

# Automated Speed Enforcement Readiness Guide



An introduction to automated speed enforcement and what's involved in starting a program in your community.



**TRAFFIC SAFETY  
COMMISSION**

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## Introduction

In 2000, Washington state wrote its first Target Zero strategic plan with the goal of eliminating traffic deaths and serious injuries. The current version of the plan integrates a safe systems approach to reach Target Zero. Essential elements of safe systems include safe roads, safe drivers, and safe speeds.

From 2019 to 2021, traffic fatalities in Washington increased by 23 percent<sup>1</sup>, and excessive speeds are a major contributing factor. Meanwhile, law enforcement agencies have struggled to maintain adequate staffing. As local leadership strives to change that trajectory and increase safety for road users, more local agencies are considering automated speed enforcement as a potential tool to reduce crashes and save lives. The Washington Legislature made substantial changes to RCW 46.63.170 in 2022, which provide additional opportunities for cities and counties to expand their use of automated speed enforcement.

This guide is for local leadership, law enforcement, transportation engineers, and community members looking for an introduction to automated speed enforcement (ASE) and what it takes to establish a successful program. It is a primer, intended to help local communities assess their readiness to implement an automated speed enforcement program. For those desiring a more in-depth understanding, additional resources and references are included at the end of this guide.

[Note: This is not a legal guide regarding state laws or local ordinances governing automated enforcement of traffic laws.]

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# 1 | Why Automated Speed Enforcement?

Most drivers respect the speed limit – according to WSDOT speed reports, 90-95 percent of drivers stay within 9 mph of the speed limit on most highways.<sup>2</sup> However, speed compliance is not evenly distributed. Some routes have higher rates of speeding. A problem area may be addressed in the long term through redesigning the roadway to encourage slower speeds, but in the short-term, enforcement may be the most appropriate tool to reduce speeding and crashes. The goal of ASE is increased safety. Speed is a contributing factor in 31 percent of fatal crashes in Washington.<sup>3</sup> Excessive speed increases the risk and severity of a crash; for every 1 percent increase in speed there is a 4 percent increase in traffic fatalities.<sup>4</sup>

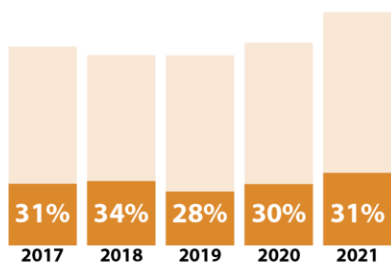
Pedestrians and cyclists are disproportionately represented in serious traffic crashes. In 2021, 24 percent of traffic fatalities in Washington were pedestrians and cyclists.<sup>5</sup> Vehicle speed plays a major role in the severity of a crash involving a vulnerable road user. Washington's Target Zero plan encourages enforcement of speed limits, and reduction of speed limits where appropriate, to reduce high-risk driving behaviors that contribute to traffic crashes involving vulnerable road users. State law allows the state transportation secretary or local authorities to reduce speed limits on non-arterial highways to 20 mph.<sup>6</sup>

The National Transportation Safety Board recommends the use of ASE as an effective countermeasure for reducing the frequency and severity of speed-related crashes, reducing excessive speeding, and maximizing safety improvements with the most efficient use of resources.

Nationwide and around the world, automated speed enforcement is being used effectively to change behaviors and reduce crashes. There are numerous examples already in Washington. The city of Kirkland deployed speed cameras at three schools and reduced the number of vehicles exceeding the speed limit by nearly half in just two years.<sup>7</sup> In the first two years that Seattle used automated speed cameras, violations dropped from over 45,000 to under 20,000 at the eight locations where cameras were installed.<sup>8</sup>



**31%**



**Speed-Involved Fatal Crashes**

**24%**



**Pedestrian and Cyclist Fatalities**

**90%**



**Pedestrian crash survival at 25 mph and below**

**Driver behaviors directly affect pedestrian traffic fatalities**



## 2 | Authorized Speed Enforcement Locations

Effective July 1, 2022, Washington law has expanded the types of locations where automated speed enforcement can be used.<sup>9</sup> Consistent with the goal of protecting vulnerable road users, automated speed cameras are authorized in the following locations:



**School speed zones:** 20 mph zones within 300 feet of a school or playground border.



**School walk areas:** The area designated around a school with an adequate roadway configuration to provide students access to school with a walking distance of less than one mile.



**Public park speed zones:** The marked area within public park property and extending 300 feet from the border of the park consistent with active park use.



**Hospital speed zones:** The marked area within hospital property and extending 300 feet from the border of hospital property consistent with hospital use.

**Other locations:** Cities may operate one automated speed camera, plus one additional camera for every 10,000 residents. Cameras used under this provision must complete an equity analysis (see section 5: Equity and Enforcement). These cameras must be placed in locations that comply with one of the following:

- Priority locations where other speed reduction measures are not feasible or have not been effective
- Locations with significantly higher rate of collisions than the city average
- Locations designated by local ordinance subject to restrictions and penalties on racing



## Effectiveness of Automated Enforcement

When properly implemented, automated enforcement can have a significant positive effect on driver behavior. Across the US and in many countries around the world, studies reviewing the effectiveness of automated speed enforcement have consistently found positive results. The National Highway Traffic Safety Administration (NHTSA) evaluated eight speeding countermeasures and gave ASE its highest rating for effectiveness.<sup>10</sup>

As cities in Washington have begun deploying automated speed enforcement, local assessments have proved effective as well. The cities of Seattle and Kirkland have used automated speed enforcement for several years, and have seen the following outcomes:

**90%**

Seattle drivers who receive a ticket do not receive a second one<sup>11</sup>

**67%**

Seattle - Reduction in tickets issued by cameras since 2012<sup>12</sup>

**89%**

Kirkland drivers who receive a ticket do not receive a second one<sup>13</sup>

**47%**

Kirkland – Reduction in speeding vehicles<sup>14</sup>

### 3 | Building the Team

The most successful automated speed enforcement programs begin with a team of community representatives who serve in an advisory role when developing the program and when expanding automated enforcement to additional locations.

When creating an advisory team, include representation from groups that will be involved with the planning and operation of automated enforcement, as well as groups that will be impacted by it. Examples of advisory group members include:

- Elected officials
- Traffic engineers
- Law enforcement
- Diversity, Equity, and Inclusion (DEI) professionals
- School officials
- Public health
- Community residents
- Courts

The success of an automated enforcement program, and the community's acceptance of the program, is greatly increased when both city leaders and citizens understand how the program works and have a voice in how it is deployed. The advisory team may be responsible for establishing guiding principles for the ASE program, such as safety, equity, and transparency. The team plays a critical role in building understanding and providing input.



## 4 | Crafting an Ordinance

Before a jurisdiction can implement an automated speed enforcement program, the appropriate legislative authority must enact an ordinance authorizing the use of speed cameras. Before developing an ordinance, the law requires an analysis of the proposed location of cameras. For what to include in a location analysis, see section 7: Choosing Camera Locations.

At a minimum, a local ordinance must include the restrictions and requirements for ASE described in RCW 46.63.170. A summary of the requirements in the law include:

- Use of ASE is limited to authorized locations (see section 2: Authorized Speed Enforcement Locations).
- Cameras may only take pictures of the vehicle and the license plate, and only while the infraction is occurring.
- A notice of infraction must be mailed to the owner of the vehicle within 14 days of the violation.
- All locations where ASE cameras are used must be clearly marked at least 30 days prior to activation.
- Must complete an equity analysis for cameras not in school speed zones, school walk areas, park speed zones, or hospital speed zones.
- Compensation to the ASE equipment vendor must be based only on the value of the equipment and services and may not be based on a portion of the fine imposed or revenue generated.

Jurisdictions may consider including additional restrictions or requirements in their ordinance. For example, a city could choose to limit ASE operation in school zones to specific times and days or to complete an equity analysis for all camera locations.

Examples of ordinances from cities in Washington are included in section 10: Additional Resources.

## Considerations Before Locating Speed Cameras

Automated speed enforcement is a useful and effective tool, but it may not be the right tool in some situations. Before installing cameras in specific locations, ask:

- Why use ASE in this location?
- What problem are we solving?
- What are the other options?
- What other measures have been tried? Some examples:
  - Closing streets during school
  - Extra enforcement
  - Modal traffic filtering\*
  - Local access streets
  - Walk/bike pathways
- What are the equity implications of using ASE in this location? Would proposed locations disproportionately impact communities of color or those with lower median incomes?
- What education is needed in advance of implementation?
- Do you have the support of your community? If not, are there steps you can take to gain support? (See section 6: Partnering with the Community.)

\*Modal traffic filtering:  
A road design that restricts the passage of certain types of vehicles.

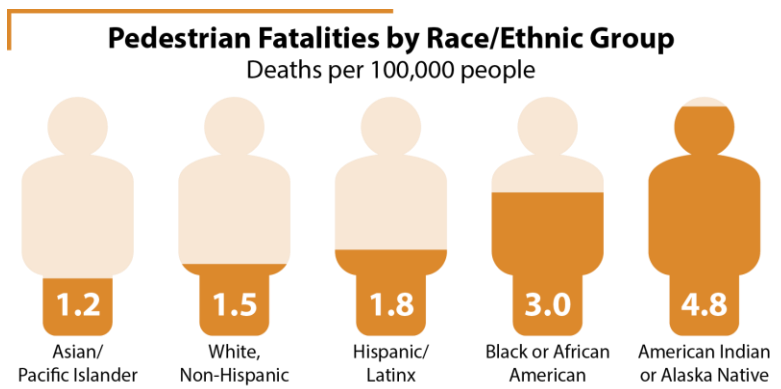




## 5 | Equity Analysis

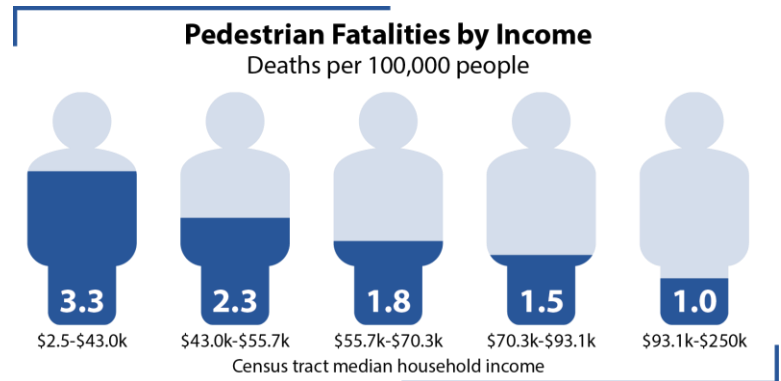
At first glance, automated enforcement appears to be a more equitable system, as cameras initiate enforcement action objectively based on vehicle speed. However, camera placement can have a disproportionate impact on low-income and other historically marginalized communities. Without careful consideration of camera placement, automated speed enforcement can have unintended consequences.

**Context:** In many cities, there is a history of under-investment in transportation infrastructure in low-income communities and communities of color. Higher-income and predominately white neighborhoods are more likely to have better road engineering that naturally moderates vehicle speed. Legacies of environmental injustice and careless planning, on the other hand, have resulted in highways and other arterial roads with higher speeds running through historically marginalized communities. In these communities, installing a speed enforcement camera may further penalize the residents for the city's lack of investment in road engineering in that neighborhood.



**Location:** As part of an equity analysis, consider who is impacted and who benefits from the chosen location for a speed camera. The assessment should extend beyond the location of the camera to consider who is using the roadway and for what purpose. For example, setting up a camera on a road that is a primary route to tribal land may unfairly impact tribal members. Conversely, a camera may be sited in a historically marginalized community because its residents are disproportionately impacted by serious and fatal crashes resulting from excessive speeds. In such instances, a speed camera may be an appropriate and

effective measure until other speed calming measures can be implemented. Where appropriate, self-enforcing roadways\* are a preferred strategy for reducing vehicle speeds. In those locations, speed cameras may provide an immediate solution until the roadway is redesigned.



**Fines:** Traffic enforcement should balance community safety and individual financial burden. A traffic fine should be designed to change behavior, but not to inflict financial hardship. Since that threshold is dependent on a violator's income level, consider options and alternatives for low-income violators:

- Due date extensions
- Payment plans
- Ticket reduction hearing
- Community service
- Traffic safety education

Over time, excessive revenues generated at a specific location are a sign that the automated enforcement is not successful in deterring speeding or changing the behavior of those who have received citations. Consider using the revenue to implement more effective, long-term solutions.

Part of planning an ASE program should include evaluating ways to reduce burdens and advance equity. Additional resources can be found in section 10: Additional Resources and References.

\*Self-enforcing roadway: A roadway that is planned and designed to encourage drivers to select operating speeds consistent with the posted speed limit.

## 6 | Partnering with the Community

Community members will have opinions about automated speed enforcement. Some will see the value of a properly established and operated program. Others will have experienced, or heard of, automated enforcement done poorly or used for the wrong reason.

As much as possible, it is helpful to reach out to stakeholders including residents near the proposed camera sites, others who frequently use the site (e.g., school or park), and road users who regularly travel on that route. There are likely to be different perspectives among these groups. These perspectives may also be colored by misinformation or previous experiences of misapplied automated enforcement.



However, when done properly ASE has consistently proven to be constitutional, effective, respectful of privacy, and an economically prudent strategy in reducing crashes. By clearly communicating the requirements of Washington law and demonstrating that the program will follow best practices, misperceptions can be addressed.

Before launching an ASE program, engage in outreach to inform the community about the new program and give people an opportunity to have their questions answered. The following approaches can help build community confidence in the program:

**Pilot Project:** To allay concerns, consider launching automated speed enforcement as a pilot program. Let the community know that the program will be evaluated to see if it's working, rather than that it will remain indefinitely no matter the outcome. Show that cameras will be removed if either they aren't effective at a particular location, or if they've achieved the goal of reducing speeds and replaced with more permanent measures.

**Justification:** Be clear that automated speed enforcement is one component in the solution to create safer streets, and that it will only be used in locations where it is appropriate and effective. ASE also provides additional data and, potentially, revenue that will help develop longer-term solutions. (See Revenue, page 11)

**Community Input:** Center community engagement on people most affected by the implementation of ASE. For example, parents of students who regularly drive through a school speed zone, or residents who live near a park or hospital speed zone.

**Data and Transparency:** Before the program launches, have a plan for transparency. Let the community know what data you'll be tracking and how you'll share it. Include crash data, the number of infractions issued, revenue generated, how the revenue is being used, year-to-year trends, and any other relevant information appropriate to your community.

**Public Reporting:** Make it easy for citizens to find information about your enforcement program. The law requires annual reports; some jurisdictions have chosen to provide quarterly reports. Consider presenting ASE reports in public forums such as city council meetings.





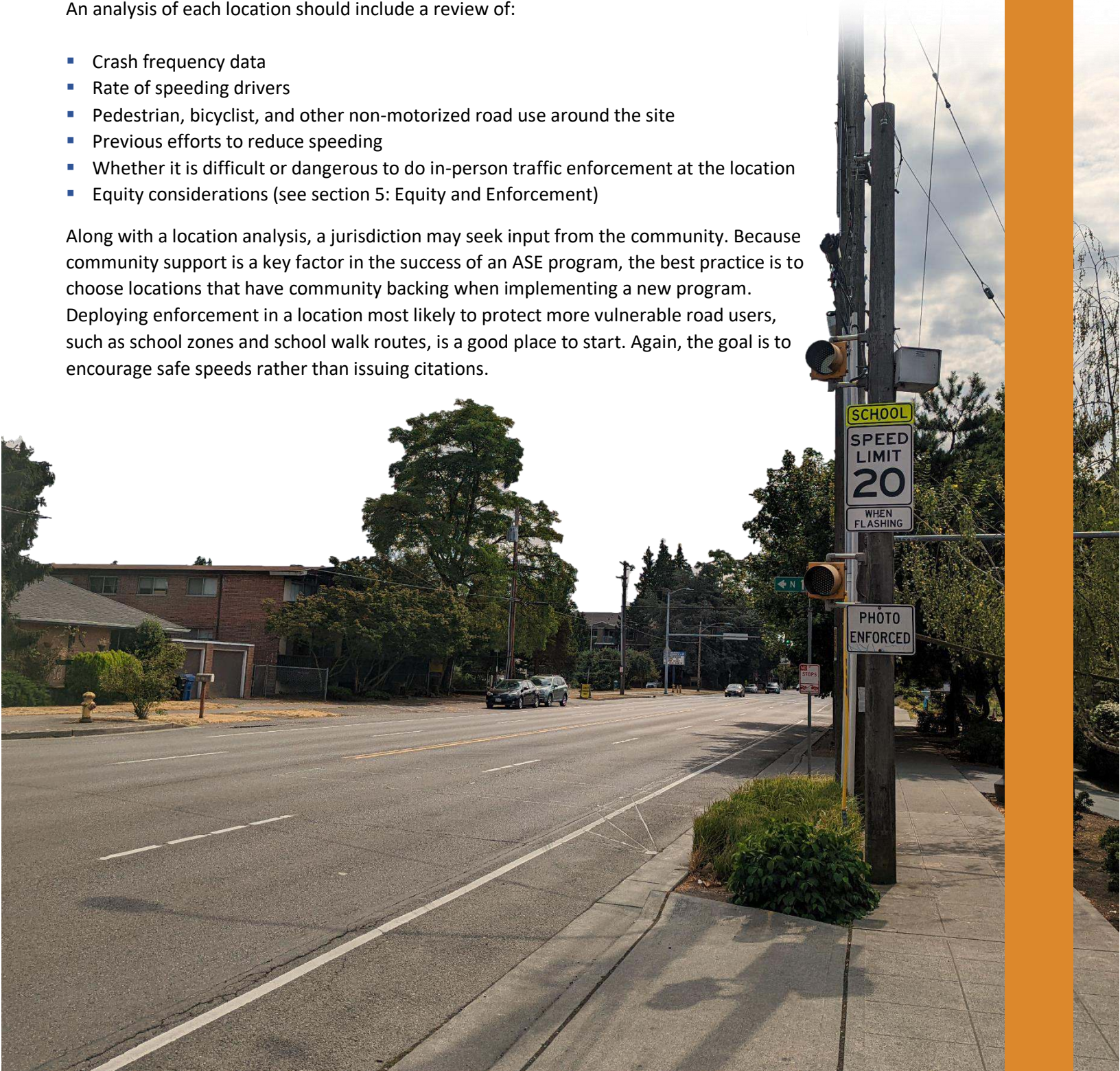
## 7 | Choosing Camera Locations

Law enforcement and community leaders may intuitively have a good idea of where to put their first speed enforcement cameras, based on a history of crashes, observing speeding vehicles, and input from the community. While initial intuition might be correct, the final selection of a camera location is a more in-depth process.

In addition to the limitations set by law, each potential camera location requires an analysis. An analysis of each location should include a review of:

- Crash frequency data
- Rate of speeding drivers
- Pedestrian, bicyclist, and other non-motorized road use around the site
- Previous efforts to reduce speeding
- Whether it is difficult or dangerous to do in-person traffic enforcement at the location
- Equity considerations (see section 5: Equity and Enforcement)

Along with a location analysis, a jurisdiction may seek input from the community. Because community support is a key factor in the success of an ASE program, the best practice is to choose locations that have community backing when implementing a new program. Deploying enforcement in a location most likely to protect more vulnerable road users, such as school zones and school walk routes, is a good place to start. Again, the goal is to encourage safe speeds rather than issuing citations.





## 8 | Deploying the Cameras



**Signage:** The purpose of ASE is to encourage safe speeds, and the law requires that signs notifying drivers of automated speed enforcement be installed at least 30 days prior to activation of the camera. The signs must inform drivers that they are entering an area where speed violations are enforced by an automated traffic safety camera and must follow the specifications of the Manual of Uniform Traffic Control Devices.

**Warnings:** When launching a new ASE program, consider including a plan for issuing warnings to violators. Some programs establish a period of time after activation (typically 30 days) when all violators receive a warning. As an alternative, some programs issue warnings to all first-time violators.

**Enforcement tolerance threshold:** As a matter of fairness, it is important that the threshold for issuing an infraction from an automated system is consistent with in-person enforcement. The local law enforcement agency should provide input when setting the enforcement threshold. As a reference, NHTSA recommends a threshold of 11 mph on most roads, and no less than six mph in school zones and other locations with lower speed limits where pedestrians and children might be present, such as neighborhoods, playgrounds, and parks.<sup>15</sup> Setting the threshold too high can reinforce speeding behaviors, while setting it too low can be perceived as unjust and prioritizing revenue over safety.

**Due process:** Ensure that the law enforcement agency managing the ASE program has adequate staffing to send out timely notice. The law requires that a notice of infraction be mailed to the registered owner within 14 days of the violation. Minimizing the number of days between the violation and the mailing of the notice contributes to a more effective automated enforcement program.





## 9 | Program Evaluation

An automated speed enforcement program should be regularly evaluated to validate its effectiveness. Evaluation should include:

- Analysis of vehicle speeds
- Crash statistics in ASE locations and jurisdiction-wide
- Changes in public awareness and acceptance
- Data on citations issued, including disaggregation of demographic data on drivers receiving citations and patterns regarding times and days when citations are issued

When properly implemented, ASE is an effective tool for changing driver behavior. Automated enforcement programs typically see a decrease in speeding drivers in the first year of implementation, with additional decreases in following years. If driver speeds do not decrease after implementation of the program, there may be factors contributing to speeding that ASE can't solve. When ASE isn't achieving the goals for the program, it is not the right tool in that situation.

The right tool could be in-person enforcement, signage, striping, design changes, or some other solution. The Safe System includes the concept of self-enforcing roadways which limit the ability of drivers to operate outside of design parameters. Whatever the case, continuing to use ASE in a location where it's not effective erodes public trust in the program and doesn't contribute to the goal of reducing high-risk driving behaviors that contribute to traffic crashes.



## Revenue Generation

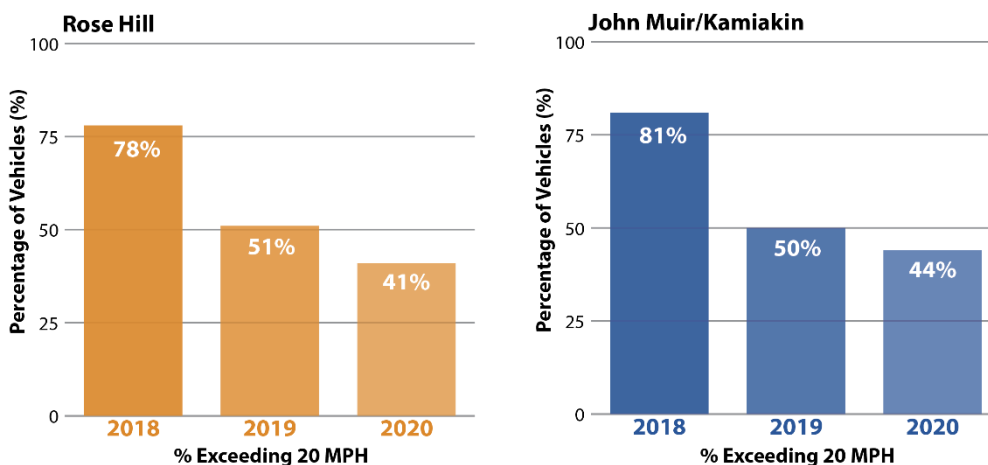
While the reason for establishing an automated speed enforcement program is to reduce high-risk driving behavior, the issuance of infractions will result in revenue. Some of that revenue will be used to administer, install, and operate the cameras. With the exception of school speed zone violations, 50% of revenue from speed cameras, after subtracting installation, operation, and maintenance costs, goes to the Cooper Jones Active Transportation Safety Council\* account to improve vulnerable road user safety.

When implementing a program according to best practices, ASE is generally considered a short-term solution to a specific traffic safety problem. Revenue from the program is then invested in permanently solving the problem through improved engineering or other long-term solutions. Dedicating revenue to permanently correcting a speeding hazard demonstrates a commitment to the safety of the community and validates the establishment of an ASE program.

In an effective ASE program, cities should anticipate that revenue in each camera location will decline as driver speeds decrease.

\*Cooper Jones Active Transportation Safety Council: Established to increase the safety of those who utilize active transportation and decrease death and serious injury among walkers, bicyclists, and users of other non-motorized methods of transportation.

### Vehicle Speed Analysis 2018-2020 Kirkland



Data showing reduced speeds in school zones due to ASE. Kirkland, WA

## 10 | Additional Resources and References

This Automated Enforcement Readiness Guide is a starting point for understanding ASE. If you are part of the team in your community that plans to implement ASE, the following resources will provide in-depth guidance.

### Resources:

#### Example Ordinances:

Kirkland: <https://www.codepublishing.com/WA/Kirkland/html/Kirkland12/Kirkland1214.html>

Tacoma: <https://cms.cityoftacoma.org/cityclerk/Files/MunicipalCode/Title11-Traffic.PDF>

Seattle: [https://library.municode.com/wa/seattle/codes/municipal\\_code?nodeId=TIT11VETR\\_SUBTITLE\\_ITRCO\\_PT3EN\\_CH11.31DITROF\\_11.31.090TRINDETHUSAUTRSACA](https://library.municode.com/wa/seattle/codes/municipal_code?nodeId=TIT11VETR_SUBTITLE_ITRCO_PT3EN_CH11.31DITROF_11.31.090TRINDETHUSAUTRSACA)

**Seattle Racial Equity Toolkit:** <https://www.seattle.gov/civilrights/what-we-do/race-and-social-justice-initiative/racial-equity-toolkit>

### References:

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2. Washington State Department of Transportation. (2022, July). *Quarterly vehicle speed reports*. <https://wsdot.wa.gov/about/transportation-data/travel-data/traffic-count-data/quarterly-vehicle-speed-report>
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8. City of Seattle (2021, January). *Automated Enforcement – Overview of Seattle Programs*. Re-Imagining Community Safety Monthly Meeting
9. RCW 46.63.170
10. Venkatraman, V., Richard, C. M., Magee, K., & Johnson, K. (2021, July). *Countermeasures that work: A highway safety countermeasures guide for State Highway Safety Offices*, 10<sup>th</sup> edition, 2020 (Report No. DOT HS 813 097). National Highway Traffic Safety Administration
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13. Pascal, J. (2022, April). *Automated Traffic Safety Enforcement – A Kirkland Case Study*. Washington Transportation Professionals Forum and Peer Exchange
14. Pascal, J. (2022, April). *Automated Traffic Safety Enforcement – A Kirkland Case Study*. Washington Transportation Professionals Forum and Peer Exchange
15. National Highway Transportation Safety Administration. (2008, March). *Speed Enforcement Camera Systems Operational Guidelines*.



## Charts:

**Speed-involved Fatal Crashes:** Washington Traffic Safety Commission (2022, August). *Target Zero Performance: High-Risk Behavior*. <https://wtsc.wa.gov/research-data/tz-performance-dashboard/>

**Pedestrian and Cyclist Fatalities:** Washington Traffic Safety Commission (2022, August). *Target Zero Performance: Road Users*. <https://wtsc.wa.gov/research-data/tz-performance-dashboard/>

**Pedestrian Crash Survival:** Tefft, Brian C. (2011, September) *Impact speed and a Pedestrian's Risk of Severe Injury or Death*. AAA Foundation for Traffic Safety

**Pedestrian Fatalities by Race/Ethnic Group:** Venson, E., Grimminger, A., Kenny, S. (2022). *Dangerous By Design 2022*. Smart Growth America

**Pedestrian Fatalities by Income:** Venson, E., Grimminger, A., Kenny, S. (2022). *Dangerous By Design 2022*. Smart Growth America

**Vehicle Speed Analysis 2018-2020 Kirkland:** Pascal, J. (2022, April). *Automated Traffic Safety Enforcement – A Kirkland Case Study*. Washington Transportation Professionals Forum and Peer Exchange

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