



ITS PULSE

Volume 7
Issue 1
February 2008

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and
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New Tools Give Motorists the Driving Edge

By Sally Oxenhandler, Missouri Department of Transportation

Permanent electronic message boards, an online traveler information map and around-the-clock customer service are three new tools the Missouri Department of Transportation is offering to help motorists get where they're going quickly and safely. The resources are part of MoDOT's new Driving Edge initiative, an umbrella program that provides highway information before you travel, along the way and around the clock.

"The Driving Edge gives motorists all the information they need for a safe and uneventful trip as they head out on our highways," said MoDOT Director Pete Rahn. "These cutting edge tools help travelers plan their trip and get updated information so they can avoid delays and frustration."

Under the Driving Edge, 48 electronic message boards have been installed along Interstates 70 and 44 to inform motorists about road closings, accidents, hazardous road conditions and even Amber Alerts

on missing children. A sample message might say: "Accident ahead. Use outer road." The signs are located where they're easy to see and where travelers can decide to get off the highway if traffic is backed up. Messages can be changed instantaneously with the push of a computer button.



MoDOT's new Traveler Information Map shows travelers what lies ahead before they leave home. Located at www.modot.org, the map provides work zone information, highway closings and weather-related road conditions on one easy-to-use site.

To enhance customer service, the department's toll-free telephone number —888-ASK-MODOT—is now answered 24 hours a day, seven days a week. MoDOT has offered the toll-free number for many years, but until now after-hours calls outside of the St. Louis and Kansas City areas went to an answering machine. While motorists should still use 911 for emergency calls, the 24/7 customer service line will help address customers' needs after hours.

"People are always out and about on our highways, so we need to be accessible to them," Rahn said. "We know things don't just happen between 8 a.m. and 5 p.m."

Other traveler information tools included under the Driving Edge:

- Traffic Management Centers in St. Louis, Kansas City and Springfield monitor the roadways, respond to congestion and incidents and deliver real-time

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President's Message

By Tom Dancey

With new years, come new resolutions. Even if you have never been much for making New Year's resolutions, you have to admit there is something about

a new year that gives us cause to at least reflect on our priorities. Like a growing nautilus builds a new larger chamber in which to live while sealing off the old, the New Year offers the chance to re-evaluate and expand the confines in which we operate. And it seems we don't always have to look for areas to expand in size, but also identify where we can improve what we already have.

2008 will bring both expansion and improvement to the various ITS programs throughout our Heartland region. Here is a sampling of what to look forward to in the coming year.

With an expanded ITS budget and expanded staff, Iowa DOT has identified 19 major efforts to pursue in the coming year. These initiatives will bring about growth in deployment and improvement in operations and management with greater involvement from field personnel.

Missouri will be focusing on several areas including rural DMS communications upgrades; subscription-based pushed traveler information, especially to motor carriers; implementation of variable



Dancey

speed limits along Interstate 270 in St. Louis; and expanded deployment of roadside devices and traffic management in the Kansas City, St. Louis, and Springfield metro areas.

Strategic planning will be key in Nebraska where, in addition to continued implementation of traffic management and traveler information services, architectures will be revisited and needs will be assessed and prioritized to most effectively allocate future funding and resources.

Travelers will be better informed throughout the state of Kansas through DMS deployment all along Interstate 70, travel time displays in the Kansas City metro area, and improvements to 511 and web portal. Roadways in the Wichita area will be better managed with its ATMS deployment.

Oklahoma will see a mix of existing system improvements including DMS communication upgrades to support IP and grounding system improvements for CCTV. Plans for new deployment include rolling out a Road Weather Information System and installation of several new DMS between Oklahoma City and Tulsa.

As academic, public sector and private sector stakeholders alike are partnering to realize these goals as well as numerous objectives not mentioned here, we too as the chapter established to represent our region should make it a priority to grow in our support and promotion of these advancements. Looking to

this year and beyond, we are working to expand our membership and improve the resources we provide to share the ideas and wealth of information from the wide range of ITS professionals in our community. Even with our growth in membership to its present count of 233, we can improve in reaching out to many more individuals and organizations that are working to create a better transportation system of the future.

With this future in mind, the chapter is also seeking to provide opportunities for the students in our region's universities to participate in this information exchange. The Student Outreach Committee is working to reach a greater number of students by helping to sponsor their attendance at the Annual Meeting in Springfield, April 7-9. Through this and other outreach efforts, I hope to see many new names on our information distribution list and new faces when we all come together again in April.

With its diverse technical program, workshop, tour, and technology showcase, our 9th Annual Meeting will once again provide a chance for us all to learn and grow while making new acquaintances and catching up with old friends. It's not too late to add one more resolution to your list that will be easy to keep—register now and resolve to attend!

I wish you a very happy and prosperous 2008.

See you there...
ITS Heartland
2008 Annual Meeting
April 7-9, 2008
Springfield

ITS Pulse Contributors

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Kansas ITS/ATIS Update

By Karen Gilbertson, Shari Hilliard and Barb Blue,
Kansas Department of Transportation

ITS Architectures Nearing Completion

KDOT has completed work on its statewide ITS architecture and is finalizing a maintenance plan. The architecture was developed by URS following two rounds of statewide stakeholder meetings. In the past year, KDOT has also provided assistance in the development of two regional architectures in Kansas.

The Topeka Regional ITS architecture was recently completed and was developed by Iteris, with the assistance of area stakeholders and agency partners. This architecture considered the numerous challenges in addressing inventory and needs from two perspectives—as a “Capital” city and as a local community. The ITS Architecture for the City of Lawrence/Douglas County is nearly complete and is being developed with the assistance of Kimley-Horn and Associates. KDOT Urban and Statewide Planning and Traveler Information staff assisted the KDOT ITS unit in these important efforts, as well as FHWA and many other state and regional stakeholders. The cooperative efforts of all those involved have produced a valuable tool for ITS efforts in Kansas.

Wichita Advanced Traffic Management System Project Kicks-Off

November 2nd was the date for the kick-off of the Wichita/Sedgwick County Freeway Traffic Management Center (TMC) project. This project involves the design of a freeway management system for the Wichita metropolitan area. Telvent has been selected to lead the design effort that will include development of ATMS software, and design of the Traffic Operations Center and field equipment such as Dynamic Message Signs, closed circuit television cameras, vehicle detectors, and ramp metering. The goal of the freeway management system will be to improve mobility and safety in the Wichita metropolitan area by helping to decrease incidents, improve emergency response time and provide improved traveler information.

I-70 Corridor Deployment of Dynamic Message Signs and CCTV Cameras

KDOT has undertaken a large scale study and is planning deployment of DMS and CCTV cameras to provide travelers better information on road closures, construction and maintenance activities, detours, incidents and special events in order to improve mobility along the I-70 corridor. I-70 is the major east-west interstate corridor in Kansas used by local travelers, commercial vehicles, and others crossing the prairies between the Missouri Valley and Colorado. The study will lay out an optimal deployment, with high priority locations selected for early deployment. The Kansas Turnpike (KTA) and the Kansas Highway Patrol are strong partners in this endeavor.

Current activities include site selection and coordination with KDOT District staff. Plans call for a May Letting. KDOT is currently establishing statewide contracts for DMS and CCTV cameras to facilitate the construction process. Control of signs and cameras will be achieved through a hybrid virtual Traffic Operation Center (TOC) and will incorporate eight DMS that are under construction along I-70, US 81 and I-135 in the Salina area. Vanus, Inc. is the design consultant assisting.

Kansas Advanced Traveler Information System (ATIS) Strategic Plan Nearly Complete

The Kansas ATIS Strategic Plan, developed with the assistance of PBS&J, is in final draft and is expected to be completed by early March. The comprehensive plan recommends strategies, tactics and direction for KDOT and its partners to attain the goal of developing an ATIS in Kansas that is a cost-effective, integrated extension of ITS. The focus is on improving traveler access to consistent, accurate and timely information that is needed to have a safe, efficient and satisfying trip. An overview of the plan and its recommendations will be presented at a session at the upcoming ITS Heartland Annual Meeting in April.

New Tools, continued from page 1

- information to travelers through the media, Web sites, electronic message signs and highway advisory radio.
- E-Updates provide transportation information via e-mail.
- Emergency reference markers are located every two-tenths of a mile on Missouri interstates to help pinpoint exact locations in case of emergencies.
- Map My Trip is a Web-based travel information tool that helps St. Louis motorists find alternate routes

- around highway and ramp closures, especially along the Interstate 64 reconstruction project.
- St. Louis 511 provides around-the-clock, real-time traffic information in the St. Louis area by calling 511.

More information on the Driving Edge, including links to all of the traveler information tools, can be found at www.modot.org/drivingedge.

MAPA Introduces New Metro Rideshare

By Tara Ryan, Metropolitan Area Planning Agency

Metro Rideshare is a free web-based carpooling program available to any commuter within the Omaha Metro five-county region, including Douglas, Sarpy, Washington, Mills, and Pottawattamie counties. Only one end of the commuter's trip needs to be in this region. For example, a person living in Lincoln who commutes to Omaha each day (or vice-versa) can use the program because the destination (or beginning point) is within the five-county region.

One obvious reason that people should choose to carpool is the savings. AAA estimates that a carpooler can save \$2,600 a year with a short 10-mile commute to work. Obviously, as the distances become longer, the savings increase. Carpooling reduces wear and tear on vehicles and some insurance companies offer a discount. Other benefits that people may not typically consider when deciding to carpool is that it reduces the stress of the ride because it is shared with other people and carpoolers often times make great friends with the other commuters. Also, carpoolers have more free-time to chat, sleep, or read. Pollution reductions are also worth considering.



How Does It Work?

An interested carpooler begins the process by logging onto www.MetroRideshare.Org. The user can then create an account in about five minutes. After that, instant matches will appear in the user's profile, and



the interested carpooler can browse his or her matches and decide which one(s) might be a possible fit for their commute. The personal information of all users is protected on the Web site and there are various safety tips that users should review before agreeing to join a carpool.

Gaining Support

Omaha Mayor Mike Fahey is supporting Metro Rideshare and has said, "Carpooling, when possible, eases traffic congestion, benefits the environment, saves money, and provides an opportunity to socialize with co-workers, among many other positives. I ask businesses to join this effort and encourage employees to take advantage of MAPA's new Metro Rideshare carpool program."

Also, a partnership program was formed and is offered to employers throughout the area. Friends of Metro Rideshare is a program developed to help ensure the sustainability of Metro Rideshare. Companies, businesses, universities, and organizations in the five-county region are asked to sign on with this program and become a partner of Metro Rideshare. In doing so, they agree to implement several steps to help increase membership.

**Check out
these
Web sites:**

www.kcscout.net
www.GatewayGuide.com
www.nebraskaI80construction.com
www.safetravelusa.com

www.511ia.org
511.ksdot.org
www.OzarksTraffic.info

NDOR Will Host Product Showcase

By Jim McGee, Nebraska Department of Roads

The Omaha Scott Conference Center will be the site of the May 28, 2008 Maintenance Decision Support System Product Demonstration Showcase.

The event is expected to attract 75-100 participants from several states and federal agencies, including Nebraska, Iowa, South Dakota, Kansas, Colorado, Wyoming, and Utah, the Federal Highway Administration and the National Weather Service, according to Mike Mattison and Dalcyce Ronnau of NDOR.

Mattison and Ronnau of NDOR are coordinating the event with Ray Murphy of the FHWA Resource Center.

The MDSS Pooled Fund Study is the result of a multi-state effort to bring about an operational Maintenance decision Support System for state transportation agencies. MDSS is a multi-year effort to prototype and field test advanced decision support for winter maintenance managers. MDSS solutions represent the next steps in the weather and maintenance information and incorporates Intelligent Transportation Systems into winter maintenance operations. Weather and winter highway maintenance operations safety have high financial impact to DOTs, local public works departments and motorists.

MDSS solutions represent a step in an evolving process of merging the weather and maintenance information to allow for safer roadways and will improve the ability of state and local transportation agencies to forecast road conditions in response to changing weather and applied maintenance treatments. One expected benefit of MDSS is a cost savings in the materials used to treat winter roadways and bridges.



KC Scout Earns APWA Operations Program Excellence Award

The Kansas City Chapter of the American Public Works Association honored Kansas City Scout with the 2007 Operations Excellence Award for Scout's Travel Time Implementation Project. The award was presented to Gina Myles, Community Relations Coordinator for Kansas City Scout at the annual APWA Holiday Party held at the Argosy Casino on December 17, 2007. The Operations Excellence Award recognizes outstanding public works operation programs that improve the efficiency and effectiveness of governmental operations, and improve the quality of life for those who live and work within that community.

Kansas City Scout launched Travel Times, a key weapon in congestion management in January 2007. Travel Times represents the time it takes a driver, driving at current freeway speeds to travel from one fixed point to another target. Scout's Travel Times are calculated using the vehicle detector station (VDS) equipment in the roadway. Travel Time information once

calculated by the system is automatically posted and then updated continually on Scout's Dynamic Message Signs (DMS). If data cannot be retrieved by the system no Travel Times are displayed on that particular DMS to ensure that the public only receives accurate information.

"This award is truly a team effort and a testament to Scout's great operational team," says Scout Director Jason Sims. "Every department in Scout has to ensure that operations is the main focus so that Scout can provide the best information to the motorist as possible."

Kansas City Scout is a bi-state traffic management system that uses technology such as closed-circuit cameras, electronic message boards, and sensors to monitor and manage traffic on more than 90 miles of local freeways. The Kansas and Missouri departments of transportation launched the Scout system in 2004 and jointly maintain and operate it.

Iowa DOT Has Experience with AGM Batteries for ITS Field Devices

By Mike Malone, Iteris

The Iowa Department of Transportation (DOT) has recently started using Valve Regulated Lead-Acid (VRLA) Absorbent Glass Mat (AGM) batteries for ITS field devices. They have previously used other deep cycle batteries, such as flooded lead acid and gel electrolyte sealed lead acid (Gel) batteries, but they have replaced most flooded batteries with either Gel or AGM batteries.

Frequent maintenance and shorter life are two primary reasons why flooded cell batteries are being replaced in field ITS devices. Research conducted as part of this project indicates there is not widespread use of AGM batteries based on limited responses from other state DOTs. This article provides a brief overview of the Iowa DOT's experience using AGM batteries for ITS field devices.

AGM batteries are seeing increased use in solar electric systems and other applications as their price comes down and as more systems are installed that need to be maintenance free.

Advantages of AGM Batteries

- Better cycling and depth of discharge compared to flooded or gel batteries



Figure 1: AGM batteries in a cabinet for Wavetronix Sensor

- Charges faster than flooded or gel batteries
- Can be mounted in any position, require no room for venting
- Low internal resistance, explosion-proof and valve regulated gas emission
- Maintenance-free; typical lifespan of five to eight years
- Does not spill acid or generate gas in normal operation

Limitations of AGM Batteries

- Price is more when compared with the flooded lead acid batteries
- Overcharge can lead to permanent damage

The Iowa DOT currently has approximately 380 AGM batteries currently deployed in field ITS devices (DMS, sensors, ATR, etc.).

To determine how AGM and non-AGM batteries are performing at various ATRs, sensor, and DMS field locations, 44 AGM and 35 non-AGM (Gel) batteries were tested in July 2007. The "SOCTESTER" (Model 140) was used to test the batteries. The SOC140 battery tester measures the battery's state of performance and verifies the battery's ampere-hour (Ahr) rating. The SOC140 applies a 20-hour discharge test to determine the battery condition or State of Charge (SOC) of the battery. The discharge test is considered to be the most accurate method for determining the condition of the battery. The SOC of a battery is its available capacity expressed as a percentage of its rated capacity. This factor (SOC) is extremely important for batteries deployed in the field as it would enable concerned authorities to determine when it's best to replace the battery.

Most of the AGM batteries tested were Power Sonic



(Wavetronix Sensors), Leoch Power (DMS units) or Interstate (remote ATR units).

Summary of Test Results

- All the Power Sonic and Leoch batteries were deployed in 2004.
- Interstate AGM batteries were deployed in early 2007.
- Of the 36 Power Sonic batteries tested (Wavetronix Sensors), only one battery showed unsatisfactory SOC of 60%.
- The four Leoch batteries tested (DMS) showed SOC of 90% or higher.
- Three out of four Interstate AGM batteries being used in ATRs showed SOC of 70% or lower.
- Overall, of the 44 AGM batteries tested, only four batteries showed a SOC lower than 80%.

A majority of the AGM batteries tested provided good results (SOC > 80%). Additional testing is recommended due to the small sample size of some of the AGM brands tested. Based on the results of this research and continued reliable operation of AGM batteries deployed in ITS field devices since 2004, the Iowa DOT anticipates more widespread use of AGM batteries in the future.

For the full report or additional information regarding this article, please contact Willy Sorenson, PE, Iowa Department of Transportation ITS Engineer.

Oklahoma Update

By Alan Stevenson, Oklahoma Department of Transportation

We “Okies” are still down here and the ITS is go-innng on. But some days, ITS is strong and growing, and other days, well, we’re just happy we have some ITS in the state. Lately, ODOT has been working very hard on improving the systems we have rather than deploying new ITS systems. Here are some of the things we are working on.

Many of our DMS are older analog telephone systems using single port serial servers for communications. We are upgrading the systems to support IP “real-time information,” not old snail dial-up any more. Then we can support real-time travel times for different routes.

Lightning has been playing with our CCTV and web cameras—someone forgot to tell me that 63’ and 84’ steel poles were magnets for electrical discharge. We are currently working on several different approaches for helping to ground the camera poles better.

We are also going to look at all the DMS and Communication Huts locations about possible grounding improvements.

Our first Road Weather Information Systems has been awarded in 2007 and is under construction. We expect the demonstration project will lead to many more installations. We are installing non-intrusive devices and two types of cameras: infer-red and low light.

We have installed GPS tracking devices in some of ODOT's vehicles and personnel cell phone to monitor where each one is and to look at a low-cost assets recovery program. It can be very difficult to find stolen front end loaders, backhoes, and etc.

The ITS public web site has not been released, but has had many upgrades since last year. We added mouse-over information and vehicle speeds by lane. Moving between camera locations can be done with the click of a button.

We have completed all the ITS ear-marked funded projects and are now working to integrate ITS into new capital and reconstruction projects. Our next big project is a joint partnership between the Oklahoma Turnpike Authority and ODOT to install nine (9) DMSs between Oklahoma City, Turner Turnpike, and Tulsa regions.



REGISTER ONLINE TODAY & MARK YOUR CALENDARS!

9th ITS Heartland Annual Meeting

April 7-9, 2008

Springfield, MO

University Plaza Hotel
& Convention
Center



Technical Program will include:

- Incident Management
- ITS Planning/City/Metro Issues
- Multi-State Cooperative Programs
- Data/Video Sharing
- ITS Performance Measures
- Integrated Corridor Management
- Rural Transit
- Advanced Traveler Info. Systems
- Future Technologies on the Horizon
- Springfield TMC Technical Tour
- Networking/Video Technical Workshop

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For more information and registration go to <http://www.itsheartland.org/>

Upcoming Events

By Jim McGee

Twenty technical exhibits will be included at the 2008 AASHTO Bridge and Structures Annual Meeting in Omaha next May. The one-day technical fair will feature bridge and infrastructure inspection and protection technologies and is the first time that the national conference has had technical exhibits.

The AASHTO Sub-Committee on Bridges and Infrastructure will meet in Omaha May 18-23, 2008. More than 500 bridge engineers, federal officials and others are expected at the event.

ITS Heartland Chapter

ITS Heartland Annual Meeting Event!

Monday, April 7, 2008

Dinner at 6:00 p.m (before the game)

Springfield Cardinals 

Vs.

Midland RockHounds 

Hammons Field-just one block from the hotel!
All You Can Eat Buffet at J. Buck's Patio (Located in Right Field)
First pitch at 7:10 pm.

Sponsored by Springfield area Consultants and Contractors.

Register by March 18th for guaranteed group seating during the game. Price is included in the meeting registration.
Extra event tickets available for \$25 each.



ITS America's 2008 Annual Meeting to Combine with the 15th World Congress on ITS

With the theme of "ITS Connections: Saving Time, Saving Lives," the 15th World Congress on Intelligent Transport Systems & ITS America's 2008 Annual Meeting and Exposition will be the largest event in the world for ITS leaders, policy makers and other industry professionals. An expected 10,000 transport executives and ITS professionals from around the globe will come together at the Jacob K. Javits Convention Center in

New York City from November 16-20.

Delegates to this combined event will have access to more than 200 policy and technology

sessions, tours, a 200,000-square-foot exhibition hall, and opportunities to connect with an international audience.

A broad range of technical tours will also be available to delegates. These tours will feature both state-of-the-art facilities including the New York State Department of Transportation's INFORM Center on Long Island, as well as transport facilities, such as the George Washington Bridge, "the busiest vehicular crossing in the world."

* * * * *

Experience Dynamic Technology Demonstrations at the World Congress on ITS

The 15th World Congress on ITS will be the most dynamic way to experience ITS. This event will

feature the largest fully-integrated demonstration of vehicle-to-vehicle and vehicle-to-roadside communication technologies and services. This demonstration will include innovative mobility solutions operating on the streets and highways of New York and will build upon the success of the Innovative Mobility Showcase that proved to be of enormous interest at the 14th World Congress.

VII Test Beds

Three DSRC-equipped test beds are being developed in and around New York City. These include a freeway test bed on the Long Island Expressway and two arterial test bed loops on the streets of Manhattan near the Convention Center. These test beds will be used to demonstrate applications such as in-vehicle signing, warnings, traveler information and e-commerce.

Tour buses will be equipped with video screens that will replicate a driver interface so large numbers of delegates can experience these various applications. The test beds will be built in compliance with the National VII Architecture and will be left in place after the World Congress to serve as a national VII test bed for future research and development.

11th Avenue Theater

Located in front of the Jacob K. Javits Convention Center, the 11th Avenue Theater will be the site of live demonstrations of active safety systems and other dynamic applications not practical to conduct in real traffic. This site will be used primarily by automotive OEMs to demonstrate active VII-based safety systems. The DARPA Urban Challenge autonomous vehicles may also be included.



Delegates will be able to watch these demonstrations in a narrated, theater-like environment in front of the Convention Center.

VII Transportation Management Center of the Future

The third component of the demonstration is the VII Traffic Management Center of the Future. The VII TMC of the Future will be located inside the exhibit hall and will feature a video wall, work stations and will illustrate transportation systems in 2020. Actual raw probe data will be brought into the VII TMC from the tour buses and other DSRC-equipped vehicles in the New York area. This data will be displayed in the VII TMC inside the exhibit hall and delegates will be shown how vehicle-based sensor data can be used to generate information useful to highway operations. The VII TMC will also demonstrate probe vehicle-based applications of VII such as the generation of travel time data, signal timing, weather forecasting and road condition warnings.

* * * * *

Event registration will open in April. For the latest information on the 15th World Congress on ITS, visit www.itsworldcongress.org.