Volume 12 | Issue 1

August 2018

ITS Midwest NEWSLETTER

Illinois, Indiana, Kentucky and Ohio

www.itsmidwest.org

President's Message

Throughout the year, we have been working towards being more active as a Chapter. I have challenged each of our State Vice Presidents and each member of our Board of Directors to hold at least two activities this year in each of their respective States. My goal is to increase the interest and visibility of ITS Midwest and create regional networking opportunities. To that end, ITS Midwest has teamed with ITS America and the U. S. Department of Transportation's ITS Professional Capacity Building (BCP) program to hold the CV201 Preparing for Connected Vehicle Deployment course. On April 26, 2018 ITS Midwest held the class at the Illinois Tollway's Annex Facility in Lisle, Illinois. I would like to thank the organizing committee for their efforts, and the Illinois Tollway for a very successful training. Over 40 ITS professionals were in attendance. This training was also held in Cincinnati, Ohio on May 23, 2018. This training was well attended and very successful. Again, I would like to thank the organizers for this event.

Another CV201 Training is scheduled for July 26, 2018 at the IDOT District 1 training facility in Schaumburg, Illinois. Many of the people who could not make the April 26th training have registered for this event.

ITS America and the U.S. DOT have other training opportunities available, in addition to the CV 201 training. I encourage the ITS Midwest Officers and Directors to review the list of training opportunities, determine any interest, and organize another event.

This year the ITS Midwest, Illinois will be co-sponsoring an annual golf outing with Istitute of Transportation Engineers and Wmen Transportation Seminar. The outing is scheduled for August of this year. This outing is an excellent opportunity to network with others in the industry, and has been well attended in the past. Stay tuned for an announcement coming soon.

ITS America eld its 2018 Annual Meeting and Expo in Detroit, Michigan on June 4-7, 2018. The theme this year is Transforming Mobility for the 21st Century.

ITS Midwest is finalizing plans for its Annual Meeting. The meeting will be held in Indiana, and is scheduled for September 13-14, 2018. Save the date notices have been transmitted.

I recommend every ITS Midwest member to get involved and become more active with the Chapter. Contact your State Vice President, visit the website, www.itsmidwest.org, or contact me at ken.glassman@jacobs.com. I will be more than happy to assist you in any manner I can.

Ken Glassman, President of ITS Midwest

INSIDE THIS ISSUE

ITS MIDWEST: 2018 ANNUAL MEETING

The 2018 ITS Midwest Annual Meeting will be held in Indianapolis, IN. This two-day event will consist of technical sessions, roundtable panel discussions, a technical tour, vendor displays, and a social event.

SEPTEMBER 13-14, 2018
Indianapolis Motor Speedway Media Center Indianapolis, IN

More information to follow!

Check our website at www.itsmidwest.com for latest information.

April 26, 2018 FHWA CV 201 Workshop

ITS Midwest Staff

On April 26, 2018, over 40 attendees participated in a Connected Vehicles CV 201 Workshop. The workshop was offered by ITS Midwest in cooperation with ITS America and the U.S. DOT Professional Capacity Building (PCB) program. The training session was held at the Illinois Tollway's Annex Facility located at 2200 Western Court, Suite 120 in Lisle, Illinois.

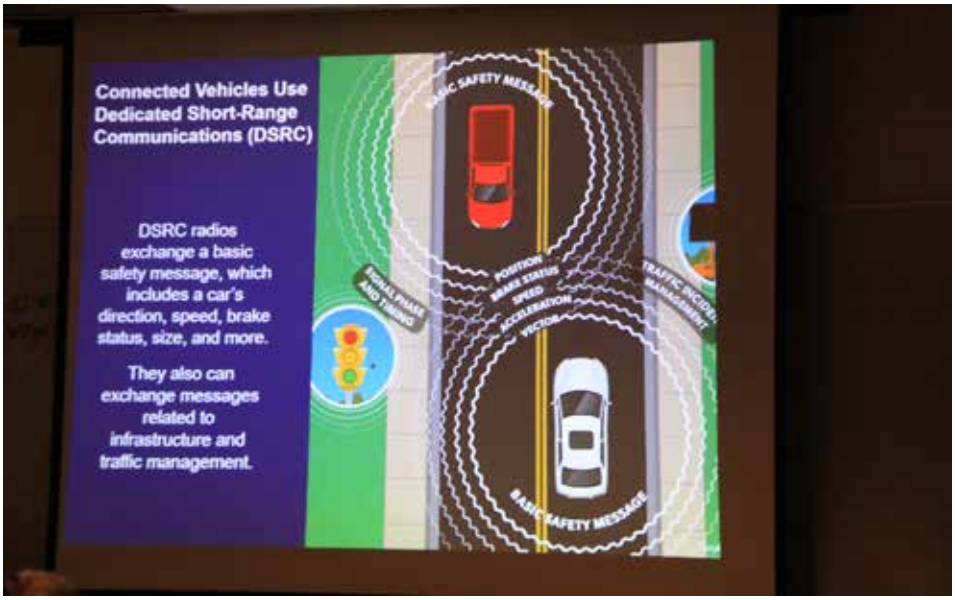
The CV 201 Workshop is a follow-up to the CV 102 Workshops held in 2016. While the CV 102 Workshops described how the various connected vehicle applications work and how they can be applied, the purpose of the CV 201 Workshops is to help transportation agencies that are beginning to plan implementation of a connected vehicle (CV) environment. This workshop is an important part of the ITS Joint Planning Office (JPO) ITS Professional Capacity Building Program, which have held programs in 38 States in the USA.

The workshop was opened with remarks from ITS Midwest President Ken Glassman. On behalf of ITS Midwest, he noted of the importance of providing these opportunities for ITS midwest members, and appreciated the large turnout for the session. He introduced Carlos Alban, Senior Project Manager of ITS America, who provided an overview of the CV 201 course and introduced presenters Ray Murphy from US DOT/FHWA, and Gustave Cordahi from the firm of Booz, Allen and Hamilton.

Ray Murphy went over the goals of the CV201 course and presented a refresher on the information covered by the previous CV 102 Workshops. Mr. Murphy noted how these workshops laid the groundwork for the CV201 Workshop. The primary goal of the CV201 Workshop is to prepare agencies to develop action plans in collaboration with their regional partners to improve readiness for CV deployment. Mr. Murphy also noted that applications of CV technologies must always include strong considerations of cyber-security issues, and that there are cyber-security training courses offered through the JPO. Mr. Murphy also presented an overview of CV Pilot projects and studies currently underway, including sites in Wyoming, New York City, and Tampa.

Carlos Alban of ITS America addresses audience

After the lunch break (lunch and refreshments provided by ITS Midwest), Gustave Cordahi discussed how agencies can prepare for CV technology, and how the agency self-assessment can lead to suggested activities/tasks which can be in-



CV 201 Presentation of CV Technology

corporated into an Action Plan. He also identified resources to assist agencies in these endeavors.

He explained the importance of identifying how this technology should be used to meet your agency's goals. He also stressed the importance of defining this relationship and establishing performance measures to track how well the technology applications further the agency goals. His presentation covered CV funding opportunities, and how your agency personnel can prepare to acquire the needed skills to manage CV projects and issues. Much of this information is available through the ITS JPO and resources available from the CV research program sponsored by the U.S. DOT.

At the conclusion of the meeting, participants were reminded the course is eligible for Professional Development Hours (PDHs), and that a confirmation of the attendance would be sent to attendees as a follow-up to the meeting.

ITS Midwest notes it's appreciation to Abraham Emmanuel, Deputy Commissioner of Traffic Safety & Technology of City of Chicago DOT for his efforts in organizing the registration for the event, and to Justin Potts of IDOT for organizing the refreshments and box lunch.

Danville Rolls Out ETA SPOT Transit Tracking Application

Lisa Beith
Director of Public Transportation
Danville Mass Transit

Danville Mass Transit, Danville, Illinois has recently installed a CAD/AVL system on our buses to assist ridership in trip planning and route tracking. Our dispatch office can track the buses through our management console as well as give callers a current status of their route. Riders may install an app on their smartphone called ETA SPOT or those without a smartphone may access the website at www.dmtpublic.etaspot.net. This allows users to see real-time information about any bus that provides service to their current location.

The CAD/AVL system is hosted through the Cloud, with all updates and server side management being handled by ETA. The only hardware we were required to buy was the additional equipment added to the buses. Luckily, we only had six buses that needed PA replacement for complete integration.

The system was purchased from ETA Transit Systems and has been fully operational on the buses for several months. An additional component that we chose to provide is onboard stop announcements. Pre-recorded messages provide location information for riders onboard the vehicle to assist those with visual impairments or those that are unfamiliar with the area.

Our request for proposals included the desire to use the mobile data terminals (MDT) that were installed by ETA to control the farebox operation, as well as the head sign integration. Due to our complex fare system, and the cost involved with doing so, we opted not to integrate the fareboxes. But the MDT does allow our operators a one-step approach to providing the stop announcements, tracking the vehicle, and changing destination signs with one log-in.

We originally planned to display real-time bus arrival information on our signs located at the transfer zone. We decided to abandon this because our route schedules were based upon a "leaving at.." statement rather than an "arriving at.." statement.

We wanted to be sure to have most of the issues resolved before promoting the service to our riders. We have shared the information regarding the app with a few of our younger more frequent riders, knowing that they would regularly use it and provide feedback about what could make the system more user-friendly.

The learning curve was great in installing our first CAD/AVL system. We are still ironing out some stop announcement issues, and we have seen a handful of things that we would have done differently. We began this project with a pre-existing General Transit Feed Specification feed, which accelerated the project immensely. If you have yet to install a system, I would encourage you to check with other systems who are using your vendors' system, and never assume that any question is a dumb question.

IDOT District 5 Continues to Expand ITS and Communications Infrastructure

Gary Sims, P.E.
Traffic Engineer, IDOT District 5

Ten years ago, the Intelligent Transportation System (ITS) in IDOT's District 5 consisted of a few isolated fiber segments accessed through dial-up land lines to provide serial communication to a small percentage of its traffic signals, and five Dynamic Message Signs (DMS) on the interstates in the Bloomington-Normal area. Today District 5 is well on its way to developing a robust ITS network providing fast, stable communication between the District Office and its field devices via fiber optic cabling.

IDOT District 5 consists of seven counties located in East Central Illinois. The District office is in the small town of Paris in the southeastern part of the District. There are three major urban areas within the district including Bloomington-Normal, Champaign-Urbana, and Danville, as well as several smaller municipalities. Within those seven counties, there are nearly 300 traffic signals located on the state routes. There are also six interstate routes that traverse the district. It is 130 miles from the District Office in Paris to the far side of the District in McLean County.

District personnel realized that the distance from the District office to the major urban areas within the district made it necessary take advantage of innovations in the ITS industry, so it could better manage its transportation assets from the District Office. They embarked on a program to install a series of Pan-Tilt-Zoom (PTZ) cameras and DMS signs at critical locations throughout the District, and at the same time upgrade the communication to their traffic signal systems from serial to Ethernet.

The most important component in any ITS system is the communication backbone. The only fiber present in District 5 was a few isolated stretches of fiber connecting a small percentage of the signals. A major fiber initiative was needed to expand the traffic signal interconnect, as well as tie those isolated system together, and bring it back to the District office in Paris. At first, this goal of having a fiber connection to all of the signals looked to be impractical, but after a series of projects expanding the IDOT owned fiber, as well as fiber swap agreements with third parties, and utilization of the Illinois Century Network (ICN) fiber installed along the interstates, that goal is much closer to reality.

There were seven different pieces of fiber in the Champaign-Urbana area providing serial communication up and down the street to various systems of signals. In 2009, a conglomerate of local agency governments joined together to install a vast fiber optic network consisting of seven backbone rings throughout the area. In 2014, this backbone was sold to ITV3, a cable TV and internet provider in the area. ITV3 approached the Department about the possibility of a fiber swap. An agreement was reached where ITV3 would provide IDOT use of fiber on each of their backbone rings in exchange for some use of IDOT's fiber at other locations. This is exactly what was needed to tie all of the isolated pieces of fiber together, as well as pick up some of the more outlying areas that were not practical for IDOT to run fiber to.

There were also separate projects in all three of the major urban areas to expand their signals to signal fiber optic interconnect and upgrade the communications within the signal cabinets. The old serial communication provided access to the traffic signal controller only. As part of the extensive ITS contract initiative set forth by IDOT's District 5, ethernet switches utilizing the fiber were installed. This allowed high speed communication to not only the traffic signal controller, but also other multiple devices within the cabinet including the detection system, conflict monitors, battery backup systems, pre-emption equipment, and any other device that was equipped with ethernet communication capabilities. At the same time, PTZ cameras were installed at critical intersections to provide remote viewing of the traffic flow from the district office.

At this point, the communication within the individual urbanized areas was fairly robust, but there was no path back to the District office in Paris. Virtual Private Networks (VPNs) through various internet service providers were used to bridge the gap, but those were not ideal for handling the large amount of video data that was coming from the ever-increasing number of PTZ cameras being installed in the field. A direct fiber connection was needed. In 1997, the Illinois Century Network (ICN) began to install a vast network of fiber throughout the state, much of it traversing up and down the interstates. In return for the use of its interstate right of way, IDOT was granted use of some of the fibers on this network. The long interstate paths were used to tie the isolated ITS systems together and offer a direct fiber path to and from the District Office in Paris to the remote areas of its jurisdiction. The first connections were established in December of 2017, which connected Paris to Champaign-Urbana and the second round of splices, which will expand the network to the Bloomington-Normal area, are expected to be complete in April 2018.

National Traffic Incident Management Responder (TIM) Train-the-Trainer Program Comes to Kentucky

Jennifer Walton, P.E. - ITS Program Manager
Kentucky Transportation Center
University of Kentucky

The Kentucky Transportation Cabinet and the Federal Highway Administration in partnership with the University of Kentucky's Technology Transfer Program (T2) teamed up in 2013 to implement the Traffic Incident Management (TIM) program. TIM addresses the challenges of moving people and goods efficiently and safely on the nation's highways. The program focuses on response efforts that protect motorists and responders while minimizing the impact on traffic flow. The TIM program was designed to teach participants three main objectives: responder safety, safe quick clearance, and prompt reliable interoperable communication. Since the inception of the program, Kentucky has trained over 6,700 first responders.

Dedicated to improving responder safety across the state, Kentucky hosted their sixth Train-the-Trainer workshop on November 1, 2017 at the Hilton Garden Inn Northeast in Louisville, Kentucky. The workshop was a success, training 40 participants ranging from all disciplines. The Director of Highway Safety, Dr. Noelle Hunter gave opening remarks to the participants explaining the importance of the training and how fortunate Kentucky was to have a room full of eager participants while master instructors Tim Emington, Operations Manager of TRIMARC, and Grady Carrick, retired Florida Highway Patrol Officer, delivered the eight hour workshop.

The Train-the-Trainer workshop is a national training program developed to build a team of well-trained, multi-disciplined responders who can work together as a unit in a coordinated manner from the moment the first emergency call is made to final scene clearance. The workshop trains participants on how to be TIM advocates who go out within their community and help bring a cohesive atmosphere to all first responders. As of November 2017, Kentucky has trained over 250 TIM trainers.

"The TIM training gives first responders the knowledge and skills to safely work a highway incident while still maintaining the flow of traffic, reducing secondary crashes, and lessening the economic impact" said Chase Deaton, East Region Incident Coordinator for the Kentucky Office of Highway Safety. He, as well as multiple other students, expressed their eagerness in becoming part of this TIM community to help spread the lesson objectives and achieve the ultimate goal of having all first responders on the same page working together.

Since first responders continue to face the danger of being struck and killed on a daily basis, Kentucky will continue to strive to see that all first responders get home safely. Taking steps like teaching the four hour TIM training to first responders and holding Train-the-Trainer sessions is only the beginning.

For additional information on the TIM training visit our website at www.kyt2.com.

MEMBER SPOTLIGHT ARTICLE - LAKE COUNTY, ILLINOIS

Jonathan Nelson, P.E. - Engineer of Traffic
Lake County Division of Transportation
Lake County, Illinois

Lake County PASSAGE System Improves Management of Arterial Highway

For Lake County, Illinois residents, traffic congestion had long been identified as the number one frustration with the roadway network in Lake County. Lake County and its Division of Transportation recognized that effectively addressing congestion meant not only adding new lanes to the highway system, but also finding ways to make the existing roads work better. Building and improving roads can be very expensive, and takes a long time. Lake County initiate the PASSAGE system to better manage their roadway network.

How PASSAGE Works

The Lake County PASSAGE System is an Intelligent Transportation System designed to provide motorists real time traffic congestion information due to crashes and construction events. These events are communicated through the police department's Computer Aided Dispatch (CAD) system that is sent directly to the Transportation Management Center (TMC), then communicated back to highway users via the web site, PASSAGE Highway Advisory Radio (HAR) 1620 AM, and variable message signs.

Real-time camera and traffic signal data is collected and returned to the Transportation Management Center (TMC) through a fiber optic network. TMC operators respond to traffic issues and congestion buildup by adjusting signal timings or conveying messages through 1620 AM and the PASSAGE website.

The PASSAGE traffic management system responsibilities are accomplished from the Lake County Transportation Management Center (TMC) that opened in Libertyville in 2006. A 5,000-square-foot addition to the Lake County Division of Transportation's administration building was built to house the TMC centralized operation resources, network routing equipment and information. The display wall in the TMC provides visual information about the operation of the road network. Trained traffic technicians can view various video feeds, weather information, Computer Aided Dispatch (CAD) output summaries, signal network information and real-time network congestion reports to determine appropriate responses to congestion, weather delays, construction, equipment malfunctions and crashes. The TMC provides continuous monitoring of system status Monday through Friday from 6a.m. until 7p.m.

TRANSPORTATION MANAGEMENT CENTER (TMC)

Traffic Congestion and Detection Monitoring

One of the main goals of PASSAGE is reducing congestion on Lake County's arterial highways. One of the services PASSAGE provides is a congestion map. Congestion levels are calculated based on volume, occupancy and speed of cars through an intersection. Estimated congestion levels for a given segment of road are displayed on the map and continuously updated. The map shows congestion data for county highways where the PASSAGE network of signals and fiber optic cable is in place. New signals are being added all the time, and their related data will be displayed on the map as they join the PASSAGE network.

PASSAGE uses two different types of cameras to monitor traffic and detect vehicles. Pan-Tilt-Zoom (PTZ) cameras are placed at key intersections and are used to monitor traffic situations, congestion, and incidents throughout the county. PTZ cameras can horizontally scan 360 degrees, tilt up and down, and zoom, allowing operators to see nearly a mile. About every five minutes, an image of each leg of an intersection is sent to the PASSAGE website through the fiber optic network. Selecting the camera icons on the PASSAGE map shows the images captured by the PTZ cameras. In an emergency, operators in the Transportation Management Center (TMC) can share video images with emergency

Camera Snapshots Available Through PASSAGE Website

responders and also change signal timings to help alleviate congestion. These cameras also help Lake County enhance emergency response and preparedness plans for Lake County and the surrounding areas.

Detection cameras are deployed throughout Lake County, sensing approaching traffic and cycling the signal. In the past, loops of wire buried in the pavement were used to detect vehicles. In recent years, overhead cameras have been introduced, improving detection efficiency in certain areas. Unlike fixed loops, the camera's area of detection can be optimized, improving signal accommodation for different vehicle sizes and types, from trucks to motorcycles.

The camera icons on the map show locations where snapshot pictures were taken by the PTZ cameras. The cameras take a photo on an average of every iveminutes capturing an image of each approach and putting it on the website. The intention of this feature is to help motorists plan their trip in conjunction with the congestion segments by viewing road conditions prior to their trip.

Congestion segments are shown for only those roads where the fiber optic network is installed and connected to the PASSAGE network: currently about 165 miles and incorporating approximately 250 traffic signals. The network is being expanded, and as new segments are added, those congestion segments will be displayed on the map.

Checking the PASSAGE congestion map allows travelers to "know before they go" and make sensible travel route selection decisions.

EMAIL NOTIFICATION

PASSAGE Email notification allows users to get Real-Time traffic information for designated roadways throughout Lake County. Users can create multiple profiles that are each customizable to fit their drive based on region, times, days, and impact level of incidents. When an incident is confirmed by an operator in the Transportation Management Center (TMC), an email will be sent to the users based on what they have signed up for. If the event changes users may receive update emails for the event. Users will also receive cleared emails when the event is cleared.

- Users can create multiple profiles for different travel patterns.
- Each profile has its own customizable settings.
- Add additional email addresses.
- Users can customize notification based on times they drive
- Add several alert periods for each profile
- Choose impact Level based on Event type
- Incident types include debris, stalls, traffic signal malfunctions, and crashes as well as other roadway related incidents
- Special alerts include weather events and Amber Alerts
- Up to 15 customizable regions per profile
- Users can adjust all of the regions to fit their commute

HIGHWAY ADVISORY RADIO (HAR) 1620 AM

Highway Advisory Radio 1620 AM communicates real time traffic information directly to Lake County motorists. Broadcast information includes location of delays due to crashes, construction and extreme traffic congestion to help motorists in planning their commute. Right now, five transmitters provide real time traffic information to central, eastern, and western Lake County.

The Highway Advisory Radio broadcast is now accessible from the Lake County PASSAGE homepage. Please visit the homepage and use the player to listen to the 1620 AM radio broadcast.

COMPUTER AIDED DISPATCH

When police agencies receive 911 emergency calls, they are processed by Computer Aided Dispatch (CAD) systems. The Lake County Sheriff's department, as well as other police agencies, provide information from these CAD systems electronically to Lake County PASSAGE. The CAD system filters out non-traffic related items, and operators in the Transportation Management Center (TMC) monitor and analyze the CAD information to determine the impact on the roadway network and implement a response plan if necessary.

The integrated CAD system currently includes the Lake County Sheriff's department and other local police departments which use the Sheriff's dispatch center. Some police departments with their own CAD systems are also part of the PASSAGE network. The green area on the PASSAGE map shows the current CAD coverage, and PASSAGE is working with more police agencies to expand automated coverage to the entire county.

SMARTPHONE APPLICATIONS

- iPhone and Android smartphone applications have been deployed for the Lake County PASSAGE program. The smartphone applications have the following features:
- Users may view a map of current road conditions and events including crashes, stalls, debris, and other roadway incidents
- A text version of current events

- Users may listen to the HAR 1620 AM
- Camera images of each approach at major intersections
- Ability to report incidents directly to PASSAGE. Users can include pictures, location, and text description
- Real-time congestion information
- View current location with nearby roadway incidents

Future of PASSAGE System

The PASSAGE network continues to grow with the addition of more fiber optic cable, additional HAR transmission towers and traffic monitoring cameras, and expansion of the current network of linked traffic signals. An important factor in helping PASSAGE grow is the information we receive from the motorists on the roadways. Citizens can report a traffic incident to the PASSAGE system by contacting the TMC either by phone at 847.377.7000 or email passage@lakecountyil.gov.

Latest Member Roster

Member Organizations:

AECOM
AutoBase, Inc.
CDM Smith
City of Chicago
Daktronics, Inc.
General Motors
HDR Inc.
HNTB Corporation
Illinois Department of Transportation
Illinois State Toll Highway Authority
Iron Mountain Systems, Inc.
Iteris
ITRCC (Indiana Toll Road Concession Company)
ITS Engineering
Jacobs Engineering Group, Inc.
James H. Drew Corporation
Kimley-Horn and Associates
Lake County Division of Transportation
Meade Electric
MH Corbin
Mid-West Truckers Association
ms Consultants, Inc.
Multilink, Inc.
Northrup Gruman
Parsons
Q-Free
TEC Engineering
The Ohio Department of Transportation
TMS Engineers
Total Traffic & Weather Network
Traffic Control Corporation
Traffic Control Specialists
TransCore
TranSmart Technologies
University of Illinois at Chicago
University of Kentucky
WSP USA, Inc.

Individual Members:

Brandon Shelley
Brent Isenberg
Brian Scifers
Charles Sikaras
Chris Carson
David Zavattero
Jeremy Huffman
Mark Walker
Thomas Hoene