technotes

Fall 2015 | Volume 32, No. 3

MARYLAND TRANSPORTATION TECHNOLOGY TRANSFER CENTER

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

mdt2center.umd.edu

INSIDE:

Cut Crashes by Targeting Safety Improvements

Data-driven safety analysis helps agencies make investment decisions

How many crashes on a roadway are too many? Methods available today can help transportation professionals answer a question that has plagued them for years. Advances in highway safety analysis can provide transportation agencies with the reliable information they need to make smart investments in safety improvements.

Through the Every Day Counts initiative, the Federal Highway Administration is encouraging broader use of two approaches to data-driven safety analysis— predictive and systemic—to better target highway safety investments and reduce crashes and fatalities.

"Resources are scarce these days for all agencies, so we have to use the money we have wisely to help us make the best decisions for safety, for mobility and for our communities," said Hillary Isebrands, FHWA safety engineer.

Planning ahead with predictive approaches

Predictive approaches combine crash, roadway inventory and traffic volume data to provide more reliable estimates of an existing or proposed roadway's expected safety performance, such as crash frequency and severity. Results of the analysis can be used in roadway safety management and project development decisions and safety countermeasure selection and evaluation.

"Predictive analysis can help quantify safety impacts similar to the ways agencies do with construction costs, traffic operations and environmental impacts," said Jerry Roche of the FHWA Office of Safety and a leader, along with John McFadden of the FHWA Resource Center, of the EDC Data-Driven Safety Analysis Innovation Deployment Team.

Among the state highway agencies using predictive safety analysis is the Ohio Department of Transportation, which applied the technique to estimate the expected performance of three alternatives for reconstructing the I-270 and U.S. 33 interchange in Dublin.

The analysis provided quantitative data that helped the agency choose a preferred alternative during the project's engineering and design stage that addressed both traffic congestion and safety. Construction of the new interchange began in spring 2015.

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New Course Announcement: Crash and Safety Data Analysis

This one-day course will cover the following:

- Crash Data and Computation of Crash Frequency
- Speed Analysis and Traffic Calming
- Pedestrian Safety
- Marking and Signing Considerations
- Presentation
- Condition Diagramming and Collision Types
- Sight Distance Analysis
- School Crossing Considerations
- Safety Design Issues and Mitigation

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.

For more information about this course, see page 6.

Cut Crashes by Targeting Safety Improvements,
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Taking a broad view with systemic approaches

Systemic approaches screen a road network for highrisk features associated with severe crashes, such as certain types of horizontal curves, and identify lowcost safety treatments, such as enhanced delineation with wider edgelines or chevrons. These techniques are particularly applicable when a significant number of crashes occur over a wide area, such as on rural and local roads, and for specific crash types, such as those involving vulnerable road users.

Credit: Missouri Department of Transportation

Using a systemic approach, the Missouri DOT added edgeline stripes to improve safety on rural roads such as Route M in Boone County.

"Instead of implementing high-cost improvements at a small number of locations, agencies can use a risk-based approach to deploy low-cost improvements across the identified portion of the system, which is much more effective in reducing fatalities," said Roche.

Historically, the Missouri Department of Transportation painted centerline and edgeline stripes on routes that carry an average of 1,000 or more vehicles a day, while routes with average daily traffic of less than 1,000 received just a centerline stripe.

When a systemic safety analysis found a large number of severe crashes on roads carrying 400 to 1,000 vehicles a day, the Missouri DOT took a proactive approach and painted edgelines on all 7,500 miles that fell in this ADT range. So far, crashes have dropped 15 percent.

For information and technical assistance on data-driven safety analysis, contact Jerry Roche and John McFadden.

Looking for more information on low cost safety improvements? We have the course for you!

Low Cost Safety Improvements is scheduled for October 15th.

For more information about this course, see page 5.

Check out the following safety analysis tools:

Predictive approach tools

- FHWA's Interactive Highway Safety Design Model is a suite of software analysis tools to evaluate the safety and operational effects of geometric design decisions on highways.
- AASHTOWare Safety Analyst software can be used to proactively determine which sites have the highest potential for safety improvement.
- The Crash Modification Factors Clearinghouse, a web-based database of factors used to compute crash numbers after a safety countermeasure is implemented, can be used to identify appropriate countermeasures for a site.

Systemic approach tools

- FHWA's Systemic Safety Project Selection Tool provides a step-by-step process for conducting systemic safety analysis and a mechanism for quantifying the benefits of systemic safety improvements.
- The U.S. Road Assessment Program's usRAP Tools software is a safety planning tool that enables agencies to generate a program of improvements for a road network, prioritized on a benefit-cost basis, without the need for site-specific crash data.

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Governor Larry Hogan Names Gregory C. Johnson State Highway Administrator

Governor Larry Hogan today announced that Gregory C. Johnson, a 32-year highway veteran, has been appointed administrator of the Maryland Department of Transportation's (MDOT) State Highway Administration (SHA). Johnson comes to SHA from the Michigan Department of Transportation where he serves multiple roles as chief operations officer, chief engineer and deputy director.

"Mr. Johnson has spent his professional life in highway project delivery and I am confident he is exactly the right person to provide smart and business friendly transportation solutions throughout Maryland," said Governor Hogan. "We now have two national transportation experts in Secretary Rahn and Administrator Johnson, and their experience will help our state successfully complete the $1.97 billion in road and bridge projects just announced and more than $8 billion in highway projects during the next six years."

Johnson served as second in command of the Michigan Department of Transportation for six years, where he implemented innovations in project development and delivery, including: alternate project delivery, accelerated bridge construction, wider use of carbon fiber to lengthen the life of bridges, and e-construction. In addition to his leadership in using innovation to deliver complex projects efficiently with cost savings, Johnson has focused on safety, excellent customer service, enhanced partnering, and active traffic management.

As part of his focus on partnering, Johnson has been a staunch advocate for Disadvantaged Business Enterprises (DBE) throughout his career, speaking about DBEs at local and national forums. He also established a youth mentoring development program to employ urban youth and expose them to transportation-related careers.

Johnson serves on many national boards and committees, including: Conference of Minority Transportation Officials National Executive Board, American Association of State Highway and Transportation Officials Standing Committees on Highways and Research, American Society of Civil Engineers, Ferris State University Construction Industry Advisory Board, and National Operations Center of Excellence Executive Board. Johnson has a Bachelors of Science in civil engineering from the University of Michigan and a Masters of Public Administration from Western Michigan University. Johnson plans to live in Baltimore City, where SHA is headquartered. His first day on the job was September 16.

This article was reprinted from the Maryland State Highway Administration,
for more information about Mr. Johnson, visit: www. MarylandRoads.com

Cut Crashes by Targeting Safety Improvements,
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View Data-Driven Safety Analysis Presentation

This article was reprinted from the Center for Accelerating Innovation's Innovator (Sept/Oct 2015 issue), a publication of the Federal Highway Administration and United States Department of Transportation.

Resources for Data-Driven Safety Analysis

Register for the Selecting the Right Systemic Safety Treatments webcast from 1 to 3 p.m. ET on September 29.

Mark your calendar for the Advancing Systemic Safety Implementation Efforts webcast from 1 to 3p.m. ET on November 17.

View past webcasts in FHWA's systemic safety webinar series.

Watch the EDC Data-Driven Safety Analysis presentation for a discussion of safety analysis approaches and case studies.

See the EDC Exchange: Data-Driven Safety Analysis webcast for details on how agencies are integrating safety performance into highway investment decisions.

Governor Larry Hogan Announces $25 Million for Local Road Investments

Counties and Municipalities Urged to Apply for Grants by September 30

In an effort to support counties and municipalities with road improvements, local governments will be receiving applications in the mail soon that need to be submitted by September 30. These applications also can be downloaded online at this link.

Historically, 30 percent of all Highway User Revenues went to counties and municipalities to support their local transportation funding, but during the 2010 legislative session, the amount going to local jurisdictions was cut from 30 percent down to 9.6 percent.

"This administration remains committed to restoring funding levels for local road improvements and this $25 million investment is a step in the right direction," Governor Hogan said. "Everyone in the state relies on Maryland's roads, and this funding will help local governments deliver the quality infrastructure our citizens need and deserve."

This $25 million will be added to the estimated $171.9 million in Highway User Revenues the local jurisdictions were set to receive in fiscal year 2016. These new funds are in addition to the governor's $2 billion investment in road and bridge projects announced in June. The Hogan administration added this funding in a supplemental budget during the 2015 legislative session.

To be eligible to participate in the transportation grant program, all county and municipal governments and Baltimore City must submit an application by the September 30 deadline and agree to use their grant solely for repairs and investments in local roads. The funding from the Transportation Trust Fund will be split among the 24 jurisdictions based on the number of roadway miles maintained by each local government. If all jurisdictions apply, the grants will provide $2 million to Baltimore City, $4 million to counties, and $19 million to municipalities. The state funds will be distributed in October.

This article was reprinted from the Maryland State Highway Administration,
for more information about these funds, visit: Local Road Investments

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 by visiting us at www.mdt2center.umd.edu.

THE NEW MD MUTCD

Dane Ismart
October 1, 2015, 8:30am-4pm
College Park, Maryland
$110 for Maryland local government participants
$125 for all other registrants
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. 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 The Maryland State Highway administration (SHA) and the Federal Highway Administration (FHWA).

CONSTRUCTION MATH

Ed Stellfox
October 8, 2015, 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, superintendants, 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.

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LOW COST SAFETY IMPROVEMENTS

Mark Hood

October 15, 2015, 8:30am-3:30pm

College Park, Maryland
$110 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.

DESIGNING PEDESTRIAN FACILITIES FOR ACCESSIBILITY

Juan M. Morales, P.E.

October 20-21, 2015, 8:30am-4pm

College Park, Maryland
$135 for Maryland local government participants
$150 for all other participants
PDHs: 10.0

Upon completion of this course the participant will be able to:

- Identify applicable laws, regualtions, 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 neccessary for achieving accessibility in the PROW, including work zones.
- Identify best practices.

WINTER MAINTENANCE

Ed Stellfox

October 22, 2015, 8:30am – 3pm

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 in intended for municipal officials, road commissioners, supervisors, superintendents, publics 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 Pedestrian Safety
- 2:45PM Break
- 3:00PM ADA Accessibility
- 4:15PM Adjourn

Agenda Day Four:

- 8:30AM Temporary Traffic Control Standards and Guidelines
- 9:30AM Break
- 9:45AM Component Part of a TTC Zone
- 10:45AM Break
- 11:00AM Traffic Control Devices
- 12:15PM Lunch
- 1:30PM Traffic Control Devices, continued
- 2:45PM Break
- 3:00PM Work Zone Impact Analysis
- 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.

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HIGHWAY CAPACITY INTERRUPTED FLOW

Dane Ismart

November 3, 2015, 8:30am - 4pm

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 4, 2015, 8:30am - 4pm

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.

CRASH AND SAFETY DATA ANALYSIS

Dane Ismart

November 5, 2015, 8:30am - 4:00pm

College Park, Maryland
$110 for Maryland local government participants
$125 for all other participants
PDHs: 6.0

This one-day course will cover the following:

- Crash Data and Computation of Crash Frequency - Using several years data, establish crash rates to compare with similar locations, while explaining hazard indices, conflict analysis, and warrant analysis.
- Condition Diagramming and Collision Types - Review the process and the elements contained in a condition diagram and use police reports to identify the type, times, conditions or crashes on a collision diagram.
- Speed Analysis and Traffic Calming - Methods for conducting speed studies, including data collections, sample size, computation of mean, 85th percentile and pace speeds, and controlling speed with traffic calming techniques.
- Sight Distance Analysis - Methods for determining minimum stop and sight distances will be covered, to check whether sight distances for exercise area are adequate, or should be made improved to be adequate.
- Pedestrian Safety - Design features such as signing, marking, timing for intersection crossings, crosswalk widths, minimum sidewalk standards including radius, ramps, and specialized HAWK pedestrian crossing.
- School Crossing Considerations - Review school crossing mitigation measures including school guard criteria, school signs and markings, speed zones, gap analysis, and school crossing signalization.
- Marking and Signing Considerations - Review marking designs and requirements, including sign design and location requirements as well as both longitudinal and traverse markings specifications according to the MUTCD.
- Safety Design Issues and Mitigation - Introduce the concept of Improving safety through improved access design and applying them to identify mitigation measures for improving real and potential safety problems.
- Presentation - Following provided guidelines, each team will present their findings as part of a television interview.

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.

FLAGGER CERTIFICATION

Juan M. Morales, P.E.

November 12, 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.

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BASIC DRAINAGE

Ed Stellfox
November 17, 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.

INTERSECTION SIGNAL & DESIGN ANALYSIS

Dane Ismart
December 1-2, 2015, 8:30am – 4pm
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.

ROAD SAFETY 365 WORKSHOP FOR LOCAL AGENCIES

Juan M.Morales, P.E.
December 8, 2015, 8:30am - 4:00pm
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.

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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.

MD T² Advisory Board Committee