

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

Anticipate ongoing modifications to transit communication systems when integrating a Transportation Management Center with Computer Aided Dispatch systems.

Background

The Computer-Aided Dispatch (CAD) – Traffic Management Center (TMC) Integration Field Operations Test in the State of Utah document discusses evaluation findings for the CAD-TMC integration in the state of Utah. Utah has a very good reputation in the US for responding to and managing traffic incidents. Utah was fortunate to have such an active program in place prior to the field test. A joint process for handling incidents had been developed and refined over several years and included access to 911/CAD information for all types of incidents.

Qualitative data were collected through interviews with and observations of the following agencies:

- Utah Department of Transportation
- Utah Highway Patrol
- Utah Department of Public Safety
- Utah Transit Authority
- Valley Emergency Communications Center
- Salt Lake City Police Department

The lessons presented herein are intended to serve as a general guidance for other states to consider when planning similar CAD-TMC integration projects. The intent is to help states proactively identify issues that may impact deployment cost, schedule, and technical performance, and reflect the lessons learned by Utah during the FOT.

Lesson Learned

The integration of a transportation management center (TMC) with Computer Aided Dispatch (CAD) systems requires extensive involvement from all participating agencies. For transit agencies, it is especially important to anticipate a high level of complexity with such integration. Because transit agencies may require different needs and encounter unique problems, they need to be extensively involved in the integration planning and deployment processes. The Utah Transportation Authority's (UTA) experience with such an integration has provided the following lessons on the matter.

- **Expect a level of complexity in interfacing with the various network protocols and security infrastructures for multiple public sector agencies.** There is no effective way to learn these things other than by working through them with the other agencies, and it is useful to understand that extra time and effort will be needed.
 - Not everything the Utah Transit Authority (UTA) thought it understood at the outset turned out to be correct, both technically and institutionally. For instance, the IEEE 1512 incident messaging standard underwent some evolution during the integration, and the agency needed to adjust its implementation to incorporate those changes. In addition, since UTA was one of the first agencies to implement its messaging interface, the agency found that it also needed to make

ongoing adjustments to reflect changes in firewall and Internet Protocol (IP) address settings as other agency interfaces came on-stream.

- **Develop communication standards to be used by all agencies participating in systems integration.** To avoid confusion among agencies over the interpretation of messages, it is advisable for to develop a common language to be used by all within the integrated system.
 - With the Utah TMC-CAD integration, UTA dispatchers found it difficult to be able to quickly interpret public safety agency incident messages, due to the various codes and jargon used.
- **Establish strong working relationships and effective contractual mechanisms with vendors for ongoing technical support.** It is difficult to anticipate the specifics of all required vendor support for incorporation into system specifications. This leads to vendor support being needed for requirements that are not necessarily incorporated into the original specifications.
 - Since UTA developed and enhanced its software using in-house resources, it did not need to work with a vendor and did not experience this directly. However, several of the other agencies did need to work with their respective CAD software vendors to implement the changes, and this was UTA's observation on the effect.
- **Filter and process incident information generated by public safety agencies before being presenting it.** For transit dispatchers to make effective use of incident information, it first needs to be filtered so that it can be quickly and easily disseminated. The filtering and processing could be performed either by a designated staff person, or by another agency such as the state DOT.
 - In Utah, only some of the incident messages received by UTA would affect traffic. In addition, the message descriptions contained a range of information not needed by transit operations and in a format that was difficult to decipher. The purpose of this filtering and pre-processing for UTA would ideally be to (1) limit messages to those that could affect traffic in main corridors of the UTA service area; (2) provide a plain language description of the potential traffic impact location; and (3) distinguish between messages about new incidents and updates on existing incidents.

A TMC-CAD integration requires extensive planning and coordination on the part of the particular transit agency involved. Developing strong working relationships from the onset of the integration process will help facilitate continued operational excellence. Working out an effective means of communications, and citing inefficiencies as they occur, will aid dispatchers in performing their duties at the highest possible level. By taking these lessons into account, transit agencies will be better able to facilitate smoother TMC-CAD integration operations and processes.

Full Report located at:

http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE//14324.htm