

2015 ATSSA Traffic Expo Report

February 8-10, 2015

Tampa, Florida



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Power Talk – Grassroots Advocacy: Change at the Local Level

The session was led by two industry representatives. The format was an open exchange between the moderators and attendees. The topics discussed included: (1) access to HSIP funding and project management requirements for local agencies, (2) distribution of HSIP funding by state DOTs to local agencies, (3) improve understanding in industry of new traffic safety related bid items, and (4) connect with non-technical partners such as law enforcement and political representatives.

Access to HSIP funding and project management for local agencies

The group concluded that many local agencies are significantly restricted in their access to HSIP funding. Concerns cited include the level of funding available from the state DOT, the application process to acquire the funding and contract management of federally funded projects.

Distribution of HSIP funding by state DOTs to local agencies

States represented in the session share a small percentage of HSIP funding with their local agencies. One state noted that only 20% of fatal crashes occur on local roads. However, most representation appeared to limit this funding because of administrative policies. Of the states that appeared to limit distribution of HSIP funding, the cited reasons for doing so were inexperience of the local agencies to administer a contract with federal funds and a poor application process for the local agencies to access to the HSIP funding.

Improve understanding in the industry of new traffic safety related bid items

Some of the represented industry provided examples of poor description of traffic safety related bid items. One example was ground-in pavement markings where the contractor did not know if the bid item included grinding.

Connect with non-technical partners such as enforcement officers and political representatives

Transportation agencies play an important role in the communication and explanation of traffic safety related projects to non-technical end-users. The first example was the importance of communication with enforcement agencies about how to enforce different traffic safety strategies such as a roundabout, and provide guidance to enforcement agencies on enforcement focus areas. The second example was communication with local, state and Federal political representatives. This outreach is important to help craft and build support of traffic safety messages for the policy makers in our different levels of government.

In summary, it is very clear that Minnesota has developed a superior model (between State Aid and the counties) of cooperation between the state DOT and local agencies on the distribution of

HSIP funds, implementation of safety projects and communication with safety partners through the Toward Zero Deaths Partnership.

Opening General Session

The General Session was the kick-off event to the Traffic Expo. The keynote speakers were from Afterburner which is a corporate trainer composed of former fighter jet pilots. The pilots use principles from the military, specifically related to flying combat fighter jet missions, to improve businesses performance. The company's theme is "Empower with Flawless Execution". The speakers discussed the importance of developing a strategic mission statement, fine-tuning the execution plan with critical input, develop a contingency plan if the plan fails, and debriefing after the execution to improve the plan for future execution. The key take-away points...First, the strategic mission statement must be clear, measurable and achievable. Second, during the execution of the plan, it is important to limit a channelized focus and oversaturated workers. And third, a de-briefing session should follow after every plan execution. The de-briefing session should have an atmosphere of free and open criticism with no thought of recognition or blame.

Traffic Expo Exhibit

The National Work Zone Safety Information Clearinghouse (www.workzonesafety.org) is an organization that provides onsite safety assessments, training programs and grant training programs, and video products. The grant training program topics are Roadway Safety and Traffic Control. This training is free but requires a minimum of 15 participants. The trainers will personally travel to the training location. The video topics are Playing it Safe with PPE, Flagging Fundamentals: 6 Steps to Safety, Avoiding Runovers & Backovers, and "Turning Point" – Work Zone Safety for New Drivers.

Monday, February 09, 2015

The Effects of V2I and V2V Technologies on Infrastructure, Industry, and System Operations

Applications of V2V and V2I technology in Florida DOT test bed

- Wrong-way driver detection and alert
- Over-height detection for bridges or other structures
- Emergency braking for vehicles stopping ahead in limited sight conditions
- Emergency vehicle alert on location, speed and direction of emergency vehicles
- Curve speed warning

Michigan experience with V2V and V2I

- Traffic signal phase and timing
 - Two corridors had traffic signals broadcast traffic signal phase.
- V2P: Vehicle to Pedestrian
 - The pedestrian has a DSRC communication app on their smart phone or device and the vehicle driver receives information about the pedestrian (location, ped texting or talking on phone). The vehicle device analyzes the potential of a conflict with the pedestrian and provides a warning to the driver if a conflict is expected.
 - University of Michigan deployed a large scale deployment of over 2,800 vehicles in 2012 on a variety of vehicles. The vehicles were all located within a relatively small area. Collected about 25 million miles of data.
- Curve speed warnings
- Ice formation warning
 - RWIS mounted on a traffic signal would broadcast warnings based upon roadway surface conditions
- Goal is to increase market penetration to 9,000 vehicles and 500 pedestrians
- General Motors has announced limited installation in 2017 vehicles
- USDOT is considering mandating DSRC devices in all vehicles in ~2020

Toyota Motor Company experience with V2V

- Braking assist system for rear-end crashes and pedestrian crash scenarios
 - Lane departure warning using camera
 - Known problems:
 - Poor condition or absence of longitudinal pavement markings
 - Weather condition such as snow cover
- There is a need to have a similar software platform across all vehicle manufacturers
- Testing V2A (vehicle to animal) warning conditions
- Working on benefit estimation projects
 - Lane departure
 - Estimate a 30% reduction on lane departure crashes
 - Intersection assist system

Texas A&M Transportation Institute – Road Markings to Support Autonomous Vehicle Technologies

- Opportunities for infrastructure owners
 - Adaptive headlights
 - Lane departure warning
 - Insurance Institute of Highway Safety stated there isn't any evidence the LDW systems are effective

- Drivers report that LDW systems are annoying
 - Known issues
 - Poor weather conditions
 - Pavement color contrast differences in work zones
 - Geometry of measurement of marking performance (standard testing uses 30 meter sight lines whereas machine vision uses 10 meter sight lines)

Other potential applications?

- Emergency vehicle preemption at traffic signals
- Railroad crossing warning
- Intersection conflict warning

The Federal Transportation Program – What’s Next?

- Dates to note
 - February: President released the proposed 2016 budget with a 6-year transportation bill
 - May: MAP-21 extension expires
- Pew Research
 - Transportation made the top 20 list of congressional priorities
- Current Congress has a focus on infrastructure issues
 - Want to get a bill complete before May 31st
- Federal policy is at odds
 - Highway Trust Fund is funded primarily by fuel taxes
 - Federal Government is encouraging the use of electric and hybrid vehicles
- Additional potential funding sources are focused on taxing additional transportation commodities such as tires, oil imports
- HSIP funding levels are expected to remain the same; if additional funding sources are used, possibility HSIP funding may increase
- States are taking the lead in transportation funding
 - Dedicated sales tax
 - Should local agencies that have implemented a sales tax be given a Federal funding incentive?
 - Taxing fuel at the wholesale level
 - Tolling
 - Lottery proceeds
 - Rest stop sponsorship

Tuesday, February 10, 2015

Smarter Work Zones

FHWA – Office of Operations

Jawad Paracha

- What are smart work zones?
 - Applications to optimize work zone mobility and safety.
- Smart work zones are one of the initiatives of the FHWA Every Day Counts Program
- Applications
 - Project Coordination
 - Coordination within a project and/or multiple projects on a corridor, region or network to minimize work zone impacts
 - Utilize mapping applications (WISE, Work Zone Impact & Strategy Estimator) is a software from Everyday Counts Initiative)
 - Technology Application
 - Deployment of ITS for dynamic management within work zones
 - Advisory messages
 - Traffic queue warning
 - Performance monitoring
 - Travel time estimation
- FHWA provides technical support and grant opportunities (AID Program) to implement

Michigan DOT and Oregon DOT Experience with Project Coordination and Technology Application

- Oregon Example
 - Replaced 400+ bridges
 - Analyzed the entire state transportation network to identify how to manage traffic
 - Identified 6 vital corridors throughout the state
 - Had to coordinate projects throughout the state to ensure traffic did not experience significant delay
- Lack of coordination between
 - Inter/intra agency
 - Public/private
 - There is a cultural issue where project managers/contractors resist coordinating with neighboring projects
 - “My project is doing well, I don’t really care about the project 10 miles down the road”.

- Michigan I-94 Coordinator
 - Spans 275 miles, 3 different MDOT regions, 9 transportation service centers
 - Created diversion routes that made sense to drivers, not based on jurisdictional or region boundaries
 - Goal to limit user delay cost (UDC) to \$108 million
 - Maintain a maximum of 40 minutes of cumulative travel time delay for I-94 corridor
 - Required projects to “trade” time
 - Example: Project A will set bridge beams on Day 1 and Project B will delay their lane closure until Day 3 (after Project A is completed setting bridge beams)
 - Critical to intentionally maintain communication between projects
 - Example: MDOT maintenance completed maintenance activities on a weekend within a work zone while the lanes were closed for a bridge project
- Technology Applications
 - Goals
 - Provide awareness of the work zone to the drivers
 - Compliment and enhance compliance with static traffic control devices
 - Facilitate improved decision-making by approaching motorists
 - Basic criteria
 - Locally focused
 - Example: dynamic warning of contractor vehicle ingress and egress onto traveled way
 - Provide a system solution
 - Example: Agency does not know how to build a “smart” system. Instead of placing components/products on the QPL, placed vendors/contractors on the QPL
 - Applications
 - Traffic queue warning device
 - Variable speed limits
 - Consider using advisory speeds instead of regulatory speed limits
 - Dynamic lane merge
 - System components
 - Infrastructure
 - Traffic detectors
 - Data processing
 - Connected traffic control devices
 - Communications

- Business processes
 - Assessment of need (not every project needs this technology)
 - Reference FHWA Work Zone Intelligent Transportation Systems Implementation Guide
 - System design and specification
 - Procurement and contracting mechanisms
 - Integrate into agency performance measures

Summary

The Traffic Expo was a good experience to interact with industry representatives and see what other highway agencies are doing around the country. The following are my summary points about the conference as it relates to Minnesota county highway agencies:

1. The relationship between MnDOT State Aid and the counties has made Minnesota a leader in the implementation of traffic safety strategies on the rural highway system.
2. Counties have an opportunity to be proactive by leading efforts to support vehicle-to-infrastructure communications. Applications could include:
 - a. Intersection conflict warning systems
 - b. Traffic signal phase change advance warning
 - c. Railroad crossing warning for crossings that do not have gates/signals
3. Counties should consider how to incorporate basic “smart work zone” practices into their projects. Could this be a state-wide effort to develop a central “construction viewer map” that counties upload their own data and the data is disseminated to the public on MnDOT’s 511 webpage?

I appreciate the opportunity to represent the MCEA Highway Safety Committee at the ATSSA Traffic Expo. I hope my notes will generate more ideas in Minnesota about how to continue to move Minnesota Towards Zero Deaths.