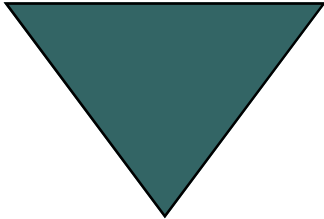


# NTCIP OVERVIEW

From the National  
Transportation  
Communications for  
ITS Protocol (NTCIP)  
Joint Committee



Highlight Series #1

*This publication  
highlights  
the role of NTCIP  
in the  
ITS standards family.*

## TRANSPORTATION STANDARDS PROVIDE A COMMON LANGUAGE

Historically each vendor of devices and software used in the transportation community adopted a different, proprietary deployment strategy for data communications. This required many projects that mix equipment and software from different vendors to build extensive “translators” to create connectivity among systems and devices. These translators met immediate needs, and they provided the ability to interpret the data and manage the transmission of information. However, their contents remain closed to users and are commonly called “black boxes.” While these black boxes provided some degree of connectivity and integration capability, they did not significantly promote the interchange of equipment (termed interchangeability) and did not enable sharing of communications infrastructure investments (termed interoperability).

One objective of Intelligent Transportation System (ITS) standards is to provide a non-proprietary language that can be used by ven-

dors, system developers and agencies to help overcome this translation challenge.

With fewer translators agencies building and operating these systems can better utilize their financial, personnel and infrastructure components to achieve transportation-related objectives. In the long run agencies will have less complexity in their interconnected systems, and vendors will be able to offer components that fit into many systems with less customization.

But the common language doesn’t just help build traditional systems with unconventional approaches. With the advent of an Intelligent Transportation System framework, termed the National ITS Architecture, a myriad of new transportation services can be provided by connecting previously separated segments of the transportation community. Among other aspects, these new services could provide travelers with route guidance information that

*(Continued on page 2)*

## NTCIP DEFINES FAMILY MEMBERS OF THE ITS LANGUAGE

A communications protocol is a set of rules defining how information is defined and transmitted between electronic devices and systems. The equipment at each end of this data transmission must use the same protocol to successfully communicate. It is a bit like human languages that have vocabulary and grammar rules used by everyone speaking that language. Without a common language extensive use of translators must be employed.

The United Nations is an example of an or-

ganization that has deployed significant infrastructure investments to accommodate the simultaneous use of multiple languages.

But it is not the business model desired by fiscally constrained public agencies and profit motivated commercial

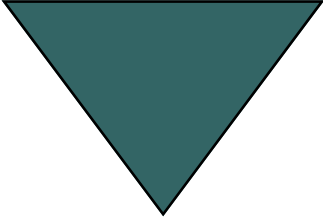


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American Association of State Highway and Transportation Officials



Institute of Transportation Engineers



National Electrical Manufacturer's Association

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Each issue highlights a specific topic associated with the development of interface standards for intelligent transportation system devices and systems.

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## COMMON LANGUAGE

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takes into account existing traffic conditions, could help public agencies manage the clearance of traffic incidents, could allow vehicles to more intelligently respond to their environment, and could allow public agencies to share

## FAMILY MEMBERS

*(Continued from page 1)*

enterprises. In the transportation realm common languages are desired.

Many of the ITS standards, including NTCIP, are “dictionaries” of terms used to describe the data needed that provides the functionality of transportation devices and systems. Although similar to conventional dictionaries, the NTCIP dictionaries are structured differently — for instance they’re arranged by function and not alphabetically.

The vocabulary defined in these dictionaries are then arranged into standardized messages (similar to sentences) and then transported electronically using specific rules (protocols) for moving the information.

NTCIP is concerned with defining the data used in certain center to field devices such as traffic signals, roadside message signs, free-way ramp meters and environmental sensor systems.

NTCIP is also concerned with establishing the rules for moving information — both between a central control and monitoring center and among transportation related centers.

Other standards in the ITS “language” family supplement NTCIP to collectively provide the synergy of combining previously separated

segments of the transportation community. For instance, the Traffic Management Data Dictionary (TMDD) standard adds additional



Data Dictionary Standards



Message Set Standards



Protocol Standards

vocabulary not contained in NTCIP standards for use by traffic management centers in achieving their mission critical tasks. Likewise the Data Dictionary for Advanced Traveler Information Systems (ATIS) contains vocabulary for transmission to travelers.

The resources below provide links to these standards.

## FURTHER RESOURCES

The following web sites provide useful resources on the topic of NTCIP and Intelligent Transportation Systems topics.

<a href="http://www.ntcip.org/">http://www.ntcip.org/</a>	Provides status and information on NTCIP
<a href="http://www.its.dot.gov/home.htm">http://www.its.dot.gov/home.htm</a>	U.S. Department of Transportation resource for ITS.
<a href="http://www.iteris.com/itsarch/">http://www.iteris.com/itsarch/</a>	National ITS Architecture framework description.
<a href="http://www.itsa.org/STANDARDS">http://www.itsa.org/STANDARDS</a>	Standards topics from ITS AMERICA.
<a href="http://www.nawgits.com/jpo/">http://www.nawgits.com/jpo/</a>	A shared Internet resource containing up-to-date news on ITS topics.