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PROTECTING DRIVERS' RIGHTS SINCE 1982

Testimony of Jay Beeber, - Director of Public Policy and Research, National Motorists Association

Senate Transportation Committee

Public hearing on automated enforcement of traffic violations, September 18, 2023

Chairman Langerholc and other members of the Senate Transportation Committee:

Thank you for the opportunity to provide this written testimony on behalf of the National Motorists Association.

The National Motorists Association (NMA), which represents the interests of over 9 million licensed drivers in the State of Pennsylvania, wishes to express our concerns regarding proposals to extend and expand photo ticketing programs in Pennsylvania.

While the NMA shares the goal of improving traffic safety on Pennsylvania roadways, we do not believe that the use of automated ticketing cameras represents the best or most equitable means to achieve this result. Most importantly, for the reasons detailed below, we do not believe any of the automated enforcement programs have proven themselves worthy of gaining permanent status or expansion. For maximum clarity, will address each program separately.

Roosevelt Boulevard Speed Camera Program

According to the 2023 ROOSEVELT BOULEVARD AUTOMATED SPEED CAMERA ANNUAL REPORT, over 1.2 million tickets costing residents over \$17 million have been issued on this roadway since June 2020 with little to no benefit achieved. Per Appendix A, the average speeds, average issued speeds, highest speeds captured, and the number of violations issued have not changed significantly since December 2021.

Further, the vast majority of tickets issued (91%) were for violations 11 – 19 mph over the posted speed limit (the vast majority of these are likely 11 or 12 mph over the limit). It should be noted that the speed limit of 40 mph on Roosevelt Blvd (in both the inner and outer lanes) is unrealistically low based on the design of the roadway (a long straight road with 3 lanes on each roadway). This is the reason drivers “speed” on



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Roosevelt Blvd, not because they are a wanton group of scofflaws. If the speed limit were set more realistically or the roadway designed to be self-enforcing at lower speeds, the vast majority of violations would disappear overnight. Essentially, the government has built a road which encourages drivers to feel comfortable driving at 50 mph plus, has then under-posted the speed limit, and then installed ticketing cameras to cite drivers \$100+ for doing exactly what the government has encouraged them to do. This is a classic example of a speed trap.

Regardless of one's feelings in general about the use of ticketing cameras, there are many other solutions that are at least as effective, if not more effective, than speed cameras. In one study in Riverside, CA, speed feedback signs were not only shown to be more effective than speed cameras, they were more cost effective. In another series of studies, field tests utilizing Driver Feedback signs were conducted by the City of Clarksville, Tennessee and the Maine Department of Transportation. Average speeds were reduced up to 23%, 85th percentile speeds were reduced up to 18%, and vehicles traveling 6+ mph over the posted speed limit were reduced up to 62%. This is a far better result than when using speed cameras, and speed feedback signs don't bring with them all the economic and equity problems inherent in using speed cameras.

Speed Cameras in Highway Work Zones

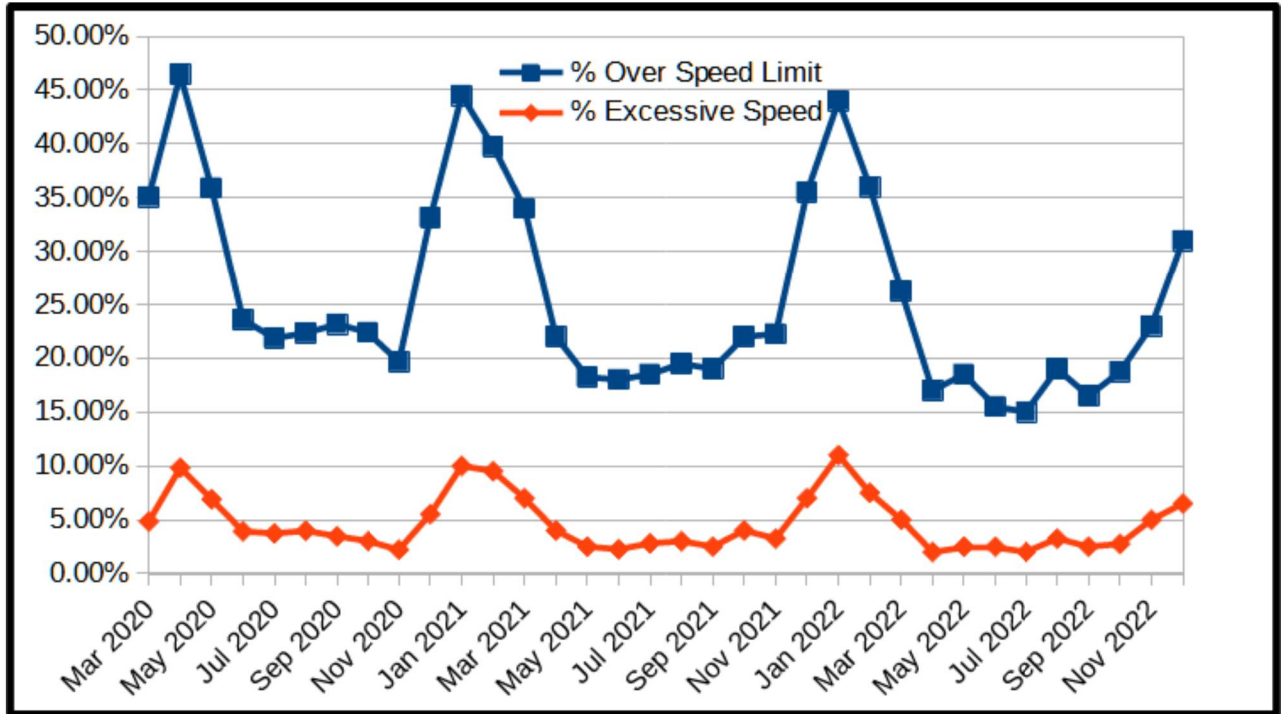
The answer to any real or perceived problem of speeding in work zones is engineering countermeasures, not speed trap cameras. As shown in the studies reference above, speed feedback signs can have a significant effect on lowering excessive speeds where they are present. Although PennDOT credits speed cameras with a reduction in speeds and crashes where they are used, a review of the Annual Automated Work Zone Speed Enforcement Reports shows little to no safety benefit from the use of speed cameras in work zones.

We compiled the monthly Speed Statistics from each report from the beginning of the program in March 2020 through December 2022. As can be seen from the graph below, there has been virtually no change in either the percentage of drivers traveling over the posted speed limit or the percentage of drivers traveling 11+ mph over the speed limit (excessive speed).



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Further, we conducted a statistical analysis of the speed data, comparing the monthly data from each of the three years. We conducted the following analysis: 1) 2020 vs 2021, 2) 2021 vs 2022, and 3) 2020 vs 2022. We found no statistical difference between any of the three time periods which indicates that any variation in the measured speeds was due to random fluctuation and not due to the presence of the ticketing cameras.

Although the AWZSE report shows a reduction in collisions in 2020 and 2021 compared to 2019, the likely cause of reduced crashes during this time period is the reduction in traffic volume and construction activities during the pandemic years of 2020 and 2021. In fact, crashes in 2021 were significantly higher than 2020, likely due to the increase in highway travel and construction activity as we emerged from pandemic restrictions. Interestingly, the 2023 report does not provide collision data for 2022.

Note also that the reports do not provide data on injuries and fatalities. This is likely due to the fact injuries and fatalities to construction workers due to vehicles exceeding



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the speed limit in work zones is exceedingly rare. The vast majority of these injuries and fatalities are due to an accident involving construction activities and construction equipment, not passing motorists.

Of further concern is the proposed legislation that would make the first violation in a work zone a fine of \$25 rather than a warning notice. From March 2020 through December 2022, PA issued over 1 million automated tickets (both warnings and citations) in work zones. 84% of violators received warning notices and did not receive a subsequent citation. This proves the effectiveness of issuing warning notices. In contrast, almost 50% of violators who received an actual citation (2nd time violators) also received a third or subsequent citation. Apparently, issuing an actual monetary citation was less effective than issuing a warning notice. However, pending legislation removes the warning notice provision for first time violators and replaces it with a \$25 fine, which would cost PA residents an additional \$1 million every year. The reason for this is obvious. According to the PennDOT 2023 report on the Automated Work Zone Speed Enforcement Pilot Program, the program lost approximately \$1.2 million in 2022. Clearly, the intention of making the first violation a \$25 fine is to recoup this loss of revenue on the backs of Pennsylvania residents, not as a means of improving safety. Unfortunately, this money grab lays bare the true motivations behind these automated enforcement programs – revenue enhancement, not safety concerns.

Extension of the School Bus Stop Arm Ticketing Camera Program

The NMA has conducted extensive research into the causes and relative dangers of school bus passing violations. Our detailed findings can be found in our Policy Brief, *Assessing the Necessity and Implications of Automated School Bus Stop Arm Ticketing Cameras*, which is attached to this testimony. We have found that while violations of school bus passing laws may be common, collisions and fatalities due to these violations are, thankfully, exceedingly rare. According to data provided directly from the National Highway Transportation Safety Administration (NHTSA):

- **Throughout the entire US**, during the past ten years, there were a total of **4 fatalities** to school-aged children involving a driver charged with illegally passing a stopped school bus when the red lights were flashing.
- This represents an annual **average of only 0.4 fatal collisions** of these types and **just 0.001% (one 1000th of 1%) of all US roadway fatalities**.



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- The chance that a school child will be killed by a vehicle illegally passing the school bus is **1 in 22.75 billion**.
- Annually in the US, a child is about **19,000 times more likely to be struck by lightning** than to be killed by a vehicle illegally passing a school bus.
- A child is **972 times more likely to drown in a pool or spa** than to be killed by a vehicle passing a school bus.
- A child is **more than twice at risk of being struck and killed by the school bus** as they are by another vehicle on the roadway.

The varying levels of risk associated with different types of school bus passing violations explain why a substantial volume of violations does not directly correlate with a significant number of collisions or fatalities. Examination of school bus stop arm violation footage from various programs in Pennsylvania, highlights that a significant percentage of infractions occur immediately upon the deployment or retraction of the stop arm - either before children disembark or after they have safely boarded the bus. Further, a large percentage of captured violations occur when vehicles are traveling at extremely slow speeds. While these offenses technically violate the letter of the law, they often pose minimal danger to school children getting on or off the bus.

Drivers May be Confused as to Basic School Bus Stopping Laws

There exists a serious lack of consistency in school bus passing laws from state to state, which undoubtedly leads to driver confusion. But footage of bus passing violations strongly suggests that some drivers may also be confused about the stopping requirement itself. Some motorists mistakenly believe it is safe to slowly pass the school bus and are permitted to do so, even when approaching from behind. This is not an unreasonable assumption, especially on multiple-lane roadways where no crossing is permitted, and students approach and board the bus solely from the right (curb) side. Logically, on these roadways, even if a driver were to pass to the left while the school bus was stopped, no danger is presented to children as no one would be in the roadway crossing in front of the bus.

Further, notwithstanding motorists' obligation to understand all the rules of the road, drivers have reported that they misunderstood that the flashing red lights and stop sign on the school bus are to be treated differently than a stop sign or flashing red traffic signal at an intersection - where a driver must first stop but then may proceed when safe. One of the basic tenets of traffic control devices is that they provide a uniform and consistent message. However, when associated with school buses, flashing



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red lights and stop signs have a very different meaning and legal requirement than when used for other roadway applications, such as at intersections.

Warning Time is Critical to Ensure Drivers Can Comply with School Bus Stopping Regulations

As has been learned from using red light cameras, the amount of warning time given to motorists before the light turns red is a critical factor in how many drivers are likely to run the red light. The necessary warning time is highly dependent on the approaching vehicle's speed and the driver's reaction time. The speed of vehicles approaching a school bus stopped to load and unload passengers will vary significantly from roadway to roadway and whether the driver is approaching from behind or traveling towards the bus. As a result, the yellow light warning time that approaching drivers would need prior to activation of the red signal and deployment of the stop arm would also vary on each roadway upon which the school bus is traveling. Drivers approaching from the opposite direction would need twice as much yellow time since the bus and approaching vehicle are traveling towards each other, effectively halving the approach time.

Unlike a traffic signal, the school bus driver manually operates the yellow and red signals on school buses. It is, therefore, virtually impossible for the bus driver to consistently provide the appropriate warning time for all vehicles approaching from all directions. This is especially true since requirements for how much in advance of the stop the driver must illuminate the warning lights vary from state to state. The inability to provide a consistent minimum yellow warning time as is required for traffic signals undoubtedly leads to numerous instances where automated tickets are improperly issued. This is precisely what has been observed in jurisdictions using this technology. Upon reviewing school bus stop arm violation clips accessible online, it becomes evident that many infractions occur just as the stop arm becomes active. Many of these violations are likely due to drivers not being warned sufficiently.

Of additional concern is that, with traffic lights, the yellow signal is always followed by the red signal. In contrast, school bus drivers may illuminate the bus' yellow warning lights but may not subsequently illuminate the red stop lights and stop arm. This creates an inconsistent situation where a bus' yellow warning lights do not always mean "prepare to stop", and can lead to drivers being caught unprepared for the "stop when red lights flashing" requirement, resulting in unintentional violations.



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Further, there appear to be no specific laws regarding at what point in the roadway a motorist must reach before they have “passed” the bus and no longer be subject to a citation for illegally passing when the stop arm extends. For example, Pennsylvania law requires drivers to stop no closer than 10 feet from the bus. If a driver has already passed this point before the illumination of the red flashing lights and full deployment of the stop arm, the driver may choose to continue on their way. Tickets issued in this scenario would represent entrapment as the driver would have had no valid choice to avoid violating the law.

Considering the above technical issues, it is unclear how school bus mounted video enforcement systems can function fairly, given their mobile setting.

Sub-optimal Placement of School Bus Stops Causes Confusion for Motorists and Danger to School Children

The location of bus stops plays a prominent role in the safety of school children boarding or alighting the bus. Per the National Transportation Safety Board, “A safe school bus route should avoid requiring students to cross high-speed roadways.” If possible, school bus routes and stops should be designed to minimize students crossing the roadway, especially at unprotected crossings such as those lacking a stop sign or traffic signal. If this rule were consistently applied, even on lower-speed routes, the safety of school children would be significantly enhanced. An added benefit would be reducing the number of locations where drivers would need to stop for the school bus. This would reduce drivers’ frustration, making them less likely to try to avoid being stuck behind the school bus for multiple stops, thereby decreasing the propensity for violations.

Similarly, many violations occur when the school bus stops near an intersection, and drivers face a green traffic signal. In this scenario, drivers are put in a no-win situation when they are given a green light at an intersection but must also stop and block that intersection due to the presence of a school bus with its lights flashing. This is especially problematic for drivers approaching from the opposite direction. These situations make violations more likely due to driver confusion as to which traffic control device is controlling or to drivers attempting to clear the path by slowly proceeding past the school bus in technical violation of the law.

Another lose-lose predicament is presented to drivers when the bus stops on the opposite side of an intersection. Depending on the timing and location of vehicles,



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drivers may be caught in the intersection when the red lights illuminate and stop arm is deployed.

Motorists may also be placed in a Catch-22 situation when approaching a stopped school bus from an intersecting roadway. Drivers arriving at an intersection on a cross street may not see the school bus on the other roadway until they have committed to the turn. At this point, they may be unable to stop without slamming on their brakes and coming to rest within the intersection, so they are forced to pass the bus and potentially incur a hefty fine.

Sadly, these “gotcha” citations are all too prevalent when automated ticketing is deployed.

Ethical Challenges of Bus Camera Companies

Of further concern is the previous criminal history of the for-profit automated enforcement companies running these automated ticketing programs, which profit immensely from their usage. For example, BusPatrol, a major player in the school bus camera industry, is simply a rebranded version of Force Multiplier Solutions (the company’s leadership team remains more or less the same), involved in a multi-million-dollar bribery scam that bankrupted the Dallas County School system. Shamelessly, BusPatrol hosts “Safety Summits” for the public and elected officials under the guise of improving safety for school children but which are, in actuality, giant advertisements to promote their ticket camera product.

Verra Mobility (formerly American Traffic Solutions and Redflex), another bus camera vendor, has its own shady past, coincidentally being accused by BusPatrol of stealing their intellectual property to reverse engineer a bus camera ticketing system. Recently, this company announced to shareholders a new strategy to enhance profits by focusing on passing legislation throughout the US to allow the use of school bus cameras because “*they are easier to sell to lawmakers*”.

States that have authorized the use of stop-arm automated ticketing cameras are providing corporate welfare for the companies that run these programs.

Alternative Solutions

Elected officials and members of the public rightly have concerns for the safety of school-aged children traveling to or from school. We would, therefore, encourage a



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focus on solutions to problems that result in the highest number of injuries. Although school buses are students' safest mode of transportation to school, as explained above, the majority of school children who are injured or killed in school bus accidents are hit by the school bus itself or while riding on the bus. Therefore, additional training of school bus drivers and students is critical to reducing these unfortunate incidents. Children especially should receive annual instruction on safety in and around school buses.

In addition, technological improvements to the school bus, such as additional mirrors and possibly camera observation systems that ensure that the driver can see all children in the vicinity of the bus, should be considered.

Relocating bus stops to reduce the need for students to cross the roadway could also significantly improve safety. Where this is not possible, bus stops should be located only where a traffic signal, stop sign, or other pedestrian crossing treatment, such as a rectangular rapid flashing beacon or HAWK signal, controls traffic.

In California, children through grade eight are currently afforded added protection when loading or unloading from a school bus. Per the requirements of California Vehicle Code 22112 (d), the school bus driver or aid is obligated to exit the vehicle and escort all children through 8th grade across the roadway using an approved hand-held "STOP" sign to ensure that all children have crossed safely. This requirement is likely the reason that so few accidents occur in California due to violations of the school bus stop arm law. If other states adopted a similar rule, motorist compliance would increase, and an extra layer of safety would be added for students. Automated stop-arm cameras would become even less desirable.

Finally, it is essential to address the issue that many school bus violations result from drivers' confusion due to differing state laws, conflicting traffic control devices in the vicinity of the bus stop, or the motorist's unfamiliarity with the requirements of the law. Undoubtedly, some violations are willful, but increasing driver understanding of school bus passing laws and penalties would likely lead to a significant reduction in violations. One avenue is to enhance driver education manuals with well-written, well-illustrated information on potential pedestrian conflicts associated with passing a school bus and what the law requires of approaching drivers. A well-conceived public outreach campaign similar to the "Click it or Ticket" campaign would also be of benefit. Additionally, school bus passing laws should be made consistent throughout the



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nation. Driver stopping requirements should be refined to include only those locations where stopping is essential to ensure the safety of students getting on and off the bus.

In conclusion, we wish to reiterate that many other countermeasures exist to improve traffic safety without the need for ticketing cameras and we urge you to consider those options rather than extend and expand Pennsylvania's ticketing camera programs.

Thank you for your consideration.

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Assessing the Necessity and Implications of Automated School Bus Stop Arm Ticketing Cameras: A Policy Analysis

by Jay Beeber
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Background

School buses have been a presence on the nation's roads since as early as 1915. As a fundamental aspect of their operation, school buses require frequent stops to facilitate the safe loading and unloading of students. In every state, the law requires other motorists on the roadway to stop when the bus's red flashing lights are activated, and the stop arm is extended. However, the specific regulations dictating which vehicles must halt on different types of roadways differ from state to state. Various estimates exist regarding the annual number of school bus passing violations, but most transportation experts recognize that this is an ongoing challenge that needs remediation.

In recent years, one proposed solution has been to deploy automated stop-arm ticketing cameras to cite drivers who illegally pass school buses with red lights flashing and the stop arm extended. Independent, comprehensive studies on the effectiveness of this approach are lacking. In addition, public backlash against the use of school bus ticketing cameras is growing due to claims of unfair ticketing and revenue seeking by government entities and the private, for-profit vendors that provide equipment and ticket processing services.

This comprehensive policy analysis delves into the necessity and potential implications of implementing automated school bus stop arm cameras. Our examination aims to provide a neutral and objective assessment of this technology and its impact on driver's rights and safety.

Safety Implications

According to the National Highway Transportation Safety Administration (NHTSA), one of the safest modes of transportation for students traveling to school is via school buses.¹ The NHTSA defines a school-transportation-related crash as "a motor vehicle traffic crash that directly or indirectly involves a school transportation vehicle that is either a school bus body type or a non-school-bus functioning as a school bus, transporting children to and from school or school-related activities".² This encompasses occupants of school transportation vehicles (both drivers and passengers), pedestrians (those struck by the school vehicle and those struck by other vehicles), other non-occupants (bicyclists, other cyclists, and people on personal conveyances such as skateboards, scooters, and wheelchairs), and occupants of other vehicles. The NHTSA Traffic Safety Facts, School-Transportation-Related Crashes, 2012-2021 Data reports an annual average of 111 fatalities due to school-transportation-related crashes. These fatalities represent just 0.3% (three-tenths of 1%) of the 36,716 fatalities that occur on average each year on our nation's roadways.

Table 1, below, from the School-Transportation-Related Crashes fact sheet, indicates that, nationwide, an annual average of 13 pedestrians are struck and killed by the school vehicle. In comparison, an average of 6 pedestrians are struck and killed by "other vehicles". The data, therefore, show that a **"pedestrian" is more than twice at risk of being killed by the school bus as they are by "[an]other vehicle"**. Note that the category "pedestrians" struck and killed by "other vehicle" includes pedestrians not associated with pupil transport (other than school children), as well as vehicles not determined to have been committing a school bus passing violation at the time of the crash.³ Therefore, the *School-Transportation-Related Crashes* Fact Sheet does not directly reveal the number of

¹<https://www.nhtsa.gov/road-safety/school-bus-safety>

²NHTSA, *Traffic Safety Facts 2012-2021 Data*, accessible at:
<https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813477>

³Email correspondence with Umesh Shankar, NHTSA Division Chief, Data Reporting and Information. March 16, 2023

school children struck and killed by passing motorists disobeying the school bus flashing red lights and stop arm. That number must necessarily be less than the number of “pedestrians struck and killed by other vehicle”.

Table 1. Fatalities (All Ages) in School-Transportation-Related Traffic Crashes, by Year and Person Type, 2012 to 2021

Year	Occupants of School Transportation Vehicles*			Pedestrians			Other Nonoccupants**	Occupants of Other Vehicles	Total
	Drivers	Passengers	Total	Struck by School Vehicle*	Struck by Other Vehicle	Total			
2012	6	8	14	18	9	27	3	88	132
2013	5	6	11	16	6	22	5	93	131
2014	4	7	11	21	7	28	4	77	120
2015	8	5	13	11	0	11	4	87	115
2016	5	9	14	15	5	20	6	85	125
2017	8	4	12	3	7	10	3	72	97
2018	4	10	14	12	11	23	2	78	117
2019	5	5	10	12	3	15	6	80	111
2020	1	2	3	4	2	6	4	41	54
2021	6	5	11	16	5	21	2	74	108
Ten-Year Total	52	61	113	128	55	183	39	775	1,110
Percentage of Total	5%	5%	10%	12%	5%	16%	4%	70%	100%
Ten-Year Average	5	6	11	13	6	18	4	78	111

Source: FARS 2012–2020 Final File, 2021 Annual Report File (ARF)

*Includes school bus body type and non-school bus body type functioning as a school bus.

**Includes bicyclists, other cyclists, and people on personal conveyances such as skateboards, scooters, wheelchairs, etc.

There is an Average of Only 0.4 Fatal School Bus Passing Collisions in the entire US Annually

To answer the question, “What is the annual average number of fatalities that occur to school-aged pedestrians (< 19 yrs old) approaching or leaving a school bus (i.e., in the process of getting on or off the bus) and struck by a vehicle illegally passing the bus while the red lights were flashing?”, we directly contacted NHTSA staff and requested a customized report providing this data. On March 29, 2023, NHTSA provided the requested data, which appears in Table 2.

Table 2. LISTING OF PEDESTRIAN (AGES 18 AND YOUNGER) FATALITIES IN SCHOOL BUS RELATED TRAFFIC CRASHES INVOLVING A DRIVER CHARGED WITH PASSING A STOPPED SCHOOL BUS {SEARCH PERFORMED ON 2011 THROUGH 2020 CRASH YEAR FILES} FATALITY ANALYSIS REPORTING SYSTEM (FARS) 2011-2019 FINAL & 2020 ARF

Obs	State	Year	Month	Day	ST_CASE	Person Type	Age	Vehicle Body Type	Global Position (Latitude)	Global Position (Longitude)	Trafficway Description	Non-Motorist Action 1	Non-Motorist Action 2
1	North Carolina	2013	April	23	370339	Pedestrian	7 Years	-	35.19635278	-78.488055560	US-421	Crossing Roadway	-
2	North Carolina	2013	October	17	370967	Pedestrian	17 Years	-	35.74499722	-80.563072220	CR-2048	Crossing Roadway	-
3	Pennsylvania	2014	December	17	420858	Pedestrian	16 Years	-	40.09764722	-74.920355560	SR-2015 BENSALEM BLVD	Crossing Roadway	-
4	Georgia	2018	October	25	131144	Pedestrian	10 Years	-	31.14974722	-83.953305560	CR-THIGPEN TRAIL	Going To or From School (K-12)	Crossing Roadway

The customized data report provided by the NHTSA confirms that severe or fatal injuries to school children caused by drivers illegally passing a school bus are, thankfully, exceedingly rare. **Throughout the entire US, during the past ten years, there were a total of 4 fatalities to school-aged children involving a driver charged with illegally passing a stopped school bus when the red lights were flashing. This represents an annual average of only 0.4 fatal collisions of these types and just 0.001% (one 1000th of 1%) of all US roadway fatalities.**

The Chance that a School Child Will be Killed by a Vehicle Illegally Passing the School Bus is 1 in 22.75 Billion

Nationally, 26 million children in the US take 480,000 buses to and from school each day.⁴ Assuming a child gets on and off the bus at their stop once per day, this means there are two chances of exposure to passing vehicles each school day. Assuming an average of 175 days in a school year,⁵ means that children get on and off a school bus 9.1 billion times per year (26 million children x 2 times per day x 175 school days per year = 9.1 billion). As there are only 0.4 fatalities per year on average throughout the US, this means that there is a **1 in 22.75 billion** chance that any school child will be struck and killed by a vehicle passing a school bus each year in the US.

To put this in perspective, in the US, in any given year, the odds of being struck by lightning are about 1 in 1.2 million.⁶ **This means that annually in the US, a child is about 19,000 times more likely to be struck by lightning than to be killed by a vehicle illegally passing a school bus.**

For further comparison, according to the US Consumer Product Safety Commission, an average of 389 pool- or spa-related, fatal drownings are reported each year involving children younger than 15 years of age. **A child is 972 times more likely to drown in a pool or spa than to be killed by a vehicle passing a school bus.**

Violations are Common, Collisions and Fatalities are Extremely Rare

The primary argument for deploying automated school bus stop arm ticketing cameras is the relatively large number of reported violations. The National Association of State Directors of Pupil Transportation Services (NASDPTS) conducts an annual survey of illegal passing of stopped school buses. Based on their 2023 survey, the NASDPTS estimates that approximately 43 million school bus passing incidents occur yearly. While the NASDPTS characterizes this result as “shocking”, it is essential to note that this high number of incidents results in a minuscule number of crashes and fatalities. Using the NASDPTS estimate and the fatality data from the NHTSA, we calculate that **the chance that a school bus passing violation will result in a fatality is one in 107.5 million.**

Collisions Due to Drivers Failing to Stop for School buses are Exceedingly Rare in California

In order to independently confirm the statistics provided by the NHTSA, we conducted a data analysis of school bus passing collisions in California, the country’s most populous state, with the most children transported by school bus and the most vehicle miles traveled annually. The State of California compiles a comprehensive database of all collisions occurring on all roadways in the state. Using this Statewide Integrated Traffic Reporting System (SWITRS) database, we analyzed all collisions and injuries statewide, categorized as occurring while a pedestrian was approaching or leaving a school bus. The analysis was conducted for 2010 - 2019, the most recent non-pandemic years available in the database.

For the ten years studied, we found that **only two collisions indicated that a violation of CVC 22454, illegally passing a school bus, was the cause of the collision. Neither involved a fatality or severe injury;** one resulted in no visible injuries, and one resulted in a minor visible injury.

There were no collisions caused by a motorist illegally passing a school bus and causing a fatal or severe injury to a school child within the past decade. Further, this violation appears to have been the cause of only minor collisions involving school children, on average, only **once every five years in the entire state of California.**

We previously conducted a similar analysis of collisions and injuries to school-aged children in California due to a violation of CVC 22454 covering 15 years starting in 2001 (the earliest date data was available). Our analysis showed the following results:

- There were **no fatalities** in California due to a motorist illegally passing a school bus since 2001.

⁴<https://www.nysbca.com/fastfacts>

⁵https://nces.ed.gov/programs/statereform/tab5_14.asp

⁶<https://tinyurl.com/52pa5me9>

- There were only 11 injuries to school children since 2001 – 2 were severe, 6 involved a visible injury, and 3 involved no visible injury.
- This represents **less than 1 collision per year** in California due to this violation.
- These collisions represent **less than 16/100,000th of 1% of all collisions in California** over the 15 years.
- These collisions represent **less than 3/10,000th of 1% of all injury collision in California** over the 15 years.

The Confounding Nature of School Bus Stop Arm Violations

School bus passing violations do not pose uniform levels of risk

The varying levels of risk associated with school bus passing violations explain why a substantial volume of violations does not directly correlate with a significant number of collisions or fatalities. Examination of school bus stop arm violation footage, sourced from automated enforcement vendors, school districts, and law enforcement agencies, highlights that a significant number of infractions occur immediately upon the deployment or retraction of the stop arm - either before children disembark or after they have safely boarded the bus.⁷ Further, numerous violations occur when vehicles are traveling at extremely slow speeds. While these offenses technically violate the letter of the law, they often pose minimal danger to school children getting on or off the bus.

School Bus Passing Laws are Inconsistent Throughout the US

It is difficult to determine why school bus violations are prevalent. If this were simply due to scofflaw behavior, why do we not see the same level of violations for other common rules of the road? One explanation could be due to driver confusion regarding bus passing laws. Specific school bus passing regulations vary widely from state to state. While all states now prohibit passing a school bus when approaching from the rear, the stopping rules are less consistent for vehicles approaching from the opposite direction.

For example, in Washington State, drivers are not required to stop for a school bus traveling in the opposite direction if the roadway has three or more marked traffic lanes, is separated by a median, or is separated by a physical barrier.⁸ Even within these rules, the definitions can be confusing. Does a roadway with two lanes in each direction qualify as one with three or more marked traffic lanes? Are dedicated turning lanes or center turn lanes counted as marked traffic lanes? What type of median qualifies?

Likewise, in Ohio, drivers are not required to stop for a school bus traveling in the opposite direction if the roadway has four or more traffic lanes. Again, what qualifies as a traffic lane can invoke confusion. Vehicles are not required to stop while the yellow warning lights are flashing, meaning they can easily be caught committing an inadvertent violation at the moment the yellow warning changes to red.

In California, drivers approaching from the opposite direction need not stop on a divided highway or multiple-lane highway, which is defined as “any highway that has two or more lanes of travel in each direction”.⁹

In Pennsylvania, drivers approaching the school bus from either direction must stop at least 10 feet from the bus unless traveling in the opposite direction on a divided highway, defined as having a physical barrier such as a grassy median, guide rail, or concrete median barrier.¹⁰ In the District of Columbia, drivers must stop at least 15 feet from the bus.

In Florida, a “divided highway” is defined as a roadway with a “raised barrier” or an “unpaved median at least five feet wide”. In Hawaii, two roadways separated by any strip of land or other space not intended for vehicular travel qualifies as a divided highway. In Arkansas, the median dividing the two roadways must be at least twenty feet

⁷https://youtu.be/sQe_z3MptLI?si=WgHP6kE86VjSyDnZ

⁸<https://www.drive-safely.net/school-bus-laws>

⁹https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=VEH§ionNum=22454.

¹⁰<https://www.penndot.pa.gov/TravelInPA/Safety/TrafficSafetyAndDriverTopics/pages/school-bus-safety.aspx>

wide to permit passing from the opposite direction.

In Louisiana and Missouri, drivers do not have to stop when approaching in either direction if the bus is in a loading zone entirely off the roadway and where pedestrians are not permitted to cross.

And in contrast to the rules in most other states, West Virginia, Mississippi, and New York all require drivers approaching from the opposite direction to stop, even on fully divided highways.

A review of the website drive-safely.net, which has an entire section devoted to explaining the variety of school bus passing laws in each state, makes clear the confusing and inconsistent nature of school bus passing laws drivers face nationwide.

Drivers May be Confused as to Basic School Bus Stopping Laws

The lack of consistency in school bus passing laws from state to state undoubtedly leads to driver confusion. But footage of bus passing violations strongly suggests that some drivers may also be confused about the stopping requirement itself. Some motorists mistakenly believe it is safe to slowly pass the school bus and are permitted to do so, even when approaching from behind. This is not an unreasonable assumption, especially on multiple-lane roadways where no crossing is permitted, and students approach and board the bus solely from the right (curb) side. Logically, on these roadways, even if a driver were to pass to the left while the school bus was stopped, no danger is presented to children as no one would be in the roadway crossing in front of the bus.

Further, notwithstanding motorists' obligation to understand all the rules of the road, drivers have reported that they misunderstood that the flashing red lights and stop sign on the school bus are to be treated differently than a stop sign or flashing red traffic signal at an intersection - where a driver must first stop but then may proceed when safe. One of the basic tenets of traffic control devices is that they provide a uniform and consistent message. However, when associated with school buses, flashing red lights and stop signs have a very different meaning and legal requirement than when used for other roadway applications, such as at intersections.

Finally, several countries outside North America recognize that universal stopping for a school bus may not be entirely necessary. Australia, New Zealand, Belgium, Germany, South Korea, Japan, Taiwan, and the United Kingdom allow drivers to carefully pass a stopped school bus.

Warning Time is Critical to Ensure Drivers Can Comply with School Bus Stopping Regulations

As has been learned from using red light cameras, the amount of warning time given to motorists before the light turns red is a critical factor in how many drivers are likely to run the red light. The necessary warning time is highly dependent on the approaching vehicle's speed and the driver's reaction time. The speed of vehicles approaching a school bus stopped to load and unload passengers will vary significantly from roadway to roadway and whether the driver is approaching from behind or traveling towards the bus. As a result, the yellow light warning time that approaching drivers would need prior to activation of the red signal and deployment of the stop arm would also vary on each roadway upon which the school bus is traveling. Drivers approaching from the opposite direction would need twice as much yellow time since the bus and approaching vehicle are traveling towards each other, effectively halving the approach time.

Unlike a traffic signal, the school bus driver manually operates the yellow and red signals on school buses. It is, therefore, virtually impossible for the bus driver to consistently provide the appropriate warning time for all vehicles approaching from all directions. This is especially true since requirements for how much in advance of the stop the driver must illuminate the warning lights vary from state to state. The inability to provide a consistent minimum yellow warning time as is required for traffic signals undoubtedly leads to numerous instances where automated tickets are improperly issued. This is precisely what has been observed in jurisdictions using this technology. Upon reviewing school bus stop arm violation clips accessible online, it becomes evident that many infractions occur just as the stop arm becomes active. Many of these violations are likely due to drivers not being warned sufficiently.

Further, because the automated systems do not capture the entire incident and do not provide any evidence of the amount of time the yellow lights were flashing if drivers are not given adequate warning, there is virtually no way for a defendant to prove that they did not have sufficient time to react. In essence, people who are issued automated stop-arm tickets are routinely denied due process.

Of additional concern is that, with traffic lights, the yellow signal is always followed by the red signal. In contrast, school bus drivers may illuminate the bus' yellow warning lights but may not subsequently illuminate the red stop lights and stop arm. This creates an inconsistent situation where a bus' yellow warning lights do not always mean "prepare to stop", and can lead to drivers being caught unprepared for the "stop when red lights flashing" requirement, resulting in unintentional violations.

As noted previously, a handful of states such as Pennsylvania, Alabama, Colorado, Iowa, Louisiana, Maryland, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New York, Ohio, South Dakota, Wisconsin, and DC have laws explicitly requiring a minimum stopping distance from the bus ranging from 10 to 30 feet. However, no clear pavement markings are available for motorists to know precisely where they are required to stop, subjecting them to the potential for inequitable treatment.

Further, there appear to be no specific laws regarding at what point in the roadway a motorist must reach before they have "passed" the bus and no longer be subject to a citation for illegally passing when the stop arm extends. For example, Pennsylvania law requires drivers to stop no closer than 10 feet from the bus. If a driver has already passed this point before the illumination of the red flashing lights and full deployment of the stop arm, and the driver continues on their way, are they still subjected to a citation? If so, they have been entrapped. Other states have no specific stop location requirement. Here, the lack of clarity for motorists is even greater. This confusion, coupled with automated enforcement, will likely cause some motorists to slam on their brakes, resulting in rear-end collisions. Children are subjected to an increased risk of injury when this occurs in the vicinity of school bus stops.

Considering the above technical issues, it is unclear how school bus mounted video enforcement systems can function fairly, given their mobile setting.

Sub-optimal Placement of School Bus Stops Causes Confusion for Motorists and Danger to School Children

The location of bus stops plays a prominent role in the safety of school children boarding or alighting the bus. A National Transportation Safety Board (NTSB) investigation into a fatal school bus passing crash in Indiana determined that a contributing factor was the placement of the bus stop, which required students to cross a 55 mph highway in the dark during early morning hours. Per the NTSB, "A safe school bus route should avoid requiring students to cross high-speed roadways." If possible, school bus routes and stops should be designed to minimize students crossing the roadway, especially at unprotected crossings such as those lacking a stop sign or traffic signal. If this rule were consistently applied, even on lower-speed routes, the safety of school children would be significantly enhanced. An added benefit would be reducing the number of locations where drivers would need to stop for the school bus. This would reduce drivers' frustration, making them less likely to try to avoid being stuck behind the school bus for multiple stops, thereby decreasing the propensity for violations.

Similarly, many violations occur when the school bus stops near an intersection, and drivers face a green traffic signal. In this scenario, drivers are put in a no-win situation when they are given a green light at an intersection but must also stop and block that intersection due to the presence of a school bus with its lights flashing. This is especially problematic for drivers approaching from the opposite direction. These situations make violations more likely due to driver confusion as to which traffic control device is controlling or to drivers attempting to clear the path by slowly proceeding past the school bus in technical violation of the law.

Another lose-lose predicament is presented to drivers when the bus stops on the opposite side of an intersection. Depending on the timing and location of vehicles, drivers may be caught in the intersection when the red lights illuminate and stop arm is deployed. A News Radio 880 (NY) report featured Richard Poplawski, a driver issued an

automated school bus ticket. Poplawski told reporters, “The bus stopped in front of a 7-Eleven during a time he believes the bus is not scheduled there, and that stopping suddenly would have left him in the middle of an intersection”. Sadly, these “gotcha” citations are all too prevalent when automated ticketing is deployed.

Motorists may also be placed in a Catch-22 situation when approaching a stopped school bus from an intersecting roadway. Often, these drivers may not notice the bus or warning devices because they are facing perpendicular to the bus, while the bus’ flashing lights and stop arm are designed to be visible to traffic approaching from the front or rear. As a result, drivers arriving at an intersection on a cross street may not be aware of the requirement to stop until they have committed to the turn. At this point, they may be unable to stop without slamming on their brakes and coming to rest within the intersection, so they are forced to pass the bus and potentially incur a hefty fine.

Considering the complications imposed when a school bus stop is located at a signalized intersection, one may reasonably ask how safety is enhanced by requiring motorists to stop for school buses loading and unloading passengers at controlled intersections. Students who must cross the roadway should do so at the intersection, with their safety ensured by a traffic control device (either a stop sign or traffic signal). Since the traffic control device serves the same function as the bus’ flashing lights and stop arm, namely to protect pedestrians while crossing the street, it would seem that the need for drivers to stop in response to the bus’ traffic controls is superfluous. In fact, the conflicting control can significantly reduce safety for bus passengers as they may be encouraged to disobey the roadway traffic control devices in favor of the bus’ controls. It is easy to imagine how this situation could eventually result in a tragedy.

Automated School Bus Cameras Lead to Injustices

The prior section clarifies how automated school bus ticketing cameras can lead to unjust treatment of the citizenry. Additional factors compound these inequities.

Improper Ticketing

Almost all school bus passing laws restrict the school bus stopping requirement to times when schoolchildren are loading or unloading from the bus. However, it has been widely reported that automated ticketing cameras often issue tickets when no children are present. The News Radio 880 story on the Suffolk County, NY bus camera program, which grossed nearly \$25 million in its first year of operation, reported that the program was improperly ticketing drivers even when there were no children present.¹¹ Sadly, these are not isolated incidents as similar transgressions have been noted from other ticketing programs.

Economic Hardship

Even when a reduced fine is mandated for a school bus passing violation issued by a camera versus a live officer, just one of these tickets could put and keep someone in poverty due to their inability to pay. For our most marginalized community members, paying this fine could mean the difference between being able to put food on the table or kids going hungry, or the ability to pay rent. Depending on state law, if the driver or vehicle owner cannot pay, they may be unable to renew their license or register their vehicle. All family members who rely on a shared vehicle to get to work will be unable to do so, possibly resulting in losing their jobs, further spiraling them down into poverty. As a result of receiving one of these tickets, the owner of a vehicle, in some cases not necessarily even the person who committed the violation, and their entire family might be forced out into the street. And if a member of the family chances driving to work on an expired registration or suspended license, they will potentially be subjected to additional police enforcement and penalties. Automated enforcement should not be used for violations where injuries that result from this violation are exceedingly rare.

¹¹<https://www.audacy.com/wcbs880/news/li-drivers-ticketed-for-passing-empty-school-buses>

Ethical Challenges of Bus Camera Companies

Of further concern is the previous criminal history of the for-profit automated enforcement companies running these automated ticketing programs, which profit immensely from their usage. For example, BusPatrol, a major player in the school bus camera industry, is simply a rebranded version of Force Multiplier Solutions (the company's leadership team remains more or less the same¹²), involved in a multi-million-dollar bribery scam that bankrupted the Dallas County School system.^{13 14 15} Force Multiplier Solutions collected \$70 million while the school system fell into massive debt as a result of the program. Shamelessly, BusPatrol hosts "Safety Summits" for the public and elected officials under the guise of improving safety for school children but which are, in actuality, giant advertisements to promote their ticket camera product.

Verra Mobility (formerly American Traffic Solutions and Redflex), another bus camera vendor, has its own shady past, coincidentally being accused by BusPatrol of stealing their intellectual property to reverse engineer a bus camera ticketing system.¹⁶ Recently, this company announced to shareholders a new strategy to enhance profits by focusing on passing legislation throughout the US to allow the use of school bus cameras because "they are easier to sell to lawmakers".¹⁷ In recent years, Verra Mobility has hired multiple lobbyists in multiple states to promote their interests in passing legislation authorizing additional automated enforcement.

States that have, or are considering, authorizing stop-arm automated ticketing provide corporate welfare for the companies that run these programs.

Alternative Solutions

Elected officials and members of the public rightly have concerns for the safety of school-aged children traveling to or from school. We would, therefore, encourage a focus on solutions to problems that result in the highest number of injuries. Although school buses are students' safest mode of transportation to school, as explained above, the majority of school children who are injured or killed in school bus accidents are hit by the school bus itself or while riding on the bus. Therefore, additional training of school bus drivers and students is critical to reducing these unfortunate incidents. Children especially should receive annual instruction on safety in and around school buses.

In addition, technological improvements to the school bus, such as additional mirrors and possibly camera observation systems that ensure that the driver can see all children in the vicinity of the bus, should be considered.

Relocating bus stops to reduce the need for students to cross the roadway could also significantly improve safety. Where this is not possible, bus stops should be located only where a traffic signal, stop sign, or other pedestrian crossing treatment, such as a rectangular rapid flashing beacon or HAWK signal, controls traffic.

In California, children through grade eight are currently afforded added protection when loading or unloading from a school bus. Per the requirements of California Vehicle Code 22112 (d), the school bus driver or aid is obligated to exit the vehicle and escort all children through 8th grade across the roadway using an approved hand-held "STOP" sign to ensure that all children have crossed safely.¹⁸ This requirement is likely the reason that so few accidents occur in California due to violations of the school bus stop arm law. If other states adopted a similar rule, motorist compliance would increase, and an extra layer of safety would be added for students. Automated stop-arm cameras would become even less necessary.

Finally, it is essential to address the issue that many school bus violations result from drivers' confusion due to differing state laws, conflicting traffic control devices in the vicinity of the bus stop, or the motorist's unfamiliarity

¹² www.thenewspaper.com/news/64/6460.asp

¹³ www.thenewspaper.com/news/63/6373.asp

¹⁴ www.thenewspaper.com/news/64/6436.asp

¹⁵ www.thenewspaper.com/news/66/6680.asp

¹⁶ www.thenewspaper.com/news/64/6451.asp

¹⁷ www.thenewspaper.com/news/65/6588.asp

¹⁸ https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=22112.&lawCode=VEH

with the requirements of the law. Undoubtedly, some violations are willful, but increasing driver understanding of school bus passing laws and penalties would likely lead to a significant reduction in violations. One avenue is to enhance driver education manuals with well-written, well-illustrated information on potential pedestrian conflicts associated with passing a school bus and what the law requires of approaching drivers. A well-conceived public outreach campaign similar to the "Click it or Ticket" campaign would also be of benefit. Additionally, school bus passing laws should be made consistent throughout the nation. Driver stopping requirements should be refined to include only those locations where stopping is essential to ensure the safety of students getting on and off the bus.

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