

REPORT#: 18MI027

REPORT DATE: 6/24/20

INCIDENT HIGHLIGHTS



DATE:

Winter, 2018



TIME:

Approximately 7:30 a.m.



VICTIM:

Crossing Guard/Special Education Teacher in her 50s



INDUSTRY/NAICS CODE:

Education/61



EMPLOYER:

Educational service provider for public charter school



SAFETY & TRAINING:

Unknown crossing guard training



SCENE:

Intersection crosswalk



LOCATION:

Michigan



EVENT TYPE:

Struck By



School Crossing Guard Struck by Vehicle

SUMMARY

In Winter 2018, a female crossing guard in her 50s was struck by a vehicle while in the crosswalk attempting to stop oncoming traffic. The decedent was wearing a Type R (Class II) high visibility safety vest and using a hand-held stop sign with flashing lights. As she walked out into the crosswalk to stop motorists traveling east/west, she was struck by an eastbound minivan. The decedent struck the hood and front passenger-side windshield of the minivan. Emergency response was called and she was transferred to a local hospital where she died approximately one week later.....[READ THE FULL REPORT](#)> (p.3)

CONTRIBUTING FACTORS

Key contributing factors identified in this investigation include:

- No advance warning of school zone in speed zone of 35 mph
- Possibly not properly trained

[LEARN MORE](#)> (p.9)

RECOMMENDATIONS

MIFACE investigators concluded that, to help prevent similar occurrences, employers should:

- Evaluate school crossings at least once every 5 years to determine if current crossing practices are the best option to ensure safety of both students and, if utilized, school crossing guards.
- Municipalities should consider additional measures to increase visibility or slow traffic at intersections during school crossing periods.
- Set and enforce speed limits of not more than 20 mph in school zones where crossing guards are required for student safety.

[LEARN MORE](#)> (p.9)

<https://oem.msu.edu>



MICHIGAN

State **FACE** Program

Fatality Assessment & Control Evaluation

Michigan State University
Department of Medicine • Occupational and Environmental Medicine
909 Fee Road, 117 West Fee Hall • East Lansing, MI 48824
1-517-353-1846 • <https://oem.msu.edu>



Michigan Fatality Assessment and Control Evaluation (FACE) Program

MIFACE (Michigan Fatality Assessment and Control Evaluation), Michigan State University (MSU) Occupational & Environmental Medicine, 909 Fee Road, 117 West Fee Hall, East Lansing, Michigan 48824-1315; <http://www.oem.msu.edu>.

This information is for educational purposes only. This MIFACE report becomes public property upon publication and may be printed verbatim with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company. All rights reserved. MSU is an affirmative-action, equal opportunity employer.

SUMMARY

In Winter 2018, a female crossing guard in her 50s was struck by a vehicle while in the crosswalk attempting to stop oncoming traffic. The decedent was wearing a Type R (Class II) high visibility safety vest and using a hand-held stop sign with flashing lights. She also had a walkie-talkie and whistle. As she walked out into the crosswalk to stop motorists traveling east/west, she was struck by an eastbound minivan whose driver stated that due to sun glare, did not see her and did not apply the vehicle brakes. The decedent struck the hood and front passenger-side windshield of the minivan. Emergency response was called, and she was transferred to a local hospital where she died approximately one week later.

INTRODUCTION

In Winter 2018, a female crossing guard in her 50s was struck by a vehicle while in the crosswalk attempting to stop oncoming traffic to permit elementary students to cross the street. MIFACE learned of this incident from the MIOSHA fatality reporting system. MIFACE interviewed the current school principal, who at the time of the incident, was the Grade 3-5 dean and assumed special educational opportunity responsibilities. The principal at the time of the incident had left employment at the school. During the writing of this report, MIFACE reviewed the death certificate, police and medical examiner reports, and the MIOSHA file. The investigator also spoke with representatives from the local police agency who investigated the incident and had oversight of school crossing guards and a State of Michigan Department of Education representative. Pictures used in the report are courtesy of the MIOSHA compliance officer, responding police, and the MIFACE researcher.

EMPLOYERS

The employer was an educational service provider (ESP) for a charter school. The charter school had a service contract with the ESP.

The ESP had been in business for 22 years and managed 87 schools across nine states. The ESP service contract with the school included ESP provision of certain educational, business administration, facility, and management services, including without limitation, all labor, equipment, and materials necessary.

The school's Board of Directors (Board) and the ESP partnered to operate the school. Subject to the oversight of the Board, the ESP implemented operational practices and procedures that were consistent with Board policy, the Charter and applicable law including employment of personnel working at the school and management of all personnel functions. The ESP had the responsibility and authority, to select, hire, evaluate, assign, discipline, transfer, and terminate personnel consistent with the school budget, the charter and applicable law. Personnel working at the school were employees of the ESP unless otherwise expressly agreed to by the ESP and the Board.

A Michigan public school academy (PSA/charter school) can be located within the boundaries of a local education agency (LEA/regular public school) and not be affiliated with that district; charter schools are their own district. Like an LEA, a charter school has its own superintendent and its own school board. An ESP employee, a Director of School Quality, was designated as the charter school superintendent; this individual was the superintendent responsible for six area charter schools.

There were 55 ESP employees working at the charter school, including the principal, teachers and staff who, as indicated in a school-developed duty roster, had multiple responsibilities prior to, during, and after school hours.

WRITTEN SAFETY PROGRAMS and TRAINING

The ESP had a health and safety program and health and safety team. Employees were required, prior to the beginning of the school year, to watch several safety training videos, such as hazard communication and bloodborne pathogens. Attendees had an opportunity for follow-up questions prior to taking a post-test; a score of 80% was required to pass the test. The ESP and charter school's health and safety program were both oriented toward student safety rather than employee safety; for example, the ESP provided crisis intervention training.

The school had a health and safety team whose members were the principal, deans of specific grade ranges (eg K-2, 3-5), a social worker and a gym teacher. The committee met two times per week. The school had a handbook which contained building and charter academy policies, including a written disciplinary policy for safety and health violations. Safety was discussed at staff meetings as needed. If financial support was required to purchase a safety-related item, the school notified the ESP.

Employee training records were maintained by the ESP at the ESP headquarters.

WORKER INFORMATION

The decedent was an employee of the ESP. The charter school served children from kindergarten through eighth grade. The decedent was an academic specialist and a Spanish teacher. She was a full-time, salaried, non-union employee with the school for more than 10 years. She worked an 8-hour day; her work day hours were 7:30 a.m. – 3:45 p.m. (school hours were 8 a.m. to 3:15 p.m.). She arrived at work and left work 30 minutes prior to/after school hours because, pursuant to the duty roster, she also performed crossing guard duties. She had been performing crossing guard duties for at least seven years.

Two additional individuals also assumed crossing guard duties at other locations at the school.

The police department responsible for school crossing guard training designated three separate entities to provide the training. The MIFACE researcher contacted the three agencies named by the police department attempting to determine which entity provided the training and training topics presented. None of the entities would provide information regarding if they provided training to the decedent.

The school principal did not have and was unable to procure training records for the decedent from the ESP regarding training related to her crossing guard duties.

INCIDENT SCENE



Photo 1. Overview of incident area. Red X shows location of incident. Photo courtesy of Google Maps. Note: crosswalk hash marks on east side of intersection on Street A. Red arrow shows direction of vehicle travel.

The school had two vehicle entrances, Driveway 1 accessed by Street A and Driveway 2 accessed from Street B.

Street A was a heavily traveled east-west two-lane street with a center turn lane and a posted speed limit of 35 mph. The location where the decedent was struck by the minivan was near the intersection of Street A and north-south Street B (See Photo 1). Streets A and B were cement and were dry at the time of the incident. Street A had the right of way. Street B was a two-lane roadway with a stop sign at the intersection. Each roadway edge had cement curbs separating the roadway from grass and sidewalks.

At the time of the incident, the decedent was providing crossing services for students walking south on Street B, crossing the hashed-painted crosswalk located on Street A. Just to the east of this crosswalk across Street A were a Children Crossing and School sign. Photo 2 shows the signage present at the incident scene; the sign was relocated after the incident. Photo 3 shows the incident scene and the actual location of the signage at the time of the incident. There was no other school signage on Street A west of Street B.

There was an active rail road track, with flashing lights and cross arms just east of and abutting the school's parking lot.

Michigan State University
Department of Medicine • Occupational and Environmental Medicine
909 Fee Road, 117 West Fee Hall • East Lansing, MI 48824 • 1-517-353-1846 • <https://oem.msu.edu>

WEATHER

The weather at the time of the incident was noted in the police report. It was sunny, with sunrise at 7:29 a.m. Humidity was 86%, wind from the northwest at 7 mph with a wind chill of 17^oF. Visibility was 10 miles.

INVESTIGATION

The decedent arrived at the school, donned her hi-vis vest and procured her hand-held STOP sign, whistle and walkie-talkie. She was positioned on the south corner of the intersection of Streets A and B. Students were walking southbound on the sidewalk on Street B.

The driver of the minivan worked nearby and had just left work, turning left out of the business's parking lot. The police report did not note the minivan speed; the hospital report indicated the minivan was traveling approximately 45 mph.

Responding police indicated the decedent stepped off the curb on the south side of Street A and was in the eastbound travel lane of Street A attempting to stop traffic when the minivan struck her. Witnesses to the incident told police that the minivan driver did not apply the brakes.

The witness statements in the police report did not mention the actions of the decedent, such as whether she held her STOP sign high in the air, whether the STOP sign lights were activated, whether she extended her arms or blew her whistle.

When the minivan struck the decedent, the decedent rolled up onto the hood and struck the windshield with the back of her head and then landed on the ground. The minivan driver drove around the crossing guard to leave the scene. A westbound pickup truck and another westbound vehicle tried to block the minivan driver from leaving the scene. The minivan was able to get around both vehicles. The pickup truck followed the minivan. Several individuals called 911.

According to the police report, when the minivan driver realized that a person had been hit, the driver "freaked out" and kept driving eastbound on Street A. When the driver calmed down, the driver called 911. Dispatch told the driver to return to the school, park the minivan, and find a deputy. The driver followed Dispatch instructions.

The minivan driver stated that she was blinded by sun glare and could not see the decedent in the road. On the crash report, responding police, indicated that glare was a contributing circumstance (Contributing circumstance is the verbiage used on the crash report).

The police report also stated that there was a layer of dirt or film on the inside front windshield and a smell of cigarettes and cigarette ash within the vehicle inside. Police noted a haze on the glass looking through the windshield towards the sunlight.



Photo 2. Children Crossing and School sign originally east of the crosswalk on Street A. The sign was relocated to west of the intersection after the incident.

Michigan State University
Department of Medicine • Occupational and Environmental Medicine
909 Fee Road, 117 West Fee Hall • East Lansing, MI 48824 • 1-517-353-1846 • <https://oem.msu.edu>

When emergency workers arrived, the decedent was laying in the eastbound travel lane. Her head was positioned to the southeast and her feet were positioned to the northwest along with debris from the scene. West of the decedent’s location in the eastbound lane were: small pieces of glass shards, a Duracell battery near the southern curb, several black pieces of plastic, white/red plastic and her hand-held stop sign.

Responding emergency personnel removed several items of clothing from the decedent. Police noted a safety vest (Photo 4), black winter coat, grey gloves, black jacket, and a blue sweater. A towel, blankets, a black communication radio and a chrome whistle were located under the clothing on the cement.

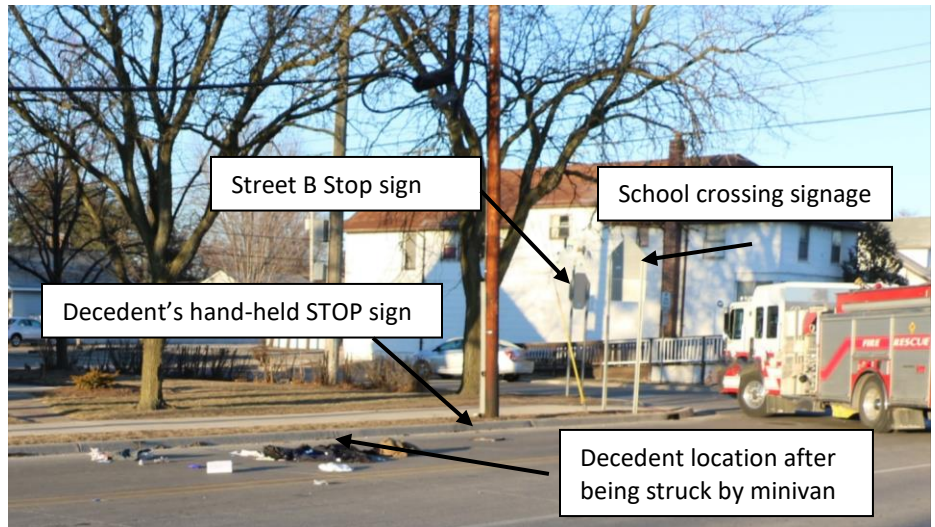


Photo 3. Overview of incident scene showing location of school signage and decedent after she was struck by the minivan

The decedent was taken by ambulance to a local hospital where she died a week later following her injuries.

NOTE: The staff person interviewed by MIFACE stated that the minivan driver pulled out from behind and around a stopped vehicle and then struck the crossing guard. MIFACE contacted the responding police department and the responding police were unaware of this potential scenario. Responding police indicated to the MIFACE researcher that it was difficult to get witness statements, that the minivan driver did not make note of this scenario to them, and that, at the time of the incident, the school principal gathered individuals to share what was known about the incident. None of the staff at this time indicated this possible scenario. Based on the hospital report indicating the minivan driver was traveling at approximately 45 mph and the extent and severity of the decedent’s injuries and the minivan damage, MIFACE relied on the responding police report indicating the minivan driver was the sole vehicle involved and did not stop at the intersection.

Company Remediation

After the incident, the school made the following changes to their policies:

- The school no longer provides crossing guard services for Streets A and B.
- Students are not permitted to cross Street A from the north or south without parental assistance.

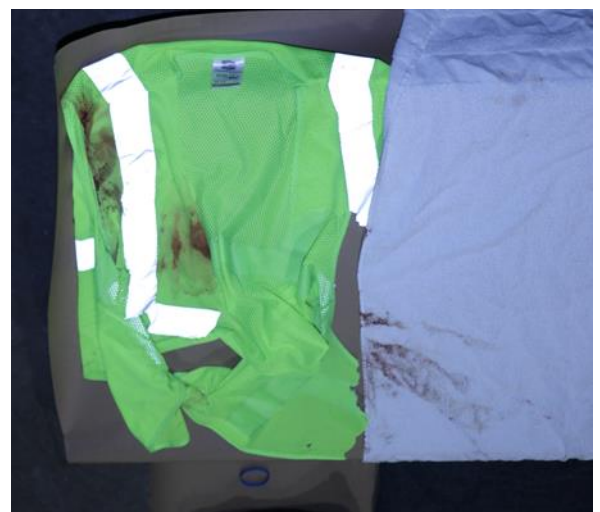


Photo 4. Class II (Type R2) safety vest worn by decedent

Michigan State University
Department of Medicine • Occupational and Environmental Medicine
909 Fee Road, 117 West Fee Hall • East Lansing, MI 48824 • 1-517-353-1846 • <https://oem.msu.edu>

- The crosswalk lines on the cement were removed in consultation with school staff, the sheriff and county road commission.
- School staff are permitted only in designated student drop off and parking areas. One crossing guard stationed at exit driveway to permit student access to/from school.
- Closed Driveway 2. Added fence to block access, and planted grass (Photo 5). Only one (Driveway 1) entrance to school.
- Relocated the School Crossing signage west of Street B (See Photo 2)



Photo 5. Driveway 1 no longer utilized as school entrance

MIOSHA Citations

MIOSHA General Industry Safety and Health Division did not issue a citation to the school at the conclusion of its investigation. The Division issued the following Safety and Health Recommendations to the school at the investigation conclusion:

Inspection/Investigation of your worksite revealed the following condition(s) that may constitute a safety or health hazard to your employee(s).

- Employee was struck by a motor vehicle after walking into the roadway to stop traffic for school children to cross the road.

Re-training for crossing guard employees to ensure that the training curriculum establishes guidelines, tactics and precautionary measures when entering areas where there is moving traffic. Also include steps to ensure the crossing guard does not advance farther into a roadway when traffic does not seem to be slowing down.

- The roadway in which crossing guards frequent is a heavily traveled artery. Vehicular and pedestrian accidents have occurred along the roadway in the past.

Where crossing guard operations take place in the roadway the use of portable school crossing signs, such as the examples in documents #1 and #2 provided with this recommendation be used.

CAUSE OF DEATH

The death certificate listed the cause of death as craniocerebral trauma with complications. No post-mortem toxicology was performed.

CONTRIBUTING FACTORS

Occupational injuries and fatalities are often the result of one or more contributing factors or key events in a larger sequence of events that ultimately result in the injury or fatality. The following hazards were identified as key contributing factors in this incident:

- *No advance warning of school zone in speed zone of 35 mph*
- *Possibly not properly trained*
- *Sun glare on dirt/haze covered windshield of vehicle striking decedent*

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Evaluate school crossings at least once every 5 years to determine if current crossing practices are the best option to ensure safety of both students and, if utilized, school crossing guards.

Discussion: The school was established 14 years ago. Traffic volume and patterns were likely different than they are today. When the MIFACE researcher was at the school during school hours (not during the 30 minutes prior or after school hours), it was difficult to cross Street A due to traffic volume and speed. It appeared to the MIFACE researcher that traffic speeds were greater than 35 mph.

The utilization of school crossing guards is controlled by two Michigan regulations, the Michigan Vehicle Code Act 300 of 1949 (257.613a-d) and the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), Section 7. Together, these regulations provide some general guidance on how to determine the need for a guard at a particular location, including but not limited to, the establishment of school crossings, standards for signs, markings, and signals, outlines the requirements for crossing supervision, the general qualifications for adult crossing guards and specifies general operating procedures such as the use of the stop-sign paddle and requirement for wearing a high-visibility vest for an adult guard.

MVC Section 257.613(a)(1) identifies the entities which make the decision to establish a school crossing, one of whom is the school system superintendent. MIFACE recommends that school system superintendent, in consultation with the appropriate entities identified in MVC Section 257.613a(3) evaluate school crossings at least once every 5 years to determine if current crossing practices are the best option to ensure safety of both students and, if utilized, school crossing guards. It is unknown if the ESP superintendent followed up with local authorities to re-evaluate the school crossing to determine if additional safety measures were needed due to traffic volume and speed of travel, etc.

In conjunction with these laws, MIFACE recommends additional criteria that should be incorporated into the decision-making regarding placement of adult crossing guards, such as student age, sight distance, roadway speed limit, number of roadway lanes, etc. A good resource for the decision-making team is the Safer Routes to School guide [webpage](#), which has an [adult school crossing guard webpage](#).

Recommendation #2: Municipalities should consider additional measures to increase visibility or slow traffic at intersections during school crossing periods.

Discussion: It was known by law enforcement and school personnel that during morning travel eastbound, the sun shone “directly down the street” (meaning Street A). Although the MVC and MUTCD standards provide guidance in setting up school crossings, the standards do not account for other factors like glare from a rising sun. Using both the MVC requirements of a traffic and engineering study and the informational criteria highlighted in the Safer Routes to School program, appropriate entities should consider additional measures to increase visibility and/or slow down traffic

approaching school crossing guard posts. There are many options to enhance school crossing safety: in-road lighting systems, which use permanent in-road warning lights along the borders of the crosswalk activated by the crossing guard, speed bumps/humps to slow traffic speeds, use of radar speed-indicating boards, speed limit flashing signs, speed limit reductions in the school zone, and/or installation of school area signs to warn road users that they are approaching a school.

The city could also have put in another pedestrian crosswalk feature like a "HAWK" system where the lights flash when pedestrians are crossing. It is used frequently at mid-block crossings. At a HAWK crossing, drivers receive multiple cues to emphasize the potential presence of a pedestrian. These cues include a unique configuration of the HAWK beacon (two red lenses over a single yellow lens), high-visibility crosswalk markings (ladder-style markings as opposed to only two transverse white lines), a stop bar approximately 50 ft from the crosswalk, 8-inch solid lane lines between through travel lanes, signs that can be illuminated and read "CROSSWALK," and School Warning signs. When activated, the HAWK uses a red indication to inform drivers to stop, thereby creating a time period for pedestrians to cross the roadway. The HAWK beacon is not illuminated until it is activated by a pedestrian, triggering the warning flashing yellow lens on the major street. After a set amount of time, the indication changes to a solid yellow light to inform drivers to prepare to stop. The beacon then displays a dual solid red light to drivers on the major street and a walking person symbol to pedestrians. At the conclusion of the walk phase, the beacon displays an alternating flashing red light, and pedestrians are shown an upraised hand symbol with a countdown display informing them of the time left to cross. During the alternating flashing red lights, drivers can proceed after coming to a full stop and checking that pedestrians have already crossed their lane of travel. Each successive driver is legally required to come to a full stop before proceeding during the alternating flashing red phase.

The prime objective of a HAWK is to provide pedestrians with safe crossing opportunities. The Federal Highway Administration Research and Technology report found that there was a statistically significant reduction in pedestrian crashes when the HAWK system was installed.

The alternating flashing red phase allows the driver delay to match the actual crossing needs of the pedestrian. Drivers can proceed with a stop-and-go operation during the flashing red phase if a pedestrian walks faster than the assumed walking speed and clears the lanes or roadway, as appropriate. If pedestrians need more time, then the drivers remain stopped until they finish crossing.

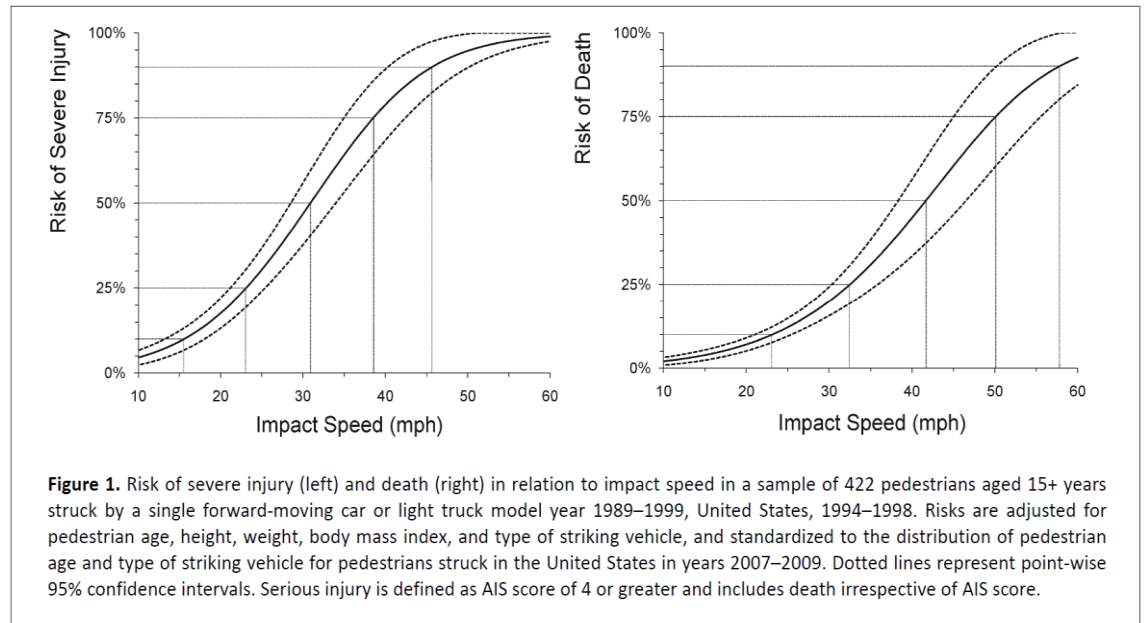
MIFACE also encourages municipalities and schools to keep records of infractions, violations, and "near-misses" at school crossing posts. Using these records to monitor traffic problems would be helpful in designing traffic controls to prevent injuries to guards and children.

Recommendation #3: Set and enforce speed limits in school zones at no more than 20 miles per hour in school zones where crossing guards are required for student safety.

Discussion: The likelihood that the decedent would have sustained fatal injuries would have been reduced if the speed limit in the school zone was no more than 20 mph, rather than 35 mph. The AAA Foundation for Traffic Safety study estimated of the risk of severe injury or death for pedestrians struck by vehicles in the United States using data from a federal study of crashes that occurred in the United States in years 1994 – 1998 in which a pedestrian was struck by a forward-moving car, light truck, van, or sport utility vehicle. Risks were standardized to represent the average risk for a pedestrian struck by a car or light truck in the United States in years 2007 – 2009. Analysis determined that the average risk of severe injury for a pedestrian struck by a vehicle reached 10% at an impact speed of 16 mph, 25% at 23 mph, 50%

Michigan State University
Department of Medicine • Occupational and Environmental Medicine
909 Fee Road, 117 West Fee Hall • East Lansing, MI 48824 • 1-517-353-1846 • <https://oem.msu.edu>

at 31 mph, 75% at 39 mph, and 90% at 46 mph. The average risk of death for a pedestrian reached 10% at an impact speed of 23 mph, 25% at 32 mph, 50% at 42 mph, 75% at 50 mph, and 90% at 58 mph. (See Figure 1).

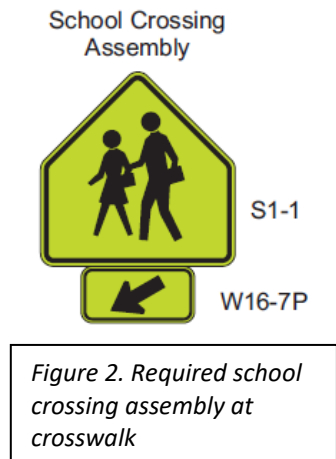


Recommendation #4: School districts utilizing crossing guards should ensure that the guard meets the requirements of the Michigan Vehicle Code and Michigan Manual on Uniform Traffic Control Devices.

Discussion: MIFACE was unable to procure the decedent’s crossing guard training records. School districts, including any charter school or an education service provider providing services to a charter school should ensure that the crossing guard meets the Michigan legal requirements for qualifications, training, visibility and use of signage. The decedent was wearing the appropriate high visibility vest and utilizing an appropriate had-held STOP sign. Unknown is whether, initially, the decedent received a minimum of 4 hours of instruction before performing the duties of the adult crossing guard and the required annual two hours of instruction before the beginning of the school year using courses of instruction approved by the Department of Education and the Department of State Police and conducted by the local law enforcement agency having jurisdiction or its designee.

Recommendation #5: Municipalities should ensure appropriate school signage is installed at school crosswalks.

Discussion: The interviewee indicated that the school crossing sign originally at the crosswalk was moved to its current location after discussion with the appropriate entities (Photo 2). The signage as shown in Photo 2 was not the signage required by Part 7 of the MMUTCD. Part 7, Section 7B.12 requires a school crossing assembly to be installed at established marked crosswalk(s) or as close to it as possible as per section 257.613a of the Michigan Vehicle Code. The school crossing assembly shall consist of a School (S1-1) sign supplemented with a diagonal downward pointing arrow (W17-7P) plaque to show the location of the crossing (See Figure 2). Municipalities should ensure school signage is selected and installed according to the requirements of the MMUTCD.



Recommendation #6: To minimize the effects of sun glare, vehicle operators should take appropriate precautions, including regular cleaning of both the inside and the outside of the vehicle's windows and windshield.

Discussion: Police described a layer of dirt or film on the inside front windshield and when the sun shined through it, the windshield was hazy. Dirty windows scatter light, which makes it harder to see through the windshield when the sun hits it. Particles on a dirty windshield intensify the glare as opposed to blocking it. [AAA](#) Exchange offers several tips to drive safely when in a sun glare situation. This glare can make it much harder to see the road ahead and potential hazards creating an added risk to drivers and pedestrians. When sun glare is an issue slow down and use extra caution especially while driving through school zones.

AAA offers these tips for motorists when driving into the sun:

- Invest in polarized sunglasses – they can help reduce glare.
- Utilize your sun visor – it can help to block out the sun.
- Leave more following room – when the sun is in your eyes it can be hard to see what the car ahead is doing. This is one more time when it pays to leave more room between you and the next vehicle.
- Drive with your headlights on to increase your visibility to other drivers

Additional tips:

- Keep your windshield clean, inside and out
- Check your windshield for pitting and cracks
- Avoid storing papers or other items on the dashboard
- If having a difficult time seeing the road, use lane markings to help guide you.

It is unknown if the minivan driver was wearing polarized sunglasses, used the vehicle's sun visor, had papers or other items on the dashboard or slowed down because of the inability to see.

ADDITIONAL RESOURCES

- National Center for Safe Routes to School – Adult School Crossing Guard Guidelines: http://guide.saferoutesinfo.org/crossing_guard/index.cfm
- Tefft, B.C (2011) *Impact Speed and a Pedestrian's Risk of Severe Injury or Death*. AAA Foundation for Traffic Safety. <https://aaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/>
- New Jersey Case Report: 05NJ090, *School Crossing Guard Struck and Killed by a Sport Utility Vehicle* <https://www.cdc.gov/niosh/face/stateface/nj/05nj090.html>
- Centers for Disease Control and Prevention (CDC), Motor Vehicle Safety, Pedestrian Safety. https://www.cdc.gov/motorvehiclesafety/pedestrian_safety/index.html
- AAA Adult School Crossing Guard Training Program. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=2ahUKewj5_JPPI-rkAhUORkKWHH-gEQFjAAegQIABAC&url=https%3A%2F%2Fmichigan.aaa.com%2Fassets%2FPDFs%2FAdult-Crossing-Guard-Presentation.pdf&usg=AOvVaw14_bCqfQwpldCZ6hwhz6x0



Michigan State University
Department of Medicine • Occupational and Environmental Medicine
909 Fee Road, 117 West Fee Hall • East Lansing, MI 48824 • 1-517-353-1846 • <https://oem.msu.edu>

- Federal Highway Administration Research and Technology Report. [*Safety Effectiveness of the HAWK Pedestrian Crossing Treatment*](#). FHWA-HRT-10-042

DISCLAIMER

Mention of any company or product does not constitute endorsement by the Michigan FACE program or the National Institute for Occupational Safety and Health (NIOSH). In addition, citations to websites external to NIOSH do not constitute NIOSH endorsement of the sponsoring organizations or their programs or products. Furthermore, NIOSH is not responsible for the content of these websites. All web addresses referenced in this document were accessible as of the publication date.

REFERENCES

MIOSHA standards may be found at and downloaded from the MIOSHA, Michigan Department of Labor and Economic Opportunity (LEO) website at: www.michigan.gov/mioshastandards. MIOSHA standards are available for a fee by writing to: Michigan Department of Labor and Economic Opportunity, MIOSHA Regulatory Services Section, 530 West Allegan, P.O. Box 30643, Lansing, Michigan 48909-8143 or calling (517) 284-7740.

Michigan Motor Vehicle Code Part 300 of 1949, TRAFFIC SIGNS, SIGNALS, AND MARKINGS, Section 257.613 (a-d) [http://www.legislature.mi.gov/\(S\(t0u4ivhacmff3cutqlv1uxzf\)\)/mileg.aspx?page=getobject&objectname=mcl-act-300-of-1949](http://www.legislature.mi.gov/(S(t0u4ivhacmff3cutqlv1uxzf))/mileg.aspx?page=getobject&objectname=mcl-act-300-of-1949)

Michigan Department of Transportation, Traffic and Safety/Standards and Special Details. Michigan Manual of Uniform Traffic Control Devices. <https://mdotjboss.state.mi.us/TSSD/tssdHome.htm>

ACKNOWLEDGEMENT

The Michigan FACE Program would like to acknowledge the school principal and a representative for the State of Michigan Department of Education for providing assistance and information for this investigation.