

# *Draft MINUTES*

## COMBINED ATMS DATA DICTIONARY (TMDD) and MESSAGE SET FOR EXTERNAL TMC COMMUNICATION STEERING COMMITTEE MEETING

Las Vegas, Nevada  
February 7, 2002

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### **I. Welcome, Introduction and Review Agenda – Jim Wright**

Chair Wright welcomed the members of the committee and started the round of self-introductions.

12 of the 15 TMDD committee members were present.

### **II. General Progress/Status Report – Les Jacobson**

Les provided the status report. He summarized progress since the June meeting in Baltimore. The action items from that meeting were reviewed:

- Investigate using Dave Kelley's tool for message set database development (Pooran). This action was completed. It appears that the tool will work for TMDD.
- Estimate effort to develop message set database and update message set according to comments (Pooran). Farhad prepared the estimate and forwarded it to ITE.
- Contract for new message set work. The contract is nearly complete.

Les presented the highlights of the TMDD effort since the October meeting:

- Farhad Pooran completed the estimate for updating the message set update based on the spring 2001 comments.
- ITE made progress on the contract for the new message set work and the contract is close to complete.
- Progress was made on the data registry and data harmonization. (The specifics were reported later in the meeting.)

### **III. Organization Reports**

James Cheeks provided the ITE report.

#### **A. ITE – James Cheeks**

- ITE received approval for the new message set work. There are still a couple of contractual issues to work out before the contract can be put in place.

Coordination with other standards efforts will be very important. Committee liaison members need to keep their colleagues on other committees informed. Review times will be short. ITE will provide several notices to those committees for review and comment.

- The TMDD steering committee needs a liaison representative to the ADUS committee.
- ITE hasn't received any TMDD committee comments on the HRI standard yet. Committee members can still submit comments, but James needs them as soon as possible.
- The ITE mid-year meeting will be in Palm Harbor, FL. ITE may hold a status update on TMDD if there are enough committee members who attend. (The mid-year meeting will be held March 24 through 27). There were not enough committee members who indicated they would be there to hold the meeting.
- James passed around the anti-trust agreement.

#### B. AASHTO – Bo Strickland

- Bo commended the committee for putting together a convincing project plan to do the new message set work. The funding (\$655,000) is in place. Now the committee and consultant team need to produce. The message set work will have to be closely coordinated with the CORBA work under NTCIP. The effort will take a lot of time by committee members. It will be important to get good feedback into the process. There will be at least 3 committee meetings during the compressed schedule for the work. AASHTO is willing to send letters to member organizations to encourage them to allow committee members the time to work on the project.

#### C. IEEE Incident Management

- 3 areas of messages – HazMat (in ballot), law enforcement, and transportation. Transportation is most closely tied to TMDD. Most people are interested in the messages that request assets in the field. The IMDD committee plans to re-use as much of the TMDD as possible. They also intend leveraging the C2C work as well.
- TMDD members interested in reviewing the HazMat messages should see James to get a copy. The comment period closes on March 7.
- Manny Insignares asked about the procedure for converting the ATIS messages to XML and asked if the IM effort will use the same procedure. Dave Kelley said that it would. They will try to put the conversion in code and will make it available to Farhad to convert TMDD messages to XML. Current documents are available on the web. They will be updated next week.

- Peter Davies mentioned that there have been a few relatively minor problems that his programmers have found in the ERM ASN.1 to XML conversion. These may be ASN.1 problems. They can feed them back to the committee through Les or John Wintermute to include in the new message set work.
- Peter also asked if the XML “rules” from ATIS are recommendations or rules. Dave Kelley said they are recommendations and each standards group has to adopt their own rules.

#### D. SAE ATIS

- The ATIS committee is cleaning up J2354. There is nothing new in the latest ballot, but they expect a major update to the entire standard by the end of the calendar year. The update will include XML. The ATIS committee is coordinating with Mitretek. Three areas are deploying the XML schema and the experience will be folded in to the new ballot. The XML conversion will be recommended practice, not a standard.
- The ATIS committee wants to get into weather and transit related messages. They are trying to figure out with whom to coordinate in the weather community. ATIS is a bit ahead of TCIP on the transit side, but USDOT is working to develop trip planning in XML and the ATIS committee is trying to coordinate with that effort.
- Completed ballot (committee and division) on J2540, including ITIS code list.
- John Wintermute asked if ATIS had developed or found requirements from transit or weather. Joel said that they followed on after TCIP and they hope to have the requirements that TCIP develop. They are less certain about the weather side.
- Bo asked about 511 efforts and impact on standards. Jim Wright mentioned that the 511 launch guidelines suggest that deployers use applicable standards. The 511 coalitions are taking comments on the guidelines now. They plan to have a revised set of guidelines out for the 511 launch workshop in March. Guidelines will be an iterative effort. They are available on [www.transportation.org](http://www.transportation.org).

Peter Davies mentioned a 7-state consortium using an XML version of ERM for 511 efforts. Peter doesn't see the need for additional standards.

#### E. National Architecture

- The website for version 4 of the architecture should be up later this month. The CD should be ready by ITS America. It will be available at the USDOT, ITERIS, and Lockheed-Martin booths.

- The impact of the maintenance and construction operations (MCO) user service on TMDD should not be great. The focus of MCO is to get information from the field to a TMC.
- Joel Markowitz asked if MCO covered transit maintenance. Charnita Wilson said that it focuses on highway maintenance and construction.
- John Wintermute said that it would be best to get information from MCO by the end of the month to incorporate in the new message set effort.

#### **IV. Transcom Experience with Standards and 9/11**

Tom Batz presented what happened at Transcom on 9/11. They had to evacuate most of the Transcom staff. Only a few operations staff stayed.

- All agencies emphasized security over mobility during this time. Everyone understood this. No one complained about security checkpoints that caused great congestion. There were closures of all of the area bridges, tunnels, and airports. There were also major highways and transit closures – there wasn't even bus travel into the city.
- There were overwhelming amounts of information coming in at the same time as the phone system became overloaded and couldn't be relied upon. Transcom lost some communication hubs as well. They set up fax and e-mail networks. They needed to write new VMS and HAR messages. There was a lot of low-tech coordination with agencies.
- There was massive cooperation among agencies. Examples of new messages:
  - Avoid Manhattan
  - Avoid NYC (in Connecticut)
  - Avoid region (in Delaware)
  - Specific bridge/tunnel closures – changed frequently
  - SOV bans
  - Commercial vehicle restrictions
- The fax/e-mail network was a valuable low-tech tool that overcame busy phone circuits. Transcom had a contract with a firm in Florida for snow messages. The network grew to over 400 recipients. E-mail allowed enhanced redistribution of information. Agencies posted the information on websites.

- Transcom used several ITS elements, including Transmit for ETTM information. This was especially important because of the SOV bans in lower Manhattan and the impact on the George Washington Bridge. Transcom operators could see traffic conditions on the George to know when to recommend that people use the Tappan Zee Bridge. They also used Transmit to determine when the SOV ban could be lifted. Transcom used their video distribution network so all agencies could see what was going on in various locations. They also relied on the I-95 IEN, however there were some problems because of the dial-up nature of the IEN.
- Transcom lost some of their telecom linkages.
- Low-tech coordination included quick calls to people in various agencies. Coordination calls were required to make sure the needs of various agencies were met.
- Lessons learned
  - Importance of security – involve police more.
  - Definition of incident – redefined mega-incident.
  - Definition of redundancy – not just server, but communication hubs.
  - Need for data.
  - Need for ATIS systems – could have made it a lot easier if people could have gone to the web for information.
  - Operational staff credentials should be issued to allow people to go into emergency/disaster areas.
- New incident types that weren't considered in the past:
  - “Lockdown”
  - Transportation network closures – highways, bridges, tunnels, transit
  - Checkpoints and diversion routes – security, SOV, tractor-trailers. It is important that police are involved.
- Transcom will come up with a detailed list of new messages and data elements that were needed as input to the new message set work.

Joe Stapleton asked if Transcom had a seat at the emergency management agencies. They do.

Joel asked about how Transcom got information. They relied on Transcom personnel calling and not waiting for other agencies to call in. They based their actions on procedures developed for snow reports.

Peter Davies mentioned that the ERM is based on UK examples that are based terrorist attacks. He checked with Tom on some of the phrases included and wanted to know how they would fit, for example security alert or security attack. In Europe, it took some time to get agreement on common terminology. Also, police did not want information on security checkpoints or delays to go out to the public so potential terrorists wouldn't bypass these locations.

## **V. Update on Project to Expedite Message Set**

James reminded the committee about the amount of review that members will need to provide on the new message set effort. The review will have to be of high quality to resolve as many issues as possible before external review.

John Wintermute presented information on the new message set work.

We are undertaking this new work to incorporate information from deployments. The team will develop the standard in a formal systems engineering process to include a specific requirements definition and tracing requirements through development process.

The ITE contract has been approved by FHWA.

Next steps: This activity will be undertaken under a task order contract. The next step is for the contractor to sign the task order and execute the project plan.

### Schedule highlights

- Start date – February 18.
- Initiation meeting by the end of February.
- Operations requirements draft – 4/22/02.
- Public forum draft for committee review – 4/29/02 through 5/10/02.
- Post public review forum documents – May 13.
- Committee meeting in Chicago May 15 and 16.
- Post final public forum documents – May 24.
- Public forum – 1st week in June.
- Committee comment resolution web conference – end of June.

- Committee Review of draft 1 message and DE – July 12 – 26.
- Committee review of draft 2 – 8/16 – 30.
- Post final committee draft September 16.
- Committee meeting to send to user comment period – end of September.
- Committee meeting to send to ballot – mid January 2003.

There was a question about how to resolve the comments from last spring's ballot. The comments and their resolution will be folded in to the new work.

James will send everyone the tentative schedule. Bob Rausch mentioned that the schedule needs to highlight the committee review schedule. John said it will be included in one master schedule.

**Action:** James Cheeks will send out the schedule for the new message set work to the TMDD list.

There was a discussion of the external review schedule. Initial contacts will be made during the week of April 1. Data element and message coordination will take place before draft data elements and draft messages go to the committee. The data elements and messages will be presented in ASN.1 at each revision and will be sent out electronically for coordination with external groups. Current working documents will be available on the project web site.

There was a question about when to upload the new work to the registry. Either draft 2 or the public comment draft is planned to be uploaded to the registry.

Jim Wright mentioned that the format of the message will have an impact on how quickly and how well the committee will be able to review and comment. The operational requirements document will help. Jeris asked about a traceability matrix. The matrix is scheduled to be available by week 25 and 26, August 11 (prior to draft 2). The matrix will trace requirements to messages to data elements.

Manny Insignares asked if there will be an electronic form of the standard. John said it will be an access database. He wants to make sure that the format is one that will help both transportation people and developers. The database and schema will be publicly available.

Joel Markowitz mentioned that it would be best for external review if the format would be such that Dave Kelley can suck in the products in his tool for others to use. John said they will. Joel also mentioned that it would be good to get the data elements and messages of interest to others flagged so they can see when things change. John said that this type of issue is what the team wants to work out starting April 1.

Joel asked how the committee will be able to determine what is changed as new products are posted. He wants to know if the effort is going to toss out the existing messages or just change them. John said that the intention is to let the committee know what they are planning before they do it. Joel asked about versioning. John said that they'll have a change control process.

Joe Stapleton asked if there will be some way for external people to know what has been changed. There will be a document that explains the changes that were made and why. Joe asked if there will be some type of explanation of changes with each review stage. John said that there will be and the exact form will be determined early in the project.

Bob Rausch asked if the change table is a contract deliverable. John said that there is nothing at that level of detail required in the contract. He needs to be able to produce whatever is needed for review in the review format. Bob suggested that these should be contract requirements.

Bo Strickland asked about the forum and the intended audience. John said that a lot of the TMDD committee will be there, but he also wants people who are involved in the deployments included. The focus of the forum will be on requirements. Joel asked when the location and notification will be determined. John said they'll do that as soon as the contract is executed. James will put a notice in the March ITE Journal.

**Action:** James Cheeks will put a notice of the requirements workshop in the ITE Journal.

Jim Wright asked how the forum would be organized. John said that there are several aspects. One will focus on operations issues and one will focus on maintenance issues. The intention is to get endorsement and fine-tuning of the concept of operations. They will expose new messages, like one system telling another that they are about to shut down. The team wants knowledgeable people from various domains. Joe suggests we call it a workshop to show that we are looking at getting input.

Don Creighton wanted to know if there will be an ability to tie the new effort to standards testing. It will depend on the operating agencies that may want to implement the new standards and be involved in testing.

The committee requested that detailed schedule information be sent to the committee. They would like to have it posted to the web as well.

## **VI. Committee Process for Overseeing New Message Set Work**

- **Role of the Committee**

The group discussed the role of the TMDD steering committee. The TMDD committee is the standards working group of "owning" SDO (ITE/AASHTO). They will ballot and approve changes to the standards (data dictionary and message set). There is a committee task group, chaired by Al Karoly, charged with overseeing the new message set work. The task group will send all material to all the committee members and ask for

comments. This will be an intensive effort that will take review time in a relatively short time frame. The group will utilize conference calls and web conferences for coordination. The effort's products will initially be sent to Al and Les, then e-mailed to task group and posted to website.

- **Coordination with other SDOs**

We will plan on a month turn-around for comments from other committees. The information will also be posted to the ITE standards registrants list.

The committee discussed their role in overseeing the message set work.

There was a question about how transit gets input into the work. James said that there are transit representatives on the registrants list.

Joel Markowitz asked about the common data elements that are being discussed. Farhad Pooran and Les Jacobson will keep John Wintermute updated on the data registry configuration control committee issues.

**Action:** Les will recommend John Wintermute as a submitter to the data registry.

James will send Les the list-server list to make sure all of the people on the TMDD roster are included. We also need to pull in other people from deployments like the GCM corridor.

## **VII. Update on Disposition of Comments**

Farhad Pooran presented an update to disposing of comments since the Atlanta meeting in October.

- Delete redundant DEVICE DEs. We will use LINK, NODE, DEVICE DEs.
- HAR control. NTCIP has abandoned their HAR work. There is not much interest from the user community in HAR. TMDD needs to deal with HAR from a center-to-center perspective, not center to field. Bob Rausch suggested that we need to treat HAR as a talking DMS. We should look at abandoned NTCIP objects to see if there are any that deal with C2C and determine if there are any additional DEs needed.
- Add reversible lane control to DEVICE\_DeviceType\_code. Add new LANE\_CurrentState\_code. (Will also need to add reversible lane to LINK\_Direction\_code.)
  - There was a suggestion that the new data element be LANE\_ControlState\_code.

- Valid Value Rule – suggestion to include “transition” as well as closed. Another suggestion to add “planned” and “removed” to indicate a new reversible lane planned but not in operation and one recently removed. Delete not in use.
- We also need to take care of two-way-left-turn-lane state.
- The group decided to leave this to the new work and the requirements workshop.
- Increase the maximum number of lanes in EVENT\_LanesAffected\_code to 64.
- Add clarifying remarks to LINK\_Type\_code for expressway and frontage road.
- Add “signal in transition” to INTERSECTION\_SignalControlMode\_code.
  - Add “meter in transition” to ramp meter control mode.
- Add new DE – INTERSECTION\_SignalControlState\_code. The committee suggested to add “priority” to the list from the commenter.
  - Add railroad pre-empt.
  - Add manual control.
  - Add ability to allow type of vehicle that pre-empted the signal.
- Add item to enumerated list of PHASE\_SignalState\_code for “unknown”.
  - Need to add a data elements for pedestrian phases.
- There was a comment to add CyclicIntersectionData to indicate what the previous cycle length was. For background cycle, we can use NTCIP PatternCycleTime. We need to find out if NTCIP has actual cycle time from previous cycles.
- Need new data elements for User ID and Password. These DEs are needed to allow a user in one center to control a device in another. The TMDD needs to have this because the two centers may be on different platforms. The standard would need to describe the proper use of the data element. It should to define the data elements as “blobs” and not include encryption type, for security purposes.
- User concerns and deployment issues:
  - Whose system complies with TMDD? Compliance or conformance? (Conformance is an exact meeting of the standard and requires a conformity statement in the standard. Compliance means that the project complies with the standards.)

- There should be a central repository of earlier versions of TMDD and message sets.
- The message set standard should include Datex and XML.

The committee reviewed the comments on messages and message sets. Farhad said that Charlie Berger suggested that all of the comments on message set should be addressed by expedited work.

### **VIII. Data Registry Issues**

Les Jacobson has promoted all TMDD data elements to the “Recorded” level. Promotion above recorded will be dependent on the rules of the data registry and the status of ISO 14817.

Nearly all identified TMDD harmonization candidates have been harmonized. There are still questions regarding the “generic” ITS data elements, such as contact information data elements, location data elements, and time and date data elements.

The data registry User Guide draft is complete.

Some Data Registry bugs are fixed, some are still outstanding. The CCC will continue to identify problems and add them to the fix list.

The CCC has ongoing discussions on meta-attribute rules.

Some concerns about the data registry and the CCC have been voiced:

- **Data Registry tool is not user-friendly.** It is difficult to use, modify, and get reports. There are efforts underway to improve the registry.
- **Harmonization has been slow.** To a great extent, the registry itself has limited progress. Also, P1488/1489 and ISO 14817 are still evolving, which means final decisions on format often can't be made.

The TMDD committee sees no reason to make a decision to make large changes to the data elements right now. There is some concern over long descriptive names that may be required by ISO 14817.

### **IX. TMDD and standards training**

The new list for locations of training is on the ITE standards website. Training will be held about twice a month at various locations across the country. ITE is looking for people to be involved in the training process. Next week, training courses will be held in Dallas. February 25-28 in Columbus Ohio. There will be a 2-day training session in Charlotte North Carolina February 18 and 19. It is important for committee members to

pass the word about the training courses. Four courses are offered: Overview, Center-to-Center, DMS, and actuated signals. TCIP is also developing transit related training courses. Two will be piloted and offered this year. One is on the vehicle side and the other is how to use and specify TCIP.

James said that they can tailor the courses to local needs.

Chair Wright recessed the meeting.

### **TMDD Meeting February 8, 2001**

Chair Wright called the second day of the meeting to order.

#### **X. Update on Center-to-Center CORBA Effort**

One of the key parts to the expedited process is the relationship to the NTCIP C2C group and the coordination with the CORBA effort. James Cheeks said that we need the involvement of committee members with the people in their organization who will be involved with or interested in the CORBA effort. James suggested that we recruit people from the public sector who want to be involved. The GCM website has information on their CORBA efforts.

For the C2C effort, they will first do a generic data model. They will hire a project manager and have teams of consultants who will work on different aspects of the data model. The project manager for that effort will coordinate with John Wintermute. The project manager will be on board within 2 months. The C2C effort will be tightly coupled with the message set work. The CORBA effort is a 2-year effort.

ATIS and IM have asked for small efforts for CORBA also. They will take what is being done in the C2C effort and modify the model to apply to ATIS and IM.

#### **XI. Standards Testing Efforts**

Don Creighton presented a status update on Battelle's standards testing efforts. They identified about 50 ITS standards that are testable.

The basic question they ask in testing is, "Does the standard meet the needs of the user community?" Is it:

- Suitable?
- Effective?
- Interoperable, interchangeable?

- Does it provide the features to access the technology?
- Are there any “findings”?

It is not an acceptance test, a test of the implementation, a stress test, or an integration test. It isn't mission oriented nor is it 100 percent exhaustive. The standards testing program looks at features of the standards, not the performance of the system.

They have tested DMS at the Illinois Tollway and ESS at MnDOT. The DMS test had 24 findings about the DMS related standards. Most of the issues have been addressed. (The reports are available on the ITS standards website.) The ESS test had 4 findings, therefore concluded that the standard is mature and contributes to interoperability.

They have had difficulty finding test sites. They will consider lab testing and early adopter testing as well as field-testing. Early adopter testing would look at deployers who have implemented part of the standard or are in early phases of deployment. They get about 50 percent of the information they need through interviews and reviewing documentation.

There is a question of how to test the base standards in a field environment. They can't really look at the inputs and outputs at every level of the stack. These types of standards may be good candidates for lab testing.

NTCIP is forming a testing working group to help develop test cases and generally support testing NTCIP standards. The group will not be responsible for developing specific tests for specific devices. (The specific standard working group will do that.)

Issues and challenges: What is interoperability? What is interchangeable? It is relatively easy to tell when systems are not interoperable, but it is difficult to tell definitively that they are interoperable. How can the standard be tested in a single vendor environment? How can the test base standards and protocols be tested?

There are different levels of comparison to standards → chaotic (no interoperability), consistent, compliant (usually contractual language), conformity (specific requirements that are usually stated in the contract as the conditions needed to conform to the standard), and certified (sticker goes on the outside that the product is conformant to the standard). There are three types of certification: 1<sup>st</sup> party (self certification), 2<sup>nd</sup> party (buyers, users), and 3<sup>rd</sup> party (independent lab). The common aspects are that they all need a conformity statement in the standard and a test suite.

## Conformity Chart

Usage is	Standard	Benign	Malignant (active)
Exact	Yes	N/A	N/A
Sub-ranging	N/A	~Yes	~No
Extension	N/A	~~Yes	~~No
Replacement	N/A	N/A	No!

Conformity doesn't necessarily mean that the systems will interoperate. We mislead people if we say the system is conformant but not interoperable. The challenge is to make sure we deal with this.

The committee discussed standards testing. One of the roles of the NTCIP testing working group will be to help define the "C" words (conformity, compliant, consistent) and help provide guidance on conformity statements. The real issue with customers is interoperability, not conformity.

The committee discussed the types of things that can really be tested versus discovered through interviews or "static analysis".

The next step in testing is to appoint the NTCIP testing working group. In April, there will be a focus group meeting to flush out some of the needs and requirements of testing.

## **XII. Forward Plan**

- New message set work
  - Extensive effort that committee members will need to focus on.
- Respond to comments from the spring ballot.
  - Parallel effort with the new work. We'll target a ballot with the new work and the response to the spring comments.
- Emergence of XML
  - The committee's next effort after the new message set work will be XML.

## **XIII. Future Meetings**

- A. May 15 – 16 in Chicago. Half a day on the 15<sup>th</sup> and all day on the 16<sup>th</sup>.
- B. Workshop either June 6 and 7 or 11 and 12.
- C. Meeting September 19 – 20 in San Diego or 26 – 27 in San Antonio.

Chair Wright adjourned the meeting.