

NJ FOIS INVESTIGATION REPORT



Fatal Occupational Injuries Surveillance Project

FOIS 16-NJ-07

June 26, 2017

Crossing Guard Killed in Crosswalk After Being Struck by Vehicle

A 56-year-old male crossing guard died after being struck in a crosswalk by a pickup truck. The incident occurred at a busy, lighted intersection in central New Jersey. On the day of the incident, the victim was in the middle of the intersection, crossing an adult pedestrian in the westbound direction. A pickup truck traveling perpendicular to the direction of the crossing (northbound), ran through the red light, hit another vehicle and proceeded to strike the victim. The victim sustained traumatic multiple blunt force trauma, and was pronounced dead on the scene by the medical examiner.

Contributing Factors:

- Complicated, busy intersection
- Roadway speed (40 miles per hour speed limit)

NJ FOIS investigators recommend that these safety guidelines be followed to prevent similar incidents:

- **A safety and health plan based on a job hazard analysis should be developed by the employer and followed where workers are assigned tasks.**
- **In an intersection with high vehicular speed and multiple complicating factors, a pedestrian bridge or underpass should be considered.**
- **Any high-speed, high-traffic intersection in which there is a large pedestrian volume, a traffic calming needs assessment should be conducted.**



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INTRODUCTION

In spring 2016, NJ FOIS staff was notified of the death of a 56-year-old male crossing guard who was struck and killed by a pickup truck. The incident occurred in the crosswalk of a busy intersection in central New Jersey. The victim was employed by a private security company in New Jersey that was contracted by the city to place crossing guards. He had worked for the company for approximately eight years, during all of which he was stationed at the same intersection. The company, a nonunion establishment has been in business for over 50 years and has employed and trained approximately 300 crossing guards in NJ, PA, and DE.

Training and personal protective equipment were provided by the employer. Each crossing guard was trained by a certified instructor of the American Traffic Safety Service Association (ATSSA)¹. The training consisted of a four-hour course which was endorsed by the Federal Highway Administration and based on the Manual on Uniform Traffic Control Devices (MUTCD). The training covered the following information: traffic safety, flagging standards and guidance, flagger qualifications, personal protective equipment, proper flagging procedures, emergency procedures.

An NJ FOIS investigator contacted the OSHA Area Office and conducted a concurrent investigation. Additional information was obtained from the medical examiner's report, death certificate, and police report.

INVESTIGATION

The incident occurred at approximately 3:20pm on a clear, dry spring day (79° F at the time of the incident, maximum wind speed about 3.5 miles per hour, and no recorded precipitation). The incident site was a heavily-trafficked, four-way lighted intersection in central NJ (Figure 1). In the north and southbound direction, the intersection consisted of a divided highway with two lanes on each side with a speed limit of 40 miles per hour. East and westbound was a local road with a speed limit of 25 miles per hour. On the east-most side of the intersection there was a crosswalk. The crosswalk was regularly used by pedestrians including residents of a large apartment complex (on to walk to a shopping center located on the northbound side. Between the shopping center and the intersection was a rail line (at-grade; traveling north and south) which had its own designated crossing point (Figures 2 and 3). The train passes the intersection approximately every 15 minutes on weekdays between 6:00 a.m. and 10:00 p.m., and until after midnight on the weekend. Although there were several pedestrian crossing signals, the complexity of the intersection (train tracks, divided highway, multiple speed limits) and the high

pedestrian volume warranted the need for crossing guards.

The crossing guards had a small workstation between the shopping center and the rail line (Figure 4), and worked in shifts to cover the work day. The crossing guards rotated between three, six-hour shifts, 7:00 a.m. to 7:00 p.m., six days a week. The victim was assigned the second shift on weekdays, beginning at 1:00 p.m. According to an interview with one of the other crossing guards for that intersection, they crossed pedestrians approximately 50 times per day. The guards wore high visibility, retro-reflective safety vests, and were equipped with stop paddles.

On the day of the incident, the victim was crossing a pedestrian westbound towards the apartment complex, when a small pickup truck traveling northbound entered the intersection against the red light. At this time, a sedan that had been stopped at the eastside light began to turn left onto the southbound road. The pickup truck hit the driver's side rear bumper of the sedan and then proceeded forward, striking the crossing guard who was still in the intersection (Figure 5). A witness called 9-1-1, and the victim was pronounced dead at the scene as a result of massive multiple traumatic injuries.

FIGURE 1: Incident scene; four-way, intersection in central NJ.

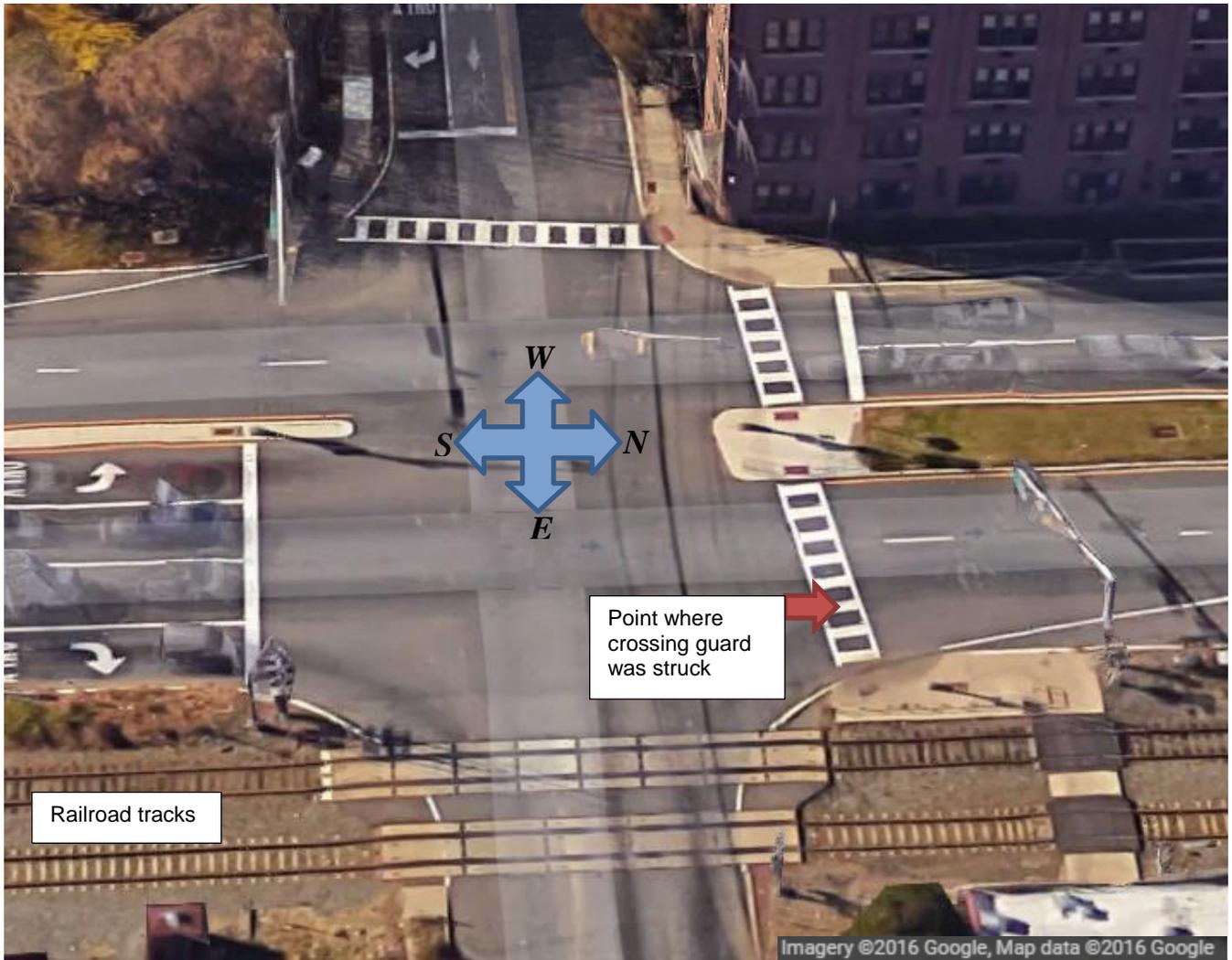


FIGURE 2. Incident scene; street view.



FIGURE 3. View of train and the area designated for pedestrians to cross the tracks.

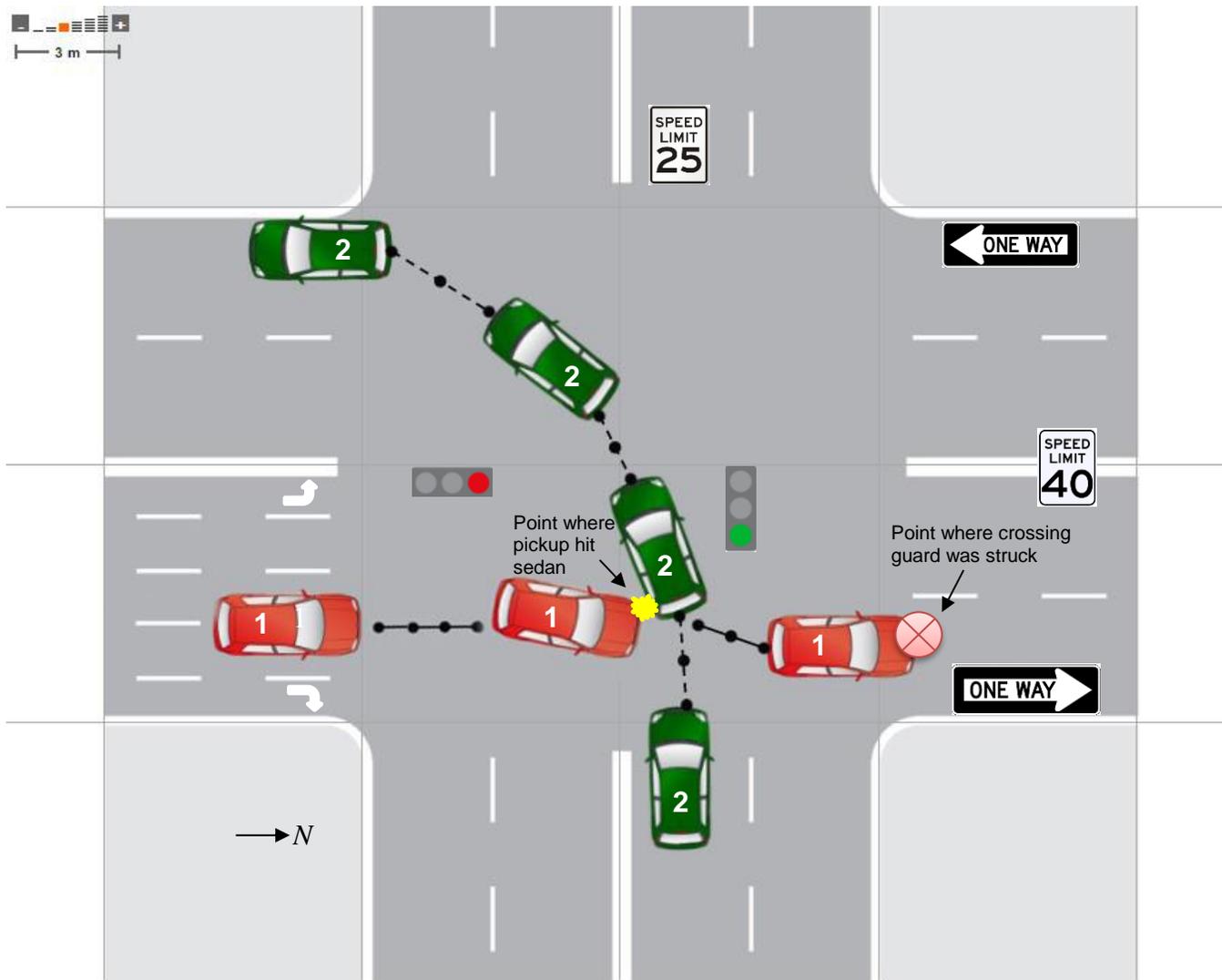


FIGURE 4. Crossing guard workstation (located on east-side of intersection, adjacent to rail line).



Crossing guard workstation

FIGURE 5. Re-creation of incident (not to scale).*



Legend

- 1 = Pick-up truck that struck the crossing guard
- 2 = Sedan making a left turn that was hit by vehicle #1

*Created using accidentsketch.com

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: A safety and health plan based on a job hazard analysis should be developed by the employer and followed where workers are assigned tasks.

Discussion: Employers should conduct a job hazard analysis, with the participation of employees, of all work areas and job tasks. A job hazard analysis should begin by reviewing the work activities for which the employee is responsible and what equipment is needed. Each task is also examined for mechanical, electrical, chemical, or any other hazards the worker may encounter. Further information on conducting a job hazard analysis can be obtained from the US Department of Labor.²

Recommendation #2: In an intersection with high speed and multiple complicating factors, a skyway or underpass for pedestrians should be considered.

Discussion: The intersection in which the incident took place involved the following factors: heavy pedestrian volume; an at-grade train line through the intersection; and a separate designated area to cross the train line several feet away from the crosswalk. NJ FOIS recommends constructing a pedestrian walking bridge (Figure 6) or an underpass that would both serve the community for convenience and safety, and would eliminate the need for a crossing guard post. Both would need to comply with guidelines set forth in the Americans with Disabilities Act (ADA), specifically Chapter 4, Section 405 of the 2010 Standards, including both the Title II regulations at 28 CFR 35.151; and the 2004 ADAAG (ADA Accessibility Guidelines) at 36 CFR part 1191, appendices B and D.³

FIGURE 6. Example of pedestrian walking bridge over busy intersection in NJ (adapted from NJDOT⁴).



Recommendation #3: In any high speed, high traffic intersection in which there is a large pedestrian volume, a traffic calming needs assessment should be conducted.

Discussion: As noted above, the speed limit for the road that approaches from the south is 40 mph. NJ FOIS staff drove through the intersection from this direction and observed that there was a downhill slope shortly before the light, and several signs to notify drivers of the approaching intersection (Figure 7). Just after the signs there was a set of transverse pavement markings--a type of rumble strip consisting of lines or bars that are perpendicular to the path of travel and placed across the road.⁵ Neither the signs nor the pavement markings seemed to effectively slow traffic. NJ FOIS recommends that pavement grooves (milled rumble strips) be installed in both directions approaching the intersection (Figure 8).

FIGURE 7. View from car approaching the intersection. Note signage and transverse pavement markings.



FIGURE 8. Example of milled asphalt grooves (rumble strips).*



*Source: <http://www.pmiac.com/services-we-provide/rumble-strips/>

NJ FOIS also recommends that a comprehensive traffic calming needs assessment be conducted. This includes the collection of traffic volume and speed data (to determine, on average, the speed at which vehicles exceed the posted speed limit); collision history (number, severity, type); sight distance limitations; and any other points of information to identify areas of concern. The local community should also partner in the assessment. The results of the assessment will provide the appropriate recommendations for making the intersection a safer place for vehicles and pedestrians. Specific traffic calming recommendations for the intersection in this incident include but are not limited to the following⁶:

- High-emphasis crossing markings and advanced crossing signs;
- Raised/tailed crossings (pedestrian crossing is raised to curb height to slow vehicles, with extra signing and marking to alert drivers);
- Curb bulbouts (also known as corner flares or chokers, which shorten pedestrian crossing distance and more effectively places pedestrians within driver sight-lines);
- Enhanced signs/beacons (pedestrian-activated flashing lights to alert drivers).

The following are examples of traffic calming assessments:

<http://www.framinghamma.gov/DocumentCenter/View/23859;>

[http://www.lexingtonma.gov/sites/lexingtonma/files/uploads/trafficcalmingpolicy.pdf;](http://www.lexingtonma.gov/sites/lexingtonma/files/uploads/trafficcalmingpolicy.pdf)

<http://www.ci.lafayette.ca.us/home/showdocument?id=845;>

[http://safety.fhwa.dot.gov/intersection/other_topics/fhwas09027/resources/Florida%20Pedestrian%20Facilities%20Planning%20and%20Design%20Handbook.pdf.](http://safety.fhwa.dot.gov/intersection/other_topics/fhwas09027/resources/Florida%20Pedestrian%20Facilities%20Planning%20and%20Design%20Handbook.pdf)

APPENDIX

RECOMMENDED RESOURCES

It is essential that employers obtain accurate information on health, safety, and applicable OSHA standards. NJ FOIS recommends the following sources of information which can help both employers and employees:

U.S. Department of Labor, Occupational Safety & Health Administration (OSHA)

Federal OSHA can provide information on safety and health standards on request. OSHA has several offices in New Jersey that cover the following counties:

-  Hunterdon, Middlesex, Somerset, Union, and Warren counties.....732-750-3270
-  Essex, Hudson, Morris, and Sussex counties.....973-263-1003
-  Bergen and Passaic counties.....201-288-1700
-  Atlantic, Burlington, Cape May, Camden, Cumberland, Gloucester,
Mercer, Monmouth, Ocean, and Salem counties.....856-596-5200
-  Web site: www.osha.gov

New Jersey Public Employees Occupational Safety and Health (PEOSH) Program

The PEOSH Act covers all NJ state, county, and municipal employees. Two state departments administer the Act: the NJ Department of Labor and Workforce Development (NJDLWD), which investigates safety hazards, and the NJ Department of Health (NJDOH), which investigates health hazards. PEOSH has information that may also benefit private employers.

NJDLWD, Office of Public Employees Safety

-  Telephone: 609-633-3896
-  Web site: http://lwd.dol.state.nj.us/labor/lsse/employer/Public_Employees_OSH.html

NJDOH, Public Employees Occupational Safety & Health Program

-  Telephone: 609-984-1863
-  Web site: <http://nj.gov/health/workplacehealthandsafety/peosh/>

On-site Consultation for Public Employers

-  Telephone: 609-984-1863 (health) or 609-633-2587 (safety)
-  Web site: <http://nj.gov/health/workplacehealthandsafety/peosh/consultation.shtml>

New Jersey Department of Labor and Workforce Development, Occupational Safety and Health On-Site Consultation Program

This program provides free advice to private businesses on improving safety and health in the workplace and complying with OSHA standards.

☎ Telephone: 609-984-0785

💻 Web site: http://lwd.dol.state.nj.us/labor/lsse/employer/peosh_consultation.html

New Jersey State Safety Council

The New Jersey State Safety Council provides a variety of courses on work-related safety. There is a charge for the seminars.

☎ Telephone: 908-272-7712

💻 Web site: www.njsafety.org

Internet Resources

Other useful Internet sites for occupational safety and health information:

- CDC/NIOSH – www.cdc.gov/niosh
- USDOL Employment Laws Assistance for Workers and Small Businesses – www.dol.gov/elaws
- National Safety Council – www.nsc.org
- NJDOH FOIS reports – http://nj.gov/health/workplacehealthandsafety/occupational-health-surveillance/fatal-injuries/niface_reports.shtml
- CDC/NIOSH FACE – www.cdc.gov/niosh/face/faceweb.html
- OSHA – www.osha.gov
- ANSI – www.ansi.org

REFERENCES

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2. *Job Hazard Analysis*. US Department of Labor Publication # OSHA-3071, 1998 (revised). USDOL, OSHA Publications, PO Box 37535, Washington DC 20013-7535
3. 2010 ADA Standards for Accessible Design; Department of Justice. Accessed December 15, 2016. Available at: <https://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.pdf>.
4. *NJDOT*. Accessed September 7, 2016. Available at: <http://www.state.nj.us/transportation/about/press/2009/021009a.shtm>.
5. *PooledFund.org*. Traffic Control Devices Pooled Fund Study. Pavement markings for speed reduction; Final Report, December 2004. Accessed October 24, 2016. Available at: www.pooledfund.org/document/download/412.
6. Perkins, D. Florida Department of Transportation. Personal communication. December 14, 2016.

Fatal Occupational Injuries Surveillance (FOIS) Project
Investigation # 16-NJ-07

This report was prepared by staff members of the New Jersey Department of Health's Occupational Health Surveillance Unit. The goal of FOIS is to prevent fatal work-related injuries by studying the work environment, the worker, the task, the tools the worker was using, the energy exchange resulting in the fatal injury, and the role of management in controlling how these factors interact. FOIS gathers information from multiple sources that may include interviews of employers, workers, and other investigators; examination of the fatality site and related equipment; and reviewing OSHA, police, and medical examiner reports, employer safety procedures, and training plans. The FOIS program does not determine fault or place blame on employers or individual workers. Findings are summarized in narrative investigation reports that include recommendations for preventing similar events. All names and other identifiers are removed from FOIS reports and other data to protect the confidentiality of those who participate in the project.

Please visit the NJ FOIS Web site at <http://nj.gov/health/workplacehealthandsafety/occupational-health-surveillance/fatal-injuries>, or the CDC/NIOSH FACE Web site, www.cdc.gov/niosh/face/faceweb.html for more information. The contents of this report are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.



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