

Technical Memorandum

To: Electronic Distribution Recipients

From: Michael G. Beer, P.E. Digital signature on file
Acting Assistant Commissioner, Engineering Services

Subject: Minnesota Work Zone Safety and Mobility Requirements

Expiration

This Technical Memorandum shall remain in effect until November 8, 2027, unless superseded prior to this date or incorporated into MnDOT manuals.

Implementation

The requirements contained in this Technical Memorandum shall be implemented immediately for all projects in Minnesota on the state highway system, as well as local agency federal aid projects, that are in the planning and design phase. The requirements should also be implemented on maintenance and utility operations to the extent practical and feasible.

Introduction

Work zones directly impact the safety and mobility of transportation system users and highway workers. These safety and mobility impacts are exacerbated by an aging highway infrastructure and growing congestion in many locations. Everyone involved in project development and delivery, including field operations, must be properly trained and committed to providing safety and mobility for all operations. Addressing these safety and mobility issues requires considerations that start early in project development and continue through project completion.

This document establishes requirements and provides guidance for systematically addressing the safety and mobility impacts of work zones and developing strategies to help manage these impacts. The requirements and guidance are addressed at the following three (3) levels with associated procedures for each level and policies to develop to ensure their uniformity and compliance statewide:

1. Project-Level Procedures, including:
 - a. Transportation Management Plan (TMP)
 - b. Plans, Specifications, and Estimates (PS&E)
 - c. Project Temporary Traffic Control (TTC) Field Observations
2. District- or Local Agency-Level Process and Procedures
 - a. Work Zone Safety Reviews
 - b. Operational Performance Information
 - c. Work Zone Crash Data Review
3. State-Level Processes and Procedures
 - a. Statewide Work Zone Data
 - b. Statewide Field Reviews
 - c. Training
 - d. Process Reviews
 - e. Statewide Group Activities

Purpose

The purpose of this Technical Memorandum is to implement the requirements and guidelines contained in the Code of Federal Regulations, Title 23 Part 630, Subpart J, “Work Zone Safety and Mobility” for all projects in Minnesota on the state highway system, as well as local agency federal aid projects.

Related MnDOT Policies and Guidance

There are many standards, guidelines, and procedures that have been established to aid in providing safety and mobility in highway work zones. These include:

- Part 6 of the [Minnesota Manual on Uniform Traffic Control Devices](#) (MN MUTCD)
- [Standard Specifications for Construction](#)
- [Special Provisions](#)
- Federal Highway Administration Guidance Documents, including:
 - [Implementing the Rule on Work Zone Safety and Mobility](#)
 - [Work Zone Impacts Assessment: An Approach to Assess and Manage Work Zone Safety and Mobility Impacts of Road Projects](#)
 - [Developing and Implementing Transportation Management Plans for Work Zones](#)
 - [Work Zone Public Information and Outreach Strategies](#)

Guidelines

Project-Level Processes and Procedures

This section provides guidance and establishes procedures to manage the work zone impacts of individual projects.

Attention must be given to mobility and safety on all projects from the early stages of development through the completion of construction, including the preliminary layout studies, detailed design, and the drafting of the special provisions. It is essential to involve personnel of various technical expertise to provide their specialty input so an appropriate transportation management plan can be developed.

Transportation Management Plan (TMP)

All projects that impact traffic shall have a Transportation Management Plan. A Transportation Management Plan (TMP) should be prepared with the assistance of the district traffic staff. The TMP should be developed and implemented in sustained consultation with stakeholders (e.g., other transportation agencies, railroad agencies/operators, transit providers, freight movers, utility suppliers, police, fire, emergency medical services, schools, local residents and businesses, and regional transportation management centers). Mitigation strategies for each identified work zone impact should be identified and incorporated into the TMP. Many work zone impact management strategies can be used to minimize travel delays, improve mobility, maintain or improve transportation system user and worker safety, complete road work in a timely manner, and maintain access for businesses and residents.

During project planning and scoping, the project manager should review the project with traffic engineering, construction, design, and maintenance personnel to establish system user mobility and determine traffic control concepts. Project staging should be determined by the capacities of the

facilities under construction, along with any bypasses or detours. Consideration should be given for other construction/maintenance work in the proposed roadway corridor or general vicinity.

An assessment of work zone mobility impacts should be done for all projects to identify the potential impact the project will have on mobility through the work zone and provide guidelines for developing the strategies to mitigate the impact. When the impacts are identified, the documentation and management of the mitigation strategies are combined into an appropriate level of Transportation Management Plan for the project. Work zone mobility impact assessment resources can be found on the [OTE Temporary Traffic Control website](#).

Depending upon the project's work zone mobility impact assessment, the scope of the TMP may range from very minimal requirements on many projects to very formal and complex on large projects, which attempts to mitigate significant mobility and safety impacts utilizing the components listed above. Although many projects will not create significant impacts, they still require a basic level of TMP and documentation. For example, a maintenance project with minor impacts to system users may designate a field manual layout, with any modifications noted, as its TMP. This basic level of TMP can be documented in a memo or daily logbook entry, along with any other plans for operations or public information. All TMPs should include some level of information on temporary traffic control (TTC), transportation operations (TO), and public information (PI). Further guidance on TMP components, levels, and templates for documentation can be found on the [OTE Temporary Traffic Control website](#).

Plans, Specifications, and Estimates (PS&E)

The plans, specifications, and estimates (PS&E) shall include the appropriate provisions of the TMP (the TTC plan, TO, and/or PI components). Development of detailed special provisions should involve design, traffic engineering, and construction personnel. Pay items necessary for implementing the TMP must be determined during design and included in the plans.

As stated in CFR Title 23 Part 630, Subpart J, the road authority and the contractor shall each designate a trained person, at the project level, who has the responsibility and sufficient authority for implementing the TMP and other safety and mobility aspects of the project.

Project TTC Field Observations

Field observations (generally regular drive-through reviews) shall be made to assure that traveler information is accurate and up to date, including warning, guide, and informational signing, changeable message sign (portable and non-portable) messaging, temporary traffic control devices, and pavement markings. These reviews are generally performed by the contractor or project field personnel.

Revisions to the TTC plans shall be reviewed to determine if they comply with all standards in the MN MUTCD, special provisions, and specifications. For major revisions, this review should include consultation with traffic engineering staff before the revision is implemented. If a revision to the TTC plans is implemented, project stakeholders should also be notified of the change.

While adjustments to the temporary traffic controls are anticipated on all projects, a revision to the TTC plan is less common. Revisions to the TTC plans shall be documented in the project file. Documentation may range from a daily diary entry to marked-up TTC plan sheets.

District- or Local Agency-Level Process and Procedures

Work Zone Safety Reviews

Each District or Local Agency should perform periodic reviews of work zones to determine adequacy of the TTC plan, assist with plan compliance, and ensure proper documentation is maintained when changes are made to the plan. Records of all known crashes within a work zone, including all available information, should be maintained.

Operational Information

When available, operational information for all modes of travel should be used to determine if temporary traffic controls and traffic control schemes are meeting the safety and mobility goals for the project. This requires the compilation and analysis of available data and information including delay time, incident response time, and data collected from intelligent work zone (IWZ) systems. This analysis should be conducted in a timely matter so that potential safety or mobility issues can be corrected in the field.

Work Zone Crash Data Reviews

Work zone crash data should be analyzed on a District or Local Agency level. Analysis includes reviewing all known crashes within a project, or on the roadways immediately entering a project, and determining if improvements in district or local agency temporary traffic control practices are indicated. Deficiencies within current statewide standards or guidelines should be reported so that they can be considered for modification.

State-Level Processes and Procedures

This section consists of processes and procedures to implement and sustain work zone safety and mobility policies. These processes and procedures, data and information resources, training, and periodic evaluation enable a systematic approach for addressing and managing the safety and mobility impacts of work zones on all modes of travel.

Statewide Work Zone Data

Field observations, available work zone crash data, and operational information to manage work zone impacts for specific projects during implementation shall be used to continually pursue improvement of work zone safety and mobility by analyzing work zone crash and operational data from multiple projects. Each road authority should maintain elements of the data and information resources that are necessary to support these activities. Statewide analysis of work zone crash data is accomplished by reviewing work zone crash records. Annual reporting of these crashes on all road systems shall be conducted by the Office of Traffic Engineering.

Statewide Field Reviews

The Office of Construction and Innovative Contracting (OCIC) and the Office of Maintenance (OM) will conduct regular field reviews of temporary traffic controls in each district. The purpose of these reviews is to determine adequacy of temporary traffic controls and identify areas that need improvement.

Training

Personnel involved in the development, design, implementation, operation, inspection, and enforcement of work zone-related transportation management and traffic control should be trained, appropriate to the job decisions each individual is required to make. Periodic training updates that reflect changing industry practices and state processes and procedures are required.

Available training can be found at <http://www.dot.state.mn.us/const/wzs/training.html>

Process Reviews

To assess the effectiveness of work zone safety and mobility requirements, procedures, and guidance, process reviews will be conducted approximately every 5 years. These reviews may include the evaluation of work zone data at the state level, and/or results of OCIC/OM field reviews. Appropriate personnel who represent the project development stages and the different offices within the state, as well as the FHWA, should participate in these reviews. Other non-state stakeholders may also be included as appropriate. The results of the review are intended to lead to improvements in work zone processes and procedures, data and information resources, and training programs to enhance efforts to address safety and mobility on current and future projects.

The Office of Traffic Engineering will also conduct periodic work zone feedback discussions with each district to identify best practices and facilitate improvements to work zone standards, procedures, and resources.

Statewide Group Activities

MnDOT is committed to actively working on continual improvement in work zone traffic control and safety in Minnesota. There are four statewide groups that are involved with implementing recommendations for improvements, many of which come from field observations and process reviews. These statewide groups are:

The [Statewide Work Zone Safety Committee](#)

The MnDOT Statewide Work Zone Safety Committee (SWZSC) includes key MnDOT employees and stakeholders external to MnDOT and focuses on work zone safety issues. Its purpose is to provide a forum for:

- identifying work zone safety problems, safety areas, and help set priorities,
- acting as a sounding board,
- brainstorming ideas, and
- recommending direction to the Office of Construction and Innovative Contracting, Office of Maintenance, and Office of Traffic Engineering.

The [Special Provisions Annual Update Committee](#)

MnDOT's Office of Construction and Innovative Contracting conducts an annual workshop to review and improve the boilerplate special provisions for time and traffic controls used for the development of construction projects. This workshop uses the results of observations detailed in these procedures to make improvements to these standard special provisions. Participants in this workshop include Central Office and district construction and traffic engineering personnel and traffic control industry representatives.

The Traffic Engineering Organization Temporary Traffic Control Standing Committee

MnDOT's Traffic Engineering Organization (TEO) has formed a Temporary Traffic Control Standing Committee that reviews and approves traffic engineering standards and guidelines related to temporary traffic controls. Members of this committee include representatives from all district traffic offices, the Resident Engineers group, OCIC, OM, OTE, and Metro District Maintenance.

The Resident Engineers Work Zone Safety Advisory Committee

MnDOT's Resident Engineers has formed a Work Zone Safety Advisory Committee that reviews and approves work zone safety and TTC special provisions and project related issues. Members of this committee include representatives from OCIC, OTE, and the Resident Engineers group.

Questions

Direct any questions regarding the technical provisions of this Technical Memorandum to **Michelle Moser**, State Work Zone Engineer, at Michelle.Moser@state.mn.us or (651) 234-7386.

Direct any questions regarding publication of this Technical Memorandum to the Design Standards Unit, DesignStandards.DOT@state.mn.us. A link to all active and historical Technical Memoranda can be found at <http://techmemos.dot.state.mn.us/techmemo.aspx>.

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