



TRAVEL-LOG

Delaware T^2 Center

Message From The Director

By Earl "Rusty" Lee, Ph.D., Director

It's hard to believe that fall is nearly over and winter will be here soon. These next few months will also represent a time of significant changes to the transportation business. There is a new Manual on Uniform Traffic Control Devices, also known as the MUTCD. DelDOT's Traffic Division is putting the finishing touches on the state version of this and T^2 will begin hosting training for DelDOT employees, DelDOT contractors and all interested parties starting in February. There is also a new Highway Safety Man-

ual and T^2 is busy preparing training on this. February also means the Winter Workshop and other training sessions.

The past few months have involved projects for the towns of Bethany Beach and Blades, as well as working with the city of Newark. T^2 remains highly involved with UD student activities, including tour of the I-95 toll plaza project, visits to the Indian River Inlet Bridge, and the annual DelDOT tour and TMC visit.

Personally, I have enjoyed meeting all the DelDOT people I can, talking to them and finding out what T^2 can do to help them. Also, Matt and I have expanded outreach efforts to the communities of Delaware to let them know what we can do for them. There are many new programs in the works and you will be seeing announcements for them in the near future. Our T^2 and LTAP Center are here for Delaware, and we will continue to provide the best set of services that we can.

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FHWA Launches Every Day Counts Initiative

The Federal Highway Administration (FHWA) has launched a new initiative to identify and deploy innovation aimed at shortening project delivery, enhance the safety of roadways, and protect the environment. In essence FHWA's goals, through their new Every Day Counts (EDC) initiative, are to move themselves towards a greener Agency and shorten project delivery and enhance safety through use of technology and streamlined planning and permitting procedures.

Through EDC, the Agency pledges to "work with the transportation community to leverage 21st century technologies and solutions to improve safety, reduce congestion, and keep America moving and competitive in the world market." EDC currently highlights five of these technologies: Adaptive Signal Control, Geosynthetic Reinforced Soil Integrated Bridge Systems, Pre-



WMA - no more messy fumes!

fabricated Bridges, Safety Edge, and Warm-Mix Asphalt (WMA).

FHWA is increasingly sensitive towards lengthy project timelines and EDC highlights Design/Build and Construction Manager/General Contractor as two contract delivery methods that have proven effectiveness for some projects. A project delivery toolkit also aims to reduce planning and permitting phases, with direction and guidance on such topics as Legal Sufficiency, Use of In-Lieu Fee and Mitigation Banking, and Flexibilities in Right-of-Way.

But FHWA hopes that EDC will be interactive with the transportation community and they invite us to share ideas for innovative technologies and project delivery methods through a link on their website.

As with Delaware, most state DOTs will find many of these approaches and technologies familiar and have probably employed some of them on some projects. But through EDC, it is hoped that greater awareness of these tools will result, they will be applied creatively to more projects, and even local governments will see how they can be used to shorten project timeframes, increase safety, and protect the environment.

Details of FHWA's EDC initiatives can be found at their website:
<http://www.fhwa.dot.gov/everydaycounts/index.cfm>.



Public employees can choose to set the example for private sector motorists. Or they can undermine no-texting type laws through misuse of exceptions in those laws. Top down leadership examples can make a difference in compliance with such laws.



Distracted Driving - Public Sector Employees Can Lead by Example

Transportation Secretary Ray LaHood has been visible and loud on the topic of driving while texting and the issue of distracted driving in general. Many states have outlawed texting while driving and even the use of hand held phones altogether.

The State of Delaware prohibits the use of electronic communication devices while a motor vehicle is in motion (Delaware Code, Title 21, Chapter 41, §4176C). Of course, some limited exceptions are made in the law: law enforcement personnel and emergency responders "in the performance of their official duties;" operators of school buses (without 2-way radios) while communicating with

central dispatch; persons employed with a public entity with 2-way radios attached to the vehicle; and so on.

Sometimes, these groups imagine they are exempted altogether, but they are not. The exceptions are made as a practical matter for the execution of official duties and emergencies and are not intended to exempt such a person on a wholesale level. As a result, it is important that public employees are trained to know when it is acceptable to use such devices in their official capacity.

By ensuring that all public employees comply with such state laws, the general public is more likely to accept

the restrictions in their personal vehicles and we can move closer to Secretary LaHood's goal of eliminating distracted driving.

And, of course, cell phones and the like are only one of many driver distractions, and public employees should be trained to minimize distractions while driving such as eating, drinking, adjusting radios or mirrors, searching for items behind them, setting GPS searches, and the like.

To read the text of Delaware's "Rules of the Road," go to <http://delcode.delaware.gov/title21/c041/index.shtml>.

No Job is Too Small for Good Contract Documents

Years ago, it was common to do business on a handshake, particularly with small organizations. And while trust and relationships are still an important part of design and construction of public works (despite whatever snickers such a notion might engender), good contracting documents are essential in what we do these days. We live in an increasingly litigious environment where the mere threat of lawsuits can be used as leverage, and your contracting paperwork is the biggest weapon in your attorney's arsenal when protecting you.

Some still imagine that, if they are just paving a couple of streets or replacing a few sidewalk curb ramps or hiring a design engineer, they don't need much more than a description of the work to request quotes and they can rely on the contractor's paperwork. Learning the hard way that this isn't true turns out to be expensive for your taxpayers. Good contract documents for such projects needn't necessarily be lengthy, but they should be well

thought out.

For even the simplest of projects, requests for quotes or bids should be more detailed rather than less and specific about the limits of work and responsibility. They should reference technical and process specifications (your own or some established set like those of DelDOT) and they should include time deadlines and minimum insurance requirements. If performance or material standards are appropriate for the desired end product, they too should be spelled out. And if there are preconceived notions or special project requirements, they need to be written down or you can't insist upon them. These kinds of bid requests provide you some of the leverage you need to later insist on a project of the quality you intended.

Need guidance? The T² Center can help you develop requests for bids/quotes, notices to proceed, and other types of documentation to improve contracting processes. Give us a call if we can help.



Small job, large job, huge job - good contract documents protect the interests of those who pay for it and those who do it.



UD Engineering Students Benefit from Internships - And So Do the Employers

University of Delaware students enjoyed a number of engineering internships this summer in the private and public sectors of transportation design, construction, and inspection. That so many opportunities developed at such a difficult time in the economy highlights that some transportation sector employers have come to recognize the value of interns for their projects and their longer term workforce development needs.

In the past, engineering internships were often viewed by employers simply as a source of cheap labor, and by students as simply a means to fund summer recreation. But the stories told by many UD interns illustrate their more professional take on these opportunities and employers have likewise become more innovative, using interns to add real value to their projects.

A great way to learn something is to immerse oneself in it, and motivated students, when given an opportunity by practitioner mentors, can find these “summer jobs” to be gold mines. For example, Lauren Lobo interned for Parsons Brinckerhoff at the Indian River Inlet Bridge as a quality control inspector. “At first I was put on all different things, from concrete pours, crack mapping, post-tensioning inspection, grouting inspection, rebar inspection, and gradation checking. I was able to go all over the bridge, from the top of the towers to under the approach span. After the first month I ended up working mainly with the cable stay installation team, and was in charge of cable stay installation with Marx Possible from DelDOT. I honestly loved working with the people I did and could not have asked for a better experience.”

Kerry Yost saw “a nice mix of office and field work” at Johnson, Mirmiran, and Thompson (JMT), where he was “exposed to current software, analyses, and data collection practices.” In addition to an assortment of signing, striping, and lighting projects he participated in, Kerry was also involved with the user benefit-cost analysis for the US 301 project, assisting with the Traffic Management Plan for the Marshalls Creek Bypass.

And internships have the potential to influence career paths and employer choices.

Scott Slavens worked in the Georgetown office of Geo-Technology Associates, Inc. (GTA), where he performed geotechnical testing in the lab and in the field. Scott says that the internship might influence his career pursuits.

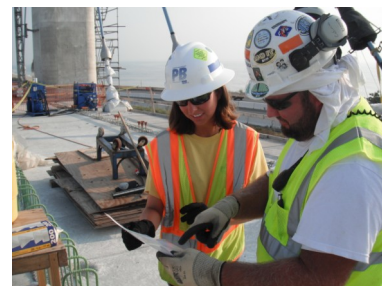
“Before this summer, I would probably not have considered concentrating my education on geotechnical engineering. However, since I found the internship to be such an enjoyable and rewarding experience, I may end up deciding to pursue a career in this field of engineering.” Sounds like someone who valued more than just the cash.

DelDOT also sees the value of internships and Sam Bostick (project engineer consultant for DelDOT) reflected on his experience with Bob McGurk on the I-95 Toll Bridge project, saying he, “quickly adapted to the work and took charge of his operation. He demanded the respect of those around him with far more experience. He demonstrated a team approach and was willing to come to the aid of others requiring assistance.”

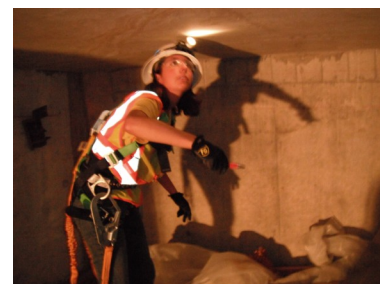
Michael Kelly’s experience at KSI Professional Engineers was different still. Mike spent part of the summer creating a seminar to be presented to meetings of the American Institute of Architects on the history of the Bethlehem Steel Corporation and its role in famous buildings and structures. He also assisted with design projects and was able to attend site visits with other professionals where he says he, “gained the most amount of knowledge during the summer because I was able to perform hands on learning out in the field that can’t be done in the classroom or in the office.”

Kate Smagala was another beneficiary at Pennoni Associates, where she worked as an intern in their highway design department. “I worked with an excellent group of people who taught me many new skills. They allowed me to participate in weekly team meetings involving aspects of many different projects, and I was given tasks that involved developing construction plans, designing entrances, estimating quantities, determining design criteria, utility coordination, analyzing impervious versus pervious areas, grading plans, preparing cross sections to display utility locations, and search-

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Lauren Lobo works with a colleague at the Indian River Inlet Bridge; below, Lauren as a quality control inspector



Students gathering pedestrian data (above) and retroreflectivity levels (below)





A collaborative effort between the Delaware Department of Transportation and the University of Delaware, the new Pedestrian Hybrid Beacon (aka HAWK) at State Route 72 and Farm/Webb Lane is the first such installation in Delaware, but it is likely to pop up across the state in years to come as a new tool for pedestrian safety.



DelDOT's variable message boards are part of an awareness and education campaign for Delaware motorists relative to the new



New Crosswalk Aimed at Keeping Ag Students Safe - by Nicole Becker

[Reprinted by permission from The Review (University of Delaware Independent Newspaper)]

For more than a year, the Delaware Department of Transportation and the university have collaborated on the installation of a safer crosswalk for students of the College of Agriculture and Natural Resources at the intersection of Route 72 and Farm/Webb Lane. On Aug. 6, the new crosswalk, the High-intensity Activated crossWALK, or HAWK, was made fully operational.

The HAWK differs from typical traffic signals in both appearance as well as functionality, Mark Luszc, assistant chief traffic engineer of DelDOT, stated in an e-mail message.

"The signal heads are in a triangular shape -two on top, one centered below," he said. "The different configuration helps indicate to the motorist that this type of signal operates differently than a typical traffic signal."

When no pedestrians are present at the crosswalk, the heads remain dark, Luszc said, but light up when a pedestrian pushes a designated button on the crosswalk.

"The vehicular signal heads will first flash yellow to indicate to the motorist that the HAWK is waking up," he said. "This is followed by a solid yellow phase-just like a typical signal-and then a solid red phase-just like a typical signal, except the red indication in the signal head are duplicated, side by side."

A few seconds after vehicles get the solid red indication, the pedestrian WALK interval turns on. At the end of the pedestrian WALK interval, a flashing hand symbol and countdown timer appear. During this time, the vehicular signal head flashes red for oncoming traffic, said Luszc.

"This is another unique aspect of the HAWK - during this phase, vehicles still must stop, but then may proceed if there is not a pedestrian in their way," he said. "In other words, this phase of the HAWK is like a stop sign for motorist."

The cost of installing the HAWK was approximately \$75,000. The university bore approximately two-thirds of the total cost, while the remaining third was paid for by DelDOT, Luszc said.

"We were not willing to simply install a crosswalk, as national research has indicated that uncontrolled crossing of high speed, high volume roadways can actually be less safe than doing nothing at all," Luszc said. "So our first step was to make some signing modifications along Route 72, but university staff and students were not satisfied with this upgrade alone."

In order to justify the construction of a new traffic signal, there are both national and state requirements that must be met regarding vehicular traffic, pedestrian traffic and crash history. These standards must be met in order to ensure the necessity of the traffic signal and to avoid the degradation of roadway efficiency and safety, Luszc said.

"This location was not close to meeting any of those criteria," he said. "However, because the HAWK delays vehicular traffic less than a typical traffic signal, the criteria which needs to be met to justify it are significantly less, and are in fact met for this location."

Daniel Lanz, a 2009 university graduate, served as vice president of the Agriculture College Council during his senior year. During one of the meetings, a fellow student, Adam Yoskowitz, proposed that the council attempt to improve safety conditions at the intersection between the school's two farm locations, Lanz said.

"We all agreed that was an excellent idea, and so I decided to spearhead the project," Lanz said. "I drafted up a petition and we collected over 1,000 signatures."

The petition caught the attention of DelDOT, and a traffic engineer was sent to the university to discuss what should be done. Ideas were exchanged and more meetings followed later that year, Lanz said.

The HAWK has been fully operational for

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New Crosswalk Aimed at Keeping Ag Students Safe - by Nicole Becker

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approximately one month. Since its installation in early August, Luszc said he has received mixed reviews from the public.

"We've been congratulated by many for using a new, innovative device for enhanced pedestrian safety," he said. "We've also been criticized for implementing something that is unusual, and drivers don't know what to do."

Lanz said he has not yet seen the HAWK since the completion of its installation. However, he said he is pleased with the result of his efforts.

"The initial meetings with DelDOT made it seem as though we would not be able to get much more than a few extra signs," he said. "A traffic light was my ultimate goal, and I am so happy that it has become a reality."

Junior Caitlin Gormley said she attended laboratory rotations at Webb Farm for the Introduction to Animal Science course her freshman year.

"I have noticed the new signal at the intersection," Gormley said. "It seems easy to use, and because the light actually turns red for oncoming traffic, the cars do stop, rather than

run through a yellow light."

She said the system seems easy for both pedestrians and drivers to utilize. There are a number of "New Signal Ahead" signs and the signal itself is clear and easy to read.

"I feel that the signal has definitely improved the safety of the students who walk to cross over to Webb farm," Gormley said. "Before the signal, no cars could stop for you, and it was like playing human Frogger trying to cross that street."

Tom Sims, associate dean for academic programs and research of CANR, stated in an e-mail message that it is difficult to gauge the effectiveness of the system because students have only just begun to return to campus. However, students do seem excited to see a solution in place.

"We are working with UD Public Safety, the City of Newark Police Department and DelDOT to do everything that we can to improve the safety for our students who use our outdoor teaching facilities," Sims said. "We have been monitoring the area and will continue to do so throughout the fall, and use every opportunity that we can to make our students and drivers aware of the new signal."



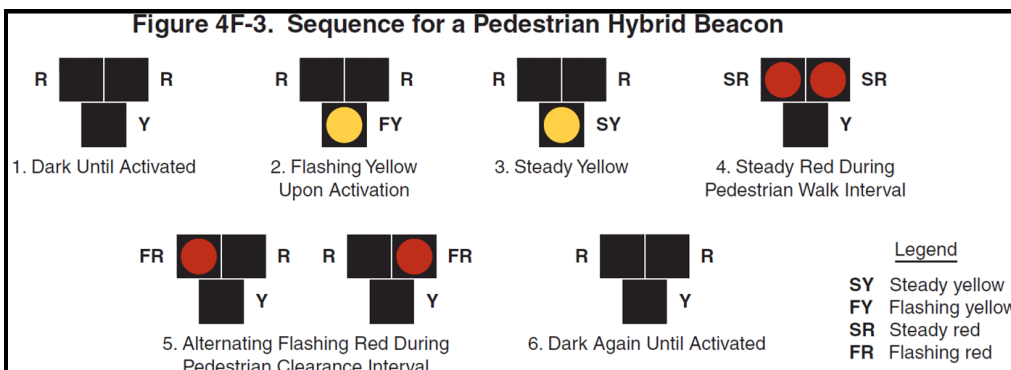
Farm/Webb Lane crosses State Route 72 on the south side of Newark, Delaware and connects the Agricultural College's two farm locations.



A delivery truck leaves Farm Lane, above; traffic on Route 72, below, is a steady stream through most of the day



The Pedestrian Hybrid Beacon (aka, HAWK) operational sequence is shown in this figure from the federal Manual on Uniform Traffic Control Devices (MUTCD)





Lauren Lobo as a Quality Control Inspector, high above the Indian River Inlet Bridge

UD Engineering Students Benefit from Internships - And So Do the Employers

(Continued from page 3)

ing through deeds to work on right-of-way plans.”

Glenn “Guy” Pusey credits his involvement with UD student groups to meeting professional practitioners, which led to an internship with Whitman, Requardt & Associates, which led him to a full time Transportation Engineer position for RK&K.

And employers are also looking at internships beyond their cheap labor appeal; a motivated intern challenged by a supervisor can bring innovation to a project and afford a new twist on workforce development – the 13 week interview. Christopher W. Baker, P.E. (George & Lynch) relates his experience with

an intern that has been with them three of the past four summers, with examples of challenges provided and met, over and over. Chris believes that, “each student needs to spend a period of time working hand-on in the field,” continuing on to say, “I believe ‘living’ a project like this teaches the intern how to plan and execute a project, particularly the sequence of activities and challenges craftsmen face.”

Thoughtful internships are certainly a great opportunity for students, but for employers they are also a low risk recruiting tool and an effective way to ensure that students emerge from academia with a more grounded sense of how engineering can actually be applied.

The new Highway Safety Manual!

The Highway Safety Manual was released this summer through the American Association of State Highway and Transportation Officials (AASHTO). This 1st Edition is a 3-volume compilation of safety approaches and crash modification factors within a “science-based” technical approach that takes the guesswork out of safety analysis.”



The HSM’s predictive methods can estimate crash frequency and severity with respect to proposed improvements and drive more informed project decisions. At first glance, the HSM can be intimidating and may be dismissed as a DOT-only tool, but with forthcoming training from FHWA and assistance from the Delaware T² Center, we believe local governments will benefit from it too. Stay tuned.

Safety Edge Demonstration in Seaford

Representatives of DelDOT, VDOT, Maryland SHA, FHWA, and Federal Lands gathered August 19th in Seaford, Delaware for a Safety Edge Open House. Cathy



Satterfield (FHWA Office of Safety) briefed the group of about 50 on the technical aspects of the Safety Edge (an Every Day Counts initiative) and then the group retired nearby Old Furnace Road for a field demonstration.

The Safety Edge creates a 30° to 35° angle in place of the classical drop-off created by a traditional screed arrangement. The “safety wedge shoe” forms the edge as part of the normal paving process. As the thickness of the asphalt lift increases, so too does the improvement of safety through use of the Safety Edge.

Upcoming Events

The T² 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 website for up to the minute details and registration.

- Feb 10, 2010: MUTCD (Part 6 Temporary Traffic Controls) Training; Kent Poly
- Feb 25, 2010: DelDOT Winter Workshop; Kent Poly
- Late Feb 2010: Materials Training; Kent Poly
- Mar 16, 2010: MUTCD (Part 2 Signs) Training; Kent Poly
- Apr 12, 2010: MUTCD (Part 3 Markings) Training; Kent Poly
- May 16, 2010: MUTCD (Part 4 Traffic Signals & Part 7 School Areas) Training; Kent Poly
- Jun 15, 2010: MUTCD (Part 8 Railroads & Part 9 Bicycle Facilities) Training; Kent Poly

Manual on Uniform Traffic Control Devices (MUTCD) training will be half day sessions.

Except as noted, all events will be held at Kent County Polytech High School Adult Conference Center in Woodside, Delaware.

T² Center Request Form

Your feedback and interests help us increase the T² 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 T² Travel-Log subscription list—subscriptions are free

_____ I have an idea for a future T² newsletter article

Topic: _____

_____ I volunteer to author this article—please contact me

_____ Please consider these topics for future training sessions

Topic: _____

Topic: _____

Topic: _____

_____ I would like to learn more about the T² Center and how its free services can assist my municipality or agency—please contact me

Name: _____

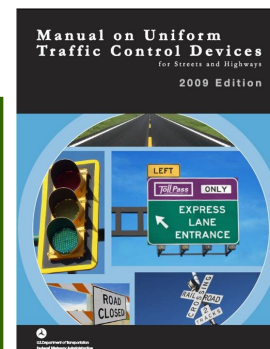
Agency: _____

Address: _____

email: _____

Please return this form to:

Delaware T² Center, Delaware Center for Transportation
360 DuPont Hall, University of Delaware, Newark, DE 19716



DelDOT is following the federal release of the December 2009 Manual on Uniform Traffic Control Devices (MUTCD) with a comprehensive look towards a new Delaware MUTCD, with a probable launch in early 2011. Look for training opportunities from DelDOT and the Delaware T² Center, beginning in February.



AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION

EMPLOYER—The University of Delaware is committed to assuring equal opportunity to all persons and does not discriminate on the basis of race, creed, color, gender, genetic information, age, religion, national origin, veteran or disability status, or sexual orientation in its educational programs, activities, admissions or employment practices as required by Title IX of the Educational Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, Title VII of the Civil Rights Act of 1964, and other applicable statutes. Inquiries concerning Section 504 compliance and information regarding campus accessibility should be referred to the Office of Disability Support Services (DSS), (302) 831-4643, located at 119 Alison Hall. Inquiries concerning Title VII and Title IX should be referred to the Office of the Assistant Vice President for Affirmative Action, (302) 831-8735, located at 124 Hulliher Hall.



Helping to Bridge your Transportation Gaps

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[HTTP://WWW.CE.UDEL.EDU/DCT/T2.HTML](http://www.ce.udel.edu/DCT/T2.HTML)

The Technology Transfer (T²) Program is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to interchange the latest state-of-the-art technology into terms understood by local and state highway or transportation personnel. The Delaware T² Center Travel-Log is published semi-annually by the Delaware Technology Transfer Center at the University of Delaware. T² 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.



Do we have your email address? If not, update us now!

We're going Green! But we need your help to do it. Much can be saved by distributing our newsletters to you electronically, but we're reluctant to take the next step

because we don't want you to fall into the cracks and miss out on future issues.

Take a moment now, go to <http://www.ce.udel.edu/dct/> and see the "DCT is going green" link at the bottom. It's simple and quick and it will keep you in the loop so do it now before you forget.



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