Have You Built a Better Mousetrap?

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 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 Tuesday, April 1, 2014. Entries will be judged by our board of directors; which is composed of representatives from local, state and federal departments and/or agencies on cost savings/benefits to the community, ingenuity, transferability to others, and effectiveness.

The winning entry will be submitted into a national 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 (also available to download on our website) and return it by Tuesday, April 1, 2014.

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

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2013 Build a Better Mousetrap: Pennsylvania Competition Winners

1st Place Pennsylvania Winner and 3rd Place National Winner
Nazareth Borough/Northampton County
Winning Entry: Brine Making Totes

Description: Nazareth Borough wanted to apply brine to their streets. The Nazareth Public Works Superintendent, Robert Reimer, contacted Allen Township, who had been doing this for a couple of years. Allen Township purchased the spray set up along with a brine maker. Robert, along with his highway crew, had to come up with a way to make the brine and apply it at minimal cost to the Borough. They came up with an idea to use palletized tote to make, apply and store the brine. The highway crew took about a day to cut the tote, drill the holes and install the pipe and valves along with the wooden hopper. In total, the cost was approximately $540. Savings are abundant as a manufactured system can cost up to $20,000. Savings for salt increase with each weather event: the first salting would take about 12-16 tons of salt for our streets. With brine it takes about one ton of salt.
Other entries from PA included: 2nd and 3rd Place Entries, respectively

Elk Township/Clarion County for their entry Anti-Skid Remover for Under Guiderail. During winter maintenance months, anti-skid material collects under guiderail and storm water runoff does not remove it from the roadway. In order to alleviate this problem, the crew fabricated an apparatus which mounts to the mold board of a grader to push and remove material from under guiderail. The total cost of materials was approximately $50, plus six hours of labor. This mechanism allows the township to complete cleanup at 1/5th of the cost to complete it manually.

Borough of Mount Joy/Lancaster County for their entry Offset Snow Plow. The Borough has an Amtrak Bridge with a 4 ft. sidewalk that needs to be shoveled when it snows. Due to the length (+/- 400 ft.), it often takes at least 3 men to shovel. There is no way to use a snow blower or any other machinery without closing the bridge due to the width of the bridge. Through team brainstorming and ingenuity, the roadmaster designed a plow that could pivot off the 3-point hitch of a tractor, keeping the snow to the right side. This tool cost less than $450 to complete and saves countless labor hours.

**Judging Criteria**

The competition is judged on the criteria listed below within the framework of a five-point rating scale. Provided is an example matrix that lists each of the judging criteria and assigns each entry a rating of one through five. The winner is the entry that has the highest number of overall points. Entries will be judged by the MD T2 Center’s board of directors.

<table>
<thead>
<tr>
<th>Judging Criteria</th>
<th>Cost</th>
<th>Savings/Benefit to the Community</th>
<th>Ingenuity</th>
<th>Transferability to Others</th>
<th>Effectiveness</th>
<th>Overall Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cost</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>17</td>
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<tr>
<td>• Savings/Benefit to the Community</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>20</td>
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<tr>
<td>• Ingenuity</td>
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<td>3</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
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<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>23</td>
</tr>
</tbody>
</table>

Judging Criteria Five-Point Rating Scale

• Cost
  • 5 = Excellent
• Savings/Benefit to the Community
  • 4 = Very Good
• Ingenuity
  • 3 = Good
• Transferability to Others
  • 2 = Fair
• Effectiveness
  • 1 = Poor
The Maryland Transportation Technology Transfer (MD T2/LTAP) Center is part of Region 3 of the national organization of Centers and Carly Keane and Janette Prince traveled to Morgantown, WV in October for a 1½ day meeting of regional Centers. Also present were some 20 representatives from Delaware, Pennsylvania, Virginia and West Virginia.

While we share ideas and tools on a monthly basis via conference call, we attempt to gather face-to-face once a year to really compare notes and explore ways to serve our local transportation agencies better. This year’s meeting was a great success and the West Virginia Center deserves kudos for organizing a low cost, high quality event. We heard the latest input from our Federal Highway Administration partners, we talked about a host of technology applications, we compared notes on training and instructors, we talked about the merits of the Roads Scholar program, we recapped the recent Safety Peer Exchange, and more.

It wasn’t all work! We also got a to ride the Personal Rapid Transit (PRT) and got a great walking tour of downtown Morgantown! See the article below about WVU’s PRT.

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

In brief, the PRT came on line in 1975 and was envisioned by the Nixon Administration as a game changer for mass transit. You can debate the reasons, but by the time both phases were done in 1979, it had cost $130M, which was quite a bit more than planned.

However, it still runs nearly 40 years later and handles 15,000 riders per day with a 98%+ up time (although the students apparently try to use it as a convenient excuse come exam time). Each of the 73 vehicles is rated for 20 passengers and the five stations connect the three WVU campuses and downtown Morgantown.

We rode the system down to the maintenance facility and literally had a look under the hood of these cute little buses as well as the operations center. Operating like a small traffic management center, they have all the eyes on the system you might imagine and then some. During our visit, we saw the system go down due to a system trip and watched as they cleared the error and brought the system back on line; we were amazed to see the backed up stations clear of students within just a few minutes. If you go to Morgantown and you don’t ride the PRT, you just don’t know how to have fun.

Reprinted from the Winter issue of Info-Change, a publication of the Delaware T2/LTAP Center.
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.

**BASIC DRAINAGE**  
*Ed Stellfox*  
**January 23, 2014, 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.

**LOW COST SAFETY IMPROVEMENTS**  
*Mark Hood, P.E.*  
**February 6, 2014, 8:30am - 3:30pm**  
College Park, Maryland  
$100 for Maryland local government participants  
$125 for all other registrants  
PDHs: 6.0

This course provides participants with methods for implementing effective, low cost safety improvements targeted at high crash areas. It emphasizes the basic and enhanced application of traffic control devices, low cost safety improvements, and their specific safety benefit (crash reduction factors). Traffic crash data collection, identification of hazardous locations, and engineering study procedures are also discussed. Emphasis is placed on low cost solutions that may be made at the local level.

**FLAGGER CERTIFICATION**  
*Juan M. Morales*  
**March 4, 2014, 8:30am – 12:30pm**  
College Park, Maryland  
$100 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.

**INTRODUCTION TO TEMPORARY TRAFFIC CONTROL**  
*Juan M. Morales*  
**March 5, 2014, 8:30am - 3:00pm**  
College Park, Maryland  
$100 for Maryland local government participants  
$125 for all other registrants  
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  
- 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.

**ASPHALT ROADS - COMMON MAINTENANCE PROBLEMS**  
*Ed Stellfox*  
**March 11, 2014, 8:30am – 12:30pm**  
College Park, MD  
$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 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.

*Continued on page 5*
ASPHALT RESURFACING
Ed Stellfox
March 13, 2014, 8:30am – 12:30pm
College Park, MD
$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
March 25-26, 2014, 8:30am – 3:00pm
College Park, MD
$199 for Maryland local government participants
$235 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
  - 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.

ASPHALT RECYCLING
Ed Stellfox
April 1, 2014, 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.

BASIC DRAINAGE
Ed Stellfox
April 3, 2014, 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.
Our Currently Scheduled Courses
(continued from page 5)

ADA COMPLIANCE AND TECHNICAL WRITING
Juan M. Morales
April 8-9, 2014,
Day 1 8:30am – 3:00pm, Day 2 8:30am – 12:30pm
College Park, MD
$150 for Maryland local government participants
$185 for all other participants
PDHs: 10.0

This course will highlight the necessary elements required to ensure that transportation agencies are in compliance with the American with Disabilities Act, and provide technical guidance as developed by the State Highway Administration in conjunction with the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Elements to be covered include, developing a transition plan, performing self-evaluation, creating asset management tools to track compliance, programmatic compliance, and design & construction technical requirements. This course is aimed at local transportation agencies (design division heads, design engineers, construction division heads, and construction engineers).

TRAFFIC SIGNS
Ed Stellfox
April 22, 2014, 8:30am – 12:30pm
College Park, MD
$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.

ROAD SURFACE MANAGEMENT
Ed Stellfox
April 24, 2014, 8:30am – 3:00pm
College Park, MD
$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.

SITE IMPACT ANALYSIS
Dane Ismart
April 30 – May 1, 2014, 8:30am – 4:30pm
College Park, MD
$199 for Maryland local government participants
$225 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 will be conducted with manual procedures, but computer software packages suitable for site impact will also be demonstrated. Participants 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.

DESIGNING SAFER ROADS FOR VULNERABLE ROAD USERS
Juan M. Morales
November 5-6, 2013, 8:30am - 3:30pm
College Park, Maryland
$220 for Maryland local government
$250 for all other registrants
PDHs: 6.0

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, motorists, 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.

HIGHWAY CAPACITY INTERRUPTED FLOW
Dane Ismart
May 20, 2014, 8:30am – 4:30pm
College Park, MD
$105 for Maryland local government participants
$120 for all other participants
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 Arterials. 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  
May 21, 2014, 8:15am - 4:00pm  
College Park, Maryland  
$105 for Maryland local government participants  
$120 for all other registrants  
PDHs: 6.0  
CEUs: 0.6

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.

SIGNAL WARRANTS AND INTERSECTION CONTROL ANALYSIS  
Dane Ismart  
June 3, 2014, 8:30am – 4:30pm  
College Park, MD  
$110 for all participants  
PDHs: 6.0

This one-day course will cover the eight MUTCD signal warrants: Warrant 1: eight-hour vehicle volume, Warrant 2: four-hour vehicle volume, Warrant 3: peak hour, Warrant 4: pedestrian volume, Warrant 5: school crossing, Warrant 6: coordinated signal system, Warrant 7: crash experience, and Warrant 8: roadway network. The course will also cover warrants for four-way stops as well as alternatives to traffic control signals. A detailed discussion of the advantages and disadvantages both in the terms of capacity and safety of various types of traffic controls will be presented. The basis for both the installation and the removal of traffic control devices will be covered. As part of the course, workshop problems will be given to the class participants. The class will be provided intersection field data and will determine if signals are warranted for the sample intersections. After completing the workshops, MUTCD signal warrant analysis software will be demonstrated and the workshop problems will be evaluated based on microcomputer analysis. This course is designed for traffic engineers and transportation planners involved in the design and planning of corridors and intersections.

ROUNDABOUT PLANNING AND DESIGN  
Dane Ismart  
June 4, 2014, 8:30am – 4:30pm  
College Park, MD  
$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 Rodel. 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.
FLAGGER CERTIFICATION
Juan M. Morales
August 5, 2014, 8:30am – 12:30pm
College Park, Maryland
$100 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.

THE NEW MD MUTCD ONE DAY SEMINAR
Dane Ismart
August 26, 2014, 8:15am – 4:30pm
College Park, MD
$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. 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. Who should attend: State and Local Transportation Engineers, Traffic Engineers, Planners, Elected Officials, and Traffic Engineering Consultants responsible for the placement and maintenance of uniform traffic control devices in Maryland. Sponsors: This workshop is presented by the Maryland T2 Center and is sponsored by MD SHA and the FHWA.

Season’s Greetings
Best wishes in the New Year;
Thank you for a wonderful 2013.
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Need training but budget cuts won’t allow travel?
Request a class and we’ll bring it to you!

We understand your training needs and the tremendous budget cuts everyone is dealing with in this economy. By logging on to www.mdt2center.umd.edu and requesting a course that 10 or more of your employees need, we’ll bring our course to you. We’ll need a room where your employees can learn and either a white board or bare wall for our projector and a pot of coffee for our instructor.

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.