



### INSIDE THIS ISSUE:

<i>2017 Build a Better Mousetrap Competition</i>	2
<i>e-Construction Summit Continued</i>	2
<i>Jim's Journeys: Travelling the TTA Highway</i>	2
<i>Research in Action Continued</i>	3
<i>Spring Workshops</i>	4
<i>About TTA</i>	4

"Success is not a destination, but the road that you're on."  
 —Marlon Wayans



## In the News...

### Research in Action: Mitigation Strategies for Animal-Vehicle Collisions

In partnership with advisory board member, Amy O’Leary, Ph.D., Associate Director for Environment, Planning and Economics Research at the Virginia Transportation Research Center (VTRC), VA’s LTAP is pleased to present a series of on-going research spotlights. Every few months, we’ll bring you updates about research being put into action to increase efficiencies and provide sustainable transportation solutions.



This month’s *Research in Action* features an evaluation of roadside behavior of animals, particularly deer, to determine strategies to reduce animal-vehicle collisions along our highways. Virginia is consistently among the top 10 states with the highest number of deer

related collisions (DVCs), with more than 56,000 DVCs per year since 2007. These collisions result in significant loss of life for animals, millions of dollars in damage to vehicles and increased risks for driver safety.

*Continued on Pg. 3*

### Transportation Leaders Convene to Discuss e-Construction Initiatives e-Construction Summit Held in Portsmouth-Norfolk, VA

Over 100 DOT staff members, consultants and other transportation professionals convened at the e-Construction Summit held October 26 -27, 2016 in Portsmouth-Norfolk, VA to discuss how e-Construction processes improve efficiencies, collaboration and safety while increasing accuracy and decreasing costs. Hosted by the Federal Highway Administration (FHWA), the Virginia Department of Transportation (VDOT), the US Department of Transportation (USDOT) and the UVA Transportation Training Academy (TTA) serving as the LTAP Center for the Commonwealth of Virginia, the conference

provided a forum for leveraging e-construction technology on construction projects and addressing challenges related to implementing e-Construction initiatives.

The Every Day Counts (EDC) (<https://www.fhwa.dot.gov/innovation/everydaycounts/>) initiative is one of several FHWA strategic innovation deployment programs aimed at identifying and prioritizing new ways to plan, design, build and maintain highways. The future of transportation design and construction is not only in innovative

*Continued on Pg. 2*







Mobility • Safety • Quality • Environment • Shortening Project Delivery

## 2017 Build a Better Mousetrap Competition



**NOW ACCEPTING SUBMISSIONS FOR THE 2017 BUILD A BETTER MOUSETRAP COMPETITION!**

Have you or one of your coworkers recently built an innovative gadget or developed an improved way to do a job?

If so, now is the time to show off a project your municipality is proud of in the Annual Build a Better Mousetrap Competition.

The Virginia LTAP is looking for projects that you, your employees, or crew designed and built. It can be anything from

the development of tools, equipment modifications, and/or processes that increase safety, reduce cost, improve efficiency, and improve the quality of transportation.

If you have something you think would qualify for this competition, submit your entries by Friday, April 21, 2017. Entries will be judged by Virginia LTAP staff on cost savings/benefits to the community, ingenuity, transfer-ability to others, and effectiveness.

The winning entry will be submitted into a Regional Mousetrap competition (Delaware, Maryland, Pennsylvania, Virginia and West Virginia) as well as a National Mousetrap competition to compete for prizes and, of course, bragging rights. Winners of the national competition will be announced at the annual LTAP/TTAP national conference this summer. All entries at the national level will be posted on the LTAP/TTAP program website and compiled into an electronic booklet.

<http://uva-tta.net/event/2017-build-a-better-mousetrap-competition/>

### eCONSTRUCTION Cont.

technologies, materials and approaches, but also in the widespread adoption of e-Construction processes. These processes incorporate electronic submission of construction documentation, electronic document routing/approvals and digital management of construction documentation in a secure environment.

By eliminating the traditional paper-based approach, significant savings in paper, printing and storage costs as well as decreased communication delays and transmittal times are realized. The e-Construction process allows faster approvals, increased accuracy and enhanced document tracking, all while increasing transparency.

Speakers from a number of DOTs, as well as industry representatives, provided insights from the field on e-Construction topics including:

- electronic document management systems to facilitate the creation, distribution, review, approval and storage of project documents in a paperless and secured environment
- mobile devices and tablets to create more secure, organized and accessible work environments

- unmanned aerial systems (UAS), commonly known as “drones”, to enhance surveying and photogrammetry capabilities
- 3D and 4D design documents to improve constructability and provide cost savings
- digital signatures to ensure encryption with digital codes and to demonstrate the authenticity of messages, enabling efficient routing and approvals
- e-Ticketing to create an efficient paperless process for documenting deliveries to construction sites

Industry perspectives were provided by Jim Holtje (PCL Civil Constructors), Marc Papini (Haley & Aldrich), Brian Deery (AGC of America), Paul Beckwith (LEED Navigator CS) and Edwin Elmendorf (CADAC).

Representatives from a number of DOTs, including Delaware, Florida, Iowa, Pennsylvania, Utah and Virginia, provided case studies and implementation strategies.

In closing, Kathryn Weisner, FHWA Resource Center, invited attendees to visit the FHWA website at <https://www.fhwa.dot.gov/innovation/everydaycounts/edc-3/econstruction.cfm> for on-going e-Construction updates and resources.

### Jim's Journeys...Traveling the TTA Highway

Hey Gang!

I know you haven't heard from me lately but I'm still making journeys around this great state of ours! Unfortunately January has been chock full of great classes in Staunton, Charlottesville, Danville and Henrico, with even more coming up this month in Chester, Dinwiddie, Roanoke and

Midlothian. As soon as we have some space in the schedule I'll be out again to meet all of Virginia's great, hardworking transportation professionals.

If you'd like me to come by so we can talk about your training needs drop me a line at [jwz9m@virginia.edu](mailto:jwz9m@virginia.edu) or call the TTA office at 434-982-2897.

I'm looking forward to seeing you soon!

## RESEARCH SPOTLIGHT Cont.

Mitigation strategies to reduce DVCs typically aim to either influence driver behavior, such as deer signs and animal detection systems, or animal behavior, such as roadside reflectors and wildlife crossings. These crossings, such as bridge and culvert underpasses, allow animals to cross over or under a roadway and are especially effective when fencing is used to help funnel animals toward the crossings. Many new highway construction projects incorporate animal crossings into their overall design, often placing safe crossings every half-mile. However, less attention has been given to leveraging existing infrastructure, often spaced miles apart, to provide safe passage.

Bridget Donaldson, a research scientist with VTRC, along with colleagues Young-Jun Kweon, PhD, PE and Lewis Lloyd, targeted a section of I-64 near Afton Mountain, focusing on animal activity near two unfenced underpasses and a stream corridor/highway intersection with no viable underpass. VDOT and the FHWA sponsored the project based on the high incidence of vehicle collisions with deer and bear along this stretch of highway. The agencies were interested in the types of mitigation strategies that might work based on animal activity patterns and how these strategies might be retrofitted with existing infrastructure.

Strategically-placed cameras captured significant roadside activity, such as walking and grazing, particularly in October and November, demonstrating a statistically significant seasonal relationship between roadside deer activity and DVCs. Over the two-year study period, 474 DVCs and 14 bear-vehicle collisions were documented representing an average of nearly 7 DVCs per mile per year.

The study found that topography, forest edges and stream corridors strongly influence deer movement, having the effect of funneling animals toward specific sections of the highway. These areas are prime targets for driver warning systems and signage. Seasonal patterns of activity suggest that dynamic warning signs would be effective, reducing the potential for drivers to become habituated to year-round warnings.

The researchers also recommended the installation of fencing adjacent to underpasses to guide animals toward safe crossings. They estimated that fencing both sides of just one underpass could result in savings of costs associated with DVCs of over \$500,000 over its service life.

“There is great potential for low-cost mitigation strategies, such as fencing and driver alert signage, to be implemented on a large scale,” explained Donaldson. “Once we’ve identified habitats that exist around transportation infrastructure and can anticipate the animal activities that occur there, we can begin to implement cost effective

strategies to substantially reduce unwanted interactions between drivers and wildlife.”

Fencing is currently being placed at one of the sites, with additional fencing to be placed at the second site later this spring. Cameras will again be installed to monitor the effectiveness of the fencing on the movement of animals. The researchers have begun testing the effectiveness of changeable message signs to reduce driver speed and ultimately reduce the number of animal-vehicle crashes. Preliminary results look promising.

For more information, contact Bridget Donaldson at [Bridget.Donaldson@VDOT.Virginia.gov](mailto:Bridget.Donaldson@VDOT.Virginia.gov).



### About VTRC

The Virginia Transportation Research Council (VTRC) is one of the country’s leading transportation research centers. Specializing in applied research to support VDOT, its scientists and engineers also provide technical consulting and training to promote innovations in structures, pavements, materials, safety, operations, traffic engineering, planning, environmental, and economic issues.

The goal of VTRC is to conduct research that enables VDOT to deliver transportation initiatives that save lives, save time and save money, while protecting Virginia’s environment.



University of Virginia  
Department of Civil and  
Environmental Engineering  
351 McCormick Rd.  
Thornton Hall  
P.O. Box 400742  
Charlottesville, VA 22904

Phone: 434-982-2897  
Fax: 434-982-2856  
Email: [uva-tta@virginia.edu](mailto:uva-tta@virginia.edu)

We're on the web!  
[www.uva-tta.net](http://www.uva-tta.net)

## SPRING WORKSHOPS

[Unconventional Interchange and Intersection Design](#) | Arlington, VA | 02/21/17  
[Parking Studies](#) | Arlington, VA | 02/22/17  
[Winter Maintenance Operations](#) | Chester, VA | 02/23/17  
[Project Inspection](#) | Henrico, VA | 02/24/17  
[Basic Drainage](#) | Chester, VA | 02/24/17  
[Fundamentals of Traffic Engineering](#) | Midlothian, VA | 03/01/17  
[Intermediate Work Zone Traffic Control](#) | Harrisonburg, VA | 03/02/17—03/03/17  
[Roadway Geometric Design I](#) | Midlothian, VA | 03/02/17  
[Roadway Geometric Design II](#) | Midlothian, VA | 03/03/17  
[Hydraulic Modeling: Introduction to HEC-RAS](#) | Hampton, VA | 03/08/17  
[Basic Work Zone Traffic Control](#) | Dinwiddie, VA | 03/08/17  
[Fundamentals of AutoCAD Civil 3D](#) | Charlottesville, VA | 03/08/17 - 03/10/17  
[Hydraulic Modeling II: Applications of HEC-RAS](#) | Hampton, VA | 03/09/17  
[Transportation GIS \(Geographic Information Systems\)](#) | Arlington, VA | 03/15/17  
[Pavement Preventive Maintenance](#) | Arlington, VA | 03/17/17  
[Intermediate Work Zone Traffic Control](#) | Dinwiddie, VA | 03/21/17—03/22/17  
[Project Development of Federal Aid Projects](#) | Arlington, VA | 03/23/17—03/24/17  
[Access Management](#) | Arlington, VA | 03/30/17—03/31/17  
[The Art of Writing for the Transportation Professional On-Line Course](#) | Online | 04/02/17—05/21/17  
[Communication Fundamentals](#) | Charlottesville, VA | 04/04/17  
[Effective Business Writing](#) | Charlottesville, VA | 04/05/17  
[Project Development of Federal Aid Projects](#) | Henrico, VA | 04/06/17—04/07/17  
[Advanced Work Zone Traffic Control](#) | Arlington, VA | 04/06/17—04/07/17  
[Basic Work Zone Traffic Control](#) | Leesburg, VA | 04/11/17  
[Intermediate Work Zone Traffic Control](#) | Leesburg, VA | 04/12/17—04/13/17  
[Road Surface Management](#) | Henrico, VA | 04/12/17  
[Asphalt Roads Common Maintenance Problems](#) | Henrico, VA | 04/13/17  
[Transportation GIS \(Geographic Information Systems\)](#) | Hampton, VA | 04/18/17  
[Intermediate Work Zone Traffic Control](#) | Hampton, VA | 04/19/17—04/20/17  
[Intermediate Work Zone Traffic Control](#) | Lynchburg, VA | 04/25/17—04/26/17  
[Effective Culvert & Box Culvert Installation Practices](#) | Roanoke, VA | 04/27/17  
[Advanced Work Zone Traffic Control](#) | Midlothian, VA | 05/03/17—05/04/17  
[Pavement Preventive Maintenance](#) | Lynchburg, VA | 05/04/17  
[Maintenance of Gravel Roads](#) | Lynchburg, VA | 05/05/17  
[Effective Culvert & Box Culvert Installation](#) | Midlothian, VA | 05/09/17  
[Introduction to NEPA](#) | Hampton, VA | 05/10/17  
[Basic Work Zone Traffic Control](#) | Midlothian, VA | 05/10/17  
[Road Diets](#) | Roanoke, VA | 05/17/17  
[Tort Liability](#) | Alexandria, VA | 05/17/17  
[Designing Pedestrian Facilities for Accessibility](#) | Alexandria, VA | 05/18/17  
[Road Diets](#) | Charlottesville, VA | 05/18/17

## WHAT IS THE UVA TRANSPORTATION TRAINING ACADEMY?

The UVA Transportation Training Academy (the Academy) was formed by the merger of two previous training programs administered by the Center for Transportation Studies (CTS): the Virginia Local Technical Assistance Program (LTAP) and the Transportation Professional Development Program (TPDP). The Academy, under the auspices of the CTS, serves as the FHWA-recognized LTAP center for the Commonwealth of Virginia. The Academy provides a broad range of training and technology transfer services to state and local transportation agencies in Virginia.

### Who Are We?

The UVA Transportation Training Academy is staffed and managed by the University of Virginia's Center for Transportation Studies (CTS) in Charlottesville, Virginia under a grant from the Federal Highway Administration with matching funds supplied by the Virginia Department of Transportation. Further information about the Academy is available on our website.

### Website

Our website ([www.uva-tta.net](http://www.uva-tta.net)) contains information about the UVA Transportation Training Academy including upcoming workshops and conferences, workshop registration instructions and forms, and a video/DVD lending library catalog.

### Social Media

TTA has developed many social media outlets in an effort to get news and information to you as easily as possible. Take a moment to visit our Twitter, Facebook and YouTube pages. For information on national conferences and stories check out The Road Scholar Blog.