North/West Passage

Transportation Pooled Fund TPF-5(093)

Computer Aided Dispatch (CAD) to Reporting System Integration Workshop

* Workshop Minutes *

March 12, 2008

Red Lion Inn
Tacoma, Washington

The North/West Passage Pooled Fund Study held a workshop on March 12, 2008 in Tacoma, Washington. The workshop was designed to provide participants from the North/West Passage states with the opportunity to discuss future working relationships between public safety agencies and Departments of Transportation (DOT).

This occurred through:

- *Discussions about existing successful relationships between public safety and DOTs.*
- *Examination of whether there is value added by real-time exchange of information between law enforcement agencies and DOTs.*
- *Presenting and discussing experience of integrating law enforcement agency Computer Aided Dispatch (CAD) systems with reporting systems used by State DOT traffic management and traveler information systems (e.g. 511 phone and web systems).*

Attendees toured the Tacoma Traffic Management Center where Washington State DOT and Washington State Patrol (WSP) operators are housed in the same the facility.

Summary of Workshop Benefits

The following bullets highlight benefits attendees received from participating in the CAD to Reporting Systems Integration Workshop.

- All participants identified what they would they expected to receive from attending the workshop and each attendee left with their goals met.
- Six of the states that attended the workshop are in the beginning stages of automating data exchanges between law enforcement and DOT systems. One component of the workshop focused on building a list of what to do or consider as each state moves forward with data exchange. Each state now has a list of action items to address as they continue or start discussions for exchanging data between the DOT and public safety agencies.
- Wyoming DOT has taken advantage of the good discussion at the workshop and kept the momentum going by scheduling an initial meeting to initiate a CAD/TMC integration project.

- Since the workshop which provided a forum for police/patrol representatives and the DOT to discuss integration of systems, the Idaho State Police has agreed to make their filtered CAD data available to the Idaho Transportation Department for input into their road reporting system (CARS – Condition Acquisition Reporting System). A meeting has also been scheduled to begin detailed discussion of exporting the selected data to CARS.

Workshop Summary

Welcome, Introductions, and Workshop Expectations

Bill Legg from the Washington Sate Department of Transportation (WSDOT) welcomed the attendees and explained that the focus of the workshop is to discuss and learn data integration and data sharing with Computer Aided Dispatch (CAD) systems and traveler information systems. The workshop is intended to highlight lessons learned from North/West Passage states (Washington, Idaho, Montana, Wyoming, North Dakota, South Dakota, Minnesota, and Wisconsin) that have completed or are in the planning stages of integrating systems.

Washington State operates Traffic Management Centers (TMC) throughout the state. The DOT and State Patrol are collocated at some locations, and separate in others.

In all regions of the state, the incident reports entered into the Washington State Patrol (WSP) Computer Aided Dispatch (CAD) system are shared electronically with the WSDOT traveler information system. Washington's traveler information system receives data from the State Patrol in two minute increments. The data is sent to the WSDOT system automatically, however WSDOT operators must verify the incident reports before they are disseminated to travelers (either through the 511 phone system or the statewide traveler information Internet website). While verifying the data, WSDOT operators have the option to modify the event reports.

The commercial vehicle department issues all permits in Washington. The State Patrol operates the weigh stations. The DOT designs and installs all equipment at the weigh stations.

The State Patrol and the DOT share some communications infrastructure.

Attendees introduced themselves and were asked what they hoped to get out of the workshop. The expectations of attendees are summarized as:

- Additional information about CAD systems and traveler information systems working together
- Information sharing and working together of DOT and Highway Patrol
- Information about cooperating with State Patrol.
- CAD to Condition Acquisition Reporting System (CARS) module details
- Information on receiving quick notification of incidents
- Explore opportunities for closer working relationships with the patrol/DOT to learn and share experiences

- Identify the challenges and successes to integrating the reporting systems with CAD, the cost, and the benefits
- Learn what other states are doing with integrating reporting systems with CAD
- Discuss what are the data requirements for location information
- Explore sharing information between states
- Contact information for counterparts in other states

Existing/Traditional Information Exchange between DOT and Public Safety Agencies

Tom Ralidak from the Minnesota State Patrol gave a brief presentation on the beginning partnership of the DOT and the State Patrol working together in Minnesota. Todd Kramasz from the Minnesota DOT presented the components of the Regional Transportation Management Center (RTMC) in Minnesota that is located in the metro area.

- In 1996 Minnesota began a project to test ITS technologies to support the operations of several public agencies in a rural region of the state. The core of the project was to develop a single centralized communication center to serve multiple agencies. The highway patrol and the DOT collocated to improve communication.
- From this project, Minnesota created partnerships to work together to reduce response time for accidents.
- Tom reminded attendees that rural areas are very different then metro areas, one example of the difference is that there are not as many troopers in rural areas.
- Before this project there were delays in getting information out to the public and the relationship between the DOT and law enforcement was not ideal. After the project, relationships were enhanced because each agency learned and understood the jobs of those in the other agencies. There is no division or confusion anymore about who is responsible, the needed tasks all get taken care of.
- This project led to deployment of nine Transportation Operations and Communication Centers (TOCC) throughout Minnesota. Minnesota also has an RTMC in the metro area.
- The RTMC integrates the Metro District Maintenance Dispatch and Traffic Operations, with the State Patrol Dispatch into a unified communications center.
    - The Minnesota Maintenance and the State Patrol Dispatch 24/7
    - Traffic Operations also dispatches, but not 24/7. Maintenance assists in off hours of traffic operation dispatchers.
    - The RTMC confirms incidents with 425 cameras
    - The metro area includes 350 ramp meters and 85 message signs controlled by the RTMC
    - If a 911 call comes into the RTMC from a cell phone, a State Patrol Dispatch Operator receives the call. If the call is reporting an incident or emergency, the State Patrol serves as the primary responder with the DOT sending a Freeway Incident ReSponse Team (FIRST) vehicle for traffic management. If the request is related to a vehicle breakdown (e.g. a flat tire or mechanical breakdown), the call is handed off to the DOT. In situations of vehicle breakdowns, The DOT sends out a FIRST vehicle to assist stranded motorists and clear the site as quickly as possible in order to minimize congestion.

- The FIRST vehicles and the state patrol work well together. The FIRST trucks provide extra security for emergency responders coming to the scene of a crash.
- The Minnesota DOT does not receive sensitive information from the state patrol. The DOT does not want any information they don't need.

Rick Phillips from the Washington DOT and Bill Hilton form the State Patrol summarized the information exchange between the WSDOT and Washington State Patrol.

- A Joint Operations Policy Statement (JOPS) was finalized in March 2006 and serves as a foundation of how the Washington State Patrol and the WSDOT work together.
- There had been some disconnects with respect to describing the same situation in the field because each agency was held to different standards.
- The State Patrol and WSDOT agreed on a measure for the duration of clearing an incident. The goal is to get a road opened within 90 minutes. The data from each incident is used to graph performance, however there is still work needed to combine the data from both systems.
- It was very beneficial to merge the systems in Washington to assist in developing common standards.
- Washington DOT pays incentives for quick clearance in the state, which shows a value of cooperation. Tow away zones are posted; you don't have a choice for a tow if you break down in these areas.
- Integration of the systems has increased trust and cooperation between the agencies.
- In Washington background checks are conducted on everyone who has access to the CAD system, including DOT staff.

Benefits of Computer Aided Dispatch (CAD) to Reporting System Integration: Case Studies

Dean Deeter from Athey Creek Consultants indicated that in 2002 there was a USDOT Request for Proposal (RFP) to requested funding for a CAD – TMC integration. Utah and Washington State were selected and two field operational tests were completed.

<u>CAD – TMC Field Operational Test: Washington State</u>

- State Patrol operated a CAD system, DOT operated a statewide condition reporting system (CARS system) that served as the data source for their Internet information delivery system and their 511 phone system.
- Originally it was proposed to be a two way data exchange, but ultimately the data exchange is one direction (from State Patrol to WSDOT).
- State Patrol CAD pushes filtered data to the DOT, and DOT software converts the data into a standard format and inserts it into the statewide reporting system.
- The data exchange between State Patrol and WSDOT occurs every 2 minutes.
- WSDOT has a policy that any information disseminated over the 511 phone system or Internet traveler information system has to be verified by an operator, therefore manual verification of the events arriving from CAD is required.
- There were challenges with the automated feed from CAD. Not all of the data entered are true events to post to 511. For example, sometimes State Patrol receives 911 phone calls reporting crashes. However, when the trooper arrives on the scene, there is no

vehicle. So, perhaps the 911 caller saw a vehicle that had stopped temporarily. Therefore, until a trooper or someone can verify that the incident is existing, the do not disseminate it over the traveler information system.

- There was not a direct overlay of geographically how information is gathered. DOT is regionally based and the state patrol is district based. Data needed to be filtered so that dispatchers in Seattle weren't receiving Spokane data.
- The primary objective of the operational test was to get more incident reports into the traveler information system.
- One technical challenge was the fact that the State Patrol CAD system uses state plane coordinate and the DOT uses latitude/longitude to identify a location. The DOT built a conversion system to address this consistency issue.
- CAD products allow free text, which makes it difficult for the DOT reporting system (based on standardized phrases and establish geo-location coordinates). It would be ideal to have CAD systems standardized when integrating system, but this isn't realistic request to CAD vendors since most CAD system are not configurable. There isn't a CAD vendor that makes a system for a DOT.
- The total cost for the project was $350,000 and took 2 years to complete.

CAD – TMC Field Operational Test: State of Utah

- There were many agencies involved in the Utah project. Since there so many agencies there were data sharing issues especially with different CAD systems. Most decision had to go with the most conservative approach to accommodate each agency.
- The CAD operators had to decide which incident should be shared and make a manual decision to share the data.
- The information shared would be very generic which meant the other agency receiving the data would have to read more about the data to get all the information. They couldn't filter the data. The lack of detail caused the majority of problems for participating agencies.
- The Utah system was designed to help agencies improve their operations, while the Washington system focused on providing better traveler information.
- It is important to note that as you are planning a system to build in flexibility especially if you are eventually going to automate the system. Utah eventually wanted an automatic filtering system, however since it was not designed from the start, the retrofit was difficult.
- The GIS standards and Geo referencing issues were the same as in Washington.

Introducing the CAD-Traffic Management Center (TMC) Real-time Interface Concept

Bill Legg summarized the CAD-TMC concept in Washington.

- The State Patrol hired a CAD vendor. The DOT was included in the discussions of selecting a vendor.
- The State Patrol had a number of issues to address with implementing a CAD system and the DOT accepted the fact that what ever information they provided is better than what currently was received.

- Latency was an issue with that data. The DOT had to continue to tweak the process to get the latency down.
- The data received by the DOT is pre filtered by the State Patrol to remove any sensitive information. The DOT and State Patrol agreed on what data should be shared.
- State Patrol codes are different from the DOT. Whenever possible, State Patrol events are converted to event descriptions in a format compliant with the WSDOT system database.
- The DOT CARS operators has the option to review, post, or edit and post an event before it is placed on the 511 system. If an operator edits an event, they will not receive any updates to that event because it was changed. If the data isn't edited once CAD removes it off their system it is removed from CARS.
- DOT has to manually except all events, which is done inconsistently around the state.

What are the Data Exchange Objectives of Each State?

Cathy Petersen, CJ Petersen and Associates asked the attendees to summarize the data exchange objectives for each of the eight states in attendance.

Idaho
Idaho's 511 road reporting system misses a lot of incident reporting from the state police because they are not integrated even though they work side by side. The DOT has to wait for the patrol to tell them what to put into the statewide reporting system. Idaho is in the process of planning for implementing data exchange between the road reporting system and CARS, however it has been difficult to get it started. The DOT needs to create additional screens before integrating with the state police.

Wyoming
Wyoming at the beginning of March 2008 opened a Traffic Management Center (TMC). The TMC will eventually co-locate the DOT and the Highway Patrol. Wyoming is in the planning phase of integrating TMC with CAD.

North Dakota
North Dakota does not have a TMC or TOC. However there is discussion for deploying a TOC in the Fargo/Moorhead that borders with Minnesota. North Dakota is in the process of rewriting their road reporting system. The patrol in North Dakota is in the process of implementing CAD. This is a good opportunity to discuss integrating the systems. The patrol in North Dakota does not dispatch vehicles, the Department of Homeland Security – Emergency Services dispatches vehicles. The road reporting system should be upgraded by this winter and the CAD system will be operational 9 months after that.

Washington
Washington's data contains a lot of duplicate records between the DOT and patrol. There is a need for the DOT to provide access to the state patrol to view data. It is important to learn what each other does on a day to day basis. Bill Legg recommended that if the DOT and law enforcement are not co-located, it would be beneficial to spend time learning what the other agency does.

Montana
Montana is in the process of upgrading their road reporting system to improve information provided to the traveling public. Quick clearance is an issue in Montana, because detours can extend a couple miles.

Wisconsin
Wisconsin has a CAD system in place and is working towards a reporting system.

South Dakota
South Dakota's Highway Patrol is in the process of installing CAD. South Dakota DOT has completed a Concept of Operations for a Traffic Operations Center (TOC). It is planned that a TOC would house the DOT and the Highway Patrol.

Minnesota
Minnesota is working on a CARS CAD Module that will hopefully be tested in the next 9 months.

Depart for Tour of the Tacoma TMC

Attendees toured the Tacoma Traffic Management Center where Washington State DOT and Washington State Patrol (WSP) operators are housed in the same the facility, and their individual incident response efforts are supported by an automated interface between the WSP CAD system and the WSDOT traveler information system.

Building an Action Plan

After the tour attendees worked on action plans to help build a list of what to do or consider as they move forward with deploying a CAD to reporting system data exchange. The action plans focused on the institutional side as well as the technical side.

The *Institutional* Side

Ginny Crowson from the Minnesota DOT asked the attendees to break out into small groups by state to identify institutional considerations to integrating CAD with a reporting system. The following bullets highlight institutional considerations for next steps in those states wishing to develop law enforcement to DOT data exchange:

- Include CAD-TMC as an agenda item on any existing planned meetings with decision makers in your state, particularly if the meetings involve law enforcement;
- Identify and clarify all the likely stakeholders that need to be involved, and be sure to include emergency operators;
- Determine if your system(s) will be developed in house or by a vendor;
- Use your state's ITS architecture to plan for your system and update your architecture if needed;
- Visit other states who have a system that you could learn from;
- Identify funding, resources, and a vendor;
- Identify difficulties or potential problems and address how they can be resolved;

- Include resources to maintain and operate your system in your planning process;
- After your system is up and running the demand for data grows and performance monitoring and measuring should be considered.

The *Technical* Side

Dean Deeter asked the attendees to break out into small groups by state to identify technical issues to consider when integrating CAD with a reporting system. The following bullets highlight technical considerations to be considered when developing data exchanges:

- Establish if there are any other fragmented systems that would benefit from integration;
- Identify what software each agency uses;
- Investigate upgrading a system to enhance integration;
- Agree on terminology and filtering protocols such as for urban areas;
- Include a representative from the other agencies with your planning to resolve any issues before the system is built.

Where Do We Go From Here?

Cathy Petersen asked the attendees to identify any information that the North/West Passage Group could provide to assist as each state continues CAD to reporting system integration efforts. Following is a summary of information requested by the attendees. This information will be posted on the North/West Passage website.

Workshop Handouts

- Agenda
- Workshop Attendee List
- Joint Operations Policy Statements (JOPS) Prepared and agreed to by the Washington State Patrol and the Washington DOT

Workshop Summary

- Detailed Workshop Summary
- North/West Passage States CAD and Reporting System Vendors

CAD-TMC Field Operational Test Cases

- State of Utah
    - Final Report
    - 2 Page Summary
- Washington State
    - Final Report
    - 2 Page Summary

Tacoma, Washington Traffic Management Center (TMC) Tour Information

- Operating Procedures

- Training Matrix
- Staff Position Descriptions
- Tour Photos
- ITS Component Software Vendors

Helpful Links
- TMC Pooled Fund Study
- I-95 Corridor
- FHWA Emergency Transportation Operations Planning Documents

Events
- April 23, 2008 Application of the National Unified Goal for Traffic Incident Management Web briefing
- February 2009 Joint Conference on Managing Travel for Planned Special Events and Traffic Incident Management. For more information contact Steve Scyra at scyra@hntb.com or Laurie Radow at Laurel.Radow@fhwa.dot.gov.

Wrap Up

Bill Legg thanked the attendees for their participation in the workshop and asked everyone to fill out and submit an evaluation of the workshop.

Paul Sullivan from FHWA concluded the workshop by reminding each state to contact their local FHWA representative to include traffic incident management activities in your planning.

Evaluation and Usefulness of the Workshop

The following bullets highlight comments received from attendees that participated in the workshop.

What did you get out of the workshop?

- Valuable contacts and interaction with representatives from my state as well as other colleagues along the corridor
- Ideas, what to expect, and how to get started with integrating CAD and reporting systems
- Valuable information in many areas
- Lessons learned (successes and challenges) from other states that have already implemented data exchange
- Action plan to move forward with integrating CAD and reporting systems

What will your next steps be?

- Continue to move forward with planning integration of a CAD and reporting system

- Schedule meeting to establish partnerships and data sharing opportunities
- Replace our road reporting system with considerations of integrating CAD
- Follow up on the action plans started at the workshop
- Meeting with my agency to provide a summary of what was discussed at this workshop
- Involve key stakeholders in the initial planning stages
- Meet with upper level management to discuss the process and receive approval for moving forward with data integration
- Contact other states to continue learning about data exchange

Overall Comments

- The workshop was very informative and helpful.
- The tour was great, it provided an opportunity to ask detailed questions to the actual operators of the integrated system.
- The workshop provided ideas and suggested steps on moving forward with data exchange.
- I appreciated the opportunity to participate and learn.
- The workshop was a resounding success.