



## MARYLAND TRANSPORTATION TECHNOLOGY TRANSFER CENTER

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

[www.mdt2center.umd.edu](http://www.mdt2center.umd.edu)

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# technotes

Winter 2014 | Volume 31, No. 4

## New Year, New Innovations! EDC-3 2015 - 2016

Through the Every Day Counts (EDC) initiative, FHWA works with state and local transportation agencies and industry stakeholders to identify a new collection of innovations to champion every two years. Innovations are selected collaboratively by stakeholders from across the highway community, taking into consideration market readiness, impacts, benefits and ease of adoption of the innovation. Ultimately, a group of approximately a dozen technologies and processes are selected for promotion under each two year EDC cycle. Sometimes innovations are held over from the previous round of EDC in order to assure a more thorough deployment nationally.

The announcement of the third round of innovations — EDC3 — came on August 28, 2014. Although the clock doesn't start ticking on EDC3 until January 1, 2015, the innovations have been announced and diverse technical teams have been established to develop implementation plans for each innovation and to manage the deployment effort over the two year cycle (2015-2016). Transportation leaders from across the country will gather at regional summits this fall to discuss the EDC3 innovations and share best practices. These summits begin the process for states, local public agencies and Federal Lands Highway Divisions to focus on the innovations that make the most sense for their unique program needs, establish performance goals and commit to finding opportunities to get those innovations into practice over the next two years.

The EDC3 innovations are outlined below:

- **Shortening Project Development and Delivery**

- [Regional Models of Cooperation](#)
- [Improving Collaboration and Quality Environmental Documentation \(eNEPA and IQED\)](#)
- [3D Engineered Models: Schedule, Cost, and PostConstruction](#)
- [eConstruction](#)
- [Geosynthetic Reinforced Soil – Integrated Bridge System](#)
- [Locally Administered FederalAid Projects: Stakeholder Partnering](#)
- [Improving DOT and Railroad Coordination \(SHRP2 R16\)](#)

- **Mobility**

- [Smarter Work Zones](#)

- **Safety**

- [DataDriven Safety Analysis](#)
- [Road Diets \(Roadway Reconfiguration\)](#)

- **Quality**

- [UltraHigh Performance Concrete Connections for Prefabricated Bridge Elements](#)

For more information about EDC-3, visit: [www.fhwa.dot.gov/everydaycounts/](http://www.fhwa.dot.gov/everydaycounts/) or contact Hari Kalla, Director, Center for Accelerating Innovation at 202.366.5915 or at [hari.kalla@dot.gov](mailto:hari.kalla@dot.gov).

*This article is a reprint from the U.S. Department of Transportation,  
Federal Highway Administration.*

**H**ave you taken all the courses to qualify for Road Scholar status? We want to reward all your hard work with one of our new Road Scholar jackets and a certificate (might help with that raise you've been aiming for!)

Contact [Janette](#) to see if you qualify or if you only need a few courses to qualify!

### ***What is a Road Scholar?***

Road scholar participants improve their road and bridge maintenance as well as their safety skills with the latest innovations and tried and true methods and procedures. Road superintendents, road crews, public works personnel, managers and public officials are shown how proper techniques and new technologies apply to their maintenance and safety needs. Road Scholar courses can help stretch those budgets, providing information that squeezes the most out of dollars invested.

Participants pursuing a Roads Scholar Certificate will take the following four core courses: Asphalt Roads Common Maintenance Problems, Basic Drainage, Preventive Maintenance, and Winter Maintenance. Four more courses can be chosen by the participant to complete the certificate program. You must complete eight courses to achieve Road Scholar status. All courses will be offered at least once a year and will be hosted at the T2 Center's classroom located in College Park, Maryland.

The MD T2 Center will bring any course listed below to your municipal site. The center provides all the necessary equipment to present the course. You provide a room that can be darkened, an electrical outlet, tables and chairs for participants and a pot of coffee for the presenter will be greatly appreciated. Prices and a minimum class size can be discussed with the instructor.

### **Road Scholar I**

#### ***Asphalt Resurfacing (Half-Day Course)***

This course instructed by Ed Stellfox reviews the various asphalt mixes, their components and their uses. Asphalt resurfacing procedures are covered, including preparation, material, equipment, operation and safety. Special emphasis is placed on proper rolling and compaction of the asphalt overlay. Superpave mix design is discussed as well. Municipal officials, road commissioners, supervisors, and superintendents; public works and maintenance personnel; equipment operators; and city or town managers are encouraged to attend. PDHs: 4.0

#### ***Asphalt Roads Common Maintenance Problems (Half-Day Course)***

This course instructed by Ed Stellfox reviews the various asphalt mixes, their components and their uses. Asphalt resurfacing procedures are covered, including preparation, material, equipment, operation and safety. Special emphasis is placed on proper rolling and compaction of the asphalt overlay. Superpave mix design is discussed as well. Municipal officials, road commissioners, supervisors, and superintendents; public works and maintenance personnel; equipment operators; and city or town managers are encouraged to attend. PDHs: 4.0

#### ***Basic Drainage (One-Day Course)***

This course instructed by Ed Stellfox emphasizes the importance of good drainage with discussions of water and its effects on roads, problems caused by improper drainage, and ways to handle these problems. It covers types of drainage facilities, ranging from ditches, culverts and sub drains inlets and end structures, their uses, materials, installation and maintenance. It also introduces geosynthetic drainage applications. The following topics will be covered: importance of drainage, characteristics of water, system maintenance, drainage principles, surface and subsurface drainage, ditches, driveways, drainage culverts – materials and placement, headwalls, endwalls and inlets, erosion control, geosynthetics in drainage. PDHs: 6.0

#### ***Construction Mathematics (One-Day Course)***

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 lead by Ed Stellfox is a good refresher, and excellent preparation for the construction inspection class. The course was designed for 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. Please note: Participants should bring a calculator, a scale, and a straight edge. PDHs: 6.0

#### ***Introduction to Geosynthetics (One-Day Course)***

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 geowebbs, 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 instructed by Ed Stellfox will cover the following topics: history, materials, geotextile fabrics, geogrids, geocells and geowebbs, uses & applications, drainage, inflation, erosion control, reinforcement, separation, and reflective crack control. PDHs: 6.0

#### ***Preventive Pavement Maintenance (One-Day Course)***

This course instructed by Ed Stellfox 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. PDHs: 6.0

#### ***Gravel Road Maintenance (One-Day Course)***

This course instructed by Ed Stellfox addresses basic maintenance techniques for unpaved and gravel roads. Topics include road maintenance, blading or dragging, reshaping or regrading for proper crown, regravelling, stabilization or full-depth reclamation, and dust control, with an introduction to road management techniques. PDHs: 6.0

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### **Winter Maintenance (One-Day Course)**

This course covers all aspects of winter operations- planning and organizing, methods of snow and ice control, salt usage, and winter equipment maintenance. Instructed by Ed Stellfox this lesson will include usage of snow maps and formal snow plans. This course is intended for municipal officials, road commissioners, supervisors, superintendents, public works and maintenance personnel, equipment operators, and city or town managers. PDHs: 6.0

### **Road Scholar II**

#### **Asphalt Recycling (Half-Day Course)**

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, and cold mix recycling. The course instructed by Ed Stellfox 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, surface recycling, hot-mix recycling, cold-mix recycling, full depth reclamation, materials, equipment, operations, and examples of projects. PDHs: 4.0

#### **Road Surface Management (One-Day Course)**

The 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. PDHs: 6.0

#### **Traffic Signs (Half-Day Course)**

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. PDHs: 4.0

#### **Work Zone Traffic Control (WZTC) (Half-Day Course)**

This half-day course will discuss the importance of work zone traffic control (WZTC) covering topics such as safety and liability. Regulations and guidelines will also be discussed with topics ranging from traffic control plans, traffic control devices, installation, and flagging procedures. Plan exercise and inspection of work zones will also be covered. PDHs: 4.0

**Interested in starting your Road Scholar certificate?  
Sign up for one of our Road Scholar courses today!**

### **MD SHA Winter Operation Facts for the 2014-2015 Winter Season**

The Maryland State Highway Administration (SHA) maintains most interstate, U.S. and numbered state routes in Maryland's 23 counties. The Maryland Transportation Authority (MDTA) maintains Maryland's eight toll facilities such as the Bay Bridge, the Intercounty Connector and the Baltimore Harbor and Ft. McHenry tunnels. In addition MDTA maintains I-95 from Baltimore City to the Delaware line and I-395 in Baltimore City.

Budget for winter 2014/2015: \$51 million

Salt available for 2014/2015: 380,000 tons

Salt Barns/Domes in Maryland 94 structures

Lane Miles Maintained by SHA and MDTA 17,842 miles

(Length of roadway times the number of lanes, including ramps)

Pieces of Equipment Available to Fight Winter Storms: Up To 2,400

(Including SHA, MDTA and contract forces)

Number of People Available to Fight Winter Storms: Up To 2,700

(Including SHA, MDTA and contract forces)

#### **Almanac Data**

Average Number of Winter Snow Storms per Year Since 2000 (Does not include the numerous maintenance shop activations for frost, black ice, and post-storm blowing and drifting snow)

Eastern Shore 7

Southern Maryland 7

Baltimore/Washington DC Metro Area 8

Western Maryland 30

Date of Earliest Metro Area Winter Storm since 2000 10/29/2011

Date of Latest Metro Area Winter Storm since 2000 4/9/2000

#### **Winter Operations Expenditures and Salt Usage (5 year period)**

Fiscal Year	Expenditures	Salt Used
FY 2009	\$52,897,496	222,230 tons
FY 2010	\$124,841,364	368,854 tons
FY 2011	\$70,449,052	258,923 tons
FY 2012	\$37,666,746	85,150 tons
FY 2013	\$65,240,773	205,212 tons
FY 2014	\$149,681,835	551,443 tons

#### **Be Prepared! Check out these upcoming courses:**

**Basic Drainage** scheduled for March 10<sup>th</sup>

**Winter Maintenance** scheduled for October 22<sup>nd</sup>

See our currently scheduled courses on  
pages 5-7 for more information.

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### **Strategies for Winter Operations**

- Anti-Icing - proactive preventive winter maintenance strategy of applying materials prior to or at the onset of precipitation to prevent snow and ice from bonding to pavement. SHA is expanding its anti-icing operations in an attempt to lessen overall salt usage throughout Maryland. Salt Brine is used in advance of a storm that is forecasted to begin as snow. Salt brine is produced at 14 SHA maintenance facilities. It is also transported to SHA satellite facilities and stored in large tanks for rapid deployment. SHA will not pre-treat highways with salt brine if a storm is forecasted to start as rain as this will wash the salt brine solution off of the pavement.
- Deicing - traditional winter maintenance strategy of breaking the snow/ice/pavement bond after it has occurred. It requires more material to break the bond than to prevent it. Salt is the primary material used to treat pavement in snow or ice operations. In colder areas or for a thicker snow pack on the road, crews can pre-treat salt with magnesium chloride or "Liquid Mag" that is highly effective in colder temperatures.

### **Materials Available for 2014-2015 Winter Season**

- Salt is the principal winter material used by SHA. It is effective at pavement temperatures of 20° F and above.
- Salt brine is a solution that can be used as an anti-icer on highways prior to the onset of storms, or as a deicer on highways during a storm. SHA makes extensive use of this material. It has a freeze point of -6° F and costs approximately 20 cents per gallon to produce and transport. Salt brine will be produced and used at SHA's 14 brine making facilities. In addition, salt brine will be transported to other SHA maintenance facilities throughout the state for their use.
- Magnesium chloride (mag) is a liquid winter material used by SHA in deicing operations. The material has a freeze point of approximately -26° F. It is used in the colder regions of the state, primarily in the northern and western counties.
- Abrasives including sand and crushed stone are used to increase traction for motorists during storms. Abrasives have no snow melting capability. SHA uses a limited amount of this material, concentrating its efforts on melting and plowing snow and ice from the pavement.

### **Technology Available for 2014-2015 Winter Season**

In addition to its fleet of salt spreading/snow plowing dump trucks, SHA will deploy:

- 550 truck-mounted saddle tanks: This equipment is used to pre-wet salt with salt brine or liquidmagnesium as the salt is spread on highways. Pre-wetting salt helps it adhere to the pavement(reducing waste), go into brine solution quicker (making salt more effective) and work at lower temperatures. Nearly all of SHA's fleet of single axle dump trucks is equipped with this technology.
- 205 wing plows: A wing plow is an additional plow mounted on the right side of a plow truck or grader. The extra plow allows crews to clear more snow from the road and shoulder in one pass, increasing efficiency.
- 14 truck-mounted liquid applicator spray tanks: These units are used for anti-icing operations(spraying salt brine on roads and bridges prior to precipitation to prevent snow and ice from bonding to the pavement).
- 14 salt brine machines: SHA will add two additional salt brine machines this winter to bring the total to 14 brine makers and salt brine storage at 77 locations throughout Maryland.
- 2 tow plows: A tow plow is a separate plow that is towed behind an SHA salt/plow truck and will clear an extra highway travel lane. Tow plows will be used in conjunction with snow plow trains(several trucks driving in tandem). The introduction of the tow plow into SHA's fleet will help enhance highway snow clearing operations with fewer passes and less trucks on the highway.
- 4 Dual-Wing plows: SHA is employing four dual-wing plows in Allegany, Frederick, Garrett and Montgomery counties. The extra wing plow can clear a two-lane highway in one pass.
- 9 Quad Axle trucks: SHA is employing trucks with enhanced material carrying capacity in order to treat longer sections of road. The enhanced capacity will allow the plow trucks to apply anti-icing material to more lane miles thus allowing better clearing results.

### **Salt Reduction**

SHA maintenance personnel are very conscious of salt usage during winter storms. Equipment is carefully calibrated to control salt application rates to prevent over-salting and is uniform in distribution. Through careful pre-storm planning, SHA can minimize salting and still provide a safe and efficient road surface for our customers. Crews continue anti-icing operations (pre-treating roads with salt brine) in advance of storms. The brine prevents snow and ice from bonding or "packing" on the surface of the highway, which helps SHA to more efficiently remove snow. SHA is increasing its use of pre-wetted salt this winter. Pre-wetting salt with salt brine or magnesium chloride helps salt better adhere to the road surface. It helps prevent typical "bounce and scatter" of salt applications. Studies have shown that pre-wetting can lead to a reduction in salt usage.

### **Contacting SHA**

Citizens can also log onto [www.roads.maryland.gov](http://www.roads.maryland.gov) and click "Contact us." There is an online submission form to report any issues pertaining to SHA-maintained highways for non-emergencies. Free local traveler information can be obtained by calling 5-1-1. Go to [md511.org](http://md511.org).

***This Snow Fact sheet was reprinted from Maryland State Highway Administration,  
for more information visit: [www.roads.maryland.gov](http://www.roads.maryland.gov)***



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 by visiting us at [www.mdt2center.umd.edu](http://www.mdt2center.umd.edu).

## FLAGGER CERTIFICATION

*Juan M. Morales, P.E.*

**February 3, 2015, 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.

## BASIC DRAINAGE

*Ed Stellfox*

**March 10, 2015, 8:30am – 3:30pm**

College Park, Maryland

\$89 for all participants

PDHs: 6.0

This course emphasizes the importance of good drainage with discussions of water and its effects on roads, problems caused by improper drainage, and ways to handle these problems. It covers types of drainage facilities, ranging from ditches, culverts, subdrains, inlets and end structures. Their uses, materials, installation and maintenance as well as erosion control are addressed. It also introduces geosynthetic drainage applications. The following topics will be covered: importance of drainage, characteristics of water, system maintenance, drainage principles, surface and subsurface drainage, ditches, driveways, drainage culverts – materials and placement, headwalls, endwalls and inlets, erosion control, and geosynthetics in drainage.

## ASPHALT ROADS COMMON MAINTENANCE PROBLEMS

*Ed Stellfox*

**April 7, 2015, 8:30am – 12:30pm**

College Park, Maryland

\$59 for all participants

PDHs: 4.0

Municipal employees with road maintenance responsibilities should understand the causes of common maintenance problems on asphalt roads and be familiar with proper repair materials and methods. This course instructed by Ed Stellfox discusses causes and repair procedures for common problems such as cracking, potholes, rutting, corrugations, etc. The procedures cover materials, equipment, and techniques for lasting repairs. Also included, a brief discussion of surface treatment.

## ASPHALT RESURFACING

*Ed Stellfox*

**April 9, 2015, 8:30am – 12:30pm**

College Park, Maryland

\$59 for all participants

PDHs: 4.0

This course reviews the various asphalt mixes, their components and their uses. Asphalt resurfacing procedures are covered, including preparation, material, equipment, operation and safety. Special emphasis is placed on proper rolling and compaction of the asphalt overlay. Superpave mix design is discussed as well. Municipal officials, road commissioners, supervisors, and superintendents; public works and maintenance personnel; equipment operators; and city or town managers are encouraged to attend.

## WORK ZONE DESIGN

*Juan M. Morales, P.E.*

**April 14-15, 2015, 8:15am – 4:00pm**

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 include:

- Introduction to TTTC
- 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
- Removal
- Traffic Control Plan Strategies
- MD SHA Standards, Guidelines and Practices
- Legal Aspects of TTC
- 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.

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## **PREVENTIVE PAVEMENT MAINTENANCE**

*Ed Stellfox*

**April 21, 2015, 8:30am – 3:00pm**

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 instructed by Ed Stellfox 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.

## **ROAD SURFACE MANAGEMENT**

*Ed Stellfox*

**April 23, 2015, 8:30am – 3:00pm**

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.

## **INTERSECTION SIGNAL & DESIGN ANALYSIS**

*Dane Ismart*

**July 8-9, 2015, 8:30am – 4:00pm**

College Park, Maryland

\$199 for Maryland local government participants

\$215 for all other participants

PDHs: 12.0

This course will have broad general coverage of at-grade intersection analysis and design features. The analysis will include signalized, unsignalized and roundabout intersections. Specific coverage will include capacity, analysis, signal warrants, queue analysis and safety selected design features. Software packages such as HCS and SIDRA will be demonstrated. This course is targeted for municipal engineers; public works directors; state, federal, and private engineers; planners, designers, and traffic engineers that may be involved in the selection and design of intersections.

## **TRAFFIC CALMING**

*Dane Ismart*

**August 12, 2015, 8:30am – 4:00pm**

College Park, Maryland

\$110 for Maryland local government participants

\$125 for all other participants

PDHs: 6.0

The Maryland Transportation Technology (T2) Center is offering this one-day training seminar on the principles and practices of Traffic Calming. 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.

## **BRIDGE MAINTENANCE INSPECTION**

*John Hopkins*

**September 14, 2015, 8:30am – 3:30pm**

College Park, Maryland

\$110 for Maryland local government participants

\$125 for all other participants

PDHs: 6.0

This one day course will cover inspection of bridge maintenance. A brief summary of the topics to be covered are as follows: approach, deck maintenance, deck joints, deck drains, bearing maintenance, concrete beams, steel beams, timber beams, bridge seats and caps, piles and bents, truss maintenance, painting, and winter maintenance. The class is for the actual field maintenance worker who has to do the repairs. It is mostly concerned with what to look for from a maintenance standpoint not a structural rating perspective.

## **CONSTRUCTION INSPECTION FOR LOCAL AGENCY EMPLOYEES**

*John Hopkins*

**September 15, 2015, 8:30am – 3:30pm**

College Park, Maryland

\$110 for Maryland local government participants

\$125 for all other participants

PDHs: 6.0

This one day session will cover some of the major duties and responsibilities of an individual responsible for the quality of a project. It will address the importance of understanding the plans, the contract, the order of operations, the materials to be used and the various quality control tests used in project inspection. This course is presented in a straight forward manner and deals with the reality of everyday factors involving contractors and agencies. Qualified field inspection personnel with one to three years of field experience are encouraged to attend; participants must possess basic math skills in geometry and algebra. \*Participants should bring a calculator, scale and straight edge; notebooks will be provided.

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## CONSTRUCTION INSPECTION INTERMEDIATE LEVEL

*John Hopkins*

**September 16-17, 2015, 8:30am – 3:30pm**

College Park, Maryland

\$200 for Maryland local government participants

\$225 for all other participants

PDHs: 12.0

An intermediate class focuses on the construction, inspection, measurement and testing of materials associated with road way construction. Includes real-life scenarios and problems faced on the job, and covers general practices and MD standards. Qualified field inspection personnel with one to three years of field experience are encouraged to attend; participants must possess basic math skills in geometry and algebra. A test will be administered to acquire class credit. Participants should bring a calculator, scale and straight edge; notebooks will be provided.

## WINTER MAINTENANCE

*Ed Stellfox*

**October 22, 2015, 8:30am – 3:00pm**

College Park, MD

\$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.

## TRAFFIC ENGINEERING FUNDAMENTALS

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

**October 26-29, 2015, 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
- 9:45AM Break
- 10:00AM Site Impact Analysis
- 12:00PM Lunch
- 1:15PM Safety Principles and Crash Principles
- 2:30PM Break
- 2:45PM Principles of Access Management
- 4:15PM Adjourn

### **Agenda Day Two:**

- 8:30AM Intersection Analysis and Geometrics
- 10:00AM Break
- 10:15AM Signal Timing
- 12:00PM Lunch

- 1:15PM Arterial and Freeway Analysis
- 2:45PM Break
- 3:00PM MUTCD
- 4:15PM Adjourn

### **Agenda Day Three:**

- 8:30AM Roundabout Basics
- 9:30AM Break
- 9:45AM ITS Overview
- 10:45AM Break
- 11:00AM Traffic Calming
- 12:15PM Lunch
- 1:30PM Work Zones
- 2:45PM Break
- 3:00PM ADA Accessibility
- 4:15PM Adjourn

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.

## HIGHWAY CAPACITY INTERRUPTED FLOW

*Dane Ismart*

**November 17, 2015, 8:30am - 4:00pm**

College Park, Maryland

\$110 for Maryland local government participants

\$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
- 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*

**November 18, 2015, 8:30am - 4:00pm**

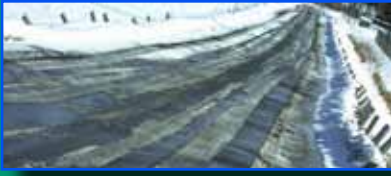
College Park, Maryland

\$110 for Maryland local government participants

\$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, multilane 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.



## MD T<sup>2</sup> Center Staff

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