

Transportation Research Synthesis

Minnesota Department of Transportation
Office of Research & Innovation
651-366-3780
www.mndot.gov/research

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.



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Technical Report Documentation Page

1. Report No. MN TRS 2402	2.	3. Recipients Accession No.	
4. Title and Subtitle Administrative Rules and Structures of Speed Safety Camera (SSC) Systems - Transportation Research Synthesis		5. Report Date March 2024	
		6.	
7. Author(s) Chelsea Moore-Ritchie, AICP and Heather Kienitz, PE (Mn Lic.),		8. Performing Organization Report No.	
9. Performing Organization Name and Address Short Elliott Hendrickson Inc. 3535 Vadnais Center Drive St. Paul, MN 55110-3507		10. Project/Task/Work Unit No.	
		11. Contract (C) or Grant (G) No. (C) 1054076	
12. Sponsoring Organization Name and Address Minnesota Department of Transportation Office of Research & Innovation 395 John Ireland Boulevard, MS 330 St. Paul, Minnesota 55155-1899		13. Type of Report and Period Covered Final Report	
		14. Sponsoring Agency Code	
15. Supplementary Notes http://mdl.mndot.gov/			
16. Abstract (Limit: 250 words) Minnesota does not currently have legislation enabling the use of speed safety cameras (SSCs), previously referred to as automated speed enforcement (ASE). However, due to an increase in speed-related fatal crashes on Minnesota roadways and research indicating the effectiveness of SSCs (TRS 2204), there is renewed interest in passing enabling legislation in the state. While the effectiveness of SSC programs has been widely agreed on, implementation of SSC programs is complex. This Transportation Research Synthesis was completed to better understand the complexity and best practices for SSC program administration and highlight considerations specific to Minnesota if enabling legislation were to be passed by the legislature. It also provides a summary of recent FHWA guidance documents, bi-annual reports from states with active SSC programs, and expert interviews conducted through the TRS process to better understand Minnesota specific considerations. Some of the topics covered in the report include: Citation Type/Processing Structure, Penalties, Equity Considerations, Commercial Drivers License (CDL) Implications, Top Concerns from Stakeholder Agencies, Public Perception and Revenue, and Funding.			
17. Document Analysis/Descriptors Cameras, Automated enforcement, Speeding, Speed detectors		18. Availability Statement No restrictions. Document available from: National Technical Information Services, Alexandria, Virginia 22312	
19. Security Class (this report) Unclassified	20. Security Class (this page) Unclassified	21. No. of Pages 57	22. Price

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Note on Document Structure

- Throughout this Transportation Research Synthesis (TRS) document, information specific to the state of Minnesota is noted with a state symbol icon for quick reference.
- Guidance statements from the 2023 Federal Highway Administration (FHWA) *Speed Safety Camera Program Planning and Operations Guide* are highlighted throughout the document when applicable to the sections defined in the objectives. This is not a complete list of the guidance. For full guidance and recommendations, the document should be reviewed directly.

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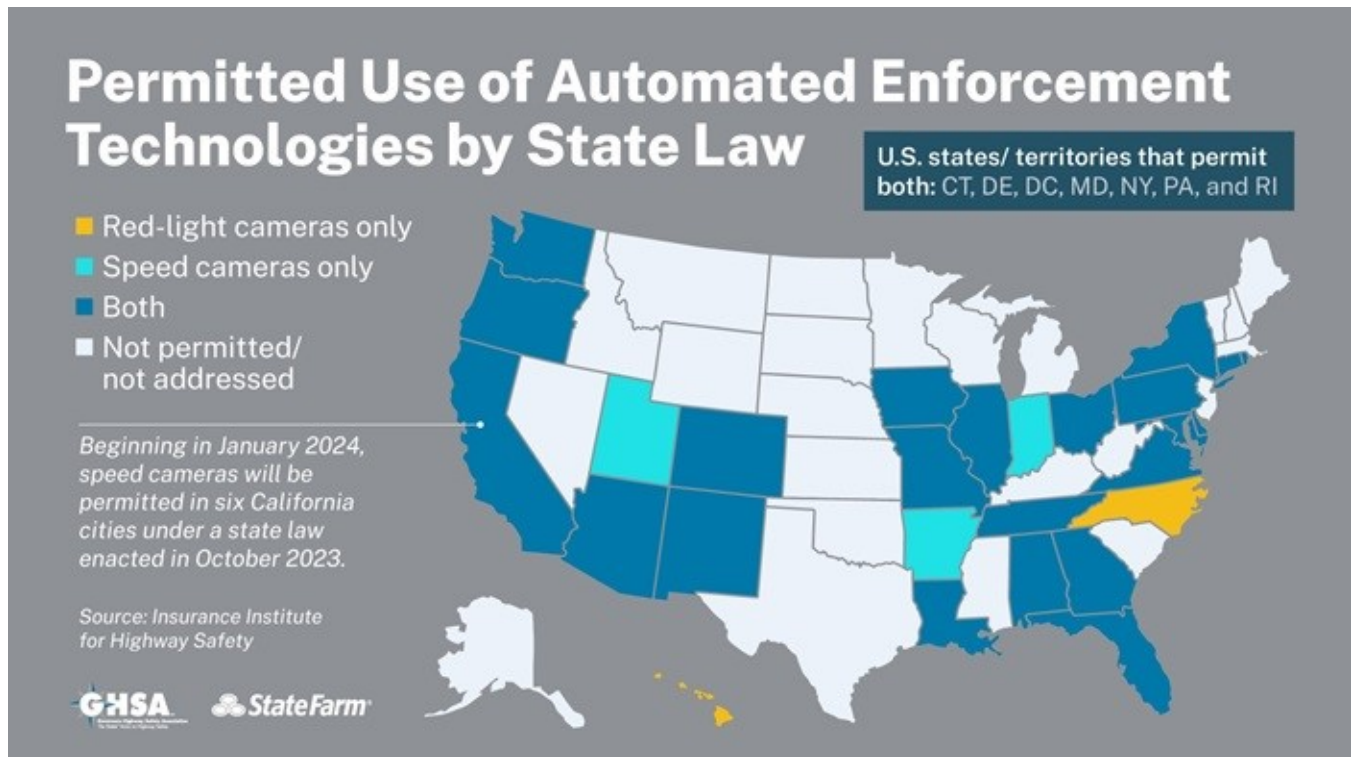
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1 EXECUTIVE SUMMARY

Since the mid-1990s, the use of speed safety cameras (SSCs), previously referred to as automated speed enforcement (ASE), has been growing across the United States. As of November 2023, 24 states and the District of Columbia permitted speed safety cameras.¹ Beginning in January 2024, California began permitting speed safety cameras in six cities under a law enacted in October 2023, becoming the 25th state to allow the use of these cameras.²



Minnesota does not currently have legislation enabling the use of SSCs, but due to an increase in speed-related fatal crashes on Minnesota roadways³ and research indicating the effectiveness of SSCs^{4,5}, there is renewed interest in passing enabling legislation in the state.

While the effectiveness of SSC programs has been widely agreed on⁶, implementation of programs is complex. This Transportation Research Synthesis was initiated to better understand best practices for SSC programs and highlights considerations specific to Minnesota if enabling legislation were to be passed by the legislature.

¹ [Insurance Institute for Highway Safety. \(n.d.a\). Red light running: Safety camera laws webpage. Accessed February 2024.](#)

² [Governors Highway Safety Association \(2023\). Automated Enforcement in a New Era.](#)

³ [Minnesota Department of Public Safety - Office of Traffic Safety. \(2022\). Minnesota Motor Vehicle Crash Facts, 2022.](#)

⁴ [MnDOT TRS 2303](#)

⁵ [FHWA-SA-21-070. \(2021\). Proven safety countermeasures, Speed Safety Cameras. US Department of Transportation.](#)

⁶ [Venkatraman et al. \(2021\) Countermeasures that work: A highway safety countermeasures guide for state highway safety offices, 10th edition, 2020 \(Report No. DOT HS 813 097\). National Highway Traffic Safety Administration.](#)

The following research objectives were identified because of gaps in state-specific information within the FHWA guide and feedback from the Technical Advisory Committee for [TRS 2303](#).

1.1 Research Objectives

1. Provide a summary of 2023 FHWA *Speed Safety Camera Program Planning and Operations Guide*.
2. Answer questions pertaining to:
 - Masking for commercial driver’s license (CDL) holders
 - Business and rental vehicle citations and compliance
 - Existing citation and court system workflow in Minnesota
 - Procurement of an operating system, equipment costs and vendor contracting requirements
 - Minnesota legal requirements (e.g., enforcement authority, data collection and privacy)
 - Funding sources for pilot programs and other funding/revenue questions

1.2 Methodology

Information for this report was gathered through a literature review process, collection of National Highway and Traffic Safety Administration (NHTSA) bi-annual summaries on automated enforcement programs, and expert interviews.

1.3 Summary of Findings

Below are the key findings identified through the TRS process.

1.3.1 Citation Type/Processing Structure

Many of the logistics surrounding SSC program implementation revolve around the structure of the citation for violations and how the citation is processed.



In Minnesota, most traffic citations are either petty offenses (moving or non-moving violations) or an administrative citation.⁷

- Petty offenses are adjudicated through the court system at the county level while administrative citations are contested through a civil process established by the local unit of government.
- Petty offenses can be certified offenses or non-certified offenses. For a non-certified offense, the citation is issued to the owner of the vehicle because the driver is not verified by a sworn law enforcement officer. An example of a non-certified offense is a [school bus stop arm camera](#) violation.
- Citations can either be issued to the vehicle owner or the vehicle driver.

⁷ [Minn. Stat. sec 169.999](#)

- States with enabling legislation that allow the citation to be issued to the vehicle owner instead of the driver typically collect less evidence as a basis to issue a citation (e.g., no photograph of the driver is needed).
- Most states require a sworn law enforcement officer to review and issue citations; however, states such as Georgia, New York and Ohio have jurisdictions that allow citations to be reviewed by a trained technician.
- Of the 20 states that reported active programs in 2022, 18 did not report the violation on the vehicle owner’s driving record.

1.3.2 **Penalties**

Fines vary from a warning to a \$200-plus fine, depending on miles per hour driven over the threshold speed and the number of offenses. Driver liability programs typically have higher fines, while vehicle owner liability programs have lower fines of between \$40 and \$100. Seattle is an outlier with a \$234 fine sent to the vehicle owner with a 6-mph speeding threshold. To ensure lower fines, some states legislatively cap administrative fees that can be added to a citation.

1.3.3 **Equity**

While SSC programs can advance more equitable speed enforcement outcomes, these benefits can be negated if programs are not equitably and transparently implemented.⁸

Equitable placement of cameras and equitable penalties are a key theme of the new FHWA guide. States are addressing these issues by using a combination of data driven methods for site selection, providing transparent public notification of camera locations, and providing fee relief for eligible drivers. This may come in the form of an educational class to reduce the fine amount or assistance for low-income households.



A concern in Minnesota is the large percentage of shared vehicles that are more likely to be used in low-income communities. An owner liability program may end up placing a disproportionate burden of penalties on low-income vehicle owners.

1.3.4 **Commercial Driver’s License (CDL) Implications**

Based on preliminary guidance from the Federal Motor Carriers Administration (FMCSA), if a citation goes to the vehicle owner instead of the driver, the citation is not required to go on the CDL driver’s record under federal regulation [49 CFR § 384.226](#) because the driver is not verified. Therefore, it’s not considered masking⁹ and would not be something that FMCSA regulates.

⁸ [Governors Highway Safety Association. \(2023\). Automated Enforcement in a New Era.](#)

⁹ CDL masking for traffic violations - A disposition that prevents the violation or the conviction from being reported on the CDL/CLP Holder’s driving record ([National Traffic Law Center. \(2024\). Masking Quick Reference Guide. Online. Retrieved January 2024.](#))

1.3.5 Top Concerns from Stakeholder Agencies



Staffing to support a successful SSC program, ensuring compliance with federal masking prohibitions, data privacy, and effectiveness of a fine-only system that does not impact a driving record were top concerns mentioned during interviews with stakeholder agencies.

1.3.6 Public Perception and Revenue

Distribution of revenue from a SSC program and how the program is communicated to the public are important elements for successful program implementation. Because the goal of a speed safety camera program is to reduce speeding and not generate revenue, generally states allocate revenue back into road safety initiatives. Allocating funds for road safety initiatives can help counter the perception that the purpose of a SSC program is to generate revenue and reinforce the narrative that SSC programs are cost-effective safety countermeasures against speeding to prevent traffic fatalities and serious injuries.

1.3.7 Funding

While most programs are financially self-sustaining, recent changes in federal laws have freed up funding for the further development and implementation of automated enforcement technologies such as SSCs.

2 GUIDING DOCUMENTS

A variety of documents provided the core information for this report and guided the development of the research objectives. These documents are summarized below. A full list of sources is identified in the bibliography at the end of the document.

2.1 TRS 2303

In 2022-2023, MnDOT completed a Transportation Research Synthesis to document the research surrounding the effectiveness of SSC programs in managing speeds and improving safety. The purpose of the TRS was to review relevant research regarding the impact of SSCs as a standalone countermeasure to: reduce and manage speeds, reduce the severity and frequency of crashes, and understand spillover or other unintended consequences. The research indicates that SSCs are an effective countermeasure for reducing speeds, crash frequency and crash severity.

Findings included:

Mean speeds:

- Most studies cited a 10-14% reduction on lower speed limit roadways and 5-10% reduction on higher speed limit roadways
- The use of SSCs in School Zones resulted in a 2- to 5-mph reduction

Threshold speeding (typically greater than 10-mph over the speed limit):

- Lower speed limit roadways cited 60-82% reductions, and 50-60% reduction in school zones
- Higher speed limit roadways cited anywhere from 24% to 88% reductions

Injury crashes:

- Results varied by study with a range of 10-54% reduction in injury crashes

Severe Injury and Fatal Crashes:

- Results varied by study, ranging from a 19-56% reduction for serious injury and fatal crashes

2.2 2023 FHWA Guide

In 2023, FHWA published the [*Speed Safety Camera Program Planning and Operations Guide*](#). The guide was a joint effort between the NHTSA and FHWA, both part of the U.S. Department of Transportation (USDOT). The guide provides an update of the USDOT's 2008 *Speed Enforcement Camera Systems Operational Guidelines*. The guide was reviewed prior to the scoping of this TRS to identify areas where the State of Minnesota required additional research or information specific to the state to further the understanding of SSC System implementation requirements and best practices.

Table 1 provides a high-level summary of the contents of the 2023 guide. The information and guidance specific to the research objectives of this document are further summarized in Chapter 3 of this TRS. A full review of the *Speed Safety Camera Program Planning and Operations Guide* is recommended for anyone working on SSC system implementation.

Table 1: Summary Outline of the 2023 Speed Safety Camera Program Planning and Operations Guide (FHWA)

Chapter	
1	<ul style="list-style-type: none"> • Rationale and benefits of using SSCs • Purpose and use of this guide <ul style="list-style-type: none"> ○ The guide provides information for decision-makers, practitioners, and other stakeholders interested in starting and operating an effective, reliable, transparent, and publicly supported SSC program
2	<p>Identifies initial steps to assess SSC use:</p> <ul style="list-style-type: none"> • Safety assessment • Legal and policy review • Stakeholder identification • Develop communications framework
3	<p>Identifies initial steps for developing a SSC program:</p> <ul style="list-style-type: none"> • Setting program goals • Determining the scope, scale, and type of program • Developing a SSC program plan which sets up administration and oversight of the SSC programs and plans the communications
4	<p>Details aspects of SSC enforcement planning, including:</p> <ul style="list-style-type: none"> • Site selection • Field operations
5	<p>Describes steps and potential issues for SSC enforcement:</p> <ul style="list-style-type: none"> • Processing of violations • Access to and protection of violator’s data • Issuing and tracking citations, adjudication, and performance outcomes • Potential use of fine revenue
6	<p>Details the final steps for SSC implementation:</p> <ul style="list-style-type: none"> • Procuring equipment • Inter-agency agreements and coordination • Managing and securing data • Marketing and communications
7	<p>Post SSC implementation process:</p> <ul style="list-style-type: none"> • Monitoring • Evaluation
8	<p>New SSC case studies:</p> <ul style="list-style-type: none"> • Work zone pilot tests of SSC in Pennsylvania and Maryland • SSC applications in school zones in New York City (NYC) and Seattle • A case study from California describing initial stakeholder steps in a state that lacks current authorization for using SSC

Figure 1: Key Considerations from the 2023 Speed Safety Camera Program Planning and Operations Guide (FHWA-SA-21-070):

- Public trust is essential for any type of enforcement. With proper controls in place, SSCs can offer fair and equitable enforcement of speeding, regardless of driver age, race, gender, or socio-economic status. SSCs should be planned with community input and equity impacts in mind.
- Using both overt (i.e., highly visible) and covert (i.e., hidden) enforcement may encourage drivers to comply with limits everywhere, not only at sites they are aware are enforced.
- Agencies should conduct evaluations regularly to determine if SSCs are accomplishing safety goals and whether changes in strategy, scheduling, communications, or public engagement are necessary.
- Agencies should conduct a legal and policy review to determine if SSCs are authorized within a jurisdiction and how the authorization and other traffic laws will affect a SSC program.
- Agencies should develop an SSC program plan with consideration of the USDOT SSC guidelines for planning, public involvement, stakeholder coordination, implementation, maintenance, evaluation, etc. ([Speed Enforcement Camera Systems Operational Guidelines, NHTSA, \(2008\)](#))

2.3 2023 Governor’s Highway Safety Association (GHSA) Report

A 2023 report published by the GHSA, in partnership with State Farm insurance company, documents challenges and solutions faced by automated enforcement programs, including SSCs, Red-Light Safety Cameras, School Bus Stop Arm Cameras, Distracted Driving, and Seat Belt Enforcement Cameras.

The report presents an introduction to automated enforcement (AE), identifies challenges and potential solutions, and outlines an effective implementation strategy. Findings and recommendations pertinent to this report are integrated in Chapter 3.

2.4 NHTSA Survey Summary

Beginning with Fiscal Year (FY) 2018, the Fixing America’s Surface Transportation (FAST) Act requires states that have (or have had) automated traffic enforcement systems installed to conduct a biennial review and report to NHTSA by March 1 every other year starting March 1, 2018. The surveys collect information on the following:

- Automated enforcement systems in the state
- Data to measure the transparency, accountability, and safety of each system

- A comparison of each automated traffic enforcement system with the *Speed Enforcement Camera Systems Operational Guidelines*¹⁰ (DOT HS 810 916, March 2008)

In 2020, 24 states completed surveys, with 12 reporting active SSC programs as of 2020. As part of this TRS, the surveys were reviewed and key findings pertinent to the research objectives of this report have been integrated into Chapter 3. A full summary of findings is located in Appendix B.

2.5 Subject Matter Expert Interviews

In addition to the literature review and NHTSA surveys, a variety of expert interviews were conducted with stakeholder agencies to understand program-related issues and concerns specific to Minnesota. The findings can be found in Appendix A and are incorporated into the appropriate sections throughout this report.

¹⁰ Future surveys will likely reference the FHWA [2023 Speed Safety Camera Program Planning and Operations Guide](#) instead of the Speed Enforcement Camera Systems Operational Guidelines (DOT HS 810 916, March 2008), but no update had been made to [NHTSAs website](#) at the time of this report.

3 RESEARCH FINDINGS

The following section provides key findings regarding:

- 3.1 Equipment and Vendors
- 3.2 Site Selection and Signage
- 3.3 Program Operation and Staffing
- 3.4 Citation and Court System Workflow
- 3.5 Legal Requirements
- 3.6 Commercial Vehicles
- 3.7 Revenue
- 3.8 Evaluation and Reporting
- 3.8 Funding

3.1 Equipment and Vendors

Both the type of technology and the vendor relationship and agreement types are described in the following sections.

3.1.1 Technology

Technology is rapidly changing and a key consideration for a SSC program is available technology. They may vary in the data storage and collection, as well as operational abilities in different environments. If roadway or roadside features limit the effectiveness of SSC installations, agencies may need to consider other technologies or treatments.¹¹

The three primary SSC types include point-to-point, mobile units, and fixed units.

Point-to-Point (P2P)

P2P systems work by measuring the average vehicle speed between two sites, reducing the sudden deceleration and accelerations that can result when drivers react to overt, site-specific speed enforcement.¹² When a vehicle passes the first site, a fixed camera makes a record. When that vehicle passes the second site, a time-synchronized camera captures images at the second site, and the system calculates the average speed between the two sites.¹³

“Automatic plate recognition may raise community concerns about a higher level of surveillance since data on all vehicles is collected compared to only those who commit an infraction with fixed technology. Agencies may consider alternative technologies for collecting P2P data that do not collect or store data on all vehicles. If the average speed is above the enforced speed threshold, a citation may be issued.”¹⁴

¹¹ FHWA (2023). Speed Safety Camera Program Planning and Operations Guide. (p.36)

¹² [National Transportation Safety Board \(NTSB\). \(2017\). Reducing speeding-related crashes involving passenger vehicles.](#)

¹³ FHWA (2023). Speed Safety Camera Program Planning and Operations Guide. (p.37)

¹⁴ Ibid, (p.37)

“Domestic experience with P2P is limited, but many jurisdictions internationally such as Australia and the UK are using P2P enforcement to help enforce homogeneous lengths of roadway, especially limited access highways.”¹⁵

Site characteristics that may favor using P2P enforcement include:¹⁶

- Higher volume roadways, such as freeways
- Sections of roadway where traffic cannot effectively divert to alternate routes over a length of roadways, such as limited access highways
- Longer lengths of roadway section – international evidence suggests that P2P enforcement can be effective from 2km (1.24 mi) to 10 km (6.2 mi)
- P2P units are effective in most situations except when problems are network wide¹⁷

Several research studies demonstrate the potential benefits to both speed limit compliance and traffic safety from P2P enforcement. It may be most effective to conduct P2P enforcement overtly rather than covertly to have public support and use P2P systems in conjunction with other SSC deployments.

¹⁸

3.1.1.1 Mobile Units

Mobile units are generally mounted on a vehicle or trailer and function best when problems are network wide and are to be used for short periods of enforcement.¹⁹ They have been shown to reduce crashes on urban principal arterials up to 20% for fatal and injury crashes (Li et al., 2015).

Example: Maryland Safe Zones employs mobile SSC for its work zone program, using cameras mounted on vehicles at each work zone location. As mobile units, enforcement can be moved among different work zones or work zone sites. When a new site is established, cameras are operational, but no citations are issued for the first three weeks. Drivers receive warnings during this period for violations.

²⁰

3.1.1.2 Fixed Units

Fixed units are a single, stationary camera that targets one location.²¹ One study found that using fixed units resulted in a 54% decrease in all crashes and a 47% decrease in injury crashes on urban limited access freeways in Arizona (Shin et al., 2009). Fixed units are most suited to long-term problems on multilane facilities where the sight distance for enforcement is limited.²²

The 2023 report by GHSA identifies a fourth type of camera, semi-fixed, that are rotated between housings with active cameras and “dummy housings” without cameras.

¹⁵ Speed Safety Camera Program Planning and Operations Guide 2023, FHWA (p.37)

¹⁶ Ibid, (p.37)

¹⁷ [FHWA-SA-21-070. \(2021\). Proven safety countermeasures, Speed Safety Cameras.](#)

¹⁸ Speed Safety Camera Program Planning and Operations Guide 2023, FHWA (p.38)

¹⁹ [FHWA-SA-21-070. \(2021\). Proven safety countermeasures, Speed Safety Cameras.](#)

²⁰ (Maryland DOT, n.d.) via Speed Safety Camera Program Planning and Operations Guide 2023, FHWA (p.74)

²¹ [MnDOT TRS 2303](#)

²² [FHWA-SA-21-070. \(2021\). Proven safety countermeasures, Speed Safety Cameras.](#)

Figure 2 provides a decision matrix to assist in identifying the best type of SSC deployment based on the problems the program is looking to solve.

John Adams and Barbara Vandrask at the Center for Transportation Studies published a 2009 report²³ that provides a more detailed overview of the type of technologies used in automated enforcement, however, technology has likely evolved since the time of the 2009 report.

Figure 2: Decision matrix for choosing type of SSC deployment (2023 FHWA Guide)

CONSIDERATIONS	MOBILE UNITS	FIXED UNITS	P2P UNITS
Problems are long-term and site-specific.	-	X	X
Problems are network-wide, and shift based on enforcement efforts.	X	-	X
Large speed variances exist between enforcement site and downstream sites.	X	-	X
Overt enforcement is legally required.	X ¹	X	X

¹ Temporary signs, published lists of enforced sites, and social media communications can be used to make mobile enforcement operations conspicuous.
 - No information.

3.1.2 Vendors Services

FHWA Guidance: “When selecting vendors and determining vendor responsibilities, the lead agency should solicit requests for the specified services using a competitive bidding process (Eccles et al. 2012). Vendors should not initiate the conversation.”

“The contracted services may include:

- Supplying (through purchase or lease), maintaining, calibrating, and monitoring (on an established schedule) of the equipment needed to implement the planned operations.
- Processing citations (based on criteria established by the jurisdiction).
- Mailing citations (once approved by the oversight agency).
- Managing fine collection.
- Transferring, securing, and managing data.
- Supplying data and performance reports to the jurisdiction.

Other potential services could include legal support, website, publicity, or responding to concerns.”²⁴

Agencies should communicate with equipment vendors to understand the technological parameters to select the most appropriate device.²⁵ Existing data transmission infrastructure at some sites may make data transmission easier, lowering the cost of equipment installation for fixed units.²⁶

²³ [Automated Enforcement of Red-Light Running & Speeding Laws in Minnesota: Bridging Technology and Public Policy](#)

²⁴ Speed Safety Camera Program Planning and Operations Guide 2023, FHWA (p.58)

²⁵ Ibid (p.36)

²⁶ Ibid (p.36)

Some vendors provide both equipment and violation processing or other services as a package. Advantages to relying on a vendor as a third-party operator may include their knowledge of the technologies, maintenance, and data needs for specific equipment, and may include expertise on the legal requirements for enforcement and evidence.²⁷

Jurisdictions may purchase or lease equipment for a flat fee and operate the system themselves. However, as many jurisdictions rely on contractors to handle some aspects of the program, it is important for the lead agency to determine the criteria and agreements to best meet program needs.²⁸ Based on review of NHTSA surveys and case studies, more programs contract/lease their equipment from vendors rather than purchasing them outright.

FHWA Guidance: "The lead agency's decision on whether and how to engage a contractor or vendor in the operation or maintenance of the enforcement equipment is a critical decision and must be consistent with applicable State/local procurement requirements."²⁹

3.1.3 Vendor Agreements and Local Ordinances

FHWA Guidance: "Prior to launching any SSC operations involving vendors, agencies should establish contracts with the selected vendor on the services required. Contracts are critical to operating a program in a consistent and neutral manner."

"Contracts establish needed services, compensation structure, and oversight and performance criteria. The lead agency structures these contracts so that programs are operated in accordance with safety, reliability, and legal requirements for issuing violations; that potential for financial or other public harm is minimized; and to avoid negative public perceptions (such as that the programs are about raising revenues rather than improving safety)."³⁰



Vendor agreements should be clear about the locations they cover, the legal authority for the SSC program to be implemented, and which governmental entity has authority to grant permission for any equipment installations. Local ordinances may differ between jurisdictions or have limited applicability if they conflict with state law. Permission is required for any work or installation of equipment in state highway right of way. When SSCs are considered in or around tribal lands, local tribes must be consulted.

3.1.4 Vendor Pay Structure

How a vendor gets paid can have a big impact on public perception and incentives for vendors contracted to process citations. "The approach most often used in the United States compensates vendors for equipment and services on a flat-fee basis, regardless of numbers of citations issued. The flat fee can be for the entire program, or per camera. This arrangement may be more acceptable to the

²⁷ Speed Safety Camera Program Planning and Operations Guide 2023, FHWA (p.58)

²⁸ Ibid (p.58)

²⁹ Ibid (p.57)

³⁰ Ibid (p.58)

public since a flat fee payment structure avoids payment per citation issued, which may help reduce the appearance of financial incentives in selecting sites and issuing citations.”³¹

However, a “flat fee structure may offer little incentive for the vendor to perform well, since the number of citations issued affects the workload. Mixed or tiered payment arrangements, based partly on numbers of citations issued and partly on flat fee structure (per camera or per program), may be used to compensate vendors for work performed in relation to the workload.”³²

The FHWA guide provides examples of vendor agreements from Seattle, WA in Chapter 6 and Appendix B provides links to additional vendor agreement examples.

3.2 Site Selection and Signage

3.2.1 Site Selection Methodology

Ensuring that SSC locations are based on sound data and consider equity are primary concerns for the selection of SSC locations. “The site selection process is a good starting point for an enforcement plan. Sites for SSC programs can be selected to support jurisdiction-wide deterrence of speeding or site-specific problems, depending on the goals and program scope. Some jurisdictions may focus on certain types of locations such as school and/or neighborhood zones, work zones, or specific types of roads that meet legal requirements and were defined in the planned scope of the SSC program.”³³

Sites may be defined as:

- Specific sections of roadway
- Corridors where multiple sites may be enforced (intermittently or continuously)
- Areas (such as residential neighborhoods)

To select appropriate sites, agencies will need to collect and analyze relevant data (e.g., speeding-related crashes, speed data, social and demographic data), and conduct more detailed site reviews to diagnose the type of problems.³⁴

Safety Based Considerations

The FHWA guide notes that DOTs are well-positioned to be engaged in site selection, which relies heavily on problem diagnosis, such as through road safety audits (RSAs) and speed studies, evaluation of treatments, and other engineering practices.³⁵ Making transparent data-driven site selection decisions will help counter perceptions of SSC cameras as methods of revenue generation.³⁶ The lead agency should work with partners to establish roles of the involved partner agencies, and potentially vendors in implementing various aspects of the SSC program, including site selection.³⁷

³¹ *Speed Safety Camera Program Planning and Operations Guide 2023*, FHWA (p.59)

³² *Ibid* (p.59)

³³ *Ibid* (p.30)

³⁴ *Ibid* (p.30)

³⁵ *Ibid* (p.14)

³⁶ *Ibid* (p.16)

³⁷ *Ibid* (p.24)

The FHWA guide states that jurisdictions may want to focus on sites with the greatest risk of speeding-related fatalities and injuries. Such sites may be identified based on historical occurrence of speeding-related fatal and injury crashes. Sites can also be identified using a proactive, systemic approach, which is based on the presence of factors expected to increase the future chances of speeding-related fatal and injury crashes. Jurisdictions should include equity considerations in their site selection process for the program to be effective and meet its safety and public trust goals. DOTs may have the most expertise to lead safety analysis and site prioritization efforts.³⁸

Crash History

*FHWA Guidance:*³⁹ “Agencies should, at a minimum, use law enforcement-reported crash data to identify sites that have experienced speeding-related crash problems.” (e.g., the number of speeding-related crashes, the severity of speeding-related crashes, the proportion or percentage of crashes that are speeding-related in comparison to the rest of the roadway network or other similar sites, field-collected speed data and community input or concerns.)

Systemic Approach

A systemic approach can also be used to identify sites. A systemic approach focuses on selecting sites based on road and other contextual factors that indicate the highest potential for future speeding-related crashes. By using factors that indicate future crash potential at a site (as opposed to using crash history at a site), a systemic approach is a proactive approach to safety management.⁴⁰

Ultimately, site selection depends upon properly identifying speeding-related safety problems by examining crash and speed data and then determining if those problems can be addressed with SSC.⁴¹

Equity Based Considerations

Site selection and the burden of penalties can introduce concerns about equity unless these factors are carefully considered when planning and operating SSC programs.⁴² “During site selection, SSC programs must consider whether speed safety cameras are being disproportionately installed in some areas and not in others. With proper implementation by local governments, SSCs have the potential to offer fair and equitable enforcement of speed limits, regardless of driver age, race, gender, or socio-economic status.”⁴³

Equity considerations in site selection: New York City and Seattle⁴⁴

“Both NYC and Seattle use geographic balance, which may help to prevent disproportionate enforcement of certain neighborhoods. RSAs [road safety audits] and other diagnostic steps may

³⁸ Ibid (p.30)

³⁹ Ibid (p.31)

⁴⁰ Ibid (p.31)

⁴¹ Ibid (p.33)

⁴² Ibid (p.1)

⁴³ Ibid (p.iii)

⁴⁴ Ibid (p.33, iii)

also be used to determine whether alternate treatments such as roadway retrofits or operational improvements may be used instead of SSC to reduce speeding.”

3.2.2 Site Selection Decision Makers

A 2016 report by Miller et al. asked SSC programs about who was involved in providing the SSC/ASE enforcement location recommendations in their community. The breakdown is provided below:

- Police departments - 89%
- City traffic engineers - 51%
- Vendors - 27%
- Public - 32%

They also noted a decline in public and engineering participation in site selection for recent programs.

3.2.3 Signing for SSCs

“Proper signing is an important part of any overt SSC deployment and may complement covert strategies as well. Signs support SSC programs by providing information to drivers about the enforcement efforts. Signs may be used to alert drivers to the presence of SSC, to enhance site-specific deterrence of speeding, and to build awareness regarding SSC to enhance area-wide deterrence.”⁴⁵



Signs, when combined with public communications strategies, could have the potential to serve as the public notification often required for the collection of private data, but further legal clarifications are required to confirm compliance with state data privacy laws.⁴⁶



Signing practices should follow the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) for appropriate signs and deployment locations (See Appendix C).

Sign Type

A variety of signs are used to alert drivers to overt and covert SSCs. “If covert enforcement is deployed, signs at key entrances and other locations throughout the jurisdiction can be used to make the enforcement more transparent, enhance perceptions of fairness, and enhance general deterrence of speeding.”⁴⁷

Types of signs include:⁴⁸

- General signs about the SSC enforcement
- Fixed advance signs
- Temporary advance signs
- Driver feedback signs or other ‘alerts’

⁴⁵ Ibid (p.38)

⁴⁶ Appendix A - Subject Matter Expert Interviews Summary

⁴⁷ *Speed Safety Camera Program Planning and Operations Guide 2023*, FHWA (p.38)

⁴⁸ Ibid (p.38)

Jurisdictions may also inform drivers with signs on major roads and entrances to the jurisdiction or use signs to indicate to drivers they are in the general vicinity of an enforcement site, not the exact location.⁴⁹ Agencies may consider driver behavior (drivers decelerating abruptly near enforcement units then accelerating once they pass the unit) when selecting the appropriate type of SSC strategy and related signing to notify drivers and consider advance warning signs on the approach to the camera location.⁵⁰



The Minnesota and Federal MUTCDs include signing options and standards for photo enforcement in section 2B, which are provided in Appendix C.

3.3 Program Operations and Staffing

3.3.1 Program Operations

Generally, SSC programs require staff to carry out two major functions: operate equipment and issue citations. Both functions may be accomplished by staff from the lead agency, jurisdictions may divide duties between agencies, or the lead agency may engage a vendor. Some agencies may also engage a trusted public agency to provide independent oversight from the agency carrying out day-to-day operations.⁵¹

- **Law Enforcement Operation:** It is common (and in some jurisdictions, required) for law enforcement officers to staff SSC operations due to their role in traditional speed limit enforcement and familiarity with other, ongoing enforcement efforts.
- **City, County or DOT Operation:**⁵² In jurisdictions where operators are not legally required to be sworn law enforcement officers, agencies can consider staff from other agencies (for example, engineering or public works) which may provide a less expensive staffing option (City and County of San Francisco, 2015). Engineering and public works employees are often already responsible for setting speed limits, collecting data, and integrating speed management into long-term roadway planning; SSC program operations may fit well into their current staffing responsibilities.
- **Vendor Operation:**⁵³ Agencies may also employ third-party vendors (or contractors) for installation and for ongoing operation of SSC deployments. An advantage to this approach is that vendors may have more in-depth understanding of the equipment in use and can perform maintenance or address other technical problems. However, there are privacy, equity, and perceptual concerns to employ vendors for ongoing enforcement, so agencies should be transparent in the form of structured arrangement with a vendor.

⁴⁹ Ibid (p.35)

⁵⁰ Ibid (p.35)

⁵¹ Ibid (p.42)

⁵² Ibid (p.42)

⁵³ Ibid (p.42-43)

FHWA Guidance – “Regardless of who staffs the SSC enforcement operations, training is required. Agencies should seek proper training on set-up, maintenance, calibration, and event documentation from vendors on the technologies employed in the SSC operation.”⁵⁴

Table 2 provides a sample of how lead agency roles and responsibilities are distributed in other states.

Table 2: Sample of roles and responsibilities by state (2020 NHTSA Summaries)

<p>Georgia (Automated School Zone Speed Enforcement)</p>	<ul style="list-style-type: none"> • Georgia DOT - approves permit for automated traffic enforcement safety device. • Permit Holder (Vendor)- Maintains the automated traffic enforcement safety device. • A law enforcement agency authorized to enforce the speed limit of a school zone, or an agent working on behalf of a law enforcement agency or governing body, issues the citation by mail.
<p>Pennsylvania (Automated Work Zone Speed Enforcement (AWZSE))</p>	<ul style="list-style-type: none"> • PennDOT – Provides secretary approval of AWZSE, selection of active enforcement zones on PennDOT roadways, lead for Inter-Agency agreement, program administrator contract, co-management of vendor contract, annual reporting, fiscal management responsibility, and other program needs as needed. • Pennsylvania Turnpike Commission (PTC) – selection of active enforcement zones on turnpike, program auditing, co-management of vendor contract, lead with procurement of vendor, and additional program needs as needed. • RK&K, LLP. – Program administrator who is assisting PennDOT and PTC with all program aspects to get the program running and ensure program sustainability. • Pennsylvania State Police (PSP) - automated enforcement unit within the Bureau of Patrol, through agreement with PennDOT and PTC, verifies the violations. • Vendor sends out violation notice on behalf of PennDOT and PTC.
<p>Maryland (Automated Work Zone Speed Enforcement)</p>	<ul style="list-style-type: none"> • ASE/SSC in work zones is enforced at the state level. MDOT State Highway Administration, MDOT Maryland Transportation Authority, and the Maryland State Police are authorized to enforce work zone speed limits with ASE.

⁵⁴ *Speed Safety Camera Program Planning and Operations Guide 2023, FHWA (p. 43)*

A 2016 report⁵⁵ by Miller et al. noted the shift from fully staffed mobile SSC units to remotely monitored mobile units. Part of this shift may be due to technology, and part may be due to safety concerns for staffed units. In Arizona, a vendor developed technology to remotely operate and monitor units following the shooting of a SSC vehicle operator while they were deployed at a site.⁵⁶

3.3.2 Staffing Capacity



Ability to provide sufficient staffing to support a successful SSC program was a top concern mentioned during interviews with stakeholder agencies. Many agencies, particularly DPS are already understaffed and there are concerns about workload and the ability to staff up to manage or support a program, even with additional funding.



A 2009 report, documenting the 2005 Red Light Camera program in Minneapolis, MN, reported that “in eight and a half months (end of 2005 into 2006), 25,000 citations were issued, twice the volume expected, completely overwhelming the city office overseeing the program. The numbers of citations issued at the ten automated enforcement locations equaled one-third of all citations issued in Minneapolis in a typical year.”⁵⁷ The report also provides lessons learned and a summary of the legal battle that ultimately ensued.

3.3.3 Issuing a Citation

With most programs, the private vendor sends notice of a violation to the authorized agency for verification and either the agency sends the citation directly, or the vendor sends the citation on behalf of the agency. The citation can either be verified by a sworn law enforcement officer, or a representative from the agency overseeing the program.

States that have a sworn law enforcement officer issue the citations include Pennsylvania, Iowa, Maryland, Alabama, Illinois, Louisiana, New Mexico and Rhode Island.⁵⁸ In Pennsylvania, a centralized Automated Enforcement Unit within the Bureau of Patrol verifies and issues the citation.

In certain cities in Washington, Georgia, Ohio and New York, authorized officials, agents, or limited commission police specialists may review and issue the violation.

Timely issuance of citations could improve driver feedback, recall of the incident of speeding, and increase public approval (Eccles et al., 2012). Table 3 provides a sample of how turnaround time requirements for citations vary by state. Appropriate staffing for programs and poor interagency coordination could impact the ability for the quick turnaround of citations.

⁵⁵ Miller et al. 2016

⁵⁶ Federal Highway Administration. (2023). *Work Zone Safety Peer Exchange on Safety Contingency Funding and Speed Safety Camera Use - Summary Report*. Washington, DC: U.S. Department of Transportation.

⁵⁷ [Adams, John S., VanDrasek, Barbara J. Automated Enforcement of Red-Light Running & Speeding Laws in Minnesota: Bridging Technology and Public Policy. Center for Transportation Studies. University of Minnesota. October 2009.](#)

⁵⁸ Appendix B - 2020 NHTSA Survey Summary

Table 3: Sample of processing timelines required by programs as of 2020

Georgia	<ul style="list-style-type: none">• 30 days after obtaining the name and address of the owner of the motor vehicle but no later than 60 days after the date of the alleged violation.
Seattle, WA	<ul style="list-style-type: none">• Within 14 days of the recorded violation.
Portland, OR	<ul style="list-style-type: none">• Enabling legislation for Portland, OR to initiate an SSC program in 1995 required the citation to be mailed to the registered owner within six business days of the alleged violation (Eccles et al., 2012).

Chapter 5 of the FHWA guide provides a more in-depth review of the violation structure, processing, delivery, and adjudication of citations, including the timely delivery of citations.

3.4 Citation and Court System Workflow

Many of the logistics surrounding SSC program implementation revolve around the structure of the citation for violations and how the citation gets processed.

3.4.1 Violation Type

Depending on state and local law, SSC violations may be considered moving violation or treated as a civil infractions. According to Miller et al. (2016), the most used sanctions for SSC violations are civil penalties, not impacting a driver’s record.



In Minnesota, most existing traffic citations can either be a:

- Petty offense^{59,60}
 - Moving or non-moving violation
 - Payable offense
 - Not considered a crime and does not carry a jail sentence
 - Moving violations are reported a driving record while non-moving violations are specifically ordered not to be reported on a driving record.
 - Adjudication of contested violations happens through the court system at the county level.
- Administrative citation⁶¹
 - Contested through a civil process established by the local unit of government that employs the peace officer who issues an administrative citation. A neutral third party hears and rules on challenges to administrative citations.
 - These citations are not recorded on a person’s driving record and do not affect driving privileges.
 - Examples of allowable offenses based on the statute include speeding less than 10-mph in excess of the speed limit or failing to obey a stop line.

⁵⁹ [Burress, M., & Johnson, B. \(2019\). Traffic Citations. Minnesota House Research Department.](#)

⁶⁰ See Appendix A - Subject Matter Expert Interviews Summary

⁶¹ [Minn. Stat. 169.999. \(2023\). Administrative citations for certain traffic offenses.](#)

- Current legislation states that “the authority to issue an administrative citation is reserved exclusively to licensed peace officers (Subd. 2).”
- Current legislation also dictates the fine amount (\$60) and how the funds can be distributed (Subd. 5).
- There may be an added burden for smaller cities to administer and adjudicate these cases.
- If new processes/laws were in-place, administrative citations could potentially be processed through DVS or another agency to take advantage of efficiencies with a centralized system, to lessen the burden on the court system and avoid court fees.⁶²

Driver vs Owner Liability

Citations can either be issued to the vehicle owner (owner liability) or the vehicle driver (driver liability). “As implied, driver liability means liability for the infraction is assigned to the driver of the vehicle, which often requires some form of identity verification for issuing an SSC citation. This identity verification may raise civil liberties concerns from communities.”⁶³

- States with enabling legislation that allow the citation to be issued to the vehicle owner instead of drivers typically collect less evidence as a basis to issue a citation (e.g., no photograph of the driver is needed).⁶⁴



In Minnesota, citations can be certified offenses or non-certified offenses. For a non-certified offense, the citation is issued to the owner of the vehicle because the driver is not verified by a sworn law enforcement officer. An example of a non-certified offense currently in use in Minnesota is a school bus stop arm camera violation.

Speeding Threshold

The speeding threshold is the minimum amount above the speed limit at which a violation will be recorded. These are typically set at 6, 10 or 11 mph above the speed limit.

Verification of Violation

Most states require a sworn law enforcement officer to review and issue citations, however some states (such as Georgia, New York and Ohio) have programs where citations may be reviewed by a trained technician.

⁶² Appendix A - Subject Matter Expert Interviews Summary

⁶³ FHWA 2023, Pg 10

⁶⁴ Miller et al. 2016

Penalty Structures

Typically, jurisdictions holding drivers liable for moving violations have more severe sanctions, including driver license points (and potentially higher insurance rates) compared to jurisdictions with owner liability (Miller et al., 2016). Around the country, fines vary from a warning to a \$200+ fine, depending on the threshold speed violated and number of offenses.⁶⁵ Seattle has one of the more severe fiscal penalties with a \$234 fine sent to the vehicle owner with a 6-mph speeding threshold. To ensure lower fines, some states legislatively cap administrative fees that can be added to a citation.

The fine amount can either be static, vary by the number of offenses, or could vary based on the speed threshold exceeded. Table 4 provides a sample of how states reported fine structures in the 2020 NHTSA summaries.

In some states, violations impact driving record for driver liability (documents through a points system in most states) or can impact vehicle registration for owner liability programs. Of the 20 states that provided NHTSA summaries for active programs in 2020, 18 did not report SSC violation on the vehicle owner's driving record (See Appendix B).



Minnesota does not use a points-based driving record system, but moving violations are reported to the Department of Public Safety (DPS) and are noted on a driving record. Repeat or habitual offenders and violations that demonstrate a pattern of dangerous driving may receive added penalties, including having a license suspended or revoked.⁶⁶

⁶⁵ See Appendix B - 2020 NHTSA Survey Summary

⁶⁶ [MinnesotaCourtRecords.us \(2023\)](https://www.minnesotacourtrecords.us). Minnesota Traffic Court Records information page. Retrieved December 21, 2023

Table 4: Summary of fine structure reported in the 2020 NHTSA Surveys for Automated Enforcement

SSC Program	Fine Amount	Additional Fine Details
Georgia (ASZSE)	Varies based on # of offenses: \$75 and \$125	<ul style="list-style-type: none"> • Initial 30-day warning period • 1st offense = \$75.00 • 2nd and subsequent offenses = \$125.00 • In addition, fees associated with the electronic processing of such civil monetary penalty shall not exceed \$25.00
New York (ASE)	Not to exceed \$50	<ul style="list-style-type: none"> • Liability for each violation shall not exceed \$50 • Additional penalty for failure to respond shall not exceed \$25. NYC: No warning period, Buffalo: Yes, warning period
Pennsylvania (AWZSE)	Varies based on # of offenses: \$0, \$75, and \$150	<ul style="list-style-type: none"> • 60-day pre-enforcement period • 1st offense = warning • 2nd offense = \$75, no driving points or insurance penalties • 3rd and subsequent offenses = \$150, no driving points or insurance penalties
Pennsylvania (ASE)	Varies based on speed: \$100, \$125, and \$150	<ul style="list-style-type: none"> • Initial 30-day warning period • \$100 – 11 to 19 mph over the posted speed limit • \$125 – 20 to 29 mph over the posted speed limit • \$150 – 30+ mph over the posted speed limit
Iowa (ASE)	Varies based on city	<u>Des Moines:</u> <ul style="list-style-type: none"> • 1-15 mph over the posted speed limit = \$65 • 16-20 mph over the posted speed limit = \$75 • Excess of 20 mph over the posted speed limit = \$80 + \$2 for each mph in excess of 21 mph over the posted speed limit <u>Sioux City:</u> <ul style="list-style-type: none"> • 11+mph over the posted speed limit = \$100+
Maryland (AWZSE) ⁶⁷	Fines not to exceed \$40	<ul style="list-style-type: none"> • Violators must pay a \$40 fine. Automated speed enforcement violations are considered civil violations; therefore, no license points are assessed. • If the fine is not paid within sixty (60) days, the motor vehicle's registration will be suspended, and an additional \$30 fee will be assessed. • If the fine is not paid within ninety (90) days, the unpaid citation will be forwarded to the State of Maryland Central Collection Unit (CCU).

⁶⁷ [Maryland Safe Zones \(2023\). Automated Speed Enforcement FAQs. Retrieved December 2023](#)

Effectiveness of Penalties and Equity Considerations

Chapter 2 of the FHWA guide provides a robust literature review on the effectiveness of penalties to impact driver behavior and address equity concerns. The following excerpt from the guide addresses these topics.

FHWA Guide – Pages 11 and 12

Research is inconclusive about whether court-administered driver sanctions or graduated penalties provide greater deterrence of traffic law violations and greater safety benefits compared to administrative penalties and lower fines. There is some evidence from an analysis of multiple studies that administrative penalties triggered by driver license agencies may be more effective than court-administered penalties (Masten and Peck, 2004). Regarding the difference in fine amount, a potential disadvantage of owner liability is that wealthier drivers may pay the fines and continue to speed in the absence of driver license sanctions. In contrast, low-income drivers, disproportionately likely to be black and Hispanic, may experience significant harm from even low fines and driver license sanctions that accompany the inability to pay fines. This propagates the cycle of poverty as the lack of access to reliable transportation makes it more difficult for individuals to get and keep jobs, further impeding them from paying their ever-growing debt. In 2015, the California Department of Motor Vehicles (DMV) reported that over 4 million people – 17 percent of adult Californians – had their driver license suspended because they did not appear or could not pay citation fines and fees, many for traffic tickets (Bender et al., 2015).

A report by the Wilson Center for Science and Justice (2021) showed a similar pattern in North Carolina and emphasized how this disproportionately impacts Black and low-income communities. The Department of Justice’s 2015 Investigation of the Ferguson Police Department highlighted that processes involving failure to appear or pay traffic tickets are onerous and unjust, highlighting that the primary motive of traffic tickets was revenue generation instead of public safety. **When determining the processes for violation and penalty type, jurisdictions should use transparent, data-driven systems to place SSC and report results to ensure that public safety is the primary interest and not revenue generation.**

According to Richard et al. (2018), the amount and degree of penalty may be less critical to deterrence than the expectation of being caught and swiftly receiving a penalty (Richard et al., 2018). These considerations should be balanced with the potential harm to which individuals in underserved communities may experience from fines and sanctions. Although driver improvement interventions, including the threat of license suspension, can have some effect on deterrence and future crashes (of all types) for the specific violators (Masten and Peck, 2004), the effectiveness of citations and penalties is also thought to be related to consistent implementation.

Inconsistency in upholding citations and levying sanctions by the courts may affect the perceived legitimacy and effectiveness of speeding enforcement (Neuman et al., 2009). Inconsistent prosecution and adjudication may also result in unequal treatment of violators. Driver-liable citations may be more challenging to issue and consistently achieve convictions than vehicle owner citations based on license plate identification. For example, driver images may not be feasible with motorcyclists wearing helmets (Wijers, 2016; Eccles et al., 2012). These factors may result in unequal treatment of violators, with some operators regularly escaping punishment.

While license sanctions can be imposed if drivers are held accountable, there is also evidence that many drivers, even with suspended or revoked licenses, continue to drive and become involved in speeding-related crashes. One quarter of speeding drivers involved in fatal crashes nationwide in 2018 did not have valid driver licenses at the time of their crashes; this compares to 12 percent of non-speeding drivers in fatal crashes that had no valid license (NCSA, 2020). Thus, license sanctions are not guaranteed to deter individual drivers from further speeding. Additionally, license sanctions may disproportionately impact low-income and minority individuals.

Internationally, the European Transport Safety Commission determined that owner versus driver liability contributes more to improvements in road safety (Wijers, 2016). Due to the increased efficiency and reliability of processing, more citations can be issued with owner liability programs using predominantly automated means, which can increase the deterrent effects. Safety performance evaluations in North America of owner liability programs, such as those in Montgomery County, Maryland (Hu and McCartt, 2016) and in Edmonton, Alberta Province, Canada (Li et al., 2015), have also found the programs to be effective at deterring speeding and reducing crashes.

New York and Maryland both have lower fine amounts (\$50 and \$40 respectively) to address equity concerns in fine pricing. Other methods states use to reduce financial burdens include educational classes to reduce the fine amount. The City of Portland offers an educational class to reduce fine amounts for first time offenders⁶⁸. The program is offered online and is run by a third party. The class is an hour and a half long Zoom meeting that reduces the fine amount by \$45 (from \$170 or \$270 to \$125 and \$225, respectively). Additional discounts are also provided for good driving records and low-income drivers.

⁶⁸ [City of Portland. \(2023\). *Speed and intersection safety cameras webpage*. Retrieved October 5, 2023](#)



A concern in Minnesota is the large percentage of shared vehicles which are more likely to be used in low-income communities⁶⁹. An owner liability program may end up placing a disproportionate burden of penalties upon low-income vehicle owners⁷⁰.

3.4.2 Persistent Offenders and Reciprocity Agreements

Drivers that live in neighboring jurisdictions may not be easily subject to driver license and vehicle-based consequences. Poor agency coordination can lead to lack of violations being added to a driving record and an inability for the DMV to apply administrative consequences to deter behavior (GHSA, 2023). Most states are party to the Driver License Compact, an interstate agreement that provides for the sharing of license suspensions, traffic violations and related data (The Council of State Governments, 2019). However, some states may not enter AE violations on a driver's record, enabling out-of-state drivers to escape the consequences associated with an AE violation.

States without driver's record repercussions can review SSC data to identify locations with persistently poor SSC compliance and supplement those locations with traditional law enforcement techniques in order to report offenses on the driving record.

The GHSA report provided recommendations specific to addressing persistent offenders. These include:

- Establishing penalties for scofflaws⁷¹, such as vehicle impounding or booting, preventing vehicle re-registration and inspections and/or prohibiting license renewal.
- Creating a plan to address out-of-state violators who fail to pay citations by developing reciprocity agreements with neighboring states.
- Pursuing legislation enabling motor vehicle administrators to record AE violations on a person's driving record.

3.4.3 Dispute resolution process

All programs have a designated dispute resolution process that allows the citation recipient to either accept or dispute the violation. A summary of permitted defenses by program can be found in Appendix B.

The 2023 GHSA report emphasized the importance of judiciary involvement early in the planning process. These judicial partners can advise on legal, procedural, or other concerns prior to program launch (GHSA, 2023).

⁶⁹ See Appendix A - Subject Matter Expert Interviews Summary

⁷⁰ *Speed Safety Camera Program Planning and Operations Guide 2023*, FHWA (p. 10)

⁷¹ Scofflaw: A term used to refer to a person who ignores citations on a regular basis and has received a number of unpaid citations. The person "scoffs" at the law. A vehicle with 5 or more unpaid citations will be put on the scofflaw list and may be towed and impounded until all of the citations are paid (Hennepin County. (2023, 12 28). Hennepin Violations Bureau & Hearing Office - About Tickets & Fines. Retrieved December 28, 2023)

3.5 Legal Requirements



As part of the expert interview process, a discussion was held with MnDOT’s Chief Counsel’s Office to understand specific Minnesota statutes regarding data privacy, Automated License Plate Readers (ALPRs), and other considerations. MnDOT Legal advice is not given through the TRS process, but key issues and additional resources were provided. A summary of the discussion can be found in Appendix A.



As mentioned previously, enabling legislation does not currently exist in the state of Minnesota in order to operate a legal SSC program. The issue was documented in 2012 by Frank Douma et al. at the Center for Transportation Studies at the University of Minnesota⁷². According to the report, in order for speed safety camera programs to be used in Minnesota, the legislature would need to, among other things, amend the statute to:

- Indicate their approval of the use of speed safety camera evidence in court; and
- Create guidelines for how the reliability and accuracy of speed safety cameras can be established in court.
- Allow local authorities to use SSCs to regulate traffic.



Additionally, Minnesota Statutes and Federal Regulations that may be pertinent to the discussion of SSCs were documented when they were mentioned through expert interviews or discovered through the literature review process. Table 5 provides a sample of existing statutes that may be applicable to SSC programs or provide insight into legislative considerations. This is a list of statutes encountered and does not represent legal advice.

Table 5: Sample of statutes with potential implications for SSC Programs

• Applicable Minnesota Statutes (I.e., Enforcement authority, data collection and privacy)		
Statute Title	Statute Number / Link	Summary
Automated License Plate Reader (ALPR)	Minn. Stat. sec. 13.824	Classifies data from automated license plate readers and creates documentation and audit requirements.
Duties of Responsible Authority (Data Collection and Storage)	Minn. Stat. sec. 13.05 subd. 5	General data collection and storage; Minnesota Statutes 13.824 has additional requirements for accessing ALPR data.
Automated License Plate Reader Policy	Minn. Stat. sec. 626.8472	Requirement for written policy by state and local law enforcement agencies governing the use of ALPRs.

⁷² [Douma, F., Munnich, L., Gary, T., & Loveland, J. \(2012\). Identifying Issues Related to Deployment of Automated Speed Enforcement. Intelligent Transportation Systems Institute - Center for Transportation Studies - University of Minnesota.](#)

Comprehensive Law Enforcement Data	Minn. Stat. sec. 13.82	<ul style="list-style-type: none"> Any ALPR data that fall under Minn. Stat. sec. 13.82 subs. 2, 3, or 6 are public data. If other ALPR data are part of an active criminal investigation those data are classified under Minn. Stat. sec. 13.82 subd. 7. Currently, MnDOT is not subject to this statute, but depending on the role MnDOT plays in a SSC program, this statute may have implications.
Commercial Drivers Licenses	Minn. Stat. sec. 171 .161 through .169	Includes federal conformity, required records, record keeping, disqualifications, notice to CDL information systems, notice of violation by commercial driver, notice of commercial license suspension.
Speed Limits, Zones; Radar	Minn. Stat. sec. 169.14	General speed limit statute; includes school zone, work zone, safe road zone and speed-measuring subdivisions, among others.
Excess Weight; Civil Penalty	Minn. Stat. sec. 169.871	Provides an example of a civil penalty imposed on a CDL holder.
Administrative Citations for Certain Traffic Offenses	Minn. Stat. sec 169.999	Authorizes counties, cities, and towns to establish, by resolution, administrative citations that peace officers can impose instead of petty misdemeanor or criminal citations. The fine for an administrative citation is set in statute at \$60 but may be increased in certain instances.
Penalties	Minn. Stat. 13.09	Outlines penalties for not complying with statutes on data practices.
Legislative Report; Speed Safety Cameras	Minnesota Session Laws - 2023, Regular Session Appropriations, Chapter 68, Sec. 126.	Mandating the Commissioner of Public Safety to complete the following by November 24th, 2024: (a) submit a report on process and associated policies for issuing SSC violations to the owner or lessee of a motor vehicle and (b) convene a task force to assist in the development of the report.

• Applicable Federal Statutes

Statute Title	Statute Number / Link	Summary
Prohibition On Masking Convictions	49 CFR § 384.226	"The State must not mask, defer imposition of judgment, or allow an individual to enter into a diversion program that would prevent a CLP or CDL holder's conviction for any violation, in any type of motor vehicle, of a State or local traffic control law (other than parking, vehicle weight, or vehicle defect violations) from appearing on the CDLIS driver record, whether the driver was convicted for an offense committed in the State where the driver is licensed or another State." [76 FR 26895, May 9, 2011]
Civil Rights Act of 1964 (Title VI)	42 U.S.C. § 2000d.	States or local jurisdictions must understand that receipt of federal financial assistance means that all of that agency's programs and activities are covered by Title VI of the Civil Rights Act of 1964 (Title VI). Title VI provides that no person in the United States shall, on the ground of race, color, or national

		origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.
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FHWA Guidance: “SSC technology should aim to minimize the data collected on vehicles that violate the established speeding threshold and follow data storage guidelines that minimize privacy concerns.”⁷³

3.6 Commercial Driver’s License (CDL) Holders and Business/Rental Vehicles

Ensuring compliance with federal masking prohibitions for CDL drivers and concerns about compliance with business and rental vehicles were top issues identified through expert interviews with various stakeholder agencies.

3.6.1 Commercial Driver’s License (CDL) Holders

Title 49, Subpart 384.226 of the Code of Federal Regulations states:

“The State must not mask, defer imposition of judgment, or allow an individual to enter into a diversion program that would prevent a CLP or CDL holder’s conviction for any violation, in any type of motor vehicle, of a State or local traffic control law (other than parking, vehicle weight, or vehicle defect violations) from appearing on the CDLIS driver record, whether the driver was convicted for an offense committed in the State where the driver is licensed or another State.”

[76 FR 26895, May 9, 2011]

This regulation requires states with federal funding to report CDL holders receiving a conviction (criminal or administrative) on the CDL holder’s license and report the conviction on the federal database. Because many programs do not record SSC violations on driving records, there has been concern among states that SSC programs are not complying with federal masking mandates. No clarification or guidance was provided in in the 2023 FHWA Guide.

Through this TRS process, expert interviews were conducted with representatives from the Federal Motor Carrier Safety Administration (FMCSA) (the administration that oversees the tracking of CDL compliance) to understand if it is considered masking if a SSC program does not impact driving records.



Based on preliminary guidance from FMCSA, the prohibition on masking in 49 CFR 384.226 does not apply to speed camera administrative citations, where the driver is not identified and no conviction results. See Appendix D for more information.

3.6.2 Business and Rental Vehicles

The FHWA Guide recommends engaging private sector and fleet owners in the program development process to identify special procedures that may be required. The document states that

⁷³ *Speed Safety Camera Program Planning and Operations Guide 2023, FHWA (p.33)*

“When registration records indicate that a speeding vehicle is owned by a government agency or a business, a form may be sent to the registered owner or fleet manager requesting the identification of the driver of the vehicle at the time of the violation. To do this, vehicle fleet managers may need to consult vehicle-use logs to determine who was driving the vehicle at the time of the violation. This level of compliance may be expected by policy and prior agreement among government agencies but may be more difficult to achieve with business vehicles. If no response to the notice is received or the responsible individual is not identified, State and local laws may determine whether the organization may be held responsible for the violation notice or if it should be dismissed.”⁷⁴

3.7 Revenue

How a program distributes the revenue from a SSC program and how they communicate this information to the public are important elements for successful program implementation.

“Allocating revenues from SSC programs to long-term safety design projects, including Complete Streets implementation, may increase public support for SSCs as a safety strategy. Prioritizing design improvements in communities experiencing disproportionate rates of fatalities and serious injuries, particularly underserved communities that have experienced historic disinvestment, can address both safety and equity goals of speed management and broader road safety programs. Another option includes directing revenue to a general fund. However, this may create perverse incentives for SSCs to be used to increase government budgets and support the common perception that a SSC program is used for revenue generation rather than for serious crash prevention.”⁷⁵

Allocating funds for safety initiatives can help to counter these perceptions and reinforce the narrative that SSC programs are temporary, cost-effective safety countermeasures against speeding to prevent traffic fatalities and serious injuries.⁷⁶



2021 research and analysis⁷⁷ conducted by the City of Minneapolis recommended the potential of specifically allocating revenue, with “any excess revenues being dedicated to improving traffic safety and reducing the impact of fines on people with lower incomes.”

Concern of revenue being allocated for safety initiatives include the administrative complexity, uncertainty in revenue, and that jurisdictions may cut existing road safety funding in lieu of revenue from SSC programs. California’s new speed safety cameras bill⁷⁸ explicitly prohibits jurisdictions from reducing their existing commitment of local funds for traffic-calming measures in order to participate in an authorized SSC pilot program.

⁷⁴ Ibid (p. 54)

⁷⁵ Ibid (p. 54)

⁷⁶ Ibid (p.54)

⁷⁷ Vision Zero Program. (2021). City of Minneapolis Automated Enforcement Research and Analysis Summary. Minneapolis, MN: City of Minneapolis - Public Works.

⁷⁸ [California Assembly Bill No. 645 \(2023\)](#)



Within Minnesota, existing citation processing through the court system allows for an identifier code to be applied to the citation payment as long as the earmark for the funds is written into law. If implemented through the court system, a new identifier code would be added to the court payment processing system to direct the funds⁷⁹. It is unknown how an administrative citation would impact this process.

FHWA Guidance: “Programs should ensure compliance with State laws (or even constitutional requirements for disposal of revenues from paid traffic citations).”⁸⁰

As part of the new guide, FHWA indicates that DOTs may be well-positioned to provide the engineering knowledge to maximize the safety benefits and increase public trust while reducing concerns about revenue generation.⁸¹



“The 2017 study⁸² conducted by the Roadway Safety Institute looked to identify the foundations in which the Minnesota public opposes SSCs and to determine if framing the messaging to better convey automated enforcement would change public opinions. The study found that the use of revenue generated by SSCs was a top negative perception for Minnesotans, along with a misunderstanding about the constitutionality of SSCs, the public safety threat posed by speeding, and concerns about big government.”⁸³

3.8 Evaluation and Reporting

3.8.1 Evaluation

FHWA Guidance: “Evaluation is critical to the success of any SSC program, and evaluations should be conducted regularly to determine if programs are accomplishing their original safety goals, to identify whether changes in strategy or scheduling are necessary, and to understand how the program is perceived by the public. A thoughtful approach to evaluation will allow agencies to shift priorities and deployments as part of a flexible and responsive traffic safety management program.”⁸⁴

Evaluation includes basic monitoring to assist agencies in calibration and maintenance procedure and evaluation of program impacts on crashes and driver speeds. The 2023 FHWA guide provides specific recommendations on data collection for annual evaluation. Chapter 7 of the FHWA guide provides additional guidance and recommendations for program evaluation.

Evaluation of Safety - Crash Effects

FHWA Guidance: “Agencies should collect crash data at deployment sites as a measure of a program’s performance. An agency may aim to measure changes in collision frequency and severity at enforced

⁷⁹ See Appendix A - Expert Interviews

⁸⁰ *Speed Safety Camera Program Planning and Operations Guide 2023*, FHWA (p.54)

⁸¹ *Ibid* (p.24)

⁸² University of Minnesota Roadway Safety Institute. (2017). Human-centered solutions to advanced roadway safety; Identifying and Reconciling Stakeholder Perspectives in Deploying Automated Speed Enforcement.

⁸³ Vision Zero Program. (2021). City of Minneapolis Automated Enforcement Research and Analysis Summary. Minneapolis, MN: City of Minneapolis - Public Works.

⁸⁴ *Speed Safety Camera Program Planning and Operations Guide 2023*, FHWA (p.66)

*and comparison sites. The crash data may include specific crash types, crash severity, demographic data, or other speeding-related crash indicators that provide agencies insight on the effects of the SSC program”.*⁸⁵

Evaluation of Safety - Speed Effects

*“An evaluation of speed can take a similar structure to an evaluation of crashes regarding periods to evaluate and the use of comparison sites. Speed evaluations should also consider time of day in the evaluation to understand the SSC unit’s effectiveness under different conditions (e.g., peak versus off-peak, different lighting levels, etc.).”*⁸⁶

*“When an SSC program is in place, it can have positive or negative impacts of enforcement at nearby sites or alternate routes due to driver adaptations. To assess whether these potential behaviors are affecting safety at other locations, speed, crash, and volume data at the enforcement site and nearby sites may be collected. This data may allow agencies to determine if there are beneficial or negative effects to other locations on the network.”*⁸⁷

Evaluation of Public Awareness and Attitudes

*“Ideally, agencies should measure public acceptance prior to SSC installation, at program start up, and periodically during operations to identify any changes in acceptance. Information from surveys should be disaggregated across demographics and neighborhoods/zip codes, if possible.”*⁸⁸

The survey completed in Washington, DC allowed the District to gather valuable insights into community concerns that could then be addressed in the strategic plan and marketing rollout prior to program expansion.⁸⁹

⁸⁵ *Speed Safety Camera Program Planning and Operations Guide 2023, FHWA (p.67)*

⁸⁶ *Ibid (p.69)*

⁸⁷ *Ibid (p.69)*

⁸⁸ *Ibid (p.69)*

⁸⁹ *Ibid (p.71)*

3.8.2 Reporting

An annual report or survey is common for SSC programs to ensure transparency and accountability. In some cases, such as the Pennsylvania program, the report is required to be presented to the legislature by a specific day each year.

Beginning with Fiscal Year (FY) 2018, the Fixing America's Surface Transportation (FAST) Act requires states that have automated traffic enforcement systems installed to conduct biennial survey reports on programs used, documents transparency, and compares compliance with the Speed Enforcement Camera Systems Operational Guidelines (DOT HS 810 916, March 2008). These surveys are due on March 1 every other year starting March 1, 2018.⁹⁰

3.9 Funding

Typically, programs get enough revenue to be maintained without additional funding; however, there are a variety of funds that are available to help with start-up cost.

Previous bans on the use of federal funds for SSC programs has been lifted with the passage of the Infrastructure Investment and Jobs Act (IIJA) in 2021. The change granted states the ability to use NHTSA grant funding for SSC programs to address speeding and red-light running in school and work zones (GHSA 2023). Under this new allowance, states are permitted to use funding provided under the State and Community Highway Safety Grant DOT guidelines.⁹¹

The funding programs state that eligible programs must be consistent with federal guidelines; however, there is still no clear guidance on what the federal guidelines entail (GHSA 2023 Webinar). Clarification at the federal level is in progress at the time this document was written.

Other eligible funding sources may include HSIP, SS4A, Smart Grants and FHWA State Transportation Innovation Council (STIC) Funding.

⁹⁰ [National Highway Traffic Safety Administration. \(2020\) Automated Traffic Enforcement Surveys – Fiscal Year 2020. Retrieved December 19, 2023](#)

⁹¹ [Governors Highway Safety Association. \(2023\). Section 402 State and Community Highway Safety Grant Program.](#)

4 ADDITIONAL RESOURCES

Table 6 provides additional resources, particularly related to program structure and implementation.

Table 6: Additional resources on Speed Safety Camera Programs and Implementation

Publication	Summary/ Notable Information
Speed Safety Camera Program Planning and Operations Guide (FHWA, 2023)	Provides information for state and local governments on the planning, implementation, and operation of an SSC program aimed at reducing traffic fatalities and serious injuries resulting from speeding-related crashes – especially in school areas and construction zones.
Automated Enforcement in a New Era. (GHSA, 2023)	The report makes several recommendations for states and traffic safety partners to identify and overcome key barriers when creating or expanding an automated enforcement program, including: Equity, Community Participation and Engagement, Transparency and Accessibility, Focus on Safety, Proper Site Selection, Reciprocity Agreements.
Photo Enforcement Program Q&A. (Office of the Auditor General, State of Arizona, 2010).	FAQ document providing detailed responses to questions about the state’s photo enforcement program.
System Analysis of Automated Speed Enforcement Implementation (Miller et al.,2016)	The specific objectives of this study were to: (1) evaluate existing automated speed enforcement programs, (2) determine collectively how aligned these programs were with NHTSA’s guidelines, (3) examine how other factors impact ASE programs, and (4) assess whether adherence or lack of adherence to the NHTSA Guidelines, as well as other factors, are related to program effectiveness.
Automated Enforcement for Speeding and Red Light Running. (NCHRP Report 729, 2012)	Provides guidelines for the start-up and operation of AE programs to improve highway safety.
Noteworthy Speed Management Practices. (Hawkins/Hallmark, 2020)	This document highlights eight noteworthy speed management practices across a range of areas from advocacy to countermeasures.
Countermeasures that work: A highway safety countermeasures guide for State Highway Safety Offices. (Venkatraman, V. et al, 2021)	The guide: <ul style="list-style-type: none"> • Describes major strategies and countermeasures that are relevant to SHSOs; • Summarizes strategy/countermeasure use, effectiveness, costs, and implementation time; and • Provides references to the most important research summaries and individual studies.

Automated Enforcement Program Checklist. (National Safety Council, 2021)	Checklist describing near, medium- and long-term steps for implementing red light cameras and automated speed enforcement.
Automated-Speed-Camera Enforcement, webpage. (CDC, 2022)	High level summary of automated speed cameras. Provides resources for legislation for each state as well as costs/time to implement programs.
U.S. Communities using speed cameras (Insurance Institute for Highway Safety, & Highway Loss Data Institute, 2022)	Website utilizing reputable media sources to track jurisdictions that implement or deactivate red light and speed safety cameras. Provides list of 215 jurisdictions with red light or SSC programs.

5 NEXT STEPS

If Minnesota were to pass legislation, the FHWA guide provides a four-step framework for initiating the process. The steps include stakeholder engagement, some of which began during the expert interview process for this report. This group of experts provides a starting place for bringing together key stakeholders needed to implement a SSC program.

The following identifies a few of the next steps required before a SSC program could become operational in Minnesota.

- Procedures for speed safety camera system placement
- Training and qualification of individuals to inspect and calibrate a speed safety camera system
- Procedures for initial calibration of the speed safety camera system prior to deployment
- Requirements needed for regular speed safety camera system inspection and maintenance by a qualified individual
- The detailed form of the uniform speed safety camera citation
- Evaluation methodology that provides standardized metrics and evaluation measures and enables valid statistical comparison across monitoring sites
- Identification of additional personnel needs by agency

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APPENDIX A – SUBJECT MATTER EXPERT INTERVIEWS SUMMARY

To better understand aspects of speed safety camera operations specific to Minnesota or to clarify national guidance on SSC operations, MnDOT conducted expert interviews in October and November of 2023. Agencies engaged in the expert interviews included the MN Judicial Branch, the City of Minneapolis, MnDOT legal staff, Federal Motor Carrier Safety Administration (FMCSA), and MN Department of Public Safety (DPS). The discussions and findings are summarized below and incorporated into the body of the *Administrative Rules and Structures of Speed Safety Camera (SSC) Systems* TRS.

These interviews also serve as a starting point for identifying community stakeholders which is identified as a critical step for strategic planning under the new FHWA operations guide.

MN Judicial Liaison – Hennepin County October 12th, 2023

Discussion about how other state’s consolidate SSC enforcement under a centralized system and considerations for a Minnesota system to administer SSC citations under a consolidated process.

- Minnesota is an administratively consolidated or centralized state for many things, but adjudication happens at the local level. Items such as jury notices, general questions, and payments are centralized. A new system would need to be in place since all citations are currently adjudicated at the local level.

Discussion about citation types.

- Most moving violations are petty offenses that get filed under VB or “Violations Bureau”. Citations such as a moving violations for speeding get processed through the court system and assigned to a hearing officer or judge.
- There are however license and registration implications that happen through Driver and Vehicle Services (DVS) that are independent of the court system. For instance, DWIs come with a criminal citation, but there are also license revocation and license plate impounding that can happen through DVS that are not a court invoked process. The process occurs between the officer on the street and DVS, unless it is challenged in court. There are re-instatement fees through DVS, but no court fees that get applied to the license repercussions. Therefore, it is possible that a SSC program could process citations directly through DVS, avoiding the court system with repercussions being a forfeiture against the vehicle.

Discussion about Automated License Plate Reader laws.

- There is a desire for potential SSC laws on data practices to be separately defined from Automated License Plate Reader laws since this program would be targeted for a specific purpose. The ALPR data is subject to specific rules.

Discussion about how parking tickets and other non-moving violations are handled for Commercial Driver’s License (CDL) holders.

- Considered VB offenses that get attributed to the vehicle owner because it's hard to know who was driving when the offense occurred.
- The general understanding is that most of these get paid and not challenged.

City of Minneapolis Vision Zero Office

October 11th, 2023

The City of Minneapolis has been working with state legislators in support of SSC legislation. This legislation was heard in the House Transportation Committee in 2022 but was not heard in 2023 due to a lack of time and outstanding questions on masking for CDL holders. The City provided research and analysis on automated traffic enforcement for MnDOT review, which included literature and peer city interviews for the cities of New York, Portland, Toronto, Chicago, Denver, Seattle, and Washington, D.C.

The draft legislation Minneapolis is supporting requires MnDOT and DPS to establish speed safety camera system standards that would govern both state and local speed safety camera programs as well as:

- Procedures for speed safety camera system placement.
- Training and qualification of individuals to inspect and calibrate a speed safety camera system.
- Procedures for initial calibration of the speed safety camera system prior to deployment.
- Requirements for regular speed safety camera system inspection and maintenance by a qualified individual.
- The detailed form of the uniform speed safety camera citation.
- Evaluation methodology that provides standardized metrics and evaluation measures and enables valid statistical comparison across monitoring sites.

Additionally, the City continues to look into considerations such as:

- Whether or not a non-certified offense such as a violation from a school bus stop-arm camera could provide a path for SSC implementation. Currently, school bus stop-arms camera violations are non-certified offenses under MN Stat. 169.444 subd. 6(a). Camera violations for school bus stop-arms go to vehicle owner and are not certified by DPS, therefore it's not considered masking of CDL holders because the offense is not certified, and the driver is not identified. The same is true for vehicle owners who receive a violation for not obeying work zone flagger (169.06, subd. 4b(b)). The violation is for owning a vehicle that was found to be speeding in a camera zone, not a drivers moving violation, because the driver is not identified. Confirmation from FMCSA would be needed to confirm that this would not be considered masking for CDL holders.
- Whether or not any special provisions for CDL holders are needed in legislation.
- Additional potential protections for fairness, equity, and privacy.

MnDOT Legal
November 16th, 2023

A discussion was held with MnDOT legal to understand Minnesota specific statutes regarding data privacy. MnDOT legal advice is not given through the TRS process, but key concerns and additional resources were provided.

- Statute 13.82 “Law Enforcement Data” was called out as having potential implications for MnDOT depending on the extent to which MnDOT participates in the SSC program operations and data retention.
- Important to think through how data gets encrypted, how public records requests get handled, and destruction of data.
- Private data includes the need to notify the driver, but public communications and signing could be sufficient. Unclear for covert cameras.

MN Department of Public Safety
November 20th, 2023

The conversation took place to understand operations concerns and considerations specific to DPS and to share findings from how other states are structuring programs. The top concerns discussed during the meeting included CDL masking and staffing concerns to implement a program.

- Need to ensure that the state is in compliance with federal laws. The belief is that an administrative citation would be in violation of masking.
- State Patrol is already understaffed and there are concerns about workload, the ability to staff up even with additional funding, and public acceptance of automated enforcement.

Additional Comments/Concern:

- The state has a large quantity of vehicles lacking up to date owner information on the DVS record, which would result in a large quantity of returned citations that would not get resolved. Changes to vehicle registration process could help offset this impact.
- The state has a large quantity of shared vehicles in MN which would likely result in a large quantity of challenges to citations and/or equity issues for vehicle owners.
- DPS stance is to not refunnel any funds back into the program.
- Oppose the issuing of warnings and recommends the citation go on the driving record if the intent of the program is to improve safety.
- The example of school bus stop arm cameras is at a very different scale and typically the officers try to follow up to identify the driver.

- Labor Union has a strong view on whether the citation needs to be issued in person and/or viewed by a sworn law enforcement officer.
- Capacity is a concern, and the agency could discuss ideas related a program that takes the issue outside of DPS.

Federal Motor Carrier Safety Administration (FMCSA)

November 21st, 2023

Preliminary feedback from FMCSA

- Guidance is largely dependent on type of citation (i.e., Moving, Non-moving or Administrative)
- If a citation goes to the vehicle owner instead of the driver, they don't require it to go on the CDL driver's record under .384 because the driver is not verified. Therefore, it's not considered masking and would not be something that FMCSA regulates.
- Street cameras are not an Innovative Technology Deployment (ITD) Program requirement/ no anticipated ITD implications.
- The safety benefits are widely agreed upon, it's the implementation that is challenging.

Expert Interview Attendee List and Contact Information

Organization	Title	Name	Email
City of Minneapolis	Vision Zero Program Coordinator	Ethan Fawley	ethan.fawley@minneapolismn.gov
OTS Judicial Liaison - Traffic Safety	ABA State Judicial Outreach Liaison – Minnesota	Judge Kerry Meyer	meyermnjol@gmail.com
MnDOT Office of Chief Counsel	Senior Legal Counsel	Eric Bell	
FMCSA	Minnesota Division Administrator	Matthew Marrin	Matthew.Marrin@dot.gov
	Program Manager for ADS, Electronic Inspections, and Roadside Safety Technologies	Thomas Kelly	thomas.kelly@dot.gov
	Acting Chief for CDL Division	Camille White	camille.white@dot.gov
	ITD Program Manager	Leroy Taylor	leroy.taylor@dot.gov
DPS	Chief of the State Patrol (Former)	Colonel Matthew Langer	
	Chief of the State Patrol (Acting)	Lt. Colonel Christina Bogojevic	
	Commercial Vehicle Enforcement Unit	Captain Jeff Schroepfer	jeffrey.schroepfer@state.mn.us

Appendix B
2020 NHTSA Survey Summary Matrix - Compiled 08/31/2023
MnDOT Speed Safety Camera Systems TRS

Substantial Information

Source	Type	Legislative sunset	Violation Threshold (mph)	Is traffic data utilized to determine placement of enforcement platforms?	Are citations reviewed and signed by a sworn law enforcement officer?	Is there a process in place for dispute resolution?	Fine Amount (General)	Is traffic data analyzed to determine automated enforcement's impact on safety elements?
Georgia (ASZSE)	Limited School Zones with permit from GDOT		11+	Yes	Yes, or an authorized agent		Varies: \$75 \$125	
New York (ASE)	School Zones; ASE within a restricted number of school zones	Repeal date 9/6/2024		Yes	No, can be a New York City transportation official.	Yes	Not to exceed \$50	Yes
Pennsylvania (AWZSE and ASE)	Work Zone and Turnpike Highways; Site Specific Pilot	WZ and Turnpike =02/16/2024 (5-yr Pilot); Site specific pilot= 12/19/2023	11+	Yes	Yes, Penn. State Police Automated Enforcement Unit	Yes, Formal hearing	AWZSE - Varies based on # of offenses: \$0, \$75, \$150 ASE - Varies based on speed: \$100, \$125, \$150	Yes, most programs require annual reporting to PA legislature.
Pennsylvania (ASE)	Pilot - Site Specific	12/19/2023 (5-yr Pilot)	11+	Yes, Pilot site utilized crash data and speed data to determine the most appropriate locations.	Yes, Penn. State Police Automated Enforcement Unit	Yes, Formal hearing	Varies based on speed: \$100 \$125 \$150	Yes, most programs require annual reporting to PA legislature.
Washington	School Zones; non-school zone pilot in Tacoma	1 yr pilot in Tacoma		Yes	Yes	Yes		
Iowa (ASE) mobile automated speed enforcement units also allowed (for instance in school or work zones)	Automated Speed Enforcement including mobile units		11+; 12+		Muscatine Iowa: Yes	Yes, instructions for contesting are on the citation.	Varies: Des Moines: 1-15 mph over = \$65, 16-20 mph over = \$75, Excess of 20 mph over = \$80 + \$2 for each additional mph Sioux City: 11+mph over = \$100 and up	
Maryland (AWZSE and ASE)	Work zones; School zones; General use in limited Areas		12+	Yes	Yes	Yes	Warning period of at least 15 days Fines not to exceed \$40	Yes
Maryland (ASE)	School zones; General use in limited Areas in Montgomery and Prince George Counties.						Warning period of at least 15 days Fines not to exceed \$40	Yes
Alabama (ASE)	General ASE			Yes	Yes	Yes		Yes
Illinois (ASE)	General ASE in Chicago only.			Yes	Yes	Yes		Yes
Louisiana (ASE)	General ASE			Yes	Yes	Yes		Yes
New Mexico (ASE)	General ASE in city of Rio Rancho only.			Yes	Yes	Yes		Unknown
Ohio (ASE)	General ASE in 10 cities.			Yes	Varies by city, mostly yes	Yes		Yes
Rhode Island (ASE)	General ASE in two cities: Providence and Pawtucket			Yes	Yes	Yes		Yes

Basic Information

MnDOT Speed Safety Camera Systems TRS NHTSA Survey Summary Matrix - 08/31/2023

No Active Programs

Source	Notes on lack of automated speed enforcement:
Arizona (ASE)	The Arizona State Legislature banned the use of automated traffic enforcement system on state roads, including state highways.
Arkansas	Automated traffic enforcement systems are not used on any public road in the state.
California	No automated speed enforcement cameras used. Red light cameras are used.
Colorado	Speed Safety Cameras are not used, red light cameras used in Denver.
Washington DC	No automated speed enforcement cameras used.
Delaware	No automated speed enforcement cameras used.
Florida	No automated speed enforcement cameras used.
Missouri	No automated speed enforcement cameras used, MoDOT does have a policy guide for automated traffic enforcement that includes ASE policies.
North Carolina	Charlotte, NC had ASE active from 1998 to 2007. Currently inactive. A NC court of appeals case made many red light and ASE systems financially infeasible.
Tennessee	No automated speed enforcement cameras used.
Texas	No automated speed enforcement cameras used, red light cameras possibly discontinued.
Virginia	No automated speed enforcement cameras used.

NHTSA Automated Speed Enforcement Surveys - 2020
MnDOT Speed Safety Camera Systems TRS

General Research Information					Vendor /Equipment					
State	Type/Legislative sunset	Eligible Roadways	Violation Threshold	Additional Program Details (to hide later)	Ownership of System	Authorized Enforcement Vendors	Agreements or Recent Ordinances	Enforcement Technology	Placement: Is traffic data utilized to determine placement of enforcement platforms?	Required Signs
Georgia (ASZSE)	School Speed Zone	Limited to school zones only. Permit is needed from the DOT.	In excess of 10 miles per hour over the speed limit.		Data not available	Data not available			Required to be submitted with of permit form: Traffic data indicating the number and speed of vehicles traveling in the area of the proposed Automated Traffic Enforcement Safety Device.	The Applicant must ensure the maintenance of all School Zone Signage as defined in the MUTCD, including but not limited to School Zone Flashers.
New York (ASE)	Pilot - Site Specific New York State Vehicle & Traffic Law Sections 1111 and 1180 authorizes specific jurisdictions to establish demonstration programs. Repeal date 9/6/2024.	Within a restricted number of school speed zones			New York City owns camera systems. City of Buffalo contracts/Leases			The Automated Work Zone Speed Enforcement systems are required, by law, to be recalibrated and recertified on an annual basis. The calibration and certification are valid for 365 days from the certification date. The system runs daily self-tests to ensure all aspects of the system are operating properly at the start and end of each enforcement period.	NYC DOT: <ul style="list-style-type: none"> • Crash history during school hours on school days in school speed zone. • Key Takeaways from Maryland • Maryland's work zone SSC program started as a pilot and later became a fully implemented program. • Maryland uses mobile units for their work zone SSC. • An evaluation of the program found a 90-percent decrease in vehicles traveling at speeds above the citation threshold, which is 12-mph over the work zone speed limit. Chapter 8: Case Studies 76 <ul style="list-style-type: none"> • Speed data. • Roadway geometry. • Engineering judgment. • Pedestrian Safety Action Plans. 	
Pennsylvania (AWZSE)	Pilot - Road Type (02/16/2024 (5-yr Initial Pilot Program))	Work Zones that are active with workers present on the following Highways: <ul style="list-style-type: none"> • PennDOT - All federal aid highways with an active work zone • Turnpike – All Turnpike highways with an active work zone 	11+ mph	17 Mobile Units – 10 generally dedicated to PennDOT, 7 generally dedicated to PTC. <ul style="list-style-type: none"> • Mobile units will be entering and deploying to individual projects per shift on a daily basis. • Deployment shifts include up to 8 hours of active enforcement. • Up to two anticipated shifts daily per unit, generally one daytime and one nighttime shift. • Deployment locations will be identified monthly and scheduled weekly, in advance. • Detailed coordination with District Construction, Maintenance, Design staff in development of schedules. • Coordinated go-no decision with project team day prior, confirmation day of deployment. 	Contracted/ leased	Redflex Traffic Systems, Inc. (Joint Contract with PTC and PennDOT)	<ul style="list-style-type: none"> • AWZSE1 – Executed 10/16/2019 (Sunsets when program is not continued), IGA agreement between PennDOT, PTC, and PSP • AWZSE2 – Executed 10/03/2019, Enforcement Vendor Contract with Redflex Traffic Systems 	<ul style="list-style-type: none"> • Dual Radar (Down the road and across the road) that requires both radar measurements to match for a violation to occur. 	Yes, ASE along Roosevelt Blvd. utilized crash data and speed data to determine the most appropriate locations. AWZSE is utilizing a data driven process of evaluating crash data, speed information, construction activities to determine the best location for deployment.	<ul style="list-style-type: none"> • 2 warning signs prior to the enforcement device. 1 sign shall identify whether enforcement is active. – Same sign identifying Active Enforcement was selected to simplify and well as be more transparent – FHWA PA Approved 11/21/2019. • 1 sign at the end of automated work zone. – End Roadwork Sign will be utilized • 1 sign at the enforcement vehicle – Automated Enforcement Sign on Vehicle
Pennsylvania (ASE)	Pilot - Site Specific (12/19/2023 (5-yr. Initial Pilot Program))	Roosevelt Boulevard (U.S. 1) between Ninth Street and the Philadelphia/ Bucks County Line. Approximately 12-miles	11+ mph	8 Initial Locations along Roosevelt Blvd at following intersections: <ul style="list-style-type: none"> • Banks Way • F Street • Deveraux Street • Harbison Avenue • Strahle Street • Grant Avenue • Roosevelt Boulevard and Red Lion Road (near Whitten Street) • Roosevelt Boulevard and Southampton Road (near Horning Road) 	Contracted/ leased	American Traffic Solutions, Inc (Philadelphia Parking Authority)	<ul style="list-style-type: none"> • Ordinance Bill No. 190184 – Executed 06/05/2019 (Sunsets 12/19/2023), adding Chapter 12-3400 "Use of an Automated Speed Enforcement System to Improve Safety on Roosevelt Boulevard" 	<ul style="list-style-type: none"> • Across the Road Radar (Approval Pending completion of testing) 	Yes, ASE along Roosevelt Blvd. utilized crash data and speed data to determine the most appropriate locations. AWZSE is utilizing a data driven process of evaluating crash data, speed information, construction activities to determine the best location for deployment.	<ul style="list-style-type: none"> • 2 warning signs prior to the enforcement zone on each end. • 2 warning signs placed at 2-mile spacing through the corridor • Ordinance provides clarification and, in some cases, adds additional signs by requiring that at least one sign shall be posted before the area in which each Enforcement area is utilized providing advanced notification immediately ahead. • All signs being utilized are MUTCD compliant with R10-18 and R-10-19aP
Washington	Speed Violation, School Speed Zone Violation	Limited to school zones only, with one exception: The city of Tacoma is authorized to operate one non-school zone speed camera under the condition that it receives authorization for a one-year pilot project from the Washington State Legislature.	Data not available	14 agencies were using SSCs in 2020	Data not available	Data not available	Data not available	Data not available	Washington law requires each jurisdiction to conduct an analysis for each location where they intend to install an ATSC.	Data not available

NHTSA Automated Speed Enforcement Surveys - 2020

MnDOT Speed Safety Camera

General Research Information		Citation Process								
State	Type/Legislative sunset	Lead Agencies Roles and Responsibilities	Police Violation Verification	Are citations reviewed and signed by a sworn law enforcement officer?	Violation Review Process	Dispute resolution process	Is there a process in place for dispute resolution?	Reported on driving record?	Allowable Violator Defenses	Public Notification of Enforcement
Georgia (ASZSE)	School Speed Zone	<ul style="list-style-type: none"> Georgia DOT - approves permit for automated traffic enforcement safety device. Permit Holder - Maintains the automated traffic enforcement safety device. 	A law enforcement agency authorized to enforce the speed limit of a school zone, or an agent working on behalf of a law enforcement agency or governing body, shall send by first class mail addressed to the owner of the motor vehicle within 30 days after obtaining the name and address of the owner of the motor vehicle but no later than 60 days after the date of the alleged violation.		A law enforcement agency authorized to enforce the speed limit of a school zone, or an agent working on behalf of a law enforcement agency or governing body, shall send by first class mail addressed to the owner of the motor vehicle within 30 days after obtaining the name and address of the owner of the motor vehicle but no later than 60 days after the date of the alleged violation.			A violation for which a civil warning or a civil monetary penalty is imposed pursuant to this Code section shall not be considered a moving traffic violation for the purpose of points assessment under Code Section 40-5-57.	<ul style="list-style-type: none"> Testifying under oath that he or she was not the operator of the vehicle at the time of the alleged violation. Presents police report showing that the vehicle had been reported to the police as stolen prior to the time of the alleged violation. 	
New York (ASE)	Pilot - Site Specific New York State Vehicle & Traffic Law Sections 1111 and 1180 authorizes specific jurisdictions to establish demonstration programs. Repeal date 9/6/2024.			No, however, new you city transportation officials comply with the 'speed camera guidelines' by overseeing the city's program, selecting camera sites and reviewing violations before fines are mailed.			Yes	No, Civil violation.		
Pennsylvania (AWZSE)	Pilot - Road Type (02/16/2024 (5-yr Initial Pilot Program))	<ul style="list-style-type: none"> PennDOT – Provides Secretary approval of AWZSE Approval, Selection of Active Enforcement zones on PennDOT roadways, Lead for Inter-Agency agreement, Program Administrator contract, Co-management of Vendor Contract, Annual Reporting, fiscal management responsibility, and other program needs as needed. PTC – Selection of Active Enforcement zones on Turnpike, Program Auditing, Co-management of Vendor Contract, Lead with Procurement of Vendor, and additional program needs as needed. RK&K, LLP. – Program Administrator who is assisting PennDOT and PTC with all program aspects to get the program running and ensure program sustainability throughout the pilot program period. PSP – Legislatively identified to review and concurring with violations before being issued by vendor. Additional periodic testing as appropriate to ensure program credibility. Redflex Traffic Systems – AWZSE enforcement vendor responsible for turn-key solution of having equipment, enforcement software, annual calibrations, lead processing of violations and ensuring payment and tracking of payments. 	Pennsylvania State Police (PSP) Automated Enforcement Unit within the Bureau of Patrol through agreement with PennDOT and PTC – scope defined in Interagency Agreement (AWZSE1 – 10/19/2019).		<ul style="list-style-type: none"> Redflex system identifies and photographs motorist exceeding speed limit by 11+ MPH. Redflex reviews image and case file. Send all fine carrying cases to PSP AWZSE Unit. PSP reviews and affirms fine carrying violations Redflex sends out violation notice on behalf of PennDOT and PTC. For first violation (no fine), violator has 30 days to contest or case is considered closed. For all fine carrying violations, after 30 days, up to an additional \$75 in late fees may be assessed through successive notices. 	Each program has a slightly different process for appeals, but each has at least one formal hearing associated with the program.		<ul style="list-style-type: none"> 3 defenses are permitted: <ul style="list-style-type: none"> Vehicle was stolen Registered owner didn't own the vehicle during the time of offense. Device calibration and/or testing issues 	<ul style="list-style-type: none"> Identification of enforcement location will be made available on Agency Website (s) – Located on Program Website https://workzonecameras.pennDOT.gov/locations/ 	
Pennsylvania (ASE)	Pilot - Site Specific (12/19/2023 (5-yr. Initial Pilot Program))	<ul style="list-style-type: none"> PennDOT – Provides Secretary approval of ASE Equipment, ARLE Locations, and Administrators the Grant Funding Program based on revenues from the Program. Also, Secretary appoints 4 members to ARLE Selection team. City of Philadelphia Office of Transportation, Infrastructure, and Sustainability (OTIS) – Provides oversight for Mayor In ARLE Locations and selection and participation on the ARLE Selection Team. Philadelphia Parking Authority (PPA) – System Administrator and responsible for program reporting and management of automated enforcement vendor. McMahon Associates, Inc. – Provide Engineering assistance to PPA and develop drawings for program Verra Mobility, Inc. –City of Philadelphia ASE vendor Cities and counties using ATSC are required to enact an ordinance allowing for the use of ATSC Twenty-nine jurisdictions in Washington have adopted an ordinance for ATSC 	Pennsylvania State Police (PSP) Automated Enforcement Unit within the Bureau of Patrol through agreement with PennDOT and PTC – scope defined in Interagency Agreement (AWZSE1 – 10/19/2019).		Follows Automated Red Light Enforcement process: <ol style="list-style-type: none"> ARLE Camera photographs motorist running red light Vendor (Conduent) sends images to PPA clerks for review PPA Manager reviews image City Police review image. PPA issues a violation notice. After two notices of nonpayment, vendor sends consecutive notices increasing the violation fine to \$120, \$145, and \$175. 	Each program has a slightly different process for appeals, but each has at least one formal hearing associated with the program.		<ul style="list-style-type: none"> 4 defenses are permitted: <ul style="list-style-type: none"> Vehicle was stolen Registered owner didn't own the vehicle during the time of offense. Device calibration and/or testing issues. Registered owner provides proof they were not operating the vehicle at the time of the violation. 	<ul style="list-style-type: none"> Identification of enforcement locations will be made available on PennDOT's Website. Additionally, participating PPA website to be at: http://www.philapark.org/ 	
Washington	Speed Violation, School Speed Zone Violation		Law enforcement reviews and issues the citation within 14 days (one agency reviews by limited commission police specialist)		<ul style="list-style-type: none"> A notice of infraction (NOI) must be mailed to the registered owner of the vehicle within 14 days of the violation. The law enforcement officer issuing the NOI shall include documentation stating the facts supporting the infraction. The registered owner is responsible for the infraction unless the registered owner overcomes the presumption through a written statement to the court. Infractions detected using ATSC are not part of registered owner's driving record. 	The registered owner is responsible for the infraction unless the registered owner overcomes the presumption through a written statement to the court. Infractions detected using ATSC are not part of registered owner's driving record.		No	Data not available	All locations where an ATSC is used must be clearly marked at least 30 days prior to activation of the camera by placing signs at ATSC locations. Signs must follow the specifications of the MUTCD.
Iowa (ASE) mobile automated speed enforcement units also allowed (for instance in school or work zones)	Automated Speed Enforcement, Automated speed enforcement mobile units			Muscatine Iowa: Yes		Instructions for contesting the citation are on the notice.		Des Moines: not reported to state DOT, citation is a civil infraction that holds the registered owner of the vehicle responsible for the infraction.		
Maryland (AWZSE)	2009, Transportation article 21-809 and 21-810, ASE allowed in work zones and specified school zones.	ASE in work zones is enforced at the state level. MDOT State Highway Administration, MDOT Maryland Transportation Authority, and the Maryland State Police are authorized to enforce work zone speed limits with ASE.								
Maryland (ASE)	School zones; Transportation Article 21-809	Local government - must pass a law authorizing the use of ASE in school zones, must officially establish a school zone. MDOT State Highway Administration - Must approve the location if the location is on a state route.		Yes			Yes			

NHTSA Automated Speed Enforcement Surveys - 2020
MnDOT Speed Safety Camera Systems TRS

General Research Information		Fines and Revenue			Data Privacy		Evaluation and reporting	
State	Type/Legislative sunset	Fine Amount (General)	ASE Program Reimbursement/ Revenue Distribution	Revenue to Date	Permitted Imagery for Violation Verification	Image Retention	Annual Reporting to Legislature	Is traffic data analyzed to determine automated enforcement's impact on safety elements?
Georgia (ASZSE)	School Speed Zone	Varies based on # of offenses: \$75 \$125	The money collected and remitted to the governing body pursuant to paragraph (1) of subsection (b) of this Code section shall only be used by such governing body to fund local law enforcement or public safety initiatives. This subsection shall not preclude the appropriation of a greater amount than collected and remitted under this subsection.			Recorded images made for purposes of this Code section shall not be a public record for purposes of Article 4 of Chapter 18 of Title 50		
New York (ASE)	Pilot - Site Specific New York State Vehicle & Traffic Law Sections 1111 and 1180 authorizes specific jurisdictions to establish demonstration programs. Repeal date 9/6/2024.	Not to exceed \$50	Fines collected as part of the program will cover expenditures related to the program. If all expenditures related to the program are covered, any excess revenue will be used for work zone safety initiatives.					Yes
Pennsylvania (AWZSE)	Pilot - Road Type (02/16/2024 (5-yr Initial Pilot Program))	Varies based on # of offenses: \$0 \$75 \$150	All operations and maintenance cost including agency administrative costs are paid first. Revenue will be captured in two restricted accounts (one each for PennDOT & PTC roadways). Remaining revenue will be distributed as follows: 1st 3-years of Program: • 45% to PSP for recruiting training and equipping cadets as well as increasing state trooper presence in work zones • 15% to PennDOT and PTC to perform work zone safety, traffic safety, and educating public on work zone safety issues • 40% to General Fund Final 2 years of Program: • All funds go to PennDOT and PTC to develop a Work Zone and Highway Safety Program for improvements and countermeasures to improve work zone safety.	Program is in mandatory 60-day pre-enforcement period with enforcement beginning 3/4/2020	<ul style="list-style-type: none"> Two Frontal and two rear photos of vehicle and license plate permitted. Frontal images will primarily be used for Commercial Vehicles. Personally, identifying photos prohibited and people must be blacked out. 	All violation images must be destroyed within 1 year after final disposition except for images subject to court order.	Annual report due April 1st each year. First report will be provided in 2020.	Yes, most programs require annual reporting to PA legislature.
Pennsylvania (ASE)	Pilot - Site Specific (12/19/2023 (5-yr. Initial Pilot Program))	Varies based on speed: \$100 \$125 \$150	All operations and maintenance cost including agency administrative costs are paid first. Remaining revenue will be provided by PPA to PennDOT who will deposit into a restricted account in the Motor License Fund. PennDOT will then utilize the revenue as defined with Section 3116 into the ARLE Funding Program. The City of Philadelphia and PennDOT ARLE Selection Team will determine where funds are administered statewide through the annual competitive application and reimbursement grant program. City of Philadelphia is not permitted to collect revenue equal to or greater than 2% of its annual budget from the collection of revenue from the issuance and payment of violations. Based on the Legislative direction, PennDOT will run this through the existing ARLE Funding Program frame work with the already established Selection Team. It is anticipated that the selection criteria, applications and program administration will be the same between this program and the ARLE Funding Program.	Program has not started and will begin in Spring 2020	<ul style="list-style-type: none"> Only rear photos of vehicle and license plate. Frontal photos are strictly forbidden. 	All violation images must be destroyed within 1 year after final disposition unless except for images subject to court order	Annual report due April 1st each year. First report anticipated in 2020.	Yes, most programs require annual reporting to PA legislature.
Washington	Speed Violation, School Speed Zone Violation	Data not available	Data not available	Data not available	ATSC may only take pictures of the vehicle and vehicle license plate, and only while the infraction is occurring. The picture must not reveal the face of the driver or passengers in the vehicle.	Data not available	18 agencies in Washington that utilize ATES completed a survey reviewing the transparency, accountability, and safety attributes of their respective ATES programs.	Data not available
Iowa (ASE) mobile automated speed enforcement units also allowed (for instance in school or work zones)	Automated Speed Enforcement, Automated speed enforcement mobile units	Varies based on City: Des Moines: 1-15 mph over = \$65 16-20 mph over = \$75 Excess of 20 mph over = \$80 + \$2 for each mph in excess of 21 mph over Sioux City: 11+mph over = \$100 and up	Cedar Rapids: used to enhance public safety.					
Maryland (AWZSE)	2009, Transportation article 21-809 and 21-810, ASE allowed in work zones and specified school zones.	Fines not to exceed \$40						
Maryland (ASE)	School zones; Transportation Article 21-809	Warning period of at least 15 days Fines not to exceed \$40						Yes

APPENDIX C1 – MINNESOTA MUTCD SIGNING OPTIONS AND STANDARDS FOR PHOTO ENFORCEMENT

Guidance

If used, the NO TURN ON RED sign should be installed near the appropriate signal head.

A NO TURN ON RED sign should be considered when an engineering study finds that one or more of the following conditions exists:

- A. Inadequate sight distance to vehicles approaching from the left (or right, if applicable);
- B. Geometrics or operational characteristics of the intersection that might result in unexpected conflicts;
- C. An exclusive pedestrian phase;
- D. An unacceptable number of pedestrian conflicts with right-turn-on-red maneuvers, especially involving children, older pedestrians, or persons with disabilities;
- E. More than three right-turn-on-red accidents reported in a 12-month period for the particular approach.
- F. The skew angle of the intersecting roadways creates difficulty for drivers to see traffic approaching from their left.

Options

A supplemental R10-20aP plaque showing times of day (similar to the S4-1P plaque shown in Figure 7B-1) with a black legend and border on a white background may be mounted below a No Turn on Red sign to indicate that the restriction is in place only during certain times.

Alternatively, a blank-out sign may be used instead of a static NO TURN ON RED sign, to display either the NO TURN ON RED legend or the No Right Turn symbol or word message, as appropriate, only at certain times during the day or during one or more portion(s) of a particular cycle of the traffic signal.

On signalized approaches with more than one right-turn lane, a NO TURN ON RED EXCEPT FROM RIGHT LANE (R10-11c) sign may be post-mounted at the intersection or a NO TURN ON RED FROM THIS LANE (with down arrow) (R10-11d) sign may be mounted directly over the center of the lane from which turns on red are prohibited.

A RIGHT TURN ON RED MUST YIELD TO U-TURN (R10-30) sign may be installed to remind road users that they must yield to conflicting u-turn traffic on the street or highway onto which they are turning right on a red signal after stopping.

2B.55 Photo Enforced Signs and Plaques (R10-18, R10-19P, R10-19aP)



Option

A TRAFFIC LAWS PHOTO ENFORCED (R10-18) sign may be installed at a jurisdictional boundary to advise road users that some of the traffic regulations within that jurisdiction are being enforced by photographic equipment.

A Photo Enforced (R10-19P) plaque or a PHOTO ENFORCED (R10-19aP) word message plaque may be mounted below a regulatory sign to advise road users that the regulation is being enforced by photographic equipment.

Standard

If used below a regulatory sign, the Photo Enforced (R10-19P or R10-19aP) plaque shall be a rectangle with a black legend and border on a white background.

2B.56 Ramp Metering Signs (R10-28a and R10-29a)



Option

When ramp control signals (see Chapter 4I) are used to meter traffic on a freeway or expressway entrance ramp, regulatory signs with legends appropriate to the control may be installed adjacent to the ramp control signal faces.

For entrance ramps with only one controlled lane, an XX VEHICLE(S) PER GREEN (R10-28) sign may be used to inform road users of the number of vehicles that are permitted to proceed during each short display of the green signal indication. For entrance ramps with more than one controlled lane, an XX VEHICLE(S) PER GREEN Each Lane (R10-29) sign may be used to inform road users of the number of vehicles that are permitted to proceed from each lane during each short display of the green signal indication.

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APPENDIX C2 - FEDERAL MUTCD SIGNING OPTIONS AND STANDARDS FOR PHOTO ENFORCEMENT

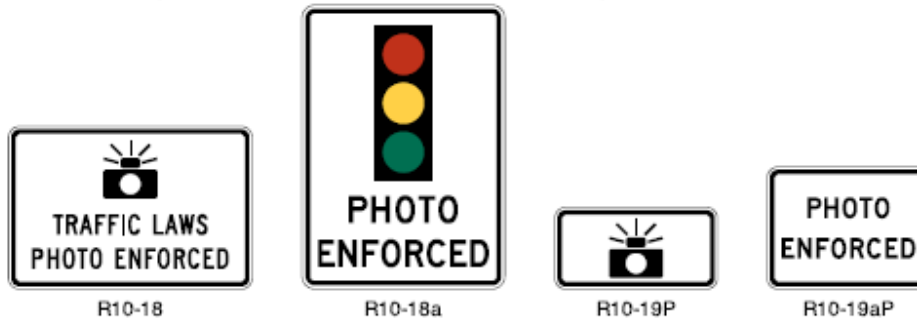
OTHER REGULATORY SIGNS AND PLAQUES

Section 2B.69 Photo Enforced Signs and Plaques (R10-18, R10-18a, R10-19P, R10-19aP)

Option:

- 01 A Traffic Laws Photo Enforced (R10-18) sign (see Figure 2B-32) may be installed at a jurisdictional boundary to advise road users that some of the traffic regulations within that jurisdiction are being enforced by photographic equipment.
- 02 A Traffic Signal Photo Enforced (R10-18a) sign (see Figure 2B-32) may be installed in advance of or at a traffic signal to advise road users that compliance with the signal is enforced by photographic equipment. A Signal Ahead (W3-3) sign and a Traffic Signal Photo Enforced (R10-18a) sign may be used on the same approach provided that they are on separate supports.
- 03 A Photo Enforced (R10-19P) plaque or a PHOTO ENFORCED (R10-19aP) word message plaque (see Figure 2B-32) may be mounted below a regulatory sign to advise road users that the regulation is being enforced by photographic equipment.

Figure 2B-32. Photo Enforcement Signs and Plaques



Standard:

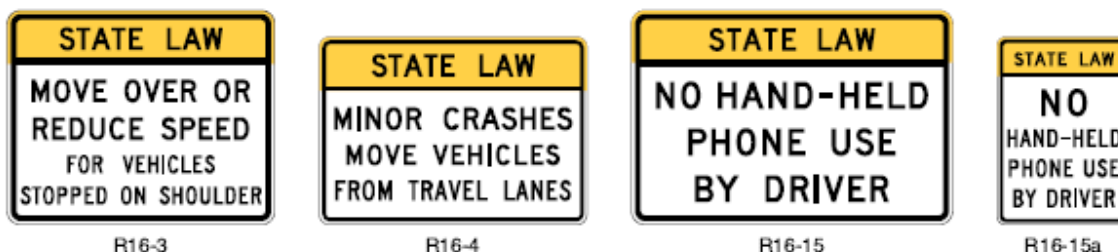
- 04 The Traffic Signal Photo Enforced (R10-18a) sign shall not be installed on approaches to signalized locations where red-light cameras are not present on any of the approaches to the signalized location.
- 05 A Traffic Signal Photo Enforced (R10-18a) sign shall not be installed on the same support in combination with a Signal Ahead (W3-3) sign.
- 06 If used below a regulatory sign, the Photo Enforced (R10-19P or R10-19aP) plaque shall be a rectangle with a black legend and border on a white background.

Section 2B.70 Move Vehicles from Travel Lanes Sign (R16-4)

Option:

- 01 A STATE LAW MINOR CRASHES MOVE VEHICLES FROM TRAVEL LANES (R16-4) sign (see Figure 2B-33) may be installed in accordance with the provisions of Section 2A.01 to require motorists to move their vehicle out of the travel lanes if they have been involved in a crash.
- 02 If the specific requirements of a State law vary, the word legend of the R16-4 sign may be modified to reflect the appropriate law.

Figure 2B-33. Other Regulatory Signs



APPENDIX D – FMCSA PRELIMINARY GUIDANCE ON SSC VIOLATIONS AND MASKING

The correspondence below was sent to MnDOT's Office of Traffic Engineering and the Minnesota Department of Public Safety's Office of Traffic Safety from the Federal Motor Carrier Safety Administration Deputy Chief Counsel on October 6, 2023.

"The prohibition on masking in 49 CFR 384.226 does not apply to speed camera administrative citations, where the driver is not identified and no conviction results.

As an initial matter, FMCSA does not regulate speed cameras or other traffic enforcement. In fact, authority to do so is expressly withheld under the Agency's safety authorizing statute. 49 U.S.C. 31147(a) (subchapter does not authorize Secretary "to prescribe traffic safety regulations or preempt State traffic regulations.").

The FMCSA regulation at 384.226 pertains to records of convictions for traffic control violations. The rule typically comes into play with DUI offences and State diversion programs, under which State tribunals impose "probation before judgment" or similar conditional sentences, often for first-time offenders, through plea arrangements that result in the conviction ultimately not being lodged in the driver's record in the CDLIS database. Such practices are prohibited under FMCSA's CDL program for holders of commercial learner's permits and commercial driver's licenses.

As noted below, the speed camera legislation in question imposes an administrative citation and penalty (not a conviction) on the vehicle owner (not the driver). My understanding is that the driver generally is not even identified, so there is no way to attach a conviction to the driver's record. This is a very different situation from prohibited masking, where the identity of the driver is known, a conviction is obtained, and a deliberate decision is made not to place the conviction on the driving record.

I therefore do not believe the FMCSA rule is implicated."

APPENDIX E – TRS PROJECT MANAGEMENT TEAM (PMT) MEMBERS

Role	Name	Email
OTE Project Manager (MnDOT)	Mark Wagner	mark.wagner@state.mn.us
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