



Traffic Engineering, Operations & Safety Manual

Chapter 6 Work Zone Traffic Control

Section 1 General

6-1-1 Work Zone Policy Statement

December 2022

The Wisconsin Department of Transportation (WisDOT) is committed to promoting safety for the traveling public and workers, minimizing congestion and adverse traffic impacts, and providing for improved public satisfaction during construction, maintenance, utility, and all other activities performed on or near the WisDOT highway network. Compliance with this policy will reduce work zone crashes, travel time, and provide benefits to all stakeholders. All regional offices and statewide bureaus are responsible for implementing the portions of this policy affecting their operations.

GOALS AND OBJECTIVES

The goals and objectives of this policy are to:

- Reduce crashes in work zones.
- Provide a conducive environment for safety and mobility for workers and the traveling public.
- Minimize work zone related delays not to exceed 15 minutes above normal recurring traffic delays.
- Provide traveler information to minimize delays and improve mobility, efficiency and safety.
- Clearly define stakeholder responsibilities.
- Develop work zone training for WisDOT staff.
- Evaluate and continuously improve work zone safety and mobility performance.

APPLICABILITY

This policy is applicable to all work, including contracts for highway construction, railroad crossings, maintenance, and utility projects on state trunk highways, and Federal and State funded local roads improvement projects. These activities must have a Transportation Management Plan (TMP).

WisDOT will submit all TMPs to the Federal Highway Administration (FHWA) for their concurrence on all projects subject to federal oversight, both on and off the National Highway System (NHS) per the WisDOT/FHWA Federal-Aid Oversight Agreement. WisDOT must approve projects not subject to Federal Oversight, both on and off the NHS.

It is WisDOT's policy to consider work zone impacts in all phases of project development and construction. Incorporate specific mitigation strategies in the TMP during the project development process to address the characteristics of a project and its associated work zone impacts. Work zone data and annual project reviews will be used to evaluate work zone processes and procedures. The changes made to the TMP during construction will facilitate improvements at the project level and system-wide. Personnel involved in project development and construction *should* receive appropriate training periodically.

This policy supplements existing Department wide policies, standards, guidelines, processes, and practices as detailed in the FDM, Standard Specifications, Construction and Materials Manual (CMM), Traffic Engineering Operations and Safety Manual (TEOpS), Wisconsin MUTCD, etc. Refer to [FDM 11-50-5](#) for TMP preparation process.

RESPONSIBILITIES

Bureau of Highway Traffic Operations (BTO) and Bureau of Project Development (BPD) Directors and Regional Directors

- Advocate for compliance with TMP guidelines and lane closure policies, and approve corridor and project variances to established guidelines.
- Maintain awareness of the cumulative impacts of multiple projects along a corridor.
- Advocate for funding support for mitigation strategies included in TMPs.

Bureau of Traffic Operations (BTO)

- Review and approve TMP that have the following criteria:
 - Type 3
 - Federal Oversight
 - Innovative Contracting (lane rental, enhanced liquidated damages, etc.)
 - Speed Declarations on 65 or 70 mph routes
 - Nonstandard mitigation strategies
 - Law Enforcement mitigation

- Two weeks will be given for the review period. Approval will be contingent on comments being addressed, use of temporary speed zones and traffic mitigation strategies selected.
- Develop and maintain work zone traffic control standards and guidelines.
- Develop work zone traffic control specifications and standardized special provisions (STSP) in coordination with the Bureau of Project Development (BPD) and regional WisDOT offices.
- Review continually the effectiveness of work zones, improve and update work zone processes, procedures and policies to ensure quality and statewide consistency.
- Review and comment on work zone traffic control and mobility exceptions for TMP type 3.
- Develop work zone training program. The training program will provide appropriate levels of detail for supervisors, project managers, project engineers, inspectors, flaggers and workers.
- Review/approve speed zone declarations when reducing speed limit for all interstates and for facilities with a normal posted speed of 65 mph and 70 mph facilities.
- Review/approve traffic mitigation strategies used.

Bureau of Project Development (BPD)

- Review Design Study Reports (DSR) for work zone TMP and identified TMP type.
- Coordinate with BTO and Region for review of TMP Type 3, and for exceptions to TMP and lane closure guidelines.
- Participate with BTO in reviewing work zone effectiveness and updating work zone processes and policies.

Regional WisDOT Offices

The project manager in collaboration with traffic operations at the Region is responsible for developing and implementing TMP. The TMP is developed according to TMP guidance, the FDM, TEOpS, WisMUTCD, and other supplemental policies, directives, and applicable project specific contract documents including handbooks and special Traffic Control Plans.

Project Development Chief

- Support the consideration of work zone impacts and development of TMPs early in the project development process for all projects.
- Support coordination of TMPs along corridors and between adjacent regions and neighboring states.
- Support resource availability for TMP development, mitigation strategy measures and activities.
- Inform Regional Director of all projects with significant traffic impacts.
- Approves non-local program TMPs in the region

Operations Chief

- Maintain awareness of corridor and project variances that exceed the allowable limits.
- Maintain awareness of project-specific exceptions to work zone mobility policy.
- Advocate for resource availability for TMP development and strategies measures and activities.

Regional Planners

- Identify TMP type during scoping process in collaboration with PDS and Traffic Unit.
- Identify potential strategies in scoping document.
- Identify funding needs and issues associated with the TMP.
- Coordinate scheduling of projects to minimize repetitive construction projects or activities along a segment of roadway and to minimize conflicting projects on parallel/alternate routes.

Regional Traffic/Work Zone Engineers

- Provide input into type of TMP during scoping process.
- Provide input during TMP development, implementation and conflict resolution. Two weeks will be given for the review period. Approval will be contingent on comments being addressed,
- Provide input for all traffic impact assessment and mitigation decisions during project initiation, scoping, design, construction and evaluation.
- Provide input on project reviews, approval, and modification of all TMP strategies.
- Verify that traffic control measures are in conformance with WisMUTCD, SDDs, TEOpS, WisDOT Standard and Supplemental specifications.
- Verify that traffic delays are minimized and do not exceed allowable limits. If exceeded consult with TMP team and / or project staff about possible modifications to the TMP.
- Review implementation plan with the project engineer before construction.
- Verify with project staff that the contractor is complying with TMP as it relates to the handling of traffic.

- Review changes made by the contractor or project engineer during construction.
- Review traffic control measures as needed to address field conditions pertaining to traffic flow, visibility, and safety.
- During TMP development review criteria in [TEOpS 13-5-6](#) to determine if a temporary speed limit reduction is appropriate. If so, ensure that a temporary speed declaration is completed prior to implementing the reduced limit.

Project Manager/Squad Leader

Project managers and staff will ensure appropriate action is taken to reduce work zone impacts to workers and the traveling public. Responsibilities include:

- Ensure project activities conform to the TMP.
- Designate a trained person at the project level, whose responsibilities include oversight of TMP implementation.
- Determine resource needs associated with the TMP development and implementation.
- Ensure traffic control measures are in conformance with WisMUTCD, SDDs, WisDOT Standard and Supplemental Specifications and project-specific plans.
- Ensure contingency plans are implemented if necessary.
- Facilitate project reviews, approval, and modification of all TMP strategies.
- Ensure traffic delays are minimized and do not exceed allowable limits. If exceeded consult with TMP team or Regional Work Zone Engineer about possible modifications to the TMP.
- Verify contractor complies with the TMP as related to their performance of work.
- Review changes made by the contractor or project engineer during construction.
- Notify Regional Communication Managers of significant project traffic impacts due to incidents.

Project Designer/ Leader

- Confirm scoping TMP type based on project needs and constraints.
- Develop content of TMP components, address mitigation and contingency plans based on needs of the project.
- Develop traffic control measures in conformance with WisMUTCD, SDDs, TEOpS, WisDOT's Standard and Supplemental Specifications.
- Minimize traffic delays during plan development, and ensure allowable limits are not exceeded. If exceeded consult with TMP team, Project Manager/Squad Leader or Regional Traffic Engineer/ Work Zone Engineer about possible modifications to the TMP.
- Notify Project Manager and Regional Work Zone Engineer of traffic impacts during TMP and TCP development.
- Develop contract requirements to ensure contractor complies with the TMP as related to their performance of work.
- Analyze changes requested or made by the contractor during construction.
- Work to ensure necessary TMP measures are planned and implemented by the contractor.
- Coordinate with nearby projects to minimize conflicting construction activities as needed.
- Coordinate with Regional Traffic Engineer/Work Zone Traffic Engineer and regional freight coordinator to evaluate the TMP, highlight problem areas, successes and changes to the original TMP. A formal TMP follow-up evaluation report is not required on TMP type 1 projects but highly recommended on all TMP type 2 and required for all type 3 projects.

Other Stakeholders

It is advisable to have clear communication channels among all staff in the region to facilitate implementation of the Public Information and Outreach Plan (PIOP) and the Incident Management Plan (IMP).

- Regional Permit personnel
- Regional Maintenance personnel
- Regional Utilities personnel
- Regional Communications Manager
- FHWA
- Law enforcement
- Counties and local officials
- Industry

Contractor - Responsibilities

It is the contractor's responsibility to:

- Designate a trained person, whose responsibility is to ensure compliance with the traffic control plan and other contractual provisions related to the TMP.
- Ensure contractor personnel are trained in traffic control to a level commensurate with their responsibilities.
- Work with the project engineer to ensure lane closures and / or disruptions to the traveling public are minimized according to the contract.
- Perform quality control of work zones to promote consistency and ensure compliance with contract documents and guidelines.
- Recommend traffic control improvements to the project engineer to address field conditions pertaining to visibility, traffic flow, worker, and motorist safety.

Law Enforcement

Responsibilities for law enforcement include:

- Providing active and passive enforcement of traffic laws according to work zone law enforcement mitigation contracts, to promote safety and mobility in work zones.
- Identifying unsafe traffic conditions.
- Taking appropriate measures (in coordination with the project engineer) to clear work zone incidents quickly.
- Understanding of work zone traffic control and operation and additional TMP components.
- Documenting work zone incidents for future assessment of work zone impacts and process improvements.



Traffic Engineering, Operations & Safety Manual

Chapter 6 Work Zone Traffic Control

Section 2 Signs

6-2-55 Portable Changeable Message Sign Use in Construction & Maintenance Projects December 2022

PURPOSE

The MUTCD section 6F.60 provides standards and options for the usage of Portable Changeable Message Signs (PCMS). This policy provides requirements and guidance on the proper use of PCMS in work zones on state highways.

See [TEOpS 17-2-1](#), Portable Changeable Message Signs (PCMS) Policies & Procedures, for information regarding procurement, use of PCMS for special events, adverse weather, and other non-work zone related events, sign control, and training.

APPLICATIONS

Since they are dynamic signs, PCMS must only be used to display real-time or changing traffic condition or traffic control information. They *may* also be used provide advance notice prior to projects or events expected to cause congestion or that will require drivers to use alternate routes.

PCMS *should not* be used to replace static warning or regulatory signs; they *may* be considered as a supplemental device to a required static sign. In the case of a ramp or lane closure, the PCMS would supplement the static warning signs informing motorists of the closure.

Nonstandard words such as DANGER, HAZARDOUS, or CAUTION **shall not** be used. These words do not contribute any information and *may* overly concern drivers as they approach the work zone.

PCMS **shall not** be used to display generic safety messages or any other messages not necessary for specific driver action at the site. Examples of generic messages not to be used are BUCKLE UP, WELCOME TO WISCONSIN, or DRIVE SAFELY. Use of these types of generic messages tends to lead to motorist disregard of critical messages and unnecessarily distracts driver attention from the roadway.

Improvement/Maintenance Projects

For improvement projects, designers must include a PCMS message plan with the Temporary Traffic Control Plans. PCMS *may* be include in an improvement project for the following reasons:

1. Provide up to 7 days advance notice to drivers of closures. These signs *should* be provided by the contractor, but when contract timing is an impediment, they *may* be provided by the department or county,
2. Advise travelers of alternate routes around construction,
3. Supplement static sign messages for changes in roadway alignment for up to 7 days,
4. Advise drivers of a change in speed,
5. On Pilot Cars to advise traffic to follow them. This is up to the contractor to used and does not need to be specified in the plans,
6. Use in smart work zone systems for queue warning, dynamic late merge, travel time information, truck entering warning.

When PCMS are used as part of a smart work zone system the costs are normally included in the cost of the system and do not need to be a separate bid item.

Do not include PCMS on improvement projects solely for the use of incident management. Consider smart work zone systems to reduce the potential of an incident instead. PCMS that are included on a project for other reason with the exception of a smart work zone, *may* be used for incident management. Primarily consider PCMS that are on freeway and expressway projects to have PCMS with communications.

All messages displayed must be preapproved by the project engineer. Any subsequent changes to messages due to changing traffic conditions or construction operations **shall** also require approval from the project engineer, except during off-hours incidents or emergencies when the project engineer is not reachable. In general, improvement projects *should* provide for project-specific contractor supply of desired portable work zone management systems such as PCMS, subject to compliance with JamLogic or other standardized

communications interface standards. Accessibility and operation control by the TMC *should* be accommodated, but not committed without their involvement and concurrence. When communications with the TMC is desired include the bid item (Item 643.1051, Traffic Control Signs PCMS with Cellular Communications) with the contract.

The department reserves the right to use/deploy signs from its inventory on an improvement project to improve safety and optimize the operational efficiency of a construction work zone. Contractor-provided signs *should* be used for aforementioned purposes if they can be made available and deployed expeditiously and cost-effectively. The department also reserves the right to remove department owned signs deployed to improvement projects as needed for incident response or higher priorities elsewhere.

Signs owned by the department and counties **shall** be used for the purposes of temporary traffic control for maintenance work, incident management, and adverse weather road condition advisories.

A PCMS that is used to simulate an Arrow Board **shall** only be used to indicate a lane closure and must meet all the visibility requirements of an Arrow Board in the MUTCD section 6F.61. PCMS messages shall not mix arrows and words on either a single frame or the same operation.

DEVICE OWNERSHIP

Signs for highway improvement projects **shall** be supplied and maintained by the contractor as part of the contract similar to flashing arrow boards, drums, and barricades. The department would not assume any ownership of these signs. There is to be no additional state-owned PCMS purchased by regions through improvement projects or otherwise, including implementation in smart work zone systems. If it proves absolutely necessary to procure new WisDOT-owned equipment, BTO will coordinate any procurement of this equipment and provide it for use by regions as needed.

See [TEOpS 17-2-1](#) for provisions on the purchase of PCMS for highway maintenance work and other uses.

MAINTENANCE

A memorandum of understanding (MOU) **shall** be developed for any county highway department operating state-owned PCMS on the state highway system. A sample MOU is included in [TEOpS 17-2-1](#).

For state- or county-supplied signs, arrangements *should* be made using state or county forces to maintain the signs while in use. For newly purchased signs, a warranty period is usually provided, requiring the supplier to repair any failures or breakdowns of the sign. When the county performs maintenance work on state-owned signs, charge project number 00XX-01-07 (non-interstate) or 00XX-01-08 (interstate), activity code 032. When the county provides county owned PCMS, all maintenance responsibility rests with the county and is covered under the rental rate.

On an improvement contract, the maintenance is included in the changeable message sign bid item in the contract (Item 643.1050 Traffic Control Signs PCMS). The contractor would be required to check the sign at regular intervals.

PCMS USAGE

For PCMS placed on the STH, the PCMS **shall** either be:

1. Owned and placed by WisDOT
2. Owned and placed by contractors under contract with WisDOT
3. Owned, rented, or borrowed and placed by county highway departments under contract or permit with WisDOT.

County sheriff's departments and other local agencies **shall** work with the county highway departments to place the signs and display proper messages consistent with WisDOT policy. This includes any PCMS purchased by a county sheriff's department and other local agencies through funds received from the Bureau of Transportation Safety (BOTS).

ACCEPTABLE MESSAGES FOR WORK ZONES

The signs are generally capable of sequencing up to six frames. However, for driver comprehension, messages **shall** be limited to two frames (see MUTCD Section 6F.60). Blank or other filler frames between the two frames of text **shall not** be used. It is desirable for the driver to be able to read the entire message sequence twice as they pass by the sign. For an interstate highway application, the total viewing time is about seven seconds. Each frame is usually displayed for 2.0 seconds or less. Using more than two frames makes it difficult for drivers to read the entire message sequence twice. Do not flash any part of a message.

It is recommended that the first frame describe the traffic condition or problem ahead, which the motorist *may* encounter. The second frame would be used to advise the driver of an appropriate action. Examples are:

1st Frame

ROAD
CLOSED
2 MILES

2nd Frame

USE
EXIT
#394

See the message list that follows for more examples.

MESSAGE EXAMPLES

EVENT	PANEL 1	PANEL 2	PANEL 1 Example	PANEL 2 Example	Duration	Reference
Project Prewarn (Long term)	ROAD WORK BEGINS	XXXXDAY XX/XX	ROAD WORK BEGINS	MONDAY 4/10	1 week prior	
Road Closure Prewarn (Long term)	ROAD TO CLOSE	XXXXDAY XX/XX	ROAD TO CLOSE	TUESDAY 10/8	1 week prior	L28
Freeway Closure Prewarn(Overnight)	FREEWAY TO CLOSE	XXXXDAY XXPM- XXAM	FREEWAY TO CLOSE	WED 11PM-9AM	3 days prior	
Bridge Closure Prewarn(Long term)	BRIDGE CLOSED BEGINS	XXXXDAY XX/XX	BRIDGE CLOSED BEGINS	THURS 6/1	1 week prior	
Rolling Closures Prewarn(Overnight)	ROLLING CLOSURES	XXXXDAY XXPM- XXAM	ROLLING CLOSURES	FRIDAY 11PM-4AM	3 days prior	
Ramp Closure Prewarn (Long term)	RAMP CLOSED BEGINS	XXXXDAY XX/XX	RAMP CLOSED BEGINS	SAT 9/12	1 week prior	
Ramp Closure (Overnight)	RAMP TO CLOSE	XXXXDAY XXPM- XXAM	RAMP TO CLOSE	SUNDAY 8PM-6AM	3 days prior	L67, L68, 15c2 15D16, 15d49
System Ramp Closed	HWY XX RAMP CLOSED	USE ALT ROUTE	HWY 67 RAMP CLOSED	USE ALT ROUTE	During work	15D49
Moving Work	MOVING LANE CLOSURES	NEXT XX MILES	MOVING LANE CLOSURES	NEXT 8 MILES	During work	L37, L45, L47, 15d43
Bridge Deck Curing	BRIDGE DECK CURING	DRIPPING WATER				
Concrete Repair	CONCRETE CURING	LANE REOPENS XX/XX	CONCRETE CURING	LANE REOPENS 7/3	During work	
Shoulder work	SHOULDER WORK AHEAD	NEXT XX MILES	SHOULDER WORK AHEAD	NEXT 10 MILES	During work	L7
2-way Left Turn Lane Closure	CENTER LANE CLOSED	NEXT XX MILES	CENTER LANE CLOSED	NEXT 1/4 MILE	DURING WORK	L32
New Traffic Pattern	NEW TRAFFIC PATTERN	LANES SHIFT (LEFT/RIGHT)	NEW TRAFFIC PATTERN	LANES SHIFT LEFT	Up to 1 week after	
New Traffic Pattern	NEW TRAFFIC PATTERN	LANES NARROW			Up to 1 week after	
New Traffic Pattern	NEW TRAFFIC PATTERN	AHEAD XX MILES	NEW TRAFFIC PATTERN	AHEAD 3 MILES	During work	L36
New Traffic Signal	NEW TRAFFIC SIGNAL	BE PREPARED TO STOP			Up to 2 weeks after	
New Stop Sign	NEW STOP SIGN	STOP AHEAD			Up to 2 weeks after	
Straddle Rumble Strips	LANE SHIFT (LEFT/RIGHT)	STRADDLE RUMBLE STRIPS	LANE SHIFT RIGHT	STRADDLE RUMBLE STRIPS	Up to 2 weeks after	
Lane Closures (Overnight)	NIGHTLY LANE CLOSURES	BEGIN XXXXDAY XXPM-XAM	NIGHTLY LANE CLOSURES	BEGIN MONDAY 8PM-7AM	1 week prior	

Lane Closures (Weekly)	WEEKLY LANE CLOSURES	BEGINS XXXXDAY XX/XX	WEEKLY LANE CLOSURES	BEGINS SUNDAY 5/19	1 week prior	
Lane Closure	(LEFT/RIGHT) LANE CLOSED	AHEAD XX MILES	RIGHT LANE CLOSED	AHEAD 2 MILES	During work	L35, L38, L39, L41
Freeway Closure	FREEWAY CLOSED	EXIT AHEAD			During work	15d42
Roundabout Flagging	ONE LANE ROAD AHEAD	BE PREPARED TO STOP			During work	L82
Night Flagging	FLAGGER AHEAD	BE PREPARED TO STOP			During night work only	
Multilane Closure	2 (LEFT/RIGHT) LANES CLOSED	AHEAD XX MILES	2 RIGHT LANES CLOSED	AHEAD 4 MILES	During work	L54
Oversize Vehicles	OVERSIZE TRUCKS	MUST EXIT			During work	
Ramp Closed	RAMP CLOSED AHEAD				During work	L48, L49, L50
Detour (Overnight)	HWY XX (DIRECTION) CLOSED	USE (ROUTE) XXX	HWY 60 EAST CLOSED	USE HWY P SOUTH	During work	
Detour Routing (Overnight)	HWY XX DETOUR TRAFFIC	USE (ROUTE)	HWY 60 DETOUR TRAFFIC	USE SHERMAN RD EB	During work	
End Detour (Overnight)	HWY XX DETOUR END	HWY XX AHEAD	HWY 60 DETOUR END	HWY 60 AHEAD	During work	
Dynamic Late Merge #1	STOPPED TRAFFIC AHEAD	USE BOTH LANES			During speeds 0 to 39 mph	15d12c
Dynamic Late Merge #2	STAY IN LANE	DO NOT MERGE			During speeds 0 to 39 mph	15d12c
Dynamic Late Merge #3	MERGE HERE	TAKE TURNS			During speeds 0 to 39 mph	15d12c
Queue Warning System	STOPPED TRAFFIC AHEAD	EXPECT DELAYS			During speeds 0 to 19 mph	15d12e
Queue Warning System	SLOW TRAFFIC AHEAD	PREPARE TO STOP			During speeds 20 to 39 mph	15d12e

When creating messages for state or county highways, it is recommended that the abbreviation HWY is used. For interstates either I-XX or HWY XX maybe used.

The Reference column lists either the Standard Detail Drawing or the Work Zone Field Manual Layout number the message is currently used on.



6-3-4.5 Width Restrictions

May 2022

Some highway construction projects require temporary lane width restrictions that cause problems for over-width load movements. Many of these moves are operating under annual permit and the permittees are unaware of the width restrictions. To help prevent inconvenience and the prospect of damage, signs are used to warn and direct the movers.

Multiple trip or annual permits for mobile homes are issued for loads up to 15 feet wide. Loads over 15 feet travel under single trip permits, and prior to permit issuance the route is checked. When loads up to 15 feet wide (plus one foot for shyness) cannot be accommodated through the work zone the signs described in this guideline are used. Therefore, signs are used when the effective width is less than 16 feet.

The width to be used on the signing is calculated by measuring laterally from centerline to object or object to object subtracting one foot for shyness. Drums, barricades, barriers and parapets also constitute lateral objects. Examples 1-5 at the end of this subject illustrate when width signing is required.

Post the W12-52, showing the numerical width in feet, in advance of one or more intersections or interchanges which will provide the mover an alternate route around the restriction. Check the adequacy of a logical alternate route when selecting the point at which the diversion is posted. Place a supplemental distance sign, WO57-52, installed beneath the W12-52. Post another W12-52 in advance of the restriction, generally along with the other construction warning signs. Install on both sides of a divided highway to enhance visibility

Post an R12-70 sign, Wide Loads Exceeding XX Ft, at the intersection or ramp where the diversion occurs, especially if the restricted highway is a freeway or expressway. An appropriate directional arrow is an acceptable supplement to this sign

Detour signing from the point of diversion to return to the highway is normally not needed. This is similar to a low clearance warning situation, where no alternate route is signed.

To avoid unnecessary signing and diversion of wide loads, accurate information must be obtained about the actual restriction. This information is entered into Lane Closure System (LCS) by Regional field staff. The information is used to update 511.

Projects having more than one lane open in a given direction, even though each lane might be somewhat narrowed, over-width traffic is often not diverted. Most multi-lane highways have shoulders that can be used temporarily to accommodate wide loads. An overhang from one lane to another can be tolerated for short distances such as ¼ mile. Therefore, width restriction signs are typically not necessary for restrictions on short stretches of multi-lane highways. Although, there may be higher volume segments where overhang from one lane to another is not desirable or longer stretches of multi-lane highways (1/4 mile or more) where adequate shoulders are not available, width restriction signs *may* be desirable. In these circumstances where the intent is to divert over width traffic, ensure LCS reflects what is represented on the width restriction signing.

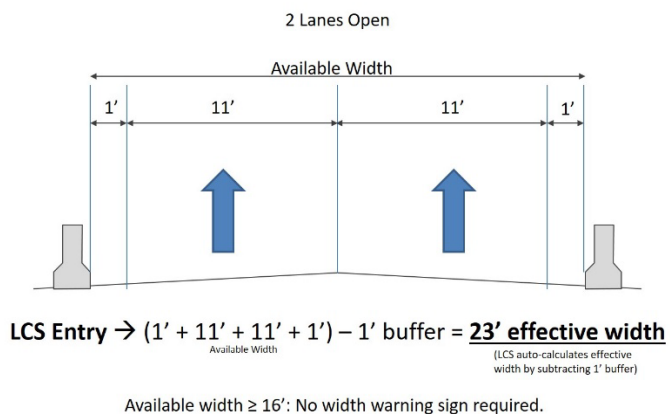
There may be staging situations where off-peak lane closures are utilized on multi-lane highways with closed shoulders. Width restriction signing is required during off-peak operations. Cover or remove width restriction signing during peak operations.

On roadways where one lane is open in each direction, width restriction signs are not needed if the available width including shoulder (including at bridges and crossovers) is more than 16 feet.

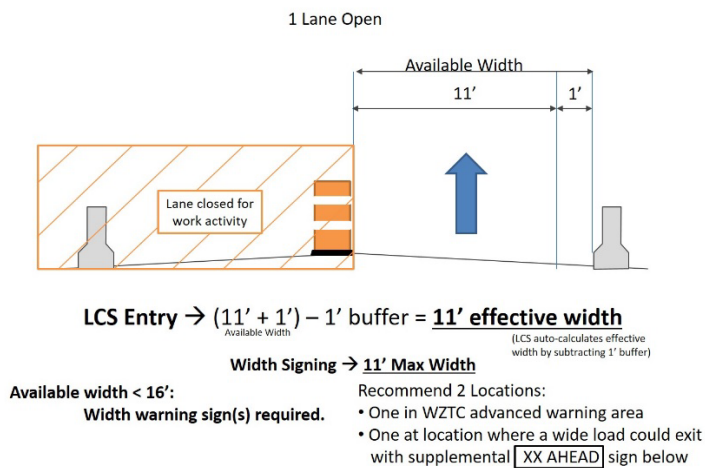
On 2-lane, 2-way roadways where only one lane is open with a flagging operation, width restriction signs are not required.

Figure 1. Width Restrictions and Lane Closure System**Width Restrictions and Lane Closure System**

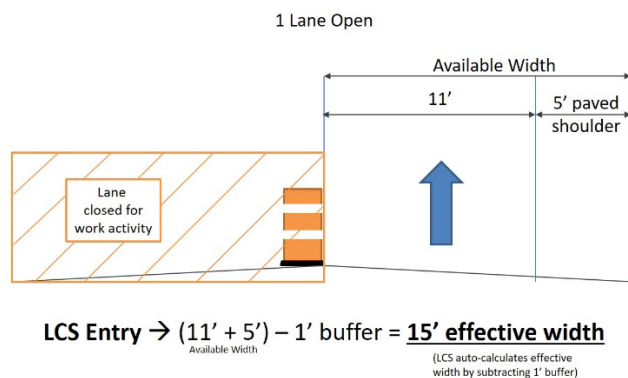
Example 1

**Width Restrictions and Lane Closure System**

Example 2

**Width Restrictions and Lane Closure System**

Example 3



Width Restrictions and Lane Closure System

Example 4



$$\text{LCS Entry} \rightarrow (12' + 12' + 5') - 1' \text{ buffer} = \underline{28' \text{ effective width}}$$

Available Width

(LCS auto-calculates effective width by subtracting 1' buffer)

Available width $\geq 16'$: No width warning sign required.

Not changing the typical width available for this facility.

Width Restrictions and Lane Closure System

Example 5



$$\text{SB LCS Entry} \rightarrow (12') - 1' \text{ buffer} = \underline{11' \text{ effective width}}$$

Available Width

(LCS auto-calculates effective width by subtracting 1' buffer)

Width Signing $\rightarrow 11'$ Max Width

Available width $< 16'$:
Width warning sign(s) required.

Recommend 2 Locations:

- One in WZTC advanced warning area
- One at location where a wide load could exit with supplemental **XX AHEAD** sign below

6-3-6 Freeway Service Team Policy and Procedure

January 2015

GENERAL

The Freeway Service Team (FST) provides expedited relocation of disabled and crashed vehicles made possible by the presence of FST vehicles continuously patrolling designated segments of interstate and state highways during designated hours and through designated work zones. This continuous patrol will facilitate a quick response time to non-recurring traffic incidents such as breakdowns and traffic crashes, thus reducing the total time needed to clear the incident from the highway and restore normal traffic flow. Other examples of situations where FST services *may* be utilized include special events, inclement weather, and other highway emergencies. The primary goal of the service is safe, quick clearance of traffic incidents thereby improving safety and minimizing traffic delays and congestion. FST are frequently used as part of a project's work zone mitigation strategy and identified in the Transportation Management Plan (TMP). Please refer to [FDM 11-50-5](#) Attachment 5.4: "Example TMP Type Mitigation Strategies and Elements" and [FDM 11-50-30.8](#).

Goals and Objectives

The goals and objectives of FST are to:

1. Maintain capacity in work zones and high volume freeway segments
2. Provide assistance free of charge to disabled motorists

3. Maintain consistent service
4. Minimize work zone delay
5. Provide scene safety
6. Clear traffic incidents
7. Provide traffic control
8. Provide scene management (law enforcement FST only)
9. Detect and verify incidents
10. Remove debris.

Applicability

Law enforcement FST operates during specified hours of the day all year round. Work zone FST contracts will be for the duration of construction projects. If FST efforts are showing that traffic is moving better when they are providing service in peak hours than in non-peak hours, the project team could extend the FST hours of operation. FST contracts include language for accommodating changing hours of service and mileage. Project managers must be aware of financial impacts as scope changes are developed.

The FST service will provide towing services to relocate a disabled vehicle to the designated drop-off locations of the highways or freeways. This service will enhance the safety and efficiency of subsequent operations by private towing service providers that remove vehicles from the designated drop-off locations.

All FST assistance and relocation services are provided free of charge to the motorist.

RESPONSIBILITIES

Bureau of Traffic Operations (BTO)

1. Management of the FST program via FST program manager
2. Procurement of FST services
3. Notify project teams of contractor and hourly rates

Regional Project Development Section

Funding to cover FST charges must be included in budget and have a chargeable project ID.

Regional Traffic Engineers

Notify contractor of project start dates and required meetings. Some meetings that *may* be required are:

1. Preconstruction
2. Incident management
3. First responders.

Other Stakeholders

1. Regional communications manager
2. Law enforcement, fire, and EMS
3. Counties and local officials
4. Towing contractors
 - a. Patrolling contract work zones
 - b. Attending required meetings listed in 42.2.3

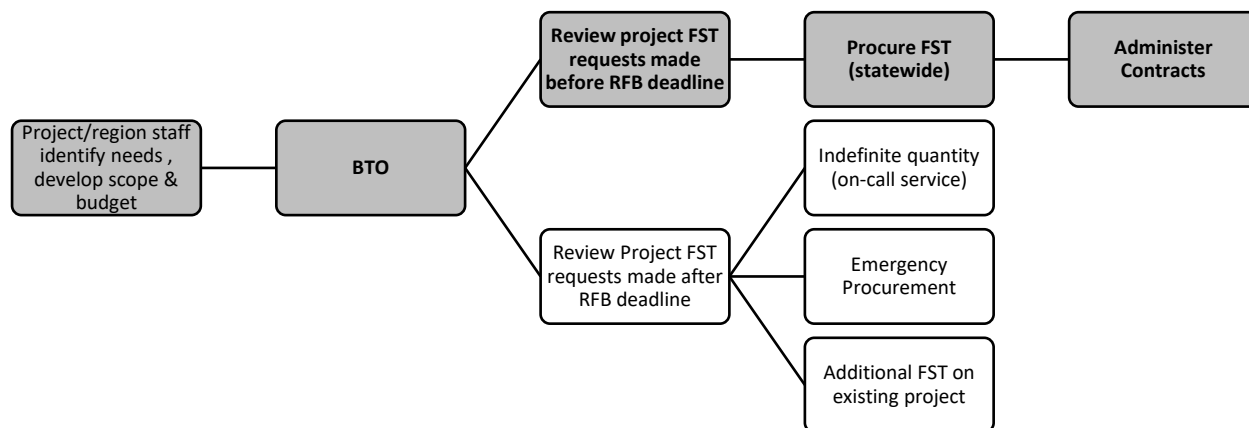
WORK ZONE FST

Project design staff will work with regional traffic operations to identify and quantify the need for FST for work zone mitigation. FST expense is paid from the project mitigation budget. Requests for work zone FST are made by December 15th of the year prior to construction via email to the FST program manager. All FST contracts are bid together in a statewide Request for Bids (RFB).

1. December 15: FST requests due for next construction year
2. February: RFB issued
3. March: RFB selections made for construction season

Figure 1 shows the flowchart for implementing work zone FST.

Figure 3. Work Zone FST Flowchart



Services to be Provided – General

The FST assists motorists whose vehicles have mechanical failure or have been involved in traffic crashes. The FST is responsible for clearing the highway of automobiles, motorcycles, small trucks, (vehicles with a gross vehicle weight of 8,000 pounds or less), and small nonhazardous debris. The FST relocates all cleared vehicles to the nearest drop-off location designated by the Contract Administrator. When responding to incident scenes, the FST provides assistance with traffic control as directed by law enforcement.

Assistance to Law Enforcement, Including Emergency Traffic Control

FST *may* be requested to lend assistance to law enforcement, specifically to assist with emergency traffic control at an incident scene. FST follows the instructions of the officer at the scene of any incident. Once temporary traffic control devices are established and it is determined that law enforcement does not need an immediate tow, the FST *should* continue to patrol the route until contacted by law enforcement for towing services or to remove the traffic control devices.

6-3-7 Freeway Service Team Sponsorship

November 2016

GENERAL

The department initiated the Freeway Service Team (FST) Sponsorship Program as an innovative source of revenue. The Sponsorship Program is intended to improve the transportation system and benefit the traveling public by increasing their awareness of available services. Additional revenues further enable WisDOT to provide necessary services and enhance the safety and efficiency of the State's highway system.

FST sponsorships offer recognition to a business or other entity for supporting FSTs that improve work zone safety. Sponsorship agreements *may* include sponsor recognition placed on FST vehicles under contract with the department and or signs as outlined in MUTCD [2H.08](#).

GOALS AND OBJECTIVES

The goals and objectives of FST Sponsorship are to:

- Create a public/private partnership to provide FST services
- Increase public awareness of program
- Provide sponsors an opportunities to promote traffic safety

RESPONSIBILITIES

Bureau of Traffic Operations (BTO)

- Management of the FST program via FST Program Manager
- Procure FST services
- Procure FST sponsorship(s)

Regional Traffic Engineers

Notify BTO of preconstruction meetings and project start dates

Other Stakeholders

- Regional Communications Manager
- Law enforcement
- Counties and local officials
- Towing contractors

ELIGIBLE SPONSORS

Eligibility for participation in the sponsorship program is limited to individuals, businesses and organizations that abide by state and federal laws that prohibit discrimination based on race, religion, color, age, sex, national origin, or sexual orientation, that do not promote illegal products or activities, and that do not harm the public image of the state or department.

SPONSORSHIP RECOGNITION

Vehicle marking, registered trademarks and lettering

- A. The Sponsorship Contractor *may* apply markings and trademarks onto the FST trucks operated by Operator Contractors. The sponsor **shall** submit a design to WisDOT for approval.
- B. No other markings *may* be placed on or in the FST vehicles, unless otherwise approved by WisDOT.
- C. Any painting, placing, maintaining, repairing, adding or removing Vehicle Markings, Logos and Lettering must be conducted in such a manner as to not reduce the FST Operator Contractor's contractually required level of performance and availability.
- D. Operator Contractors are required to have backup trucks to be used in the event the primary truck is damaged. When the backup truck is in use the Sponsorship Contractor *may* provide magnetic markings to indicate that the truck is part of the FST. The sponsor **shall** submit a design to WisDOT for approval.
- E. WisDOT will determine when FST Operator Contractor contracts will end.
- F. The sponsor is responsible for removal of all markings, logos and lettering from operator vehicles within two weeks of notification by WisDOT.
- G. The Sponsorship Contractor is responsible for any damage to Operator Contractor vehicles as a result of graphics placement or removal.

ROADSIDE SIGNAGE

The Sponsorship Contractor *may* indicate its sponsorship of the FST program through roadside signage placed at certain designated locations within or approaching work zones where FST Operator Contractor vehicles are operating.

- A. All Sponsorship Contractor signage **shall** be approved by WisDOT inclusive of design and placement. WisDOT reserves the right to require in certain circumstances signs to be removed, or placed in other locations at WisDOT's sole discretion.
- B. All signs **shall** comply at all times with Federal Highway Administration (FHWA) guidelines, and all applicable Federal and Wisconsin rules, regulations and laws in effect at the present and in the future.
- C. Acknowledgement signs **shall** be designed and installed as follows:
 - i. No more than two signs per direction along a single work zone, in locations approved by WisDOT.
 - ii. Signs (in one direction) *may* be spaced no closer than 3 miles apart except where approved by WisDOT.
 - iii. Sign logo, layout, size and design **shall** be in accordance with the requirements of the MUTCD.
 - iv. Signs shall be considered temporary and will be mounted on wooden posts. Sign size will be approved by WisDOT.
- D. WisDOT will approve all sign locations. The standard sign location will be 800' in advance of the "Road Work Ahead" sign.
- E. The minimum spacing between sponsorship acknowledgement signs and other signs should be:

- i. 150' on roadways with posted speed limits of 25 MPH or less.
- ii. 200' on roadways with posted speed limits of 30 MPH to 45 MPH
- iii. 500' on roadways with posted speed limits greater than 45 MPH

F. WisDOT will determine when FST Operator Contractor contracts will end.

G. Placing, replacing, maintaining, repairing, removing, covering or relocating signs must be done in accordance with WisDOT specifications. For questions contact the State Signing and Marking Engineer.

OPERATOR UNIFORMS

The Sponsorship Contractor *may* choose to provide uniforms to FST Contractor Operator drivers. Uniforms must comply with the following:

- A. ANSI Class III compliant safety vests and pants. Vests **shall** have the Sponsors logo worn above the left chest pocket. Contractor **shall** provide enough sets of vests and pants such that each vehicle operator has clean sets of pants and vests.
- B. Sponsor colored baseball type hat. The hat **shall** be made entirely of fabric (no mesh style hats) and will have the Sponsor's logo on the front of the hat above the brim. Contractor **shall** provide enough hats such that the Operator Contractor *may* provide clean, legible hats as needed. FST Operator Contractor operators are not required to wear hats.
- C. Sponsorship Contractor supplied sponsor logo patches/embroideries/prints for the uniforms, **shall** be approved by WisDOT prior to ordering.

6-3-10 Work Zone Incident Management Plans (IMPs)

December 2011

INTRODUCTION

An incident management plan is a set of strategies used to manage work zone traffic operations. These strategies include monitoring traffic conditions within the work zone and adjusting traffic operations based on changing conditions. IMPs address unplanned events or incidents for TMP project type 2 on freeways/expressways, and all TMP type 3 projects to ensure effective management of responses within the work zone. Formal IMP documents are not required for TMP type 2 projects on conventional highways, but if the project has detours or other temporary access restrictions, coordinate with emergency service providers regarding incident and access planning. Modify and update the IMP to address field issues as they occur. An IMP helps the contractor and the department to respond appropriately to incidents during construction within a reasonable timeframe in order to maintain traffic flow through the work zone safely. The IMP is part of the TMP and shall be submitted along with the TMP at the time of the completion of the draft PS&E. the draft IMP should be submitted along with the TMP worksheet at the time of the design study report (DSR).

It is the intent of WisDOT to minimize impacts and delays to motorists and to promote safety in work zones. Planning for traffic incidents that occur within work zones is a critical component of reducing delay and increasing the safety, mobility, and reliability of the highway system. The level of complexity of the IMP reflects the duration and complexity of the project and its impacts in the corridor/network. Long-term, complex reconstruction projects, such as the Marquette Interchange, necessitate comprehensive effort with procedures and processes to support the project. Short-term projects on lower-volume roads may simply require a meeting and/or some ongoing coordination with the appropriate local or regional emergency response agency.

Each project presents unique problems for emergency responders and the management of incidents that occur in the work zone. The intent of an IMP is to provide guidance and assistance in selecting mitigation strategies that meet the needs of WisDOT, the contractor, and emergency responders, while enhancing safety and mobility.

Answers to the questions listed below may help identify appropriate elements in the IMP.

1. How will this project impact emergency responses in this corridor?
2. Are there access issues for responding to incidents within the work zone?
3. If an incident closes the highway in one or both directions, how will traffic be rerouted?
4. Are there strategies to minimize project impacts on response agencies?
5. Are there strategies to minimize incident impacts on the public?

6. How will project personnel coordinate and assist emergency responders?

If it is determined that additional strategies are needed to ensure stakeholders' needs are met during construction, the strategies should be identified, documented, and implemented. They may include:

1. Contact lists for construction and utility personnel (include with IMP documentation when the contact lists become available)
2. Procedures for communicating with the contractor during an incident (include with IMP documentation when the procedures become available)
3. Procedures for updating response agencies on traffic control damages
4. Emergency access requirements
5. Variable message signs or other traveler information strategies
6. Detour routes to be used in the event of a long-term incident.

On more complex project where there is no traffic incident management in place, project staff and the contractor should meet with response agencies in the area to identify concerns and consider a full range of strategies to address these concerns. On project with multiple phases, it may be necessary to develop a plan for each phase of the project. The procedures and recommended strategies should be documented and distributed to all response agencies and construction personnel. Strategies that require implementation (e.g. signing, ITS devices, traffic management center, service patrol, etc.) should be planned and budgeted as part of the project and implemented at the start of the project. Training and follow-up sessions will be necessary to ensure that all agencies and construction personnel are familiar with the procedures in the plan. These should also be reviewed, revised, and updated as necessary throughout the life of the project.

Some of the tools that might be documented in the documentation include:

1. Incident levels and associated actions
2. List of response agencies
3. Roles and responsibilities of response agencies
4. Contact information and procedures
5. Scene management guidelines
6. Predetermined alternate routes
7. Resource information.

On any project, the minimum requirement should be to identify whether there is an existing program and determine the role of the contractor in implementing the program. Project staff or the contractor should also contact appropriate response agencies in the corridor to discuss their concerns with the proposed work zone and agree to procedures and strategies that will support traffic incident management. This communication and coordination is essential for any work zone. On more complex projects, this coordination will become more formalized and require the involvement of more stakeholders. It will necessitate a greater commitment of time and resources on the part of the contractor.

IMP REQUIREMENTS

Identity Stakeholders

In order to ensure work zones are safe and minimize the impact and delay to the traveling public, the plan should be developed in a collaborative effort with the emergency response and public safety community and incorporated into the transportation management plan. Planning for incidents that occur within work zones is a critical component for reducing delay and increasing the safety and reliability of the transportation system. Identify special events that may occur during the construction and may affect work times. Acquire special event coordinator contact information.

The regional project development section (PDS) is responsible for developing a project's TMP. The IMP should be developed by the regional PDS in coordination with the regional traffic section and Traffic Management Center (TMC).

Costs

Determining the costs to procure and deploy certain traffic control devices and types of mitigation strategies need to be identified during the scoping of the project. At the latest, the costs should be determined with the TMP.

Work Zone Incident Management Plan Standard Format (i.e., Incident Response Guide)

Each work zone IMP should include an incident response guide that provides a quick, in-the-field reference to response personnel. This ensures fast, effective, and consistent responses to incidents. The format listed below in Figure 1 is the standard table of contents that should be used when developing each IMP. The requirements of each section are described more in depth within this document.

Figure 5. Work Zone Incident Management Plan Outline

Project Summary
Checklists
TMC Checklist
Law Enforcement Checklist
Project Leader Checklist
Regional Incident Management Coordinator (RIMC) Checklist
Regional Duty Officer (RDO) Checklist
Emergency Contact Information (when it becomes available)
Alternate Routes
Available Barricade Locations for Ramp Closures
Activation of Traveler Information Systems
Normal Configuration
Operational Backups (No Incident)
Backups (Incident)
Closed Highway
Appendices
A. Alternate Route Maps (develop or insert if already available)
B. Queue Backup and Work Zone Location Maps
C. Emergency Access, Pullout and Traveler Information Equipment Location Map
D. Project Location Map
E. Traffic Volume Charts

Project Summary

The project summary and description should be described in the IMP. It may simply be the description used in the TMP document. The project summary should describe the location and type of project, the number of construction stages including where the closures will occur and anticipated dates and special events that may affect the work zone. Also include a brief description of traffic volumes and any extraordinary circumstances that need to be accounted for.

Checklists

Checklists are provided for use by the TMC, law enforcement, project leader, regional incident management coordinator (RIMC), and regional duty officer (RDO) in the event of an incident on the freeway/expressway system. Regular check-ins and after action reviews are recommended for all involved.

During an incident involving a work zone on the highway system, the TMC *should* follow the checklist below in order to collect the necessary information regarding the incident which occurred, contact the response team, and update the traveler information systems with appropriate up-to-date information.

TMC Checklist:

1. When receiving the call from law enforcement, ensure they provide the following information:
 - a. Location of incident
 - b. Whether it is located in a work zone
 - c. Affected lanes
 - d. Incident type
 - e. Approximate incident duration
 - f. Extent of backup
2. Must have immediate contact with:
 - a. RIMC when there is a full highway closure in one or both directions that is expected to last greater than two hours
 - b. RIMC whenever backups with or without an incident reach 3 miles or greater
 - c. PIO, if available
 - d. After incident and/or backup, ensure message boards are returned to lower level or normal configuration
 - e. RDO if contractor or project staff assistance is needed in a work zone

- f. SINS email sent for an incident blocking 50% or more of the highway lanes and/or a system ramp
 - g. Freeway Service Team (if available)
3. Once alternate routes are implemented, TMC will refer to the alternate route guide
4. Change traveler information in the following order:
 - a. Message boards
 - b. Message on highway advisory radio
 - c. Place 511 message if necessary
5. Regular check-ins

During an incident involving a work zone on the highway system, the responsible law enforcement agency should follow the checklist listed below in order to report the necessary information regarding the incident which occurred, identify the severity of the incident, and deploy traffic control.

Law Enforcement Checklist:

1. Contact dispatch to report any incident or backups and the following information:
 - a. Incident type
 - b. Location of incident
 - c. Best route to incident
 - d. Extent of backup
 - e. Establish a field command post
 - f. Whether incident is located in a work zone
 - g. Affected lanes
2. Identify incident classification
 - a. Minor – less than 30 minutes duration
 - b. Intermediate – 30 minutes to 2 hour duration
 - c. Major – duration greater than 2 hours
3. Initiate traffic control as appropriate
 - a. If traffic message boards are required, contact TMC
4. Inform media of highway incident (TIA)
5. State Patrol dispatch will contact TMC and advise the above information
6. If assistance is needed in work zone, contact TMC
7. If specialized equipment is needed in work zone, see contact list or list contacts:
 - a. Equipment type: _____ Contractor Contact: _____
(Example: crane to move barrier wall)
 - b. At the conclusion of the incident, make appropriate demobilization notifications

The WisDOT project leader will follow the necessary steps during an incident.

Project Leader Checklist:

1. Project leader will contact event incident commander or State Patrol duty officer as situation warrants
2. Project leader will function as liaison for contractors
3. Project leader will contact project manager and/or project supervisor at backups of 5 miles or as situation warrants

The WisDOT regional incident management coordinator (RIMC) will follow the necessary steps during an incident.

RIMC Checklist:

1. RIMC will contact project leader as situation warrants
2. RIMC will contact event incident commander or State Patrol duty officer as situation warrants
3. RIMC will function as liaison for county highway departments
4. RIMC will contact DTSD regional duty officer at backups of 5 miles or as situation warrants

5. RIMC will perform regular check-ins

The WisDOT regional duty officer (RDO) will follow the necessary steps during an incident.

RDO Checklist:

1. RDO will coordinate project resources with contractor or regional staff as situation warrants
2. RDO will coordinate media release as situation warrants
3. RDO will mitigate traffic displays if possible

Emergency Contact Information

This table should be a complete list of contacts that may be notified during an incident within the work zone and completed at the time of the pre-construction meeting or as soon as the contact information is known. Additional persons may be identified.

*=Indicates number can be used 24 hours

AGENCY	CONTACT	OFFICE	CELL/OTHER
TRAFFIC MANAGEMENT CENTER (TMC)			
TMC	Main Number	800-375-7302*	414-227-2166 (Office)
LAW ENFORCEMENT			
Wis. State Patrol Emergency			
State Patrol Dispatch			
State Patrol Officers			
____ County Sheriff			
____ County Sheriff			
____ Police Dept.			
____ Police Dept.			
____ Police Dept.			
____ Police Dept.			
____ Police Dept.			
____ Fire Dept.			
____ EMS			
DOT REGION MANAGEMENT			
Regional Duty Officer			
RIMC			
DOT Supervisor – PDS			
DOT Manager – PDS			
Regional Director			
Maintenance Supervisor			
Traffic Supervisor			
COUNTY PERSONNEL			
____ County Commissioner			
____ County Commissioner			
PROJECT STAFF			
Project Field Office			
Project Leader			
Project Manager			
PRIME CONTRACTOR			
Specialized Equipment Contractor			
TRAFFIC CONTROL - GENERAL			
General _____			
Message Boards _____			
OTHER TRAFFIC/EMERGENCY CONTACTS			
DOT Public Information Officer			
Freeway Service Team			
Special Events Coordinators			

Alternate Routes

If the corridor does not already have alternate routes established, project-specific alternate routes should be identified with each work zone on the highway system. Consistency in selecting alternate routes is an important aspect of the program. The following criteria provide a common starting point for evaluating potential alternate routes.

1. Use state highways whenever possible.
2. Consider long truck routes when available.
3. Avoid alternate routes with weight restrictions.
4. Avoid height restrictions imposed by bridge clearances, power lines, etc.
5. Avoid routes that require traffic to make 90-degree turns.
6. Avoid at-grade railroad crossings, especially those with a high number of trains.
7. Avoid four-way stops.
8. Select routes that carry traffic in the same general direction as the Interstate.
9. Minimize length of alternate routes.
10. Consider routes with coordinated signal timing plans or avoid routes with multiple uncoordinated signals.
11. Avoid traversing residential areas and school zones.
12. Carefully consider all route options and closure requirements at interchanges, especially system interchanges.

Based on these criteria, a preliminary list of emergency alternate routes can be identified for freeway segments within a given study area. Potential routes should be evaluated to ensure that the roadway can handle freeway-type traffic volumes. A field review of potential emergency alternate routes should be conducted to confirm route selection. For further guidance in determining appropriate alternate routes, contact the TMC.

Provide a brief explanation of alternate routes. For example, "The preferred alternate routes for I-94 are the existing frontage roads. These provide quick access by traffic and limit the amount of adverse travel. If traffic backups extend beyond the listed access points, longer alternate routes can be implemented.

Explain alternate routes in detail below and provide alternate route maps in an appendix. For example, "For SB: Traffic can be diverted west on WIS 100 (Ryan Rd) to WIS 36, southwest on WIS 36 to US 45 to WIS 20 back to I-94. For NB: Traffic can be diverted west on WIS 20 to US 45, north on US 45 to WIS 36 to WIS 100 (Ryan Rd) and then east on WIS 100 back to I-94."

If traffic backups extend beyond the access points of the barricade locations listed, longer alternate routes can be implemented.

Provide information on who needs to be contacted for each alternate route option. For example, "Contact TMC, State Patrol, Racine County, Village of Caledonia when alternate routes are implemented. See contact list."

See appendix for alternate route map to be used for this project.

Available Barricade Locations for Ramp Closures

The IMP shall identify a list of the available barricade locations. During an incident, the incident commander organizes the ramp closures. Locations of barricades shall be included on the specialized equipment location map in the appendix.

Available Barricade Locations

Highway Ramp & Direction	Number of Barricades	Distance from Work Zone
<i>Ex. Hwy KR to I-94 East (SB) ramp</i>	<i>1 ramp gate</i>	<i>1 mile</i>

Activation of Traveler Information Systems Scenario Examples

Contact the TMC for activation of traveler information systems. Choose the sample messages below for use on traveler information devices.

Normal Configuration

Contact TMC

Operational Backups (No Incident)

Radio Message:

There are significant delays affecting motorists heading <direction> on <mainline highway> between <highway> and <highway> in <county> County. Motorists are encouraged to use alternate routes to avoid delays.

Message Board # _____ at _____:

Traffic Delay Ahead/Alternate Route Exit ##

Traffic Delay Ahead/Use Alternate Route

Delays XX Miles Ahead/Tune to AM #####

Additional message boards can be placed along the highway to notify the motorist.

Backups (Incident)

Radio Message:

As of <date/time>, law enforcement is reporting that a traffic incident is adversely impacting motorists heading <direction> on <mainline highway> between <highway> and <highway> in <county> County. Motorists are encouraged to use alternate routes to avoid delays.

Message Board # _____ at _____:

Incident Ahead Use/Alternate Route Exit ##

Incident Ahead/Use Alternate Route

<Left/Right/Center> Lane Blocked/Expect Delays

<Left/Right/Center> Lane Blocked/Use Alternate Route

Delays XX Miles Ahead/Tune to AM #####

Additional message boards can be placed along the highway to notify the motorist.

Blocked Highway

Radio Message:

As of <date/time>, law enforcement has closed <mainline highway> between <highway> and <highway> in <county> County to <direction> traffic. Motorists traveling <direction> must exit <mainline highway> and use alternate routes.

Message Board # _____ at _____:

Incident Ahead Use/Alternate Route Exit ##

Highway Closed Ahead/Exit at <highway>

Highway Closed Ahead/Follow Alternate Route

Highway Closed Ahead/Tune to AM #####

Additional message boards can be placed along the highway to notify the motorist.

Regularly review and revise the IMP to monitor current practices, identify and resolve issues to minimize frequency of incidents and severity. Assign an individual(s) on complex projects with the responsibilities of ensuring the IMP is up to date.



6-6-20 One-Lane Bridges

June 2004

PURPOSE

The purpose of this subject is to provide some general guidelines for the selection of traffic signal control vs. stop sign controls at long-term (non-flagging) one-lane bridge construction sites. Since each one-lane bridge site is unique, a site-specific investigation of the factors affecting the selection *should* be done. A number of variables can influence the selection, so a definitive breakpoint between the two options cannot be defined. This subject will provide a discussion of the variables which *should* be analyzed and provide some general guidelines on the selection process.

FACTORS INFLUENCING THE CONTROL SELECTION

The following factors *should* be considered when evaluating the type of control at one-lane bridge sites.

1. Average Daily Traffic (ADT). This is a good general indicator in the selection process. Below 1,000 ADT or 100 vehicles per hour, a STOP sign control can usually be used without experiencing operational problems. Above 3,000 ADT, a traffic signal is usually a better choice for more efficient operation. These ADT values are not absolute and the other factors must be considered in the selection process.
2. Peak-Hour Traffic. If the bridge site is located near a larger city or on a recreational travel route or carries special event traffic, the peak-hour traffic will be a greater factor than the ADT. The bridge control must be able to accommodate the peak-hour traffic within a reasonable amount of time delay.
3. Directional Traffic Distribution. This again will be a factor if the bridge site is located just outside a large city on a route which is a major radial commuting route, or is a major recreational route.
4. Width Restriction. The width *may* influence the speed of traffic, increasing the clearance time necessary for a single vehicle to cross the bridge. The additional clearance time will reduce the capacity of both a stop-control and signal-control bridge site.
5. Time Duration of Project. For shorter projects (1-2 weeks), it *may* be acceptable to tolerate slightly oversaturated stop-control conditions, rather than implement a signal-control scheme.
6. Distance between Stoplines. This will greatly affect the one-lane capacity because it will dictate the clearance time necessary for a vehicle to cross the bridge. The stoplines *should* be kept as close as possible to the ends of the bridge allowing for necessary storage of construction equipment and placement of traffic control devices. Typically, each stopline *should* be placed about 150-250 feet from the end of the bridge. This allows workspace (usually less than 100 feet) for the contractor off the end of the bridge and a taper for the single-lane transition. With this constraint, the typical stopline-to-stopline distance is 300-500 feet, plus the length of the bridge. See SDD [15D33](#) (Traffic Control, One Lane Road with Temporary Signals) and [15D32](#) (Traffic Control, One Lane Road Stop Condition) for more details on dimensions and traffic control layout.

On projects which involve bridge approach resurfacing of several hundred feet, the bridge work involving the one-lane controls *should* be staged first, thus allowing the closest stopline-to-stopline distance possible. Then, after the bridgework is completed, the one-lane bridge controls can be removed. The approach resurfacing can be completed by using a flagging operation. Further discussion is found under Special Cases.

7. Sight Distance between Stoplines. This factor in itself could dictate the control type. If adequate sight distance is not available (if bridge is an overpass on a sharp crest, or construction equipment or temporary concrete barrier is expected to block site), then traffic signal control must be used to assign right-of-way across the one-lane bridge. The stop-control situation, which is self-regulating, would fail without adequate sight distance, because it relies on motorists to see each other in order to determine which vehicle has the right-of-way.

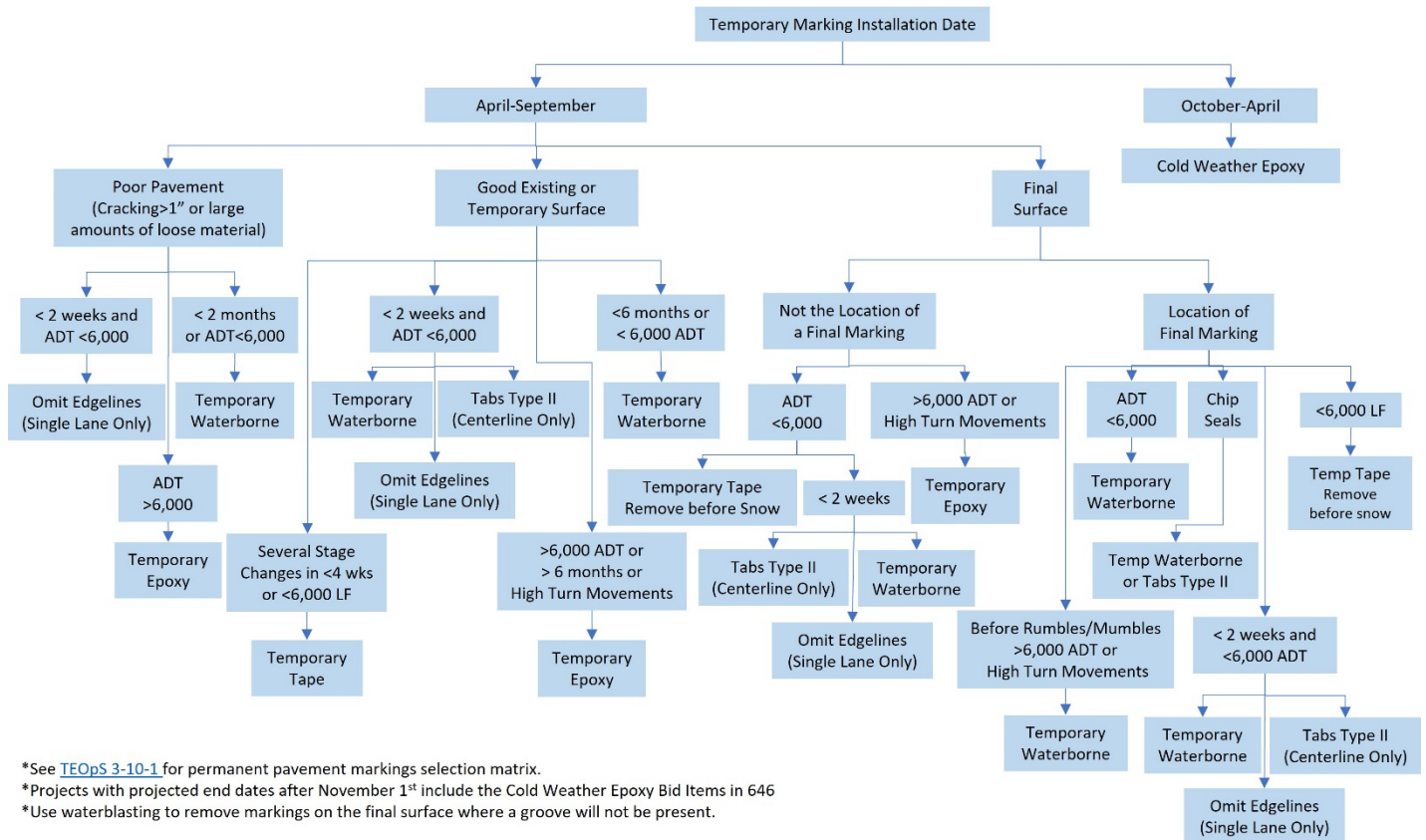
GENERAL

Temporary Pavement Markings help delineate the roadway during a construction project.

POLICY

Temporary Pavement Markings **shall** resemble the width and color of the permanent pavement markings. Temporary Pavement Markings can be one of the markings listed below:

1. Transition Areas, Lane Shifts, and Crossovers *may* use the following marking for emphasis:
 - Contrast lane lines (removable tape)
 - Type I temporary raised pavement markers
 - Solid lines (any product)
2. Same Day Marking
 - When the final marking needs to be placed quickly because the roadway is open to traffic.

Temporary Marking Selection

*See [TEOpS 3-10-1](#) for permanent pavement markings selection matrix.

*Projects with projected end dates after November 1st include the Cold Weather Epoxy Bid Items in 646

*Use waterblasting to remove markings on the final surface where a groove will not be present.



Traffic Engineering, Operations & Safety Manual

Chapter 6 Work Zone Traffic Control

Section 10 Detours

6-10-20 Signing and Marking – Local Roads

December 1992

GENERAL

When a local or county road is used as a STH detour route, the geometric characteristics of that route such as shoulder or pavement width or alignment often times are less than the characteristics of the STH route. Despite these conditions, the local road has been chosen as a detour route because it is the best alternative. Although the geometric standards *may* not be able to be upgraded, traffic control devices such as signing and marking *should* be upgraded to the same standards as the STH system. Exceptions are outlined below.

SIGNING

Concern has been expressed that local jurisdictions will incur some liability if signs are placed on their routes as an upgrade of their current standards during a STH detour and then removed. WisDOT General Counsel has determined that temporarily upgrading the signing along the local route does not place a liability upon the local municipality. (See attached December 3, 1991)

WARNING AND REGULATORY SIGNING

The signing along the detour route, Stop Signs, No Passing zone pennants, Curve, Turn and other warning and regulatory signs **shall** be installed along the route as if the detour route were a state trunk highway. If the detour will be in place less than two weeks, the Region will determine to what extent, if any, the signing will be upgraded. In the case of an emergency detour, the signing will be upgraded as soon as possible depending on the anticipated duration of the detour.

JUNCTION AND REASSURANCE ASSEMBLIES

Orange auxiliary arrows and detour auxiliary plaques **shall** be used in route marker assemblies in advance of and along the detour route. Reassurance markers **shall** be placed after every major intersection or at a spacing not to exceed two miles in rural areas and two blocks in urban areas.

QUALITY OF SIGNS

The condition of the signs used along the detour route **shall** be such that the signs have good daytime visibility and nighttime reflectivity. Care must be taken to ensure the signs are in good enough condition to command the respect and attention of motorists. This is especially important on detour routes since typically motorists who are unfamiliar with the route are depending on these signs for guidance.

REMOVAL OF DETOUR SIGNING

Some of the signs along the route *may* have been added to upgrade the route to STH signing standards. The local Jurisdiction *may* not wish to have these signs retain in place after the detour is no longer in place. Sign removal *should* be dependent on the wishes of the local Jurisdiction.

PAVEMENT MARKING

The condition of the marking *should* be such that it provides daytime and nighttime visibility and *should* be approximately equal in quality to that prevalent on State Trunk Highways.

CENTER LINE AND EDGE LINE MARKING

Unless the detour will be in place less than two weeks, the edge line and center line marking along the detour route *should* be in general agreement with WisDOT policy for marking on the STH System. If the detour will be in place less than two weeks, the Region will determine which, if any, markings need to be upgraded.

NO PASSING ZONE MARKING

Since local jurisdictions do not have the same No Passing zone criteria as the STH System, in some cases, the No Passing zones *may* need to be relocated using STH criteria. The Region is responsible for determining if the difference between local and STH criteria used when locating the zones differs enough to warrant remarking of the zones.

REMOVAL OF DETOUR PAVEMENT MARKING

If the marking along the route has been upgraded it is up to the Region and the local jurisdiction to determine if the marking *should* stay in place. Marking removal can be accomplished by contract or by resurfacing the roadway upon the completion of the detour.



**Wisconsin Department of Transportation
Office of General Counsel**

MEMORANDUM

To: Lee F. Crook
From: Jim Thiel *Jim Thiel*
Date: December 3, 1991
Subject: Policy on Detour No Passing Marking; OGC 91-456

You asked whether the policy of marking state trunk highway detours on local roads with the yellow and black NO PASSING ZONE warning pennants causes a legal problem of liability for the local agency when the detour is removed and the pennants are removed.

It is my opinion that the answer is NO, if the pennants are removed at the request of the local agency when the detour is removed. The reason is that installation of the NO PASSING ZONE pennant is a discretionary, policy decision on local roads by local governments. The local government traffic engineers can most appropriately decide what they want, i.e. no-passing zone pavement markings or black and white DO NOT PASS signs or combinations of the above and the NO PASSING ZONE pennants.

The Manual on Uniform Traffic Control Devices (MUTCD), paragraph 2C-38 deals with the NO PASSING ZONE sign (W14-3). It says the NO PASSING ZONE sign "should be used on two-lane roads to warn of the beginning of no-passing zones identified by either conventional pavement markings or DO NOT PASS signs or both." Our Wisconsin supplement to the MUTCD says "The W14-3 No Passing Zone sign shall be used on State Trunk Highways to designate no-passing zones." Paragraph 1A-5 of the MUTCD defines "shall" as a "mandatory condition. Where certain requirements in the design or application of the device are described with the "shall" stipulation, it is mandatory when an installation is made that these requirements be met." It defines "should" as "an advisory condition. Where the word "should" is used, it is considered to be advisable usage, recommended but not mandatory." Therefore use of the NO PASSING ZONE pennant is discretionary by local governments on local roads.

In considering whether to ask WISDOT to remove the pennants when the detour is removed, the local government is in the best position to make the policy decision whether uniformity of marking on the local system outweighs any marginal benefit of retention and maintenance of NO PASSING ZONE pennants when the STH detour is removed. There is no statutory requirement imposed on local governments to install or maintain NO PASSING ZONE pennants. There is no ministerial, mandatory duty for local governments to install them on local roads under the MUTCD. The local government may decide to retain the signs and maintain them as a safety precaution to the traveling public. Although there is no local, legal duty to erect them in the first instance, if the local government decides to keep them after the detour is removed, a court might decide there is a local, common law duty to maintain the signs in good condition if the court decides the public has developed a right to rely on their continued presence.

cc: Pete Rusch, Julie Neebel, Chuck Spang, Gerry Roth