

## Statewide Work Zone Safety Committee Meeting

October 20, 2009 – Arden Hills Training Center

### Attendees:

The attendance roster is listed at the end of these minutes. The list includes members & guests.

### Announcements:

A few changes in the membership listing:

- Ken Johnson has taken Jon Jackels previous position as Work Zone & Pavement Marking Engineer within the Office of Traffic, Safety & Technology. Ken has assumed the responsibilities of Committee Coordinator for this committee.
- Bob Winter (Division Director for Operations) retired and Sue Mulvihill has taken his place on the Executive Committee.

*The following status reports were presented for Previous Action Items and Round-Robin Topics:*

### State Patrol:

- Major Al Smith reported no major safety concerns were noticed in work zones during the previous construction season. The only issue that was reoccurring, but unavoidable, is temporary flooding during storms. It is understood that temporary grades are seldom adequate for drainage during heavy storms, but he just wanted to note that the patrol needs to react to these conditions and anything that could minimize this condition would improve their workload during bad weather conditions. In general, the patrol has seen good response time on any issues that have been reported and communication channels to project personnel has improved.
- Al mentioned that there have been a lot of questions about merging the State Patrol dispatch centers. He let the group know the following:
  - 10 current dispatch centers will be consolidated into 2
  - Technology allowed this to take place
  - The State Patrol feels that this will result in better staffing and service
- Al was questioned on the patrols views on the Late Merge (zipper) strategy and he responded that the State Patrol likes the late merge concept, but they are still seeing confusion between drivers for the proper time to use the procedure. As reported previously, the confusion during congestion continues to fuel “Road Rage” incidents. He also mentioned that some backups were 10 miles long. The Patrol would like to see more statewide publicity on what the late merge concept and more explanation that “using both lanes” is legal and is safer during backups.

### TTC Services - Northland ATSSA:

- Jay Blanchard reported that Northland Chapter of ATSSA will be conducting its annual “How-To” Conference in Fargo North Dakota on March 16-17, 2010. To expand NCATSSA’s role in providing training on pertinent TTC, signing and pavement marking topics, they are adding extra sessions:
  - A striper operators’ training-networking session will be added on Monday afternoon (March 15) before the “How-To”. This session will be designed for public and private striper operators to meet and discuss techniques, problems and tricks-of-the-trade, and

meet with industry representatives for the various equipment and materials used everyday by these operators.

- On Wednesday afternoon and a full-day on Thursday (March 17-18), NCATSSA has included training on the National Sign Management Program which includes issues on sign retro-reflectivity requirements. There will be an additional registration form & fee for this session.
- NCATSSA is willing to work with state and local agencies to help provide and develop training opportunities in any topic related to NCATSSA members.

#### **Worker Safety:**

- Todd Haglin reported that the department has a new contract for HI-VIS garments including hard hats, gloves and a better selection of winter hats. The September 2009 directive mandates that employees HI-VIS garments be purchased by the state and must have a Mn/DOT logo. Any non-state issued garment may be utilized until worn-out, or June 2011, whichever ever comes first. Any current HI-VIS non-logo garments should be utilized as best appropriate now and will need to be replaced prior to June 2011.

#### **Public Affairs:**

- Kent Bernard reported on the complaints that have been received about various projects where signing was confusing. The discussion turned to public education on the late merge concept and when – where – how to do it. The “During Backups, Use Both Lanes” message is either being ignored by truckers or missed. The committee discussed various options to inform the truckers and other motorists about the late merge concept and inform them that it is illegal to block traffic. Our TTC members gave the CB Wizard and HAR as the best ways to communicate to the truckers and motorists about the proper way to handle the merge.

**ACTION ITEM:** The TEO WZ Safety Committee will investigate the various options to communicate with the truckers and other motorists and inform them of the proper and legal late merge etiquette. Concepts will be discussed with industry and the communications partners.

#### **Permits:**

- Since our previous permits representative passed away in 2008, the SWZSC has had a vacant representative position from the Permit Committee (PERCOM). Ed Barrett from the Metro Permit Section attended this meeting as a temporary representative, but a replacement has not been determined by PERCOM yet.

**ACTION ITEM:** Ed Barrett will report back to PERCOM and ask for their recommendation on a replacement representative for the SWZSC meetings. The representative should be able to attend each of the 2 semi-annual meetings (Fargo in March and at AHTC in October of each year) and routinely relay information between the two committees.

**Maintenance:**○ **Flashing Arrow Panel (FAP) Compliance:**

**Background:** At the March 2008 meeting, the Maint WZSC reported that districts are complaining about the relatively poor condition of the electronic TTC devices. The SWZSC proposed that Steve Lund should request all District Area Maintenance Engineers to review their current fleet for equipment which is non-compliant to the MnMUTCD, TEM, or other state policies/standards/specifications. A plan of action would need to be made by each district to replace deficient equipment within a timeline with special attention made to flashing arrow panels. Steve issued a letter to every District with a deadline of December 31, 2008 for their FAP inventory information. The letter also asked for each district's plan to upgrade their fleet with a target compliance date of June 30, 2010. It was pointed out that only equipment models listed on the Approved Product List (APL) are considered compliant unless it was determined to meet standards. The inventory lists were received from most districts and a majority of the FAPs are older than 2004 models and are not on the current APL. The APL was updated in 2004, and only models currently being manufactured were included on the list. It was noted that many devices may be old, but still meet standards. Steve turned the inventory over to OTST for review and non-complaint equipment was studied by John Benson with assistance by Ken Nelson and Sue Lorentz. With 6 of 8 Districts reporting, Mn/DOT has at least 292 Flashing Arrow Panels, of which 204 are not currently on the APL.

John Benson reported that they reviewed a sampling of models that represent the majority of units. It is assumed that they would find particular models that would fail and some models may be approved to be included on the APL. However, they found that the actual make/model of many FAPs could not be identified, which makes blanket recommendations for particular makes/models nearly impossible. They also found that even for makes/models that could be identified; there was no consistency on whether the device performed satisfactorily or not. Example: a WANCO model found in D-6 was judged as failing with very poor bulb brightness, while the same model found in Metro performed extremely well and would pass any inspection. The review team identified several maintenance and operational factors that may contribute the performance levels and prepared a preliminary report on their findings for the SWZSC's review.

**ACTION ITEM:** OTST will finalize their report to Maintenance and they will work together to develop a FAP Inspection Procedure that each district should conduct on their fleet to determine which units need replacement. The APL will not be modified for these older makes/models, but the "inspection" should be recorded for each unit's approval. OTST and Maint will continue to work on this issue and will report progress at future meetings.

○ **Truck/Trailer Mounted Attenuators (TMA):**

**Background:** At the October 2008 meeting, it was determined that the Statewide Maintenance WZS Committee (MWZSC) should resolve the TMA Test Level requirement issue for replacement programs. The issue: Utilizing NCHRP 350 testing procedures, TMAs may be approved at two levels of crash testing based upon speed of the crash vehicle in relation to the TMA. The test levels are TL-2 crashed at a speed differential of 45 mph and TL-3 which uses a speed differential of 62 mph. Currently, Mn/DOT utilizes both TL-2 and TL-3 TMAs in its fleet. At the March 2009 meeting, Randy Reznicek, for the MWZSC, reported the committee recommends that the following program be implemented for the replacement of Truck/Trailer Mounted Attenuators (TMA):

**Guidance:** the districts are directed to start a program that will result in only using TL-3 TMAs on higher volume and higher speed roadways. It is the goal to accomplish this result (only TL-3 TMAs on higher volume and higher speed roadways) before December 31, 2014.

Until the inventory of TL-3 TMAs is to this point, the districts shall adopt the following course of action:

- All TMAs damaged beyond repair shall be replaced with a TL-3 TMA.

- TL-2 TMAs that are assigned to a lower speed lower volume roadway that are damaged beyond repair shall be replaced with an existing TL-2 from a freeway or expressway, therefore, providing an opportunity to replace an existing TL-2 assigned to the freeway or expressway with a TL-3 TMA.
- TL-2 TMAs shall not be used on Mn/DOT's high speed/high volume roadways beyond December 31, 2014, except where TL-2 TMAs have been approved for special purpose assignments following a risk analysis study.

The above recommendation to upgrade Mn/DOT's fleet of TMAs to TL-3 was presented to the District AMEs for their comments and approval the recommendations before being processed in a Maintenance Bulletin. The date as shown above is still to be determined. Although there is not an immediate concern to upgrade the fleet, the SWZSC wants a compliance date be included to ensure that the upgrade process is accomplished. The AMEs wish to study other issues that have been raised concerning TL-3 units on turning and mounting problems before mandating a fleet upgrade to TL-3 TMAs.

**ACTION ITEM:** The Statewide Fleet Management Group will be given the task to address the issues concerning TL-3 level TMAs before mandating a compliance date for the fleet. Some of the issues the group should address include:

- 1) There is a variety of TL-3 level TMAs available on the market with a variety of mounting methods. The group should determine if the TL-3 units can fit Mn/DOT's fleet of vehicles without major vehicle modifications and if they allow interchangeability between vehicles.
- 2) TL-3 level TMAs are generally larger than TL-2 units which prevents tailgate mounting of the unit. The group should determine whether there is any turning radius or tracking issues on the larger TL-3 units that can not be resolved, therefore limiting our usage.
- 3) The fleet of TMAs will need to be upgraded over a time schedule. The group should determine a deadline for fleet compliance on designated roadways.

The findings of the Fleet Management Group should be reported to the committee at future meetings.

o **LED Lightbars/Beacons:**

**Background:** Over many years LED Beacons have been reviewed and repeatedly refused from usage on our Maintenance light-duty and medium-duty truck fleet because the LED versions lacked the brightness punch needed in bright sun-light conditions and the narrow viewing angle made 360° viewing impossible. LED technology has improved considerably over the last few years and District 6 requested trial usage on several medium duty vehicles. Ryan Otte formed a committee consisting of individuals from the offices of Traffic, Construction, Maintenance and the District to conduct the study. A literature search was completed for research on human factors needs for brightness and/or other means to measure the performance of the LEDs and nothing satisfactory was found for an approval process. It was determined that only a field review under extreme lighting conditions would provide side-by-side comparison to a standard "twin-rotator" beacon commonly used by Mn/DOT on most of its light & medium duty trucks. They also conferred with State Patrol on lessons learned regarding LED beacons during winter conditions and visibility issues. Since LED lightbars do not generate heat, snow does not melt off the lightbars. Two major lightbar manufacturers provided models for evaluation. The committee invited many interested individuals to the MnROAD facility where we conducted a side-by-side comparison field review. Each lightbar was reviewed for conspicuity at various distances and viewing at 360° around the vehicle. The evaluations and comments were reviewed by the committee and recommendations were made.

Ken Nelson (for Ryan Otte) presented the committee's report to the SWZSC. The committee recommended that 4 models (2 from each manufacturer) be approved for use on

light and medium duty vehicles in the state fleet. At this time, it was determined that our larger snow/ice equipment can not utilize the LED lightbars because of the snow does not melt off.

**ACTION ITEM:** The committee will get the 4 approved models onto the current APL for vehicle lights. Adding these 4 models to the APL would allow contractors within state work zones to utilize these models on their construction vehicles with no vehicle size restriction. A Maintenance Bulletin will be needed to restrict the approved LED lightbars from snow/ice equipment. The committee will also establish an annual review for new vehicle lightbar/beacon products to be added to the APL which will include a procedure for advertising the review and conducting the review.

o Statewide Vehicle Lighting Committee:

Metro District maintenance raised a question regarding the standards for vehicle lighting packages statewide: Is there any group or committee assigned the responsibility to determine standards for Mn/DOT's fleet? It is assumed that this group would set Mn/DOT standards or policy on vehicle lighting packages to provide uniformity between districts. The SWZSC could not identify a specific responsible group.

**ACTION ITEM:** The SWZSC recommended that the Maintenance Office determine 1) if the need for a Statewide Vehicle Lighting Committee exists and 2) if a group is needed, then explore the possibilities on who should have that responsibility.

o Work Zone Inspections:

Ken Nelson reported that at the last AME meeting, a presentation was given by the D-1 Work Zone Safety Coordinator, Sarah Sondag, which explained a WZ review process that D-1 has begun. The process included the district's work zone safety coordinator randomly visiting work zones around the district. It was proposed that the work zones would be both maintenance and construction work zones. Two draft forms were presented to the SWZSC and they involved varying degrees of detail. The Office of Maintenance will continue to work with this concept to develop a workable process for reviewing work zones on a statewide basis.

**ACTION ITEM:** The SWZSC recommended that the Office of Maintenance continue to pursue the development of the WZ review process. Since construction currently has a field review process, it was recognized that the proposed inspection process for construction projects may require additional refinement before any implementation and the committee recommended that Pat Huston (Resident Engineer – Duluth) work with the group.

**Maintenance WZS Committee:**

- o Randy Reznicek reported that D-3 has received a set of six portable rumble strips developed by PSS Inc. called "RoadQuake". District 3 will work with OTST to study various deployment scenarios and determine the optimum layout for the rumble strip usage. Since the delivery came late in the season, the study will be delayed until next spring/summer.

**ACTION ITEM:** Randy will work with Marv on possible testing procedures that could be planned. Randy will give the SWZSC updates on the plan/study/results at future meetings.

**State Aid:**

- Holding Locals to State WZ Standards while working on State R/W:

**Background:** During the OCT 2007 Meeting, it was noted that since more local governments are funding projects that involve state highways (directly or in-directly), an issue has surfaced on local work within state R/W. Projects using local funds generally are not required to follow the TEM (state standards) or our typical special provision language, and they have been observed to allow sub-state standard work zone practices when they are on state R/W. It was proposed that all state standards (and/or other current tech memos), should apply to all projects within state R/W regardless of the funding source. It was concluded that the issue needed to be researched and proper language drafted.

**ACTION ITEM:** Ken Johnson will research the current need for action. One issue, requiring crashworthy sign supports, has been resolved with the MnMUTCD compliance dates for local governments on work zone safety issues coming due or passing since this Action Item was first created. Other issues may have been negated since this topic was first noted. Further action, if any, will be determined.

- It was noted that the municipal representative for the SWZSC is currently vacant since Gary Shannon left the committee.

**ACTION ITEM:** Mark Vizecky will contact the cities for a municipal representative on the committee.

**Construction – OCIC:**

- The Resident Engineer representative for SWZSC is currently vacant since Jeff Perkins, Steve Kordosky and Kevin Kosobud have all taken different positions. Trudy Kordosky has become the representative for outstate districts. Steve Kordosky has remained on the committee although he currently is working in a different position, but attendance is difficult. Curt Kallio from the Metro Mendota Office was asked to attend this meeting to represent the Metro area, but the SWZSC would appreciate a clarification on who will be the “official” contact person.

**ACTION ITEM:** Craig Mittelstadt will contact the Resident Engineers Group for the name of the representative on the SWZSC for the Metro area.

- Tom Ravn reported that OCIC will be experimenting with Value Engineering on a Duluth project prior to letting. Generally, ‘value engineering’ is utilized by contractors to suggest improvements in procedures and they share in the cost savings. The experimental usage will attempt to value engineer the improved procedures into the project before letting such that all bids will reflect the improved methods, materials, etc.
- Craig Mittelstadt reported on several issues that the Specials Provisions Committee recently reviewed including:
  - Flagging and Pilot Car Operations involving language changes in the 1404 boilerplate on flagging operations and a new flyer templates with information describing pilot car operations to be distributed to area residents in the vicinity of the project
  - Contractor operations over open traffic lanes are intuitively hazardous and Mn/DOT forces are restricted from such operations, but no written rules, laws, or policies are available that specifically forbid the operation. The SWZSC could not give any additional advice on pertinent documents to reference. No action item was given to the SWZSC.

- Craig mentioned that the shoulder rumble strip installation operation has presented a hazardous traffic condition when the contractor has allowed the operation to spread out too far. He reported that he watched the same operation in the D-4 area where they restricted the length of the operation to a compact area (easy for traffic pass) and kept their flaggers in the proper locations for traffic to safely see them and react. He reported that they used Layout #7 and closely adhered to the work space maximum distance. He is recommending that Layout #7 be referenced in all similar moving operations in the future.
- Inexperienced TTC Service Personnel on Construction Projects:  
**Background:** Craig reported that this summer, he has witnessed several cases where the contractor has rented the TTC devices for the project and attempted to provide the TTC without the aid of an experienced TTC service contractor. In most, if not all, cases the TTC quality was below acceptable standards and in at least one case, the contractor needed to hire a TTC service contractor to get the operation into acceptable condition to continue with the project.

The SWZSC discussed the issue and debated what could be done to discourage contractors from attempting to provide TTC services without qualified personnel or how the state could ensure that qualified personnel are responsible for the TTC. Possible solutions could include training certification of TTC personnel, certification for the contracting company, requiring a TTC Service Contractor provide the service, or other possibilities.

**ACTION ITEM:** OCIC will work with other offices and interested partners to develop a workable solution to the low-quality TTC issue. OCIC should review our state practices for quality assurance of TTC. After discussion, a combination of training, experience, record keeping, and enforcement on some form of certification appears to be the most viable solution to be phased in over 1-3 years. Updates will be provided to the SWZSC.

#### TTC Training:

- Regarding training conducted through the Office of Maintenance and LTAP, Ken Nelson reported that between 2800 to 3000 people have now been given Field Manual training by the combination of Kathy Schaefer, Sue Lorentz and/or himself. This includes Mn/DOT maintenance workers, cities & county workers and utility workers.
- Leigh Kriewall reported that OCIC will conduct the following classes in 2010:
  - Temporary Traffic Control Overview (one day course in February)
  - TTC Supervisor Certification (3 day course in March)
  - Inspector Academy (5 day course in March – approx. half will be about TTC)
- Tom Behm questioned whether the training provided to Adopt-A-Highway volunteers was adequate before they are allowed to work on our R/W? It was mentioned that Jan Ekern has a DVD for the volunteers, but no checks on whether it was viewed or followed.

#### Management Groups:

- DE and PCMG – no reports
- OMG – John Howard re-emphasized the issues Maintenance is having with upgrading their TTC devices to the newest levels while working with current budget restraints.
- CMP – Mark Panek also re-emphasized issues found elsewhere in these minutes regarding the need to review new technology such as our approval of LED Beacons. He also is concerned with the growing number of unqualified contractors providing the TTC for projects.

**Traffic Engineering:**

- Marv Sohlo reported on several issues that the TEO WZS Committee has been addressing at their recent meeting including:
  - The committee developed specialized TTC Layouts for bridge inspection operations. The layouts were created from basic Field Manual Layouts to provide a standard layout that can be followed by whichever agency is providing TTC for the bridge crew. The layouts provide enhanced options for warn motorists of the operation and slow traffic in the vicinity of the snooper trucks by incorporating Dynamic Speed Display (DSD) signs (also known as “Your Speed” signs). Since it is imperative that these trucks do not get bumped while crews are inspecting, extra buffer space and protection vehicles have been added to the layouts and tighter channelizing spacing.
  - The committee reviewed a suggestion for calming traffic approaching a flagging operation which recommends narrow channelizing devices (such as Weighted Channelizers) be placed on centerline prior to the flagger station. This placement should also help alert distracted drivers to the work zone condition. The committee agreed that the information should be distributed to several maintenance crews for trial usage and adjustment of the design for optimum results. This could eventually be added to the Field Manual as an option for traffic calming and inattentive driver mitigation.
  - The committee approved the TTC layout design for using DSD sign trailers. The design which calls for the trailer to be located approximately 500 feet before the work crew, is preliminary and will be field tested by OTST and adjusted as needed.
  - The committee reviewed an early draft of new TEM language for Temporary Business Signing (Chapter 8-5.02.03). Many comments were made and a rewritten draft has been developed. Marv distributed this draft to the SWZSC, but noted that the TEO WZSC will be reviewing it in November, and it will be red-lined. Prior to being placed in the TEM, the new language will need to be approved by the TEO Exec Committee. The document provides new options for business signs including types of signs and sizes, but the over-all number of business names per sign assembly has not increased substantially. The document provides guidance on developing trail-blazing and the types of signs that may be used to direct motorists to the businesses.

The complete minutes for the TEO WZSC meetings are online:

<http://www.dot.state.mn.us/trafficeng/workzone/index.html>

- Marv presented the highlights from the District Feedback meetings conducted this fall. The Feedback Team visited Bemidji, Willmar and Mankato this year. Seven of the eight districts have been visited (2008-09) and Metro will be covered in 2010. Highlights included:
  - Best Practices: The Speakers Bureau is alive and well in Bemidji and the District’s “slush-fund” is being tapped for small purchases of roadway safety promotional give-away objects, such as pencils, which help promote safety with kid’s groups, and driver education classes. Another practice that has reduced work zone delays is using double pilot car operations, which provides a pilot car moving in both directions. If the proper conditions allow this operation, it effectively allows the work zone length to double with the same maximum delay.
  - Suggested topics that need attention included the Mn/DOT website A-Z, which does not provide adequate coverage of topics that are found on our website, and the search function is inadequate. Training in TTC was seen as a major need for permit

operations, and it was suggested that LTAP and online instructs be provided. Other topics included ADA guidelines and Business Signing Guidelines.

- The PACs echoed an issue from last year. The mandatory Governor's review of all press releases has slowed our response to public information on construction and maintenance projects and in many instances the information has been edited to the point that the message's meaning was changed or lost. The Team is aware that the PACs are attempting to get the system streamlined, but it was felt that the report should include the issue as important for timely information to the public on work zones.

The Summary Report from the 2008 Feedback Visits is available online.

[http://www.dot.state.mn.us/trafficeng/workzone/Process Review 2008.pdf](http://www.dot.state.mn.us/trafficeng/workzone/Process%20Review%202008.pdf)

- Sue Groth reported that OTST has funded the conversion of Cone-Zone Software into Minnesota MUTCD standards. Cone-Zone is developed by SignCAD and automates the drawing of a TTC plan layout. Ted Ulven explained that the software allows the TTC technician to utilize any base map or aerial photo, such as from Google Earth, and after drawing the basic alignment line on the map and location of the work area, the software will draft the location of required TTC devices and tabulate the quantities of devices.

**ACTION ITEM:** Ted Ulven will be reviewing the software and will set up a software demo/class for Cone-Zone. Representatives from Mn/DOT and the county will be invited.

#### **District Traffic:**

- Jeff Rieder reported that D-6 utilized the late merge (zipper) concept on two project sections along I-35 this previous construction season. The reports he received from State Patrol were positive regarding work zone crashes. They had predicted 6-7 mile double lane queues and placed their signing ahead of the queues accordingly starting at 8 miles. Patrol reports that rear-end crashes were basically non-existent. However, they still see truckers attempting to control both lanes by straddling or sis-by-side operation. As mentioned by Kent Bernard, we need to educate the truckers on the late merge concept.
- Jeff mentioned that D-6 tried the J-Turn for a temporary traffic maneuver on TH 52 at Canon Falls. It appeared to work for its intended purpose, but they did experience confused motorists on switching lanes to complete their route choice including the thru traffic on TH 52. Although it created challenges for truckers to make the turn, it saved approximately 10-15 mile of detour.

#### **Next SWZSC Meeting:**

**March 15, 2010 in Fargo North Dakota**

**A meeting notice will be sent out in the near future.**

**ACTION ITEM:** The SWZSC Coordinator, Ken Johnson, will be following up with each action item and providing a monthly status report to the Executive Committee for review.

Refer to the following link for all current Work Zone information, standards, and documents, including the SWZSC information, such as previous meeting minutes and announcements.

<http://www.dot.state.mn.us/trafficeng/workzone/index.html>

**Statewide Work Zone Safety Committee Attendance – Oct 20, 2009**

present:

<b>Co-CHAIRS:</b>	Mike Robinson (Duluth - Director)	218-725-2704	<input type="checkbox"/>	
	Sue Groth (OTST - Director)	651-234-7004	X	
<b>EXEC. COMM.:</b>	Bernie Arseneau (Division Director)	651-366-4838	<input type="checkbox"/>	
	Mike Barnes (Division Director)	651-366-4825	<input type="checkbox"/>	
	Sue Mulvihill (Division Director)	651-366-4814	<input type="checkbox"/>	
	Tom Ravn (OCIC - Director)	651-366-4228	X	
	Steve Lund (Maint - Director)	651-366-3566	X	
	Cassandra Isackson (OTST – Asst Director)	651-234-7010	<input type="checkbox"/>	
	Rick Kjonaas (SALT - Asst Director)	651-366-3802	<input type="checkbox"/>	
Committee Coordinator:	Ken Johnson (Mn/DOT/OTSO/WZ)	651-234-7386	X	
<b>EXTERNAL PARTNERS:</b>				
Enforcement:	Major Al Smith (DPS – State Patrol)	651-201-7109	X	
FHWA:	<b>VACANT</b> (FHWA)		<input type="checkbox"/>	
County:	Wayne Sandberg (Washington County)	651-	<input type="checkbox"/>	
	Adam Bruening (Washington County)	651-430-4398	X	
Municipal:	<b>VACANT</b>		<input type="checkbox"/>	
NCATSSA:	Jay Blanchard (NCATSSA - Safety Signs)	952-469-6700	X	
	Ken Russell (NCATSSA - 3D Specialties)	701-293-8599	X	
	Gary Clark (NCATSSA - 3M)	651-592-2062	X	
TTC / IWZ Services:	Eric Johnson (Traffic Technologies)	612-363-7475	X	
	John Story (Traffic Technologies)	612-770-9151	<input type="checkbox"/>	
	Tim Lewis (Highway Technologies)	612-521-4200	<input type="checkbox"/>	
	Lynn Berg (SignCAD)	952-544-9559	<input type="checkbox"/>	
	Mike Granger (Street Smart Rental)	651-653-4648	X	
LTAP:	Jim Grothaus (LTAP)	612-625-8373	<input type="checkbox"/>	
Consultants:	Larry McKenzie (URS)	612-373-6315	<input type="checkbox"/>	
	Gary Thompson (URS)	612-345-2643	<input type="checkbox"/>	
AGC:	Frank Weiss (Shafer Contracting)	651-257-5019	<input type="checkbox"/>	
Utilities:	<b>VACANT</b>		<input type="checkbox"/>	
<b>INTERNAL PARTNERS:</b>				
Construction:	* Craig Mittelstadt (OCIC/Spec. Provisions Comm.)	651-366-4222	X	
Speaker Bureau	Leigh Kriewall (OCIC/Training)	651-366-4217	X	
Resident Eng	<b>VACANT</b> (Const/Metro)		<input type="checkbox"/>	
Resident Eng	Trudy Kordosky (Const/Outstate)	218-846-3624	<input type="checkbox"/>	
Maintenance:	* Ken Nelson (Mn/DOT/Maint Training)	651-366-3568	X	
Metro Maint	Sue Lorentz (Maint/Metro WZ Safety Comm.)	651-775-0309	X	
Outstate Maint	Randy Reznicek (Maint/State WZ Safety Comm.)	320-223-6568	X	
Permits	<b>VACANT</b> (PERCOM)		<input type="checkbox"/>	
Public Affairs:	Kevin Gutknecht (OPA)	651-366-4264	<input type="checkbox"/>	
District	Kent Bernard (Communications/Metro)	651-234-7504	X	
PCMG	Mark Waisanen (Design/D4)	218-846-3606	<input type="checkbox"/>	
CMG	Mark Panek (CMG/D6)	507-446-5603	X	
OMG	John Howard (AME/Metro)	651-234-7904	X	
SALT:	* Mark Vizecky (Mn/DOT/SALT)	651-366-3839	X	
District	Thomas Behm (SALT/D8)	507-537-2044	X	
Worker Safety:	Todd Haglin (OMCS)	651-366-3079	X	
District	Doug Thies (Safety/Metro)	651-366-5199	<input type="checkbox"/>	
Traffic Engineering:	* Marv Sohlo (OTST/TEO WZ Safety Comm.)	651-234-7380	X	
OTST	John Benson (OTST/Approved Products)	651-234-7371	X	
OTST	Ted Ulven (OTST/WZ & PM Standards)	651-234-7058	X	
District	Mike Engh (Traffic/Metro)	651-234-7870	<input type="checkbox"/>	
District	Kevin Schmidt (Traffic/D3)	218-828-5771	<input type="checkbox"/>	
District	Jeff Rieder (Traffic/D6)	507-285-7381	X	
<b>GUESTS:</b>	Metro Permits	Ed Barrett	651-234-7912	X
	Safety Signs	Reed Leidle	952-797-4792	X
	Metro Construction	Curt Kallio	651-775-1168	X
	Metro Maintenance	Sheila Johnson	651-234-7935	X

\* Functional Advisors to Executive Committee