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## ODU Transportation Program: - Transportation Research Institute - Graduate Program in Civil & Env. Engineering

The transportation system impacts the daily life of every person. A well-functioning transportation helps ensure the economic vitality of a region by allowing the safe and efficient movement of goods and people, but traffic congestion, safety concerns, and environmental issues have all become major barriers as the United States strives to maintain leadership in the global economy. Congestion is also a major concern nationally and in the State of Virginia. The Washington, D.C. area and Hampton roads rank high among the most congested areas in the country. Old Dominion University has created a program in transportation research and education within the Civil and Environmental Engineering Department with strong links to the Virginia Modeling Analysis and Simulation Center (VMASC). Two core faculty and several associated faculty have a wide range of experience in surface transportation and have worked on critical transportation issues locally, nationally, and internationally. The faculty expertise combined with the available research has helped ODU gain national recognition in a critical and growing area.

The ODU Transportation Research Institute (TRI) is uniquely addresses mobility and safety issues and has attracted substantial extra-mural funding. Examples include analysis of secondary incidents in the Hampton Roads area, hurricane evacuation studies taking into account the occurrence of traffic incidents, behavioral surveys of travelers, and development of intelligent transportation systems decision support systems. TRI has a multi-disciplinary research agenda, and it involves faculty members from various Departments on campus. The Virginia Department of Transportation's Transportation Research Council has provided seed money for TRI, and the ODU administration has provided matching funds.

The development of ODU's transportation education program has been occurring at a rapid pace since the program was formed. The graduate education program has several students and students are involved in sponsored research projects. this annual report provides a summary of the many developments that have occurred at ODU during 2007-2008, including:

- Profiles of full-time and adjunct faculty
- Summaries of current research activities
- A description of current activities at the Transportation Research Board
- A description of the graduate program

We are excited about the transportation program at ODU!



## Transportation Faculty Profiles

The Civil and Environmental Engineering Department and VMASC have full-time faculty working on transportation research and education.



*Dr. Asad J. Khattak  
Batten Endowed Chair  
Professor of  
Transportation Engineering*

*E-mail: akhattak@odu.edu*

**Dr. Asad J. Khattak** is internationally known for his work in transportation planning and intelligent transportation systems. He is the Batten Endowed Chair in Civil and Environmental Engineering Department of Old Dominion University. His vision for the ODU transportation program includes excellence in inter-disciplinary transportation research, education of a technologically savvy workforce, engagement with stakeholders, and leadership in regional, national & international transportation activities.

He teaches courses on transportation planning, intelligent transportation systems, and safety. He received his Masters and Ph.D. degrees in Civil Engineering from Northwestern University in 1988 and 1991, respectively. Dr. Khattak has conducted and managed research (totaling three million dollars) on (a) traveler behavior, transportation network performance and the role of Intelligent Transportation Systems, (b) transportation safety and traffic operations and (c) new transportation planning methods for highways, transit, pedestrian, bicycle and air transportation systems. Dr. Khattak has 15 years of research experience and 11 years of teaching experience in the transportation field, after completing his Ph.D. He has authored 60 scholarly journal articles and 42 technical reports. He has presented his research work at more than 40 international conferences. Dr. Khattak is the Editor for the Journal of Intelligent Transportation Systems, Taylor and Francis Publishers. As editor-in-chief, he has published 16 issues of the journal. Each issue typically contains 4 to 5 peer-reviewed papers and occasionally book reviews or comments on past papers.

**Dr. Mecit Cetin** is an assistant professor in the Civil & Environmental Engineering Department of Old Dominion University, and is also affiliated with the Virginia Modeling, Analysis, and Simulation Center (VMASC) at ODU. Dr. Cetin's research areas include ITS (Intelligent Transportation Systems), modeling and simulation of traffic operations, travel time estimation, probe vehicle applications, freight transportation, and congestion pricing. Dr. Cetin is developing new methods to estimate the system state (e.g., travel times, traffic flow, link capacity, and queue lengths) in transportation networks from the real-time data collected by various types of sensors such as inductive loops, radar, and probe vehicles equipped with wireless communications and tracking technologies. System state estimation is a critical component of optimizing the efficiency of transportation operations, traffic signal optimization, emergency evacuation & response, and effective management of transportation networks. Dr. Cetin is also doing work in modeling the movement of freight over the highway networks. He is developing vehicle re-identification algorithms to estimate flow patterns of truck traffic to obtain a better understanding of origin-destination flows, empty truck movements, and reliability of travel times.

Dr. Mecit Cetin earned his M.S. degree in Civil Engineering and Ph.D. degree in Transportation Engineering from Rensselaer Polytechnic Institute (RPI), Troy, NY, in 1999 and 2002, respectively. Prior to joining ODU, he had worked as an assistant professor for four years in the Department of Civil and Environmental Engineering at the University of South Carolina (USC), Columbia, SC. Dr. Cetin has published more than 20 peer reviewed journal papers and conference proceedings.



*Dr. Mecit Cetin  
Assistant Professor*

*E-mail: mcerin@odu.edu*

## Adjunct Transportation Faculty Profiles

Mr. Dwight Farmer and Dr. Camelia Ravanbakht serve as adjunct faculty within the Civil Environmental Engineering Department. They serve as valuable resources in the educational program, and are active in teaching transportation classes.



*Dr. Camelia Ravanbakht  
Hampton Roads Planning District Commission*

**Dr. Camelia Ravanbakht** is an adjunct faculty member in the Civil & Environmental Engineering Department. She has a Ph.D. from North Carolina State University and more than 20 years of experience in research, development, and applications of transportation engineering and planning activities. She is the lead staff person for directing, managing and coordinating the Management, Operations, and Intelligent Transportation Systems Program in the Hampton Roads region. She has been instrumental in the planning and deployment of the region's ITS program through a cooperative process with representatives from local, state, federal governments and the private sector. She currently serves as the Co-Chairperson for the Hampton Roads Management, Operations and ITS Planning Committee. Throughout her tenure at the Planning District Commission, Dr. Ravanbakht has performed and provided outstanding technical assistance to local, state and federal agency officials in a variety of transportation engineering and planning programs. She has actively participated in and presented to public and private forums as well as community organizations. She has published numerous technical papers/documents and presented to national conferences and workshops.

**Mr. Dwight Farmer** is an adjunct faculty member in the Civil & Environmental Engineering Department. He received a B.S. degree "With Distinction" in Civil Engineering from Virginia Tech, an M.S. degree in Civil Engineering from Carnegie Mellon University, and is a registered professional engineer. Mr. Farmer was awarded Government Engineer of the year award in 2004 by the Norfolk Branch of the American Society of Civil Engineers. Mr. Farmer was appointed by the Governor to the Virginia Rail Advisory Board in 2005 and has served as chairman and a member of numerous statewide advisory committees to the Virginia General Assembly, Virginia Department of Transportation and the office of the State Secretary of Transportation during the past two decades. These assignments have included a review of the Commonwealth of Virginia's public infrastructure investment policies as well as the equity of statewide allocation formulas. Mr. Farmer's tenure with the Hampton Roads Planning District Commission has encompassed a variety of technical engineering and planning issues, regional and statewide policies as well as development and evaluation of alternative infrastructure financing. Mr. Farmer has an appointment with Old Dominion University in the Civil and Environmental Engineering Department as an Adjunct Associate Professor with over 25 years experience providing instruction in undergraduate and postgraduate studies in the field of Transportation Engineering. Mr. Farmer is currently Executive Director, HRPDC.



*Mr. Dwight Farmer, P.E.,  
Hampton Roads Planning District Commission*



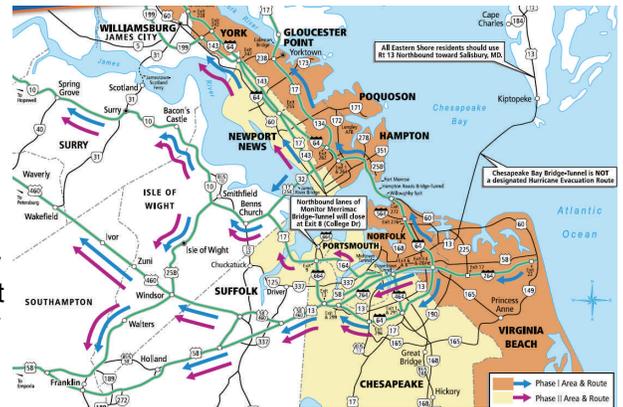
## ODU Transportation Research Focus

The ODU research program in transportation continues to expand at a rapid pace. Each issue will highlight some recent research in one of our core research areas. This issue focuses on two projects that are examining intelligent transportation systems.

### Hampton Roads Hurricane Evacuation Study

*Dr. Sokolowski, Principal Investigator, Dr. Asad J. Khattak, Co-Principal Investigator*

The Virginia Department of Emergency Management (VDEM) has awarded \$285,000 to VMASC (Virginia Modeling, Analysis and Simulation Center) to get evaluate the impacts of incidents during hurricanes. The 11-month study, administered by ODU's VMASC focuses on evacuations ordered when hurricanes are threatening Hampton Roads. It addresses the complicating incidents-wrecks, vehicles running out of fuel, debris in the road, lapses in emergency response coordination and irrational behavior of motorists-that have reduced the efficiency of hurricane evacuations elsewhere. The work of Dr. Khattak and VMASC researchers includes an evaluation of baseline evacuation models. After the evaluation, the work bored in on Hampton Roads. A primary area of investigation revolves around the Safety Service Patrols (SSPs), the vehicles with yellow emergency lights that come to the aid of motorists who have run out of gas, had a flat tire or been involved in a fender-bender. SSP operations and their incident reports over recent yeas were scrutinized in order to identify patterns of interruptions in traffic flow. These were modeled using CUBE software and the Statewide model. CUBE Avenue provides a graphical view of the evacuating traffic and allows users to change inputs and see the effects on total evacuation times.



### Primary and Secondary Incident Management

*Dr. Asad J. Khattak*

Primary and secondary incidents are key contributors to travel time uncertainty and traffic congestion in urban areas of Virginia. In Hampton Roads, Virginia Department of Transportation (VDOT), the Hampton Roads Planning District Commission, and local governments have all indicated that incidents are a major source of congestion in the region. Furthermore, recent VTRC-sponsored research suggests that VDOT should consider initiating a study on the role Safety Service Patrols (SSPs) in reducing primary and secondary incidents and mitigating delays in such situations. An important but lightly researched issue is how to predict (and prevent) secondary incidents associated with moderate and large incidents, often referred to as incident pairs. While SSPs are often the least expensive and most effective option, their effectiveness can be strained in situations where they must deal with multiple incidents simultaneously. There are also other incident management strategies that can be considered, e.g., delay information dissemination to the public. Based on past literature, secondary incidents can occur in 3 to 20 percent of the cases after an initial incident. As a result, the problem is large enough to deserve further attention. This research will define the characteristics of primary and secondary incident pairs in order to provide decision makers valuable information about how to effectively deal with such situations.



## Accomplishments of ODU Transportation Program

There have been a number of accomplishments for the transportation faculty in 2007-2008. The academic year began with a successful induction of graduate students in the ODU transportation program and the offering of undergraduate and graduate courses. The groundwork for the graduate program in transportation was developed in the previous year, and a number of funded research projects were initiated. The faculty presented a number of research papers at the Transportation Research Board Annual Meeting held in Washington D.C. in January 2008. The TRB Annual Meeting is an excellent opportunity for the program to share its most innovative research, while receiving valuable input from colleagues in transportation. Several graduate students attended the TRB Annual Meeting. Some highlights of 2008 are discussed below.

### Publication and Conference Presentation Successes

We are pleased that the transportation faculty presented five research papers at the 2008 Transportation Research Board meeting in Washington, D.C. Some of the papers involve graduate students as co-authors—reflecting the emphasis that we place on developing a workforce that is exposed to research and a solid curriculum. The research papers are:

### Traffic Operations and Intelligent Transportation Systems

- Traveler Information Delivery Mechanisms: Impacts on Consumer Behavior, by Khattak A., X. Pan, W. Williams, N. Rouphail, and Y. Fan
- Evaluating Traveler Information Impacts on Commercial and Non-Commercial Users, by Pan X. and A. Khattak
- Economic Impact of Traffic Incidents on Businesses, by Khattak A., Y. Fan, and C. Teague

### Planning and Traveler Behavior

- Urban form, individual spatial footprints, and travel: Case-study of the Triangle area in North Carolina, by Fan Y. and A. Khattak
- Household excess travel and neighborhood characteristics: Case of the Triangle area in North Carolina, by Fan Y., A. Khattak, and D. Rodriguez

These papers reflect diversity of the ODU Transportation Program research agenda, with topics that include transportation operations, intelligent transportation systems, planning, and traveler behavior.

### Active Research Projects

The faculty have been successful in bringing new transportation research projects to ODU, with 10 projects either being initiated or transferred to ODU. The active research projects during 2007-2008 include:

1. Khattak A.—Principal Investigator, Hampton Roads Hurricane Evacuation Study, Virginia Department of Emergency Management. Till 5/30/2008
2. Khattak A. —Principal Investigator, Primary and Secondary Incident Management, Virginia Department of Transportation. Till 6/30/2009
3. Khattak A.—Principal Investigator, Economic Impact of Traffic Incidents on North Carolina's Interstate Facilities, NC Department of Transportation. Completed 2005-2007.
4. Khattak A.—Co-Principal Investigator, Effectiveness of Traveler Information Tools, North Carolina Department of Transportation. Completed 2005-2008.
5. Khattak A.—Principal Investigator, Multi-Year Travel Modeling Project, North Carolina Department of Transportation, Completed 2004-2008.
6. Khattak A.—Principal Investigator, Innovative Large Truck Speed Enforcement on Interstate Highways, US Department of Transportation through the Southeastern Transportation Center, University of Tennessee at Knoxville, Completed, 2005-2008.
7. Khattak, A.— Principal Investigator, Developing Case-Based Reasoning Modules for High-Impact Intelligent Transportation Systems Technologies, California Department of Transportation, Completed 2006-2008.
8. Cetin, M.— Principal Investigator, Exploratory Methods for Truck Re-identification in a State-wide Network Based on Axle Weight and Axle Spacing Data to Enhance Freight Metrics, Oregon Transportation Research and Education Consortium (OTREC), 2008-2009.



## 2008 Transportation Research Board Presentations

The ODU Transportation Program was well-represented at the 2008 TRB Annual Meeting, with 5 papers presented. A sample of the research that will be presented is included on the next two pages.

### Economic Impacts of Traffic Incidents on Businesses

*Asad J. Khattak, Yingling Fan, Corey Teague*

Provision of reliable transportation is becoming a key to success for many businesses. By adding uncertainty to travel times, incidents and resulting congestion on Interstate highways impose significant costs on business operations and regional economic development. This paper presents an effort of quantifying the economic impact of traffic incidents on North Carolina's Interstate facilities. Carriers and businesses were carefully selected for interviews and case-study developed based on their substantial shipping needs. Analyses of 29 selected firms are conducted, showing an average hourly cost of unexpected delay of \$145 to the surveyed firms. A more focused analysis of case-study interviews by sector and region shows various types of businesses and regions differ in their sensitivity to unexpected congestion. Transportation and warehousing displayed the highest hourly cost among sampled industrial sectors, followed by the retail trade and manufacturing sectors. When expanding interview results to the sampled regions and industry sectors in North Carolina, the Charlotte metropolitan region incurs the highest overall costs and manufacturing incurs the highest overall cost among sampled industrial sectors. Case studies of interviewed businesses/shippers further showed that a majority used information technology to track shipments. However, few sought pre-shipment traffic information or were aware of available traffic information services. The surveyed businesses generally expressed a desire for better communication and information services from the state.

### Traveler Information Delivery Mechanisms: Impacts on Consumer Behavior

*Asad J. Khattak, Xiaohong Pan, Billy Williams, Nagui Rouphail, Yingling Fan*

Advanced traveler information systems or ATIS help individuals make informed decisions regarding activity participation and travel. Presently, ATIS applications use a variety of delivery mechanisms, including the Internet, telephone, television, radio, variable message signs, and in-vehicle navigation devices to support decisions about destinations, travel mode, departure time, routes, parking, and trip cancellation. Over the years, the salience and use of these technologies has evolved. It is now important for both researchers and practitioners to review the status of ATIS technologies and to understand travelers' access and response to their deployment. Focusing on largely public sector delivery mechanisms, this study answers two fundamental questions: Whether or not accessing more information sources is associated with a higher likelihood of travel decision adjustments and which technologies are more likely to elicit substantive adjustments to routine travel? These questions are answered by using a comprehensive and recent behavioral dataset, collected in the Research Triangle area of North Carolina. The study generates knowledge that is potentially helpful in improving existing and future traveler information systems.

### What Can Activity Engagement Tell Us About Daily Driving And Walking Time?

*—Evidence from the American Time Use Survey*

*Yingling Fan, Asad J. Khattak*

Time use is a key aspect of human life and a good understanding of it can lead to more appropriate transportation and land use policies. While time use issues have been explored extensively from the perspective of activity participation and travel, different transportation modes such as walking versus driving has not been explored separately in time use research. In particular, more walking and less auto use can not only reduce congestion, emissions and resource consumption, but also have a variety of health, environmental and social benefits. Using daily time use and demographic data from the 2003 American Time Use Survey (ATUS), this paper develops an empirical framework to examine the interplay between mode-specific travel time allocation (walking and driving), activity engagement (what is done, where, and with whom), individual/household socio-demographics, and spatial/temporal factors (metropolitan status and weekday/weekend). Tobit models show that walking and driving time allocation respond differently to activity engagement indicators and individual/household/environmental variables in terms of the degree and direction. When compared to the effects of work-related and shopping activities, discretionary activities (including leisure, recreation, spiritual, and volunteer activities) are associated with a greater reduction in daily driving time but a smaller reduction in daily waking time. Compared to activities pursued by the individual alone, social and family events are associated with less auto use. The implications of the results are discussed.

# 2008 Transportation Research Board Presentations

## Evaluating Traveler Information Impacts on Commercial and non commercial users

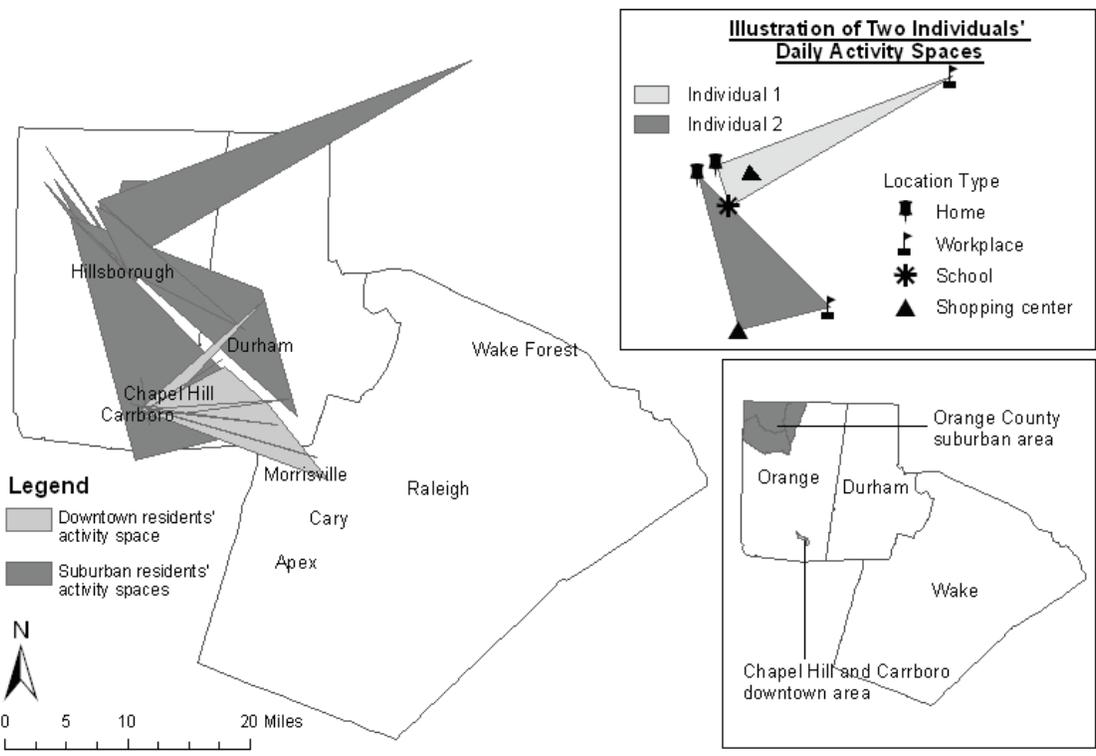
*Xiaohong Pan, Asad J. Khattak*

Incidents often account for nearly half of traffic congestion in urban areas and add uncertainty to transportation networks. The costs of incident-induced congestion, often in the form of delays, are borne by motorists and commercial carriers and/or associated businesses. In fact a higher burden is borne by commercial carriers, given their higher costs and value of time. Dynamic traveler information about incidents disseminated through electronic media can benefit users. This study explores the extent of benefits associated with dynamic traveler information and whether network delays increase or decline when 1) travelers can observe incidents, 2) commercial truck percentages increase in traffic, 3) truck drivers divert to alternate routes in the same way as motorists do as opposed to lower diversion rates, and 4) when commercial trucks have a higher value of time compared with passenger vehicles. Using a behavioral model, we simulate the movement of commercial trucks and passenger vehicles in a simple transportation network. The results show how dynamic traveler information may (or may not) benefit commercial and non-commercial users, under different scenarios. The implications for incident management are discussed.

## Urban form, individual spatial footprints, and travel: Case-study of the Triangle area in North Carolina

*Yingling Fan, Asad J. Khattak*

An important aspect of addressing current environmental and health challenges involves understanding the connection between urban form and spatial characteristics of individual activity-travel patterns. This paper examines how individuals' spatial activity and travel patterns are related to factors in residential environments including urban form and traffic conditions, after controlling for weather and individual/household characteristics. Behavioral data come from the 2006 Greater Triangle Region Travel Study in North Carolina. Individuals' activity and travel patterns in space are respectively measured by daily activity space—the minimum convex polygon that contains all the daily activity locations, and daily travel distance. We find that densely developed neighborhoods with better connected streets, more retail stores, and more sidewalks generally saw smaller area size of daily activity space and shorter daily travel distance, which indicates the potential of ameliorating transportation problems through land use strategies. Additionally, various dimensions of urban form are compared in terms of their importance in explaining individuals' spatial activity and travel patterns. Sidewalk coverage is found to be a key factor relating to spatial activity and travel patterns.



## Transportation Engineering Degrees at ODU

The goal of the transportation educational program at ODU is to provide students with the knowledge and tools that they will need to succeed in the workforce. The undergraduate program provides a solid foundation in design, operations, and planning. At the graduate level, students learn advanced analytical tools and technologies to help address transportation problems. The graduate program in transportation offers Master's and Ph.D. degrees. Qualified full-time students pursuing a Master of Science or Ph.D. degree are eligible for funding through Research Assistantships. Students interested in learning more about the program are invited to contact Dr. Khattak or Dr. Fontaine.

### DEGREES & COURSEWORK

**Degrees** The Department of Civil & Environmental Engineering offers graduate programs leading to the following degrees:

- Bachelor of Science in Civil Eng (BSCE)
- Master of Science in Civil Eng (MSCE)
- Master of Engineering in Civil Eng (MECE)
- Doctor of Philosophy in Civil Eng (Ph.D. CE)

Bachelor's and Master's students build a solid foundation in engineering by taking a courses in transportation fundamentals, transportation planning, & operations. In addition, Master's students produce a Thesis or Project. Students can also take transportation courses through ODU Extension.

The Ph.D. program provides training in research methods that enables graduates to contribute to the development of substantive theory, knowledge, and scholarship in transportation engineering.

### **Undergraduate Transportation Coursework**

Provides knowledge of transportation and the inter-relationships between multiple transportation modes. Students can take the following courses:

- Transportation Fundamentals
- Transportation Planning
- Transportation Operations

**Graduate Coursework** Provides an extensive background in transportation engineering. Students may take the following courses:

Transportation Fundamentals  
 Transportation Planning  
 Transportation Operations I  
 Transportation Operations II  
 Transportation Safety

### RESEARCH & INTERNSHIPS

**Current Research** Faculty and students conduct research in the following areas:

- Transportation operations
- Transportation planning
- Modeling and simulation of transportation systems
- Transportation safety
- Intelligent Transportation Systems

**Student Publications** Graduate students are encouraged to co-author articles with faculty. Additionally, students are encouraged to present their research at forums, such as the annual Transportation Research Board meeting.

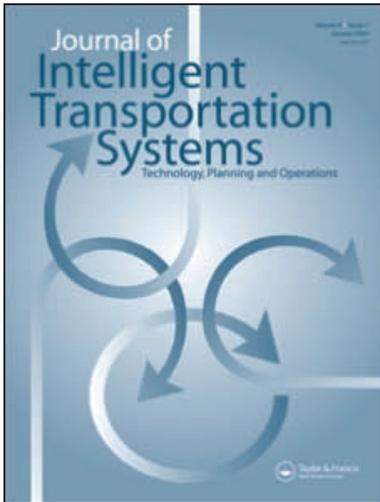
**Financial Assistance & Internships** Research and teaching assistantships are available to full-time students. These typically pay for student stipends and partial or full tuition.

Internships provide employment experience and the opportunity to develop professional skills. Students can work for these partners:

- Virginia Modeling, Analysis & Simulation Center
- Virginia Department of Transportation
- Hampton Roads Planning District Commission



## Journal Editing



### Submissions Welcome

The Journal of Intelligent Transportation Systems accepts submissions of original work. A complete list of instructions for the preparation of manuscripts is available on the journal's website:

<http://www.tandf.co.uk/journals/titles/15472450.asp>

### Journal of Intelligent Transportation Systems: Technology, Planning, and Operations

Published By: Taylor & Francis  
Frequency: 4 issues per year  
Print ISSN: 1547-2450  
Online ISSN: 1547-2442

Dr. Asad Khattak is the editor of Journal of Intelligent Transportation Systems. The Journal of Intelligent Transportation Systems is devoted to scholarly research on the development, planning, management, operation, and evaluation of intelligent transportation systems. Characterized by the application of information and communication technologies to transportation, such systems provide innovative solutions to contemporary transportation problems. They encompass the full scope of information technologies used in transportation, including control, computation and communication, as well as algorithms, databases, models, and human interfaces. The emergence of these technologies as a pathway for transportation is a relatively new field of research. The Journal of Intelligent Transportation Systems is particularly interested in research that leads to the development of such systems and improved planning and operation of the transportation system through the application of these new technologies. The journal also publishes papers that add to the scientific understanding of ITS impacts on accessibility, congestion, pollution, safety, security, noise, and energy and resource consumption. The journal is interdisciplinary and multi-modal, dealing with research in the fields of engineering, economics, planning, policy, business, and management, and in all forms of ground, air, and water transportation. Example topics include:

- Role of information systems in transportation, traffic flow and control, vehicle control, routing and scheduling
- Traveler response to dynamic information
- Planning for ITS innovations
- Evaluations of ITS field operational tests
- ITS deployment experiences
- Automated highway systems
- Vehicle control systems
- Tools/software for ITS analysis

A fully searchable FREE online sample copy of this journal is available by visiting: [www.tandf.co.uk/journals/onlinesamples.asp](http://www.tandf.co.uk/journals/onlinesamples.asp)

### Recent Content, Issue: Volume 12, Number 2, 2008

Last Mile Distribution in Humanitarian Relief, 51 – 63 Authors: Burcu Balcik; Benita M. Beamon; Karen Smilowitz  
DOI: 10.1080/15472450802023329

Real-Time Monitoring and Control on Signalized Arterials, 64 – 74, Authors: Alexander Skabardonis; Nikolas Geroliminis  
DOI: 10.1080/15472450802023337

Automated Speed Detection and Sanctions System: Application and Evaluation in France, 75 – 85. Author: Laurent Carnis  
DOI: 10.1080/15472450802023345

Economic Impact/Forecast Model of Intelligent Transportation Systems in Michigan: An Input Output Analysis, 86 – 95.  
Authors: Umar Farooq; Jennifer L. Hardy; Lei Gao; Muhammad Abrar Siddiqui  
DOI: 10.1080/15472450802023352

## Alumni in Action: ODU graduate reflects on his years in the Civil & Environmental Engineering Department and its impact on professional career.

Kristin Mazur, CEE Graduate 2003

### *1) Where are you working and what is your position?*

Virginia Department of Transportation, VDOT, Assistant Urban Program Manager, AUPM. The position responsibilities include but are not limited to overseeing the management of projects within the Southside of the Hampton Roads Region. There are currently over 100 Roadway Improvement projects planned or under construction in VDOT's program on the Southside. "Overseeing the management of projects", requires ensuring projects are financially constrained and projects are funded according to the locality and Hampton Road's District priority. There is also a great deal of Project Management required along with the Program Management. Quite often, major project decisions are required from the AUPM, which entail sound engineering judgment from previous experience and/or education.

### *2) How did your education at CEE, ODU prepare you for your current job?*

First of all, a degree in CEE qualified me for this position and the position I held previously, Assistant District Planner in Richmond District. Most engineering positions require an Engineering Degree while management positions usually require more, i.e. Professional Engineering license, P.E. The education in CEE is the foundation for a professional career in transportation. While I may not use Differential Equations or Hydraulic calculations on a daily basis, all of the courses required for a CEE degree allow for the development of a "well-rounded" educated professional.

### *3) Were there particular classes or projects at ODU that prepared you to work in the transportation field?*

While there were the "hard-core" engineering courses that provided the foundation and knowledge needed for a career in Transportation Engineering, there were two major components that prepared me for the work I do on a daily basis. The Transportation Engineering Course, comprised of critical transportation components and processes, offered a great overview to a career in Transportation. During the course I learned about transportation processes that affect the commute for those in Hampton Roads. I did not completely realize the significance of these processes and the pertinent role transportation professionals provided, until my experience outside of college. The Transportation Engineering course set the stage and placed the interest for me to strive for improvement of transportation in Virginia. The second major component that prepared me for work in the transportation field was the decision to "minor" in Engineering Management. There were several courses required for the minor which taught basic project management skills required often. For example, I am often required to provide the Critical Path on projects.

### *4) While studying engineering at ODU are there any other courses that helped you in the work you do?*

The Geographical Information Systems, GIS course presented an abundance of valuable information and allowed the experience to be obtained with tools needed frequently in transportation. Either the review or the actual task of Data analysis taught in this course is encountered regularly. Knowledge of GIS is required for the understanding of various transportation reports. All of the Engineering Management courses provided valuable knowledge that allows me to complete a particular task or resolve a project conflict. Three of the courses were Engineering Management, Project Management and Engineering Economics. These courses combined provided a foundation for the project management often required on the job.

### *5) Do you have advice for students who want to pursue graduate or undergraduate studies in transportation at ODU?*

There are numerous opportunities for a career in transportation and there are many aspects, Transportation Planning, Design, Project Management, Traffic Engineering, etc. If you have a particular passion for one of the aspects in Transportation, follow it – because you will inevitably find success. Choose elective courses you find interesting and learn as much as possible about the specific subject. While pursuing an undergraduate degree in CEE, seek internship opportunities that allow you to explore different aspects of Transportation. This will also provide a realistic perspective of the potential career that lies ahead. Continue education throughout your entire career, even after you complete undergraduate studies. Research the latest innovations and technologies to promote your knowledge. This will allow you to make informed decisions and recommendations.

### *6) Do you have any other advice or words of wisdom to share with transportation students on choosing a job, choosing a city to live and work in, or any other words of wisdom?*

Research every opportunity available. Discover what the agency, company or firm represents as well as their ethics and morals. Also, pursue a field or specialty in transportation that you enjoy the most and you will receive gratification and satisfaction. While there are similarities from city to city and region to region, every geographical area is unique and presents new opportunities. I was fortunate enough to receive experience in both Richmond and Hampton Roads regions. The regions are adjacent to one another, however, very different. Even the politics were different. Working in different areas promoted my "outside the box" thinking.

## Alumni in Action: ODU graduate reflects on his years in the Civil & Environmental Engineering Department and its impact on professional career.

Michael Kimbrel. BSCE, 1989 & MECE 1993

### *1) Where are you working and what is your position?*

I have worked for the Hampton Roads Planning District Commission for the past 17 years. My current position is Principal Transportation Engineer.

### *2) How did your education at CEE, ODU prepare you for your current job?*

The broad scope of the civil engineering curriculum at ODU provided me with a good base for entry into the career field. I considered jobs in the environmental engineering and transportation engineering fields and felt prepared for an entry-level position in either.

### *3) Were there particular classes or projects at ODU that prepared you to work in the transportation field?*

The transportation engineering course and courses in economics, along with an internship I was able to arrange with the cooperation of the CE department, were instrumental in preparing me for work in the transportation field.

### *4) While studying engineering at ODU are there any other courses that helped you in the work you do?*

In addition to the engineering courses I took, courses in math, science, English, and the social sciences have been helpful in the work I do.

### *5) Do you have advice for students who want to pursue graduate or undergraduate studies in transportation at ODU?*

Having the advantage of being able to look back, my advice to any engineering student is to not underestimate the importance of the non-engineering courses that are part of the curriculum. It is common for engineering students to wonder why they have to take courses in English, the humanities, and the social sciences. I can honestly say that I use what I learned in those courses, plus economics, on a daily basis in my work and other areas of my life. At the same time, I rarely use what I learned in some of the engineering courses I took. Of course, a student should strive to do well in all of the engineering courses, because even if one plans to go into a particular field, that often changes by the time of graduation. For instance, when I started college I planned to be an electrical engineer.

### *6) Do you have any other advice or words of wisdom to share with transportation students on choosing a job, choosing a city to live and work in, or any other words of wisdom?*

When it comes to choosing your first job, look at more than the salary. Check out the cost of living and quality of life where the job is located, fringe benefits (health insurance, retirement plans, etc.), and the working conditions of the job. Depending on the cost of living, a smaller salary may go further than a bigger one. Does the location offer the kinds of activities you enjoy outside of work? Remember, the job is only one part of your life. In terms of fringe benefits, a smaller salary and a great benefits plan may end up putting more money in your pocket than a larger salary with poor benefits. Finally, in addition to the obvious things to consider in terms of working conditions, a job should provide you with the tools you need to do the job. If the job requires you to buy your own computer, with your own money, look elsewhere. In short, my advice when considering a job is to look at the whole picture.

#### Other words of wisdom:

- Take the time to put together a well-designed resume. It is your first impression to a potential employer and can mean the difference between being called for an interview or not.
- Dress well for your interview. It will not hurt if you are the best-dressed person in the building, but it may if you are inappropriately dressed.
- A job is only part of your life, albeit a significant one. Make sure your working conditions leave time for other aspects of your life.
- Don't stick with a job you sincerely dislike. We spend too much time working for you to stick with a job you hate.



## Transportation at ODU

Education, Research, and Public Service



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### Mission

The mission of the ODU Transportation Program is to contribute to the advancement of transportation systems in three ways:

- The education of transportation professionals,
- The development of knowledge that stimulates applications of new strategies/technologies, and
- The dissemination of knowledge to transportation practitioners and other stakeholders.

We achieve these goals by offering students a broad curriculum, faculty with diverse backgrounds and research interests, and professional development opportunities in the Hampton Roads area.

Our primary goals are 1) to prepare transportation engineers for practice in local, regional, and state transportation agencies as well as the private sector, and 2) to mentor transportation researchers and educators. Additionally, students are encouraged to expand their transportation knowledge by taking courses in related areas that include logistics, psychology, engineering management, and simulation.

### Sponsors

The Virginia Department of Transportation directly supports research activity at the ODU Transportation Program. In addition, core ODU transportation faculty have research funding from the following:

- Virginia Department of Emergency Management
- California Department of Transportation
- North Carolina Department of Transportation
- US Department of Transportation
- US Environmental Protection Agency

### Faculty

#### Core Transportation Faculty

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#### Associated Adjunct Faculty

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**Dr. Camelia Ravanbakht**, Hampton Roads Planning District Commission, VA

**Dr. Guzin Akan**, Traffic Engineer, City of Norfolk, VA