



## Purpose

The purpose of the Wisconsin DOT Traffic Engineering & Operations Guide is to familiarize engineers with ITS elements and the process and information necessary to design Intelligent Transportation System (ITS) elements for WisDOT. ITS elements have many similarities to traffic signal and roadway lighting elements, but also have many unique characteristics and considerations. The intended audience for the guide is WisDOT regional traffic staff, regional design staff, and consultants. The guide is written at a level that assumes working knowledge of signal design, roadway signing design, and electrical design as it applies to roadway design elements.

This guide is intended to be a living document; hence, it will be revised periodically to reflect new requirements and advancements in technology. It will also be changed to make it more useful to its readers. The guide is maintained by the Division of Transportation System Development - Bureau of Highway Operations (DTSD-BHO) Traffic Engineering Section. The procedure to revise the manual is explained below.

1. Notify Bureau of Highway Operations - Design manual users should contact the BHO with any problems or errors they perceive with the manual and provide a proposed solution. The key is to be specific in identifying what the problem is, where it exists in the manual and how you think it can be fixed.
2. Research Issue - The BHO will research the issue. This may involve coordinating with other agencies to ensure the proposed solution does not conflict with other requirements in the manual or in outside reference manuals. A log will be kept of proposed changes, originators, and outcomes.
3. Draft changes to the Manual - The BHO will draft changes to the chapter and coordinate with other chapter originators to ensure the change is incorporated into other chapters as necessary.
4. Edit and Publish Changes - The BHO will edit the proposed changes and publish them on-line at the Internet site where the manual is held and maintained.

## References

Various documents are required to perform ITS design as outlined in this guide, and are referenced as follows:

- Wisconsin Dept. of Transportation Facilities Development Manual (FDM)
- Wisconsin Dept. of Transportation Standard Specifications for Highway and Structure Construction, Latest Edition (Standard Specifications)
- Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD)
- Manual on Uniform Traffic Control Devices, Wisconsin Supplement
- American Association of State Highway Transportation Officials (AASHTO) Roadside Design Guide
- AASHTO A Policy on Geometric Design of Highways and Streets, Latest Edition
- National Electric Code (NEC)
- International Municipal Signal Association (IMSA)
- National Fire Protection Association
- Illumination Engineering Society of North America (IESNA)

## Layout

The organization of the design manual is broken into individual chapters relating to ITS devices commonly used in Wisconsin. Within the chapters, similar sections are repeated throughout the guide to address:

- Technology & Standards
- System Setup
- Schematic Plans & Functional Requirements
- State Supplied Materials
- Construction & Installation
- Testing & Acceptance
- As Builts & Documentation

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- Maintenance & Reevaluation

## Contacts

The Bureau of Highway Operations is the contact for the Traffic Engineering & Operations Guide. The Statewide Traffic Operations Center (STOC) main phone number is (414) 227-2166. The designer is required to contact WisDOT BHO for any ITS inquiries after determining the need for such ITS devices.

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## Acronyms

A list of acronyms commonly used within this manual are provided for your clarification:

BHO – Bureau of Highway Operations

CAD – Computer Aided Design

CCTV – Closed Circuit Television

DMS – Dynamic Message Sign (also known as Variable Message Sign)

FDM – Facilities Development Manual

ITS – Intelligent Transportation System

NEC – National Electrical Code

PCMS – Portable Changeable Message Signs

SDD – Standard Detail Drawing

SDS – System Detector Station

STOC – Statewide Traffic Operations Center

STSP – Standard Specification

TGM – Traffic Guidelines Manual

TOIP – Traffic Operations Infrastructure Plan

TSDM – Traffic Signal Design Manual