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School Crossing

Student Safety on the Bus and Beyond

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This is part of a series of publications on school transportation policy, including:

- **From Yellow to Green: Reducing School Transportation's Impact on the Environment**
- **Intersection Ahead: School Transportation, School Integration, and School Choice**
- **School Crossing: Student Transportation Safety on the Bus and Beyond**

These policy briefs build on our 2019 slide deck "The Challenges and Opportunities in School Transportation Today" and our 2017 report "Miles to Go: Bringing School Transportation into the 21st Century."

Key Takeaways

- Student safety is the first responsibility of any school transportation system, but safety can vary greatly based on how students get to school.
- School leaders, families, and policymakers at the state and local level can all contribute to making students' trips to and from school as safe as possible.
- Student transportation safety plans must recognize and address the safety issues associated with the variety of ways students get to school: by school bus, private vehicle, foot, bicycle, or public transportation.
- Solutions to improve student transportation safety will look different in areas with different transportation safety issues — the needs of a dense urban area are much different than those of a sprawling rural district.

Introduction

A school transportation system's first responsibility must be student safety.

For the vast majority of the 50 million students who attend K–12 schools in the United States,[1] daily journeys to school end safely. However, the National Highway Traffic Safety Administration (NHTSA) reported 281 fatalities related to school bus or school vehicle transportation from 2007 to 2016[2] — a statistic that does not account for students traveling to school by other modes, like walking, biking, or riding in the family car. Regardless of mode of transportation, any case of student injury or death is a tragedy and should serve as a call to further improve the overall safety of student transportation. A school transportation system's first responsibility must be student safety.

Definitions of student safety in school transportation should not be limited to school bus safety statistics. To be sure, it's an important topic, but it's only one part of the student transportation landscape. Students get to school in a variety of ways — in 2017, only a third of students nationally rode the bus to school, more than half rode in the family car, and approximately one in ten walked or rode a bike to school.[3] This is a very different mix of student transportation modes than 50 years ago, evolving in large part from the increasing distance between students' homes and the schools they attend.

In order to improve the safety of all students on their way to and from school, school leaders and policymakers need to take a more holistic approach to student transportation safety issues. A holistic approach to student transportation safety recognizes that how students get to school affects their relative safety, and perceptions of safety can affect families' decisions on how their children get to school. Risks to safety beyond the bus, such as dangerous intersections, traffic behavior, and crime, can shape students' experience as

well as their mode of transportation and their route. Understanding these dynamics, as well as shifting trends in how kids get to school, can help leaders better address and anticipate their students' needs.

This brief aims to help state and local leaders, advocates, and other stakeholders better understand how they can lead comprehensive change to improve the safety of all modes of student transportation in their communities. We start by assessing how students get to school and how modes of transportation have changed over the past 50 years. Next, we examine how student transportation safety is currently measured and how additional data could provide a more holistic understanding of student transportation safety, and therefore, drive more comprehensive solutions. Key safety considerations and best practices across modes of transportation — buses, walking and biking, private vehicles, and public transit — are each considered in turn. Finally, we summarize how parents, school leaders, and municipal governments can work to ensure that all students arrive safely at school each day.

Families, schools, and a variety of local and state government agencies all bear some amount of responsibility for ensuring students' safety on their way to and from school.

Families, schools, and a variety of local and state government agencies all bear some amount of responsibility for ensuring students' safety on their way to and from school. For example, schools may provide yellow bus service, but municipal governments build and maintain roads and enforce traffic laws, while families can shape students' choice to travel by car, bus, walking, or biking. Different community members can work to improve student transportation safety in specific ways:

- **Families** can organize and educate their communities on specific transportation safety issues, including bus stop safety, carpooling, and promoting safe walking and biking to school through PTAs, PTOs, or other groups.
- **School leaders** can create safer arrival/dismissal infrastructure and policies and develop partnerships with local governments aimed at improving student transportation safety through policies to calm street traffic, increased enforcement near school zones/vehicles, and improved infrastructure for walking and bicycling. They can also work with families to organize and address school-specific safety issues.
- **Local and state government** organizations and departments, including police, public works, public transit, and legislatures, can all serve as partners with schools to help kids safely get to and from school. This can come through programs to calm traffic on roads, providing students better access to public transit, building physical improvements to produce safer streets for students and families, or changing laws and enforcement efforts to support student transportation safety.

Specific efforts to improve student transportation safety will look different in each community, depending on factors like transportation infrastructure and land use, crime, school district size and density, available resources, and community preferences. Working together, communities can help ensure a safe trip to and from school for all children.

A Holistic Understanding of Student Transportation Safety

Conversations about student transportation safety often do not fully address the changing and varied ways students get to school.

Student transportation safety should aim to minimize, if not fully eliminate, the potential harm that can come to students on their way to school. However, conversations about student transportation safety often do not fully address the changing and varied ways students get to school. Available research and statistics tend to focus on issues related to school bus riders and preventing collisions and injuries to bus passengers, but only a third of students get to and from school on a school bus, and safety issues can also occur on the way to or from the bus. Reducing crashes and eliminating fatalities for school bus riders should absolutely be a top safety priority, but there are other important considerations. Those include ways to make other forms of transportation safer, especially walking and biking.

Data on vehicle collisions and fatalities are a foundational part of the safety picture, but they do not show how a community's roads may be so dangerous that parents and students don't use them to walk and bike, and there is little data on how the issues of crime, harassment, and street infrastructure affect student transportation. Without a consistent and holistic picture of safety concerns for students, leaders may make incorrect assumptions or decisions that could put students at greater risk, and have a disproportionate impact on historically disadvantaged student groups.

Schools, districts, and local officials typically use information on bus and vehicle collisions to inform student transportation safety measures, but promising new approaches provide leaders with a more nuanced picture of student safety and risk at a street level. For example, researchers in Denver, Colorado surveyed parents on the road conditions they considered safe or unsafe for students. They applied these parent preferences to road Geographic Information System (GIS) data to identify streets or areas that parents would consider unsafe for walking and biking. Many of these streets were not considered "unsafe" by traditional measures because there had been no crashes or specific crime incidents, but parents and students would avoid them due to factors like high traffic, lack of sidewalk connectivity, or unprotected bike lanes.[4]

When measuring and defining school safety, school and community leaders should consider how street-level safety, crime, health, and infrastructure may shape perceived and actual student risk and family decisions around what mode of transportation to use.

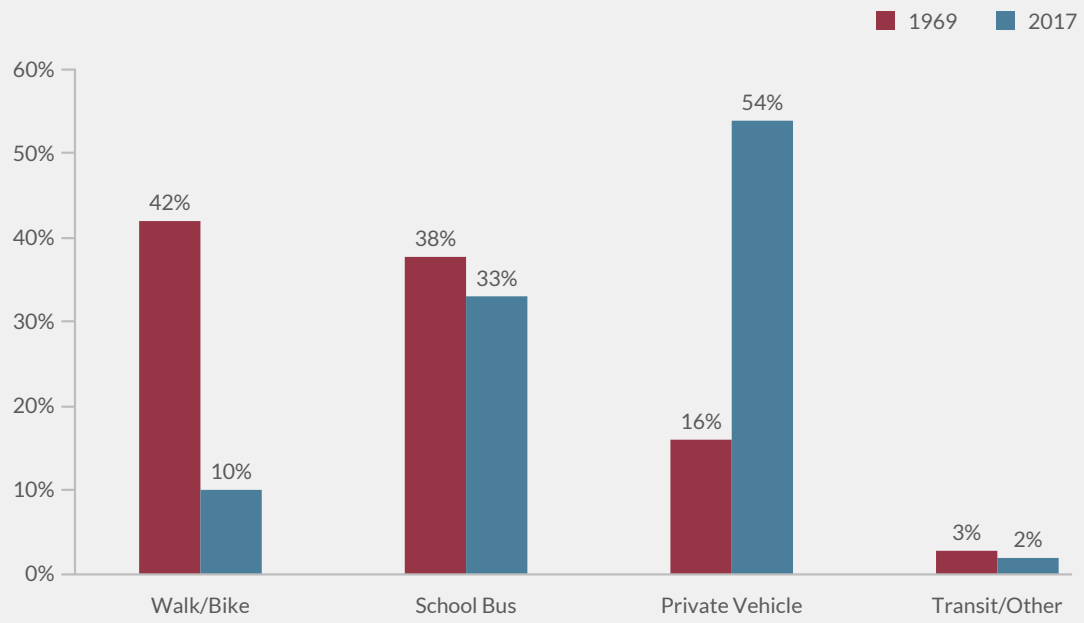
Trends in Transportation by Mode

Any efforts to improve student transportation safety must start with an understanding of how students get to school, as each mode of transportation has different safety implications. The methods by which students arrive at school have changed dramatically over the past several decades. Data show that from 1969 to 2017, there was a large reduction in walking and biking to school, a significant increase in private vehicle use, and a slight decrease in school bus ridership (Figure 1).

One of the key factors driving the change in how students get to school is where students live. The distance from students' homes to their schools has grown over the years, making walking or biking to school more difficult for many students. In 1969, just over half of students lived a mile or more away from their schools; by 2001, three-quarters of students lived more than a mile from their schools.[5] But even among students who live less than a mile from school, the rate of walking and biking to school dropped from 88.6% in 1969 to 35.2% in 2009 (Table 1).

Several policies may be contributing to this trend, including school siting policies that encourage new school construction in more remote areas;[6] the increasing popularity of school choice, magnet, and charter school options that offer students school choices farther

Figure 1 Percent of Student Transportation by Mode, 1969–2017



Note: Percentages may not add to 100 due to rounding.

Source: "Transportation Characteristics of School Children," Department of Transportation, July 1972, https://www.fhwa.dot.gov/ohim/1969/q.pdf; "Children's Travel to School," Department of Transportation, March 2019, https://nhts.ornl.gov/assets/FHWA_NHTS_%20Brief_Traveltoschool_032519.pdf.

from home;[7] and/or integration policies that may assign students to schools outside their neighborhoods in order to combat residential segregation.[8] In addition to changing how students get to school, greater distances can also affect student safety. More time and distance to schools usually means more exposure to risk.

Districts and states should understand the interplay of distance, school policies, and the mix of transportation modes available in their unique context as they consider safety improvement initiatives.

The intersection of school integration, school choice, and school transportation is further explored in "Intersection Ahead: School Transportation, School Integration, and School Choice."

Table 1

Student Transportation Mode and Home Distance From School, 1969–2009

Student Home Distance from School		Walking/ Biking	School Bus	Private Vehicle	Transit/ Other
Less than 1 mile	1969	88.6%	3.8%	6.9%	0.7%
	2009	35.2%	20.4%	42.8%	1.6%
	Δ	-53.4%	+16.6%	+35.9%	+0.9%
1 – 1.99 miles	1969	55.1%	29.0%	14.3%	1.7%
	2009	5.6%	37.7%	53.4%	3.3%
	Δ	-49.5%	+8.7%	+39.1%	+1.6%
2 miles or more	1969	8.0%	72.0%	15.7%	4.3%
	2009	1.7%	51.8%	43.6%	3.0%
	Δ	-6.3%	-20.2%	+27.9%	-1.3%

Note: Percentages may not add to 100 due to rounding.

Source: "How Children Get to School," National Center for Safe Routes to School, November 2011, http://www.safekidsgf.com/Documents/Research%20Reports/NHTS%20School%20Travel%20Report%202011.pdf.

School Bus Safety

About a third of students ride a school bus, but the safety of their trips to and from school extends beyond the bus.

The yellow school bus is an iconic component of student transportation safety. About a third of students ride a school bus, but the safety of their trips to and from school extends beyond the bus. When considering the safety of school bus riders, we must also take into account student safety as they enter and exit the bus, as well as how safe they are on their way to and from the bus stop.

Safety on the Bus

Riding a school bus may be the safest way for a student to get to school. School bus design elements are a big reason why students riding the bus are 70 times more likely to arrive at school safely when compared to students traveling in private vehicles.[9] Buses are intentionally highly visible to other drivers; they include special features such as rollover protection; and their seats are designed to protect students in the event of a crash.[10] The seat design of school buses is known as "compartmentalization" — a passive protection designed to guard children through reinforced seats and energy-absorbing seat backs, without the need for seat belts.[11] While compartmentalization does protect students in some circumstances, recent tragedies show that it may not be sufficient in all cases.

It's now second nature to buckle up when entering a car — NHTSA data show that seat belt use is approximately 90% nationwide[12] — so people may be surprised to learn that not all school buses are equipped with seat belts. The NHTSA only requires seat belts on school buses weighing under 10,000 pounds, because large, heavy buses provide protection through compartmentalization.[13] Since most common models weigh more than 10,000 pounds, they are not required to have seat belts.[14]

However, recent school bus crash tragedies in Maryland, Tennessee,[15] and New Jersey[16] are leading some safety advocates and experts to reexamine the need for additional safety features on school buses. While compartmentalization can provide substantial protection for students in the most common forms of school bus crashes (front and rear collisions), lap and shoulder (also known as three-point) seat belts provide additional protection, including in some less common, dangerous crash scenarios such as rollovers.[17] Accordingly, the National Transportation Safety Board (NTSB) now recommends that all states require three-point seat belts when investing in new buses,[18] as does the National Association of State Directors of Pupil Transportation Services (NASDPTS).[19]

The NTSB recommendation does not carry the same legal weight as an NHTSA regulation for school bus design, but eight states have adopted some form of seat belt requirement on school buses: Arkansas, California, Florida, Louisiana, Nevada, New Jersey, New York, and Texas.[20] However, in Arkansas, Louisiana, and Texas, these new policies require local jurisdiction approval and/or the availability of state appropriations.[21]

Requiring seat belts on new school buses may help over the long term, but what about existing school bus fleets? Retrofitting older buses with seat belts can cost up to $11,000 per vehicle[22] and may require additional maintenance to keep them in good working order.[23] Because new buses can cost more than $100,000, retrofitting ten existing buses with seat belts could cost as much as one new bus. While some advocate for this additional investment in student safety, others worry that unbuckling the belts might slow students down when evacuating a bus.[24] However, three-point seat belts might actually help improve bus evacuation by minimizing injuries and reducing the risk of being knocked unconscious.[25]

Safety Around the Bus

Students are usually safe when they are physically on the bus, but riding the bus is only one part of the journey. Students are at greater risk on their way to the bus stop and as they enter or exit the bus than they are as passengers on the bus.[26]

> *"The greatest risk to your child is not riding a bus, but approaching or leaving one."*
> *— NHTSA website*[27]

Many of the pedestrian fatalities involving school buses occur in the "danger zone,"[28] a 10-foot area around the outside of the bus.[29] Bus drivers and passengers can enable safe entry and exit by staying aware of that zone and ensuring that students leave the zone before the bus resumes travel. Several school transportation organizations offer training resources to school and district leaders to help drivers and students maintain a high level of safety in and around the "danger zone."[30, 31]

School bus riders are in fact, partial pedestrian commuters — they have to walk to their bus stop.

Another key element is pedestrian safety. School bus riders are in fact, partial pedestrian commuters — they have to walk to their bus stop. Taking into account the students who walk or bike to school, a significant proportion of students' trips to school could be made safer through efforts to improve both driver behavior and physical infrastructure such as crosswalks and sidewalks, in order to make routes to school more pedestrian-friendly.[32]

The enforcement of traffic laws plays an important role in keeping students safe as they ride and particularly as they prepare to enter or exit the school bus. When a school bus is approaching a bus stop, its lights flash yellow, and once it comes to a stop, school bus lights blink red and a "STOP" arm signal extends, a signal that other drivers on the road must obey. It is illegal in all 50 states to pass a school bus on any non-divided road with red flashing lights and its "STOP" arm extended, but this is one of the most routinely ignored and most dangerous traffic safety violations.[33] These violations, commonly known as "stop-arm" violations, are estimated to happen 13 million times each school year.[34] Each of these violations increases the risk that a student will be hit by a vehicle as they get on or off the bus.

Some communities are working to address stop-arm violations through a combination of public awareness campaigns, increased levels of enforcement, and increased visibility of school buses through additional flashers and stop-arms.[35] Some state legislatures have passed laws to increase fines for stop-arm violations[36] and reduce speed limits around school bus stops.[37] Additionally, some jurisdictions have turned to technology to improve enforcement of stop-arm violations. Sixteen states have authorized the use of automated enforcement through stop-arm camera systems on school buses, with some states dedicating a portion or all of the resulting ticket revenue to improving school and/or public transportation safety.[38]

While the use of stop-arm cameras is still new in many communities, some are seeing positive results. In Cobb County, Georgia, stop-arm violations dropped by 50% after stop-arm cameras were installed.[39] Stop-arm cameras have a high rate of success with capturing license plate information and freeing bus drivers to focus on student safety instead of writing down plate numbers, but effective enforcement of stop-arm violations also requires follow-through from law enforcement.[40]

School buses are well designed to keep children safe from collisions, but that is not the only safety risk for school bus riders. While some schools are deploying low-emission and electric school buses, most school buses run on diesel engines. These engines emit exhaust that can damage students' health and even their academic performance.[41] This topic is covered more in-depth in our related brief, "From Yellow to Green: Reducing School Transportation's Impact on the Environment."

Improving Safety On and Around the School Bus

The yellow bus is a safe way for students to travel, but their journeys on the bus begin and end as pedestrians. Improvements in student awareness when entering or exiting school buses, improved pedestrian infrastructure, and increased stop-arm violation enforcement can help ensure that all segments of bus riders' trips to school are as safe as possible.

- **Three-point seat belts:** Compartmentalization protects students in some common types of school bus collisions, but it may not be sufficient in all cases. State and local governments should work to transition their school bus fleets to include three-point belts as a standard safety feature, and states requiring seat belts should provide retrofit funding accordingly.
- **Student and driver awareness:** All students should understand the school bus "danger zone" and how to safely enter and exit the bus. Families and school leaders can work together to ensure that students understand where bus drivers have blind spots, why they should wait a safe distance from the road, and how to wait for the bus to completely stop before approaching. Schools can work to ensure that their bus drivers, whether directly hired or contracted, prioritize safety as students get on and off the bus.
- **Stop-arm violation enforcement:** School leaders and local governments should collaborate to reduce the instances of and increase the penalties for stop-arm violations. Communities may want to consider the value of implementing stop-arm cameras, as in the Cobb County example above, to enable automatic enforcement of these dangerous and far too common violations.

Walking and Biking

While there has been a steep decline in walking and biking to school in recent decades, many students still use one of these "active" modes of transportation, especially low-income and/or students of color.

While there has been a steep decline in walking and biking to school in recent decades, many students still use one of these "active" modes of transportation, especially low-income and/or students of color, who walk and bike at three times the rate of higher-income and/or white students.[42] While walking and biking are different modes of travel, they have very similar benefits and safety concerns, and both modes can benefit from similar behavioral, policy, and infrastructure improvements.

Walking or biking to school can improve the overall health of students by helping them achieve the Department of Health and Human Services recommended hour of daily physical activity for kids, which is critical for reducing obesity, diabetes, and other chronic conditions.[43] Families have moved away from these modes of transportation for a variety of reasons, including increasing distance from school and safety concerns.[44]

There are many real safety concerns that may dissuade students from walking or biking, or that may make their journeys riskier. Students may face busy intersections, a lack of sidewalks or protected bike lanes, or other dangers on their route. Another concern not discussed enough is sexual harassment: A 2014 study found that nearly a third of women had experienced some form of street sexual harassment by age 17.[45]

Many families' decisions to drive students to school has meant more cars on the road around schools, putting students who are walking or biking at greater safety risk. When students are not eligible for bus transit, many schools consider family choices around driving, biking, or walking as outside of their control, but there is plenty that schools, districts, and communities can do to make roads safer for students.

Improving Walking and Biking Safety

The federal Safe Routes to School program (SRTS) was created in 2005 to help improve the safety of walking and biking to school; it has provided more than $1 billion in dedicated funding from 2005 to 2012 to support improvements to infrastructure (such as adding crosswalks or protected bike lanes within 2 miles of schools) and programmatic efforts to encourage walking and biking.[46] In recent years, SRTS funding was combined with other federal programs that encourage walking and biking in what is now called the Transportation Alternatives Program (TAP). Since its inception, SRTS programs have benefited more than 14,000 schools in all 50 states.[47] While these grants may only fund part of a community's school transportation safety efforts, they can serve as a vital catalyst to sustained community support for student walking and biking safety.

The Safe Routes Partnership also provides toolkits to help school communities organize efforts to encourage "walking and wheeling" to school.[48] This can be as simple as organizing a "walking school bus" — a group of students and adults who walk to school together to increase their visibility and safety — or it can involve efforts like creating safe walking and biking route maps or launching public awareness campaigns to improve the safety of walking and biking to school. A study of 801 schools in Washington, D.C.; Florida; Oregon; and Texas found that SRTS education programs led to an increase in walking and biking to school by up to 25% over a five-year period.[49]

Portland, Oregon is one of the leading examples of how a community can increase walking and biking to school on a large scale. From 2006 to 2015, the share of students walking and biking to school grew from approximately 30% to more than 40% and is on pace to exceed 50% by 2025.[50]

More than 385 miles of bikeways[51] and investments in pedestrian- and bike-friendly physical infrastructure beyond schools have played a large role in this success, but this is only one component of Portland's plans. Portland has one of the nation's oldest SRTS programs (founded in 2000), which is integrated with other traffic safety efforts through the Portland Community and School Traffic Safety Partnership.[52] Portland's SRTS program now serves more than 100 schools, helping to improve infrastructure and educate students and communities,[53] including traffic engineering plans to improve drop-off and pick-up at 31

schools.[54] Its efforts have also received financial support from local voters, who approved a 10-cent gas tax and heavy vehicle use tax in 2016 that provided $8 million to the SRTS program.[55] This funding will prioritize projects in communities with high rates of students of color, students eligible for free/reduced-price lunch, and English language learners. Other SRTS projects in Portland may benefit from $10 million that Oregon will be providing each year to SRTS projects across the state.[56]

Much larger districts than Portland have invested in walking and biking programs with evidence of success. The Chicago Public Schools Safe Passage program places hundreds of adult monitors along streets in areas where crime may otherwise deter students from walking to school.[57] Initial research suggests that the Safe Passage program may have helped reduce crime rates along the targeted student walking routes.[58] Other research found that the program specifically produced reductions in violent crime and student absenteeism.[59]

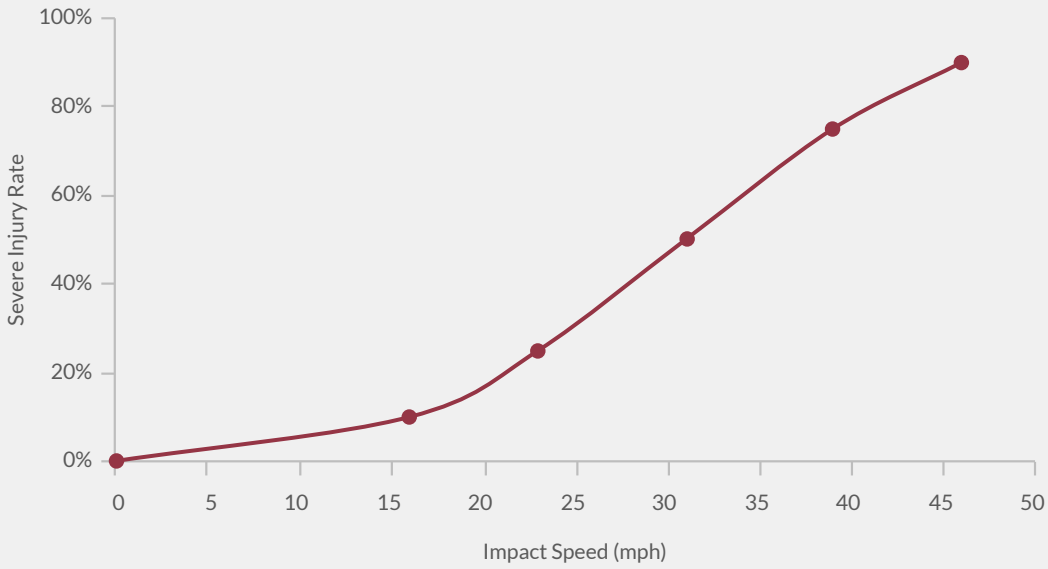
Other critical safety improvements for students rely upon road redesign and traffic enforcement.

Other critical safety improvements for students rely upon road redesign and traffic enforcement. Busy roads, and lack of adequate sidewalks, crosswalks, and other physical road safety features can cause students who live close to school to take a school bus or ride with a parent to school instead of taking a dangerous (or perceived as dangerous) walk.[60] Traffic calming improvements and pedestrian and bicycle infrastructure such as sidewalks, protected bike lanes,[61] high-visibility crosswalks, curb extensions, crossing islands, and "road diets"[62] — efforts to reduce the number of lanes and speed of vehicle traffic — can all contribute to making roads safer for students to use while walking or biking to school.

Driver behavior plays an equally significant role in improving safety for pedestrians and cyclists. A study of driver cellphone data from more than 9 million drivers and 1 billion road trips shows that risky driver behaviors near schools, such as speeding, phone use, or aggressive speed change, are most common during pick-up and drop-off times and that these risky behaviors are 32% more common near schools in cities than in rural areas.[63] In recent years, states have passed laws to reduce cellphone use while driving, particularly around schools. Texting while driving is now illegal in 48 states, but handheld cellphone use is only banned in 18 states, with Arkansas, Tennessee, and Texas including specific bans on handheld use in school zones.[64]

In addition to distracted drivers, speeding near schools can be extremely dangerous for students walking to school. The stream of buses, cars, and students entering and exiting school property before and after the school day presents a safety challenge that can be made significantly more volatile as vehicle speeds increase. As shown in Figure 2, a change in vehicle speed from 23 mph to 31 mph can double the odds of serious injury from 25% to 50%. This is part of the reason why several states mandate school speeds below 20 mph,[65] and many communities use traffic calming mechanisms around schools.

Figure 2 Odds of Serious Injury to Pedestrian Struck by Vehicle, by Impact Speed



Source: Brian Tefft, "Impact Speed and a Pedestrian's Risk of Severe Injury or Death," AAA Foundation for Traffic Safety, September 2011, https://aaafoundation.org/wp-content/uploads/2018/02/2011PedestrianRiskVsSpeedReport.pdf.

School district leaders and transportation departments can improve safety for walking and biking students by changing how people and infrastructure interact on school grounds.

School district leaders and transportation departments can improve safety for walking and biking students by changing how people and infrastructure interact on school grounds. Most schools have parking lots, loading areas, and/or small roads on school grounds, particularly in more suburban and rural areas. District leaders and transportation departments can work to prioritize the safety of students who walk and bike to school by ensuring students arriving by different modes have separate and safe methods of entering and leaving school grounds and access to safe bike parking. Furthermore, school and district officials can work with families to arrange arrival and dismissal schedules and procedures that maximize the safety of all students, particularly students who walk or bike.

Since school districts don't build roads or enforce traffic laws, addressing the physical infrastructure of student transportation will require collaboration among families, schools, and local governments to fund projects that produce calmer, more complete streets for students. Many organizations, including Smart Growth America[66] and the National Association of City Transportation Officials,[67] provide resources on how to improve road design to increase the safety of all users, particularly pedestrians.

Communities can work to improve the safety of their current roads for students traveling by foot or on bicycles. Lowering speed limits for school zones can limit the risk of dangerous high-speed pedestrian/cyclist collisions with cars, but it typically requires some combination of enforcement and public awareness campaigns to make a difference in driver behavior.[68]

Technology can also be leveraged to effectively calm traffic via automated speed and/or red light camera enforcement, which has helped reduce speeding during school hours[69] and red light violations in New York City.[70] Automated speed enforcement cameras in Montgomery County, Maryland helped cut speeding in half and also reduced the number of vehicle collisions.[71] While automated speed and red light violation cameras are opposed by some who view them as a revenue-generating scheme for local governments,[72] those concerns should be weighed against the demonstrated ability of these enforcement measures to provide safer streets for students to use on their way to school.

Increased traffic enforcement is associated with safer streets in terms of speed and driver behavior; however, increased police presence around schools also brings other risks. Residents of high-crime and low-income neighborhoods tend to hold negative views of police but might still be willing to partner with them.[73] Efforts to increase police activity without community buy-in, though, could serve to exacerbate, rather than reduce, existing police-resident tensions in these areas. For this reason, it is critical that any effort to increase traffic enforcement around schools for safety reasons should be done in partnership and in communication with families.[74]

Any effort to increase traffic enforcement around schools for safety reasons should be done in partnership and in communication with families.

On a longer time horizon, communities can revise school construction practices to reduce the distance between students and schools, so that more students can consider walking and biking to school. Minimum lot size and construction cost guidelines to determine whether a school should be renovated or replaced have helped drive school construction to the edges of communities,[75] which often reduces the safety and feasibility of walking and biking to school. School siting decisions are complex and must consider multiple tradeoffs among the costs and benefits of different locations and the impact of those decisions on a range of community stakeholders. However, a holistic assessment of transportation implications should be a factor. Local and state governments and communities can work to revise policies that unnecessarily hinder more transportation-friendly siting decisions and work with community members to align new school construction with other community priorities, including making walking and biking a safe option for students.[76, 77]

Walking and biking used to be the dominant modes of student transportation, and they offer many benefits for students who live close to their schools. Communities can take several steps to improve the safety and desirability of walking and biking to school:

- **Walking, biking, and safety programs and activities:** On a volunteer or funded basis, school and local leaders can work with families to establish a SRTS program to improve the safety and increase the number of students walking and biking to school. Safe Routes to School programs can include safety and skills education for students, activities and events to encourage safe walking and biking to school together, and efforts to ensure school and district leaders prioritize the safety of walking and biking on school grounds.
- **Traffic enforcement:** Local governments can work with families and school leaders to lower speed limits, enhance signage, and improve enforcement of traffic and cellphone violations in school zones.
- **Adult supervision of key routes:** School districts and local governments can collaborate on efforts to use adult monitors to enhance the safety of particular routes in high-crime areas, as in the Chicago Public Schools Safe Passage program.
- **Prioritize pedestrian and bike infrastructure:** Near schools and on school routes, having safer street design is essential: connected sidewalks, well-marked crosswalks, safe bike infrastructure, and speed-reducing road features like speed bumps can help improve the safety of students who walk or bike to school. State and local officials can also plan for the future by considering a holistic view of transportation implications in school siting decisions. Depending on the mix of factors that must be weighed against one another in these processes, local governments could consider steps such as revising school construction guidelines, including removing or reducing site acreage requirements and incentivizing building repair over replacement. These types of changes can help reduce the physical distance between students and their schools and in turn, improve the safety and feasibility of walking and biking to school.

Private Vehicles

A majority of K–12 students get to school in a private vehicle. There are many factors behind this choice: increasing distance between students' homes and the schools they attend, safety concerns around walking and biking, and more limited school bus transportation availability, particularly if families choose magnet schools, charter schools, or other schools of choice located farther away from home.

While private vehicle travel is a convenient option for some families, it is perhaps the mode of transportation where student transportation safety can be most improved.

While private vehicle travel is a convenient option for some families, it is perhaps the mode of transportation where student transportation safety can be most improved. Private vehicles lack the safety features of school buses and account for a large majority of youth traffic fatalities during school hours as passengers or pedestrians.[78] Additionally, private vehicles carrying students account for 10 to 14% of traffic in morning and afternoon commutes during the school year, potentially causing additional safety hazards.[79]

Reducing the number of students commuting to school in family vehicles would help improve student safety, and offer environmental and traffic benefits for the community through reduced emissions, congestion, and travel time. There are many short-distance trips to school by private vehicle that could be converted to walking or biking trips (Table 1), but in some locations, that requires improvements to the pedestrian safety environment and changes in families' habits or perceptions of safety. Some communities are helping

families reduce the number of private vehicle trips to school by establishing voluntary "school pool" programs, which encourage safe travel to school by walking, biking, or carpooling in groups; this is being done in Charlottesville, Virginia, Fort Collins, Colorado, and Santa Cruz, California.[80]

Districts could also reduce private vehicle use by expanding school bus service for schools of choice and/or offering bus services in a wider radius.

Districts could also reduce private vehicle use by expanding school bus service for schools of choice and/or offering bus services in a wider radius, such as one mile away from school instead of two. Expanding bus eligibility could be costly, but would likely present safety benefits. If families are eligible for bus services, but choose to drive instead, districts and schools could investigate whether changes to routes, stops, schedules, or pickup times might entice more families to use school buses.

Improving Private Vehicle Safety

- **Organize "school pools":** Parents and school leaders can work together to make drop-off and pick-up lines less congested and safer by reducing the number of vehicles lined up, through voluntary "school pool" programs that can encourage more group commuting to school.
- **Encourage active transportation:** Private vehicle traffic to schools can be further reduced by supporting measures noted in previous sections to support walking and biking to school.
- **Safer streets:** Better transportation policy and infrastructure can help make streets safe for all users, including private vehicle traffic. Measures noted earlier to reduce vehicle speeds and encourage better driving habits can help improve the safety of car travel for students.

Mass Transit

In some dense urban areas, students rely on public transportation to get to school. Cities across the country take different approaches to providing K–12 students with access to mass transit: Students in New York City[81] and Washington, D.C.[82] receive free rides to and from school-related activities, while children ages 6–19 in Denver receive a 70% discount on all bus and train fares.[83]

While millions of students benefit from access to mass transit in dense urban areas, less dense metros have limited capacity to address student transportation needs through transit.

While millions of students benefit from access to mass transit in dense urban areas, less dense metros have limited capacity to address student transportation needs through transit. Federal regulations known as "tripper rules" prevent transit authorities from providing dedicated lines of service for K–12 student transportation, but they are allowed to provide extra capacity for pupil transportation along existing lines of service.[84]

There is little available data on the impact of mass transit on student safety, but increasing the use of already existing transit networks may provide several benefits for students. Research shows no discernible difference in student fatalities between school buses and transit buses.[85] Public transit riders experience lower crash and crime rates when compared to automobile occupants.[86] Providing students with free access to public transit may help increase attendance rates, reduce youth interaction with the justice system for fare evasion, and increase access to extracurricular activities and employment opportunities.[87]

In areas with high crime rates, access to mass transit may also help students avoid walking through dangerous areas.[88] While some are concerned that students unsupervised on public transit can themselves create crime or disruptive behavior, there is little available research to substantiate those concerns with more than anecdotal evidence.

Improving Mass Transit Safety for Students

- **Identify potential partnerships:** Mass transit programs for K–12 students may not be feasible in every community, but school leaders should discuss the potential of free or subsidized travel for students. Doing so can provide a safe way for students to travel, particularly if there is a lack of safe pedestrian and bike infrastructure.
- **Include families:** In places where public transit is the main mode of student transportation, transit passes and discounts should extend to parents of students too young to ride public transit unsupervised.
- **Collect specific safety data:** When students rely on public transit instead of a school bus, their specific safety concerns may not be well tracked or considered by system leaders. For instance, mass transit buses don't have stop-arms or child-specific safety considerations, which could put students at greater risk when getting on and off the bus.

Emerging Options

New transportation options are redefining the boundaries of the student transportation safety landscape. Ride-sharing services like Kango and Hop Skip Drive aim to serve as an "Uber for Kids" with drivers who have undergone background checks to address some types of potential safety issues.[89] Most public bike share or dockless scooter systems are not available to students since these systems typically require users to be 18 years old and have a credit card. Dockless scooters can also generate concerns about sidewalk safety and accessibility, particularly for people with disabilities and/or limited mobility.[90]

There is little available data on the safety of these continually evolving transportation options, but they are certain to be part of conversations on student transportation safety in the coming years.

Recommendations

Students' journeys to and from school are usually safe today, but even one student injury is too much.

Students' journeys to and from school are usually safe today, but even one student injury is too much. There is room to further minimize injuries and fatalities while also ensuring that students are free from other forms of harm, such as harassment or crime. As the way students get to school continues to evolve, a multimodal understanding of student transportation can help students stay safe no matter which way they choose — and can increase the likelihood that students will use active forms of transportation like walking and biking, which have health and environment benefits. Improving student transportation safety requires a holistic understanding of the unique strengths and challenges of the different ways students get to school, along with the ways in which families, schools, and local governments can positively affect their safety.

The recommendations below should be viewed as a menu of options from which communities can select the most appropriate approaches for their community. Efforts to improve student transportation safety will look different in a big city than they will in a rural town, but they all require some form of action from families, schools, and local and state governments to ensure that students can get to and from school as safely as possible.

Families: Organizing and Educating for Student Safety

Families can take specific and direct action to improve the safety of their children in ways that will have an immediate impact on student transportation safety. School leaders and local governments should seek to partner with families, to achieve an immediate impact as well as to shape longer-term projects through a combination of education and organizing:

- **Student bus safety awareness:** All students should understand how to safely enter and exit the "danger zone" around a school bus. Families can work with schools to ensure that students understand where bus drivers have blind spots, why they must wait a safe distance from the road, and why they should wait for the bus to completely stop before approaching.
- **Walking, biking, and safety campaigns:** Families can collaborate with school leaders to establish a SRTS program or undertake similar initiatives to encourage and increase the safety of walking and biking to school.
- **Organize carpools and/or walking school buses:** Parents and school leaders can work together to make drop-off and pick-up lines less congested and safer by reducing the number of vehicles in the line through carpooling and walking school buses.

School and District Leaders: Partnering and Organizing for Student Safety

School and district leaders play a critical role in shaping student transportation from both a short-term and long-term perspective. They can also work to ensure the safety of all students as they travel to and from school, whether they ride a yellow bus or engage in another mode of transportation.

- **Walking, biking, and safety campaigns:** School leaders can collaborate with families to establish a SRTS program, making this a duty of the school transportation department and providing walking and biking safety and skills education in PE or other classes.
- **Bus driver safety:** School leaders should work with their bus drivers, whether they are directly employed or contracted, to ensure the highest level of safety and student awareness, particularly as students are entering and exiting the bus.
- **Stop-arm violation enforcement:** School leaders should work with local and state government officials to reduce the instances of and increase the penalties for stop-arm violations. They may want to consider the value of implementing stop-arm cameras to enable automatic enforcement of these dangerous and far too common violations.

- **Advocate for infrastructure improvements:** School and district leaders may not control infrastructure decisions on the roads their students travel, but they can be critical advocates to local and state agencies, and partners in communicating student and family needs and concerns. They can also work to improve the use and design of infrastructure on school grounds that prioritizes the safety of students who walk and bike to and from school, as well as influencing the location of future school sites to make walking and biking more feasible for students.
- **Identify potential transit partnerships:** Mass transit programs for K–12 students may not be feasible in every community, but school leaders should discuss the potential of free or subsidized travel for students. Doing so can provide a safe way for students to travel, particularly if there is a lack of safe pedestrian and bike infrastructure.
- **Collect transit-specific safety data:** For districts that already have partnerships with transit agencies, they should ensure the collection of data on student-specific safety issues.
- **Select school sites with student transportation in mind:** Over the long term, new schools should be built with a consideration of how students will get there. Every effort should be made to reduce the number of miles students have to travel, because that will keep them safer.

Local and State Governments: Improving Infrastructure and Policy for Student Safety

Local and state leaders in public works, transit, and other public agencies shape the safety environment for students going to school. A combination of better traffic enforcement and student-friendly infrastructure improvements can help whole communities keep students safe.

- **Support and enforce safe driving near schools:** Lowering the speed of vehicles and reducing distracted driving near schools can help reduce the risk of serious injury to students. Local governments, school leaders, and families should work together to ensure safe driving in school zones through a combination of educational programming, lower speed limits and traffic calming measures in school zones, and enforcement efforts like stop-arm cameras.
- **Design for calm streets:** Local governments and school leaders should collaborate to ensure that the physical elements of streets near schools encourage safe driving habits. The width of roads, curb design, crosswalks, sidewalks, bike lanes, and other design elements can be utilized to produce calm and safe streets that can improve the safety of all users, including students.

- **Long-term school infrastructure improvements:** State and local officials should ensure that student transportation safety informs long-term school infrastructure improvements. This can include upgrades to existing school sites to enhance the safety of all modes of student transportation, as well as shaping the location and design of future school sites. Revising school construction guidelines, including removing or reducing site acreage requirements and incentivizing building repair over replacement, can help reduce the physical distance between students and their schools and in turn, improve the safety and feasibility of walking and biking to school.
- **School bus seat belts:** State and local governments should work to provide funding to help schools equip their buses with three-point seat belts, which can supplement the safety benefits of school bus compartmentalization by providing additional student protection in both common accidents like head-on collisions and uncommon accident types, such as rollovers.

Each community's unique assets and transportation safety needs will necessarily inform how they approach the challenge of improving student transportation safety. Whether a community wants to improve the safety of particular modes of student transportation, shift students' transportation choices, or both, this menu of options can serve as a starting point for families, school leaders, and policymakers to ensure a safe journey for students.

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About Bellwether Education Partners

Bellwether Education Partners is a national nonprofit focused on dramatically changing education and life outcomes for underserved children. We do this by helping education organizations accelerate their impact and by working to improve policy and practice.

Bellwether envisions a world in which race, ethnicity, and income no longer predict opportunities for students, and the American education system affords all individuals the ability to determine their own path and lead a productive and fulfilling life.