

ITS Midwest NEWSLETTER

Illinois, Indiana, Kentucky and Ohio

www.itsmidwest.org

President's Message

This is the first newsletter since our annual meeting in September. The annual meeting was a huge success. The social event at Churchill Downs was very special. I want to thank the organizing committee for all of their hard work. I also want to give special thanks to our presenters, sponsors and vendors. I look forward to our 2017 annual meeting which will be held in Columbus, Ohio.

The annual meeting also brings with it a change of the guard. I welcome the new Officers and Directors to the Board and give special thanks to the past Officers and Directors who have provided

their wisdom and guidance over the years. Those in particular include, John Gray (Past President), David Zavattero (President and now serving as Past President), Chuck Sikaras (Vice President, Illinois) and Scott Evans (Vice President, Kentucky). While you may be out of office and you may be enjoying retirement, I still look forward to working with you as the Chapter moves forward.

As I look to the future of the Chapter, I consider the performance of the past Presidents and their Administrations, and I explore ways to improve the Chapter. Growing the Chapter is first on my agenda. The membership will not grow if people in the industry do not know we exist. Gaining more exposure must therefore, be high on the agenda. Outreach must be essential to gain this exposure. We can accomplish this, through training such as the Connected Vehicle class conducted last year, webinars, lunches, and more interaction with ITS America. With the advancement of ITS technologies, there should be plenty of activities to choose from. I challenge the Officers and Directors in each of our State Chapters to conduct an activity each quarter.

Growing the membership is next on my agenda. I am convinced that the increase of activities will result in more people being interested in ITS Midwest, result-

ing in the growth of our membership. I ask the corporate members who have not recently participated in ITS Midwest to come back to ITS Midwest and get involved. The more participation we have, the more ideas we have, and the more ways there are to have fun.

My goal as President is to do something to enhance ITS Midwest. Achieving some of the agenda items above will make that possible. I look forward to the next two years as President of ITS Midwest and I am excited about the possibilities. I cannot; however, do it without you.



Ken Glassman, President of ITS Midwest

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ITS Midwest 2016 Annual Meeting Summary

The ITS Midwest 2016 Annual Meeting was held at the Marriott Louisville East in Louisville, Kentucky on September 22nd and 23rd. The ITS Midwest Annual Meeting was again combined with the Great Lakes Regional Transportation Operations Coalition (GLRTOC) Annual Meeting, which allowed a great opportunity to leverage the strengths of both organizations for the benefit of all of our membership.

The theme for this 21st Annual Meeting of the Intelligent Transportation Society of the Midwest (ITS Midwest) was "Racing Towards Connectivity." This reflected the emerging emphasis on connectivity across vehicles and with infrastructure towards the ultimate goal of autonomous vehicles. Research has shown that such a future will reduce crashes, injuries, and deaths on our roads and highways.

The event included a "Night at the Races" social event, which allowed participants a visit to the world famous Churchill Downs. This was a wonderful event which highlighted the hospitality of our host State of Kentucky. Beautiful hats, fast horses and plentiful mint juleps were all present and accounted for.

The technical tour was a fascinating guided visit to the Ohio River Bridges and Tunnel project being constructed to link Indiana State Route 265 and Kentucky I-265 via Kentucky State Route 841. In addition to two cable stayed bridges, the project includes a 1,680' tunnel that opened to traffic in December 2016. The tunnel includes several ITS assets, security, and a fire/life safety system that will be

monitored by TRIMARC personnel 24/7. This is the first tunnel to be FHWA certified prior to opening and is registered in the National Tunnel Inventory System.

The heart of the event was a terrific program with nearly twenty technical presentations and a dozen exhibitors. In addition to connected and autonomous vehicles, there were presentations on Smart Cities, multi-state collaboration, transportation systems management and operation, commercial vehicle operations, safety innovations, incident management, work zone ITS, transit applications, federal updates, and new and innovative technologies.

The Keynote Speaker was Ms. Alice Quinn, Director of the Civil Information Solutions Operating Unit of Northrop Grumman. Ms. Quinn oversees all areas of the Operating Unit's business, including program delivery, strategy, execution, sustainment and growth.

Ms. Quinn has over 30 years of technical and management experience in support of complex Federal, Civil, and DOD programs at Northrop Grumman. She has successfully managed service, development, and integration programs under the demanding conditions we all face today - tight schedules, limited resources, evolving requirements, and challenges encoun-



Ms. Alice Quinn makes Keynote Address

tered in integrating emerging and legacy technology. She managed portfolios of programs with the Department of Treasury, the Federal Aviation Administration, other Civilian agencies, as well as, state, local, and commercial customers.

Our Luncheon Speaker was Jill Ingrassia, the Managing Director of Government Relations and Traffic Safety Advocacy for the AAA, and the Chairperson of the ITS America Board of Directors. As Managing Director of AAA's Government Relations and Traffic Safety Advocacy department, Jill directs federal and state government relations and traffic safety advocacy, policy and programs for 40 plus AAA-clubs federation. She manages a staff of policy and public health professionals and oversees the development and implementation of public policy strategy of concern to AAA members and AAA business operations, including mobility and transportation safety, energy, and consumer automotive.

During her 14 year tenure with AAA, Jill has worked on advocacy and policy initiatives to help improve safety for the road's most vulnerable users—children, teens and older drivers. She has represented AAA on a number of coalitions with national transportation and safety organizations, including current service as a Board member of ITS America, membership on the Transportation Safety Advancement Group, and 2008 Chairman of The Road Gang, an affiliation of transportation professionals.

Other notable presentations included Frank Perry of HNTB with an overview of the Columbus Ohio Smart City initiative, Adam Danczyk of Jacobs Engineering with a discussion of "Do Connected Vehicles Tomorrow Make ITS a Bad Investment Today?", and Peter Rafferty on "Mobility Performance and the MAP-21 Rulemaking from the Megaregion Perspective".

The 2016 ITS Midwest "Project of the Year" award for the Most Outstanding ITS Project had strong contenders this year



Jill Ingrassia makes Luncheon Address

including Ohio's new OHGO Mobile App for their Traveler Information System, the Ohio DOT Statewide Towing and Recovery Incentive Payment (TRIP) Program for the quick clearance of large commercial vehicle incidents, the Travel Midwest/Gateway Traveler Information System (GTIS) expansion that added coverage for all counties along the I-94 corridor from Minneapolis/St. Paul, Minnesota to Detroit/Port Huron, Michigan and all interstates in Illinois, and finally the Chicago DOT's Electronic Traffic Crash Reporting System that collects accurate and timely data on traffic crashes. And the winner was ... Ohio's new OHGO Mobile App for their Traveler Information System !

Our outgoing President David Zavatero and our incoming President Ken Glassman both addressed our assembly. Elections of officers were held, with the selection of new Vice Presidents Justin Potts (Illinois) and Jennifer Walton (Kentucky). The new Treasurer is Bini William of Parsons. The Secretary/President-Elect is Matt Letourneau of AECOM.

The event was concluded with a panel discussion of transportation executives including Thomas Nelson, Division Administrator, FHWA Kentucky; Dr. Joe Crabtree, Executive Director of the Kentucky Transportation Center, and Jason Siwula,

State Innovation Engineer of the Kentucky Transportation Cabinet.

The ITS Midwest Annual Meeting provides a forum where members and vendors can showcase their progress in planning and deploying state of the art technology Intelligent Transportation Systems.

ITS has grown from a fledgling industry to



Ohio receives 2016 ITS Midwest "Project of the Year" award

a major factor in the future of transportation in the United States and around the world. ITS Midwest and our members can take pride in the contributions being made through technology to achieving safer, more informed, and more efficient travel. Yet much remains to be accomplished.

Thanks and appreciation goes out to all of our vendors who exhibited, and special thanks to our sponsors including Diamond Sponsor Northrop Grumman, our Gold Sponsors B+B SmartWorx, StreetSmartRentals, and Jacobs Engineering, and our Silver Sponsors Christopher B. Burke Engineering, Ltd., SES America, Parsons, CHA, TranSmart, Bosch and WSP/Parsons-Brinckerhoff.



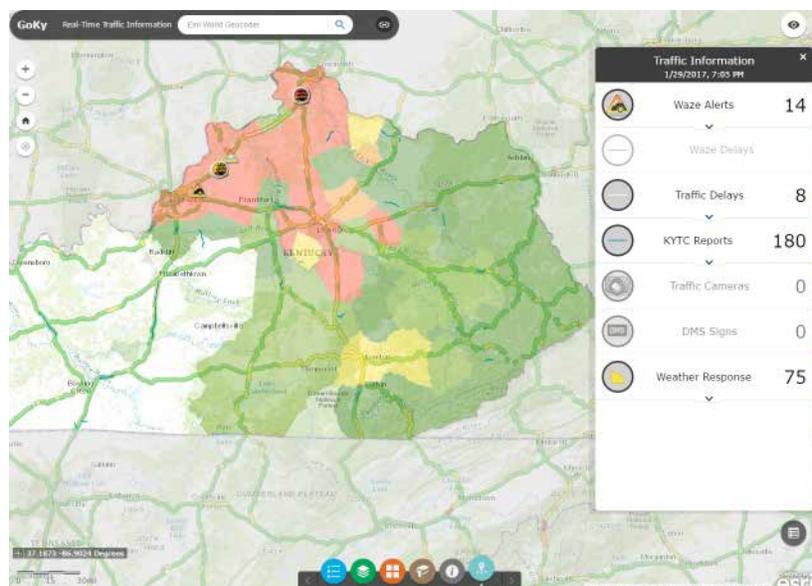
David Zavattero presented with Appreciation Plaque by Chuck Sikaras

Kentucky Transportation Cabinet Rolls Out GoKY

Chris Lambert,
Systems Consultant for Intelligent Transportation Systems,
Kentucky Transportation Cabinet

In the March 2016 newsletter, I talked about Kentucky Transportation Cabinet's (KYTC) need to develop a new system for assisting our snow and ice operations as well as meeting our compliance with Title 23, CFR 511.301 to 511.315. Since that article, KYTC made significant improvements utilizing real-time data. The Cabinet moved into a new phase of discovering the interaction and correlation between data feeds, reporting, and performance measures. In this article, I will go into detail about just a couple of our efforts since March 2016.

In the last year, Intelligent Transportation Systems (ITS) has adopted the mantra "... meet people where they are." Our team is determined to meet people on the plat-



GoKY.KY.GOV

form of their choice, not ours, to consume traffic information. Since some motorists use Waze for real-time traffic updates, we partnered with Waze to feed them KYTC traffic and construction activities. Since the public uses social media, like Twitter, for snapshots of current events, we began to publish our map content to Twitter. Gone are the days of publishing data to a single website or feed and expecting the public to find and use it. This new mantra, however, came with a cost; it required retooling many of our legacy systems and putting more of the burden on KYTC to connect with people on those different platforms.

The most public example of this effort in the last year would arguably be the rollout of GoKY.ky.gov (shown on previous page). On November 2, 2016, KYTC switched from our long standing 511 system to GoKY, which hosts multiple data feeds concerning traffic information. This move was more than replacing one product with another; this was the beginning of a shift that embraces open source software and publishing data in multiple, open formats. While GoKY felt familiar to users of the former 511 site, what was truly impressive were the data feeds being published and the back-end system processing. Our former 511 system required

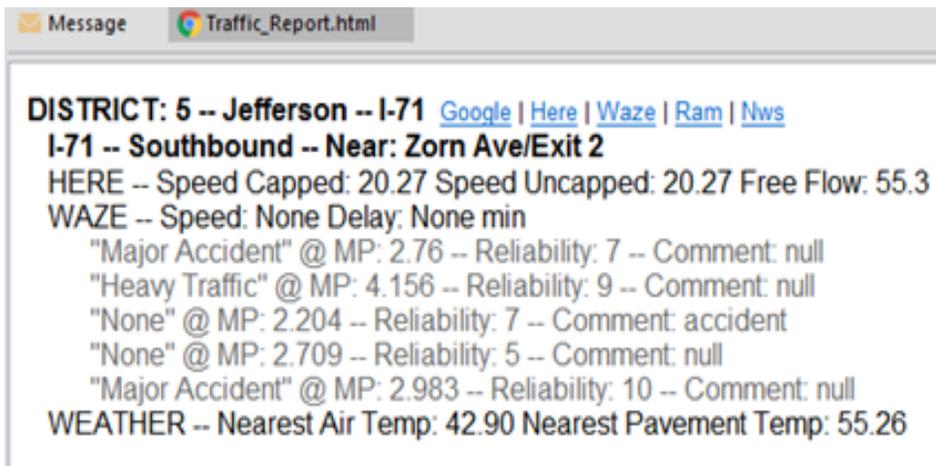
preapproved access to an XML feed before someone could begin pulling that data. Since GoKY's data is open and available to anyone, we only track the number of requests to this data and do not restrict the use of that data to specific use cases. This reduces labor costs associated with managing two-way partnerships and memorandums of agreements. The numbers are staggering. GoKY has only been in production for two months and already our data feeds are experiencing a tremendous amount of data mining compared to the site's usage.

To understand the difference, please consider the following numbers from the month of December 2016, only one month after release:

- The GoKY map received a total of 32,753 views.
- The TOC Roads data feed received a total of 292,017 views. (This data feed hosts information entered by our TOC Operators concerning construction and incidents).
- The DMS data feed received a total of 259,460 views. (This data feed hosts each of the messages currently being displayed on dynamic message signs).
- The Traffic Cameras data feed received a total of 242,079 views. (This data feed hosts the most current traffic camera images).
- The County Activities data feed received a total of 269,190 views. (This data feed hosts the most current winter response status for each of the 120 county offices).

In addition to sharing data, KYTC is also committed to sharing our technology with other agencies and the public. At the moment, we are able to share code upon request; but, in 2017, we hope to publish all of our code to open source repositories such as GitHub.

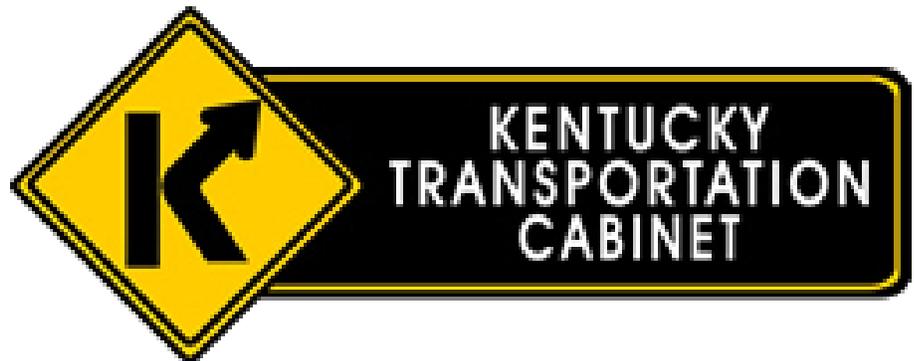
Another simple but effective tool put into production over the last year was an incident detection solution that compares



HERE traffic data with Waze incident reports. Since both data sets are large and KYTC manages over 27,000 miles of roadway, we needed a way to accurately pinpoint issues that would be most critical to real-time operations and public safety. With that as a starting point, our GIS department developed a script that executes every five minutes and reviews both the HERE traffic data feed for drops in speed as well as reports of "Major Accident", "Minor Accident", and "Standstill Traffic" in the Waze data feed. When either of these data feeds contain those conditions, it then performs a spatial search to see if the other data feed can confirm the issue. When both data feeds agree with each other, it then performs another spatial search and totals other reports in the area. Once that information is compiled, it then emails our TOC Operators with a summary of what was found. By validating each data feed with the other and then summarizing all the events in the area, KYTC is producing accurate, timely, and comprehensive alerts for required staff. Instead of simply seeing that traffic is moving at 50mph in a 70mph area of roadway, we are able to produce real-time reports that include information such as ice on the road, snow, temperatures, etc. That email also contains links to HERE Maps, Google Maps, Waze Live Map, National Weather Service, GoKY, KYTC's Snow and Ice Map, and the new web based data entry tool for TOC Operators. From a single email, someone can launch multiple tools to investigate an event and then use the same email to open their data entry tool.

I hope to cover more technical details of our system in future articles. Our team is currently working to produce real-time performance measures for snow and ice as well as an after action review chart that combines Waze reports, HERE traffic, salt usage, air temperatures, pavement temperatures, Twitter, and reports from our TOC operators. These will be published in the form of real-time dashboards.

KYTC has a vision and drive to build a



system for the next era of transportation which will include connected infrastructure and vehicles, data sharing, and the use of big data analytics. In 2016, KYTC's ITS and IT departments received several awards and recognitions which included: Commonwealth Office of Technology's "Best of Kentucky: Most Innovative Use of Technology", ESRI's "Special Achievement in GIS", Computer World's "Data+ Editor's Choice Award", Cludera's "Data Impact Award: Internet of Things Empowerment", and Cludera's "Data Impact

Award: Social Impact."

For more information, please contact: Chris.Lambert@ky.gov

Illinois Tollway launching new SmartRoad in 2017 to assist, inform drivers

Paul Kovacs
Chief Engineer
Illinois Tollway



SmartRoad

Travel safe • Travel **smart**

The Illinois Tollway this spring will launch its innovative new SmartRoad that will provide the first advanced real-time roadway information system for drivers in Illinois. The new I-90 SmartRoad will use the latest technologies to make the roadway safer and more efficient for Illinois Tollway customers, incorporate active traffic management and integrate transit to deliver a 21st century corridor.

The 16-mile SmartRoad corridor on the Jane Addams Memorial Tollway (I-90) in the northwest suburbs of Chicago also will serve as a test-bed to accommodate future driving and traffic management technologies as they become available. It will enable the traffic and travel industry to access data that can help drivers better plan their trips before getting behind the wheel.

SmartRoad was installed on I-90 between Barrington Road and the Kennedy Expressway because it is one of the

Tollway's most challenging segments of roadway—carrying a high concentration of commuter and commercial vehicle traffic traveling to office parks, industrial facilities, shopping malls, entertainment centers, medical complexes and O'Hare International Airport. More than 230,000 vehicles a day typically travel on the I-90 SmartRoad segment.

The \$33 million SmartRoad was implemented as part of the \$2.5 billion Jane Addams Memorial Tollway Rebuilding and Widening Project, which reconstructed 62 miles of I-90 and added a lane in each direction between Rockford and O'Hare Airport.

How SmartRoad works

High-tech, overhead gantries were constructed every half mile along the SmartRoad corridor to provide roadway information to drivers. Each gantry includes electronic signs specific to each lane of

traffic, as well as message boards on the right shoulder that provide corridor-wide information, such as travel times.

SmartRoad will offer a variety of real-time information to drivers, including:

- travel times
- traffic incident advisories
- lane closure alerts
- traffic pattern changes

The electronic message boards will offer high-resolution, full-color graphics to help drivers more easily and quickly view the information provided on the gantries.

New, state-of-the-art wireless traffic sensors will provide more comprehensive travel time information for display on the gantries. Those sensors also will monitor ramps along the SmartRoad corridor, en-

abling the Tollway to check for potential backups and then alert drivers to traffic delays caused by that congestion. These systems will be available for integration with communities along the Tollway and communication with local traffic signal systems.

The SmartRoad corridor also will feature upgraded, digital high-definition roadway cameras to better monitor roadway conditions and provide rapid updates to drivers.

Advanced weather sensors will monitor temperatures and moisture levels at critical locations, including bridges, ramps and interchanges, to alert drivers to changes in pavement conditions during storms or severe weather.

Benefits of using SmartRoad

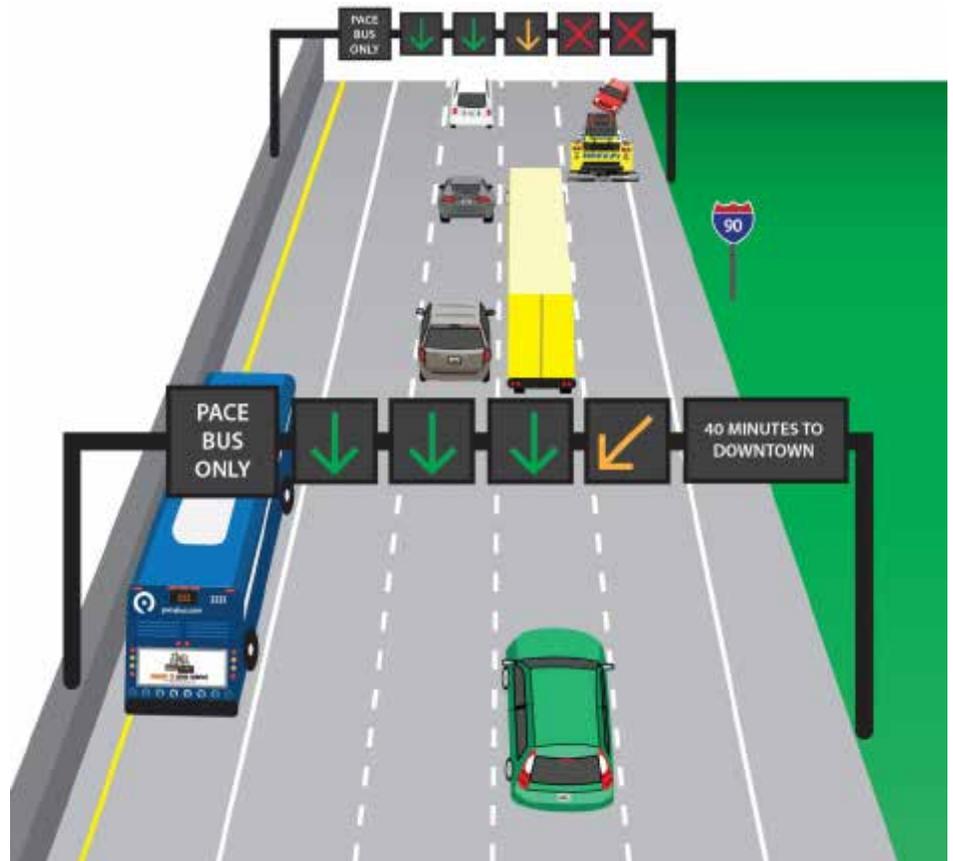
SmartRoad will serve a critical role in alerting drivers to changing travel conditions by posting information in advance of congestion or traffic incidents, and thus allow motorists to slow down or change lanes to avoid rear-end or secondary collisions. Currently, drivers may not become aware that traffic is stopped ahead in their specific lanes until it is too late to avoid a collision.

The use of active traffic management will allow emergency services providers to reach an incident scene more quickly and will redirect traffic flow away from the lanes needed for emergency vehicles. Providing detailed information about traffic and roadway conditions in advance of incidents, congestion or new traffic patterns, will also allow drivers to adjust their driving to better avoid delays and bottlenecks.

Roadway data collected along the SmartRoad will be shared with navigation apps such as Waze, MapQuest and Google Maps, allowing drivers to choose how they access information and better plan their trips before beginning to travel.

Integrating Transit for the First Time

SmartRoad also will allow the Tollway for the first time to integrate transit on I-90 by designating new Flex Lanes—the



inside shoulders—for Pace Bus service between Barrington Road and the Tri-State Tollway (I-294). This development already has prompted Pace to implement the largest service rollout in its history while providing Tollway customers with expanded options to choose from when traveling on I-90.

SmartRoad signage will be used to communicate with customers and Pace buses when Flex Lanes are in use.

The Tollway's Traffic and Incident Management Center will monitor Flex Lanes to make sure it is safe for Pace buses before opening the lanes and will communicate directly with Pace's dispatch center.

Flex Lanes will only be used when traffic on the general lanes is congested, and the Tollway will have the ability to restrict Pace's Flex Lane usage for incidents, emergencies, debris, weather, etc. to ensure safety.

Future uses of SmartRoad

The new I-90 SmartRoad will serve as a prototype and allow the Illinois Tollway to gain experience in operating a roadway with advanced technology. Knowledge and experience gained on I-90 will allow the Tollway to consider adapting SmartRoad features to other parts of the Tollway system, including the new Illinois Route 390 Tollway and the Central Tri-State Tollway (I-294).

The hardware needed to operate SmartRoad gantries—including power and fiber optic communications—are built into the Tollway's roadways and will allow additional "smart" features and new technology to be added as they become available in the future without requiring intensive construction.

Those new technologies could include Connected Vehicle (CV) technology, which would enable cars and trucks to communicate directly with the roadway

infrastructure, exchanging data about each vehicle's speed, location and direction of travel while also providing feedback to drivers so they can react more quickly to developing roadway situations.

The Tollway plans to begin a small-scale pilot program to test CV equipment on 10 agency vehicles that operate on the

I-90 SmartRoad corridor. The year-long program will provide a low-risk opportunity to gain experience in deploying and operating this technology at a minimal cost and without disrupting Tollway operations.

The Illinois Tollway's mission is to provide safe and efficient travel to its customers, who travel throughout the Tollway sys-

tem. The SmartRoad is another example of the Illinois Tollway's commitment to these goals and it represents an important step in the adaption and use of new transportation improvement technologies.

Illinois DOT Smart Work Zones

Matt Daeda, Keith Roberts and Paul Lorton
Illinois Department of Transportation

IDOT continues to implement and improve their Smart Work Zones to reduce congestion and to promote safe conditions in construction areas throughout the State of Illinois. The Smart Work Zone system processes roadway sensor data to relay travel times via digital message boards in advance of a work zone so motorists are aware of any queues, the amount of time it may take to travel through the work zone, and determine if motorists should consider using an alternate route to reach their intended destination. Speed indicator boards are

also deployed to increase awareness of work zone speed limits.

The same information can be relayed to traveler information websites such as www.travelmidwest.com. Drivers are then able to access the real-time data online through their smartphones or computers before taking their trip. Certain vehicle navigation systems can provide the information to the driver during their trip.

One way IDOT implements a smart work zone is through an on-call contract with a contractor who is allowed to choose any of the following vendors (ASTI, iCone, Street Smart or Ver-Mac) for their smart work zone. In IDOT's District One (Northeast Illinois covering the Chicago-Land Area), the On-Call Smart Work Zone contract was set up to supplement the On-Call Traffic Control Contract. Initially, the system was primarily used to warn motorists of queued traffic ahead due to lane closures from recurring bridge inspection projects.

The On-Call Smart Work Zone is set up to be work order based. When the District determines that a Smart Work Zone should be implemented, then the Contractor is contacted to mobilize the Smart Work Zone system. The contractor is given one week to begin installing the Smart Work Zone system. The equipment may be in place for four weeks. A maximum of two Smart Work Zone

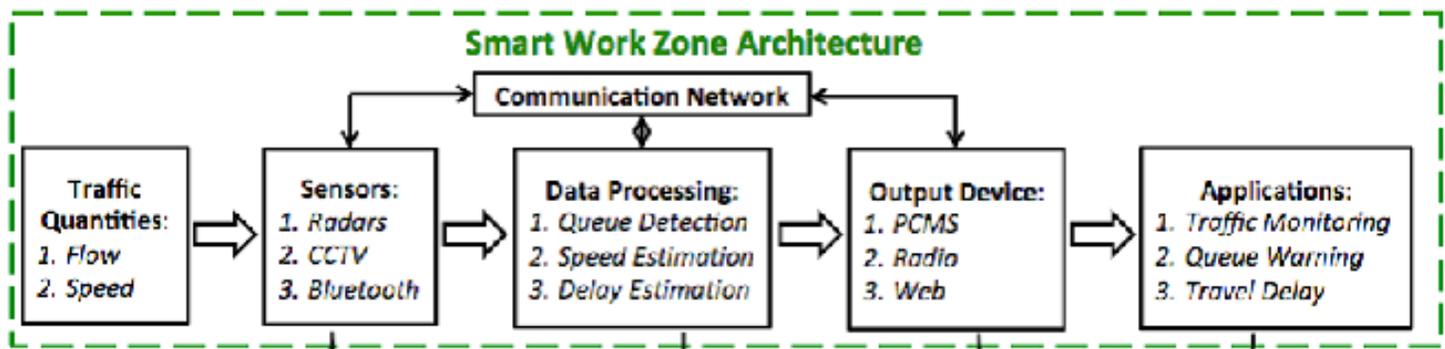
systems can be operational at a time under the contract. The contract uses three pay items. The pay item "Call Out" (EACH) includes preparations and operations necessary for the mobilization of resources and incidentals to the site. The pay item "Smart Traffic Monitoring System" (CAL DAY) includes furnishing, installing, maintaining, removing, and programming various components of the system. The system consists of four Smart Traffic Monitoring Devices which collect real-time vehicle data and calculates the actual traffic queue, delay time



Speed Indicator Board



Trailer-mounted Pan-Tilt-Zoom Camera



and distance within ½ mile to stopped or slowed traffic. IDOT also requires the system to be able to calculate travel times to major destinations. The pay item "Changeable Message Sign, Special" (CAL DAY) typically deploys four portable changeable message signs. Additional portable changeable message signs can be added if needed.

IDOT has also implemented the Smart Work Zones in contracts that involve lane closures on the Interstate system. The main difference here is that the lane closure will be active for a longer duration than the on-call smart work zone. The equipment may also include trailer mounted Pan Tilt Zoom cameras that can be viewed by the district offices for monitoring the traffic conditions or providing assistance in incident response.

Sensors, computers, and portable changeable message signs are used to collect and convey real-time traffic information to motorists. The architecture of the Smart Work Zone system can be summarized with the above image.

Sensors are used to collect the lane-by-lane vehicle speed, volume and/or occupancy data. The data is then processed by a computer to determine if there is a queue, to estimate the travel time through the work zone and to estimate the delay to the motoring public. The real time information is then displayed on portable changeable message signs to alert drivers of the traffic conditions in the work zone. The same information can be made available to a traffic management center which can distribute the information to the public.

Lessons Learned and Future Considerations

IDOT has reviewed the past performance of the implemented Smart Work Zone on-call contracts and is considering several improvements. One is to add provisions that require the vendor to install and test any software on IDOT computers within one month prior to contract execution. Another is to provide greater flexibility to the contract by adding a pay item for individual sensors, if needed, and to consider adding a quantity for closed circuit television (CCTV) cameras. Other changes are to provide clarification on how to handle relocation of systems/devices under a single work order (whether through payment or making it as incidental to other pay items), and to add language under the specification for "Cooperation Between Contractors" to

avoid potential conflicts when deploying on-call systems on other contractor performed projects.

The use of advanced technology will make our work zones safe. Drivers are asked to do their part in allowing extra time for their trips and to be prepared in work zones for sudden stops, changing traffic patterns, uneven pavement and the presence of workers or construction equipment near the roadway. Remember, drivers who are distracted by handheld cellphones or other electronics are not only endangering themselves and others, they are breaking the law.



Portable Changeable Message Sign

Member Spotlight - Daktronics



Founded in 1968, Daktronics is an LED (light emitting diode) digital display manufacturing business based out of Brookings, S.D. with a worldwide presence. In 1988, the business grew with the expansion into the Transportation Division. Since then, Daktronics has deployed more than 4,500 permanently-mounted dynamic message signs and over 10,000 transit and aviation displays which serve millions of motorists every day. Most recently, Daktronics Transportation has successfully deployed full-color, high-resolution LED display technology to capture traveler attention and quickly convey messages with sharp, attention-grabbing text and graphics.

One recurring challenge facing urban traffic nationwide is the need for optimized throughput on roadways. Active traffic management has become a popular solution for traveler needs.

A recent example is Project NEON for the state of Nevada. Project NEON will widen 3.7 miles of Interstate 15, the busiest road in Nevada, and connect

it to Highway 95's carpool lanes with a bridge. Additionally, it will create a new interchange called the "Neon Gateway," aptly named considering Las Vegas' brightly lit strip. Currently, 300,000 vehicles travel the road on a daily basis. By year 2035, that number will double. Project NEON is expected to reduce travel delays by 28 percent. Read more about Project Neon [here](http://www.daktronics.com/news/Pages/Daktronics-Awarded-State-of-Nevada-ITS-Project.aspx). (<http://www.daktronics.com/news/Pages/Daktronics-Awarded-State-of-Nevada-ITS-Project.aspx>)

Another new project is along I-70 in Colorado. A 13-mile stretch between Empire and Idaho Springs employs a shoulder lane for emergencies in the off-season that doubles as an Express lane during peak travel season. Twenty-three Daktronics Vanguard® displays alert drivers to lane status, toll rates, speed limits and safety information such as rock slides and accidents. Dynamic pricing determines the toll drivers pay to use the lane, which can cut their drive time by 30 minutes. So far, drivers have seen the following results:

- April 3, 2016's travel speeds were 55 mph in the Express Lane, 40 mph in the general purpose lanes. Traffic in previous years crawled at 5-10 mph.
- Winter season throughput increased by 15%.
- Peak day throughput increased by 5,800 vehicles.
- General purpose lane travel times improved by 18% during peak periods.
- Corridor incidents were down 15%.
- On Martin Luther King, Jr. Day, travel times for all lanes were reduced up to 52% compared to 2012.

To check out a timelapse of the drive along I-70 and to view more statistics, click [here](http://www.daktronics.com/en-us/video-gallery/Colorado-I-70-Improvement-Timelapse) (<http://www.daktronics.com/en-us/video-gallery/Colorado-I-70-Improvement-Timelapse>) . For more information about Daktronics, Vanguard products and the Transportation department, visit www.daktronics.com/transportation.

Latest Member Roster

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AECOM
Argonne National Labs
AutoBase, Inc.
Carrier & Gable, Inc.
CDM Smith
CH2M HILL
CHA Consulting
City of Chicago
CohuHD
Daktronics, Inc.
Federal Highway Administration
G4S Secure Integration
Global Traffic Technologies, LLC
HNTB Corporation
Illinois Department of Transportation
Illinois Tollway
INRIX
Iron Mountain Systems, Inc.

Iteris, Inc.
ITRCC
J.A. Watts, Inc.
Jacobs Engineering Group, Inc.
Kimley-Horn and Associates,
Lake County Division of Transportation
Mid-West Truckers Association
Northrop Grumman
Ohio Department of Transportation
Pace Suburban Bus Service
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Q-Free Open Roads Consulting
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