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## Research Brief

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# An Early Analysis of Speed Safety Camera Program Rollout in California

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## Abstract

*This research brief offers an early analysis of California's rollout of speed safety camera pilot programs under Assembly Bill 645 (AB 645). No California city has ever had an automated speed camera program before Spring 2025. Documenting the program set-up and early administration experience of the pilot cities will be informative in advancing road safety efforts if speed cameras become more widespread across the state. After examining research on speed camera effectiveness and best practices based on a review of national programs, the brief focuses on Oakland and San Francisco. Drawing on interviews with city staff, the brief evaluates how well California's approach aligns with best practices in effectiveness and equity. It finds that AB 645 incorporated many instructive learnings from elsewhere, including income-based fine reductions and data-driven site selection. It also identifies areas for further improvement such as public transparency, alternatives to monetary penalties, approach to infrastructure investments, and enforcement challenges. The brief concludes that, depending on program improvements in these areas, speed safety cameras could become a valuable tool in California's efforts to reduce traffic-related injuries and fatalities without exacerbating social inequities.*

## Introduction

Automated speed cameras on local roads are becoming an increasingly popular way for cities to issue citations to drivers for excessive speeds. In 2023, there were 11,775 speeding-related fatalities on American roadways, accounting for 29% of all traffic fatalities (National Highway Traffic Safety Administration, 2025). Cities and states are trying to balance the need to curb speeding that contributes to traffic deaths and injuries, with concerns about increased surveillance and disproportionate impact in low-income communities of color (Fines & Fees Justice Center, 2024).

There is a growing body of research around the potential for these programs to inadvertently criminalize poverty and inability to pay, further social inequities, and correcting for such a possibility (Smith and Shahum, 2024; Smith, 2025). However, relatively little has been written about the implementation choices cities are making in rolling out these programs

for success, and how different cities are navigating common challenges. Such learning is the essential first step in a feedback loop for better program design. This research asks these questions in the context of [AB 645](#), the 2023 California bill authorizing speed camera pilots in six major cities. In Oakland and San Francisco, these pilots are launching in Spring and Summer 2025, during the time of this writing. This timing gives unique access to capture city staff experience and reflection about rollout in real time, and preserve it for future decision makers.

The brief begins with a literature review about the effectiveness of speed cameras at increasing safety in the United States. It then introduces the mandate of CA AB 645, and suggests a few additional best practices from the advocacy world for implementing cities to consider. Oakland and San Francisco's programs are then evaluated against these elements, including additional insights from staff. The brief concludes with suggested further areas of research.

## Current Understanding of Speed Camera Effectiveness

Studies have generally found that speed cameras reduce roadway speeds, injuries, and fatalities. Guerra et. al (2024) summarizes a set of older (2005 - 2011) studies finding 5% to 70% reductions in speeding, crashes, and injuries (Guerra et al. 2024). The study goes on to evaluate an automated speed camera pilot on a major arterial near Philadelphia, finding significant impacts. Untreated roads had 1.5-2 times higher crash rates, injury rates, and death rates. For pedestrian crashes, this difference was even higher at 1.8-2.5 times; both were statistically significant. The authors estimate that cameras prevented 15-20 crashes per month. Speeding infractions on the road dropped by 90% after camera installation.

Other programs find similarly promising reductions. An analysis of Maryland's SafeZones speed camera enforcement near work zones showed a 90% reduction in the number of vehicles traveling 12+ mph over the speed limit since program inception in 2010 (Maryland DOT, 2019). New York City's Speed Camera Program, perhaps the most developed in the nation<sup>1</sup>, has achieved a 94% reduction in speed at installed camera locations, and 14% fewer injuries and fatalities compared to locations without cameras since 2022 (NYC DOT, 2025). The NYC report analyzes driver habits at a deeper level, finding that three in every four drivers received no more than one or two speeding tickets annually, demonstrating effective deterrence by speed cameras. However, a minority of drivers accumulated 20+ speed camera violations annually, and these people were five times more likely than average drivers to be in a crash that resulted in death or severe injury (NYC DOT, 2024). The city is considering additional oversight for these "recidivist speeders" such as intelligent speed assistive devices to regulate vehicle speed. Washington DC's 2024 STEER Act is a pioneering effort on this front, installing an intelligence speed control device in the cars of drivers who are known to recurrently and excessively violate speed limits (Council of the District of Columbia, 2024). Evidently speed cameras can play a substantial role in increasing roadway safety for all users.

## CA AB 645

In October 2023, Governor Newsom signed Assembly Bill 645 into law as California's first official step towards speed camera implementation. The law authorizes 5-year speed camera pilots in San Francisco, Oakland, San Jose, Los Angeles, Long Beach, and Glendale. The bill is quite prescriptive, giving cities little latitude for programmatic decisions beyond what is stipulated. The bill is structured as a speed deterrent program rather than a profit-generator, with all revenues dedicated first to covering program costs (installation, reporting requirements, violation adjudication) and then to traffic-calming infrastructure. The bill is also clear that cameras are not meant to replace other investments in traffic-calming measures, and that cities must at least maintain their recent investment level in such measures. Table 1 summarizes key programmatic elements that pilot cities must adopt.



*A speed camera monitoring traffic on the street*

<sup>1</sup> NYC has achieved a level of scale with 2,200 cameras citywide that raises driver awareness that cameras could be anywhere, thus impact behavior everywhere. By contrast, San Francisco has 33 cameras for their 5-year pilot.

Table 1: Key AB 645 Rules

| Fines by Amount over Posted Speed Limit                                                                                                 |                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| <11 miles per hour (mph)                                                                                                                | None                                               |
| 11 - 15 mph                                                                                                                             | First violation: warning<br>Second violation: \$50 |
| 16 - 25 mph                                                                                                                             | \$100                                              |
| 26+ mph                                                                                                                                 | \$200                                              |
| 100+ mph                                                                                                                                | \$500                                              |
| Exemptions                                                                                                                              |                                                    |
| Income < 250% of federal poverty level <sup>2</sup>                                                                                     | Fine reduced by 50%                                |
| Indigent <sup>3</sup>                                                                                                                   | Fine reduced by 80%                                |
| Other                                                                                                                                   |                                                    |
| # of camera are predetermined for each city                                                                                             |                                                    |
| Cities must conduct a Speed Safety Impact Report before implementation, assessing program costs, potential impact, and camera locations |                                                    |
| 60 day warning period after installation                                                                                                |                                                    |
| Violations are mailed to the address on file for the registered license plate                                                           |                                                    |
| Privacy protections for drivers' photographic and administrative data                                                                   |                                                    |
| Payment plans are available                                                                                                             |                                                    |
| Camera cannot operate for more than 18 months in a certain location unless they are demonstrably reducing speeding (defined in statute) |                                                    |
| Annual evaluation reports submitted to the city and state transportation legislative committees                                         |                                                    |

<sup>2</sup> In 2025, the federal poverty level for a household of one is \$15,650. So this 250% floor is \$39,125.

<sup>3</sup> "Indigent" refers to someone with income under 125% of the federal poverty level, or who is enrolled in one or more public benefit programs (Medi-Cal, SSI, SNAP, CalWorks, etc.) listed in California Government Code Section 68632.

## Best Effectiveness and Equity Practices

How does California's intended program measure up against best practices from elsewhere, particularly considering the potential for disparate impacts of violations and fines by race and class? The Vision Zero Network offers a [suite of model practices](#) based on their study of various approaches from Minneapolis, Washington DC, and Montgomery County, MD. Table 2 aggregates these practices and illustrates the many ways in which California's model complies, and the few ways it does not.

**Table 2: Aggregated Best Practices for Effectiveness and Fairness, from Vision Zero Network**

| Practice                                                               | Included in California's Approach        |
|------------------------------------------------------------------------|------------------------------------------|
| Not structured as revenue-generating                                   | Yes                                      |
| Comprehensive, data-driven camera site selection process               | Yes                                      |
| Paired with infrastructure investments                                 | Yes, with some reservations <sup>4</sup> |
| Discount for low-income violators, especially the first-time violators | Yes                                      |
| Run through DOTs, not police departments                               | Yes                                      |
| Show impact via a clear community-facing dashboard                     | No / Not yet <sup>5</sup>                |
| Slower on-ramp to monetary fine                                        | Somewhat                                 |

<sup>4</sup> Though excess revenues do fund infrastructure improvements, [some advocates](#) assert that physical infrastructure should be the primary approach, not a secondary one contingent on the cameras' ineffectiveness.

<sup>5</sup> Bay Area cities have not done this yet, but most have no data to present yet. Once they do by Summer or Fall of 2025, they could publish a dashboard similar to Washington, DC's.

One advantage to California adopting AB 645 after many other cities and states had already was that they could learn from those who had gone before. This learning is reflected in Table 2, as California adopted many of these best practices. There is still room for improvement, even within the constraints set by AB 645. First, California cities could follow [Washington DC's example](#) in making a community-facing dashboard sharing program impact, violation information, and camera location. This could soon be accompanied by data around revenue collection and usage. Both [Oakland](#) and [San Francisco](#) have public portals, but they currently function more as maps than informative dashboards. Cities should consider developing them as data becomes available, to help build public trust in the program's efficacy and allow neighborhood groups to advocate, if needed.

Second, California could provide a more gradual build-up to monetary fees. They do this to some degree with the 60-day warning period for all cameras and a no-fee warning for the first violation of speeding 11-15 mph over the posted speed limit. Cities also have the option to offer offenders a community service option in lieu of a fine. However, there is a greater spectrum of speed management options available that do not involve monetary fines. For example, in Minneapolis, the first violation - no matter whether it occurs in the initial warning period or not - is a warning. For the second violation, the driver has the option to attend a free traffic safety class in lieu of paying a fine. National Safety Council research shows that driver safety training, even online, tends to decrease violation rates by 70-75% (NSC, 2023), suggesting that these programs can be effective ways to change driver behavior. Given that using monetary fines can further social inequities, cities should strongly consider other behavior interventions that can promote safety without increasing the debt burden on low-income residents.

## Staff Reflections in Oakland and San Francisco

The author interviewed city program staff in Oakland and San Francisco in Spring 2025 to understand their experiences and reflections implementing the AB 645 pilots in their cities. At the time of this writing Oakland expects to award a contract to a speed camera vendor in June and begin the 60-day required warning period before the end of 2025. The city has one full-time staff member currently overseeing the program rollout. San Francisco has two full-time program managers and was able to move faster, with cameras installed and turned on by late March 2025. Interview questions centered around program funding sources, community input processes, areas of desired flexibility, program operations fitting alongside other city departments, and general reflections.

### Oakland

Oakland has developed a [program landing page](#) detailing project background, timeline, high level goals and revenue processes, and a link to the map showing considered and final camera locations. Based on criteria specified in AB 645, Oakland was allotted 18 cameras across council districts and in conjunction with the High-Injury Network and sensitive land-uses like schools, senior centers, and commercial hubs. The city compiled a short list of 36 potential intersections, then did speed observations to narrow to the top 18 that had the highest rates of drivers exceeding posted speed limits by 10 mph or more. Program staff liked the mandated process and expressed a wish that they had been allotted a higher quota of cameras for the pilot to begin addressing speeding in more neighborhoods.

Community and political engagement were fairly smooth processes as well. The city's Privacy Commission was heavily involved to ensure that photographic and identifying data would be well-protected. Program staff met with several community organizations including the Anti-Police Terror Project, who expressed concerns about the potential for oversurveillance of low-income communities of color and questioned the choice to invest in cameras rather than exclusively investing in traffic-calming infrastructure. In response, City staff noted that data collected during the pilot would not be shared with the Oakland Police Department and that citations would not result in points to the offender's driving record, which helped to mitigate those concerns. These same points helped to ensure unanimous support from city councilmembers.

Operationally, the program will be run out of the Parking Citation Assistance Center, which is the city's existing office for processing parking revenue collection. Nesting this new function within an existing office reduces start-up and operational costs while leveraging experienced staff capacity.

In terms of funding, Oakland's program has set aside approximately \$3 million to cover start-up and operational costs, including a \$2 million grant from the Alameda County Transportation Commission (Alameda CTC).

## San Francisco

The San Francisco Municipal Transportation Agency (SFMTA) began installing their 33 allotted cameras at the end of 2024. All are anticipated to be turned on between mid-March and mid-May 2025, issuing true tickets after a 60-day warning period. Placement was based on metrics determined in AB 645, proximity to areas with high pedestrian presence of children and older adults (schools, healthcare sites, commercial corridors, parks<sup>6</sup>), as well as data from [TransBASE](#), a detailed geocoded database of all crashes in the city since 2005. Staff made a concerted effort to make camera location selection a data-driven process, and to protect it from the potential for anecdotal evidence or local political jockeying to sway site selection. Like Oakland, San Francisco program staff indicated a desire for more allowed cameras as part of the pilot.

Camera placement came on the heels of a multi-round community engagement process. Some of this was mandated by AB 645 and, in some ways, city staff went above this requirement. In the first round of required engagement, program staff sought feedback from groups that may have been in opposition: racial and economic justice advocates, as well as privacy advocates. Staff then advanced a second round of engagement (not required by AB 645) once they had a list of 80 prospective locations to check these with local neighborhood groups, city supervisors, and other stakeholders. Finally, once locations had been finalized, staff undertook a 60-day information campaign (only 30 days were required by AB 645) via newspapers, billboards, and through in-person local business outreach to raise awareness of the coming change in the immediate vicinity of the 33 sites.

San Francisco's team contracts with Verra Mobility for their ticket processing needs. Verra Mobility was also the selected vendor for San Francisco's camera installation and maintenance; New York City's program contracts with this same vendor. This company matches the camera image to the vehicle place, sends the image to SFMTA staff for review, and then issues the citation once staff has approved. Staff chose this route to take advantage of Verra's relevant experience and to avoid hiring the necessary administrative staff for such a process during a pilot with no long-term funding guaranteed.

San Francisco staff is not pursuing any external grants at this time and has funded program expenditures out of SFMTA operating funds. This was partially due to uncertainty that AB 645 would pass when it did. The city program's total contract with Verra Mobility is for \$7.4 million, or \$3,750 per camera per month for five years. This covers camera installation, maintenance, and the citation processing described above. Spending on in-house staff time has totaled close to \$300,000 in the almost two years since dedicated work began somewhat before AB 645's passage in October 2023.

Program staff had several reflections that may be useful to future versions of implementing legislation and/or future implementing cities.

1. Making the camera location selection a data-driven apolitical process was critical. This required having a clear methodology in place in advance and the data available to implement it (e.g., High-Injury Network and TransBASE - geocoded historical crash data with several other attributes).
2. San Francisco staff appreciated that AB 645 mandated early collaboration with potential oppositional groups, especially advocates for racial justice, economic justice, and privacy. This base-building with potential opposition and incorporating their feedback into the program process and decisions was essential to a smooth rollout. City staff chose to begin engaging with these groups before AB 645 officially passed to give them as long a runway as possible. Should speed cameras expand statewide, they suggested that program managers meet with anticipated local opposition early and often, even before the program has been officially authorized. This can be an inexpensive and effective way to strengthen the coalition and smooth the eventual rollout.

6 80% of San Francisco's cameras are directly adjacent to such places

3. San Francisco staff expressed a desire to be able to share their incoming violation data more broadly, especially with other city departments and state agencies that handle vehicle licensing and roadway safety like the California Department of Motor Vehicles or Caltrans. After only a single month of collecting violation data, staff indicated that the pilot data was illuminating several other existing street use and safety issues beyond speeding. They were constrained by these very same data restrictions from elaborating, but suggested that there is great promise in future applications of speed cameras allowing greater data sharing to inform more targeted policy improvements.
4. Generally, staff was grateful that AB 645 was so prescriptive because it spared city staff from making thorny local decisions around fee rates, interplay with police departments, violation structure, and more. Forcing cities to abide by the same guardrails allows for a level of inter-city equity and also has made implementation much easier.

### Unanswered Questions

Oakland and San Francisco program staff offered useful insights into navigating foreseeable challenges should this program expand to other cities. However, the experiences of municipalities outside of California also reveal a few persistent issues that interviewed staff admitted could be pain points.

First, many vehicles have missing, stolen, or obstructed license plates, making them unreadable to speed cameras. This has also [proven increasingly difficult](#) to manage in New York City's program: In 2023, about 65% of all rejected citations were rejected because of a fake, missing, or covered license plate. This is up from 25% at the program's inception in 2014, suggesting that some drivers are adapting around the enforcement mechanism. The most recent NYC program report suggests that the city could better investigate license plate fraud by coordinating with tolling agencies to access a larger database, but that raises questions about administrative burden as well as criminalizing avoidance of fines which opens the door to exacerbating other social inequities.

Second, AB 645 has no mechanism to enforce non-payment other than continuing to mail citations. This was motivated by the intention of not criminalizing inability to pay or instigating debt cycles among low-income violators, as well as potential administrative costs which would have jeopardized the bill from moving forward through the legislative process. However, the struggle to balance this against meaningfully changing unsafe driver behavior is an open question. San Francisco staff said that they will be closely observing non-payment patterns once real citations begin to be issued in July 2025.

Third, the AB 645 program maintains a potentially uneasy relationship with traffic-calming infrastructure investments. Currently there is only program revenue to fund these if speeding persists at that location, i.e., if the camera is not having the desired effect. Some advocates, like [Bike East Bay](#), say that the top investment priority in places that the city knows are unsafe should be building physical traffic calming infrastructure and quick build solutions faster, rather than funding speed cameras in these locations.

### Conclusion

Cities need access to new tools as urban roadways become more dangerous for all users, and especially for vulnerable ones such as older adults, and people walking and biking. Results from cities outside California suggest that speed cameras have the promise to be an important such tool if they are implemented with strong equity safeguards. AB 645 took many admirable steps towards this goal, but there remain a few areas for improvement both from case studies elsewhere and early procedural reflections from program staff. Later this calendar year, California's pilot cities will begin to have data to better understand how unanswered questions around license plates, non-payment, and revenue raised are playing out in their jurisdiction. Continued attention should be given to documenting these experiential and data-driven lessons learned to inform the potential expansion of this work across the state.

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*For more information about the CPBST, or to bring activities to your California community, contact Katherine Chen at [kchen@berkeley.edu](mailto:kchen@berkeley.edu)*

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