



## Work Zone Speed Management



Jim Helgestad, C.S. McCrossan  
 Reed Leidle, Safety Signs of MN  
 Michelle Moser, MnDOT



**C.S. McCrossan**

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## I-94 Maple Grove to Rogers SP 2780-97

- Project Scope & Highlights
- Work Zone challenges



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## 90% of Traffic is speeding through the Work Zone!

- Crashes / Incidents
- What's the root cause?
- Can we somehow see the actual speeds in real-time?
- Is 90% of traffic actually speeding?



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## Temporary Speed Sensor Data

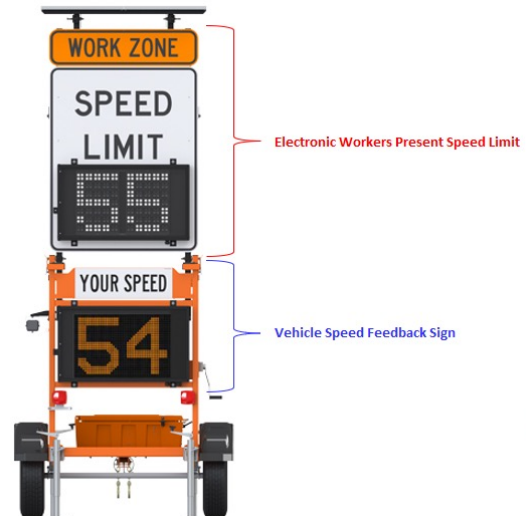
From 8/20/2021 6:40:44 PM  
Thru 8/31/2021 3:42:33 PM

Direction	Total Volume	> 60mph	> 70mph	> 80mph	> 90mph	> 100mph	> 110mph
EB	480,124	183,374	75,754	23,919	2,351	179	4
WB	523,641	330,412	33,653	1,666	127	0	0
Total	1,003,765	513,786	109,407	25,585	2,478	179	4

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## Changing Behavior - Issues & Solutions:

- Short(er)- Term
  - Contractor-initiated modifications to the Traffic Control
  - Speed Safety Vehicle
  - “Speed Wizards”
  - Using existing technology / proven methods, more frequently
  - Work Zone Safety Contingency Funds / Safety Allowance



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## Changing Behavior - Issues & Solutions:

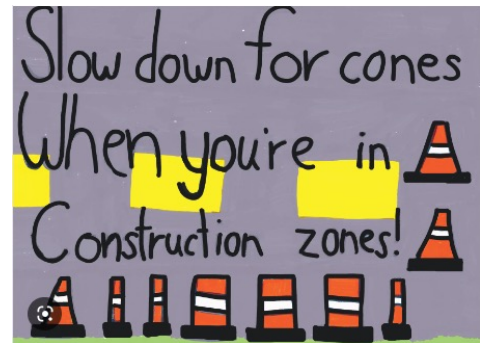
- Long(er)- Term = Speed Safety Cameras



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## Takeaways:

- If you're a **Contractor**...
- If you're a **Designer**...
- If you're a **Worker**...
- If you're in your POV traveling through a Work Zone...
  - NL-ATSSA / MnDOT Liaison committee
  - Reach out to us!



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## Regulating and Enforcing Safe Speeds

- Work zones create constrained environments in which it is difficult to enforce speeds
- Enforcement activities may create undesirable side effects
- MUTCD: Drivers will reduce speeds only if they clearly perceive a need to do so.
- ITE Traffic Engineering Handbook: Reliance on static work zone speed signing is *not* an effective method of reducing speeds in work zones



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## Work Zone Speed Management Study



### Work Zone Speed Management Study

February 2022

Work Zone Speed Management Study

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- Started in May 2021 - MnDOT and Contractors
- July – Made into law, broader participation (next slide)
- September - Feedback solicited from industry
- October – November
  - Task Force recommendations determined
- December – January
  - MnDOT and DPS recommendations determined
- February 2022 – submitted to Legislature

<https://www.dot.state.mn.us/govrel/reports.html>

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## Legislative Request

### **Sec. 140. WORK ZONE SPEED MANAGEMENT STUDY.**

- (a) The commissioners of transportation and public safety must perform a work zone speed management study. At a minimum, the study must:
- (1) evaluate existing legal authority for strategies, practices, and methods to reduce vehicle speeds and enhance worker safety in work zones, which may include but is not limited to use of traffic control devices, use of barriers, traffic control design modifications, and speed enforcement actions;
  - (2) propose a process for contractors operating in a work zone that allows contractors to request modifications to a project's traffic control plan, in order to reduce vehicle speeds or improve worker safety in a work zone;
  - (3) make recommendations on changes to current policies and procedures related to work zone safety; and
  - (4) make recommendations on changes to state law to improve work zone safety.

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## Work Zone Speed Management Task Force

- MnDOT
- DPS
- Minnesota State Patrol
- Minnesota Safety Council
- Grant County
- Sherburne County
- Washington County
- City of Brainard
- MN Citizens for Safe Work Zones
- Associated General Contractors
- Warning Lites of MN
- Egan Company
- Mathy Construction
- Valley Paving
- Safety Signs
- HDR Engineering, Inc.

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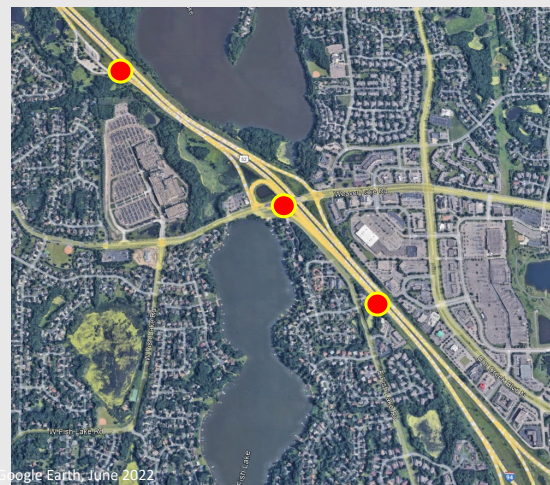
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## I-94 in Maple Grove Work Zone Case Study

- Traffic observed during November 1<sup>st</sup> through 7<sup>th</sup>, 2020
- 3 locations within the work zone
- Westbound (leaving the Twin Cities)
- 24/7 Construction Speed Limit of 60 mph implemented



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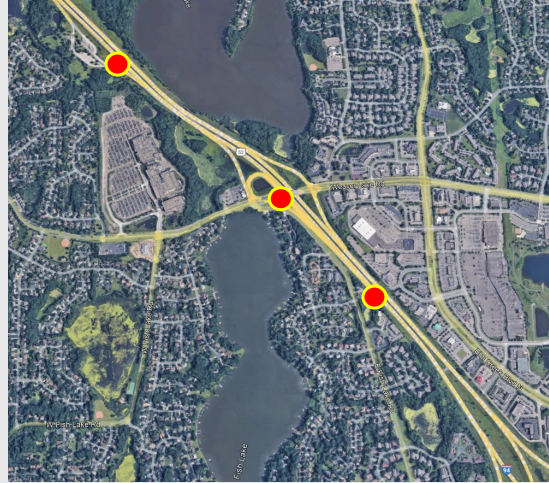
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## I-94 in Maple Grove Work Zone Case Study

- Location 1: 13,568 vehicles were observed to be traveling 76+ mph
- Location 2: 84% of traffic (244,879 veh) violated the speed limit
- Location 3 exhibited the least amount of speeding:
  - 67% of traffic violated the speed limit, including 7,356 vehicles observed to be traveling 76+ mph

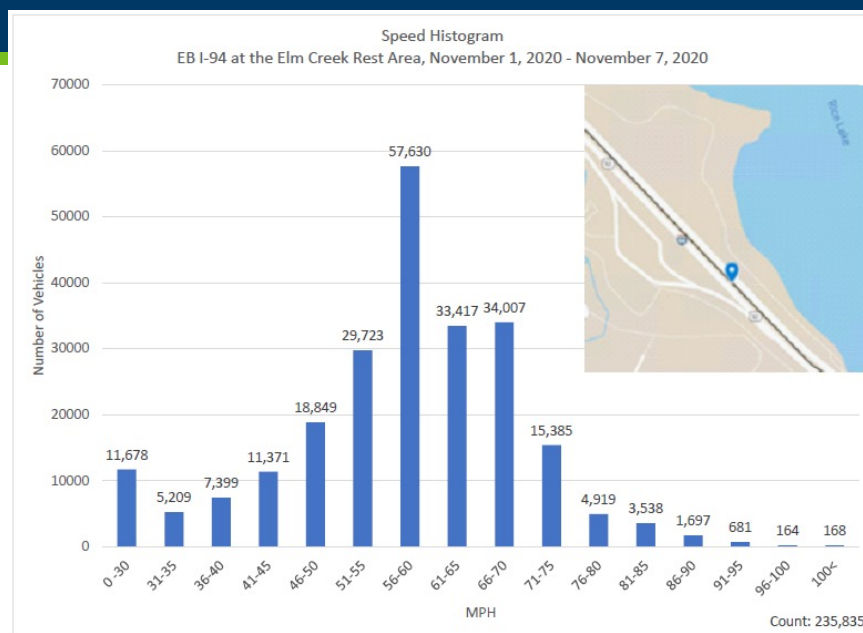


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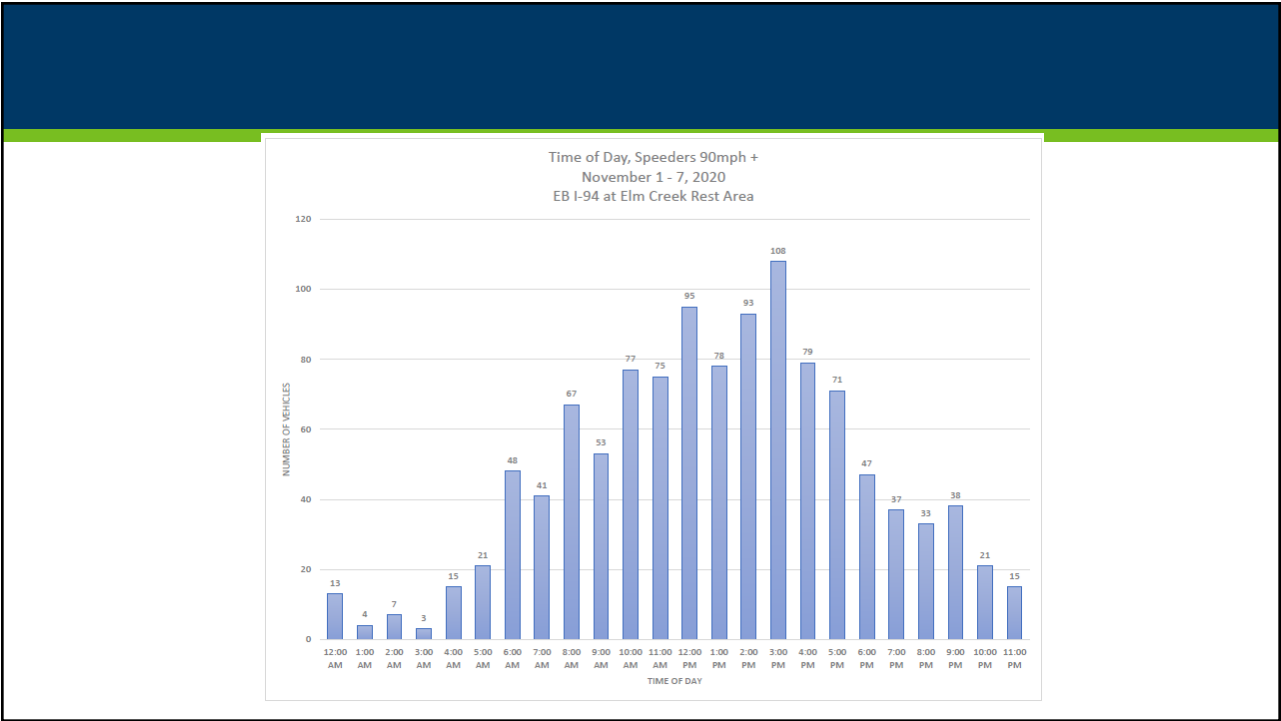
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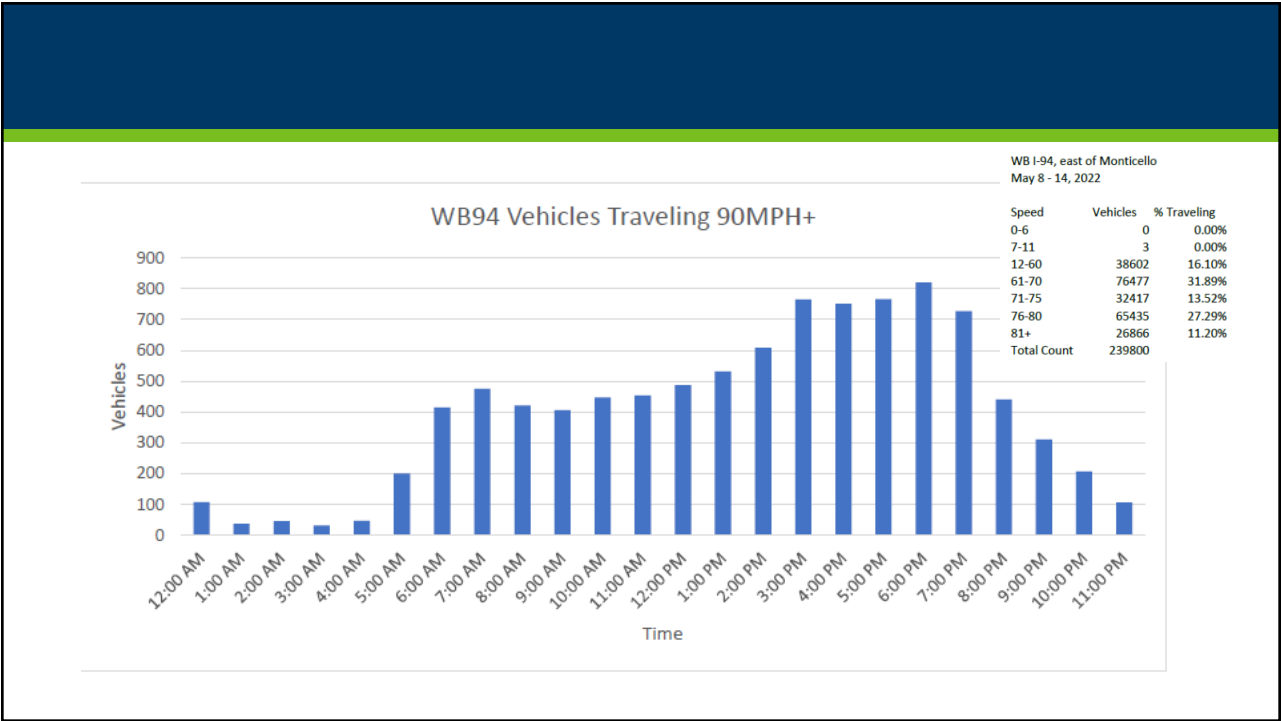
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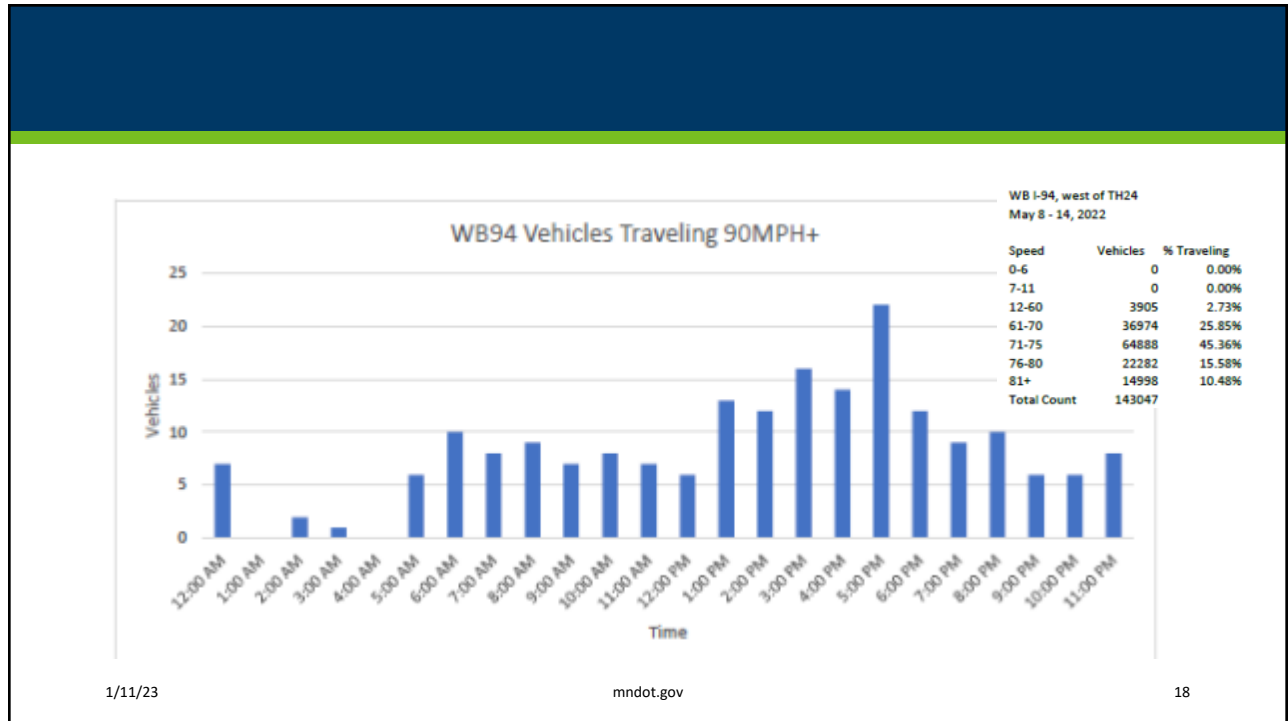


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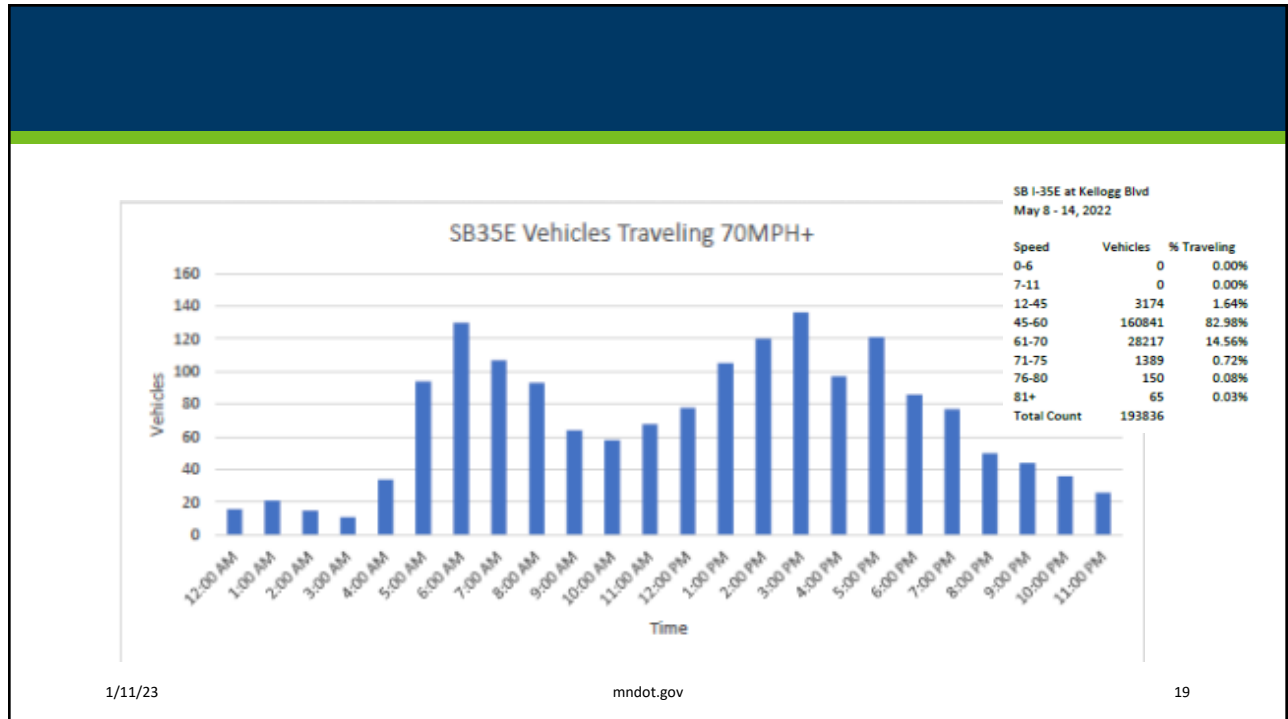


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## (1) Evaluate Legal Authority to Reduce Speeds and Enhance Worker Safety

### Foundational Regulations

- Minn. Stat. 164.14, Subd. 1, Duty to Drive with Care
- Minn. Stat. 169.11, Subd. 95, Work Zone

### Establishment of Regulations in Work Zones

- Minn. Stat. 169.04(a)(2), Local Authority
- Minn. Stat. 169.06, Signs, Signals, Markings
- Minn. Stat. 169.14, Subd. 4, Establishment of Zones by Commissioner
- Minn. Stat. 169.14, Subd. 5d, Speed Limits in Works Zones When Workers Present

Workers With Their  
Backs to Traffic



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## (1) Evaluate Legal Authority to Reduce Speeds and Enhance Worker Safety

### Enforcement of Regulations in Work Zones

- Minn. Stat. 164.14, Subd. 6a, Work Zone Speed Limit Violations
- Minn. Stat. 169.14, Subd. 9, Standards of Evidence
- Minn. Stat. 169.14, Subd. 10, Radar, Speed Measuring Device, Standard of Evidence

Patrol vehicle is ~5 ft  
from edge line when  
door is closed



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## (2) Process for Requesting Modifications to a Traffic Control Plan



- No documented process prior to this study
- Resolved on a project-by-project basis

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## (2) Process for Requesting Modifications to a Traffic Control Plan

### Proposed Formal Process for Contractor-Initiated Changes Prior to Project Letting:

1. The contractor, during the advertisement period, may propose an alternate method of construction staging via comment to the MnDOT project manager for possible contract change.
2. MnDOT would be responsible for modifying the contract documents, including potentially issuing updated plans.
3. An amendment would be issued and open to all bidders.

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## (2) Process for Requesting Modifications to a Traffic Control Plan

### Proposed Formal Process for Contractor-Initiated Changes After Project Letting

1. The contractor proposes a change to the temporary traffic control plan to the project engineer
2. The project engineer and/or resident engineer reviews the proposed change and consults with district traffic staff
3. If the proposed change includes work zone speed limits, the methodology from the *Speed Limits in Work Zones Guidelines* is followed
4. The project engineer assesses the proposed change based on a balance between:
  - a. Worker safety
  - b. Technical merit
  - c. Effect on the traveling public and stakeholders
  - d. How the design and cost of the proposed change compares with that proposed by contractors not selected for this contract

Continued on next slide

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## (2) Process for Requesting Modifications to a Traffic Control Plan

### Proposed Formal Process for Contractor-Initiated Changes After Project Letting

Continued from previous slide

5. The resident engineer approves, approves with conditions, or does not approve the proposed changes
6. The contractor requests a discussion with district management if there is a disagreement

This language is proposed to be placed within the MnDOT special provision boilerplates for use on all MnDOT construction contracts.

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### (3) Make recommendations on changes to current policies and procedures related to work zone safety \*

#### General

- Include speed monitoring equipment and/or traffic monitoring cameras
- Engage MnDOT construction staff earlier in the design process to identify staging configurations where speed management tools may be effective
- Encourage more detours and additional limited/full-time closures



#### MN 55 eastbound: Road closed.

*Updated May 18*

Between 13th Avenue South and East 32nd Street (Minneapolis). The road is closed. Road construction work is in progress. Follow the detour signs. Until September 23, 2022 at about 6:00PM CDT.

*Comment:* Mon, May 23 through mid-September SB Hiawatha Ave. is closed between Downtown Minneapolis and Cedar Ave. Detour: WB I-94 to SB I-35W to EB Hwy 62 For more info [CLICK HERE](#)

\* Criteria to be developed to determine where/when each recommendation will be most effective.

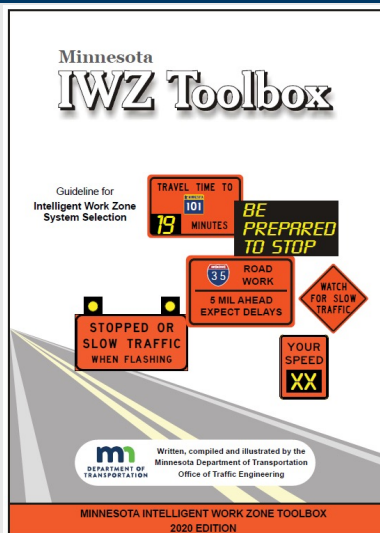
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### (3) Make recommendations on changes to current policies and procedures related to work zone safety \*



#### Intelligent Work Zone (IWZ) Systems

- Greater use
  - Active zipper merge, end of queue warning, downstream speed notification, travel time
- Additional use of end of queue warning systems within the work area
  - Typically deployed in advance of the work area
  - Turning traffic ahead

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### (3) Make recommendations on changes to current policies and procedures related to work zone safety \*

#### Enforcement related

- Use camera/radar technology upstream of law enforcement such that it meets current legislation.
- Research project to evaluate effectiveness of stationary presence versus moving enforcement strategies.



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### (3) Make recommendations on changes to current policies and procedures related to work zone safety \*

#### Workers Present Speed Limits

- Greater utilization of Electronic Workers Present Speed Limits
- If using static Workers Present Speed Limit signs, assign responsibility of daily set up and take down in the construction contract

#### Vehicle Speed Feedback Displays

- Greater use of Advisory Speeds with Vehicle Speed Feedback Displays



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### (3) Make recommendations on changes to current policies and procedures related to work zone safety \*

#### Speed Safety Vehicles

- Use contractor Speed Control Vehicles on a set frequency to control speed
- MnDOT OTE has developed a draft special provision
- Actively looking for MnDOT projects to add this to this year



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### (4) Make recommendations on changes to state law to improve work zone safety

#### Speed Safety Camera Demonstration Project

- Speed Safety Camera systems are currently used by 19 states and the District of Columbia
- MnDOT and DPS agree that the proposed demonstration project is a worthwhile endeavor
- State Patrol recognizes that work zones present extraordinary challenges to traditional enforcement methods
- Research has indicated public support for SSC to reduce speeds in work zones and school zones
- FHWA considers SSC a proven safety countermeasure improving safety through speed management



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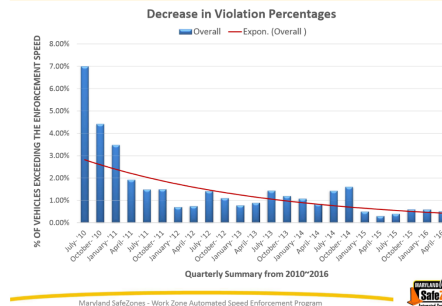
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## (4) Make recommendations on changes to state law to improve work zone safety

### Parameters of a Speed Safety Camera (SSC) Demonstration Project

- Allow the owner/lessee to request a hearing to challenge the citation
- Fund the demonstration project with a direct appropriation
- Fine revenue should not be tied to administering the SSC program
- Use an SSC system vendor with experience in proven, accepted technology and procedures
- The SSC system vendor is paid a flat rate (not based on number of violations)

#### Decrease in Violation Percentages



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## (4) Make recommendations on changes to state law to improve work zone safety

### Parameters of a Speed Safety Camera (SSC) Demonstration Project

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## (4) Make recommendations on changes to state law to improve work zone safety

### Recommendations to Successfully Deploy an SSC Program

#### Changes to the following state laws

- Minn. Stat. 169.04(a)(2), Local Authority
- Minn. Stat. 169.14, Subd. 10, Speed Measuring Device, Standards of Evidence
- Minn. Stat. 169.99, Subd. 1, Uniform Traffic Ticket
- Minn. Stat. 169.999, Subd. 1, Administrative Citations (if this option is pursued)
- Minn. Stat. 171.12, Subd. 6, Certain Convictions Not Recorded



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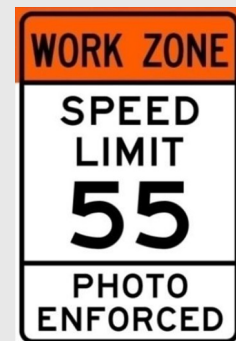
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## (4) Make recommendations on changes to state law to improve work zone safety

### Recommendations to Successfully Deploy an SSC Program

#### New Legislation is recommended

- Explicitly authorize owner liability for speeding violations documented and cited through the use of SSC
- Impose owner-liability for speeding violations documented by the SSC equipment
- Defer to legislature regarding the amount of the fine assessed through the use of SSC
  - Task Force recommended in the realm of \$40 - \$50
- Defer to legislature regarding the type of violation (administrative vs. criminal)



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## Pilot Project Status

- Bill introduced in the 2021-2022 Legislative Session
  - HF4518: Work zone safety pilot program established, civil penalties provided, and money appropriated
    - Speed safety camera system for the purpose of enforcing speeding violations in a work zone
    - Issuance of administrative citations (do not go on a driver's record)
    - Public Education of the program before, during and after deployment
    - Pilot Program to extend through the 2023 and 2024 construction seasons
    - In at least two work zones on the trunk highway system
- Bill referred to the Transportation Finance and Policy Committee
- Bill died in committee



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## Summary

- Workers are often next to traffic
- Data shows excessive speeding has substantially increased since March 2020
- Data shows over 7,800 crashes in work zones from 2019 - 2021
- Challenging environment for enforcement
- Recommendations developed that MnDOT intends to implement
- Speed Safety Cameras are effective; Program requires legislation

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