technotes

Winter 2008 I Volume 25, No. 3

MARYLAND TRANSPORTATION TECHNOLOGY TRANSFER CENTER

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

www.mdt2center.umd.edu

INSIDE:

Selecting The Proper Snowplow

The wintry weather will be here before we know it and now is the perfect time to start planning winter road maintenance. Like all equipment, snowplows should be selected based on the tasks they will be performing. In addition, a buyer must consider the cost (both initial and long term) of owning a snowplow. Plows are generally sold in a package, including the mold board, mount, lights, wiring, cab controls, hydraulics, and guide flags. Before making a decision, consider the following information.

Truck

The truck you use will limit the size of the plow that can be attached. Though some trucks come equipped with a "snowplow prep package," they may not have the front axle rating to hold the desired plow. Ensure a truck can support the desired plow by checking with a plow dealer or the plow's manufacturer. Overloading the front end of a truck with an oversized plow may lead to stress on the front end suspension and reduce braking ability.

Plow Type

Front end plows generally come in two varieties: traditional straight edge and the "V." The "V" plow can achieve three positions, the "V," the scoop (reverse "V"), and the traditional straight edge. Obviously, V-plows are more versatile and potentially more efficient than the traditional straight edge plows, but they require an experienced snow plow operator.

Mold Board Material

Mold boards are typically made of two materials, steel or polyethylene (commonly termed "poly"). Steel plow packages tend to weigh less, by about 50-100 pounds because the mounting system is lighter than poly mounting systems. While poly is a stronger material than steel, steel has an advantage because it can be welded and repaired more readily. Poly plows, however, allow snow to roll off the blade better than steel, thus creating more efficient plowing. In general, a poly plow will cost $150-$200 more than a steel plow of the same size.

Another option becoming more popular, is stainless steel. Stainless steel plow packages usually cost less than traditional steel or poly, but they do not have as many options as traditional plows and generally come equipped with only a basic mount.

Smaller municipalities may find this type of snowplow effective.

Accessories

Snowplow packages are available with a number of options, including the mount, hydraulics, the control mechanism, snow deflectors, back dragging edges, plow wings, and guide flags. Many of the basic components are included in the plow packages, but customizing your plow setup or replacing any part of it may cost extra.

Lastly, it is important to consider the manufacturer or dealer you are buying the plow from. Since repairs are inevitable, warranties, service, and part inventories should considered before making a purchase. When your plow needs a repair in the middle of a snow storm, can you rely on the dealer to have the parts and services needed to quickly get your truck back on the road?

These are all important factors and can really help you make the best decisions when purchasing equipment. Consider them carefully to have a successful and efficient snowplowing season.

Reprinted with permission from the Fall 2008 issue of Country Roads & City Streets, a publication of the West Virginia University Local Technical Assistance Program (WV LTAP).

Add Communication Plan to Pre-Winter Checklist

Local officials are busy right now reviewing pre-winter checklists, making sure orders are in for deicers and abrasives, plows are ready, spreaders calibrated and crews trained. Highway commissioners and public works directors should add one more thing to the list: Develop and implement an effective plan for communicating with the public.

It is easier to explain a winter maintenance operation to the public before the cold winds blow. Having to present the rationale behind an operation while fighting a storm, and fielding a blizzard of questions and complaints from frustrated members of the public, only makes a hard job harder. A well thought-out communication plan anticipates what the public needs to know and creates a consistent process for getting the word out in a timely way. This proactive approach also intercepts potential problems and improves public relations for the department.

Compile Frequently Asked Questions

Start by listing topics and issues residents frequently raise during the winter season. A short list should cover 80 percent or more of the usual queries and concerns. Some examples are:

- When will my street be plowed?
- Why did you pile snow at the end of my driveway? Will you come out to remove it?
- Where can I park during a snowstorm?
- Do I have to shovel/salt/ sand my sidewalks? Or... my neighbor hasn't shoveled/salted/sanded his sidewalk!
- What will you do about my damaged mailbox?

Order Deicers and Abrasives,

Conduct Crew Training,

Maintain Plows,

Review Snow-and-Ice Policy,

Develop and Implement a Plan to Communicate with the Public

Records from past seasons and input from staff members who field calls can help with compiling a good list. The next step is to think about the information, policies and resources available to provide answers.

Update Policies, Develop Message

Prepare to communicate winter maintenance plans to the public. Provide general information and specific answers to the recurring questions. In the process, identify any policies that are out-of-date or ambiguous.

Begin with the list of typical questions and develop information that explains winter-storm priorities and service levels for different types of streets. Describe the time it takes once a storm ends to restore each street type to normal winter driving conditions. Define the normal conditions service level for each type.

Outline the agency's snow removal policy. Does it call for providing bare pavement curb-to-curb, bare pavement in wheel paths or plowed curb-to-curb with packed snow that is sanded? Let people know what road conditions to expect during and after a storm.

Avoid shorthand and acronyms in public information materials and policy descriptions. Using unfamiliar terminology like Average Daily Traffic (ADT), arterial and collector can confuse. Instead, refer to streets as major, neighborhood, residential, two-lane, four-lane or in other recognizable terms.

Write or speak about the levels of service and time-till-completion after a storm as "goals." Explain that long-lasting storms, multiple storms close together and extreme cold can increase the time it takes to restore roads to normal winter driving conditions.

For issues like parking and sidewalk shoveling, translate relevant ordinances into simple language and make clear why they exist. Give people reasons behind the rules—so that snow removal crews can do their jobs efficiently and effectively, and get safe streets open sooner—to help them appreciate how important it is to comply. Direct people to a source where they can read the complete ordinance if interested.

Use Multiple Outlets

A sound communication plan uses a variety of media and methods to get the message out. Combining multiple outlets is the best way to reach local residents who depend on the community's winter maintenance services. It improves the odds of reaching everyone in the target audience and gives them repeat exposure to the message. Effective options include:

- Run an article in agency brochure or newsletter distributed to the public.
- Do a separate mailing about winter maintenance operations.
- Send a press release to local media—including daily or weekly newspapers, TV and radio outlets, shoppers and neighborhood newsletters.
- Hold a press conference to kick off the winter season.
- Create TV video and news photo opportunities by holding a media day at the maintenance yard to showcase seasonal equipment, introduce staff members and talk about the winter maintenance operation.
- Invite media contacts, elected officials or members of the public to ride along on a dry-run of snow routes or during an actual storm event.

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The Office of Operations Research and Development (R&D) is making major contributions to help the Federal Highway Administration (FHWA) meet its mobility, safety, and security goals through completed or planned products and activities with the following strategies:

Implementing an Integrated Intelligent Transportation System (ITS) Infrastructure

Traffic Analysis Toolbox

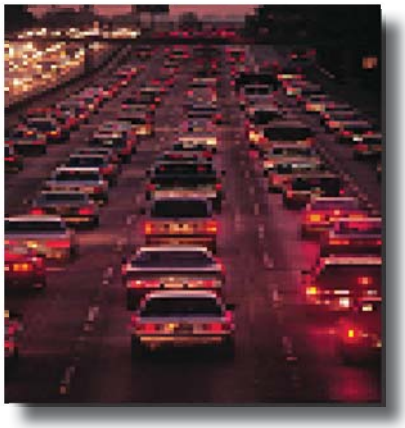
The Traffic Analysis Toolbox is a set of documents that provides guidance on the role and use of traffic analysis tools in transportation analyses. "Traffic analysis tools" is a collective term used to describe a variety of software-based analytical procedures and methodologies that support different aspects of traffic and transportation analyses. These include methodologies such as sketch-planning, travel demand modeling, traffic signal optimization, and traffic simulation. Documents currently in the toolbox include Volume I: Traffic Analysis Tools Primer, Volume II: Decision Support Methodology for Selecting Traffic Analysis Tools, Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software, and Volume IV: CORSIM Application Guidelines.

Adaptive Control Systems

FHWA in collaboration with the private sector has developed three Adaptive Control Systems (ACS) software packages to automatically generate new signal timing plans to respond to traffic flow changes in real time. Prototype algorithms were evaluated in Reston, VA; Tucson, AZ; and Seattle, WA. The software prototypes showed positive results, and the deployment of the ACS packages is underway.

ACS Lite

FHWA in conjunction with manufacturers of traffic control and signal equipment have developed and field tested the ACS Lite software. ACS Lite is a low-cost control software designed as an original or a retrofit for closed-loop systems. The field tests show that the software, responding to changing traffic conditions, improves system performance while reducing user costs. FHWA, in partnership with Econolite, PEEK, Eagle, and McCain, developed and tested the software in systems manufactured by these vendors and arranged for the software to be available from these manufacturers.



A second phase to improve control logic, user interfaces, data archiving, and database development is underway. FHWA will perform laboratory testing of these enhancements prior to release to the four participating entities.

Traffic Estimation and Prediction System

The Traffic Estimation and Prediction System (TrEPS) software will provide the predictive information needed for proactive traffic control and traveler information. TrEPS will facilitate and enhance planning analysis, operational evaluation, and real-time advanced transportation systems operation. Laboratory evaluation of the TrEPS prototypes is complete, and the planning version of the software is available from the University of Florida's McTrans Center. The State of Texas will test the real-time version of the software in Harris County, TX, in the near future.

Strategic Work Zone Analysis Tools

FHWA under the Strategic Work Zone Analysis Tools (SWAT) program is developing a suite of four tools to facilitate the analysis of work zone strategies to reduce delay to motorists, identify viable mitigation strategies, consider the costs of various options, and provide guidance on establishing work zone performance-based contracting specifications. The first software tool, QuickZone, is a spreadsheet package available to analyze the traffic impacts of work zones. QuickZone also features partnerships with up to eight jurisdictions, allowing customization of the software for local needs. The software is available from the University of Florida's McTrans Center. The planned work for this program includes an economic analysis package that will permit a decision maker to include motorists' costs in the overall decision process. The visualization tool will permit the designers to "drive" the work zone, and TrEPs linkage will quantify the traffic diversion due to congestion from work zones.

Traffic Management Tools—Handbooks

Researchers are working to update a series of handbooks covering traffic detectors, traffic signal control systems, and freeway management. These handbooks will help traffic managers and practitioners use equipment and other technologies for efficient operation of traffic corridors and networks. The revised Traffic Detector Handbook, Third Edition, is available.

Integrated Corridor Management

The greatest concentration of highway congestion is often along critical transportation corridors that link residential areas with business centers, sports arenas, and shopping areas. The U.S. Department of Transportation (USDOT) has launched the Integrated Corridor Management (ICM) Initiative to optimize all transportation corridor networks through proactive, integrated, and multimodal management and operation among all corridor transportation agencies. With ICM, transportation professionals manage the transportation corridor as a multimodal system rather than taking the more traditional approach of managing individual assets.

The implementation of ICM is a natural evolution of current Intelligent Transportation Systems (ITS) deployment and transportation operations practices. USDOT is conducting targeted research in the areas of ICM systems integrations and ICM modeling and simulation tools development. Both public and private entities are refining the existing

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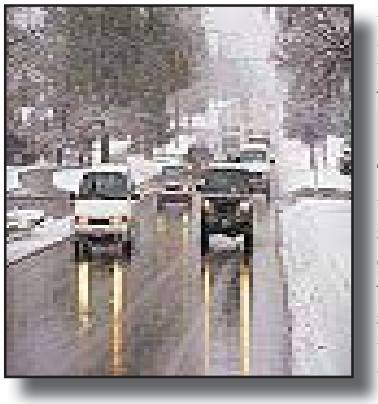
transportation modeling and simulation tools for analysis of ICM applications. These tools will enable transportation decision makers and operators to optimize multimodal corridor operations in real time and to assess the impacts and benefits of individual corridor strategies and approaches prior to implementation.

Exploratory Advanced Research Program
The FHWA Exploratory Advanced Research (EAR) Program is a new initiative to explore research topic areas that could result in revolutionary improvements to our Nation's surface transportation system. FHWA and its partners are exploring a combination of project-based work, scanning and convening efforts, and in-house research which will result in advancements in traffic control, vehicle control, and the further integration and automation of vehicle and roadway components.

Developing and Implementing Technologies Focusing on Weather, Security, and Lifesaving

Weather-Related Impacts on Traffic Operations Study
Adverse weather conditions can dramatically impact the operation and quality of traffic flow. With the advent of advanced traffic management systems, there is an opportunity to develop traffic management strategies that can minimize the negative weather-related impacts on traffic operations. The primary objective of this study is to identify how weather events impact traffic operations. Efforts are underway also to incorporate the TrEPS algorithm into weather-related strategies to assess the adverse impacts, diversions, and other weather-related phenomena.



Cooperative Intersection Collision Avoidance Systems Initiative
The Cooperative Intersection Collision Avoidance Systems (CICAS) is a major USDOT intelligent transportation systems (ITS) initiative. In partnership with automotive manufacturers, State and local transportation departments, and universities, CICAS will develop intersection safety countermeasures to reduce crashes caused by red light and stop sign violations. The countermeasures will be "cooperative" in that they will take advantage of wireless communications between the vehicle and roadside, enabled by vehicle infrastructure integration (VII) technologies. FHWA will develop the CICAS countermeasures followed by lab testing prior to a decision to conduct field operational tests. If these tests are successful, the goal is to support deployment of these systems at our Nation's intersections and within the U.S. vehicle fleet.

ITS Applications for Communications This work provides program support and assistance for developing standards and analyzing the application of Dedicated Short-Range Communication (DSRC) on the 5.9 GHz frequency band to support transportation safety and mobility initiatives. This effort includes possible uses of DSRC to support vehicle-to-infrastructure communications to enable enhanced intersection collision avoidance systems and other cooperative safety and mobility services.

Clear Roads Pooled Fund Research Program
The Clear Roads pooled fund research program, currently made up of 13 State transportation departments, has initiated a national winter safety campaign to reduce crashes and fatalities on our Nation's highways. With the tremendous support and assistance from volunteer public information officers in many snow-belt states, Clear Roads has developed a theme and outreach materials slated for distribution to interested States. The Clear Roads Technical Oversight Committee is hoping that, "Ice and Snow, Take it Slow!" will become as familiar and influential to our drivers as the "Give 'em a brake" campaign used during summer construction.

Developing and Implementing a Reliable Nationwide Differential Global Positioning System

Base Stations for the Nationwide Differential Global Positioning System
This project is converting signal stations transferred from the U.S. Department of Defense to the USDOT into base stations for the Nationwide Differential Global Positioning System (NDGPS). It provides additional coverage and increased position location accuracy for vehicle-based and stationary NDGPS receivers. NDGPS is an important enabling technology that provides accurate location information for ITS applications such as transit fleet management, in-vehicle navigation, and automated collision notification systems. Ninety-seven percent of the Nation is covered by single coverage, and 67 percent by dual coverage that provides 1- to 3-meter accuracy.

FHWA will serve as a lead agency (as defined by 40 CFR Part 1 508.16) for all National Environmental Policy Act (NEPA) matters regarding the implementation of the NDGPS service. FHWA implementing regulations (23 CFR 771) for environmental impact analysis and procedural compliance with NEPA will be used. FHWA will prepare NEPA documents for the proposed NDGPS service, as well as follow-on site-specific analyses and documentation that may be required for future implementation of the NDGPS service.

High Accuracy NDGPS
FHWA is instrumenting and testing three NDGPS stations to explore the potential for even higher accuracies in the range of 100 millimeters horizontal or better.

Reprinted from the United States Department of Transportation and Federal Highway Administration factsheet FHWA-HRT-08-030, which can be viewed at www.tfhrc.gov/its/its.htm

Add Communication Plan to Pre-Winter Checklist (concluded from page 2)

- Add or update information about winter operations on the local government's website and refresh the information frequently.
- Explore opportunities to air information on a community access cable station.
- Make presentations on the topic at meetings of service or community groups, like Rotary, Kiwanis, and Chamber of Commerce.
- Tailor a presentation for school groups to give children a hands-on experience that gets them excited about snow plowing and eager to share what they learn with parents.
- Exchange key contact information with media outlets so they have a direct link to the department during a storm and the department knows whom to reach with critical information for immediate broadcast or publication.
- Provide news about winter operations via a prerecorded telephone hotline, webpage or email message as a subscription service for residents. (Make updating this information integral to routine procedures.)
- Add a staffed phone line to take questions and complaints during the winter season.

Keep it Positive

Much of the time, the contact highway and public works agencies have with the public emphasizes prohibitions, what not to do. Warnings and alerts are important for public safety, but proactive communication about upcoming winter maintenance offers a chance to be in touch with a positive message that invites interest and cooperation from customers.

A good plan covers the operation's practical details and answers the top questions. It also informs the public which streets constitute the department's territory. Let them know about the people, equipment and materials available to fight winter storms. Describe anything innovative or different about the operation and how it improves outcomes for the public.

Let the public know what they can do to help make it a safe winter season. Highlight important issues or problems that hamper the maintenance operation, like residents shoveling, blowing or plowing snow into cleared streets, causing a safety hazard and requiring crews to plow the street again. Include information about resources for staying safe on the roads in winter.

Worth the Investment

An organized communication plan is a good addition to any road maintenance operation. It is worth the investment because it reaches both the media and the public with the message that the local agency is serious about running a professional, effective operation. Reinforce that message with ongoing communication as the season progresses. Educating these important audiences improves the relationship with customers and limits complaints and controversies during the snow season.

Reprinted from the Fall 2008 issue of Crossroads, a publication of the Wisconsin Local Technical Assistance Program.

Safety Tips for Operating Heavy Equipment

Operators of any equipment should first be trained to use it properly and demonstrate an acceptable skill level before operating it. Most equipment accidents are a result of some type of operator error. Accidents involving heavy equipment have a higher probability of resulting in a fatality, so it is imperative that all safety rules and procedures are followed when operating heavy equipment.

Before being used, any piece of equipment should have a complete walk-around inspection to identify any safety defects. All safety sensitive devices must be operable. The equipment should be serviced regularly according to manufacturer's specifications. A seat belt must be worn while operating the equipment.

Use extreme caution when operating around trenches, excavations and overhead power lines. Always call for locates of any underground utilities before trenching or excavations.

Ensure the machine you are operating has a Roll Over Protection System. To prevent rollovers do not travel or operate parallel to steep grades, embankments or unstable soil.

Good communication is a must between the operator and all ground level workers. The operator should always know exactly where everyone is when operating equipment.

High visibility clothing or a vest should be worn by ground level workers. A swing radius and a limited access zone should be set.

Use barricades to separate pedestrians and vehicles from the moving equipment, where possible.

Always use a spotter when backing up. Do not depend solely on the backup alarm.

A standard set of hands signals agreed on by both the operator and a trained spotter should be used.

Wear all personal protective equipment when needed when working with heavy equipment.

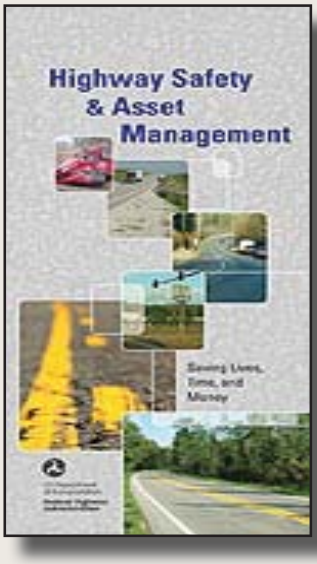
Three points of contact should always be used when entering or exiting the cab. Never jump onto or off equipment.

Keep grease and other fluids from the walking and working surfaces of the equipment to prevent slips and falls.

Always put the transmission in park, shut the engine off, set the brakes, lower any attachments fully, and follow the lockout/tag out procedures before working on or around equipment.

Reprinted with permission from the Summer 2008 issue of the KUTC Newsletter, a publication of the Kansas Local Technical Assistance Program (LTAP) at the University of Kansas Transportation Center.

Asset Management Offers a New Approach to Highway Safety



With more than 40,000 individuals killed annually in motor vehicle crashes in the United States and 1.5 million injured, at a total economic impact of more than $230 billion a year, saving lives and increasing the safety of the Nation's roadways are vital goals of the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). A new Federal Highway Administration (FHWA) brochure, Highway Safety and Asset Management (Pub. No. FHWA-IF-07-014), looks at how State transportation departments, local road agencies, and metropolitan planning organizations can use transportation asset management (TAM) to identify and prioritize critical safety needs and make strategic investment and program decisions.

An asset management approach takes a long-term view of highway assets, using accurate data and engineering, economic, and investment analysis tools to make informed decisions on how to best allocate resources to operate, maintain, upgrade, and expand physical assets effectively through their life cycle. These tools can assist in collecting and analyzing data, measuring system performance, identifying safety strategies, and developing effective performance measures, as well as evaluating return on investment and conducting risk analysis. "Highway safety information needs to be included in a State's asset management program along with information on pavements, bridges, operations, and maintenance to help ensure optimal usage of limited available funding," says Steve Gaj of FHWA's Office of Asset Management.

Transportation agencies and metropolitan planning organizations can use asset management to identify and prioritize critical safety needs and make strategic highway investment decisions.

Using TAM, agencies can more comprehensively view the big picture and evaluate collected data before making decisions as to which specific safety measures should be deployed and how that should be accomplished. For example, an agency can create a database that not only shows data on crashes occurring on a particular roadway but can also display data on the condition of the roadway, what type of guard rails are in place, the number of lanes, the condition of pavement markings, and other details. Sharing these data among different departments within the agency and with other stakeholders allows agencies to proactively evaluate the roadway condition and take steps to improve safety, instead of waiting until after crashes occur.

To assist with data collection, FHWA is currently working to establish a Model Minimum Inventory of Roadway Elements (MMIRE). The MMIRE is a recommended inventory of information on roadway assets and traffic data in a standardized format.

States can also identify their highest priority safety program areas, such as intersections, pedestrians, run-off-road incidents, or cross median crashes, and adopt strategic and program goals that focus resources on the areas of greatest need. For example, a target goal of a 20 percent reduction in cross median crashes could include strategies such as installing a median barrier system.

An asset management approach is helping the Florida Department of Transportation (FDOT) better focus its resources. FDOT has stored data about roadway infrastructure assets in its Roadway Characteristics Inventory (RCI) system since 1975. With more than 1 million records, RCI is FDOT's largest database. It

Using asset management, an agency can create a database that not only shows data on crashes occuring on a particular roadway but can also display data on such details as the type of guard rails in place (left) and the use of cable median barriers (right).

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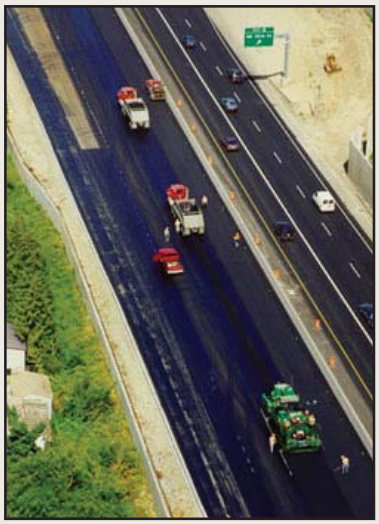
Maintenance Management Course Goes Online

Now you can learn how to use enhanced maintenance management systems (MMS) to better conduct routine highway maintenance and operations without having to leave your office. The Federal Highway Administration's (FHWA) National Highway Institute (NHI) has introduced a new online version of its Principles and Practices for Enhanced Maintenance Management Systems course (Course No. FHWA-NHI-131112). "The online version offers an alternative to the classroom version for transportation agencies that have limited training funds. This course enables participants to advance their agency's maintenance management practices while saving time and money on travel," says Celso Gatchalian of FHWA's Office of Asset Management.



The course looks at how an enhanced maintenance management system can be used to better plan and budget for highway maintenance work.

The online course covers the same content as the classroom version (Course No. FHWA-NHI-131107). The course materials are based on the new Guidelines for Maintenance Management Systems developed by the American Association of State Highway and Transportation Officials. Using the guidelines, the course looks at how an enhanced MMS for highways can be used to plan, budget, schedule, and report on maintenance work. Topics include:

- Performance-based budgeting and how to connect an MMS to agency goals and mission statements.
- Data management, including how to analyze data, identify gaps, and then proceed according to MMS data requirements. The course also helps participants decide what level of investment is required to meet their data collection and analysis needs.
- Analysis of how highway service levels support the programming and budgeting activities incorporated into an MMS, and how to apply a monetary value to current highway condition for presentation to financial directors, senior managers, and legislators.
- Details on new technologies that can assist in data collection.
- How an MMS can interface with other agency management systems, including financial, bridge information, safety, and environmental management systems, to share data and reduce redundant data collection, storage, and processing costs.

The course consists of three 2-hour Web sessions combined with 9 hours of self-study modules. Examples from State and local highway agencies are used to illustrate the application of principles by transportation agencies. The course is specifically designed for individuals who are responsible for directing and managing maintenance operations and budgets, maintenance project and treatment selection, or the monitoring of system conditions. Tuition is $150 per participant.

> "This course enables participants to advance their agency's maintenance management practices while saving time and money on travel."

To host this course, visit the NHI Web site (www.nhi.fhwa.dot.gov) and submit a completed "Host a Web Conference Training Course" form. After NHI receives the completed form, an instructor will contact the local coordinator to schedule the session. Scheduling is subject to instructor availability.

For more information on the course content, contact your local FHWA division office or Celso Gatchalian at FHWA, 202.366.1342 (email: celso.gatchalian@fhwa.dot.gov). For more information on scheduling the course, contact the NHI Scheduler at 703.235.0534.

Reprinted from the October 2008 issue of FOCUS, a newsletter published by the United States Department of Transportation and the Federal Highway Administration.

CITE Blended Courses for 2009

The Consortium for ITS Training and Education (CITE) announces its 2009 Blended Course schedule for 2009. Scheduled courses include:

- Introduction to Telecommunications Technology, February - March
- Advanced Telecommunications Technology, April - May
- Improving Highway Safety with ITS, April - May
- Fundamentals of Database Management Systems, June - July
- Managing High Technology Projects in Transportation, September - October
- Traffic Signal Timing, September - October
- Principles and Tools of Road Weather Management, October - November
- Introduction to Systems Engineering, October - November
- Configuration Management, December 2009

For more information about or to register for CITE's Blended Courses visit: **www.citeconsortium.org**

Prewetting: A Better Alternative

In the past 15 years the economy of using liquids as a prewet for solid chemicals or sand has been proving itself as prewetting spreads to various agencies. Studies show significant performance, economic and environmental benefits. The results have shown that using liquid chemicals to prewet either salt or sand to be a highly cost effective and efficient way to deal with snow and ice by reducing overall material use.

In 1970, Iowa Maintenance Engineer, Foster Smiley, reported to the American Association of Highway officials (AASHO) (now American Association of State Highway and Transportation Officials AASHTO) Subcommittee on Maintenance a new concept of prewetting granular sodium chloride with liquid calcium chloride. Even now, agencies are "discovering" prewetting, a technology which has been in use for up to 30 years or more. An E-news letter (July 16, 2007) quotes a state agency as saying, "A recent discovery has proven to be so effective that a new policy has been adopted -- soak solid deicer with liquid deicer before it's applied to the highway."

Sand/salt mixtures are not the same as prewetting and have none of the advantages of prewetting.

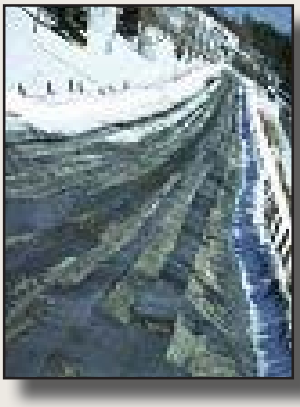
Performance Advantages

Prewet solids (salt or sand) are less susceptible to bounce and scatter when applied due to the presence of the liquid on the particles. This translates into less loss of materials to traffic and wind action. The granules adhere to the road and/or ice surface better and do their jobs better and more quickly. Advantages for prewetting salt are:

1. The prewetting liquid provides a jump start on the brine formation process necessary for the solid salt particles to go to work. All solid deicers must be water soluble, and form a solution (brine) with water to work. It is the brine that melts the ice, not the solid.
2. The effective temperature range of the solid chemical may be extended depending on the type and amount of prewetting chemical used. For example to prewet salt with salt brine does not change the overall operating temperature range, where prewetting salt with calcium or magnesium chloride would.

Advantages for prewetting sand or abrasives are:

1. The prewetting liquid when used correctly provides a short-term melting of the icy surface and then a refreeze, allowing the sand particles to embed themselves into the ice and be frozen into place. This embedding process forms a matrix not unlike sandpaper which provides improved traction over a longer period of time as the particles are retained on the surface better and not as readily displaced by traffic action. This process is highly useful on packed snow surfaces during extended periods of temperatures too low for the use of chemicals for deicing.



Economic Advantages

The major economic advantage of prewetting solids is overall reduced material use. Partially by reduced material loss from bounce and scatter while applying and by improved performance. Improved performance results in the material staying on the roadway longer. These factors translate into fewer applications and reduced use of materials overall during a storm event.

Environmental Advantages

The advantages to the environment result from the reduced application of materials. This is of benefit to water quality and plant life. Reduced material use also reduces the formation of dust from traffic action, which benefits air quality. The presence of the moisture on the already reduced amount, contributes to minimize dust from traffic action.

Prewetting Methods

Prewetting can be accomplished by one of three methods:

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Our Currently Scheduled Courses

The following courses are scheduled for 2009, and we are still adding to the list! Sign up now for our currently scheduled courses, hurry, they fill up fast! For more information or to schedule a class contact Janette Prince at 301.403.4623 or register online by visiting us at www.mdt2center.umd.edu.

ASPHALT ROADS COMMON MAINTENANCE PROBLEMS

Ed Stellfox
February 11, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Maryland Local Government
$65 State and Federal Government
$75 Private and Out-of-State

Municipal road crews 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.

FLAGGER CERTIFICATION

Juan Morales
February 18, 2009, 8am - 12:30pm
College Park, Maryland
$100 All Registrants

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 American Traffic Safety Services Association (ATSSA) flagger card will be issued upon satisfactory completion of this course. This will be valid for four years and is acceptable in several states, including MD, VA and DC. The class s 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).

TRAFFIC CALMING

Dane Ismart
March 4, 2009, 8:15am - 4pm
College Park, Maryland
$140 Maryland Local Government
$195 Maryland State Government
$225 All Other Registrants
CEU's: 0.6

The goal of this 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 and the "ITE Guidebook on Traffic Calming."

SIGNAL WARRANT & INTERSECTION CONTROL ANALYSIS

Dane Ismart
March 5, 2009, 8:30am - 4pm
College Park, Maryland
$120 Maryland Local Government
$150 Maryland State Government
$175 All Other Registrants
CEU's: 0.6

This course will cover the eight MUTCD signal warrants: eight-hour vehicle volume, four-hour vehicle volume, peak hour, pedestrian volume, school crossing, coordinated signal system, crash experience, and roadway network. Four-way stop warrants will also be covered as well as alternatives to traffic control signals.

ASPHALT RESURFACING

Ed Stellfox
March 11, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Maryland Local Government Only
$65 State and Federal Government
$75 Private and Out-of-State

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.

ASPHALT RECYCLING

Ed Stellfox
April 8, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Maryland Local Government
$65 State and Federal Government
$75 Private and Out-of-State

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 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.

TORT LIABILITY & RISK MANAGEMENT

Ronald Eck
April 21, 2009, 8am - 4pm
College Park, Maryland
$125 Maryland Local Government
$150 All Other Registrants

This one-day workshop will provide an overview of the legal duties and responsibilities of roadway personnel. Key legal concepts relating to the liability of roadway agencies are reviewed from a risk management standpoint. Common types of claims/lawsuits brought against street departments and highway agencies are identified through examples/case studies. Risk management principles and practical risk management activities will be identified.

PEDESTRIAN & BICYCLE ACCOMMODATION

Ronald Eck
April 22, 2009, 8:30am - 4:30pm
College Park, Maryland
$125 Maryland Local Government
$150 All Other Registrants

This one-day workshop provides current information on the design, operation and maintenance of successful pedestrian and bicycle facilities. Emphasis is placed on making participants aware of the characteristics and needs of pedestrians and bicyclists and on the importance of an interdisciplinary approach to planning and implementing pedestrian and bicycle programs.

Our Currently Scheduled Courses
(continued from page 9)

TRAFFIC SIGN RETROREFLECTIVITY
Ronald Eck
April 23, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Maryland Local Government
$75 All Other Registrants

This one-day workshop will help practitioners gain a better understanding of sign retroreflectivity issues in order to improve the overall nighttime visibility of traffic signs. Topics covered will include: sign retroreflectivity importance; basic retroreflectivity science; types of retroreflective materials; measuring retroreflectivity; minimum retroreflectivity levels; and maintenance/ management methods.

INTRODUCTION TO TEMPORARY TRAFFIC CONTROL
Juan Morales
April 28, 2009, 8:15am - 4pm
College Park, Maryland
$125 Maryland Local Government
$150 State and Federal Government
$195 Private and Out-of-State

An introductory course to temporary traffic control in work zones, TCC is a one-day course designed to give participants a complete overview of traffic control in work zones, incluing applicable standards, devices used, component parts and their requirements, and installation/ removal considerations.

WORK ZONE DESIGN
Juan Morales
April 29-30, 2009, 8am - 4pm
College Park, Maryland
$250 Maryland Local Government
$295 State and Federal Government
$325 Private and Out-of-State
CEU's: 1.2

The course will give participants knowledge of the entire temporary traffic control (TTC) process: planning, design, review, installation, maintenance, and evaluation of proper maintenance of traffic (MOT) controls for work zones. While the functions of planning, design, review, and operation of temporary traffic control are covered in detail, issues concerning safety of pedestrians and highway workers, human factors, and legal responsibility are also addressed.

ACCESS TREATMENT TO STATE & LOCAL ROADS
Dane Ismart
May 5-6, 2009, 8:15am - 4pm
College Park, Maryland
$195 Maryland Local Government
$275 Maryland State Government
$295 All Other Participants
CEU's: 1.2

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 formally titled Access Management, covers not only why, but also how to manage access, from a policy, legal, and design perspective.

BASIC DRAINAGE
Ed Stellfox
May 13, 2009, 8:30am - 3pm
College Park, Maryland
$75 Maryland Local Government
$95 State and Federal Government
$110 Private and Out-of-State

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 and subdrains 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.

CONSTRUCTION MATHEMATICS
Ed Stellfox
June 10, 2009, 8:30am - 3pm
College Park, Maryland
$95 Maryland Local Government
$110 State and Federal Government
$125 Private and Out-of-State
CEU's: 0.5

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. Participants should bring a calculator, a scale, and a straight edge.

BRIDGE MAINTENANCE INSPECTION
John Hopkins
June 15, 2009, 8:15am – 3:30pm
College Park, Maryland
$95 Maryland Local Government
$125 All Other Participants

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
June 16, 2009, 8:15am – 4:30pm
College Park, Maryland
$95 Maryland Local Government
$125 All Other Participants

This course 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.

FLAGGER CERTIFICATION
Juan Morales
June 16, 2009, 8am - 12:30pm
College Park, Maryland
$100 All Registrants

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).

CONSTRUCTION INSPECTION – INTERMEDIATE LEVEL

John Hopkins
June 17-18, 2009, 8am – 4pm
College Park, Maryland
$225 Maryland Local Government
$275 State and Federal Government
$295 All Other Participants
CEU's: 1.2

This 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 Maryland standards. **Please Note:** A test will be administered to acquire class credit. Participants should bring a calculator, scale and straight edge; notebooks will be provided.

INTRODUCTION TO GEOSYNTHETICS

Ed Stellfox
July 15, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Marylad Local Government
$65 State and Federal Government
$75 Private and Out-of-State

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 following topics will also be covered: history, materials, geotextile fabrics, geogrids, geocells and geowebs, uses & applications, drainage, inflation, erosion control, reinforcement, separation, and reflective crack control.

TRAFFIC ENGINEERING SHORT COURSE

Tom Hicks, Woody Hood, Dane Ismart, Wamahdri Williams, and Rick Hawthorne
July 20-24, 2009, 8am - 4:30pm
Linthicum, Maryland
$350 Maryland Local Government
$715 Maryland State Government
$765 Federal, Private, and Out-of-State

This five-day short course covers many aspects of traffic engineering, including design, data analysis, operation and management. Also, related factors, such as road use characteristics, public influence and traffic calming are addressed in the class. Materials include a student workbook and "Fundamentals of Traffic Engineering," a publication by ITS, Berkley.

PREVENTIVE PAVEMENT MAINTENANCE

Ed Stellfox
August 12, 2009, 8:30am - 3pm
College Park, Maryland
$75 Maryland Local Government
$95 State and Federal Government
$110 Private and Out-of-State

This 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.

UNPAVED GRAVEL ROAD MAINTENANCE

Ed Stellfox
September 9, 2009, 8:30am - 12:30pm
College Park, Maryland
$50 Maryland Local Government Only
$65 State and Federal Government
$75 Private and Out-of-State

This course addresses basic maintenance techniques for unpaved and gravel roads. Topics include road maintenance, blading or dragging, reshaping or regrading for proper crown, regraveling, stabilization or full-depth reclamation, and dust control, with an introduction to road management techniques.

ROUNDABOUT PLANNING & DESIGN

Dane Ismart
September 15, 2009, 8am – 4pm
College Park, Maryland
$115 Maryland Local Government
$125 Maryland State Government
$140 All Other Participants

This course will provide participants with an introduction to the planning and design of the modern roundabout. 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.

INTERSECTION DESIGN & ANALYSIS

Dane Ismart
September 16-17, 2009, 8:30am- 4pm
College Park, Maryland
$225 Maryland Local Government
$275 Maryland State Government
$300 All Other Participants
CEU's: 1.2

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.

SIGNAL WARRANT & INTERSECTION CONTROL ANALYSIS

Dane Ismart
October 8, 2009, 8:30am – 4pm
College Park, Maryland
$120 Maryland Local Government
$150 Maryland State Government
$175 All Other Participants
CEU's: 0.6

This course will cover the eight MUTCD signal warrants: eight-hour vehicle volume, four-hour vehicle volume, peak hour, pedestrian volume, school crossing, coordinated signal system, crash experience, and roadway network. The course will also cover warrants for four-way stops as well as alternatives to traffic control signals.

WINTER MAINTENANCE

Ed Stellfox
October 14, 2009, 8:30am - 3pm
College Park, Maryland
$75 Maryland Local Government
$95 State and Federal Government
$110 Private and Out-of-State

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 and formal snow plans.

Prewetting: A Better Alternative
(concluded from page 8)

1. **Stockpile injection** of prewetting chemical is most useful for frost-proofing and is not recommended for general application. The most effective use of prewetting is to vary the amount of liquid applied per ton of salt or sand according to actual conditions on hand.
2. **Batch wetting** consists of spraying liquid chemical onto a loaded spreader or on the material as it is loaded into the spreader. The chemical may be applied to the load with nozzles on an overhead sprayer or by manual methods. This is a low-tech, low-cost method that can be used to start the use of prewetting without a large initial capital investment.
3. **On-board prewetting** is the use of on-board spray systems to add the liquid chemical directly to the material being applied as it comes off the truck. The prewetting equipment can be an integral part of the spreader design or it can be a system that is added to an existing unit. Modifications can be relatively simple and inexpensive. Both electric and hydraulic spray systems are used.

In summary, prewetting of solid materials provides operational and economic benefits to the service provider while at the same time providing benefits to the environment. And, contrary to some articles, this is not new. It seems that old habits are hard to break, and when they are broken, for some it must be an idea whose time has come, AGAIN.

Reprinted with permission from author Dale Keep, owner of Ice & Snow Technologies.

Asset Management Offers a New Approach to Highway Safety
(concluded from page 6)

is used to track a range of highway assets, including roadway signs, signals, and lighting and their supports and structures; guardrails and barriers; and pavement markings and treatments. Data is recorded on 75 asset features, which are described by 271 characteristics. FDOT's Planning, Maintenance, Traffic Operations, and Safety offices all rely on the database. The Safety office, for example, uses the RCI to collect data for its crash analysis database, while the Planning office uses it to collect Highway Performance Monitoring System data and report on it to FHWA. The data collected is also used to determine the Maintenance office's yearly workloads and budget needs, as well as for resource allocation decisions. "It is a very useful system and very important in planning," says Kirk Hutchison of FDOT.

The benefits of using asset management in safety programs include the ability to make more informed, cost-effective program decisions, maximize transportation system performance and return on investment, simplify tracking of roadway asset locations, improve data collection, and minimize life-cycle costs.

Partnerships are important to the success of asset management initiatives. "Transportation agencies must cross organizational boundaries and bring together diverse stakeholders to work together in improving highway safety," says David Smith of FHWA's Office of Safety. These stakeholders include motor carrier safety organizations, motor vehicle administration agencies, police and fire personnel, and transportation planning organizations. Agencies should also look at their own organizations and work to overcome any internal barriers that may be preventing the successful implementation of asset management. For example, safety-related information and data should be shared with an agency's highway design, pavements, bridge, maintenance, and planning divisions, while pavement management information should be shared with safety divisions.

To learn more about highway safety and asset management or to obtain a copy of FHWA's new brochure, contact David Smith in FHWA's Office of Safety, 202.366.6614 (email: david.m.smith@fhwa.dot.gov), or Thomas Van in the FHWA Office of Asset Management, 202.366.1341 (email: thomas.van@fhwa.dot.gov). Information is also available online at: www.fhwa.dot.gov/infrastructure/asstmgmt/amppsafe.htm or http://safety.fhwa.dot.gov.

Reprinted from the November 2007 issue of FOCUS, a newsletter published by the United States Department of Transportation and the Federal Highway Administration

Does your agency have an effective method for tracking costs? Do you know where your money goes? Can you justify project spending and allocation of funds? If you are tracking your expenditures and have a quick, efficient way of retrieving information, you can probably answer yes to all of these questions. If you are not sure, your agency probably does not have a reliable asset management program. An Asset Management System (AMS) will ensure all decisions are based on accurate data, sound engineering, and economic analysis. It will help you manage all projects in a more cost-effective manner.

Implementing an AMS can sound overwhelming and difficult, but the end result of good reports and analysis will make all the work worth the effort. Before selecting a long-term system, ask these questions:

1. Do I have a current inventory of assets?
2. What is the current state of my assets?
3. What is the required level of service?
4. Are current assets essential to sustained agency performance?
5. What are my best investment strategies?
6. What are the best long-term funding strategies?

When you have answered these questions, you can begin framing a personalized AMS for your agency. This process should begin with a look at the goals and objectives you want to meet; they must be realistic, clear, and supported by all who are responsible for implementing them. Decision making and allocation is the next step. Decide on allocation of dollars for staff, equipment, materials, and other resources. Realize that these decisions must be proactive allocations based on goals and service levels and remember that customer expectations must be considered as well.

These initial steps are often referred to as data collection. This means you are adding information about the road or street network and the activities performed. For this information to be useful, it must be up-to-date. There are many computer software options available or you can create your own. Most AMS users prefer software with a geographic information system (GIS) package that is useful in creating maps and graphs. After you have selected the appropriate software, you are ready to move on to implementation.

Implementing an AMS

A good AMS depends on good data management. You should start program implementation, based on the collected data, in the most cost-effective manner possible. This means considering what projects should be addressed first, and in what manner. It also means considering different delivery options. Should you use a contractor, interagency agreements, or design-build projects? Knowing your data will help you decide which is best. You also need to monitor what actions are taken, the costs involved, and learn from your actions to help with future decisions and analysis. The final framing in implementing an AMS is analysis.

Analyzing the data collected and the management of data is critical to providing a better estimate of operations and maintenance costs. Your agency needs a system that will give good feedback, measuring the extent to which established performance objectives are addressed. All information in the analysis has to be accurate, objective, current, and targeted toward the goals and objectives evaluated in the initial AMS setup.

Challenges and Benefits

There are challenges to implementing an AMS, but the benefits of a good system will outweigh the difficulties. Your agency may have trouble linking the asset management data to decision making or even knowing what data to collect. Some involved may resist change, making it difficult to develop management support and commitment. You will also have to identify the responsible individuals for implementation.

On the other hand, there are also many benefits to an AMS. One of the best —improved customer satisfaction! An AMS

Asset Management Advice
(continued from Page 13)

will benefit customers by:

- Maximizing roadway service performance,
- Minimizing life cycle costs,
- Proving decision makers accountable,
- Allowing your agency to be better positioned to anticipate and secure needed funding,
- Improving highway safety, and
- Matching service levels with customer expectations.

If you can overcome a few obstacles, you will find many benefits in the years to come. Your agency will be able to completely justify the allocation of funds and you will be helping all those involved and any successors make better decisions.

Whether you see immediate benefits or not, we all need to know where our dollars are going. Assess your needs and resources and begin making better decisions. You will know you have an effective AMS when you are using the system to make decisions.

Reprinted with permission from the Fall 2008 issue of Country Roads & City Street, a publication of the West Virginia University Local Technical Assistance Program (WV LTAP)

FHWA Product Demonstration Showcases: A Hands-On Introduction to New Technologies

The Federal Highway Administration's (FHWA) Product Demonstration Showcases (PDS) are your ticket to the latest in roadway and bridge technologies, providing highway agency decision makers with a practical, hands-on introduction to promising new products and processes. "Our showcase portfolio demonstrates a range of technologies, including solutions implemented by enterprising local agencies," says Mark Sandifer of the FHWA Resource Center. "Each 1-day showcase also demonstrates both the realized and future potential for substantial cost savings offered by the technologies." The events provide for interaction among participants as well, offering a valuable information exchange forum.

The showcases focus on new or upgraded solutions to local road and bridge challenges, as well as feature industry demonstrations of technologies currently in field use by the hosting agency. "By showcasing technology in this unique format, transportation professionals gain the insights necessary to evaluate promising products or processes," says Sandifer. Each showcase concludes with an open discussion session for questions and answers.

Participants listen to a question and answer session at the Maintenance Decision Support System Showcase in Omaha, Nebraska.

The FHWA Resource Center recently held showcases on the Maintenance Decision Support System (MDSS) in Omaha, Nebraska, King of Prussia, Pennsylvania, and Boise, Idaho. The MDSS is a computer-based, customizable decision support tool that provides winter maintenance personnel with specific weather forecast information and road treatment recommendations. It has been selected as a focus technology by the American Association of State Highway and Transportation Officials' Technology Implementation Group. To learn more about the MDSS, visit FHWA's Road Weather

FHWA Product Demonstration Showcase: A Hands-On Introduction to New Technologies

(concluded from page 14)

Management Program Web site at http://ops.fhwa.dot.gov/weather/mitigating_impacts/programs.htm.

At the September 17, 2008, showcase in Boise, Idaho, attendees included representatives from local highway districts, the Idaho Transportation Department, and industry. "We are considering deployment of MDSS, and the showcase was very helpful in learning more about the technology and its requirements," says Bob Koeberlein, Mobility Services Engineer for the Idaho Transportation Department.

FHWA's next showcase on Roundabout Traffic Improvement will be held December 10, 2008, in La Jolla, California. The showcase will highlight a case study on how roundabouts were used to slow traffic on La Jolla Boulevard, while enhancing the walkability of the boulevard. The showcase will include information on how the local community and businesses provided input into the project. Additional topics will include outreach and community education, funding, construction management, roundabout design improvements, right-of-way issues, and pedestrian crossing safety. To register for this showcase or for more information, visit www.pdshowcase.org.

Topics currently being considered for future showcases include trenchless technologies for culvert linings, FHWA's Adaptive Control System (ACS) Lite software for traffic signal timing solutions, and the USLIMITS software program for identifying appropriate roadway speed limits. Depending on the showcase, there are sometimes associated costs for State sponsors. For more information on recent and upcoming showcases, visit www.pdshowcase.org. To learn more about holding a PDS event in your State or to suggest a topic for a future showcase, contact your local FHWA division office or Mark Sandifer at the FHWA Resource Center, 708.283.3528 (email: mark.sandifer@fhwa.dot.gov).





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Address Change?

The MD T² Center is continously updating its mailing list, please let us know if you have a new address. Email us your new address at mdt2@umd.edu or call Ellen Neal at 301.403.4239 and we'll be glad to update your information.

Requesting Technotes

To reduce the number of printed newsletters, we are no longer mailing technotes. If you wish to recieve a printed copy, please email us at mdt2@umd.edu to request one.

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