Speed Safety Camera (SSC) Systems

Effectiveness and National Usage
Administrative Rules and Structures
Transportation Research Synthesis (TRS)

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Background

Speed Safety Camera (SSC)

A.K.A.

Automated Speed Enforcement (ASE)

Background

1. Minnesota does not currently permit SSCs by law?

…but recent increases in operating speeds, related traffic fatalities, and changing national trends have led community leaders to reassess the use of SSCs on Minnesota roadways.

2. Interest at the legislature and direction from MN Strategic Hwy Plan

…resulted in TRS 2303 to understand the effectiveness of SSCs

3. Significant safety findings from TRS 2303

…resulted in current research to better understand program implementation best practices

TRS 2303 – Effectiveness of SSCs

Research Objectives:

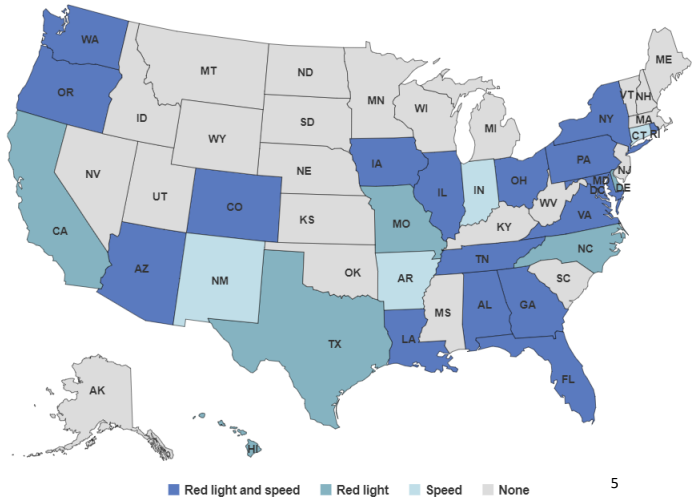
1. Are speed safety cameras effective for reducing and managing speeds where deployed?
2. Can speed safety cameras reduce the severity and frequency of crashes where deployed?
3. Are there known spillover or other unintended consequences for implementing SSCs?

TRS 2303 – Effectiveness of SSCs

Trends in Usage:

- 150 communities and 23 states in US currently using SSC systems
- Fines and program admin vary
- Most use admin citations—not reported

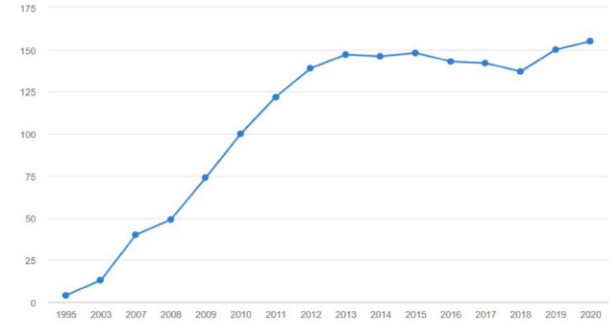
States where speed or red light safety cameras are currently used



TRS 2303 – Effectiveness of SSCs

Trends in SSC usage

Figure 2. Trends in the number of U.S. communities with speed cameras from 1995 to 2020 (Source: IIHS Website)



Speed Reduction

SSCs are an effective countermeasure for reducing motorist speeds.

- Threshold speeding generally resulted in:
  - 60-82% reduction on lower speed limit roadways
  - 24% to 88% reduction on higher speed limit roadways.

Crash Reduction

SSCs are an effective countermeasure for reducing crashes, particularly severe and fatal injury crashes.

- **Injury crashes:** 10-54% reduction
- **Severe Injury and Fatal Crashes:** 19-56% reduction

TRS 2303 – Effectiveness of SSCs

Other Notable Findings

- Mean speed: 1-15% reduction depending on roadway speed limit
- School Zones:
  - 50-60% reduction in threshold speeds
  - 2-5 mph reduction in mean speeds
  - Only 3 US studies
- Temporal and location-based spillover but no unintended consequences

TRS 2402 Publication

TRS 2303

DEPARTMENT OF TRANSPORTATION

Transportation Research Synthesis

Minnesota Department of Transportation
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TRS2303 February 2023

SPEED SAFETY CAMERAS (SSC)

Prepared by SEH

The effort for this Transportation Research Synthesis (TRS) is to provide a summary of current research on the effectiveness of Speed Safety Cameras (SSC), also referred to as Automated Speed Enforcement (ASE), for reducing vehicle speeds and the severity and frequency of crashes. This was investigated generally and specifically for school zones and work zones.

The purpose of this TRS is to serve as a synthesis of pertinent completed research to be used for further study and evaluation by MnDOT. This TRS does not represent the conclusions of either the authors or MnDOT.

Image Source: FHWA

Speed Safety Cameras TRS – February 2023

TRS 2402 Scope

Developed based on:

- Discussions from TRS 2303 (Effectiveness of SSCs)
- 2023 FHWA Report
  - Speed Safety Camera Program Planning and Operations Guide
- Need for legislative brief for early 2024
- Scope aligns with DPS mandated research

Transportation Research Synthesis (TRS)

- MnDOT process for fact finding
- Will not provide guidance

Research Objectives

Research Objectives:

1. Provide a summary of 2023 FHWA Speed Safety Camera Program Planning and Operations Guide and 2020 NHTSA Surveys

2. Interviews, data collection and literature reviews to answer questions regarding:

- Equipment and vendors
- Site selection/placement
- Enforcement
- Citation and court system workflow
- Legal requirements
- Commercial vehicles (i.e. masking, rental/commercial vehicle compliance)
- Funding and revenue
- Evaluation and reporting

Research Questions

Citation Types:

Petty Offense – Moving Violation

- "Payable offense", not considered a crime and does not carry a jail sentence
- Reported to Department of Licensing (DOL)
- No states report using this method

Petty Offense - Non-moving Violation

- "Payable offense", not considered a crime and does not carry a jail sentence
- Specifically ordered not to be reported to the DOL or to insurance companies
- Most common

Administrative Citation

- Contested through a civil process established by the local unit of government
  - Contested citations receive a hearing and rulings by a neutral third party which takes the place of the court system
- Not recorded on a person's driving record and does not affect driving privileges
- Could be processed through DVS if new processes were in-place
- Avoids court fees and less stress on the court system

Additional Research Questions

- **Site selection and type** (i.e., school zones, work zones)
- **Owner vs driver liability**
- **Would other violations be ignored?**
- **How to account for equity in citation fees?**
- **Does a police officer need to verify, or can a trained representative verify a citation?**
- **Could a centralized unit administer the program?**
- **Existing and potential data privacy laws/implications**
- **Understanding Lead Agencies Roles and Responsibilities**
- **CDL reporting requirements**
- **Business and rental vehicle compliance**

TRS 2402 Publication

TRS 2402

DEPARTMENT OF TRANSPORTATION

Transportation Research Synthesis

Minnesota Department of Transportation
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TRS 2402 March 2024

ADMINISTRATIVE RULES AND STRUCTURES OF SPEED SAFETY CAMERA (SSC) SYSTEMS

Prepared by SEH

This Transportation Research Synthesis (TRS) provides a summary of current research on national best practices regarding the implementation and operation of speed safety cameras and their related administrative programs. It also provides a summary of recent guidance documents and expert interviews conducted through the TRS process to better understand Minnesota-specific considerations if SSCs were to be legalized within the state.

The purpose of this TRS is to provide a synthesis of pertinent research, which will be used for further study and evaluation by the Minnesota Department of Transportation (MnDOT). This TRS does not represent the conclusions of either the authors or MnDOT.

Speed Safety Camera Systems TRS – Page 1

The Work Zone Environment

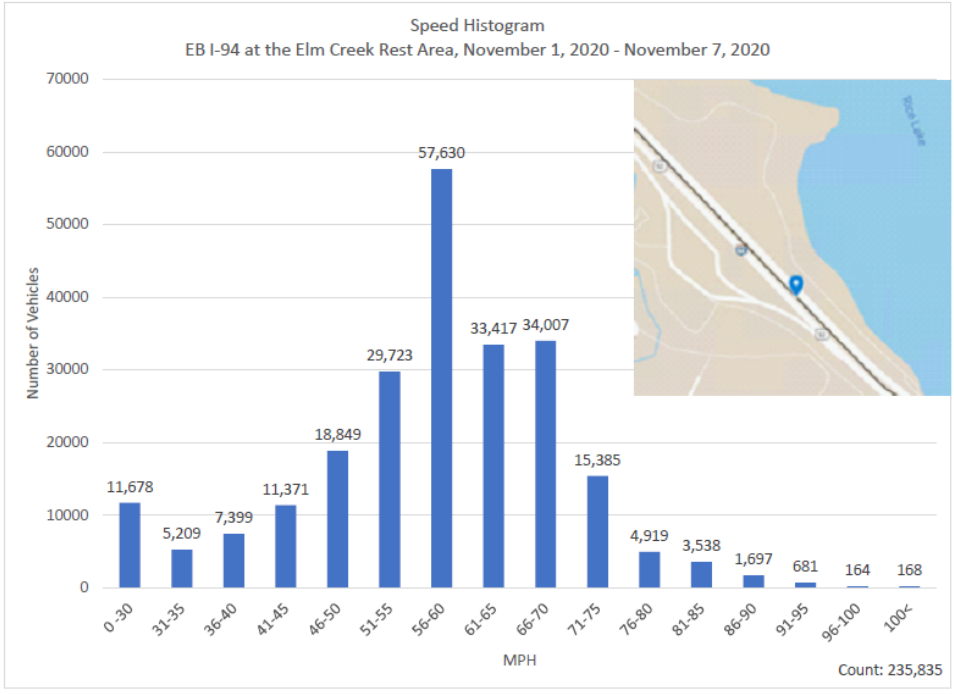
- Workers are often next to traffic
- Work zones introduce complex changes to the roadway
- Excessive speeding (15+ mph over the speed limit) has substantially increased since March 2020

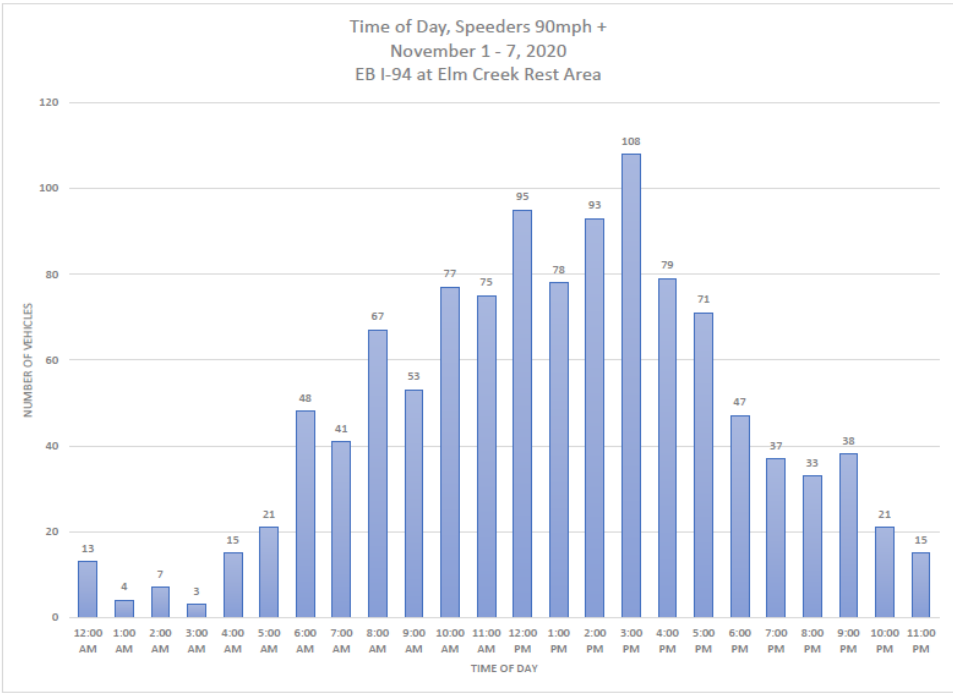
I-94 in Maple Grove Work Zone Case Study

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

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


Speed Histogram
EB I-94 at the Elm Creek Rest Area, November 1, 2020 - November 7, 2020
Number of Vehicles
70000
60000
50000
40000
30000
20000
10000
0
11,678
5,209
7,399
11,371
18,849
29,723
57,630
33,417
34,007
15,385
4,919
3,538
1,697
681
164
168
0-30
31-35
36-40
41-45
46-50
51-55
56-60
61-65
66-70
71-75
76-80
81-85
86-90
91-95
96-100
100<
MPH
Count: 235,835


Time of Day, Speeders 90mph +
November 1 - 7, 2020
EB I-94 at Elm Creek Rest Area
NUMBER OF VEHICLES
120
100
80
60
40
20
0
13
4
7
3
15
21
48
41
67
53
77
75
95
78
93
108
79
71
47
37
33
38
21
15
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
TIME OF DAY

Regulating and Enforcing Safe Speeds

MUTCD

Drivers will reduce speeds only if they clearly perceive a need to do so.

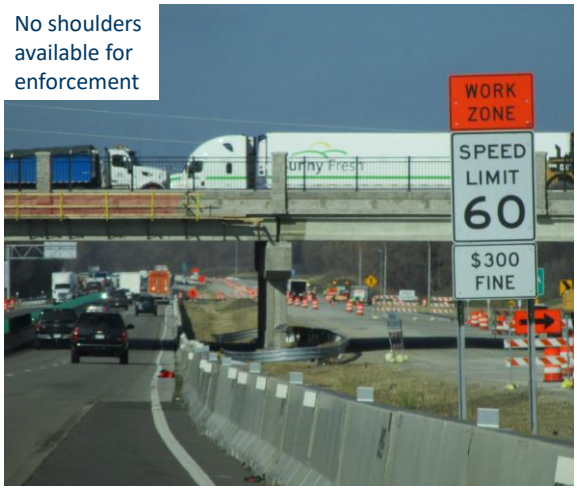
ITE Traffic Engineering Handbook

Reliance on static work zone speed signing is *not* an effective method of reducing speeds in work zones

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

No shoulders available for enforcement



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.

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

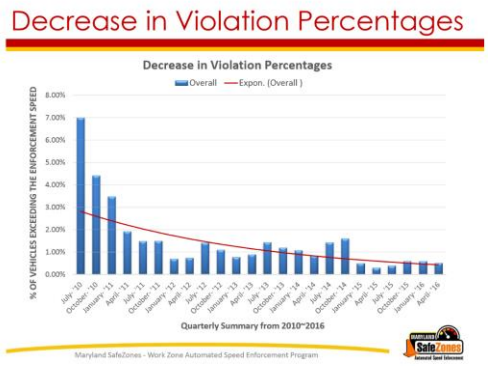
Speed Safety Camera Demonstration Project

- 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

(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)



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

Parameters of a Speed Safety Camera (SSC) Demonstration Project

- Issue only one citation within a designated timeframe to account for the time it takes for the initial citation to be delivered to the vehicle owner
- Ability to request a hearing to challenge the citation
- Fine revenue should not be tied to administering the SSC program
- The SSC system vendor is paid a flat rate (not based on number of violations)

Image courtesy of Conduent Business Services

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

Parameters of a Speed Safety Camera (SSC) Demonstration Project

- Require that SSC equipment is set up under the supervision of a licensed peace officer
- Require that a licensed peace officer review the evidence before a citation is issued
- Provide locations of SSC equipment on the program's website
- Provide signing that informs drivers of downstream SSC equipment
- Publicize the SSC program ahead of deployment

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

Parameters of a Speed Safety Camera (SSC) Demonstration Project

- 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)

(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

(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

Pilot Project Status

- HF 5242
- Speed safety camera system for the purpose of issuing warnings for speeding violations in a work zone (no fines)
- Information about speed and speeding-associated risks in WZs
- 2 to 4 trunk highway work zones, various factors for consideration
- Authority from August 1, 2025 – July 31, 2029(!!)

Summary

- Workers are often next to traffic
- Excessive speeding has substantially increased since March 2020
- Almost 7,500 crashes in work zones from 2018 - 2020
- Enforcement is challenging
- Recommendations developed that MnDOT intends to implement
- Speed Safety Cameras are effective; Program requires legislation

In Soviet Russia, Speed Limit Breaks You!

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