



NTC Director Dr. Andrew Farkas to retire

Dr. Z. Andrew Farkas, director of both the National Transportation Center (NTC) and the Urban Mobility & Equity Center (UMEC) at Morgan State University, is retiring after 36 years with the university.

A former Transportation department chair, Dr. Farkas has spent the last two decades furthering transportation research, first as director of the NTC, established in 1991, and then securing a five-year, \$7.5 million federal grant in 2015 to create the Urban Mobility & Equity Center (UMEC). UMEC is a U.S. DOT Tier 1 University Transportation Center. His last day will be Dec. 20.

“Giving up Dr. Farkas, a seasoned professor and researcher and an ardent supporter of the transportation degree programs, for retirement will no doubt create a big void that will be very challenging to fill,” said Dr. Anthony Saka, Professor and Chair of the Department of Transportation and Urban Infrastructure Studies. “Throughout his long tenure as NTC Director and full professor in the department, Dr. Farkas has never declined any request for his service which among others includes chairing the Department’s tenure and promotion committee and liaising with departments of transportation for student internship and employment opportunities. His legacy will remain indelible.”

Dr. Farkas holds an A.B. in Economics from Georgia Southern College, and an M.A. in Economics and a Ph.D. in Geography from the University of Georgia.

He began his career as a research associate with the Georgia Department of Transportation. He then took a position as an engineering economist for the Forest Service with the U.S. Department of Agriculture in Atlanta and three years later with the agency in Washington, D.C.

While he was completing his Ph.D., he had interviewed and been offered a position with the University of Alabama that he turned down. He realized later that he did want to teach and do research, and came to Morgan in 1983 as an associate professor in the Center for Transportation Studies. He became a full professor in 1993, chairing the department from 1995 to 1999.

At a recent National Transportation Center Advisory Committee meeting, Dr. Farkas described the many accomplish-



ments of his former students, some of whom are in high-ranking positions. “I’m so very proud of them,” he said. “It really means a lot to me that they’ve done so well.”

Dr. Farkas is particularly proud of his sabbatical research at the University of Pécs in Hungary, where he studied the potential for Eurasian land bridges (rail-sea links) in international trade. His research was supported by a V4 Think Tank fellowship and he presented his research at a conference in Hungary.

He also has served as a principal investigator or co-principal investigator on 11 externally funded research projects and is an author of 24 peer-reviewed journal publications, as well as other articles, reports and a book chapter. He has served as a former president of the Research and Education Division of the American Road and Transportation Builders Association, a former member of that organization’s Board of Directors, and as former president of the Council of University Transportation Centers. Dr. Farkas is a former member and chair of the Howard County, Maryland, Public Transportation Board, and in 2011 the governor appointed him to the Maryland Electric Vehicle Infrastructure Council.

He is a recipient of the S.S. Steinberg Outstanding Educator Award from the American Road and Transportation Builders Association. •

A Message from the NTC Director

DR. ANDREW FARKAS



It always takes me time and much thought to come up with commentary that, I hope, is meaningful and informative. This time it's rather easy; it will be my last commentary and I am going to spend it thanking people who've made my tenure here enjoyable and fulfilling. I am retiring at the end of 2019. I have enjoyed being center director for the past 22 years and a faculty member for 36 years. Many of my former students have achieved managerial positions with consulting firms and state and federal governments; I am so proud of them! I am also blessed by excellent staff at the NTC, two of whom, Anita Jones and Sonia McDonald,

have been with me since 1997. Val Baker and Nancy Jackson have been on board for many years also. I've often said this center's staff could not be better; they make things happen on campus. I wish for the next center director much success, and with these four on staff that should be easy.

We've completed the third year of the UMEC Tier 1 University Transportation Centers grant and conducting various research, educational and outreach initiatives. We recently sponsored a distracted driving event that had a significant impact on the discussions of distracted driving in the state. We hosted an Electric Vehicle Day at Morgan over the summer that exposed students in our high school level Summer Transportation Institute (STI) and others on campus to new technologies. We were successful in obtaining funding from the Federal Motor Carrier Safety Administration to enhance our STI (23 years!) with a focus on motor carrier safety. All of these activities and more have been a team effort. I also include on our team our Advisory Committee, which has over the years provided much excellent advice and many good contacts who have become stakeholders in our achievements.

Best wishes to all of you with whom I've had the honor to work these many years. •

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. It is home to the Urban Mobility & Equity Center, a Tier 1 University Transportation Center.

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NTC loses a steadfast supporter with the death of Congressman Cummings

U.S. Rep. Elijah Cummings died on Sept. 17, 2019, due to complications from longstanding health problems. He was 68.

Cummings, along with former Senator Paul Sarbanes, was instrumental in ensuring that the National Transportation Center was located at Morgan State University and sufficiently funded to solve nationally significant transportation problems. Twice he was the featured speaker for the Summer Transportation Institute, an NTC program that introduces high school students to transportation concepts and careers.

More recently, he supported the

development of the Urban Mobility & Equity Center, also housed at Morgan, a Tier 1 University Transportation Center funded through the U.S. DOT.

"Congressman Cummings was a good friend to us at the NTC and his staff was intimately aware of and supportive of our efforts. He was concerned for his constituents, and our focus on urban mobility research and community outreach complemented his concerns," said Dr. Andrew Farkas, director of NTC and UMEC.

Cummings, the son of sharecroppers from South Carolina, was born and raised in Baltimore. He graduated

from Baltimore City College and then Howard University, where he earned Phi Beta Kappa honors. He graduated from the University of Maryland School of Law and set up a small practice. His political career began in 1982, when he was elected as a state delegate; he served 14 years in the General Assembly and became the first African-American to be named speaker pro tem of the House of Delegates. In 1995 he ran for the 7th Congressional District seat vacated by Kweisi Mfume, who left to head the national NAACP. •

Hands on Wheel, Eyes on Road

Christine Nizer and Jenny Weaver explained what five seconds can mean when they spoke at the Hands on Wheel, Eyes on Road event focusing on distracted driving held at Morgan State University on Sept. 12, 2019.

Nizer, administrator of the MVA and the Governor's Highway Safety Representative, noted that sending or reading a text takes your eyes off the road for five seconds, and at 55 mph that is the equivalent of driving a football field blindfolded.

"We know that texting and driving is one of the most dangerous forms of distraction," Nizer said.

There was total silence in the room when Jenny Weaver recounted five seconds of her life. Although she has no recollection of the crash due to a head injury, the Accident Reconstruction Team concluded she was looking down at her phone when she failed to see a car stopped in front of her waiting to make a left turn. She rear-ended the car driven by Steven Pirrone, sending his car into oncoming traffic, where it was struck by a pickup truck. Pirrone died at the scene.

It was the worst day of her life. The second worst day was when she was sentenced.

"I had made a horrible decision to take my eyes off the road for five seconds, and if I had to spend a year in jail I was at peace with that," Weaver said, "but this was the day I had to face Mr. Pirrone's family."

A school psychologist, Weaver entered an Alford plea, served 31 days in jail and then was released on probation – a probation that included speaking to local high schools and community colleges.

She has continued telling her harrowing story of living with the tragic results of five seconds.

"I continue to speak because I don't want anyone to go through what I went through, and more importantly, I don't want anyone to go through what the Pirrone family went through," she said.

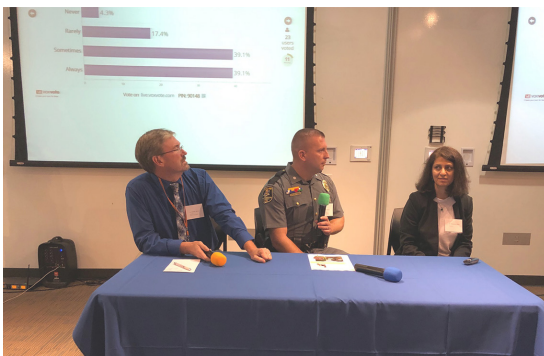
Dr. Maurice Taylor, vice president for Academic Outreach and Engagement at Morgan, welcomed the audience to the Hands on Wheel, Eyes on Road event, which focused on distracted driving as a result of a research project funded by the Maryland Department of Transportation Highway Safety Office and the Urban Mobility & Equity Center. The project put 92 drivers into a full-size driving simulator and then had them drive distracted in various scenarios that included texting, eating and drinking, changing clothes, and talking on the phone, both hand-held and hands-free. An eye-tracking system tracked exactly how long their eyes were off the road.

A video was shown explaining how the research was conducted, a process that, as the near misses and one crash made clear, could not be safely conducted in the real world.

The research results, coupled with an interactive poll at the event, prompted a lively discussion by a panel that included Dr. Mansoureh Jeihani, who conducted the research; Dr. Timothy Kerns, director of the MDOT MVA MHSO; and Lt. Col. Kevin Anderson of the Maryland Transportation Authority Police.



Distracted driving was the focus of an event held on campus on Sept. 12, 2019.



An interactive panel discussion allowed audience members to weigh in and experts to evaluate their responses.



The interactive poll revealed that of those attending the event, 70% admit to using cell phones while driving, but only 25% were confident they could do so without a problems.

The research found that education does have an impact; drivers who were confident they could drive while being distracted were not nearly so confident after they attempted it in the simulator, as indicated in pre- and post-driving surveys. The need for education and outreach prompted the Hands on Wheel, Eyes on Road event, which also included a participatory exhibit from the R Adams Cowley Shock Trauma Center at the University of Maryland Medical Center. •

ONGOING RESEARCH PROJECTS

“Hands on the Wheel, Eyes on the Road” Campaign

Dr. Mansoureh Jeihani

Understanding Access to Grocery Stores in Food Deserts in Baltimore City

Dr. Celeste Chavis, Anita Jones

Innovative Methods for Delivering Fresh Foods to Underserved Populations

Dr. Hyeon-Shic Shin, Dr. Young-Jae Lee, Dr. Paul Schonfeld (University of Maryland)

Developing a Connected Vehicle Transit Signal Priority System

Dr. Kyounggho Ahn (Virginia Tech), Dr. Hesham Rakha (Virginia Tech), Dr. Young-Jae Lee

Developing and Testing an ECO-Cooperative Adaptive Cruise Control System for Buses

Dr. Hesham Rakha (Virginia Tech), Hao Chen (Virginia Tech), Dr. Mansoureh Jeihani

Managing the Impacts of Different CV/AV Penetration Rates on Recurrent Freeway Congestion From the Perspective of Traffic Management

Dr. Gang-Len Chang (University of Maryland)

Driver’s Interactions with Advanced Vehicles in Various Traffic Mixes and Flows (autonomous and connected vehicles, (ACVs) electric vehicles (EVs) V2x, trucks bicycles and pedestrians) – Phase I: Driver Behavior Study and Parameter Estimation

Dr. Mansoureh Jeihani

Shared Bus-Bike Lane Safety Analysis: Assessing Multimodal Access and Conflicts

Dr. Celeste Chavis, Dr. Cinzia Cirillo (University of Maryland)

Developing an Eco-Cooperative Adaptive Cruise Control System for Electric Vehicles

Dr. Hesham Rakha (Virginia Tech), Dr. Cinzia Cirillo (University of Maryland)

E³: Evaluating Equity in Evacuation: A Practical Tool and Two Case Studies

Dr. Cinzia Cirillo (University of Maryland)

Improving Public School Bus Operations: Boston Case Study

Dr. Youssef Bichiou (Virginia Tech), Dr. Hesham Rakha (Virginia Tech), Dr. Young-Jae Lee

Information about ongoing projects and final reports for completed projects are on our website at www.morgan.edu/soe/ntc

NEW RESEARCH PROJECTS

Demand Responsive Delivery of Food in Baltimore City Food Deserts

Dr. Z. Andrew Farkas, Dr. Hyeon-Shic Shin, Dr. Richard Pitts

Developing and Testing an Advanced Hybrid Electric Vehicle Eco-Cooperative Adaptive Cruise Control System at Multiple Signalized Intersections

Dr. Hao Chen (Virginia Tech), Dr. Hesham Rakha (Virginia Tech), Dr. Mansoureh Jeihani

E-Bikes' Effect on Mode and Route Choice: A Case Study of Richmond, VA, Bikeshare

Dr. Celeste Chavis, Dr. Vanessa Frias-Martinez (University of Maryland)

Energy Efficient Transportation Modeling
Dr. Hesham Rakha (Virginia Tech)

Equity in Accessibility to Opportunities: Insights, Measures, and Solutions based on Mobile Device Location Data

Dr. Lei Zhang, University of Maryland

Investigating the Effect of Connected Vehicles (CV) Route Guidance on Mobility and Equity

Dr. Mansoureh Jeihani, Dr. Ali Haghani (University of Maryland)

Developing Optimal Peer-to-Peer Ridesharing Strategies
Dr. Young-Jae Lee, Amirreza Nickkar

2019 COMPLETED RESEARCH PROJECTS

Optimized Development of Urban Transportation Networks

Dr. Paul Schonfeld (University of Maryland)

Development of Multimodal Traffic Signal Control

Dr. Hesham Rakha (Virginia Tech), Dr. Kyoungcho Ahn (Virginia Tech)

Traffic State Prediction: A Traveler Equity and Multi-modal Perspective

Dr. Hesham Rakha (Virginia Tech)

Optimization of Emergency Traffic Patrols (ETP) Operations

Dr. Ali Haghani (University of Maryland), Dr. Farzad Daneshgar (University of Maryland), Dr. Mansoureh Jeihani, Samira Ahangari, Moschoula Pternea (University of Maryland)

Evaluating Equity Issues for Managed Lanes: Methods for Analysis and Empirical Results

Dr. Cinzia Cirillo (University of Maryland), Dr. Javier Bas Vicente (University of Maryland)

Sustainable Design of Concrete Bus Pads to Improve Mobility in Baltimore City

Dr. Kadir Aslan, Dr. Mehdi Shokouhian

Dynamic (Time-Dependent) Green Vehicle Routing Problem

Dr. Ali Haghani (University of Maryland)

Optimal Automated Demand Responsive Feeder Transit Operation and Its Impact

Dr. Young-Jae Lee, Amirreza Nickkar

Eco-Speed Control for Hybrid Electric Buses in the Vicinity of Signalized Intersections

Dr. Hao Chen, Virginia Tech; Dr. Mansoureh Jeihani, Dr. Celeste Chavis, Kyungwon Kang, Virginia Tech; Samira Ahangari, Zohreh Rashidi Moghaddam

What makes this internship work – for three decades?

Students routinely participate in internships today, but more than 30 years ago, one of Morgan's most successful internship programs was developed to solve a problem.

The problem was how to sustain its then-new multidisciplinary master's degree program in transportation, the first such offered in the state and at an HBCU. The 12-course program combined engineering, planning and management, and students had a range of backgrounds.

"The idea of sustaining the program required partnership, and the internship program was really a part of that effort," said Dr. Moges Ayele, then a professor and founding director of the transportation program at Morgan who is now retired from the Federal Highway Administration and a member of the National Transportation Center Advisory Committee.

Dr. Ayele prepared the proposal that clearly spelled



The 2018-2019 MDOT-MSU Graduate School interns.

out the expectations for students and the responsibilities of the Maryland Department of Transportation (MDOT) and Morgan's transportation program. The Maryland Department of Transportation/Morgan State University Graduate School Internship Program was approved in 1986, and Dr. Ayele credits MDOT's Alfred David Watts. "He was very supportive and able to get the blessing of the Secretary of Transportation to get funding for a paid internship – I think 'paid' was very important."

Three students started in 1987 and a decade later 49 students had gone through the program.

Today, 15-20 students work for a year, full time in the summer and part time during the school year, in various MDOT Business Transportation Units. They are paired with a mentor, and the program has grown beyond just transportation students

2019 MDOT-MSU INTERNS

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Samira Ahangari
Princess Cooper
Kenhinde Ajayi
Samina Warner
Olatunji Dipeolu
Miriam Hagan
Mofoluwake Mosaku*

*Esther Ogulade
Emmett Ayomanor
Princewill George
Stefanie Carey
Tolulope Ajayi
Chibuike Nosiri
Olutayo Ojo
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to include those majoring in business, architecture, accounting and communications. Many have been hired for both full-time and contractual positions. Several MDOT Secretaries have championed the program, and it was featured in a Transportation Research Board publication NCHRP Report 710.

Morgan has enjoyed similar success; today the University also offers a B.S. in Transportation Systems, B.S. in Transportation Engineering, B.S. in Civil Engineering, Master of Engineering, and the Ph.D. in Transportation and Urban Infrastructure Systems.

"This is a compendium of transportation degrees rivaled by few other universities," said Dr. Andrew Farkas, director of the National Transportation Center at Morgan, which administers the program.

"The one requirement that was clear in the proposal was that students need to be involved in meaningful research or projects – really, truly meaningful involvement," Dr. Ayele said. "They need to be viewed as a resource for the agency."

They have become not only a resource, but a critical source of new talent.

"An internship program, such as this, is an excellent strategy for investing in MDOT's future successes, often leading to discovering of future colleagues and leaders," said Sheryl Johnson, a Talent and Development Learning Specialist with MDOT. "This program has helped our organization to bridge the gap when it comes to finding the next generation of talented problem solvers, innovators, and future leaders."

Buffalo, New York, native Trannell Griffin was new to Baltimore when she interned in 1998 in the Service Planning department at MTA. She worked on a bus stop study using technology to map and analyze the transit system to better serve riders.

"A few of my responsibilities were to work with a consultant using GIS - back in 1998!! - to map and analyze the bus stops and amenities into the GIS system, later creating GIS

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Internship works for both students and MDOT units

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maps,” said Griffin, now a senior performance analyst with the Washington Metropolitan Area Transit Authority. “I was able to learn the city and speak to residents about the transit system as well as explore each county in the state. In addition, I spent time working with two consultant firms that were assisting me with the project. This gave me more exposure, and after leaving my internship I applied and was hired as a Junior Transportation Planner with Parsons Brinckerhoff, one of the consultant firms I worked with during my internship.”

“This is a compendium of transportation degrees rivaled by few other universities.”
–Dr. Andrew Farkas

Griffin learned critical non-technical skills as well.

“The experiences I learned from my internship were purely relationship building. I had amazing mentors that not only taught me about transportation and planning but about office

etiquette, including dressing for the job I want, not the current job I have; appropriate conversations at work; ensuring I knew which websites, newspapers and organizations I needed to read/involve myself in to stay up to date with current affairs; and, most importantly, not to solely rely on technology/email to communicate or request items with people in the office.

“With the guidance of mentors, I learned how to express myself if I was dealing with issues and I also learned a valuable lesson of negotiating salary, benefits and ensuring I did not overwork myself and burn out. I learned the benefit of putting money in my 401k even if it’s \$20 at an early age, as well as how to budget my finances. These are things college doesn’t teach you.”

MDOT’s Johnson noted: “The students come in with high energy that seems to magnify their curiosity as they discover their natural talents within and as we envision the possibilities of what the MDOT future can be. MDOT is an organization where learning is reciprocal – this is why the year-long graduate school internship program works well for both the student and the MDOT organization.” •

Summer Transportation Institute, EV Day expose students to transportation and technology

A highlight of the Summer Transportation Institute (STI), a program that exposes high school students to the transportation field, was participating in the first-ever EV Day. EV Day, held outside the CBEIS Building in July, brought several different electric vehicles



to campus. The owners, members of the Electric Vehicle Association of greater Washington DC (EVADC) graciously allowed students to climb into their cars and examine the engines. Along with the 15 students in STI, students from Morgan’s summer engineering classes also checked out the cars, as did other students, faculty and staff.





Transportation doctoral student Samira Ahangari has presented several times already this year, and has four papers accepted for presentation at the Transportation Research Board in January 2020, one of which has been accepted for publication.

Her presentations included:

- Ahangari S., Jeihani M. Developing and Testing an Eco-Cooperative Adaptive Cruise Control System for Buses, in the Road Safety and Simulation Conference, Iowa City, IA, Oct. 14-17, 2019
- Ahangari S., Jeihani M. Dehzangi A. Distracted Driving Prediction Model Using a Bayesian Network, in the 91st Annual National Technical Association Conference (NTA), Baltimore, Maryland, Sept. 25-27, 2019
- Ahangari S., Jeihani M. The Gender Role on the Effectiveness of an Eco-Speed Control System in The Vicinity of Signalized Intersections: A Driving Simulator Study, in the 6th International Conference on Women's Issues in Transportation, Irvine, California, Sept. 10-13, 2019
- Ahangari S., Jeihani M., Dehzangi A. A Machine Learning Distracted Driving Prediction Model, in the 3rd International Symposium of Intelligent Unmanned Systems on Artificial Intelligence (SIUSAI 2019), Vancouver, Canada, Aug. 26-28, 2019.

2+2

Two applications have been filed for provisional patents related to our research and two more are in the works!

Transportation doctoral student Amirreza Nickkar is serving on the Public Transport Committee of the American Society of Civil Engineers as well as on the Sustainable Transportation Committee. In October he was named Student Innovator of the Year by Morgan's Office of Technology Transfer.

Dr. Medhi Shokouhian has had three papers published in peer-reviewed journals:

- Shokouhian, M. Head, M. Seo, J. Schaffer, W. Adams, G., "Hydrodynamic response of semi-submersible offshore wind turbine with composite mooring system", Journal of Marine Engineering & Technology, January 2019, p1-16, <https://doi.org/10.1080/20464177.2019.1571662>
- Yuan, H.X. Du, X.X. Shokouhian, M. Ye, J. Schafer, B.W. "Behaviour and design of circular hollow section steel columns strengthened by infilling concrete under preload", Elsevier, Journal of Constructional Steel Research, Vol. 159, August 2019, p 415-427, <https://doi.org/10.1016/j.jcsr.2019.05.001>
- Yahyai, M. Zebarjad, L. Head, M. Shokouhian, M., "Toward optimizing Dynamic characteristics of non-conventional TMDs in multi degree of freedom systems", Springer, Earthquake Engineering and Engineering Vibration, June 2019, <https://doi.org/10.1080/13632469.2019.1624228>

