



MARYLAND TRANSPORTATION TECHNOLOGY TRANSFER CENTER

Local Technical Assistance
Program (LTAP)
University of Maryland at
College Park

mdt2center.umd.edu

INSIDE:

Page 2-3
Mousetrap
Competition, con't

Page 4
States Choose
e-Construction to
Save Time and
Money

Page 5
e-Construction,
concluded
Our Currently
Scheduled
Courses

Pages 6-10
Courses, continued

technotes

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Announcing the 3rd Annual 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 3rd Annual Build a Better Mousetrap Competition.

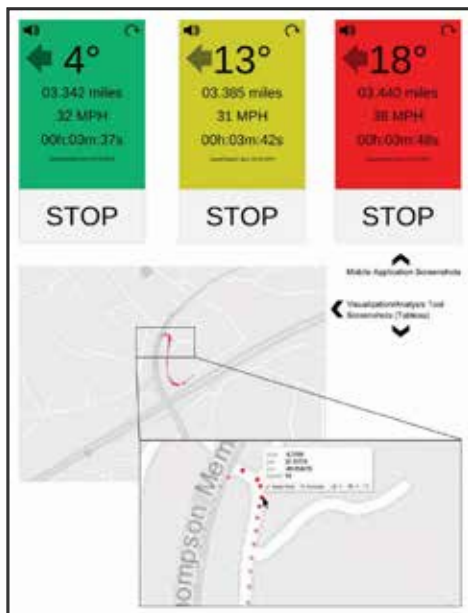
The MDT2 Center is looking for projects that you, your employees, or crew designed and built. It can be anything from the development of tools, equipment modifications, and/or processes that increase safety, reduce cost, improve efficiency, and improve the quality of transportation.

If you have something you think would qualify for this competition, submit your entries by Friday, May 13, 2016. Entries will be judged by MD T2 Center employees on cost savings/benefits to the community, ingenuity, transferability 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.

To enter the competition, complete the [entry form](#) and return it by Friday, May 13, 2016.

If you have questions, please feel free to email them to ckeane@umd.edu, or call Carly Keane at 240.304.9627.

Below are the 2015 Build a Better Mousetrap National Winners:



1st Place: Curve Analysis Application

Agency: Virginia Department of Transportation

Contact: Jacob Dellinger

1596 Deborah Lane, Salem, VA 02415

Phone: 540.375.0124

Problem Statement: One very important part of any speed, safety, or warning sign study is the process of "ball-banking curves." Ball-banking curves is part the process whereby the safe speed for a curve is determined. Until now, we have had to use relatively expensive tools (easily \$2,000) to capture what is at best, spot location data of a curve or set of curves. Often times this process requires an additional person as one person is required to drive and the other to make notes.

Solution: Nathan O'Kane and I realized that all of the components and sensors

Continued on page 2

within the current tools, i.e. Distance Measurement Instruments (DMI), Speedometers, Accelerometers and Inclinometers (for Ball-Banking the curve), are sensors that are in nearly every new smartphone on the market. With this in mind, we began building and testing a mobile application that not only provides real-time display of the same data the current tools do; but more importantly, logs the data automatically. The logged data can easily be uploaded into a free visualization program where each data point can be displayed on a map. This is a tremendous advantage over the current system. Data is no longer captured only at one or two spot locations, but is captured at multiple points along the roadway which also aids in data analysis. Accuracy is increased and the need for a second person in the field is eliminated.

Labor/Materials/Cost: \$0

Savings/Benefits to the Community: This tool is extremely beneficial as it displays data more accurately than most current tools, records exponentially more data over traditional methods of data collection (data is logged several times per second rather than a few times per minute by hand), and the application costs nothing. Moreover, it is feasible that this tool could be provided to less skilled staff and engineer-grade data could be captured.

2nd (tied) Place: Under Body and Frame Pressure Washer

Agency: Mt. Sterling Public Works Department

Contact: Steve Lane

100 Willow Street, Mt. Sterling, KY 40353

Phone: 859.404.3250, **Email:** steve.lane@ky.gov

Problem Statement: I wanted to design something that would wash off salt from underneath truck frames and dump beds after a snow event to help slow down the rusting process and help preserve the brake parts from early failure. I also wanted it to be something we could make economically.

Solution: I finally settled on a frame size small enough to be easily maneuverable and also big enough to accommodate enough nozzles. Caster size had to be big enough to roll easily and small enough to fit under brake chambers. Water supply needed to be high volume and the spray nozzles needed to fan out and overlap each other.

Labor/Materials/Cost: Frame is 1" box tubing, 3" swivel casters, 1 1/3" galvanized pipe for handles, all other piping is pvc sch. 40 (3 sizes) 1 1/3 - 1" and various fittings, nozzles are screw in type with 45" fan installed to overlap 1 1/3" fire hose from handle to a 2" 195 GP gas water pump. \$300 and a fire hose.

Savings/Benefits to the Community: Our trucks and dump bed will last longer and look better, thus saving money and showing our department takes pride in our equipment. Keeping the brake parts from building up with rust means safer trucks and less liability plus longer brake life.



2nd (tied) Place: Transportation Asset Collection Using Andriod Tablet & ArcGIS Collector

Contact: Ken Hudak

Phone: 248.645.2000, **Email:** khudak@rcoc.org



Problem Statement: The Road Commission for Oakland County was seeking a cost effective solution to map road stream crossings and dry-weather flow screening within its right-of-way for storm-water permit compliance. Mapping road infrastructure and assets can often be expensive because of the required equipment and time.

Solution: The Road Commission for Oakland County leveraged its existing geographic information system (GIS) to support field mapping using a free collection software suite called ArcGIS Collector. ArcGIS Collector runs on Android and Apple tablets, and it uses the tablet's built-in GPS that provides a two meter accuracy, which is well within the required parameters of our project. This

equipment can be acquired at retail wireless providers for just 10% of the cost of survey grade GPS systems. The Road Commission for Oakland County then hired two summer interns with a background in Environmental Studies and GIS to conduct the field surveys. Over the course of 10 weeks, the interns visited over 500 locations and mapped road stream crossing points (outfalls) where storm-water drainage from the pavement was fed into natural waterways in our right-of-way. In total, over 2,500 points were collected at a total cost which was 80% lower than similar proposals from private consultants. The team was also able to identify problems with infrastructure (such as dry weather flow indicating potential illicit discharge) and collapsed structures. These were inventoried with geotagged photos and submitted to highway maintenance for additional investigation.

Concluded on page 3

Labor/Materials/Cost: Two summer interns, ArcGIS Collector program, Andriod or Apple tablet. Total cost of labor, equipment and software were 80% lower than contractor's proposals of a similar project.

Savings/Benefits to the Community: Lower cost and a readily available system for collecting transportation assets in the future.

Third Place - Redesigned Sign Truck

Agency: Billings County in North Dakota

Contact: Jeff Baranko

Billings County District #2, 12811 20th St., SW, Belfield, ND 58622

Phone: 701.260.2588, **Email:** barankojeff@yahoo.com

Problem Statement: Many items on the sign truck were poorly designed and not efficient. This included a catwalk that had to be manually swung to be extended. All the equipment was kept on the bed of the truck and had to be lifted from a high location. To replace or install a sign post or sign required two people. The ladder was mounted on the rear of the truck and had nothing to hold onto when climbing up or down. Tools were kept in a tool box but weren't organized. When working with equipment on the sign truck the chances of injury were great and it took a considerable amount of time to complete a task. Many items on the sign truck were poorly designed and not efficient. This included a catwalk that had to be manually swung to be extended. All the equipment was kept on the bed of the truck and had to be lifted from a high location. To replace or install a sign post or sign required two people. The ladder was mounted on the rear of the truck and had nothing to hold onto when climbing up or down. Tools were kept in a tool box but weren't organized. When working with equipment on the sign truck the chances of injury were great and it took a considerable amount of time to complete a task.

Solution: Redesign the sign truck to make it more efficient and safer for employees to work. Rebuilt the catwalk pivot hub and added a camper jack so the catwalk would swing mechanically. Added a 12-volt electrical system connected to the camper jack so the catwalk didn't need to be swung manually. Added an electrical switch on the catwalk so it could be operated top side. Added a toolbox and holders for the drive dyes on the catwalk so they would be handy and didn't have to climb off the catwalk for a sign installation. Built holders on the side of the truck bed for the air hammer and auger so it was accessible from ground level. Moved the compressor and built a bracket to mount a reel so the air hose could be extended easily. Designed an air operated auger from an air wrench to be able to dig post holes eliminating the need for a second person to install a sign. The ladder was moved from the rear middle area of the truck bed where it was in the way to the rear corner of the truck bed. The ladder was rebuilt to include grated steps and a hand rail was added. The storage box on the rear of the truck was extended and a vise was added and could be used for a work bench. A bracket was added to protect the generator and air compressor from sign posts which are stored on the truck bed. Dividers were added to the tool boxes mounted on the side of the truck bed so items could be better organized.

Labor/Materials/Cost: \$1200.00 in materials and 20 hours in labor.

Savings/Benefits to the Community: The redesigned sign truck changes the signing operation from a two person to a one person operation. The changes to the catwalk and holders for the air hammer and auger; and redesigning the ladder reduces the exposure to injuries to employees. All the changes increase the efficiency of the signing operation and reduction to possible bodily injury is a great benefit to employees and saves the county money in possible workers compensation costs.



If inspiration has struck, please submit your entry!
Fill out the [entry form](#) and submit it by Friday, May 13, 2016.



Many states across the nation are discovering that you really don't need all that paperwork to complete a highway construction project. "e-Construction is an absolute game changer," said Cliff Farr, construction technology manager for the Michigan Department of Transportation.

e-Construction is the collection, review, approval and distribution of highway construction contract documents in a paperless environment. The process includes electronic submission of all construction documentation, electronic document routing and approvals through electronic signatures. It

involves digital management of construction documents in a secure environment that allows distribution to all stakeholders through mobile devices.

A paper-based system requires significant time and money to create, process and store documentation. In this era of instant communication and a tech-savvy workforce, the paper process is quickly becoming obsolete. Through the Every Day Counts initiative, the Federal Highway Administration and American Association of State Highway and Transportation Officials are partnering to help states adopt e-Construction.

States go paperless

States are reporting dramatic savings in time and money. The Michigan DOT, with a 2015 construction program of \$1.2 billion, estimates it's saving \$12 million a year, eliminating six million pieces of paper and slashing construction modification times from 30 days to just three days with the use of e-construction.

The agency rates itself as 99 percent paperless. It uses paper for the tickets on materials, but that will change as it investigates alternatives. For Michigan, e-Construction includes the electronic transfer of plans and specifications, data hosting services, electronic review and approval of documents through e-signatures, and electronic as-built drawings. "Basically, we get rid of the paper trail," said Brad Wieferich, Michigan DOT deputy chief engineer.

The Florida Department of Transportation is another e-Construction leader. At the rate of saving \$45,000 annually per contract, spread over 500 active projects, the agency estimates it could save \$22 million per year with e-Construction, said Doug Martin, construction systems engineer. The Florida DOT has implemented e-construction under the leadership of a group of innovators at its highest level, including the chief engineer. The state reports it replaced over 20,000 pieces of paper on just four projects.

Several states—including Iowa, Minnesota, Missouri, North Carolina, Pennsylvania, Texas, Virginia, West Virginia and Utah—have built two or more projects using e-Construction, said Bryan Cawley of FHWA's Office of Infrastructure, who leads the EDC-3 e-Construction Innovation Deployment Team.

Challenges and benefits

Going paperless does involve challenges, Cawley said. One concern is the length of time it takes for construction inspectors to adapt to using the new technology. But a [research project](#) carried out by the Minnesota, Washington State and Texas Departments of Transportation found that after about three days, the inspectors "grabbed hold of it and could look up project documents and process and approve contract documents on an electronic screen," said Cawley.

e-Construction offers several benefits:

- You need less physical space to store documents.
- You can create a more consistent approach to decision-making.
- You have real-time access to data through secure data management systems.
- You can back up and store more project data electronically to make it natural disaster-proof.

As Martin pointed out, "Why store things in multiple places when you can store it in one place where everybody can view it?" The Florida DOT has 140-plus forms that need to be filled out to complete a construction project. "At first, we went through the list and picked out the ones that we could easily make electronic," said Martin. By December 2015, the agency had nearly finished the entire list.

To move the e-Construction process along, leaders of three major stakeholders—the Florida DOT, Florida Institute of Civil Engineers and Florida Transportation Builders Association—signed a memo of understanding that they would endorse e-Construction and recommend it to their members. "Our goal is to be completely paperless by July 1, 2016," said Martin.



Agencies are using mobile devices for field inspections and data collection.

Concluded on page 5

e-Construction help

- Register for the [EDC Exchange on e-Construction](#) from 2 to 4 p.m. ET on April 21.
- Read the Florida DOT [e-Construction How-To Guide](#) on implementing a paperless system.
- Read [reports on peer exchanges](#) for e-Construction best practices in several states.

For information and technical assistance on using e-Construction, contact [Bryan Cawley](#) of the FHWA Office of Infrastructure, [Richard Duval](#) of the FHWA Office of Infrastructure Research and Development or [Kathryn Weisner](#) of the FHWA Resource Center.

This article was reprinted from the Center for Accelerating Innovation's [Innovator](#) (Mar/Apr issue), a publication of the Federal Highway Administration and United States Department of Transportation.

Our Currently Scheduled Courses

The following courses are currently scheduled and we are still adding to the list! For more information or to schedule a class, contact Janette Prince at 301.405.6535 or register online at www.mdt2center.umd.edu.

TRAFFIC CALMING

Dane Ismart

April 5, 2016, 8:30am-4:00pm

College Park, Maryland

\$110 for Local Agencies Only

\$125 for all other participants

PDHs: 6.0

This Traffic Calming seminar is designed to present a broad-based understanding of traffic calming philosophy and measures while recognizing and preserving the function of roadways. This course is adapted toward state and local government officials and employees who are charged with enhancing roadway safety. The seminar will focus on the appropriateness and effectiveness of various traffic calming measures as well as the specifics of designing such measures to achieve their desired effect. Audio-visual presentation materials will be used, and attendees will also participate in interactive workshops where case studies are evaluated and appropriate traffic calming solutions are developed. Upon completion of the workshop sessions, the participants will present their solutions to the class. The goal of the course is that participants will leave with a basic understanding of what traffic calming is, and what issues are typically encountered when using traffic calming techniques. Students will receive a course notebook.

BLUEPRINT READING FOR HIGHWAY WORKERS

Glynn Stoffel

April 6, 2016, 8:30am-3:30pm

College Park, Maryland

\$110 for Local Agencies Only

\$125 for all other participants

PDHs: 6.0

Today's highway workers use a variety of blueprints and drawings to guide them in accurately performing the construction and maintenance of roadways and related components. Upon successful completion of this course the student will be able to read and interpret the drawings included in a set of highway plans. At the conclusion of the course, the student will be able to: recognize and define the various lines and symbols used in plan construction;

describe and discuss the characteristics of plans, plats, profiles, views, details and other drawings found in a set of working plans; demonstrate the ability to use engineer's and architect's scales; describe how to effectively use plans in the field; and obtain a score of at least 70% on the review test.

EXCAVATION AND TRENCHING SAFETY

Glynn Stoffel

April 7, 2016, 8:30am-3:30pm

College Park, Maryland

\$110 for Local Agencies Only

\$125 for all other participants

PDHs: 6.0

Municipal workers should understand the hazards and how to work safely around trenches and other excavations. Using OSHA Regulation 29 CFR, 1926.650 as a guide, this class discusses excavation work hazards, the role of the Competent Person, soil classification methods and testing, cave-in protection systems and their installation, and how to inspect and make safe areas where excavation is conducted. Audience: Transportation superintendents, supervisors, public works maintenance personnel, equipment operators, inspectors, and anyone who may be involved in underground operations are encouraged to attend this course.



Our Currently Scheduled Courses

(continued from page 5)

ASPHALT RECYCLING

Ed Stellfox

April 14, 2016, 8:30am-12:30pm

College Park, Maryland

\$59 for all participants

PDHs: 4.0

This course discusses the advantages of asphalt recycling as part of your road maintenance program. It covers techniques for recycling asphalt pavement, including surface recycling, hot mix recycling (both in plant and on-site), and cold mix recycling. The course emphasizes cold mix recycling, full depth reclamation, reviewing materials, equipment and operations. It also presents recent examples of asphalt recycling projects in several states. The following topics will be discussed: advantages; review of techniques -materials, equipment, and operations for surface recycling, hot-mix recycling, cold-mix recycling, and full depth reclamation.

PREVENTIVE PAVEMENT MAINTENANCE

Ed Stellfox

April 28, 2016, 8:30am-3:30pm

College Park, Maryland

\$89 for all participants

PDHs: 6.0

This course is the first step in making your asphalt pavements last longer at lower costs. The course covers preventive maintenance treatments such as chip seals, slurry seals, and micro-surfacing and discusses when and where each technique could be effective. It presents application methods, including preparation, materials, equipment, operations and safety, along with practical tips on how to avoid trouble. This course is open to municipal officials, road commissioners, supervisors, and superintendents; public works and maintenance personnel; equipment operators; and city or town managers.

TRAFFIC SIGNS

Ed Stellfox

May 12, 2016, 8:30am-12:30pm

College Park, Maryland

\$59 for all participants

PDHs: 4.0

This half-day course will cover the regulations and guidelines for traffic signs including; regulatory signs, warning signs, and guide signs. A review of the Manual on Uniform Traffic Control Devices (MUTCD) will also be covered. An in depth discussion of sign examples, installation and maintenance, as well as sign management will be covered.

INTRODUCTION TO TEMPORARY TRAFFIC CONTROL

Juan M. Morales, P.E.

May 17, 2016, 8:30am-3:30pm

College Park, Maryland

\$100 for Maryland local government participants

\$125 for all other participants

PDHs: 6.0

An introductory course to temporary traffic control (TTC) in highway work zones. This one-day course is designed to give participants a complete overview of TTC in work zones, including applicable standards, guidelines, traffic control devices,

component parts and their requirements, installation/removal considerations, and pedestrian accessibility. This course will prepare participants to take the Maryland SHA Traffic Manager's course. Topics Covered/Agenda: Introduction to temporary traffic control (TTC); Quantification of the work zone safety problem; Standards and guidelines applicable in the State of Maryland (MD SHA); Fundamental principles of TTC; Component parts of the TTC zone; Temporary traffic control devices; Tapers and other transitions; Installation and removal considerations; and Pedestrian accessibility. The course is intended for anyone whose actions affect safety on temporary traffic control work zones, including traffic managers, traffic technicians, inspectors and designers.

ROAD SURFACE MANAGEMENT

Ed Stellfox

May 19, 2016, 8:30am-3:30pm

College Park, Maryland

\$89 for all participants

PDHs: 6.0

This course provides participants with the basic concepts of road surface management including inventory, distress identification, condition survey, strategies, programs, budgets, and field surveys. A Road Surface Management Systems software demonstration will also be conducted during this course.



Continued on page 7

TRAFFIC ENGINEERING FUNDAMENTALS

Dane Ismart and Juan M. Morales, P.E.

May 23-26, 2016, 8:30am – 4:15pm

College Park, MD

\$399 for Maryland local participants

\$420 for all other participants

PDHs: 24.0

This course condenses what was the five-day Traffic Engineering Short Course into a new four-day course.

Agenda Day One:

- 8:30AM Introduction
- 9:00AM Traffic Engineering Terms and Design Year Traffic
- 10:00AM Site Impact Analysis
- 1:15PM Safety Principles and Crash Principles
- 2:45PM Principles of Access Management

Agenda Day Two:

- 8:30AM Intersection Analysis and Geometrics
- 10:15AM Signal Timing
- 1:15PM Arterial and Freeway Analysis
- 3:00PM MUTCD

Agenda Day Three:

- 8:30AM Roundabout Basics
- 9:45AM ITS Overview
- 11:00AM Traffic Calming
- 1:30PM Pedestrian Safety
- 3:00PM ADA Accessibility

Agenda Day Four:

- 8:30AM Temporary Traffic Control Standards and Guidelines
- 9:45AM Component Part of a TTC Zone
- 11:00AM Traffic Control Devices
- 1:30PM Traffic Control Devices, continued
- 3:00PM Work Zone Impact Analysis

This course is geared towards anyone with an engineering background and/or traffic engineering responsibilities in a related field. Also junior level traffic engineers, transportation planners, highway designers and city/county engineers.

ROAD SAFETY 365: A SAFETY WORKSHOP FOR LOCAL GOVERNMENTS

Juan M. Morales, P.E.

June 1, 2016, 8:30am-3:30pm

College Park, Maryland

\$100 for all participants

PDHs: 6.0

This course is designed to provide local and rural agencies with practical and effective ways to mainstream safety solutions into their day-to-day activities and project development process. This one-day workshop focuses on processes for incorporating safety into all aspects of local and rural projects, and on making safety a priority through inclusion in the traditional decision-making process - 365 days a year. The course stresses the importance of road safety, and illustrates how it can be integrated into rural/local transportation project development at all stages: planning, design, construction, implementation, operations, and maintenance. Through practical exercises and facilitator-led discussions, the emphasis is on operations and maintenance to reflect the predominant, day-to-day responsibilities of rural/local transportation agencies. The benefits and potential cost savings of safety initiatives are shown using examples from rural/local agencies. The workshop audience ranges from decision-makers to road crews. It is aimed primarily at local and rural road and public works supervisors. Others who would benefit include:

elected officials, public safety advocates, State DOT personnel, law enforcement, consultants, regional and rural development organizations, municipal associations.

FLAGGER CERTIFICATION

Juan M. Morales, P.E.

June 2, 2016, 8:30am – 12:30pm

College Park, Maryland

\$100 for all participants

PDHs: 4.0

The safety of workers, motorists and pedestrians is dependent upon the flaggers' performance. Since the flagger position involves safety, proper training is vital; flaggers are expected to pass a test to prove their proficiency and competence level. A MD SHA-approved ATSSA (American Traffic Safety Services Association) flagger card will be issued upon satisfactory completion of this course. This will be valid for 4 years and is acceptable in several states, including MD, VA and DC. The class is presented in PowerPoint© and will include a 25-question multiple choice exam and a flagger demonstration (dexterity test). Students will receive their ATSSA Flagger Certification card the day of the course (upon passing the exam). The course is intended for anyone whose actions affect safety of contemporary traffic control work zones, including traffic managers, traffic technicians, inspectors and designers.

ADVANCED HIGHWAY PLAN READING

Glynn Stoffel

June 9, 2016, 8:30am-3:30pm

College Park, Maryland

\$199 for Local Agency Employees

\$225 for all other participants

PDHs: 6.0

This class discusses how the highway supervisor, superintendent, maintenance worker and inspector can use a set of highway plans to ensure any new work, or roadway/structure repair work is performed according to design standards. At the successful conclusion of the course, the student should be able to: read and interpret the information given on a set of highway plans; review plans and recognize potential maintenance problem; use the proper vocabulary to communicate about key elements of the plan; locate key items in the plan using stations; locate buried or hidden objects in the field using scaling and triangulation techniques; and draw legible field sketches and red-line drawings. This course is designed as a follow-up to T2's Blueprint Reading for Highway Workers.

Continued on page 8

INTRODUCTION TO GEOSYNTHETICS

Ed Stellfox

June 23, 2016, 8:30am-3:30pm

College Park, Maryland

\$89 for all participants

PDHs: 6.0

This course is an introduction to geosynthetics, beginning with a discussion of geosynthetics, what they are, how they are made and how they can be used in a road maintenance program. The course then looks at other geosynthetics and their road system uses, including geogrids, geocells and geoweb, presenting new materials with new applications. Designed for municipal officials, road commissioners, supervisors, and superintendents; public works and maintenance personnel; equipment operators; and city or town managers. This course will cover the following topics: history; materials (geotextile fabrics, geogrids, geocells and geoweb); uses and applications of drainage, erosion control, reinforcement, separation, and reflective crack control.

CRASH AND SAFETY DATA ANALYSIS

Dane Ismart

July 12-13, 2016, day 1 8:30am-3:30pm, day 2 8:30-12:30pm

College Park, Maryland

\$ 130 for Maryland local government participants

\$145 for all other registrants

PDHs: 10.0

This day and a half course will cover the following: Crash Data and Computation of Crash Frequency; Condition Diagramming and Collision Types; Speed Analysis and Traffic Calming; Sight Distance Analysis; Pedestrian Safety; School Crossing Considerations; Marking and Signing Considerations; and Safety Design Issues and Mitigation. Audience: This course is intended for Traffic Engineers, planners, traffic analysts, traffic signal technicians and local officials involved in the planning or design of transportation facilities.

CONSTRUCTION MATH

Ed Stellfox

July 14, 2016, 8:30am-3:00pm

College Park, Maryland

\$89 for all participants

PDHs: 6.0

Construction inspectors may need to brush up on math skills specifically related to construction inspection, especially basic geometry, fractions, area, volume and conversions. The class is a good refresher, and excellent preparation for the construction inspection class. The course was designed for road workers, foremen, superintendents, construction inspectors and supervisors in need of a refresher, especially in preparation for the Construction Inspections class. Depending on the interest of the participants, the course may cover: whole number and fractions, decimals (for measurement and payment), mixed operation fractions and decimals, formula evaluation, techniques of algebra, ration and proportion, percentage, hints for problem solving, useful formulas, square and square roots, conversion, and transportation construction examples. *Participants should bring a calculator, scale and straight edge; notebooks will be provided.

SITE IMPACT ANALYSIS

Dane Ismart

August 2-3, 2016, 8:30am-4:00pm

College Park, Maryland

\$199 for local agency employees

\$215 for all other participants

PDHs: 12.0

Participants will learn the standard techniques for estimating the traffic impacts of both small and large site developments. Content includes procedures for land use forecasting, trip generation, trip distribution and assignment, site impact layout design, and level of service designation. The workshop instructed by Dane Ismart will be conducted with manual procedures, but computer software packages suitable for site impact will also be demonstrated. Participant's will receive a workbook, traffic access and impact studies, evaluating traffic impact studies, and a site impact handbook are provided. This course is designed for transportation engineers, traffic engineers, and planners concerned about the impacts of site development. Previous experience in traffic capacity or planning procedures is useful.

ROUNABOUT PLANNING AND DESIGN

Dane Ismart

August 4, 2016, 8:30am-4:00pm

College Park, Maryland

\$110 for all participants

PDHs: 6.0

This one-day workshop will highlight the new procedure to roundabouts as per the NEW 2010 Highway Capacity Manual. Topics covered in the roundabout course will include geometric design, signing, striping, safety, and accommodation of pedestrians and bicyclists. An important component of the course will be a discussion of the advantages and disadvantages of roundabouts. HCS 2010 software will be used to demonstrate the US Roundabout Capacity procedure rather than SIDRA and Rodrel. Maryland's Roundabout Guide will also be discussed and included as part of the course. Transportation Planners and Traffic Engineers who are planning or designing a modern roundabout are encouraged to participate.



Continued on page 9

DESIGNING PEDESTRIAN FACILITIES FOR ACCESSIBILITY

Juan M. Morales, P.E.

August 16-17, 2016, 8:30am-3:30pm

College Park, Maryland

\$199 for Maryland local government participants

\$225 for all other participants

PDHs: 10.0

Upon completion of this course the participant will be able to identify applicable laws, regulations, guidelines, and standards pertaining to accessibility for persons with disabilities. Know the requirements for ensuring accessibility in existing facilities vs. work in new construction and alterations. Identify some of the challenges in the Public Right-of-Way (PROW) faced by persons with disabilities. Review design elements necessary for achieving accessibility in the PROW, including work zones. Identify best practices. There will be (weather permitting) a field visit to a nearby intersection to assess its design and accessibility. Topics covered in the course include: Laws, Regulations, and Pedestrian Characteristics; Pedestrian Access Routes; Curb Ramps and Other Transitions; Detectable Warning Surfaces; Pedestrian Crossings; Accessible Pedestrian Signals; Pedestrian Facilities and Temporary Pedestrian (TPAR) in Work Zones; and a Field Visit.

WORK ZONE DESIGN

Juan M. Morales, P.E.

August 30-31, 2016, 8:30am-3:30pm

College Park, Maryland

\$199 for Maryland Local Government Participants

\$225 for all other participants

PDHs: 12.0

The course will give participants knowledge of the entire temporary traffic control (TTC) process: planning, design, review, installation, maintenance, and inspection of temporary traffic control for highway work zones. Issues regarding planning, design, review, and operation of temporary traffic control are covered, including pedestrian accessibility, worker safety, human factors, and legal aspects. The material is based on Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) and are modified to address Maryland State Highway Administration (SHA) TTC standards and guidelines. Topics Covered: Introduction to TTC; TTC Standards and Guidelines (MUTCD and MD SHA); Fundamental Principles of Traffic Control; Human Factors; Component Part of the TTC Zones; Traffic Control Devices; The Typical Project: Planning; Design, Installation, Inspection, Enhancements and Modifications, Constructability Reviews and Removal; Traffic Control Plan Strategies; MD SHA Standards, Guidelines and Practices; Legal Aspects of TTC; and Workshops. The course is aimed at individuals who are responsible for the design, review, or modification of temporary traffic control for work zones adjacent to and within roads and highways. The course will also be of interest to those responsible for installation, operation, and inspection.

HIGHWAY CAPACITY INTERRUPTED FLOW

Dane Ismart

September 13, 2016, 8:30am-4:00pm

College Park, Maryland

\$110 for Maryland local government participants only

\$125 for all other registrants

PDHs: 6.0

This one-day course will cover the theory and methodology of the 2010 Highway Capacity Manual for interrupted flow. The Chapters that will be covered include:

signalized intersections; unsignalized intersections (A) two-way stops (B) four way stops; and urban arterial. Changes in each of the interrupted Chapters of the 2010 Highway Capacity Manual will be highlighted during the lectures. The Highway Capacity Software will be demonstrated to the class using sample problems. The new roundabout capacity procedure is covered under a separate course.

HIGHWAY CAPACITY UNINTERRUPTED FLOW

Dane Ismart

September 14, 2016, 8:30am-4:00pm

College Park, Maryland

\$110 for Maryland local government participants only

\$125 for all other registrants

PDHs: 6.0

This one-day course will cover the theory and methodology of the 2010 Highway Capacity Manual for uninterrupted flow. The Chapters that will be covered include: basic freeway sections; weaving; ramps; multi-lane highways; and two lane rural roads. Changes in each of the uninterrupted Chapters of the 2010 Highway Capacity Manual will be highlighted during the lectures. The Highway Capacity Software will be demonstrated to the class using sample problems.

FLAGGER CERTIFICATION

Juan M. Morales, P.E.

September 15, 2016, 8:30am – 12:30pm

College Park, Maryland

\$100 for all participants

PDHs: 4.0

The safety of workers, motorists and pedestrians is dependent upon the flaggers' performance. Since the flagger position involves safety, proper training is vital; flaggers are expected to pass a test to prove their proficiency and competence level. A MD SHA-approved ATSSA (American Traffic Safety Services Association) flagger card will be issued upon satisfactory completion of this course. This will be valid for 4 years and is acceptable in several states, including MD, VA and DC. The class is presented in PowerPoint© and will include a 25-question multiple choice exam and a flagger demonstration (dexterity test). Students will receive their ATSSA Flagger Certification card the day of the course (upon passing the exam). The course is intended for anyone whose actions affect safety of contemporary traffic control work zones, including traffic managers, traffic technicians, inspectors and designers.



DESIGNING SAFER ROADS FOR PEDESTRIANS AND VULNERABLE ROAD USERS

Juan M. Morales, P.E.

September 20-21, 2016, 8:30am - 3:30pm

College Park, Maryland

\$199 for Maryland Local Government Participants

\$225 for all other participants

PDHs: 12.0

Vulnerable road users (VRU) are susceptible to traffic injuries and fatalities, perhaps more so than drivers. Yet we design highways for the mobility of cars sometimes neglecting the needs of the most vulnerable, such as pedestrians, bicyclists, motorcyclists, transit users and others. This course will teach participants how to diagnose pedestrian (and other VRU) safety deficiencies and select the appropriate countermeasures to make conditions safer for all users including an overview of the American with Disabilities Act (ADA) accessibility requirements. Engineering countermeasures will be emphasized but education and enforcement countermeasures will also be covered. Upon Completion of the Course, Participants Should be Able to: Define vulnerable road users, Describe VRU needs, Diagnose crash causes and select proper countermeasures, Identify safety-related geometric design elements, and Discuss VRU safety issues and how to address them.

SAFE WORK PRACTICES ON AND AROUND HEAVY EQUIPMENT

Glynn Stoffel

October 4, 2016, 8:30am-3:30pm

\$110 for Maryland Local Government Participants

\$125 for all other participants

PDHs: 6.0

Jobs requiring heavy equipment demand that all persons on the job recognize the hazards that exist when operating and working around this equipment. The class instructed by Glynn Stoffel provides a comprehensive overview of how to safely operate and work with the equipment used in highway and utility construction and maintenance work. The subjects covered include: OSHA standards for heavy equipment; job site hazard recognition and abatement; safe operation of backhoes, excavators and graders; safe operation of front-end and skid-steer loaders; hand signals and other communication techniques; safely working around heavy equipment; safely working around dump trucks and other mobile equipment; safe excavation techniques; safe rigging and lifting techniques; and safe street driving and transport of heavy equipment.

WINTER MAINTENANCE

Ed Stellfox

October 6, 2016, 8:30am – 3:30pm

College Park, Maryland

\$89 for all participants

PDHs: 6.0

This course covers all aspects of winter operations- planning and organizing, methods of snow and ice control, salt usage, and winter equipment maintenance. This lesson will include usage of snow maps, formal snow plans, snow plow and salt spreader operation. This course is intended for municipal officials, road commissioners, supervisors, superintendents, public works and maintenance personnel, equipment operators, and city or town managers.

SAFETY THROUGH ACCESS MANAGEMENT

Dane Ismart

November 15-16, 2016, 8:30am-3:30pm

College Park, Maryland

\$199 for Maryland Local Government Participants

\$225 for all other participants

PDHs: 12.0

Traffic engineers have long recognized that eliminating unexpected events and separating decision points simplifies the driving task. Since access control reduces the number, complexity, and spacing of events to which the driver must respond, it results in improved traffic operation and reduces accidents. Other benefits include reduced delay, improved traffic flow, increased capacity, and improved fuel economy. This course covers not only why, but also how to manage access, from a policy, legal, and design perspective. This two-day short course covers the following topics: access management policies; access design principles, trip generation; access management techniques; retrofit programs; access and median design guidelines; site plans and access for major activity centers; evaluation of improvements; and workshops.

THE NEW MD MUTCD ONE DAY SEMINAR

Dane Ismart

November 29, 2016, 8:30am-3:30pm

College Park, Maryland

\$100 for all participants

PDHs: 6.0

This one-day training is to enable participants to become familiar with the new MD MUTCD regarding the application of its principles to their traffic control devices in Maryland. As of February 3rd, 2012, the new Maryland Manual on Uniform Traffic Control Devices (MDMUTCD) has been officially adopted by the State of Maryland. The workshop, is open to representatives of all traffic engineering and planning organizations and elected officials. Part of the workshop is also geared towards Local Administrators and Elected Officials. A series of five workshops will be provided in various regions of the State. Agenda will include compliance days for new and existing traffic control devices, new sections within various chapters of the manual, other changes in standards and guidance, procedure for experimentation and interpretation, etc.





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Requesting a course is simple, visit www.mdt2center.umd.edu and fill out our request training form or call Janette Prince at 301.405.6535 and she'll be glad to assist you.

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