



**Delaware  
T<sup>2</sup>/LTAP**

# INFO-CHANGE

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## Message from the Director - Earl "Rusty" Lee, Ph.D.

Another year comes to a close. In looking back, this has been another year of successes for the LTAP / T<sup>2</sup> Center. We were fortunate to be able to assist many Delaware towns with direct assistance, we had our most successful year with the intern program, and we have continued to deliver the training you need.

2014 will be a year of new opportunities. We will be launching a new page on our website that will feature free courses that are available online. These courses will be as short as an hour and may be just the refresher you are looking for. This should launch by the end of

January.

Also, for all the currently licensed Delaware professional engineers (PEs), DAPE will be including an ethics training requirement to the biannual recertification requirements. The Center is already working on developing a program to help all Delaware PEs meet this requirement.

In addition, for anyone preparing for the PE exam, the center has entered into a partnership with Professional Publications, Inc. (PPI) and their "Power to Pass" program which will offer a discount on FE and PE exam preparation materials. Expect to see a link to PPI on

our web site soon.

2014 will also have more presentations on the Every Day Counts initiatives as new technologies are made more widely available.

The Center will be developing new courses and meeting the training needs of the communities and agencies of Delaware.

And we hope to expand the intern program. If you would like more information about the intern program, please contact Matt or me and we will be happy to meet with you about how a UD student can help your program.

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## Internships - In Their Own Words

University of Delaware engineering students enjoyed a host of internships again this summer, and some of them brought back some great insight about how these opportunities help shape their upcoming career choices.

The Cecil County Department of Public Works Engineering and Construction Division selected Alexandra Rioux, to head up the small structures inspection team, inspecting over one hundred known structures over the course of the summer. Alexandra is finishing her Masters in structural engineering this fall, so this

project was perfectly suited to her. "I learned a great deal about how dynamic loads can stress concrete and steel and

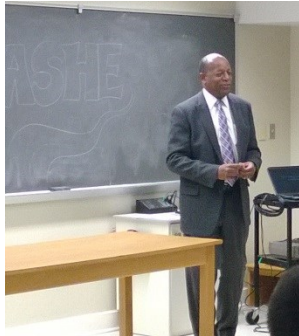
what is considered acceptable deterioration versus damage that needs immediate review."

Alexandra had a great experience, saying, "my supervisor, John Fabian, was a tremendous help to me. He always made sure I was able to take a look at active job sites... [He] gave me small design problems to exercise my knowledge and teach certain problems encountered in the field that may not necessarily be taught in school...[and] I was able to view plans for future projects and attend many informational meetings including budget meetings and pre-bid



(Continued on page 4)

## UD Developer Brangman Talks to ASHE@UD



The students of the American Society of Highway Engineers heard insight from the head of University of Delaware's campus development in November. Alan Brangman is UD's Vice President for Facilities, Real Estate & Auxiliary Services and he gave the students a behind the scenes look at projects across the Newark campus and the kinds of challenges they face in pursuing them.

In particular, Mr. Brangman illustrated how various

transportation modes, including vehicles, deliveries, pedestrians, bicyclists, parking, and emergency response are considered in the campus planning.

Not surprisingly, a focus of his remarks centered on the development of the STAR campus with a transit oriented design approach. A central goal in his approach is to avoid the 'building, parking lot, building, parking lot' look of the classic business park, turning instead to a high floor area ratio, a grid street plan, resto-

ration of stream and vegetated corridors, and elements of New Urbanism. He painted a picture of developing inwards instead of campus sprawl, creating a more interactive, vibrant campus.

The students followed with many questions, and Mr. Brangman was able to give them the latest on each area of interest, blending the technical with good doses of humor and historical context.

## LTAP Region 3 Meeting



The Delaware T<sup>2</sup>/LTAP Center is part of Region 3 of the national organization of Centers and Rusty Lee and Matt Carter traveled to Morgantown, WV in October for a 1½ day meeting of regional Centers. Also present were some 20 representatives from West Virginia, Pennsylvania, Maryland, and Virginia.

While we share ideas and tools on a monthly basis via conference call, we attempt to

gather face to face once a year to really compare notes and explore ways to serve our local transportation agencies better.

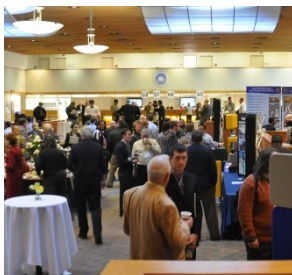
This year's meeting was a great success and the West Virginia Center deserves kudos for organizing a low cost, high quality event. We heard the latest input from our Federal Highway Administration partners, we talked about a host of technology applications, we compared notes on training

and instructors, we talked about the merits of a Roads Scholar program, we recapped the recent Safety Peer Exchange, and more. Rusty and Matt came back with some great ideas and tips.

It wasn't all work. See a related article on our excursion to see behind the scenes at WVA's Personal Rapid Transit system.



## DCT Infrastructure Forum Was A Great Success



The Delaware Center for Transportation held its Infrastructure Forum at University of Delaware's Clayton Hall November 13th and by every measure it was a great success.

Some 325 attendees from the public and private sector and all levels of government spent the day in free form discussions to identify the most pressing transportation challenges of the day.

Several morning speakers briefly charged the attendees, encouraging them to dig deep in their discussions. See the 'trailer' video on DCT's website for a flavor of the keynoters' comments: <http://www.ce.udel.edu/dct/>.

Look for a detailed recap of the forum in the DCT newsletter TranSearch, more photos and video on

the DCT website (coming soon), and a summary report that captures all the discussions from a great day of brainstorming.



## Build a Better Mousetrap Contest

Have you or one of your co-workers recently built an innovative gadget or developed an improved way to do a job? Well, now is the time to show off a project your agency is proud of in the Delaware Build a Better Mousetrap Competition!

The Delaware T<sup>2</sup>/LTAP Center is looking for transportation-related projects that you, your employees, or crew designed and built; it can be anything from the development of tools, jigs, rigs, equipment modifications, and/or processes that increase safety, reduce cost, improve efficiency, and improve the quality of transportation. Need some examples? Go to <http://www.ltap.org/resources/mousetrap.php> for the links to the 2009 through 2013 national competition results; you'll see descriptions and photos of entries from across the nation; not just the winners.

Submit entries to us at the Delaware T<sup>2</sup>/LTAP Center, where we will pick a state winner. First prize will receive four ANSI Class III safety vests.

The winning entry from Delaware will be automatically submitted into a national competition where both you and we here at the Center will compete for prizes, and more importantly, bragging rights! Winners will be announced at the annual LTAP/TTAP National Conference in St. Louis, MO (July 2014). All entries will be posted on the LTAP/TTAP program website and compiled into an electronic booklet that will be distributed nationwide.

To enter please complete the entry form on our website and return it to us by April 4, 2014. You can email the form to Sandra Wolfe ([sandiw@udel.edu](mailto:sandiw@udel.edu)), fax it at 302.831.0674, or mail it in at:

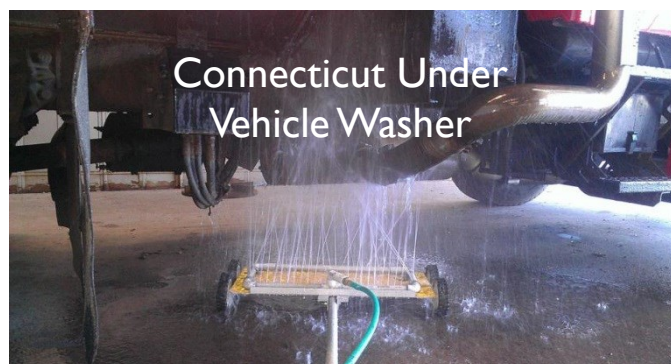
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Newark, Delaware 19716

Don't be shy – we know there have been some great innovations in Delaware and we look forward to reviewing all of your fantastic entries!



Not sure what you would submit? Look at the link above and see some examples – we bet you'll find you have similar gadgets, processes, materials, or other small innovations that have made your job easier, safer, more efficient, more effective or more versatile.

Questions? Give us a call or email us.



*It doesn't have anything to do with mice...or traps...necessarily.*

## Internships - In Their Own Words (cont'd)

(Continued from page 1)

meetings.”

A Civil Engineering senior, Matthew Galenas interned with the Pennsylvania Department of Transportation in the District 4-0 engineering office (Dunmore, PA). “After two years of service with PennDOT in construction inspection, I asked to be transferred to an office position to see a different aspect of civil engineering. Throughout the summer I worked on various types of projects in the bridge inspection and maintenance office. My tasks in the office included calculating bridge loads, running analyses using PennDOT bridge software, and organizing inspection reports to ensure NBIS compliance. On occasion I would head out into the field to assist with bridge inspections or to confirm field conditions and take needed measurements. Although bridges are not my main interest in civil engineering, I did find this summer to be helpful as I got to experience working in a professional office environment. It was also rewarding to be able to apply what I had learned in structural analysis and design last year to real world bridges on which I

personally drive.”

Another senior, Calvin Esham interned with DelDOT at the Georgetown South District office. “Not knowing what to expect, I went in thinking I would be put to work crunching numbers for an engineers calculations. Instead I worked mostly with the technicians in charge of inspecting, estimating, and putting together reports for

said that his, “responsibilities [in the DelDOT Planning Division] included the evaluation of transportation assets possibly affected by sea level rise, and the generation of preliminary costs estimates to raise all affected assets.” Dan also, “designed suitable roadway pavement cross-sections using MicroStation, and developed reports using Transport and ArcGIS.”

*At right, Jack Cardinal at a site in Paulsboro, New Jersey where final beams are set for an eight span bridge. Below an example of a small structure Alexandra Rioux inspected.*



contracts. Every day I was working on something different, whether it was riding roads that were candidates for road rehabilitation, estimating guardrail quantities, and even going into the field with the survey crew to plot GPS coordinates into our MicroStation file where drainage pipes would be installed. Overall I had a great experience with professionals at all levels and learned invaluable lessons that will prepare me for a future after college.”

Dan Calabro also worked at DelDOT this summer. Dan is also a senior this year and he

Sarah Doggett is a sophomore this year, but last summer she was, “an intern at the Maryland State Highway Administration, working in the in-house Highway Design team. While I was there, I helped the Design team members with various projects, usually by transferring changes made on marked-up plans to the digital MicroStation files.”

Sarah was challenged in other ways as well - “I was given a proposed layout for a Park-and-Ride and told to come up with several options for minimizing the space under construction while maximizing the number of parking spots.

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## Internships - In Their Own Words (cont'd)

*(Continued from page 4)*

Later I presented the three options I had come up with at a meeting, and one of my designs was chosen for further consideration."

Sarah clearly enjoyed the opportunities and remarked that she, "had no idea how long it took for a project to be designed before it could even be put up for bidding. One of the members of the team had been working on a project for about five years, and changes were still being made on it! I learned about a lot more than how to really use MicroStation - my coworkers gave me lots of tips on what I should do after college, and what I should expect when I enter the workplace. I value the connections I made this summer and am extremely thankful for the opportunity."

Yet another senior, Claire McGinnis worked as an intern at Astorino, an architecture firm in Pittsburgh, PA. "They are the firm who designed the current Pirates stadium! I worked with the structural engineering department of the company. They had me do hand calculations for design loads, and then for sizing beams. I would then check in a computer program to make sure that my answers matched

its answers. They also taught me the basics about [AutoDesk] Revit, which is the program that the whole company uses. I even got to go on site visits to gather more information that we needed in order to respond to an RFI. It was a great experience and I very much enjoyed seeing the problem-solving that the engineers had to do on a day to day basis." Claire can be seen in the photo below (third from the left).

Rachel Beer is another senior in Civil Engineering and she interned in the traffic engineering department at the Port Authority of NY & NJ. Rachel reported that she, "was exposed to traffic safety, planning, operations, design, and ITS projects. I got to go up to the top of the George Washington Bridge, toured the PATH stations, and the new World Trade Center site. I even got to go up to the 61st floor of the Freedom Tower! I got to visit all of their facilities, which included doing site work at the airports, ports, and tunnels around the NYC area. I also got the opportunity to perform speed studies on major roadways." You can sense her excitement; indeed, she concluded by saying, "it was a great experience and I learned so much!"

Jack Cardinal is also a senior and said, "This past summer I had the great opportunity to work for Pennoni Associates in their Newark, Delaware office. I worked with the bridge team at Pennoni and did many interesting and challenging

*Below, Rachel Beer took this photograph from atop the George Washington Bridge.*



things with them. My first two weeks on the job I got right into the thick of things by being an integral team member in a bearing replacement job on a two span, steel I-girder bridge. After that, I assisted with many design calculations and analyses for different jobs throughout the area, altered many CAD drawings, as well as helped with inspection work in the field. Additionally, I worked with the transportation

*(Continued on page 6)*



## Internships - In Their Own Words (cont'd)

(Continued from page 5)  
engineers on many occasions, working with deed books, easements, and field inspections.” And his takeaway



from the summer? “I had a great time working with Pennoni Associates and their employees and found it to be both an enjoyable and broadening experience while I was with them.”

Next, Kelly Fearon weighed in regarding her

internship with the Construction Inspection Division for Maryland State Highway Administration. “I was primarily on one job in Perryville, Maryland on an ADA Compliance Job. I was able to see all aspects of inspection and I attended monthly meetings

with the contractor as well as state meetings in the district office. My favorite part was testing the concrete by using the air test. I liked being able to see what we talked about in class actually being done. It gave me a great insight into reading plans and the problems that are faced in the

field. I was able to see firsthand some of the challenges contractors and inspectors have. I also loved that I spent most of my days outside. I did learn the office aspects of the job and entered daily reports into the computer system.” As a senior, Kelly gained insight into several aspects of the field as she wraps up here academic experience. “It was a very positive experience and I'm very grateful I was able to have this internship.”

Benjamin Fisher is now a junior at the University of Delaware. “Over the summer I had the opportunity to work with the Roads Division in the Cecil County government. I had a single project [to] inventory traffic signs located throughout the county, which included testing for conditions such as reflectivity. The majority of what I learned dealt with federal regulations regarding the standards and placement of these signs, but I also learned one of the various methods for fabricating signs. I enjoyed observing alternative solutions required for unique situations where federal standards might not be sufficient. For example, if a driver is approaching an especially accident prone intersection, signs may be fabricated larger than required in order to attract attention. Lastly it was interesting to learn about the history of the field, the reasoning behind some regulations and how controversial some changes to federal requirements are.”

Finally, Rob Harker, another senior, weighed in - “This summer I spent my time in Delaware City performing an asset inventory of the town's roads, sidewalks, curb ramps,

and signs. After collecting data I created a detailed map [in ArcGIS] with the locations of all the aforementioned assets [their attributes, and some compliance analyses]. The map will be used by the [town leadership] to better manage the town's transportation systems and make sure the town is [compliant with] ADA and MUTCD standards.

These are just some of the internship stories we heard from students returning this fall. Not every internship is a brilliant experience (for either the student or the employer), but most benefit both parties in a variety of ways beyond just paying for books in the fall for the student or cheap labor for the employer. The best internships involve some thought on the part of the employer about how to best use the student and an energetic and enthusiastic student to take advantage of the opportunities. We have seen the quality of internships improve steadily in past years and employers and students alike tell us it pays off. The stories these students tell suggests that some of them are likely to be enthusiastic and innovative additions to the transportation engineering field over the next couple of years, which means that these internships continue to be great investments to ensure we attract the very best of the next generation of engineers and other professionals.

What more can be said? Thinking of internships next summer (or before)? Call us; we can help.

*Rachel Beer signed in at the Freedom Tower*



## Recent Student Field Trips



*ASHE@UD students help out at the ASHE First State Section golf outing, generating engineering scholarships*



*Professor Rusty Lee guides UD Engineering Students on a tour of Cleveland Avenue and Library Avenue in Newark to illustrate the outcomes of signal timing efforts.*



*The T<sup>2</sup>/LTAP Center organizes and supports many student field trips each semester to operational centers, construction sites, labs, and maintenance facilities. While these are sometimes associated with specific academic classes, most trips are centered around student groups from professional associations like ITE, ASHE, ASCE, etc. These excursions are very instructive to students as they decide how to focus in engineering and they are an important part of our workforce development charge.*

## WVA's Personal Rapid Transit

Color us jealous—we want one!

WVA's Personal Rapid Transit is pretty unusual and we got to look under the hood a bit.

In a word—snazzy. West Virginia University's Personal Rapid Transit is all that and a bag of chips. And during our Region 3 meeting in October, our colleagues at the WV LTAP arranged for a behind the scenes tour for us.

In brief, the PRT came on line in 1975 and was envisioned by the Nixon Admin-

istration as a game changer for mass transit. You can debate the reasons, but by the time both phases were done in 1979, it had cost \$130M,

which was quite a bit more than planned.

However, it still runs nearly 40 years later and handles 15,000 riders per day with a 98%+ up time (although the students apparently try to use it as a convenient excuse come exam time).

Each of the 73 vehicles is rated for 20 passengers and the five stations connect the three WVA campuses and



downtown Morgantown.

We rode the system down to the maintenance facility and literally had a look under the hood of these cute

little buses as well as the operations center.

Operating like a small traffic management center, they have all the eyes on the



system you might imagine and then some. During our visit, we saw the system go down due to a system trip and watched as they cleared the error and brought the system back on line; we were amazed to see the backed up stations clear of students within just a few minutes.

If you go to Morgantown and you don't ride the PRT, you just don't know how to have fun.

## Upcoming Events

The T<sup>2</sup>/LTAP Center is currently planning the following upcoming events. Others will follow. We will announce exact dates, locations, and other information as we finalize details. Monitor our web-site for up to the minute details and registration.

- DelDOT Quality Section Winter Workshop, February 14, 2014
- DelDOT Materials and Operations Training, February 19, 2014

## T<sup>2</sup>/LTAP Center Request Form

Your feedback and interests help us increase the T<sup>2</sup>/LTAP Center's effectiveness, so please complete and return this form or email us—all compliments, criticisms, and ideas are welcome!

\_\_\_\_\_ Please add my name to the T<sup>2</sup>/LTAP INFO-CHANGE subscription list—subscriptions are free

\_\_\_\_\_ I have an idea for a future T<sup>2</sup>/LTAP newsletter article  
Topic: \_\_\_\_\_

\_\_\_\_\_ I volunteer to author this article—please contact me

\_\_\_\_\_ Please consider these topics for future training sessions  
Topic: \_\_\_\_\_

\_\_\_\_\_ I would like to learn more about the T<sup>2</sup>/LTAP Center and how its free services can assist my municipality or agency—please contact me  
Name: \_\_\_\_\_

Agency: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

email: \_\_\_\_\_  
\_\_\_\_\_

Please return this form to:

Delaware T<sup>2</sup>/LTAP Center, Delaware Center for Transportation  
360 DuPont Hall, University of Delaware, Newark, DE 19716



**Delaware  
T<sup>2</sup>/LTAP**

*Care to  
contribute an  
article? Just let  
us know by  
filling out this  
form or  
emailing us.*

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### Helping to Bridge your Transportation Gaps

The Local Technical Assistance Program (LTAP) is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to conduct training and technology transfer in the form of workshops, seminars, and conferences. The Delaware T<sup>2</sup>/LTAP Center Info-change is published semi-annually. T<sup>2</sup>/LTAP Center articles also appear semi-annually in the TransSearch - the newsletter of the Delaware Center for Transportation. Any opinions, findings conclusions or recommendations presented in this newsletter are those of the authors and do not necessarily reflect views of the University of Delaware, Delaware Department of Transportation, or the Federal Highway Administration. Any product mentioned in the newsletter is for information purposes only and should not be considered a product endorsement.



The Delaware T<sup>2</sup>/LTAP Center is a member of the  
National Local Technical Assistance Program (LTAP)

**Delaware  
T<sup>2</sup>/LTAP**

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