Washington State CAD-TMC Integration Field Operational Test: Lessons Learned – July 2006

Build a strong partnership between transportation and public safety agencies, and establish clear operational rules from the start.

Background

Advanced traffic management systems (ATMS) are used to manage mobility, congestion and incident response in most major metropolitan areas in the United States. These systems include an extensive infrastructure of ITS applications, such as loop detectors and remotely operated cameras, which provide traffic management services and a Traffic Management Center (TMC) where traffic information is gathered, managed, and disseminated. Similarly, public safety and law enforcement operations are managed in a dispatch center, where calls for assistance are received and officers are dispatched to respond to those calls. Dispatch operations are managed by Computer-Aided Dispatch (CAD) systems that track information about incidents that public safety or law enforcement respond to and manage.

These two separate systems often overlap when responding to traffic incidents; however, they are seldom integrated with one another. To investigate the benefits of integrating CAD and TMC systems, the U.S. Department of Transportation (USDOT) Intelligent Transportation Systems Joint Program Office (ITS JPO) funded the CAD-TMC Field Operational Test (FOT) in Washington State. This FOT is one of the many initiatives implemented by the ITS JPO to meet the ITS Public Safety Program goals:

- Improving incident detection and notification.
- Reducing emergency response times.
- Improving information flows between emergency response agencies (real-time wireless communications links, integration of systems).

The objective of the FOT was to demonstrate how the integration of CAD and TMC systems can improve information flows between emergency response agencies, and in turn, improve incident response capabilities.

Lesson Learned

As part of the U.S. Department of Transportation (USDOT) Intelligent Transportation Systems Joint Program Office (ITS JPO)'s initiative, in 2005 the Washington State deployed an integrated CAD-TMC (Computer-Aided Dispatch - Traffic Management Center) system. The system included the following elements:

- The PRIMARY ALERT CAD Interface, which filters data from the Washington State Police (WSP) CAD system and sends it to the Washington State Department of Transportation (WSDOT) Condition Acquisition and Reporting System (CARS).
- The RESPONSE SUPPORT Web Interface, which provides WSDOT traffic information to the WSP CAD dispatchers.
- The SECONDARY ALERT CAD Interface, which sends WSP CAD information to the Skagit County Emergency Medical Services (EMS) CAD system. A Secondary Alert Web Interface makes incident information from CARS available to other secondary responders.

Qualitative data was collected prior to implementation (April to June 2004) and after implementation (April to June 2005) in the form of stakeholders/vendors interviews, observations, and site visits to evaluate the effectiveness of the system and address challenges and how they were resolved. The evaluation resulted in several recommendations of how to address issues in inter-agency relationships and how to improve coordination between them.

- **Understand the importance of close working relations from the start.** All interviewees commented on the importance of a close working relationship among the agencies involved in this FOT. The WSP and WSDOT established a Joint Operations Policy Statement governing incident response procedures, and conducted regular meetings to discuss operational issues.
- **Consider the importance of each agency's business practices in the integrated system.** It is important that the integrated system not require a change in the operator's or dispatcher's work process. As an example, the WSDOT originally intended to be able to populate event information in the WSP CAD system through a "hazard flag." The WSP CAD application did not lend itself to ingesting the WSDOT data as proposed and dispatchers would have to access WSDOT event information through a Web interface, and congestion information through either a Web interface or TMC workstation software. This approach would have required dispatchers to change their normal work processes to access and view this information.
- **Define what data are exchanged between agencies and when.** In Washington State, the WSP had concerns about releasing all incident-related information recorded in the CAD system and did not want to provide WSDOT with information that might compromise the investigation of incidents or other proprietary information related to law enforcement activities. The two agencies eventually established a protocol on what information would be provided to WSDOT.
- **Establish common incident location identifiers.** There was confusion and a potential problem identified with the ability to correctly locate incidents because the WSP and WSDOT typically used somewhat different location identifiers. These location identifiers may be different names for the same landmark or may be different ways to describe the same location. Agreement on a method of describing locations among the parties involved would be essential for good communication.
- **Ensure that the exchange of information between agencies is in compatible formats.** WSDOT initially thought that providing information about traffic conditions and WSDOT incident management activities directly to WSP dispatchers would be beneficial to the dispatchers. However, the information was not integrated into the dispatcher's applications and the dispatcher could not use the information without making changes to it. As a result, WSDOT is now considering sending a map layer to the WSP dispatch terminals that will show events and perhaps traffic congestion. Also, WSP will be equipping vehicles with AVL. WSP has suggested that the WSDOT incident response vehicles and service patrols be equipped with AVL to display their locations in the WSP system. Together, these approaches will provide the functionality originally envisioned by WSDOT, and would fit much better into the WSP dispatchers' work process as well.

This lesson suggests that improving inter-agency relationships is essential in the successful deployment of an integrated CAD-TMC. Building a strong partnership between agencies and establishing clear operational rules from the start, will ensure an effective ATMS system. Providing an improved and efficient ATMS system helps improve safety and mobility of travelers.

Full Report located at:
http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE//14325.htm