

DATE: December 15, 2006

TO: AASHTO, ITE, and NEMA

SUBJECT: Recommended Standard NTCIP 1213,
*Object Definitions for Electrical and Lighting
Management Systems (ELMS)*

ACTION: Request for Ballot to Approve

RECOMMENDATION. This Bulletin reports that the Joint Committee on the NTCIP accepted the proposed NTCIP 1213, *Object Definitions for Electrical and Lighting Management Systems (ELMS)*, as a Recommended Standard, and agreed to refer the document to AASHTO, ITE, and NEMA for balloting. The recommendation came at the regularly scheduled meeting of the Joint Committee held on December 1, 2005, in San Diego, California, by the required two-thirds majority of the 18-member committee. The motion to recommend the standard carried with 13 affirmative votes, no negative votes, and no abstentions.

The Joint Committee on the NTCIP contributes to the joint standards development process by accepting a proposed draft document at two stages in its development – first as a User Comment Draft and then again as a Recommended Standard.

BACKGROUND. This document was developed to be a Joint AASHTO / ITE / NEMA Standards Publication, part of the NTCIP family of standards and profiles. The document is in the 1200-series of NTCIP document numbers, and is a Device Data Dictionary document.

The NTCIP 1213 defines the requirements, data elements, and communication dialogs for ELMS. An ELMS is defined as any system capable of monitoring and controlling electrical and lighting systems, including individual lights, electrical circuits, and sub loads. In practice, the NTCIP 1213 can be used to monitor and control highway lighting luminaires and their electrical service circuits.

In an ELMS, roadside controllers serve as both remote access communications nodes and data loggers, exchanging sensor information with multiple luminaires. The ELMS



NTCIP objects are defined at the point of interface and interoperability, which is the data logger. An ELMS can assist municipalities, DOTs, and power companies to respond more quickly to outages and save in maintenance, equipment, and energy costs.

The NTCIP 1213 content defines system requirements table, the management information base data elements, dialogs for use by developers, and a requirements traceability matrix.

NTCIP 1213 was drafted by the NTCIP ELMS Working Group, chaired by Greg Jones, (Texas DOT). The document was based on work started by an ad-hoc committee of the Illuminating Engineering Society of North America (IESNA). The ELMS WG has 17 members from the public and private sectors.

The NTCIP 1213 v02.19 is a "major version" revision to the user comment draft that was available for review in March 2004. The content was expanded and reorganized to include a concept of operations, user needs, system requirements, and requirements traceability. The version v01 edition did not advance beyond the User Comment Draft stage, and was not accepted, approved, or published. Specifiers should start with version v02.

Also attached to this NTCIP Standards Bulletin is supporting information, called the Standards Development Report, required by the ITE standards development process. The SDR provides a summary of the document development milestones, the working group members, and other standards that have been examined with regard to harmonization and duplication of content.

An electronic copy of the Recommended Standard is posted in the LIBRARY area of the NTCIP Website, at <http://www.ntcip.org>.

USER COMMENTS. All user comments regarding NTCIP 1213 are filed in an MS Access database. This database contains three types of comments: official "User Comments," comments sent directly to the WG, and comments made during WG meetings. In the database, official "User Comments" are designated with a "UC0000" number in the UC Comment field.

A report from the User Comment database is posted in the NTCIP Web site's Forum for Standards. Click to the conference for NTCIP 1213. The user comment database report includes the disposition of the comments received on the document.

NOTES. The Joint Committee accepted NTCIP 1213 version 02.19b, December 2005, as the Recommended Standard. The title page and History front matter were further revised, and the Object Tree added, to produce v02.19d, which is distributed in July for balloting. Administrative delay in preparing the standards development report and the standards bulletin delayed this request for approval.

BALLOT INSTRUCTIONS. The eligible voting representatives who receive this Bulletin are asked to follow the ballot instructions of their standards organization.

- ATTACH-
MENTS:**
1. Standards Development Report, November 2, 2006, from Greg Jones, ELMS WG chair, and Warren Steger, editor.
 2. NTCIP 1213 v02, *Object Definitions for Electrical and Lighting Management Systems (ELMS)*, version 02.19d, November 2006, ~165 pages.

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CC: Via www.ntcip.org Web site and notices to NTCIP email reflectors.

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ITE Standards Development Report (SDR) for NTCIP 1213 ELMS

Date prepared: February 21, 2006 and revised November 2, 2006
Prepared by: Greg Jones and Warren Steger
ELMS WG chair and document editor
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TO: Staff of the Institute of Transportation Engineers

CC: NTCIP Coordinator

The following Standards Development Report is provided to meet the requirements of the Institute of Transportation Engineers (ITE) Standards Development Procedures, dated May 2003, and as part of the joint development and approval process for the NTCIP.

1. Latest version of the draft Recommended Standard.

The document number and full name of the proposed document is

NTCIP 1213 v02.19, *Object Definitions for Electrical and Lighting Management Systems (ELMS)*.

To review the document, see the filename

1213v0219.doc or *.pdf

2. Summary status indicating the current stage in the ITE standards development process.

See the Development Milestone table in Item 3. As of the date of this SDR, the subject standard has achieved Milestone 11 – the NTCIP Joint Committee has accepted the proposed draft as a Recommended Standard.

3. Status report, including for each procedures step, the dates, balloting results, and other information explaining the actions taken to carry out each step.

The following Development Milestones table notes the date for each ITE development process stage.

ITE Standards Development Milestone	Date, Description of Action Taken and Other Background Information
1. Decision Made and Effort Announced	June 2002. Joint Committee discussed scope of work and charter WG.
2. Committee Formed	April 2003. Joint Committee approved WG Bylaws and roster.
3. Committee Develops Draft Proposed Standard	April 2003. WG met to begin development effort.
4. Committee Ballots Draft Proposed Standard	April 2003-January 2004. WG developed Working Group Draft.
5. Standard Review Panel Ballots Draft	February 2004. WG developed proposed User Comment Draft.
6. Draft Proposed Standard Approved	March 2004. Joint Committee accepted proposed User Comment Draft.
7. Proposed Standard Published to Solicit Comments	June 2004. User Comment Draft distributed by AASHTO, ITE, and NEMA for review and comment by memberships.
8. Comments Considered by Committee	July 2004-January 2005. Working Group met to resolve and dispose of user comments.
9. Committee Ballots Revised Proposed Standard	January 2005. Working Group reached consensus on disposition of user comments.
10. Standard Review Panel Ballots Revised Proposed Standard	November 2005. Joint Committee receives the proposed Recommended Standard for consideration.
11. Revised Standard Approved	December 2005. Joint Committee accepted the proposed Recommended Standard.
12. Intent to Adopt Announced	<i>November 2006. ITE staff receives NTCIP Standards Bulletin with referral for approval and announces intent.</i>
13. ITE Standard Adopted by the ITE Board	<i>ITE Board of Direction adopts Standard.</i>
14. Maintenance of Standard	<i>SDOs maintain the Standard on a five-year review cycle.</i>

Note-Steps in italic are future milestones.

To accomplish Development Milestones 3, 4, 5, 8, 9, and 10, the Working Group held a series of meetings, on these dates and at these locations:

October 2, 2003 in Harrisburg, PA
 January 21-22, 2004 in Sacramento, CA
 July 28-29, 2004 in Tampa, FL

In addition to the three meetings, eight teleconference calls were held as follows:

April 17, 2003
 February 23, 2004
 March 22, 2004
 April 01, 2004
 May 17, 2004

June 8, 2004
September 14, 2005
October 20, 2005
November 15, 2005

4. Table listing each written comment received to date from committee members, registrants, and others. For each comment, the table shall include the actions taken (or proposed to be taken) in response to that comment, and the reason(s) for the action.

The Comments are recorded in an Access Data Base. To review the database, see the filename, or see the User Comment Dispositions Report filename:

NTCIP 1213 v0219UCRpt 051117.rtf
NTCIP 1213 v0219UCRpt 051117.pdf

5. Committee objectives

The scope and objectives of the 1213 Working Group is to serve as a subdivision of the NTCIP Joint Committee, and to develop and maintain the NTCIP 1213 standards publication and other documents that define the object definitions for ELMS devices.

6. List of Committee Members

The following are active participating members of the 1213 Working Group:

- Karl Burkett
- Jeffrey Unick
- Larry Williams
- Rick Kauffman
- Norm Dittmann
- Phil Reed
- Jeff Walters
- Becky Rainer
- Reed Bradford
- Kenneth Vaughn
- Andrew Wale
- Edward Seymour
- Bruce Schopp
- Dave Gamboa
- Gonzalo Gomez
- Robert Blalock
- James Wade
- Cara Harrison

- Jim Frazer
- Warren Steger
- Greg Jones
- Blake Christie
- Vicki Schofield

7. Other Material of Interest

The NTCIP 1213 standard was developed with funding assistance from the U.S. DOT / FHWA. The standard is likely to be most applicable in the U.S.; however, the standard is available for use by anyone.

8. Declaration confirming that any other known national and international standards have been examined with regard to harmonization and duplication of content, and that no significant conflicts with another known standard have been identified.

The working group has examined the following known existing standards that can be used for lighting control:

BACnet (ANSI/ASHRAE Standard 135 and ISO 16484-5)
LonTalk (ANSI/CEA 709.1)
Dali (IEC 60929)
KNX (EN 50090)
DMX512 (ANSI E1.11 - USITT DMX512-A)

To the working group's knowledge, none of the existing standards are designed specifically for roadway lighting. None of the existing standards are designed to be compatible with a public data infrastructure network. None of the existing standards describe an SNMP interface. None of the existing standards have the ability to log or store information for maintenance purposes. The working group examined these existing standards and found no significant conflicts with NTCIP 1213.

9. Abstract of the Standard

The purpose of this document is to define the Electrical and Lighting Management System (ELMS) Objects that are supported by the National Transportation Communications for ITS Protocol (NTCIP). An ELMS system is defined as any system capable of monitoring, controlling, and communicating certain electrical and lighting system parameters using NTCIP.

The effort to develop a standard for Electrical and Lighting Management Systems began with the International Technology Exchange Program's European Road Lighting Technologies scan tour in April of 2001 (Report FHWA-PL-01-034 dated September

2001). This technology and implementation plan was further developed by the AASHTO Task Force for Highway Lighting and is being implemented as the Master Lighting Plan in the future AAASHTO publication entitled, "Roadway Lighting Design Guide." The Task Force's original desire was to define the features, functionality, and point of interoperability for ELMS equipment.

The *NTCIP Objects for Electrical and Lighting Management Systems* defines data elements in ASN.1 using the SNMP Object Type Macro for field devices that monitor and control electrical and lighting systems.

This document is an NTCIP Device Data Dictionary standards publication. Device Data Dictionary documents define the *Objects for Electrical and Lighting Management Systems*. A Joint NTCIP Device Data Dictionary standards publication is equivalent to these document types at the standards organizations:

- AASHTO – Standard Specification
- ITE – Software Standard
- NEMA – Standard

10. Description of Alternate Processes

The process used in the development of this standard is defined in the NTCIP 8001 v01.07, *NTCIP Joint Standardization Policies and Procedures*, which includes the former *Joint Standards Committee Standards Development Process White Paper v05*, September 2000. See the White Paper section 6 for the relationship to the ITE standardization process.

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