



**MINNESOTA TOWARD ZERO DEATHS**

## Welcome to the Minnesota TZD Stakeholder Breakfast

July 12, 2017  
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**MINNESOTA TOWARD ZERO DEATHS**

## Minnesota TZD Stakeholder Breakfast

July 12, 2017

### Work Zones - What do the 4 Es Need to Know?

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## Work Zone Safety...

- Work Zones are everywhere!
- How can we possibly make Work Zones safe for everyone?
- What does Enforcement, Education and Emergency Services have to do with Construction Work Zones?
- Are we doing everything we possibly can to make our Work Zones as safe as possible?
- Changing / improving is time-consuming & a lot of work.
- From the Work Zone perspective, what are the challenges, unintended consequences, best practices and what discussions are happening “behind the scenes”?



## “The 4 Es”

**Education** – Changing driver behavior & ensuring an understanding of the rules of the road

**Emergency Medical** – When a crash occurs - fast, efficient and coordinated emergency response

**Enforcement** – compliance with traffic laws and reducing unsafe driving practices

**Engineering** – Designing and building safe / “forgiving” roadways

## MINNESOTA TOWARD **ZERO** DEATHS

### The 4 Es & Work Zone Safety

*On any given day, there are hundreds of active Work Zones in Minnesota, and they operate day & night. When it comes to Work Zones, what do the four E's need to know?*

#### **Education:**

Ongoing public information campaigns to educate drivers, pedestrians and bicyclists about unique characteristics of Work Zones *and the steep fines associated with Work Zone infractions... are we doing everything we can to educate the public about driving Work Zones?*

#### **Emergency Medical services:**

Work Zone planners coordinate to ensure construction projects do not interfere with timely medical services... *what about Emergency Medical in the Work Zones?*



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### The 4 Es & Work Zone Safety

#### **Enforcement:**

Stepped up enforcement, Work Zone Speed Limits, Extraordinary Enforcement... *Are we utilizing Enforcement to the full extent? How does law enforcement know what to do (or not do) when they're in a Work Zone?*

#### **Engineering:**

Narrowed travel lanes, altered road surfaces, temporary configurations, restricted capacity... *We talk a lot about designing safe and forgiving roadways; what about how Work Zones are designed? Are there any unintended consequences or little things we're missing that would make a big difference?*



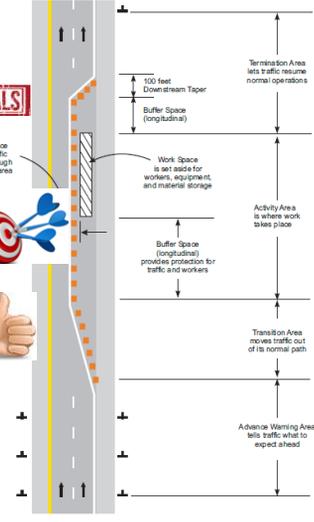
# MINNESOTA TOWARD ZERO DEATHS

## Temporary Traffic Control (TTC)

(hopefully) You've seen this many times....

**What ensures success?**

1. Fundamentals..... **FUNDAMENTALS**
2. Training / Re-training..... 
3. Consistency..... 
4. Case Studies / Best Practices / Specific examples of opportunities to improve ..... 



**Legend**  
 -> Direction of Travel  
 -> Channelizing device  
 -> Work space  
 -> Sign

**Diagram Labels:**  
 -> 100 feet Downstream Taper  
 -> Buffer Space (longitudinal)  
 -> Work Space is set aside for workers, equipment, and material storage  
 -> Activity Area is where work takes place  
 -> Buffer Space (longitudinal) provides protection for traffic and workers  
 -> Transition Area moves traffic out of its normal path  
 -> Advance Warning Area tells traffic what to expect ahead  
 -> Termination Area lets traffic resume normal operations

Figure 6C-1 Component Parts of a Temporary Traffic Control Zone



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## Work Zones defined **FUNDAMENTALS**

Chapter 6 of the Minnesota Manual on Uniform Traffic Control Devices (MNMUTCD) states, *“The primary function of TTC is to provide for the safe and effective movement of road users, through or around TTC zones while reasonably protecting workers, responders to traffic incidents and equipment.*

*Consideration for road user safety, worker and responder safety, and the efficiency of road user flow is an integral element of every TTC zone, from planning through completion. A concurrent objective of the TTC is the efficient construction and maintenance of the highway and the efficient resolution of traffic incidents.*



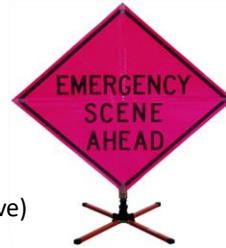
**Minnesota Manual on Uniform Traffic Control Devices**  
**MN MUTCD**  
 February 2015



## MINNESOTA TOWARD **ZERO** DEATHS

### Fundamentals / Training / Consistency / Best Practices

- Are we fully committed to doing everything we can?
- Are we doing the hard, time-consuming work to organize the training, do the training/re-training?



### An Example of what you need to know -

(think about Work Zones from your & your coworker's perspective)

**Temporary Traffic Control Zone** - an area of a highway where road user conditions are changed because of a work zone or incident by the use of temporary traffic control devices, flaggers, uniformed law enforcement officers, or other authorized personnel.

**Safe-Positioned** - the positioning of emergency vehicles at an incident in a manner that attempts to protect both the responders performing their duties and road users traveling through the incident scene, while minimizing, to the extent practical, disruption of the adjacent traffic flow.



## MINNESOTA TOWARD **ZERO** DEATHS

### Fundamentals / Training / Consistency / Best Practices

- Are fully committed to doing everything we can?
- Are we doing the hard, time-consuming work to organize the training, do the training/re-training?



### An Example of what you need to know -

(think about Work Zones from your & your coworker's perspective)

#### 6C.2 Temporary Traffic Control Zones

A TTC zone is an area of a highway where road user conditions are changed because of a work zone, an incident through the use of TTC devices, uniformed law enforcement officers, or other authorized personnel.

An incident zone is an area of a highway where temporary traffic controls are imposed by authorized officials in response to a traffic incident (see Section 61.1). It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident.

When work occurs on a high-volume, highly congested facility, a vehicle storage or staging space may be provided for incident response and emergency vehicles (for example, tow trucks and fire apparatus) so that these vehicles can respond quickly to road user incidents.

Responders arriving at a traffic incident should estimate the magnitude of the traffic incident, the expected time duration of the traffic incident, and the expected vehicle queue length, and then should set up the appropriate temporary traffic controls for these estimates.

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## Traffic Incident Management Recommended Operational Guidelines March 2002



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CHIEFS

### Incident Management Coordination Team

Lt. Cheri Frandrup, MSP  
Susan Groth, Mn/DOT TMC  
Scott Anderson, Maple Grove Fire  
Joe Stoga, Star Training and Consulting  
John Hanzalik, Mn/DOT Maintenance

# MINNESOTA TOWARD **ZERO** DEATHS

## Fundamentals / Training / Consistency / Best Practices

The following outlines the primary roles and responsibilities of the various agencies that respond to freeway incidents.

### Law Enforcement

Responsibilities:

- Assist in incident detection
- Secure the incident scene
- Assist disabled vehicles
- Provide emergency medical aid until help arrives
- Serve as incident commander
- Supervise scene clearance
- Direct traffic
- Conduct accident investigations



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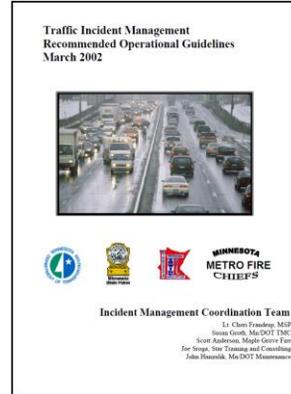
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## Fundamentals / Training / Consistency

### Fire and Rescue

#### Responsibilities:

- Protect the incident scene
- Provide emergency medical care
- Provide initial HAZMAT response and containment
- Suppress fire
- Rescue crash victims from damaged vehicles
- Arrange transportation for the injured
- Serve as incident commander
- Assist in incident clearance



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## Fundamentals / Training / Consistency

### Emergency Medical Services (EMS)

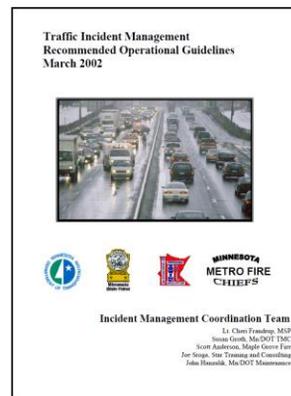
#### Responsibilities:

- Provide advance emergency medical care
- Determine destination and transportation requirement for the injured
- Coordinate evacuation with fire, police and ambulance or airlift
- Remove medical waste from incident scene

### Towing and Recovery

#### Responsibilities:

- Removing vehicles from incident scene
- Protecting victims' property and vehicles
- Remove debris from roadway
- Provide transportation for uninjured vehicle occupants



# MINNESOTA TOWARD ZERO DEATHS

## Incident Management

### Teamwork, Safety, Response, Positioning Vehicles, Warning Lights, Unified Command, Traffic Control & Off Scene Staging

#### 1. Teamwork

While each responding agency has their own role and responsibilities at an incident scene, all agencies should understand and recognize the importance of coordination and cooperation with other agencies.

#### 2. Safety

It is recommended that incident responders wear appropriate high visibility safety apparel (vests, hats) to minimize their risk of being struck by oncoming traffic. Responders should always be aware of traffic moving around the incident scene, especially when exiting any emergency response vehicle.

#### 3. Response

Emergency responders should make every effort to minimize the risk of injury to themselves and those who use the highway system. If possible, responders should respond to the incident with the flow of traffic. Dispatchers should relay specific information about the incident location to help with response. Responders should coordinate their response through their Dispatch to ensure they are needed. It is better for responders to get information through Dispatch than to stop at an incident scene and ask if their help is needed.

#### Traffic Incident Management Recommended Operational Guidelines March 2002



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## Incident Management

### Teamwork, Safety, Response, Positioning Vehicles, Warning Lights, Unified Command, Traffic Control & Off Scene Staging

#### 4. Positioning Vehicles

All vehicles responding to an incident should park on the same side of the roadway and in the same direction as the incident, preferably on either one side of the freeway or the other, not both. Equipment and vehicles arriving on the incident scene should be placed to protect the scene and provide access to needed equipment while only blocking those lanes of traffic necessary.

#### 5. Warning Lights

Use only the necessary flashing emergency lights at the scene of an incident. If possible, have emergency lights activated only to the rear to minimize any unnecessary rubbernecking or gawker slow down. Low beam headlights should be used to light an incident scene to minimize the blinding effect to drivers of oncoming vehicles.

#### Traffic Incident Management Recommended Operational Guidelines March 2002



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## Incident Management

**Teamwork, Safety, Response, Positioning Vehicles, Warning Lights, Unified Command, Traffic Control & Off Scene Staging**

### 6. Unified Command

Upon arrival, each agency should locate the MSP Trooper in charge and coordinate their activities. During major incidents this is often the MSP Lieutenant on duty. The MSP Trooper in charge should set up an easily recognizable command post near the incident where several agencies and private companies can present their recommendations and where response can be coordinated. Agencies should not assume when they arrive at an incident scene that other responders know their plan of action.

### 7. Traffic Control

As soon as possible, initial responding unit should position traffic control devices, such as cones or flares, to assist in channeling traffic away from an incident. If the incident is anticipated to last more than one hour, Mn/DOT Maintenance should be called to provide short-term traffic control.

### 8. Off scene staging

Response vehicles not needed immediately on the scene, should stage their vehicles off the freeway, if possible. Commercial vehicle inspections should also be conducted off the freeway, if possible.

### 9. Clearing Traffic Lanes

As the incident progresses toward the clearing stage and taking the safety of all personnel into consideration, traffic lanes should be opened as soon as practical.

Traffic Incident Management  
Recommended Operational Guidelines  
March 2002



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## Work Zones - What do the 4 Es Need to Know?

### Emergency Services

- Training
- Visibility
- Establish & Maintain Control
- Don't "take more than you need"
- Consistency

### Enforcement

- Training
- Visibility
- Establish & Maintain Control
- Don't "take more than you need"
- Consistency

### Engineering

- Training
- Make a Plan
- Enforce the Plan
- Consistency

### Education

- Driver's Ed. & Campaigns...
- Each other
  - There's some things we can do better
  - There's some trends that should be abolished
  - If we're truly committed to and passionate about TZD, we need to tackle the "hard stuff"

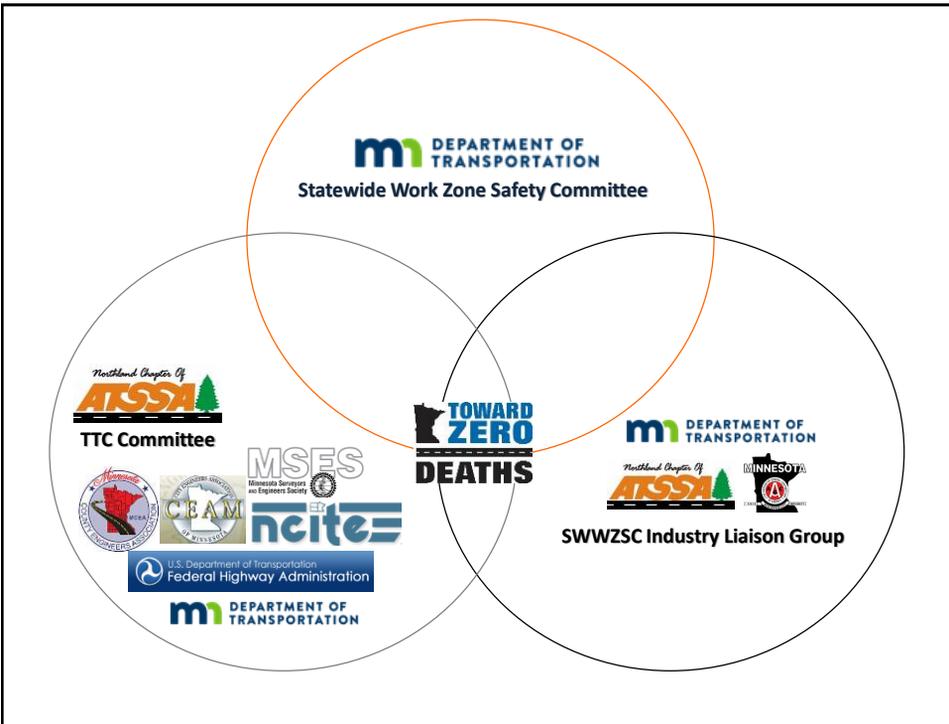


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## Work Zone Safety

(behind the scenes)

Logos displayed include: Minnesota Department of Transportation (mi), Northland Chapter of ATSSA, Minnesota Surveyors and Engineers Society (MSES), Minnesota Consulting Engineers Association (MCEA), ncite, U.S. Department of Transportation Federal Highway Administration, and TOWARD ZERO DEATHS.





**Statewide Work Zone Safety Committee**

MnDOT Traffic, Maintenance, Construction & Districts  
Law Enforcement, Industry, Consultants, Utilities,  
Cities, Counties, AGC, FHWA, LTAP

**Mission** – The SWWZSC will influence the actions of those involved with work zones through the information that is shared through the innovations and best practices that are identified so that we achieve safer work zones and fewer fatal and life changing crashes.



**SWWZSC Industry Liaison Group**

**The Purpose of the SWWZSC Industry Liaison Group is to:**

- Discuss industry suggestions for efforts to improve work zone safety
- Identify industry thoughts regarding existing state guidelines, standards, and procedures
- Determine actions that industry can implement or pursue to improve work zone safety (I-94 Example on next slide)



**TTC Committee**



**Improve: Work Zone Safety, Training & Communication**

- For Industry and Agencies to work together to ensure the safest Work Zones
- To improve working relationships and communication with Agencies
- Being willing to hear and gain understanding of Agency perspectives
- To offer solutions on ways to improve training, safety, specifications and enforcement
- To improve the consistency of how project specifications are interpreted and enforced
- Meet with different stakeholders to share Industry concerns so as to improve Work Zone Safety

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## What are we doing?

Fundamentals • Training / Re-training • Consistency • Improvements

**ATSSA Traffic Control Industry,  
MnDOT Construction/Traffic & 3M**

- Specific enhancements on projects
- Committed to meeting monthly
- Training initiatives
- Pulling together the different groups / individuals
- Meeting / working with Consultants
- NCITE / Counties / Cities
- Plan requirements / Design Plans

### Low-Cost Safety Solutions

- Wider Pavement Markings
- Wet Reflective Pavement Markings
- Enhanced Retroreflectivity
- Fluorescent Yellow Reflective Sheeting
- Increased Visibility on Work Zone Channelizing Devices



Northland Chapter Of  
 **Work Zone Safety**

- **Fundamentals**
  - What's working? (we don't need to reinvent the wheel / fix something that's not broken)
  - Are we doing everything we can, on every job, to make our Work Zones as safe as possible?
- **Consistency**
  - How Work Zones are designed / planned. (Engineering)
  - How Work Zones are setup & maintained. (Specs, Industry & Agency Enforcement)
- **Training**
  - What Training is offered by who, and does everyone even know what's available?
  - What Training do we need / need more of?
- **Partnering for results**
  - Reaching out to, and working together Toward Zero Deaths.

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**SAFER ROADS SAVE LIVES**

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**Questions / Discussion**

  
 SAFER ROADS SAVE LIVES



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## References

1. Minnesota Manual on Uniform Traffic Control Devices (February 2015 edition)
2. Traffic Incident Management Recommended Operational Guidelines (March 2002)
3. <http://www.oregon.gov/ODOT/TS/Pages/workzonesafety.aspx>