

Mn/DOT Statewide Work Zone Safety Committee Meeting

*October 28, 2011 - - - Mn/DOT Training and Conference Center, 1900 West County Rd I, Shoreview, MN
- Meeting: 9:00 am to 4:00 pm -*

Attendees

The attendance roster is listed at the end of these minutes. The list includes member, people substituting for members, and guests.

Welcome and Introductions

Steve Lund, MnDOT Office of Maintenance (OM) was the chair for this meeting. He thanked the attendees for being at the meeting and added that it's important for the work zone safety advocates to gather to help give direction to MnDOT and the transportation industry.

Committee Reports:

Traffic Engineering Organization Temporary Traffic Control Subcommittee (TEO TTC) Chair: Ted Ulven

- Zipper Merge Status
 - Previous assigned Action: OTST will develop a presentation/training about Zipper Merge for various groups.
 - Since the last meeting presentations about the Zipper Merge have been given to State Patrol and at Traffic Topics (recorded online at <https://mndot.adobeconnect.com/a827349870/p75452033/>).
 - Didn't get full implementation this year.
 - For Maintenance - new signs were ordered, but were not put together due to the State Shutdown and other priorities once work resumed.
 - For Construction - some projects were already in progress and some contractors had questions about the crashworthiness of signs with the additional plaque needed. There were also some challenges with Active Zipper implementations through Intelligent Work Zones - not enough inventory of the devices and costs were higher as they were added to projects through Supplemental Agreement vs initial bid items.
 - OCIC has been monitoring jobs with the Zipper Merge and is working on developing a report.
 - **Action: An attempt will be made to add the report to the next meeting's agenda.**
 - The group agreed to keep pushing the Zipper Merge through education efforts and wider implementation.
- TPAR (Temporary Pedestrian Access Routes)
 - Previous assigned Action: OTST will also develop TPAR design guidance to help designers know why and how to implement the ADA into work zones.
 - The TEO TTC subcommittee has formed a Task Force that is working on the Design Guidance. It should be finished this winter.
- Intelligent Work Zone Guidance
 - Previous assigned Action: OTST will look into the possible development of boilerplate special provisions language for IWZ implementations.
 - Ongoing.

Resident Engineers Work Zone Safety Advisory Committee
Co-chairs: Trudy Kordosky and Craig Mittelstadt

The formal group has not met since the last Statewide Work Zone Safety Committee meeting; however, it was mentioned that ADA is a huge issue on how to deal with during construction, looking for more guidance.

Special Provisions Annual Update Committee – Chair: Craig Mittelstadt

Craig handed out the agenda to the recent ***Traffic Control Special Provisions Review Committee*** meeting, just held on October 19, 2011. He pointed out the major discussion points from the meeting:

- The proposed change in the format and organization of the 1404 special provisions. The idea is to modify the outline to one similar to a recent format used in Duluth.
- For Traffic Control Supervisor
 - Depending on the project, possibly adding the responsibility for ADA adherence and/or Business Signing duties.
 - Encourage districts to use the unit day pay item and to only include in 1404 the duties that are necessary for the project.
- Road closed - open to local traffic only
 - Need more guidance and more information in the plans
 - Requirements for not having drop-offs, striping needs, detour signing, etc.
 - Patrol has a strong concern with these situations.
- Conspicuity tape on MnDOT trucks. Based on the fact that at least 2 inspector vehicles were hit at night last year, but neither had conspicuity tape on them - while the contractor's vehicles did.
 - **Action: Todd Haglin will take the lead on determining if conspicuity tape needs to be added to MnDOT vehicles that are involved with night-time work. The State Safety committee will discuss with Fleet Management.**
- Predetermined prices in 1404 - addition of mobilizations?
 - There was significant discussion on the pros & cons of adding mobilizations into the pre-determined prices.
 - **Action: Craig Mittelstadt agreed to review the possibility of changing the special provisions to include mobilization of some products.**

Metro Maintenance Work Zone Safety Committee – Chair: Sue Lorentz

Sue brought a few issues up to the committee:

- Zipper Merge implementation. As mentioned earlier, concern is that Maintenance is not yet fully implementing due to:
 - Sign elements being delivered in early summer.
 - Shutdown caused priorities to be shifted to other areas.
 - Maintenance intends to be ready for the 2012 season.
- ADA during Maintenance training - still not a lot of implementation, but most maintenance projects are defined as Attended, which means that a full TPAR (Temporary Pedestrian Access Route) may not need to be implemented if a pedestrian can be guided through or a way is provided through the work area by shutting down work as necessary (the pedestrian may be delayed for a short time).
- Lighting packages based on Tech Memo #11-09-M-01 - all vehicles in Metro have been retrofitted to meet the Tech Memo.
- Ryan Otte of the MnDOT Office of Maintenance (OM) had done a study on the effectiveness of different lighting sequences and colors; OM and the MnDOT Office of Traffic, Safety, and Technology (OTST) intend to do a similar study of the effectiveness of the different caution mode options on Flashing Arrow Boards.
- Truck Mounted Attenuators - In order to meet crashworthiness standards of TL-3 vs TL-2, Metro Maintenance needs about 90 more TL-3s, each with a cost of about \$20,000.
- Cone-setting Guidelines - Sue mentioned that she will be involved in starting a committee to develop guidelines for cone-setting:
 - Personnel don't feel comfortable with lanyards
 - Need to determine safest way to set and pick up cones

- Would like to try new system that has the cone setter on the front of the truck
- This may be taken up by CO Maintenance or the Statewide Maintenance Work Zone Safety Committee.
- Speaker's Bureau in Metro District - Todd Kramasz is managing the Speaker's Bureau for Metro District.
 - The purpose is to provide outreach to educate the public about work zones
 - Consists of MnDOT presenters, Leigh Kriewall has brochures.

Statewide Maintenance Work Zone Safety Committee – Chair: Randy Reznicek

Randy brought to the group a couple of items:

- *Portable Non-Intrusive Advanced Warning Devices for Work Zones with or without Flag Operators Study* - Randy mentioned that MnDOT is involved in this study with the U of Mn. John Hourdos of the U of Mn is the Principal Investigator. This is a system that has a speed detector on one drum preceding a work zone with a horn on a following one - the intent is to sound the horn when the system senses drivers approaching the work area at a high rate of speed. Randy is hoping for a final report by June 2012.
- Solar elements being stolen - Randy said that Maintenance has had a few situations with solar elements (panel and/or batteries) being stolen from Changeable Message Signs or from flashers on barricades.

PERCOM – Chair: Ed Barrett

Ed raised a couple of issues and showed a presentation:

- Fiber installation - there has been a lot of fiber installed in the State. Last year 700 miles were installed in Metro alone. Sprint intends to install ~1500 miles statewide in 2012.
- Plan rejections - A lot of plans have come in that have needed to be rejected - the most in the past 5 years. Most are unbuildable and indicate lack of predesign.
- Ed showed a presentation of a helicopter hanging guardwire for the powerlines being installed along I-90 in District 7B. The presentation *Helicopter Use in Work Zones - Guard Wire Re-stringing.pdf* can be found at the following link: <http://www.dot.state.mn.us/trafficeng/workzone/wzcommittees.html>.

Presentation: Innovative Contracting Options (A+B and Lane Rentals)

Tom Ravn of MnDOT OCIC discussed a couple of innovative contracting options. These, along with their typical applications on projects, can be found at the following website:
<http://www.dot.state.mn.us/const/tools/innovativecontract.html>

Districts are encouraged to review and determine appropriate projects that could use these innovative contracting methods.

Short Presentation: Work Zone Camera Enforcement

Will Stein of the FHWA showed a presentation of photo speed enforcement being used in Illinois - it is only allowed in work zones. Workers must be present and signing is required. It is done by a van that has speed detectors and cameras to determine who will receive the ticket. The presentation *Illinois Work Zone Photo Speed Enforcement.pdf* can be found at the following link:
<http://www.dot.state.mn.us/trafficeng/workzone/wzcommittees.html>.

Discussion: Review of recent work zone fatalities and possible countermeasures

Sue Groth, MnDOT State Traffic Engineer, led this discussion:

- The Commissioner of Transportation and the Commissioner of Labor met the day prior to this meeting of the Statewide Work Zone Safety Committee due to concerns raised by the recent worker fatalities due to a crash on I-35 and a legislator hearing about concerns by a highway worker prior to this crash. See the attached Handout A. This handout contains some potential new strategies along with existing, ongoing strategies to improve work zone safety. Some of these were discussed with the group.
 - **Action: The Work Zone Safety Executive Committee will meet to review the attachment and determine an appropriate direction to improve work zone safety.**

External Partners:

Law Enforcement - Major Mike Asleson (State Patrol)

Major Asleson reported the following:

- Positive news is that there are less traffic deaths this year than last year up to this point.
- He mentioned that every traffic stop is a mini-work zone and making sure that this incident zone is visible is a consideration of the trooper.
- He also let the group know that there were many squads hit last year (especially in the winter). This is not just in Minnesota, it's happening across the country - hits on the roadside are increasing.
- Lighting packages information. There is research going on regarding the number and types of lights that are actually needed. There is some evidence that too much light can cause problems - it can be distracting to drivers and it could impact night vision. Major Asleson stated that the light bars are reducing intensity by 50% at night.
- Major Asleson is involved with the Fire Marshall's Office. There are 900 fire departments in the state of MN, and a tragic tidbit of information is that the #1 killer of fire fighters is traffic crashes.

Wayne Fingalson of Wright County mentioned that Wright County has added blue lights to some of their maintenance vehicles.

Randy Reznicek of MnDOT D3 Maintenance mentioned that he's been hearing of requests from troopers for wider shoulders to be placed in crossover areas.

Engineering Consultants - Larry McKenzie and/or Gary Thompson (URS)

Larry McKenzie told the group that he is retiring and that this will be his last meeting.

The Committee will absolutely miss his rarely paralleled traffic control design experience and good humor.

Northland Chapter ATSSA - Jay Blanchard (Safety Signs), Ken Russell (3D Specialties), and/or other industry representatives

The Northland Chapter of ATSSA thanks MnDOT for the Department's support. The 2011 How-To had over 400 attendees. This is not a one-way street - MnDOT receives excellent training for work zone safety at this event. Being able to talk with vendors about innovative products is also very worthwhile.

The Northland Chapter is trying to grow a Poster Contest at grade schools to increase awareness of work zone safety. See <http://www.northlandatssa.com/Poster.html> for more information.

The *2012 How-To Training & Workshop - Saving Lives by Design* will be held in Fargo on March 13-14. Sessions will include: TTC Training, Guardrail, Data Logging Systems for longitudinal striping machines, Low Cost ITS,

Roundabouts 101, Rollover Education, TPAR and much more. See <http://www.northlandatssa.com/Events.html> for more information.

Contractors - Frank Weiss (Shafer)

Pass - feedback provided in other sections.

Temporary Traffic Control Providers – Eric Johnson & John Story (Traffic Technologies), Mike Granger (Street Smart Rental), & Tim Lewis (Highway Technologies)

Pass - feedback provided in other sections.

Federal - Will Stein (FHWA)

More attention will be needed for Transportation Management Plans on required projects. Will has been working with MnDOT staff to move the development into an earlier stage of project development.

County - Wayne Sandberg & Adam Bruening (Wash.Co.) & Wayne Fingalson (Wright County)

Wayne Fingalson mentioned a few points:

- He wanted to remind MnDOT staff that the counties use a lot of elements out of the MnDOT Spec Book, so he feels that it's important for the counties and cities to be involved in the rewrite.
- He had a question about the Work Zone Safety Award Competition raised at the County Engineers Meeting. MnDOT staff mentioned that over the past few years, MnDOT had been seeing a reduction in the number of applicants for the Work Zone Safety Award. Only one applicant had been received a couple of years ago and as a result, solicitations were not sent out over the past couple of years.
- MnDOT Traffic Safety is in the process of completing Comprehensive Safety Plans for all counties. He wanted to mention that it was a very worthwhile effort in Wright County. He received good information and has already been able to use it.

Municipal - James Koslucher (Fridley)

James was not able to make it for the meeting.

Education – Kathy Schaefer (LTAP)

Kathy raised a few points:

- She has been involved in a Local Road Safety Initiative through LTAP and is taking lessons learned into her Field Manual training.
- LTAP has continued Field Manual training.
- She'd like to see someone develop a 'Low-Speed, High-Volume Field Manual'. Most MnDOT projects are on higher speed roads, but the Field Manual has little guidance for roads like those found in downtown areas - short blocks, very high volumes, etc. OTST staff mentioned that this issue has been raised at the TEO TTC committee and that coordination would be necessary with a variety of groups - SALT, cities, OTST, OCIC, OM and others.
 - Since the meeting, OTST has found a class offered through the FHWA Work Zone Safety Grant called ***Urban Work Zone Design***. OTST is looking into bringing this training to MN in 2012.

Utilities - N/A

Still looking for representative - the committee coordinator has received a few recommendations and will identify some options.

Presentation: I-494 & State Highway 169 Design Build

Mike Fairbanks of MnDOT Metro Traffic a presentation on Traffic Control Plan issues related to the TH 169/1494 Design Build project. The presentation *TH 169 DB TCP - Fairbanks.pdf* can be found at the following link: <http://www.dot.state.mn.us/trafficeng/workzone/wzscommittees.html>.

Mn/DOT Internal Partners:

Management Teams

- *DE* *Amr Jabr*
- *PCMG* *Mark Waisanen*
- *CMG* *Mark Panek*
- *OMG* *Sue Lodahl*
 - Dave Solsrud will be the chair of OMG next year.

Maintenance

- *OM* *Steve Lund*
 - Ken Nelson's position will be filled. Update: Sue Lorentz was hired to replace Ken Nelson. She started in late December 2011.
 - 210 Test Level 3 Truck Mounted Attenuators are needed. It'll take some time to fill the fleet.
- *Work Zone Inspection* *Bob Vasek*
- *Training (Maint/Locals)* *Bob Vasek and/or Kathy Schaefer*
 - OM and LTAP provide comprehensive training on the field manual and work zones for locals and MnDOT district staff. Audiences have included District Maintenance staff, local agencies, utilities, and MAC.

Traffic Engineering

- *OTST* *Ken Johnson*
 - In relation to Temporary Pedestrian Access Routes (TPAR), Ken described a nuance that MnDOT is using to determine when full TPAR elements are needed when an existing accessible pedestrian route is impacted by construction or maintenance - Attended vs. Unattended. Instead of using a time limit to describe when to implement TPAR elements and devices, OTST has set a distinction between impacted accessible pedestrian routes when there is personnel at the site and when there are no project personnel at the site. When there are no project personnel on an impacted accessible pedestrian route, a TPAR needs to be available for pedestrians. If the project is very temporary and project personnel will be on site during the length of the impact, then a TPAR does not need to be implemented as long as the work can be interrupted and project personnel can assist a pedestrian with

a disability through the impacted accessible pedestrian route. In such a situation, it is allowable that the pedestrian can be delayed for a limited time (5-10 minutes) in order to make the work area passable.

- Sue Lorenz mentioned that she is aware of at least one instance where the Attended work zone practice was implemented and it worked well.

- *Districts* *Tom Miles, Jeff Rieder, Kevin Schmidt, Tiffany Dagon, Mike Engh*
 - TPAR impacts - Metro staff mentioned that the District has had a project where the TPAR 'controlled' the project. This needs to be kept in mind - that a TPAR can influence the staging and how the work is done.
 - State Shutdown - The shutdown has created issues with project coordination. There have been mobility complaints that drivers couldn't get around because their alternate routes were impacted by other projects which were scheduled to be completed by the time the next project was going to start.
 - Metro is pursuing more Maintenance of Traffic (MOT) special provisions. Many of these have been caused by the Alternative Bid efforts (to allow contractors to bid a pavement job with either concrete or bituminous). Traffic control can be very different based on these two different options, so some of the onus for traffic control planning is being placed on the contractor through an MOT.

Construction

- *OCIC* *Tom Ravn*
- *Training/Speaker Bur.* *Leigh Kriewall*
 - Available Training - Leigh listed out the available training from OCIC:
 - Traffic Control Overview
 - Traffic Control Supervisor
 - Flagger Training
 - Plan Reading
 - Speakers Bureau update:
 - Materials are currently being updated
 - So far 148 presentations have been made to 4000 people
 - Active in Districts 2,3,4,6,8 and Metro is coming on board

Communications

- *Statewide* *Kevin Gutknecht*
- *Metro* *Kent Barnard*
 - Many approaches to the Safety message - Kevin stressed this. The Speakers Bureau (previously mentioned by Leigh Kriewall and Sue Lorentz) is one. This year's Snow & Ice plan is complete. There is a new PSA with a S & I theme that should get some play in November with the news conference and whenever MnDOT can get some free airtime. We won't buy airtime. Regarding the crashes, maybe a news release about motorist safety should be done?

Worker Safety

- *Statewide* *Todd Haglin*
 - High Visibility Clothing - Todd notified the group there has been a change in the High Visibility Clothing Policy that now allows workers to buy their own wear that meets requirements. New soft caps have been received and will be available as the old inventory is used up. Todd will meet with 3M in the week following this meeting regarding vehicle conspicuity tape products that are easier to remove or magnetic as discussed early today.
- *District* *Doug Thies*

- Doug mentioned that a worker basket that mounts to a plow truck for placing and removing cones. It would protect the worker from falling out of or off the vehicle but not from crashes with other vehicles.

State Aid

- *SALT* *Mark Vizecky*
- *Districts*
 - No discussion of state aid today.

Closing remarks - Steve Lund

Steve wanted to discuss the time and location of the next meeting. There was some debate over meeting again during the usual time/day in Fargo on the Monday before the ATSSA How-To or maybe in St. Cloud on that same day (would be the travel day to the ATSSA event). A show of hands indicated many cannot travel to Fargo for this meeting - generally the people not attending the How-To. Lynn mentioned vendors had to be in Fargo early and couldn't make a Monday meeting in St. Cloud. Others suggested if it is in St Cloud it should be a different date than close to the How-To, possibly April.

Update - Spring meeting of Statewide Work Zone Safety Committee to be held in Saint Cloud on April 4, 2012.

Statewide Work Zone Safety Committee - Membership Attendance - October 28, 2011

Name:		present:	Name:		present:
Rotating CHAIRS:			Consultants		
Amr Jabr (Duluth - Director)		<input checked="" type="checkbox"/>	Larry McKenzie (URS)		<input checked="" type="checkbox"/>
Sue Groth (OTST - Director)		<input checked="" type="checkbox"/>	Gary Thompson (URS)		<input type="checkbox"/>
Steve Lund (OM – Director)		<input checked="" type="checkbox"/>			
Tom Ravn (OCIC – Director)		<input checked="" type="checkbox"/>			
EXECUTIVE COMMITTEE:			Utilities		
Nick Thompson (Division Director)		<input type="checkbox"/>	Vacant		<input type="checkbox"/>
Mike Barnes (Division Director)		<input type="checkbox"/>			
Jon Chiglo (Division Director)		<input type="checkbox"/>			
Rick Kjonaas (SALT - Asst Director)		<input type="checkbox"/>			
FUNCTIONAL ADVISORS:			INTERNAL PARTNERS:		
Ken Johnson (MnDOT OTST)		<input checked="" type="checkbox"/>	Construction:		
Bob Vasek (MnDOT OM)		<input checked="" type="checkbox"/>	CMG	Mark Panek (D-6)	<input checked="" type="checkbox"/>
Craig Mittelstadt (MnDOT OCIC)		<input checked="" type="checkbox"/>	Training/Spk Bureau	Leigh Kriewall (OCIC)	<input checked="" type="checkbox"/>
Ted Ulven (MnDOT OTST)		<input checked="" type="checkbox"/>	Resident Eng	Trudy Kordosky (D-4)	<input type="checkbox"/>
Mark Vizecky (MnDOT SALT)		<input type="checkbox"/>			
EXTERNAL PARTNERS:			Maintenance:		
Enforcement			OMG	Sue Lodahl (OM)	<input checked="" type="checkbox"/>
Major Mike Asleson (DPS – State Patrol)		<input checked="" type="checkbox"/>	Metro MWZSC	Sue Lorentz (Metro)	<input checked="" type="checkbox"/>
Federal Agency			Outstate MWZSC	Randy Reznicek (D-3)	<input checked="" type="checkbox"/>
Will Stein (FHWA)		<input checked="" type="checkbox"/>	PERCOM	Ed Barrett (Metro)	<input checked="" type="checkbox"/>
Counties			District	Sheila Johnson (Metro)	<input checked="" type="checkbox"/>
Wayne Sandberg (Washington County)		<input type="checkbox"/>	Public Affairs:		
Adam Bruening (Washington County)		<input type="checkbox"/>	Central Office	Kevin Gutknecht (Comm)	<input type="checkbox"/>
Wayne Fingalson (Wright County)		<input checked="" type="checkbox"/>	District	Kent Bernard (Metro)	<input type="checkbox"/>
Municipal			Design:		
James Koslucher (Fridley)		<input type="checkbox"/>	PCMG	Mark Waisanen (D-4)	<input type="checkbox"/>
NCATSSA			State Aid:		
Emily Fisher (NCATSSA – Etranstech)		<input type="checkbox"/>	District	Vacant	<input type="checkbox"/>
Jay Blanchard (NCATSSA - Safety Signs)		<input checked="" type="checkbox"/>	Worker Safety:		
Ken Russell (NCATSSA - 3D Specialties)		<input checked="" type="checkbox"/>	Central Office	Todd Haglin (Safety)	<input checked="" type="checkbox"/>
Gary Clark (NCATSSA - 3M)		<input type="checkbox"/>	District	Doug Thies (Metro)	<input checked="" type="checkbox"/>
Lynn Berg (NCATSSA – SignCAD)		<input checked="" type="checkbox"/>	Traffic Engineering:		
Contractors			Central Office	Peter Buchen (OTST)	<input checked="" type="checkbox"/>
Frank Weiss (Shafer Contracting)		<input type="checkbox"/>	District	Tiffany Dagon (Metro)	<input checked="" type="checkbox"/>
TTC / IWZ Services			District	Mike Engh (Metro)	<input checked="" type="checkbox"/>
Tim Lewis (Highway Technologies)		<input checked="" type="checkbox"/>	District	Kevin Schmidt (D-3)	<input type="checkbox"/>
John Story (Traffic Technologies)		<input type="checkbox"/>	District	Jeff Rieder (D-6)	<input type="checkbox"/>
Mike Granger (Street Smart Rental)		<input checked="" type="checkbox"/>	District	Tom Miles (D-6)	<input type="checkbox"/>
Eric Johnson		<input checked="" type="checkbox"/>	Subs Attending:		
LTAP			Dan Penn	Representing:	
Kathy Schaefer (LTAP)		<input checked="" type="checkbox"/>	John (Woody) Bear	Resident Engineers	
Minutes page 9 of 9				Shafer Contracting (Frank Weiss)	
			Guests Attending:		
			Bob Rabine	MnDOT Golden Valley Const.	
			Steve Anderson	Street Smart Rental	

Potential New Strategies

1. **“Additional” Extra Enforcement** – Statewide MnDOT provides about \$300,000 annually for law enforcement within the construction work zones. This amount could be increased. This is a proven strategy that works.
2. **Expand Work Zone Reviews to include Peers** – Currently MnDOT conducts work zone reviews through Central Office experts and FHWA. These reviews could be expanded to include peers from others districts to improve work zone safety and provide a learning opportunity for District construction and maintenance staff.
3. **Investigate new Work Zone protection barriers** – Some new portable personal protection devices have recently been developed. MnDOT should investigate these and determine if they are a viable option for their operation.
4. **Increase fines** – Some states have increased their fines for speeding in a work zone. Minnesota currently doubles the fine when a worker is present. Other states have fines of \$1000 for speeding, \$10,000 if a worker is killed, or other criminal penalties increased. Unfortunately, the research has shown that increased fines or penalties have little or no affect on driver behavior. In other words, this may be a feel good measure with no improvement.
5. **“Pilot Project” Electronic Enforcement of Speed Limits** - Illinois has implemented electronic enforcement and other states have tried some “pilot projects”. Illinois found this strategy to be slightly better than having a police officer on site. Motorists are clearly warned that they are approaching an electronic enforcement site. Illinois researched showed a 7.13 mph speed reduction when an officer is on site and a 7.87 mph speed reduction when electronic enforcement (with proper signage) is used.
6. **No Cell Phone Use in Work Zones** – Some states have passed laws for no cell phone use in work zones or school zones. No research has been conducted to determine the effectiveness of this strategy.
7. **Work Zone intrusion alarms**
8. **More Public Education**
9. Deploy a **CMS with Radar** at the beginning of WZ and have the message change to “SLOW DOWN” flashing if a vehicle is approaching at a high speed.
10. Assign one person to be the **“Safety Monitor”** to watch traffic and alert workers of a possible vehicle intrusion.

Current Strategies to Improve Work Zone Safety

- **Extra Enforcement** - Since the early nineties, MnDOT has partnered with the State Patrol to provide extra enforcement to control speeds and make our work zones safer. The use of law enforcement in our work zones has been found to be the best way to achieve speed reduction. Minnesota spends more money than any other state in the upper Midwest in providing law enforcement in our work zones.
- **Work Zone Safety Field Reviews** - The Office of Construction and Innovative Contracting (OCIC) performs work zone safety field reviews in every district each year. This review including meeting with district personnel in order to identify work zone safety problems, developing solutions, providing recommendations on field practices, and sharing new approaches so that proper traffic control is practiced on all state highway projects. FHWA also participates in these safety reviews and a report is generated. Identifying any concerns and addressing them as soon as practical improves the safety for both the motorist and the workers.
- **Training** - Since the early nineties MnDOT has led one of the largest worker training efforts in the country. Virtually all personnel working in the area of traffic control have been through comprehensive training. This includes traffic designers and both MnDOT and contractor construction personnel. A great emphasis is placed on the safety of the motorist.
 - **Required Work Zone Orientation Training** - All MnDOT personnel must take an Orientation to Work Zone Safety internal e-learning course prior to working or visiting a project out in the field.
 - **Traffic Control Overview and Supervisor Certification** - Traffic Control Overview and Traffic Control Supervisor Certification are two courses open to MnDOT personnel, local agencies, consultants and contractors. Topics covered in these courses include: principles and setup of temporary traffic controls, summary of traffic control special provisions for MnDOT projects, work zone speed limits, use of portable concrete barrier and protection of drop-offs.
 - **Additional Courses** - Flagger Trainer Training, “Field Manual” Temporary Traffic Control Zone Layouts.
- **Public Education** – MnDOT has a robust work zone safety campaign aimed at educating motorist to about the dangers of work zone including the “Stay Back Stay Alive” and “Pay Attention or Pay the Price” campaign. MnDOT provides the Work Zone Safety Awareness Program “WZSAP”, formally known as the Speakers Bureau. This program is offered to help promote safe driving in winter and summer highway work zones. Presentations are given at 55 Alive and Driver Education classrooms by MnDOT personnel.
- **Detours** – In recent years MnDOT has been utilizing more detours on projects which create a much safer environment for both the motorist and the workers.
- **Portable Concrete Barrier** - The barrier reduces motorist’s exposure to dangerous drop-offs and other temporary hazards.

- **Daily Contractor Logs** - Specifications require the contractor to write out a daily log which documents any traffic control deficiencies, and corrective action taken, and is given to the project personnel.
- **Improved Traffic Control Devices** - Traffic control devices such as drums and temporary signs have seen improvements. Crash testing has made the devices safer when hit and new retroreflective sheeting has made them much more visible, especially at night.
- **Incentives to Reduce Exposure** - A number of Innovative Contracting methods are being used which helps reduce the overall contract time. This improves safety by reducing the durations of work zone activity therefore, minimizing the worker and driver exposure.
- **Work Zone Safety Awards** - Work Zone Safety Awards are given each year to recognize projects that have made exceptional efforts to promote work zone safety practices.
- **Intelligent Transportation Systems (ITS)** - ITS systems provide motorist with information as they enter the work zones. Delay time, travel time, stopped traffic ahead and truck entering systems all inform the motorist of what to expect ahead as they enter the work zones, which creates a safer environment.
- **Statewide Work Zone Groups** – Continuous improvement in Work Zone Safety takes a high level of commitment. The following four groups are responsible for implementing many of the recommendations from field and process reviews.
 - Statewide Work Zone Safety Committee - Includes key MnDOT employees and stakeholders external to MnDOT.
 - Special Provisions Annual Update - Annual workshop to review and improve the Standard Special Provisions for time and traffic and traffic controls used for the development of construction projects.
 - Traffic Engineering Organization Work Zone Safety Committee - Reviews and approves traffic engineering standards and guidelines related to temporary traffic controls.
 - Resident Engineers Work Zone Safety Advisory Committee - Reviews and approves work zone safety and TTC special provisions and project related issues.
- **Worker Memorial** - When a fatality does occur in a MnDOT Work Zone it is tragic. One way we honor these victims is to recognize them each year on Worker Memorial Day and place their name on a plaque in our Worker Memorial Monument and Kiosk.