ITS America Annual Meeting Edition   Summer 2012

ITS MD - working to unite, support and promote Intelligent Transportation in Maryland.

President's Message

By Richard Easley,
E-Squared Engineering

ITS Maryland continues to demonstrate its relevance in the region by bringing ITS professionals and students together to discuss the latest ITS innovations, share valuable lessons learned regarding new (and not so new) ITS deployments, discuss funding strategies, and foster professional and social networking events. This edition of our ITS Maryland Newsletter highlights a few of the activities that we hope you will find interesting. You'll learn about Baltimore City's latest ITS advancements that are making a positive difference in the lives of millions of citizens. There's a good synopsis of Montgomery County's $40M investment in their traffic signal system modernization program – which is yielding BIG benefits. You won't want to miss the article from our Delaware DOT members on the DelDOT statewide transportation management system that is intermodal in scope and utilizes the latest and greatest ITS technologies available. We've added an article about a proven ITS strategy in Europe and beginning to gain traction in the US called Active Traffic Management and of course, we've included the latest and greatest information about Maryland's CHART program providing ITS benefits to every citizen in the region.

You'll also find out about some of the educational workshops and social events that you just might have missed. If you did miss them, shame on you!! We had fun and we learned that just because someone may be an expert in the ITS traffic data field, that DOES NOT make them an expert on the bowling lanes. But what it does mean is that they know how to have fun and they instantly become one of the good guys (or ladies) that is actually approachable – i.e., regardless of their stuffy title, you could ask them any question on your mind and they're someone you'd like to work with in the future. And that my friends, is a major benefit in getting involved with ITS Maryland. Contact me or any of the ITS Maryland officers listed on page 8 and we'll tell you all about the opportunities you have to make a difference in the region, improve your professional standing, broaden your network and have a darn good time in the process. Whatever you do, always remember this – "The world belongs to those that show up."

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ITS America Annual Meeting!

The meeting theme, "Smart Transportation: A Future We Can Afford," will focus on how ITS offers affordable solutions to the world's transportation challenges. The ITS Maryland state chapter is proud to showcase the diverse range of activities occurring within the region from advance technologies to advance application. Welcome to Maryland and the ITS America Annual Meeting!

Baltimore City Upgrades and Implementations

By Keith Riniker, Sabra, Wang & Associates, Inc.

One of the tools used to enhance transportation within Baltimore City is Intelligent Transportation Systems (ITS). Projections developed by the Baltimore Metropolitan Council indicate that congestion will steadily increase on major roadways such as I-83 and I-95 over the next 20 years.

By embracing innovations in ITS, the city is introducing new technologies into existing roadways to improve the overall flow of traffic. These modern technologies are integrated into planning, construction, and maintenance activities to build a system that reflects the needs and desires of Baltimore's residents, employers, and visitors.

ITS is helping Baltimore City achieve their goals of providing mobility and accessibility in a convenient, safe and cost-effective manner.

Recently completed projects include:
⇒ 40,000 traffic signal incandescent light bulbs were replaced with light emitting diode (LED) lights to improve energy efficiency and reduce costs by $1 Million per year.
⇒ 5,000 square foot Transportation Management Center was constructed in 2008 for real-time monitoring of traffic conditions, coordinating, and responding to traffic incidents, which has re-

duced delays and improved traffic citywide.
⇒ 435 Traffic signals retimed in the central business district all on major gateways reduced delays by 30%, reduced the average number of times a motorist stops by 12%, and reduce fuel consumption and emissions by 15%.
⇒ 160 Wireless detectors replaced outdated, broken wired, in-pavement detectors on side-street approaches to traffic signals reducing delays and emissions.
⇒ 150 Speed monitoring locations have reduced traffic speeds in school zones and improved safety.
⇒ 80 Red light camera locations reduced red light running and decreased crashes.
⇒ 44 Traffic signals reconstructed and 15 traffic signals were re-wired last year as part of ongoing traffic signal construction projects to replace aging equipment which improved equipment reliability and safety.

⇒ 1 Central computer system to communicate to all of the ITS devices installed throughout the City to enable remote monitoring.

On-going ITS projects include:
⇒ 550 Traffic signals north and west of downtown are being retimed, and will be completed by the end of 2012. This retiming project follows up on the highly successful retiming of the 435 signals retimed in the Downtown area, and on major gateways, which was completed in 2008.
⇒ 50 miles of communication cables run throughout the City connecting traffic devices. 10 miles of cables are being replaced to enable the traffic signals, cameras and signs to continue to operate.☙
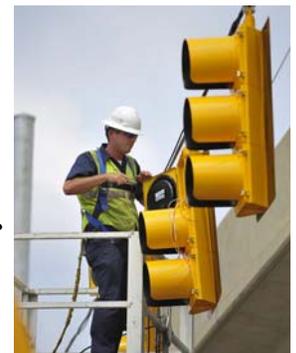
Montgomery County: Traffic Signal System Modernization

By Michael Kinney, Montgomery County

Montgomery County is quickly approaching a major milestone with its $40M Traffic Signal System Modernization (TSSM) program – the decommissioning of its COMTRAC Urban Traffic Control System (UTCS) computer.   By the end of June 2012 all traffic signals will have been converted over to a modern distributed control system providing the county with significantly enhanced system functionality built upon a greatly improved robust architecture. The county operates and maintains over 800 traffic signals in the suburbs of Washington DC, and all but about 12 of them are on an agency owned cable. About 550 of those traffic signals belong to the Maryland State Highway Administration (MSHA), but are maintained and operated by the County. The upgrade program began in 2007 with the first two years focused on the systems engineering process to develop various planning and design documents. In 2009 the County began the process of reconfiguring its extensive network of fiber optic and twisted pair copper cable plants to support IP-communications to all of its signal cabinets. Redirecting the copper cable to intersect the closest fiber access nodes allowed the county to utilize its existing fiber optic backbone to support this advanced communications network. Reuse of the copper cable saved the county from having to deploy fiber or other suitable media to all of its signal cabinets, saving not only time, but

upwards of $1.5M in new construction. Digital subscriber line (DSL) is used as the "last-mile" technology to connect traffic signal cabinets with the fiber network at which point Gigabit Ethernet is used as the backbone transport to the Traffic Management Center (TMC). The redesign also allowed the county to free up leased line data circuits to more than 60 signals.

The core network was operational in late 2009 allowing the county to begin the signal conversion process from the old to new system. At the peak of the signal conversion the county was upgrading about 24 intersections per week using a combination of County and contractor forces. The reconfiguration and cutover required painstaking planning and detailed documentation to ensure the old system and signals remained operational while the new system and signals were slowly brought on line. Currently, there are only 12 signals remaining on the old system. These are expected to be brought on line using cellular data communications by the end of June 2012.

The next phases of this project includes installing battery backup units at all County intersections and many of the MSHA intersections, replacing signal cabinets where necessary, upgrading and adding to the system detection network and incorporating many of our devices that are currently not in a system (e.g. hazard identification beacons, school flashers, etc). ❧

Delaware's Integrated Transportation Management System

By Holly Rybinski,
AECOM

Delaware's ITMS program started with the Delaware Integrated Transportation Management Strategic Plan (December, 1997). From the start, transportation management has been treated as a capital program in Delaware. Every capital project is reviewed for inclusion of ITMS elements. FHWA continues to call for the "diligent application of Intelligent Transportation Systems (ITS) technologies". ITMS is Delaware's ITS program, only Delaware emphasizes integration and management just as much as technology. ITMS program highlights include:

⇒ TEAM approach with internal and external stakeholders
⇒ Integration of operations and planning
⇒ Traffic responsive signal operations
⇒ Management of all events impacting transportation, including major weather events
⇒ Multi-modal systems
⇒ Traffic monitoring and real-time traveler information

Integration
Delaware's ITMS program is a team effort led by DelDOT's Transportation Management Center (TMC) in Smyrna. The program's diverse agenda involves coordination with all divisions of DelDOT, emergency responders across the state, neighboring agencies and key partners such as FHWA, WILMAPCO and the University of Delaware. By working as a team, incidents are detected faster, solutions are developed smarter, and great efficiencies are gained by sharing resources and information.
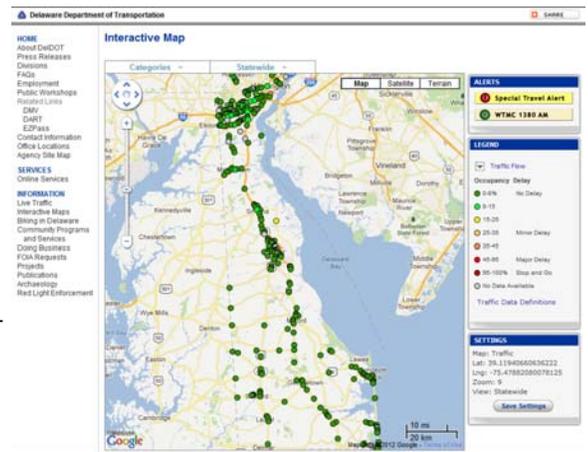
Management
The ITMS program is composed of four functional areas: control, monitoring, information and telecommunications. Since transportation is dynamic in nature, the TMC performs its functions in an iterative manner, real-time, on a 24-7 basis.

Technology
Technology provides the toolbox for DelDOT to manage the transportation system in an informed manner, and to share information with the public. DelDOT has built an integrated system with a variety of technologies. The database and associated software interfaces have always followed an open architecture that enables DelDOT to adjust with changes in the industry, while also integrating with state agency programs.

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ITS Maryland welcomes Delaware to be a partner within the state chapter.

Active Traffic Management: Unifying ITS Technologies to Enhance Mobility

By Roger Boothe, CH2M Hill, Inc.

The Greater Baltimore Area has many things in common with the other great metropolises of the East Coast – fantastic restaurants, an elite NFL franchise and a unique dialect, to name a few. Unfortunately, an overburdened interstate/arterial system with little room or money for expansion is another.

To address this shared concern, Departments of Transportation in the Mid-Atlantic are turning their attention to an operations strategy that has proved effective in Europe for some time: Active Traffic Management (ATM). ATM can be an effective and highly cost-efficient means of increasing mobility and throughput while enhancing safety on major interstates in the region, including I-695, I-83, I-70, I-270 and, of course, I-95.

Active Traffic Management is the ability to dynamically manage recurrent and nonrecurrent congestion based on prevailing traffic conditions. ATM uses an integrated set of operating strategies and technologies for managing traffic. An ATM system continuously monitors traffic and roadway conditions and supports rapid response to incidents and other on-the-road changes. The system collects information on conditions using monitoring equipment such as vehicle detection sensors, closed-circuit television cameras, and other devices. Using the collected data, the system employs a host of automated tools to manage traffic conditions safely and optimize traffic flow.

The use of electronic signs is a key element of ATM – the signs are typically lane-specific and closely spaced so that travelers can be informed almost constantly about traffic conditions and provided with guidance on how best to proceed.

ATM has been widely used in Europe, including the United Kingdom, the Netherlands, and Germany, with significant benefits . ATM has recently been introduced in the United States, in Seattle and Minneapolis, as part of the FHWA Urban Partnership Agreement (UPA). Seattle's Smarter Highway signage includes signs over each lane that re-main blank when traffic is flowing normally. When traffic begins to slow down, the signs display regulatory speed limits (less than the normal 60 miles per hour). The signs can also be used to display directional arrows for dynamic lane control, although speed limits and lane control are not shown in an alternating sequence as was originally planned. Traffic information DMS on the VSL gantries are used to provide warnings and other text-based information to drivers.

Experience internationally and in the United States suggests that ATM could be a viable solution to congestion, safety, and even construction funding concerns on Maryland's key interstates.

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EXHIBIT 1.   BENEFITS FROM ATM SYSTEMS IN EUROPE

The FHWA 2006 International Scan of ATM systems in Europe identified multiple benefits. Depending on the location and the combination of strategies deployed, specific ATM benefits measured in Europe included:

Increase in average throughput for congested periods of 3 to 7 percent.

Increase in overall capacity of 3 to 22 percent.

Decrease in primary incidents of 3 to 30 percent.

Decrease in secondary incidents of 40 to 50 percent.

An evaluation of the Managed Motorway System on the M25 (London Orbital) in the United Kingdom – consisting of variable speed limits and dynamic lane assignment – showed a decrease in the number of shockwaves, with a reduction from a typical seven shockwaves per morning rush hour, down to a typical five. Other benefits included:

Injury accidents decreased by 10 percent.

Damage-only accidents decreased by 30 percent.

Emissions decreased overall by between 2 percent and 8 percent.

Weekday traffic noise adjacent to the scheme was reduced by 0.7 decibels.

Active Traffic Management on the A9 in Germany has resulted in major reductions in accidents (e.g., a 35 percent reduction in the number of accidents and a 31 percent reduction in the number of injuries), plus fewer bottlenecks and more throughput during peak hours.

Spring Seminar and Social

By Diederick VanDillen, Jacobs Engineering Group

The Spring Seminar is an opportunity for extended training and information exchange in a casual format similar to our lunch & learns. This year's event held on May 10, 2012 and hosted by Telvent in Rockville, MD was an outstanding success with 25 people in attendance, 6 presentations, and 7 presenters. The theme, "Practical Planning and Operational Applications of New Traffic Data Collection, Aggregation, and Fusion Technologies" brought together members from academia, industry, and public agencies to discuss ongoing local projects whereby probe data is being used in innovative ways.

Stan Young, Traffax Inc. and UMD-CATT, discussed the use of BluetoothTM traffic monitoring (BTM) technology developed at the University of Maryland and commercialized through Traffax for measuring arterial and special use lane performance. Local arterial implementations along a section of Rockville Pike in Montgomery County offered some interesting insight into the unique characteristics and considerations of surface street traffic. This leading edge work is paving the way to understanding the potential uses of this wide area surveillance technology, possibly as a real-time feedback loop into traffic signal controller timing.

Nikola Ivanov, UMD-CATT, pro-

vided an overview and demonstration of the Vehicle Probe Project Suite of software tools developed by the CATT lab to translate aggregated data into "actionable information" for decision making. The lab fuses vehicle probe data with incident data to allow state agencies to generate statistical reports, identify problems on the roadways, evaluate projects in concept development, and quantify the roadway performance before and after construction projects to estimate the return on investment. The center relies on multiple sources of both public agency and privately sourced data such as INRIX.

Bala Akundi & Ed Stylc, of the Baltimore Metropolitan Council, and Wenjing Pu, of the Metropolitan Washington Council of Governments, offered insight into the use of probe data for performance measurement in their respective Congestion Management

Process and other planning and programming activities. Each MPO is able to augment more traditional data collection methods with the UMD-CATT data and tools to provide a more composite picture of actual network conditions. This information is being used for greater Management and Operations Planning, Regional Transportation Priorities Plan and local jurisdictional studies.

Subrat Mahapatra, MD State Highway Administration, uses similar datasets and applications derived from advanced probe technologies and traditional ITS detection techniques for performance based planning. State roadway congestion and reliability performance measures are the outcomes of this effort which SHA uses for its Business Plan reporting, project identification, prioritization, and programming decisions.

Rick Dye, MD State Highway Administration, provided an update on

CHART use of INRIX data to display travel time information to the motoring public on its Dynamic Message Signs (DMS). The program has increased to 47 DMS signs throughout the Baltimore-Washington metropolitan region and on the way to the Eastern Shore. The Maryland Transportation Authority (MDTA) also uses CHART for travel time displays on their signs. CHART continues to investigate different strategies of information content and display to improve the utility of this service.

Committee Updates

Communications Committee
Chair: Kevin Lee, Kittelson & Associates, Inc.

The ITS Maryland Communications Committee is focusing on producing materials that are content focused in order to educate the community and connect technology advances to the various transportation related areas. There are two main ongoing activities within the committee, the newsletter and the website.

Newsletter: The main goal for the newsletter is to provide valuable content to the readers. The newsletter provides an opportunity to share successes and lessons learned to the ITS community. The newsletter will have at least one project focused article which will highlight the project, value to the client and users, and the project team. Additionally, the newsletter will provide an update on committee activities, upcoming ITS MD events, and industry news. There are a number of open volunteer opportunities including editing, graphics, and content management.

Website: It has been over 10 years since the ITS MD website (www.ITSMD.org) had been fully updated. A key goal for is to refurbish the existing website to make it more user-friendly and appealing. Currently a task force is working through the vision and content management aspects of the website. It is not too late to participate in the website redevelopment effort and we welcome thoughts, feedback, and assistance.

Membership Committee
Chair: Krystal Oliver, Telvent USA Corporation

The Membership Committee is tasked with the awesome responsibility of maintaining, reviving and growing the membership of ITS MD. In observing ITS MD events and programs, we are able to assess and help improve the benefits of membership to our student chapters and DC, MD and DE participants. We aim to make sure our organization is comparable if not better than our peers in structure, resources, relevance and value.

The Membership Committee recently met to discuss the benefits of membership we currently offer and brainstorm ways to expound upon them. We also created a new ITS MD brochure that advertises our mission, purposes, activities and current officers. We now plan to focus our efforts on reaching out to past members for reinstatement, establishing new membership and developing student chapters.

Awards and Nominating Board Committee
Chair: Nikola Ivanov, University of Maryland

ITS MD strives for excellence in chapter governance and achievement of goals of providing a forum for coordination, communication, education, training, and outreach among its members.

The Awards and Nominating Board Committee manages the annual board nomination and election process to ensure fair and smooth transition of the governing body. Through this process ITS MD members are able to nominate and vote for the new officers and members of the Board of Directors.

The Awards and Nominating Board Committee is also responsible for managing the ITS MD Scholarship Awards Program. ITS MD recognizes the need to invest in the new generation of engineers, developers, and architects that will be the future of the transportation industry. The scholarship program provides financial assistance to undergraduate and graduate students in need. This competitive program includes several universities in Maryland, DC, and Delaware, and encourages students from different disciplines to apply.

ITS MD is proud of its accomplishments in the fields of networking, outreach, and advocacy, effective organizational and professional development, and strong and engaging chapter governance. Awards and Nominating Board Committee mem-

Committee Updates, continued

bers are active in sharing their best practices and lessons learned with other chapters nation-wide and in this spirit the committee competes for annual ITS America National Chapter Awards that include Outstanding Chapter Award and Membership Growth Award.

Program and Events Committee
Chair: Diederick VanDillen, Jacobs Engineering Group

The ITS Maryland Program and Events Committee is responsible for planning, organizing, and running the Annual Meeting, Maryland Legislative Technology Fair, Lunch & Learn sessions, social events, and other outreach activities.

The ITS MD Annual Meeting subcommittee has started planning our annual meeting to be held this fall. Last year's event, held in western Maryland with our neighboring chapters in Virginia and Pennsylvania, was a great success. Stay tuned for more updates and opportunities to get involved.

Lunch and Learn (L&L) events provide an ongoing opportunity to get together and share experiences, to learn about new technologies, applications, or processes. These gatherings offer a less formal opportunity to interact, network and enjoy some camaraderie while gaining in-depth knowledge in a topical area of interest. Meetings are normally held 5-6 times per year depending upon interest and volunteers. Events can easily be added so let us know if you have a particular technical area of interest,

would like to present, or would even like to host an event.

Our annual Orioles Baseball game and cookout during the summer is always a popular event and great way to get together in a relaxed atmosphere.

Additional Committee:

Governance, Budget, and Finance Committee
Chair: Keith Riniker, Sabra, Wang & Associates

FOR MORE INFORMATION

Please stop by the ITS Maryland booth at the ITS America pavilion in the exhibit hall. Also contact Janette Prince at 301-403-4623 or janette@umd.edu.

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