

# Distracted Driving in School Zones

May 2020



**RUTGERS**

Edward J. Bloustein School  
of Planning and Public Policy

NEW JERSEY  
Safe Routes to School



[www.saferoutesnj.org](http://www.saferoutesnj.org)



U.S. Department of Transportation  
**Federal Highway  
Administration**

---

## Acknowledgements

The New Jersey Safe Routes Program mission is to partner with communities to prioritize walking and bicycling as a safe and appealing part of everyday life.

The New Jersey Safe Routes Resource Center assists public officials, transportation and health professionals, and the general public in creating safer and more accessible walking and bicycling environments for children in New Jersey through education, training, and research.

This report was supported by the New Jersey Department of Transportation with funding from the United States Department of Transportation's Federal Highway Administration. New Jersey and the United States Government assume no liability for its contents or its use thereof.

Alan M. Voorhees Transportation Center  
Report Author  
Catherine B. Bull

Report Contributors  
Leigh Ann Von Hagen, AICP, PP  
Sean Meehan  
Samuel Rosenthal



## Introduction

School zones can be challenging for child pedestrians and bicyclists. A study that looked at factors related to school location and vehicle and child pedestrian crashes found that, compared to areas 300 meters or more away from schools, the 150-meter area around schools had the highest proportion of child pedestrian-vehicle crashes and the highest proportion of fatalities (Warsh et al., 2009). The study showed that half of these collisions occurred at times when children were most likely to be walking to or from school. Previous studies have shown that factors associated with child pedestrians and car collisions include school density, population density, traffic volume, rush hour time periods, socioeconomic status, season, and the spatial relationship between schools, streets, and parking areas.

Distracted driving creates challenges for pedestrians and bicyclists at any location. Distractions include cell phone use (both hands-on and hands-free), eating and drinking, personal grooming, talking to passengers, adjusting radio, CD, or other music devices, reading a book or magazine, reaching or leaning, smoking, using tablets, and adjusting vehicle controls. Some of these distractions are more dangerous than others. In 2015, cell phone use was a factor in 14 percent of fatal crashes and 8 percent of injury crashes nationwide (Ortiz et al. 2017). Despite this threat, there have been few studies on the impacts of distracted driving in school zones where children are walking and biking.



## What is Distracted Driving?

National Highway Traffic Safety Administration (NHTSA) defines three main types of distracted driving:

- Visual: taking your eyes off the road
- Manual: taking your hands off the wheel
- Cognitive: thinking about other things than driving

Most distractions such as eating, drinking, and grooming involve one or more of the above distraction types. However, hand-held cell phone use involves all three: visual, manual, and cognitive distractions. Although the general public perceives hands-free phone use to be safer because it only involves cognitive distraction, hands-free phone use has been shown to be as distracting as hand-held cell phone use. Both increase the risk of injury and property damage crashes fourfold (National Safety Council, 2012).



---

## The Problem

The human brain does not multitask, or perform two or more tasks at the same time, but instead switches attention back and forth between tasks. Attempting to drive and perform another demanding task at the same time leads to impaired performance that results from inattention blindness, slower response time, and problems maintaining vehicles within a lane (National Safety Council, 2012).

An analysis of over 30 research reports concludes that hands-free cell phone use is not safer than handheld use. Activity in the parietal lobe of the brain, an area associated with driving, decreases by 37 percent when a driver is listening to language on cell phones. Activity in the occipital lobe that processes visual information also decreases. Inattention blindness is a state of cognitive distraction in which all the information a driver sees is not processed. Drivers on handheld and hands-free cell phones are unable to “effectively monitor their surroundings, seek and identify potential hazards, and to respond to unexpected situations” (NSC, 2012). Cell phone use is related to increased response time, which includes the time needed to bring attention to the environment and process information, and movement time which is related to muscle activation. In addition, drivers using cell phones have more difficulty keeping in their lane.

Conducted by the National Highway Transportation Safety Administration in 2010, 2012 and 2015, the National Survey on Distracted Driving Attitudes and Behaviors (NSDDAB) compiled responses on attitudes and self-reported behaviors related to distracted driving, cell phone use, and texting. The 2015 survey reports that 42 percent of drivers answer their cell phones at least some of the time, and 56 percent continue the conversation as they drive. One-third of drivers are willing to initiate phone calls at least some of the time. Fifty-three percent of drivers who use cell phones do not believe that their driving performance is compromised by cell phone use. Some drivers notice that they drive more slowly (12%), are more distracted and not as aware (20%), and drift out of their lane or drive erratically (1%) when using cell phones. Between 2010 and 2015, there was a significant decrease (23% to

10%) in the percentage of survey respondents, who, as passengers, would feel safe if their drivers were talking on a handheld cell phone. However, use of hands-free devices was seen as more acceptable; 47 percent of respondents in 2015 would feel safe if their drivers used a hands-free device compared to 23 percent of respondents in 2010 (Schroeder, et al, 2018). Drivers perceived they were safer drivers when using hands-free phones, but showed decreased performance while using hands-free phones (NSC, 2012).

Texting, including reading and writing text messages, results in “significant delays in response time, an increase in the number of missed response events, an overall reduction in speed, an increase in the standard deviation of speed on open roadway sections, an increase in the standard deviation of lane position on the open roadway sections, a reduction in writing and reading rates, and a reduction in the number of glances to the forward roadway” (Cooper, et al, 2011). Eighty percent of NSDDAB survey respondents reported never sending text messages or emails while driving. While 31 percent of drivers who do send text messages or emails do not consider that their driving is compromised, some drivers report being distracted and not as aware (34%), driving more slowly (13%), and drifting out of their lane (4%). Eighty-six percent of survey respondents would feel unsafe if their drivers were sending texts and emails (Schroeder, et al, 2018).

More time is needed for a distracted driver to react to the presence of people walking or bicycling, than for a non-distracted driver to react. A driver needs time to see a pedestrian in a crosswalk, identify the need to stop, apply the brake, and bring the vehicle to a stop in a safe manner to allow the person to complete the road crossing. Traveling at 30 mph, a driver will cover 104 feet while completing this process. Reaction time is longer when drivers are distracted; for each second that a driver is distracted, an additional 33 feet is traveled. Looking away from the road for three seconds results in almost 100 additional feet traveled before the car can be brought to a stop (Grabowski and Goodman, 2009). This delay can be particularly significant in a school zone with frequent child pedestrian crossings.



## Distracted Driving in School Zones

In a 2009 study, trained observers at 20 middle schools in 15 states documented 41,426 cars traveling through active school zones. One in six drivers were reported to be distracted. Distractions included cell phone/electronics, eating/drinking/smoking, reaching/looking behind, grooming, and reading (Grabowski, 2009). The study provides some characteristics of the school zones and of the drivers that are related to distracted driving. Distracted driving was more prevalent in school zones:

- with daily traffic volume of 10,000 or more cars
- without flashing lights
- with a decreased speed limit

Distracted driving was more prevalent among drivers:

- of larger vehicles (SUVs, trucks, minivans)
- who did not wear a seatbelt
- living in states that had no restrictions on the use of handheld electronics while driving

Female drivers of commercial vehicles were less distracted than female drivers of private vehicles; male drivers of commercial vehicles were more distracted than male drivers of private vehicles (Grabowski, 2009).



In its 2017 Distracted Driving Behavior Report, Zendrive analyzed cell phone use while driving, as well as hard braking and fast acceleration, within 75,000 school zones nationwide. Zendrive is a company that gathers smartphone data to measure and analyze driver behavior with the goal of improving road safety. The study found that the most dangerous time to be on or near roads around schools is between 4:00pm and 5:00pm. Afternoon dismissal time (2:00pm to 5:00pm) is 40 percent more dangerous than the morning arrival time (7:00am to 10:00am) (Zendrive, 2017).

In the NSDDAB, participants were given a list of driving situations and asked if there were any situations in which they would never talk, text or e-mail, or use an app while driving. While driving in marked school zones, only 1.3 percent of respondents said they would never talk on a cell phone, only 2.2 percent said they would never text or e-mail, and only 1.2 percent said they would never use apps (Schroeder, et al., 2015). These studies demonstrate a need to address distracted driving in school zones.



---

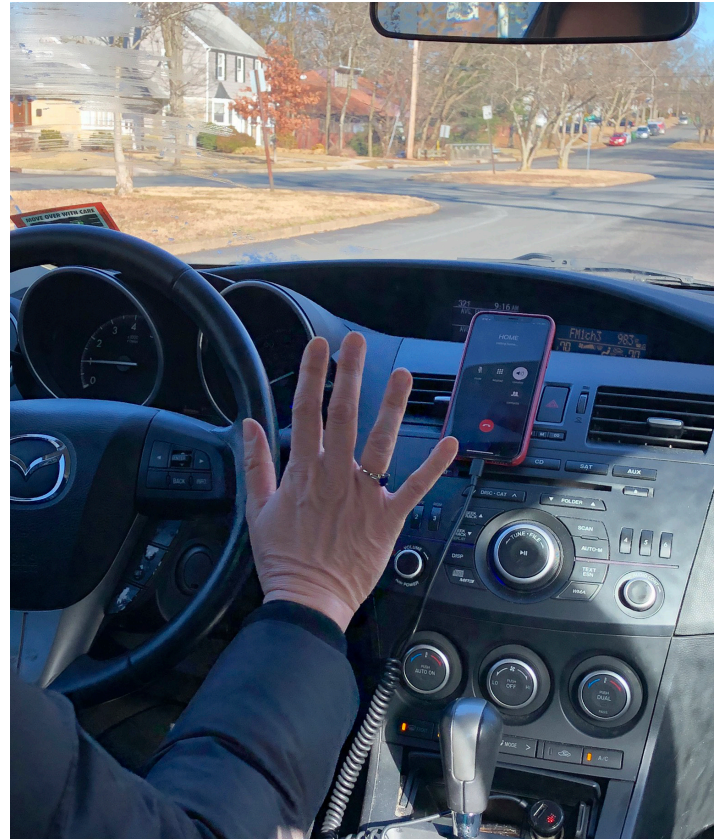
# Responses to Distracted Driving

## *Distracted Driving Laws*

As of April 2018, 16 states and the District of Columbia had laws in place banning hand-held phone use. The laws are primarily enforced, i.e. police can pull over violators of these laws when the infraction is observed. Texting while driving is banned in 47 states plus the District of Columbia. These laws are primarily enforced in 43 states, and secondarily enforced in 4 states, i.e. police can pull drivers over when another infraction, such as weaving or driving too slowly, is observed. Two states ban texting for novice drivers only. Texas bans the use of hand-held phones in school zones. Arkansas bans the use of hand-held cell phones while driving in a school zone; however, the ban is secondarily enforced. Twenty states and the District of Columbia ban all use of cell phones by school bus drivers, and 38 states and D.C. ban all use of cell phones by novice drivers (Governors Highway Safety Association 2018).

How effective are these laws? Forty-three percent of respondents who believed they live in states with laws banning handheld use of cell phones thought that a driver using a cell phone would not be ticketed and 54 percent believed that the driver was likely to get a ticket. Forty-two percent of respondents who reported living in a state with laws banning texting or e-mailing while driving thought it somewhat or very unlikely that they would be ticketed for sending texts or e-mails while driving (Schroeder, et al. 2018).

The percentage of survey respondents supporting laws banning cell phone use while driving increased from 68 percent to 74 percent between 2010 and 2012, and remained at 74 percent in 2015. The percentage of survey respondents supporting laws banning texting and emailing while driving has stayed consistent in the low 90s and was at 92 percent in 2015. The report shows an increase in police stops for cell phone use from less than 1% in 2010 to 4% in 2015 (Schroeder, Wilbur, Pena, 2018).



New Jersey enacted a ban on hand-held cell phones in 2008. A 2013 report that assessed the effectiveness of that law found that drivers were aware of the cell phone ban law and yet violated the law. Survey respondents were aware of the dangers, supported increased enforcement, and believed that there was little chance that they would be cited for cell phone use while driving. Although the number of crashes overall declined between 2008 and 2013, the number of cell phone-related crashes increased during that period (Maher and Ott, 2013).

The National Safety Council suggests that a combination of education, technology, legislative and corporate policies, and laws with strict consequences will be needed to address distracted driving. The Council considers consistent high-visibility enforcement of laws to be “the single most important effective strategy in changing behavior” (National Safety Council, 2012).



## Enforcement

Efforts to address school zone pedestrian and bicycle safety issues tend to focus on speeding rather than distracted driving, and at least in larger cities, are often motivated by broader Vision Zero goals. Several cities have recently prioritized engineering and enforcement in school zones to improve pedestrian and bicycle safety. Many are using speed cameras, generally with operation limited to school travel times.

- New York City is using existing speed cameras in 140 school zones, and expanded use of cameras in another 150. Cameras have reduced school zone injuries by 17% (Pyzyk 2018).
- Portland, Oregon lowered the speed limit from 25 to 20 on residential streets, and has used speed cameras in school zones for the past decade. Officers enforce the school zone speed laws at the start of the school year (Pyzyk 2018).
- Savannah, Georgia issues tickets during the first two weeks of school for speeding in school zones, and has upgraded school zone flashing beacon signage to a connected Internet of Things (IoT)-based system for improved maintenance (Pyzyk 2018).
- Columbus, Ohio is using emerging technology as part of its Connected Vehicle Environment project. In response to observations of over 80 percent of vehicles traveling over the school zone speed limit during active school zone hours, the city is proposing installation of roadside devices that would detect speeding vehicles and would alert the driver to the reduced speed. The city also uses IoT-based beacons (Pyzyk 2018).



- Chicago, Illinois uses enhanced signage and automated safety cameras to identify speeding drivers and to issue tickets in Children's Safety Zones, designated as the area within a 1/8 mile radius of any school or park. A recent analysis comparing crashes before and after camera installation (2012-13 compared to 2014-16) reported that fatal or serious injury crashes decreased 9 percent near speed cameras compared to a 6 percent increase citywide. Crashes citywide increased by 21 percent but increased only 1 percent at automated speed enforcement locations (City of Chicago, 2018).

New Jersey is one of 13 states that prohibit the use of speed cameras, although some of these states allow for narrow exceptions. For example, New York allows use of speed cameras in school zones only.



## Educational Messages

Results of the NSDDAB survey showed that safe driving messages reached 94 percent of respondents through television, billboards, and radio in the 30 days prior to the survey. However, only 51 percent of drivers reported having heard a message discouraging distracted driving during the same period (Schroeder, et al., 2018).

---

## ***Safe Routes to School Responses***

Installing or upgrading pedestrian and bicycle infrastructure, enforcing speed and distracted driving laws, and conducting public information campaigns can contribute to a safer school zone. Through a Safe Routes to School program at a middle school in Greenville, North Carolina, adult volunteers observed distracted driving behavior during student arrival and dismissal times. To reduce poor driving behaviors, the community took several measures to improve the walking and biking environment including installation of speed feedback signs at the school, creation of a neighborhood speed watch program, and increased law enforcement before and after school. Speeding is quantifiable. Distracted driving is difficult to observe and to enforce without photographic evidence of the behavior. However, following implementation of these measures, there was a reduction in the percentage of distracted drivers in the school zone from 20 percent to 17 percent (National Center for Safe Routes to School, n.d.).

In California, through the Friday Night Live program, high school students conducted a 2018 observational study at 88 intersections near high schools and middle schools in 30 counties throughout the state. The Friday Night Live program focuses on developing healthy lifestyles among youth. The observers

reported an average of over 116 instances of distracted driving per intersection studied in one hour's time, a 7.5 percent increase over a similar survey in 2016. Distractions observed included phones, passengers, pets, grooming, eating and drinking. Phone use was the predominant cause of distraction (Hansen, 2018). This program increases awareness among teenagers of the prevalence, and potential dangers, of distracted driving.

The City of Los Angeles, California and the Los Angeles school district have developed a strong partnership to improve safety of the walking and biking environment in school zones. The city considers Safe Routes to School to be a core strategy of the Vision Zero Los Angeles program. A transportation planner at LADOT noted that Safe Routes to School “gave us a framework to talk about street safety in a more holistic way,” and shifted the conversation from isolated street improvements to network improvements. LADOT is installing low-cost improvements that include crosswalk upgrades, speed feedback signs, extended pedestrian signal timing, and striping and delineators that create curb extensions within school zones (Vision Zero for Youth, 2018).

These efforts involve various community partners to raise awareness of school zone safety issues and respond to these challenges. If communities are planning to evaluate and address school zone issues, the National Center for Safe Routes to School recommends:

1. Measuring the current behavior – Observation of driver behavior
2. Conducting activities to address the behavior
3. Repeating the observation and count of driver behavior as conducted after improvements are installed in Step 1.

Challenges caused by distracted driving will require all the tools in the Safe Routes to School toolbox. The SRTS model of collaboration between all partners in the community and application of the 5 E's can help to make school zones safer.





---

## Recommendations and Research

Currently, when strategies are employed in the school zones, they are usually addressing speeding rather than distracted driving. Speeding is quantifiable. Distracted driving is difficult to “catch” and to enforce without photographic evidence of the behavior. Development of strategies specific to distracted driving are needed. For example, as noted above, drivers remember safety measures in general, but do not report seeing distracted driving messages. Educational messages should become a priority, particularly to communicate the hazards of hands-free cell phone use. School zones are a good area to focus work on this topic. Not only are they discrete, identifiable locations, but the focus on child safety should gather public support.

The research discussed above has presented several responses to distracted driving that should be investigated for potential use in New Jersey. These responses include:

### **Engineering**

- Lowered speed limits.
- Enhanced use of traffic calming in school zones.

### **Enforcement**

- Increased enforcement of distracted driving laws in school zones including targeted sting operations coupled with a public information campaign.
- Use of new technology, including speed cameras, to assist with enforcement.



### **Education & Encouragement**

- Enhanced public information campaigns geared to the general public, as well as to parents and teachers and school administration.
- Targeted programs that help encourage Safe Routes to School including “neighborhood speed watch” programs and walk assessments that directly demonstrate the scope of the issue to parents, community members, and students of all ages.

### **Policy**

- Development of model school and municipal policies and procedures to limit traffic and cell phone use in school zones, especially during arrival and dismissal.
- Integration of Safe Routes to School and prioritization of school zones within broader programs such as Vision Zero.
- Statewide policy banning all cell phone use, including hands-free use or no cell phones in school zones policies.





---

## Further Research

The following are suggested tasks to address distracted driving in school zones:

- Gather further information on distracted driving in reduced speed zones
- Explore the implementation of speed cameras in school zones
- Research emerging technology used to study driver behavior
- Explore which types of educational messages best help to explain why cell phone use is dangerous
- Develop a Best Practice Guide for Police Department Enforcement:
  - Research strategies in use across the country and in other countries
  - Interview NJ community representatives
  - Develop a high school curriculum for speed watch
  - Research observational study techniques – bicycle, drive-by, static observation





---

## Resources

City of Chicago. 2018. Children's Safety Zone Program & Automated Speed Enforcement. Retrieved from: [https://www.chicago.gov/city/en/depts/cdot/supp\\_info/children\\_s\\_safetyzoneporgramautomaticspeedenforcement.html](https://www.chicago.gov/city/en/depts/cdot/supp_info/children_s_safetyzoneporgramautomaticspeedenforcement.html)

Crocker, Brittany. Authorities Crack Down on Distracted Driving in School Zones. 2018. Knox News. Retrieved from: <https://www.knoxnews.com/story/news/2018/09/14/knox-county-sheriff-crack-down-distracted-driving-school-zones/1302657002/>

Governors Highway Safety Association. 2018. Distracted Driving Laws by State: Updated April 2018. Retrieved from: <https://www.ghsa.org/state-laws/issues/Distracted-Driving>

Grabowski, J., and Goodman, S. 2009. Distracted Drivers in School Zones. Safe Kids USA, Washington, D.C.

Hansen, T. 2018. "Instances of distracted driving near schools increasing in California." Daily Republic. Retrieved from: <https://www.dailyrepublic.com/all-dr-news/solano-news/fairfield/instances-of-distracted-driving-near-schools-increasing-in-california/>

Maher, A., and Ott, P. 2013. Final Report: Effects of New Jersey's Cell Phone and Text Ban. University Transportation Research Center – Region 2. UTRC-RF Project No: 49III-19-23.

National Center for Safe Routes to School. n.d. Getting Results: SRTS Programs That Reduce Speeding and Distracted Driving. Retrieved from: [http://www.pedbikeinfo.org/pdf/Community\\_SRTSlocal\\_GettingResults\\_DrivingBehavior.pdf](http://www.pedbikeinfo.org/pdf/Community_SRTSlocal_GettingResults_DrivingBehavior.pdf)

National Safety Council. 2012. Understanding the distracted brain: Why driving while using hands-free cell phones is risky behavior. Retrieved from: <https://www.nsc.org/Portals/o/Documents/DistractedDrivingDocuments/Cognitive-Distracted-White-Paper.pdf>

National Highway Traffic Safety Administration. n.d. Distracted Driving. Retrieved from: <https://www.nhtsa.gov/risky-driving/distracted-driving>

National Highway Traffic Safety Administration. n.d. Click It or Ticket: Seat Belts Save Lives. The Life Saved Could Be Yours. Retrieved from: <https://www.nhtsa.gov/click-it-or-ticket-seat-belts-save-lives>.

Ortiz, N., Ramnarayan, M., and Mizenko, K. 2017. Distraction and road user behavior: An observational pilot study across intersections in Washington, D.C. Journal of Transport & Health. <https://www.sciencedirect.com/science/article/pii/S2214140516303863?via%3Dihub>

Pyzyk, Katie. 'A' for effort: Improving safety in cities' school zones. 2018. Smart Cities Dive. Retrieved from <https://www.smartcitiesdive.com/news/safety-cities-school-zones/532631/>

Schroeder, P., Wilbur, M. and Pena, R. 2018. National Survey on Distracted Driving Attitudes and Behaviors – 2015 (Report No. DOT HS 812 461). National Highway Traffic Safety Administration, Washington, D.C.

Vision Zero for Youth. n.d. Safe Routes to School and Vision Zero: Los Angeles' commitment to the safety of children. Retrieved from: <http://visionzeroforyouth.org/stories/los-angeles-safe-routes-to-school/>

Warsh, J., Rothman, L., Slater, M., Steverango, C., and Howard, A. 2009. Are school zones effective? An examination of motor vehicle versus child pedestrian crashes near school. Injury Prevention 2009; 15:226-229.

Zendrive Research: Largest Distracted Driving Behavior Study. 2017. Retrieved from: <http://blog.zendrive.com/distracted-driving/>