

ITE Standards Development Report
Request for Approval to Publish Provisional Standard

**STANDARDS FOR TRAFFIC MANAGEMENT CENTER TO CENTER
COMMUNICATIONS – Version 2.1**

February 2005

1. REQUEST FOR APPROVAL

The ITE/AASHTO TMDD Steering Committee has completed steps 1 through 8 of the ITE standards development process for Standards for Traffic Management Center to Center Communications. The committee requests approval from the ITE Standards Review Panel for publication to request approval of a provisional standard.

ITE Standards Review Panel Criteria for Approval:

- *The standard appears to be technically adequate.* This standard has undergone numerous technical reviews by the Traffic Management Data Dictionary (TMDD) Steering Committee and its representatives from ITE and AASHTO, and by the consultants hired by ITE to prepare the technical content of the standard .
- *The process used to date in the development of the standard has met the objectives listed in section 1.B of the ITE procedures.* The TMDD Steering Committee has spent considerable effort working with the other members of the ITS Council of Standards Organizations to ensure that the standard is consistent with data dictionary, message set, and other standards efforts underway covering various aspects of ITS. As a result, this TMDD standard for center-to-center communications is consistent with the ITS Data Dictionary template (IEEE 1489) and the ITS Message Set Template (IEEE 1488).

In addition, the document was coordinated with the following groups:

- Generic Reference Model (GRM) effort of the National Transportation Communications for ITS Protocol (NTCIP) Center-to-Center Working Group
- NTCIP C2C Working Group
- SAE ATIS Group
- IEEE Incident Management Group (1512)

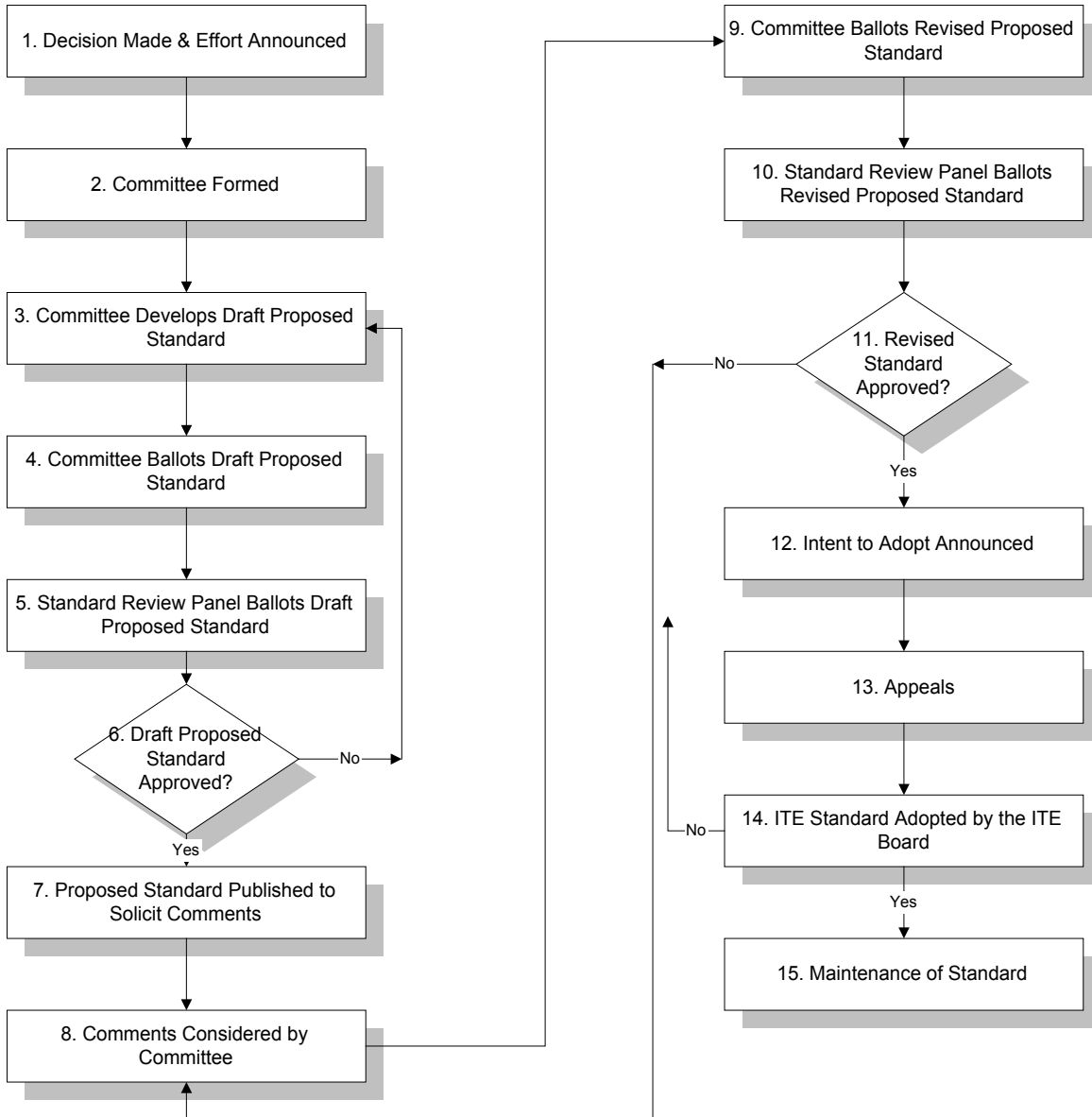
These coordination efforts are explained in item 3 (Standard Development Coordination) below.

All comments from committee members have been considered and addressed. The proposed standard was developed consistent with the National ITS Architecture. No evidence that the proposed version is contrary to the public interest or contains unfair provisions has surfaced to date.

The TMDD Committee has developed this provisional standard in compliance with present ITE and AASHTO standards development procedures and practices to provide procedural fairness. Immediately prior to this request, steps 7 and 8 of the ITE Standards Development Process were completed:



ITE Standards Development Process



Step 7. Proposed Standard Published to Solicit Comments: The working draft of the Standards for Traffic Management Center to Center Communications standards Version 2.1 was released for user comment on August 10, 2004. The user comment period closed on September 20, 2004.

Step 8. Comments Considered by Committee: The TMDD Steering Committee met on September 27 and 28, 2004 to discuss the user comments for Version (2.1). During that meeting, the TMDD steering committee reviewed the changes and directed the consultant (Farhad Pooran) to move ahead with the corrections to the standard to meet certain criteria and action items discussed at the meeting and to electronically ballot after the final delivery of the revised standard in December.

2. BACKGROUND

The Institute of Transportation Engineers (ITE), working in partnership with the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA), has led a national effort to develop a standard for *Traffic Management Center to Center Communications*. Development was overseen by a national Steering Committee composed of public and private experts directly involved in the design and/or application of traffic management systems. This committee further served as the ITE and AASHTO formal Standards Development Committee for this standard.

The original technical development of the content of *Version 2.0* of the standard, was performed by a team of consultants under contract to ITE:

- PB Farradyne – prime consultant
 - Gary Euler - Project manager
 - Farhad Pooran - technical director
- Castle Rock Consultants - Peter Davies, lead
- Southwest Research Institute - Steve Dellenback, lead
- Trevilon Corporation - Ken Vaughn, lead
- TRANSCOM, Inc. - Sanjay Patel, lead

Version 2.0 was modified, largely by Farhad Pooran, under contract to ITE (through cooperation with PB Farradyne). The TMDD is grateful for the assistance provided by the consultant for the ATIS and IEEE Incident Management working groups, Mr. David Kelley. Mr. Kelley provided input to the revisions to harmonize with the IEEE and ATIS efforts and the resulting document was commissioned **Version 2.1**. After the harmonization input from Mr. Kelley, the final document was completed by Mr. Pooran based on the direction of the TMDD steering committee.

3. DEVELOPMENT HISTORY

The TMDD Steering Committee consists of formal members with voting privileges who are appointed as designated representatives by ITE, AASHTO and FHWA. Total formal membership varied slightly during development of the provisional standard but was normally maintained at fourteen to seventeen members. The Steering Committee met at regular intervals during the development of the provisional standard.

The TMDD Steering Committee formally served as the designated standards development committee for both ITE and AASHTO. In performing its standards development function, the TMDD Steering Committee reported to formal ITE and AASHTO committees consisting of the ITE ITS Standards Committee and the AASHTO Subcommittee on Advanced Transportation Systems. Formal status reports on the TMDD development were provided to these committees at their national meetings.

The TMDD Steering Committee was charged with establishing the scope, development strategy, and specific content deemed required for the provisional standard. During development, individual committee members provided review of interim products and the working draft of the standard.

After approval of Version 2.0, we received input from some of the other working groups that there were inconsistencies between what was in the TMDD and the work of these other working groups. In March, 2004, a coordination/harmonization meeting was held to review the comments received from the IEEE Incident Management Working group, the ATIS contractor, and the GRM/C2C contractor. It was important that the efforts of the TMDD be coordinated with these groups to ensure a consistent standard with accurate cross referencing of the data elements used for the various application specific message sets.

The results of this harmonization meeting were presented to a TMDD steering committee meeting held May 27-28, 2004. There were a number of issues raised by the GRM/C2C contractor that needed concurrence of direction from the TMDD steering committee to resolve. These were discussed and a consensus was reached at that meeting. The document was subsequently revised – all except the con-ops and requirements and the resulting document was circulated for user comments. These were reviewed by the consultant and the committee chair and presented at a meeting of the steering committee held on September 27 and 28, 2004. The steering committee directed that the consultant to make certain changes to the user comment draft and then agreed that more significant changes should be held for a version 3. The steering committee stressed that there was a real urgency to publish Version 2.1 with the corrected data elements. Thus, although the standard has not been fully harmonized with the GRM/C2C work because that work was incomplete, the committee agreed to complete the minor changes to Version 2.1 and submit the standard for final acceptance as a provisional standard.

4. Committee Membership

The following lists the committee membership at the time of the September 2004 steering committee meeting.

Name	Organization	Representing
Brian Pecus	Caltrans	AASHTO
Morgan Balogh	Washington State DOT	AASHTO
Steven W. Dellenback	Southwest Research Institute	ITE
David Helman	FHWA	FHWA
Ali Imansepahi	Colorado DOT	AASHTO
Chris Jones	Georgia DOT	AASHTO
Richard Dye	Maryland Chart	AAHSTO
Joel Markowitz	Metropolitan Transportation Commission	ITE
Raman Patel	Independent Consultant	ITE
Robert Rausch, Chair	TransCore	ITE
Edward J. Seymour	Texas Transportation Institute	ITE
John Whited	Iowa DOT	AASHTO
Douglas W. Wiersig	Parsons Transportation	ITE

5. STANDARD DEVELOPMENT COORDINATION

Coordination with related standards developments was closely maintained during the development of the provisional standard. In particular, the Version 2.1 document was developed in close coordination with the Generic Reference Model (GRM) effort of the National Transportation Communications for ITS Protocol (NTCIP) Center-to-Center (C2C) Working Group, the NTCIP C2C Working Group, the SAE ATIS Group, the IEEE Incident Management Group (1512 family of standards). Numerous documented technical exchanges, both formal and informal, occurred during the process of developing and revising the Version 2.0 standard to ensure harmonization; the result was also reviewed by the TMDD working group and a joint meeting with the C2C working group in September 2004. The standard being proposed as a provisional standard was completed in January 2005.

In addition, the initial version of the provisional standard (Version 2.0) was developed to reflect prominent center to center communications deployments: those of the ten-state CARS Consortium, initial center-to-center deployments by the Texas Department of Transportation, and the Regional Architecture being deployed by TRANSCOM in the New York/New Jersey/Connecticut metropolitan area.

All committee working documents and proposed revisions were also posted to the ITE and TMDD websites (www.tmdd.org).

Section 6 below documents the complete development of the traffic management center to center communications standards relative to the ITE Standards Development Process as approved January 10, 1998. Note that the current standard includes the complete data dictionary and the message sets in both XML and ASN.1 format.

6. SUMMARY CHRONOLOGY

A chronology of TMDD Steering Committee meetings and events as related to the specific development of the provisional standard follows:

Event Date	Significant Activity	
February 15, 2002	Initiation of consulting team technical effort (version 2.0)	Version 2.0 Development
May 15-16, 2002	Committee Meeting - consideration of the draft version of the Operational Requirements Document	
June 6-7, 2002	Operations Workshop held in Raleigh, NC	
September 19-20, 2002	Committee Meeting - presentation of draft Concept of Operations	
February 11-12, 2003	Committee Meeting - consideration of draft Concept of Operations and Requirements document	
June 10-11, 2003	Committee Meeting - consideration of revised Concept of Operations and Requirements document, and draft of Volume II containing the sequence diagrams, message sets, traceability table, and ASN.I notation	
August 11, 2003	Release for user comment of working drafts of Volumes I and II and Volume II Companion Annexes	
September 19, 2003	User comment period closes	
November 3-4, 2003	Committee Meeting - consideration of revised versions of Volumes I and II and Volume II Companion Annexes (based on user comments)	
December 15, 2003	Delivery of improved versions of Volumes I and II and Volume II Companion Annexes as per Committee direction	
March 8-10, 2004	Harmonization meeting – ATIS, 1512, GRM – meeting in Atlanta	Version 2.1 Development
May 24-25, 2004	Joint meeting with C2C working group to review proposed changes as a result of the harmonization meeting	
August 10, 2004	Preliminary version 2.1 released for user comments	
September 27-28, 2004	Meeting of TMDD steering committee with presentations regarding comments received and discussion of future plans; committee sets direction to complete Version 2.1 with minimal changes then attack completion of Version 3.0 with the remaining issues of the GRM. Suggested merged effort of GRM and TMDD for future versions	
November 18, 2004	Revised version of TMDD Version 2.1 transmitted to ITE from subcontractor.	