAR: CHRISTINA NZEKWE

Christina Nzekwe is currently pursuing a Master of Science in Transportation. During her time at Morgan, she has researched transit-oriented development (TOD) for the Maryland State Highway Administration under the supervision of Dr. Mansoureh Jeihani, and she has interned as a project development liaison at the Maryland Transit Administration.

Nzekwe, who is also an Eisenhower graduate fellow, is examining how TOD affects vehicle miles traveled. Upon completion of her master's degree, she would like to be a transportation analyst.

Nzekwe earned her bachelor's degree in applied mathematics from University of California, Los Angeles, which she attended on a full-tuition basketball scholarship.



*Greg Winfree, acting administrator of USDOT's Research and Innovative Technology Administration, presented Christina Nzekwe with her award at the annual CUTC banquet on Jan. 12.*

Photo: CUTC website

## 2013 Interns and Fellows

### EISENHOWER FELLOWS

Mujid Beshir  
Seyedeshan Dadvar  
Fathy Elgendi  
Shiva Narooienezhad  
Stella Osifo

### MDOT-MSU GRADUATE SCHOOL INTERNS

Arash Adeli  
Fathy Elgendi  
Britney Jackson  
Joseph Moges  
Shiva Narooienezhad  
Folashade Shelton

### NTC FELLOWS

Olawale Adekunle  
Arash Adeli  
Fathy Elgendi  
Travis Johnston  
David Joseph  
Natasha Koduah  
Safieh Laaly  
Nii Laye  
Folashade Shelton

### SHA SUMMER INTERNS

Kechi Amaefule  
Ebony Ashby-Bey  
Joseph Bateky  
Oladapo Lajubutu  
Joab Ogunbiyi  
Courtney Russell  
Ahmad Sheikh-Yusif  
Brittany Spell  
Iftin Thompson



## NEW RESEARCH PROJECTS

- **NTC Instructor Development Training Development and Delivery**

*With the Mid-Atlantic Universities Transportation Center*

- **Phase II Evaluation of Waste Concrete Road Materials for Use in Oyster Aquaculture –Field Test**
- **Durability Assessment of Prefabricated Bridge Elements and Systems**
- **Needs, Barriers, and Analysis Methods for Integrated Urban Freight Transportation**
- **Modeling the Dynamics of Drivers Dilemma Zone Perception Using Machine Learning Methods for Safer Intersection Control**
- **Structural Health Monitoring to Determine Long-Term Behavior of AFRP Composite Bars in Prestressed Concrete Panels for Field Development**
- **Stainless Steel Prestressing Strands and Bars for Use in Prestressed Concrete Girders and Slabs**

*With the Connected Vehicle/Infrastructure University Transportation Center*

- **Connected Vehicle-Infrastructure Application Development for Addressing Safety and Congestion Issues Related to Public Transportation, Pedestrians, and Bicyclists**
- **Measuring User Acceptance of and Willingness-to-pay for CVI Technology**

*A full description for each project can be found at [http://www.morgan.edu/School\\_of\\_Engineering/Research\\_Centers/National\\_Transportation\\_Center/Research/New\\_Projects.html](http://www.morgan.edu/School_of_Engineering/Research_Centers/National_Transportation_Center/Research/New_Projects.html)*

## COMPLETED PROJECT

### **Evaluation of Waste Concrete Road Materials for Use in Oyster Aquaculture**

Authors:

Dr. Kelton L. Clark, Dr. James G. Hunter, Dr. Mark M. Bundy,  
Dr. Dong Hee Kang

This project examined whether old roads can help grow new oysters in the Chesapeake Bay.

The study, led by researchers at Morgan's Estuarine Research Center (ERC), may help revitalize the Maryland oyster industry. Oyster shells have diminished below the point needed to build new reefs. This research tested whether recycled concrete from road projects could be used as conditioning material for on-bottom oyster aquaculture.

Lab results showed that recycled concrete does not harm oyster growth, the surrounding aquatic environment, or drinking water. There were also no significant differences between oysters grown on old oyster shell, the traditional and increasingly scarce conditioning material, and oysters grown on recycled concrete.

"This project will help provide the aquaculture industry with base materials for oyster reefs, private industry with a way to dispose of reclaimed products, and transportation agencies will be better able to meet their goals of increasing the use of recycled materials and to use their products in an environmentally friendly way," says Dr. Kelton Clark, director of the ERC.

The Maryland State Highway Administration is sponsoring a second phase of this study, which will involve field tests of recycled concrete in the Chesapeake Bay.

The full report can be found at [http://www.morgan.edu/School\\_of\\_Engineering/Research\\_Centers/National\\_Transportation\\_Center/Research/Completed\\_Projects.html](http://www.morgan.edu/School_of_Engineering/Research_Centers/National_Transportation_Center/Research/Completed_Projects.html)