U.S. Department of Transportation
Federal Highway Administration

ERSI Struck-By Data Base Initial Analysis Identifies Initial Trends to Monitor

The Emergency Responder Safety Institute (ERSI), and the Cumberland Valley Volunteer Firemen's Association (CVVFA), have worked for years to improve the safety of those who respond to incidents on America's roadways. Continuing to be proactive in this effort, CVVFA and ERSI have again worked to develop better documentation and analysis on how and where our country's first responders are being struck, injured, and killed. This is accomplished through this enhanced platform and capability to solicit and collect struck by incident information from voluntary reporters and significantly upgrading the functionality and depth of data collection.

Analysis of the Data

The following analysis represents data from the 170 submissions (Figure 1) that provided input to the ReportStruckBy.com reporting system, between 11/12/2021 and 2/27/2023. The date of the submitted incidents spanned from 4/4/1993 to 2/23/2023. It is recognized that this analysis is limited to the data submitted.

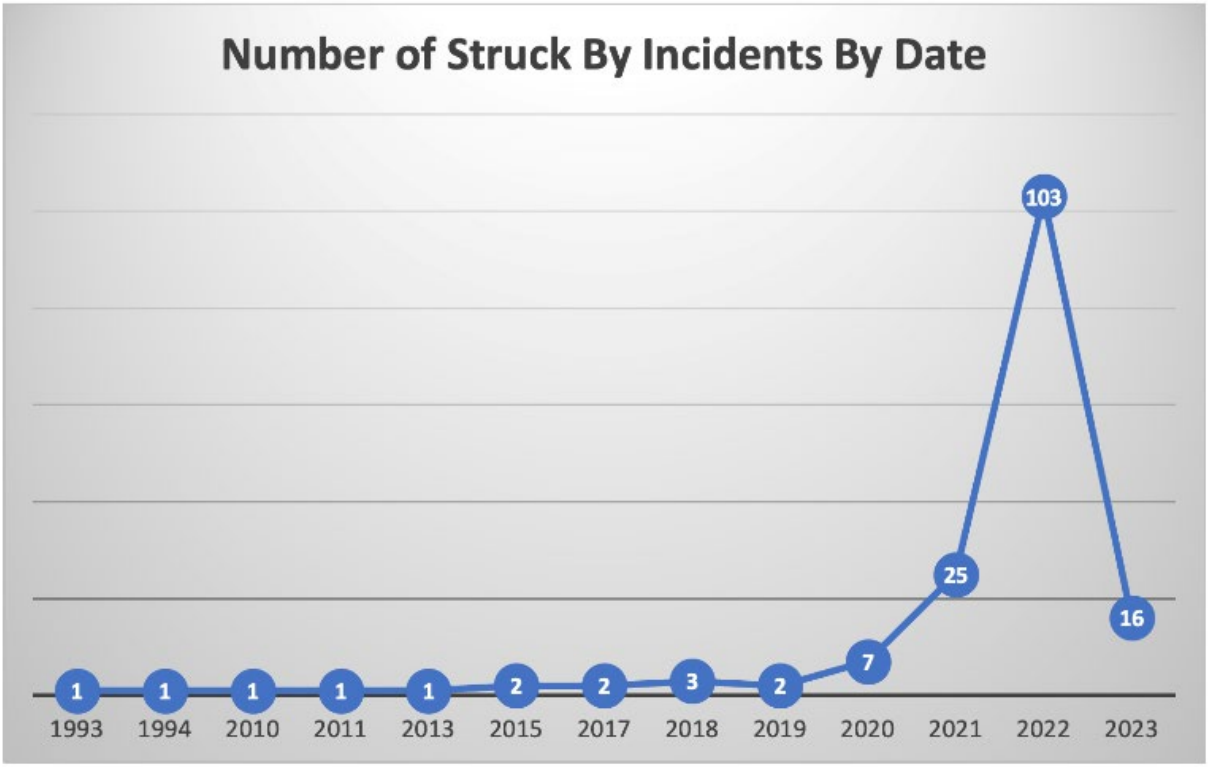

Figure 1 – Incident data reported by date.

Ninety-nine percent of the submissions included the day of the week (Figure 2) the incident occurred. The incidents were well distributed throughout the week, with 18% of the incidents occurring on a Wednesday as the most frequent day and 9% occurring on a Tuesday as the least frequent day.

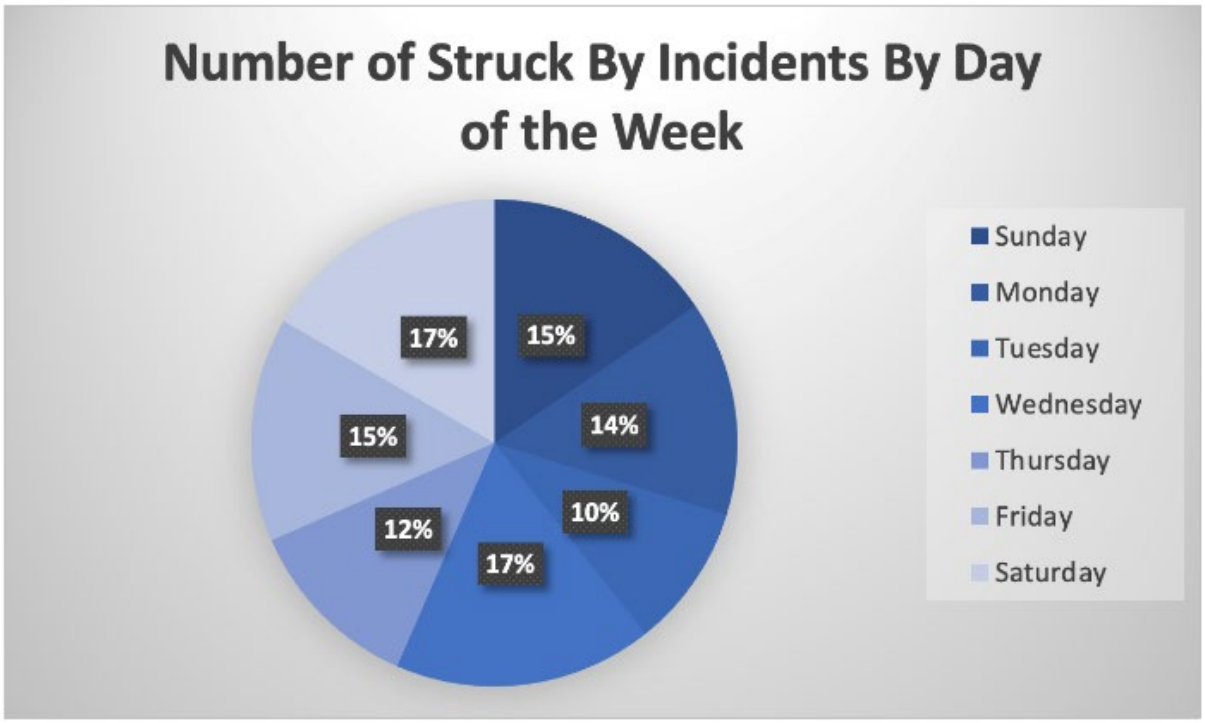

Figure 2 – Incident data reported by day of week.

There is no apparent differentiator by day of week.

Similarly, 99% of the submissions indicated the incident type (Figure 3). Over half (55%) of the incidents were classified as a crash scene. The next most frequent incident type (17%) was a disabled vehicle. The remaining 47 incidents were identified as a work zone, directing traffic, traffic stop, EMS medical assist, debris removal, fire scene, other law enforcement activity, and others. These other activities included: a firefighter struck by a vehicle while guiding fire apparatus backing into the station; news media; backing ambulance out of a driveway; traveling home; right of way sign inspection crew; special event traffic monitoring; hit by car on bike; crossing the street; and roadside assistance.

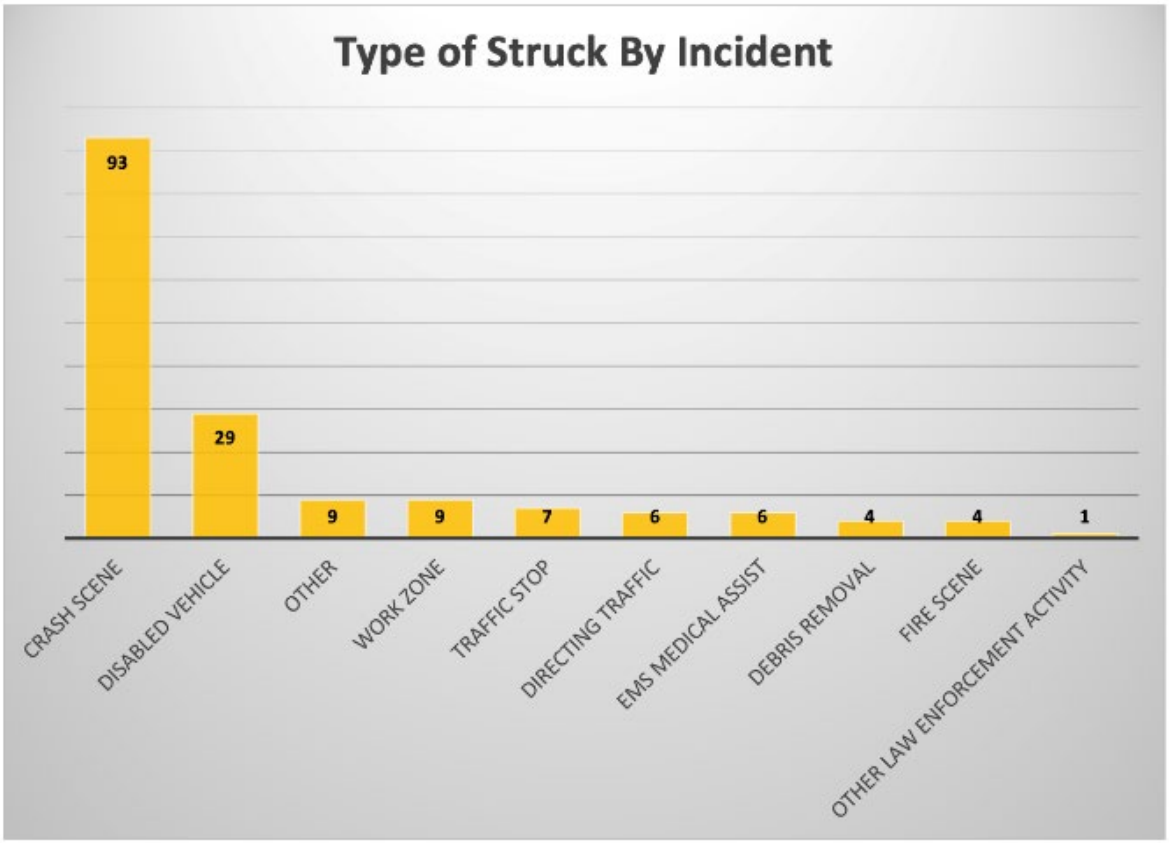

Figure 3 – Type of Struck-by Incident

This suggests that most struck by incidents occur at a crash scene or a disabled vehicle assist.

All but one submission (99%) included the roadway type (Figure 4). Fifty-six percent of the incidents took place on an interstate, freeway, turnpike or parkway, while 13% occurred on a divided highway and 11% occurred happened on a street. The remaining 20% of the incidents took place on an intersection, ramp, parking lot, rural area, or shoulder.

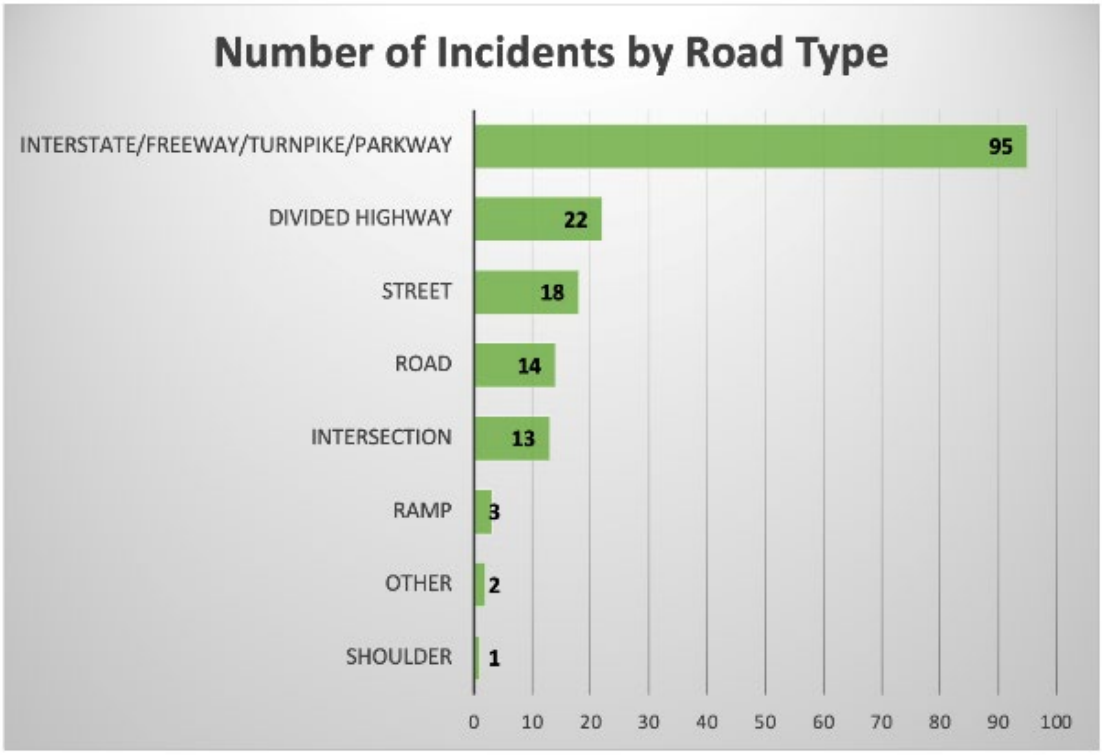

Figure 4 – Location of reported Incident.

Interstate, divided highways and freeways see more frequent struck by incidents than streets and roads in residential and commercial areas.

Ninety-nine percent of the submissions indicated the state where the incident occurred (Figure 5). Thirty-five different states and Puerto Rico were represented in the sample, with most of the incidents (25%) occurring in Pennsylvania. The other states with the most incidents were Texas (8%), Florida (7%), and Colorado (6%).

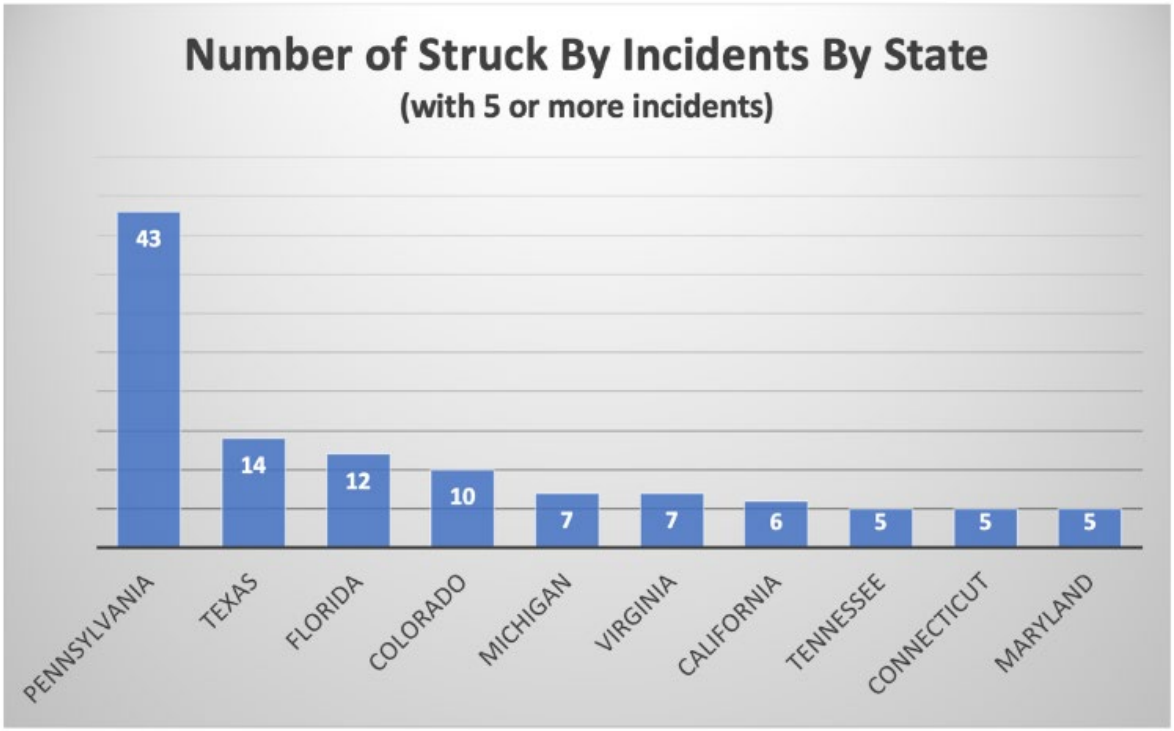

Figure 5 – State where reported incident occurred.

State submissions appear to be directly related to the communication of the system availability and awareness of first responders to submit data.

All but one of the submissions included the weather conditions at the time of the incident (Figure 6). The most frequent weather condition cited was clear at 41%. The next most frequent conditions reported were clear but dark or low light conditions (13%) and dark or low light conditions (12%).

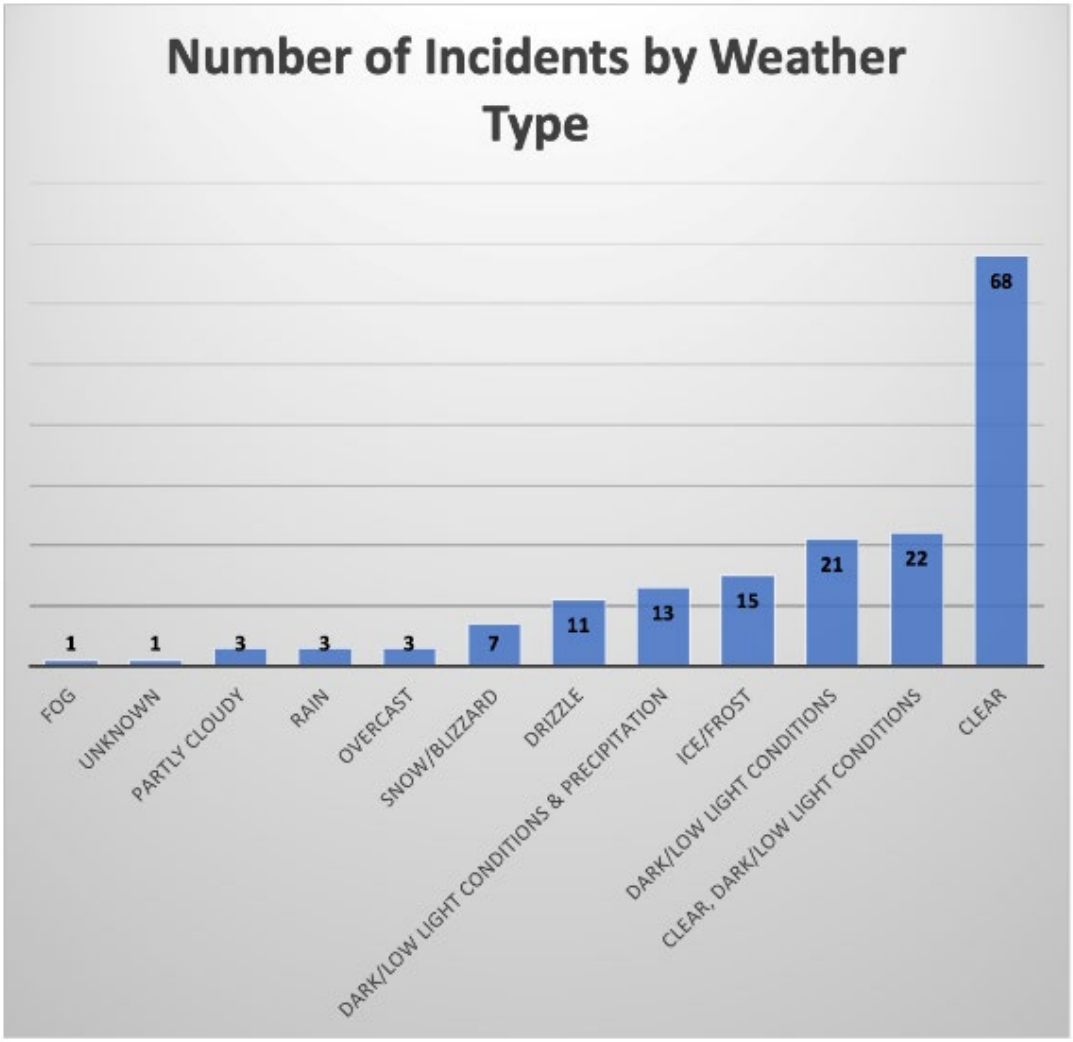

Figure 6 - Weather conditions reported at the time of the incident

There appears to be minimal influence of weather on struck by incidents as clear conditions are most prevalent.

Ninety-six percent of the submissions indicated whether a road feature, such as a blind curve or steep grade, impacted the sight distance (Figure 7). A majority of the submissions reported that the sight distance was not impacted (77%), while 10% reported that it was impacted. The remaining 13% were unsure if the sight distance was impacted.

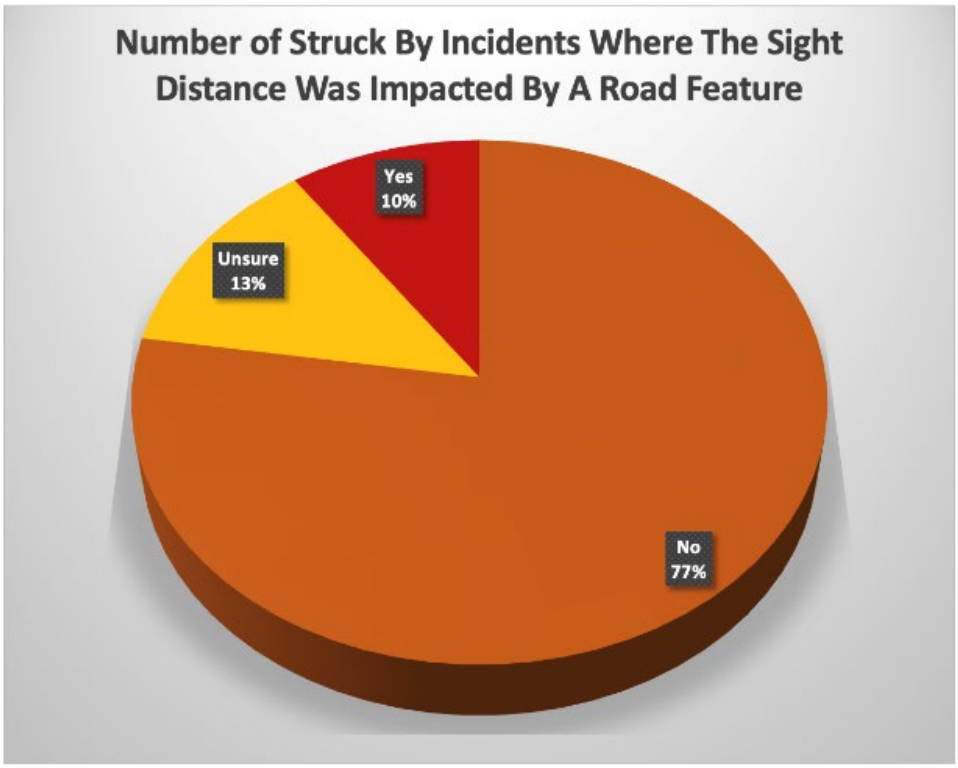

Figure 7 – Sight Distance road conditions reported at the incident scene.

Sight distance, blind curves and grades have minimal influence on the struck by incidents. Road features impact is minimal in the reporting.

Of the 11 incidents submitted after adding the question regarding possible factors of the incident, 64% of the submissions reported the driver possibly being distracted, drowsy, drunk, or drugged (Figure 8). Over half (57%) of the submissions identified a distracted driver being a possible factor of the incident.

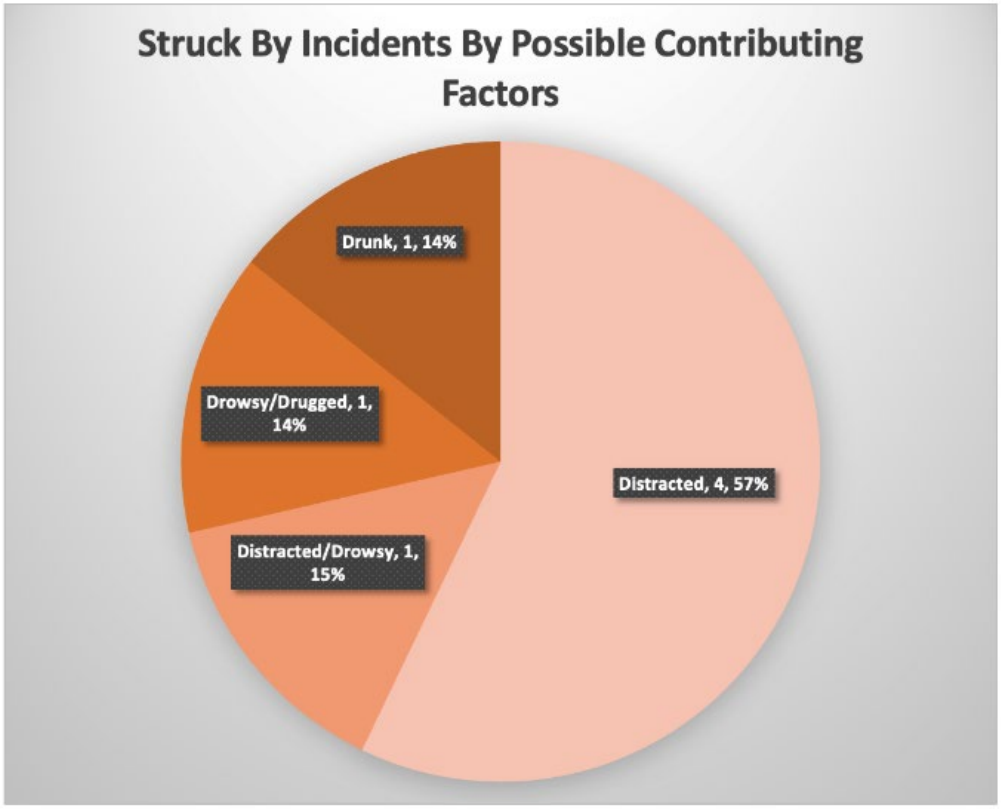

Figure 8 – Possible contributing factors in struck by incidents reported.

Two out of three incidents indicate a "D" driver suspected involvement.

Forty-four percent of the submissions indicated the fire department activities in progress when the incident occurred (Figure 9). The most frequent responses were other fire response (31%) and patient care (27%). The other 42% of responses included medical emergency, entrapment/extrication, hazmat responses, and vehicle fire.

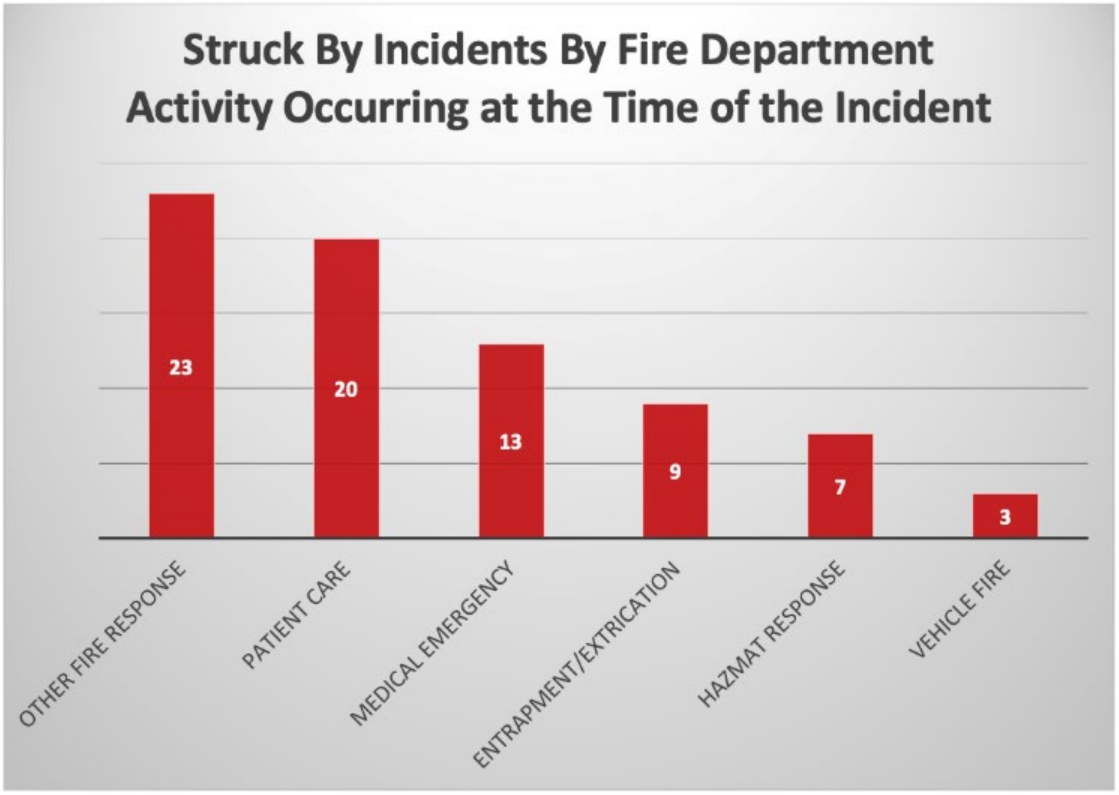

Figure 9 - Fire department activities in progress when the incident occurred

Of the 60 (35%) submissions that indicated the EMS activities that were in progress when the incident occurred (Figure 10), 63% reported patient care, 23% reported medical emergency, and the remaining 14% reported medical emergency and patient care.

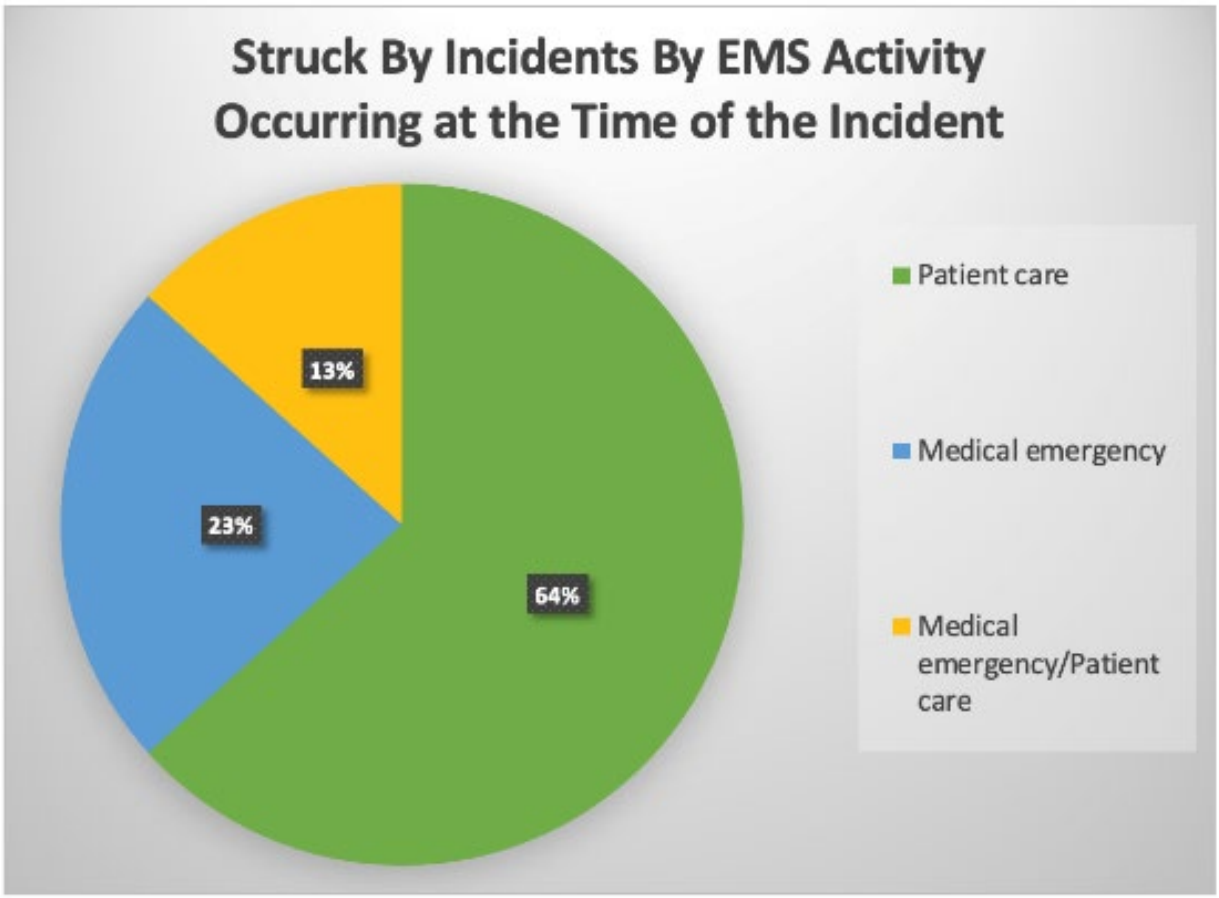

Figure 10 – EMS activities in progress when the incident occurred

Approximately half of the submissions (57%) reported the law enforcement activities in progress when the incident occurred (Figure 11). The most frequent activity reported was a vehicle crash investigation (54%), while the second most frequent activity reported was a disabled vehicle or motorist/public assist (18%). Other law enforcement activities reported included medical emergencies, vehicle stops, safety checkpoints, and other law enforcement activities.

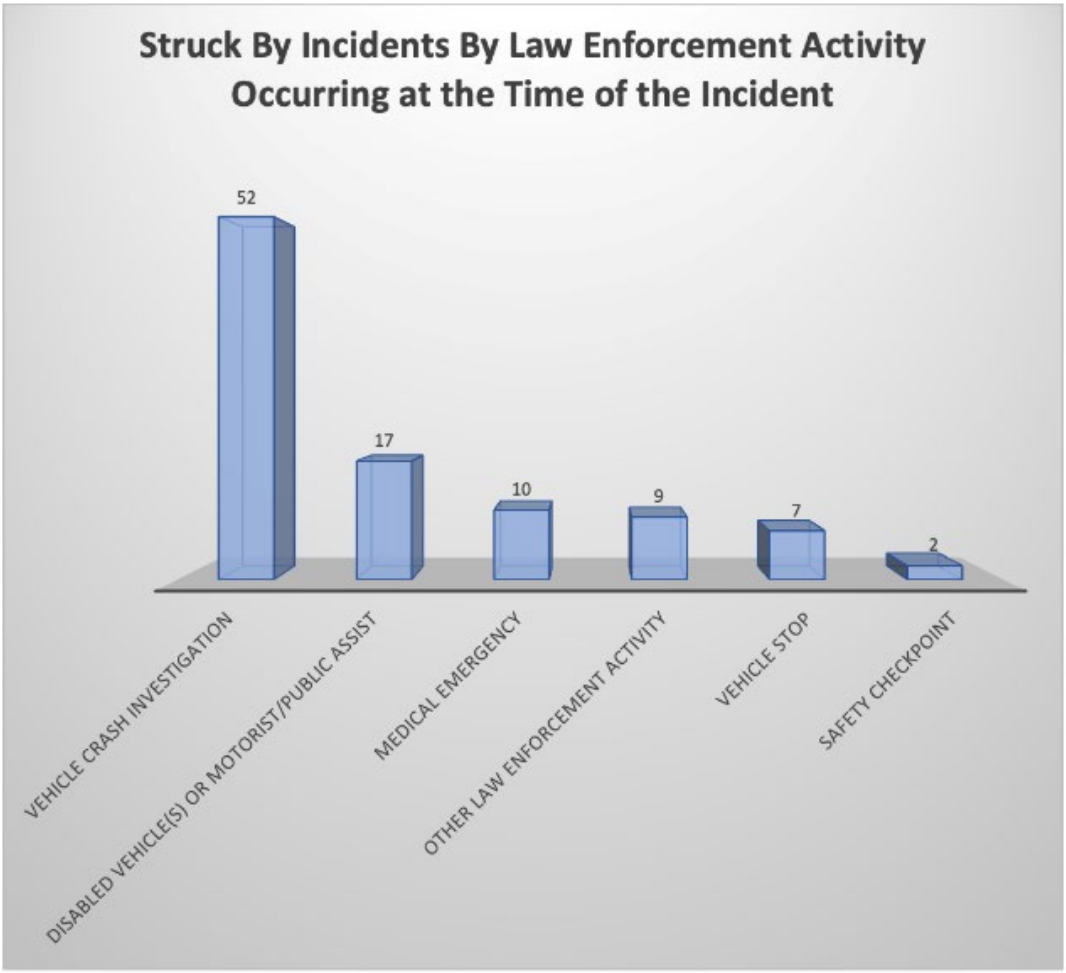

Figure 11 – Law enforcement activities in progress when the incident occurred

Just under half of the submissions (46%) indicated the fire police or traffic control activities that were in progress (Figure 12). Thirty-nine percent of the incidents were in the process of blocking when the accident occurred, while 20% of the incidents indicated the fire police or traffic control were in the process of setting up a traffic incident management area. Other fire police and traffic control activities reported included manual traffic control, deployment of advance warning or a cone taper, road closure, and termination of the incident response.

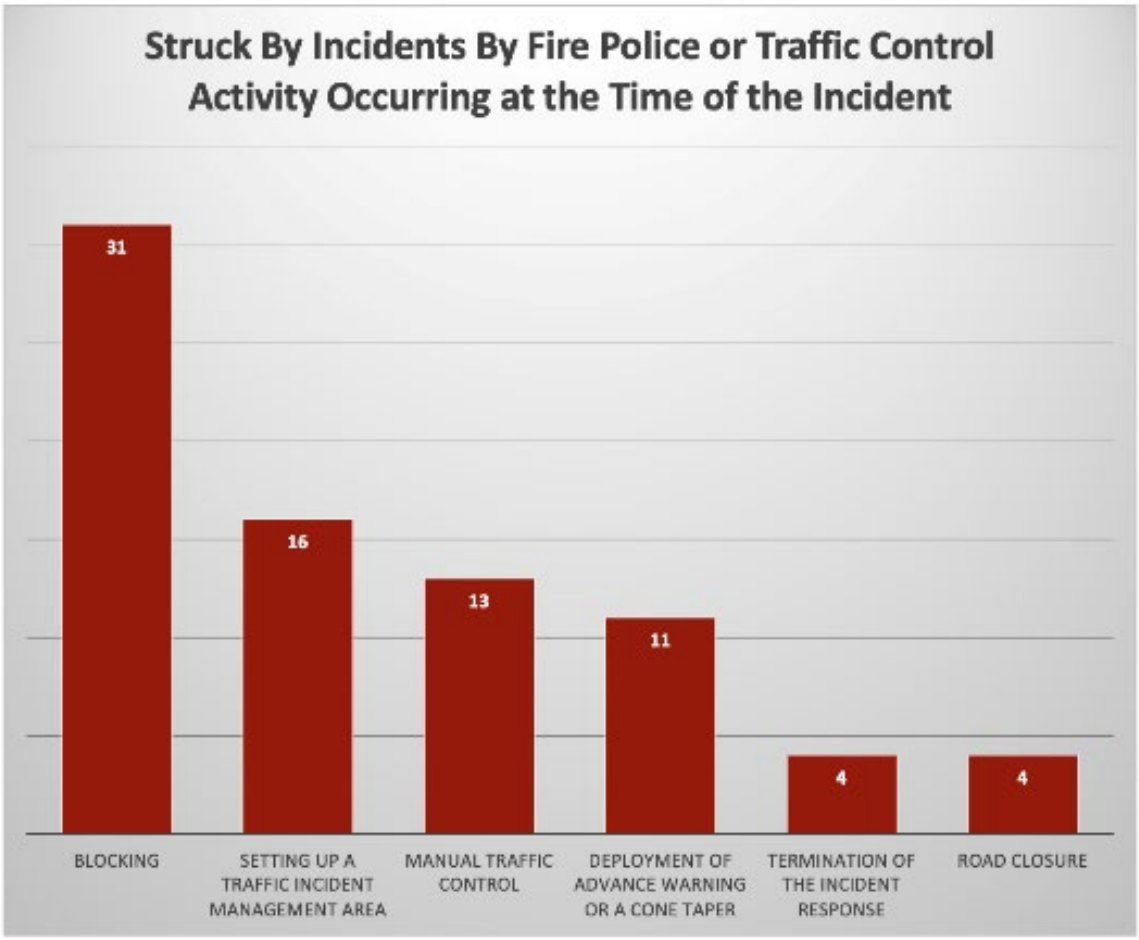

Figure 12 - Fire police or traffic control activities in progress when the incident occurred

Nearly a third (32%) of the sample indicated the safety service patrol (SSP) or freeway service patrol (FSP) activities that were in progress when the incidents occurred (Figure 13). The SSP and FSP activities reported included deploying temporary traffic control devices (27%), disabled vehicle or motorist/public assist (25%), directing traffic (22%), other SSP or FSP activities (22%), and removing debris (4%).

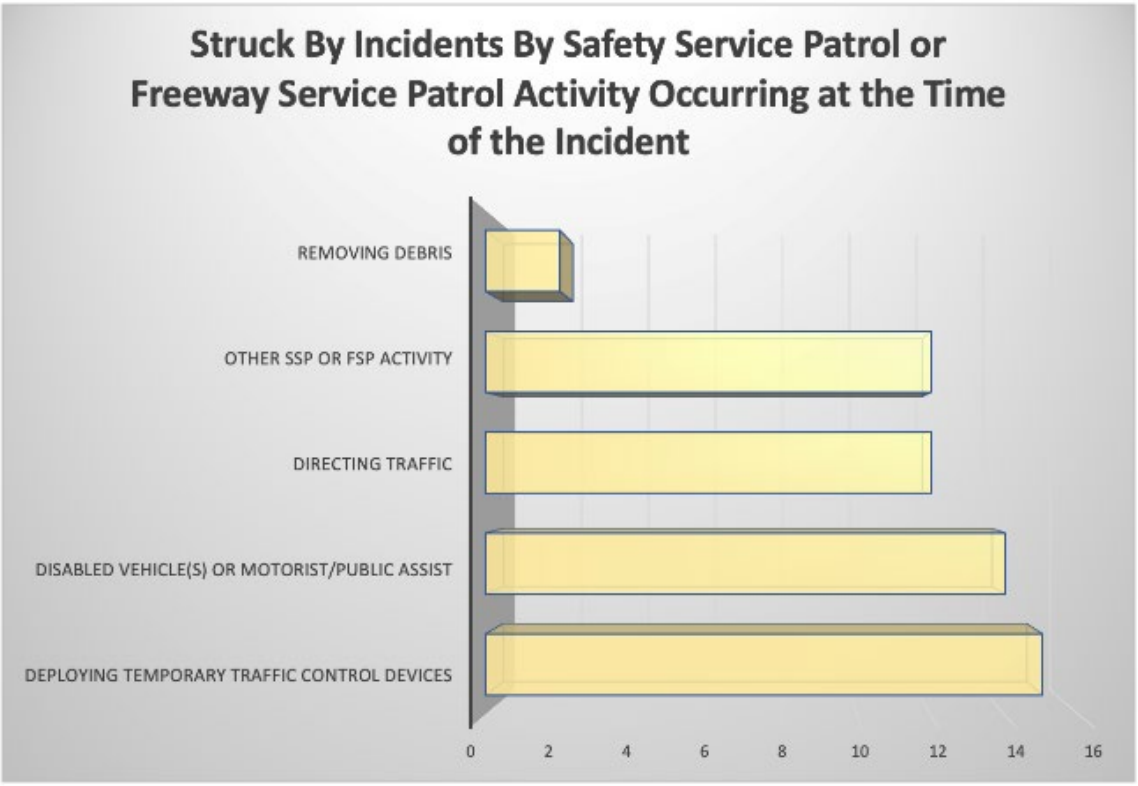

Figure 13 – Safety Service Patrol (SSP) or Freeway Service Patrol (FSP) activities in progress when the incident occurred

Approximately a quarter (23%) of the submissions reported the Department of Transportation or public works activities in progress when the incident occurred (Figure 14). These activities included traffic control (49%), other DOT activities (31%), and planned work zone (21%).

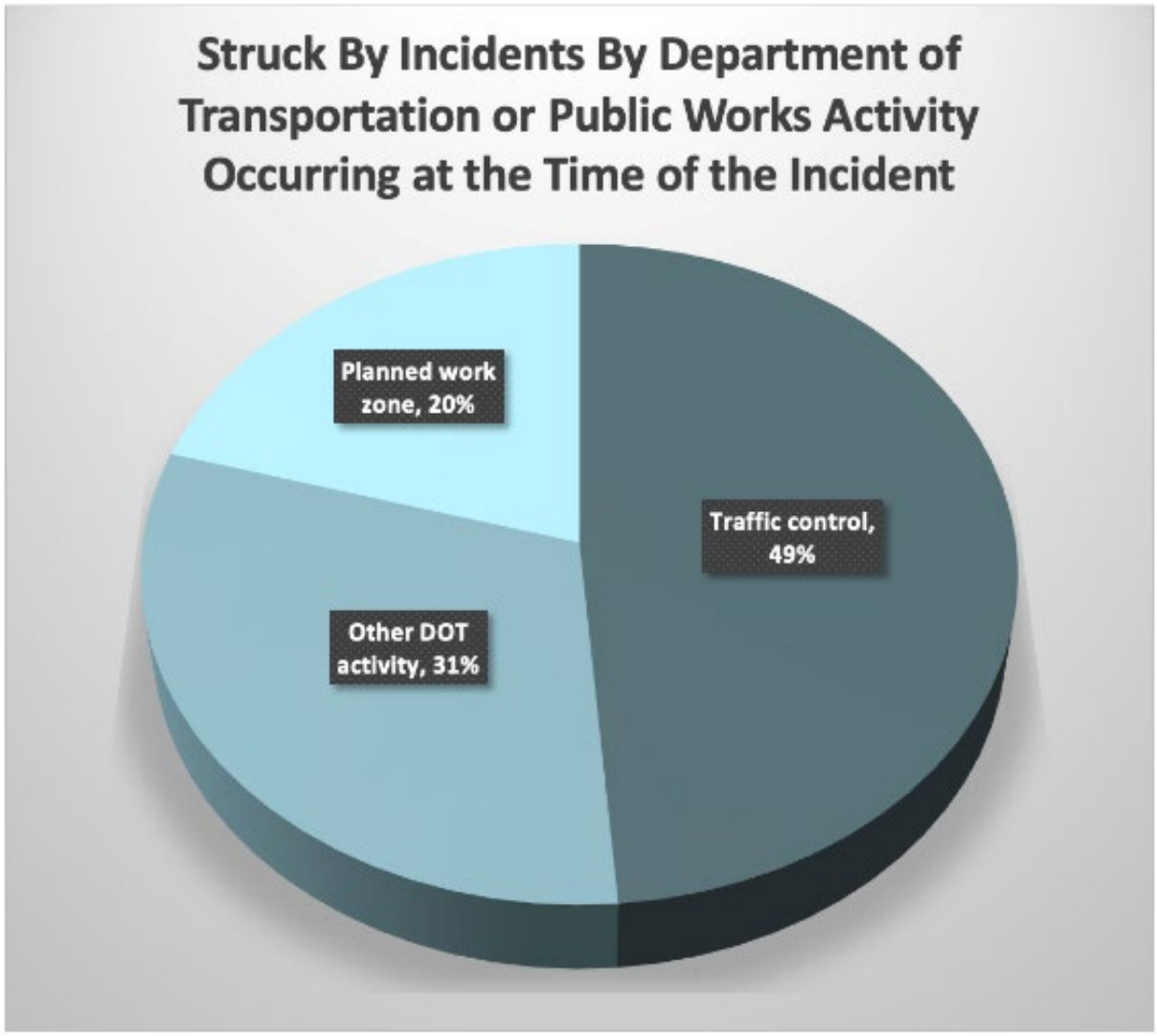

Figure 14 – Department of Transportation or Public Works activities in progress when the incident occurred

Twenty-eight percent of the submissions indicated the towing/recovery/road service technician activities that were in progress when the incident occurred (Figure 15). The most frequent responses were disabled vehicles or motorist/public assists (47%) and vehicle clearance (28%). The other 25% included public authority calls, other towing/recovery/road service technician activities, motor club calls, private motorist request calls, and road service calls.

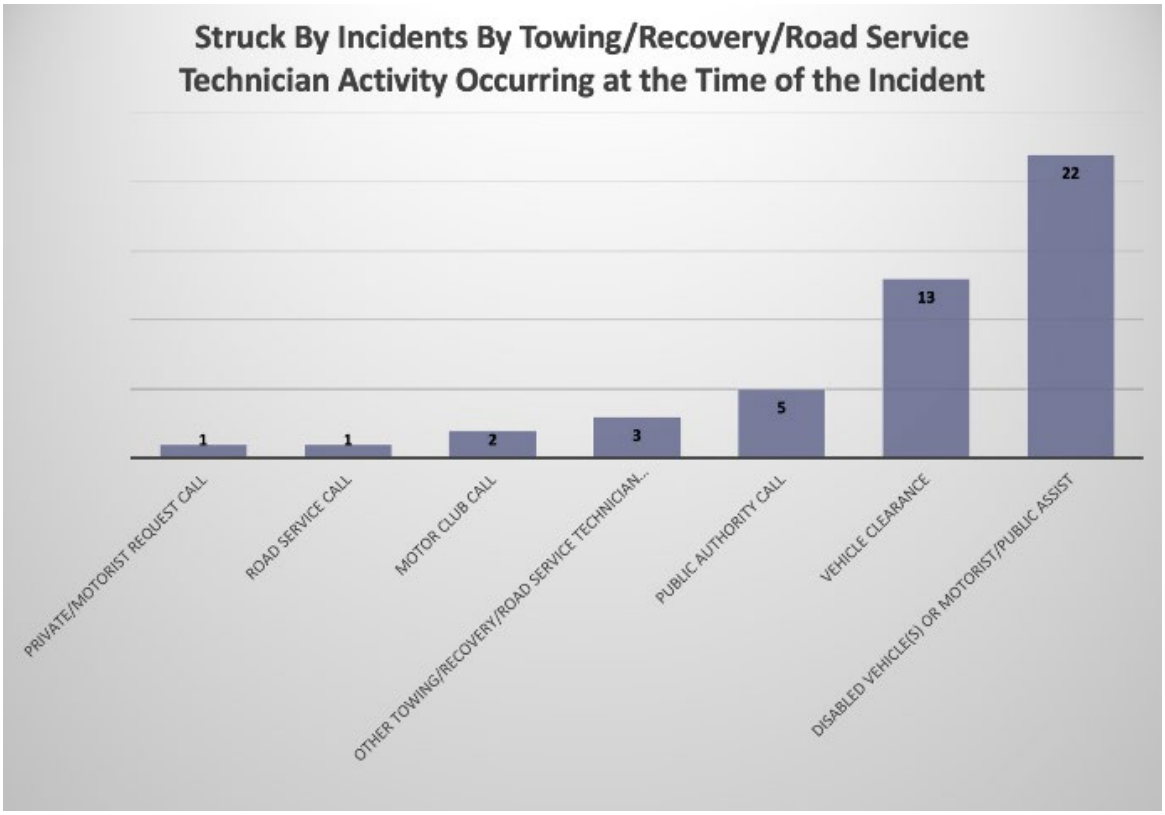

Figure 15 -Towing/recovery/road service technician activities in progress when the incident occurred

The incidents occur across a broad spectrum of service providers with each being exposed to possible impact.

Of the 37 (22%) submissions that indicated the type of emergency vehicle that was the striking vehicle, 24% reported the striking emergency vehicle was a fire department vehicle and 19% reported that it was a law enforcement vehicle (Figure 16). The remaining 57% reported the striking emergency vehicle was a towing, recovery, or road service technician vehicle; a safety service patrol or freeway service patrol vehicle; an ambulance or EMS vehicle; a department of transportation or public works vehicle; and a transportation agency vehicle.

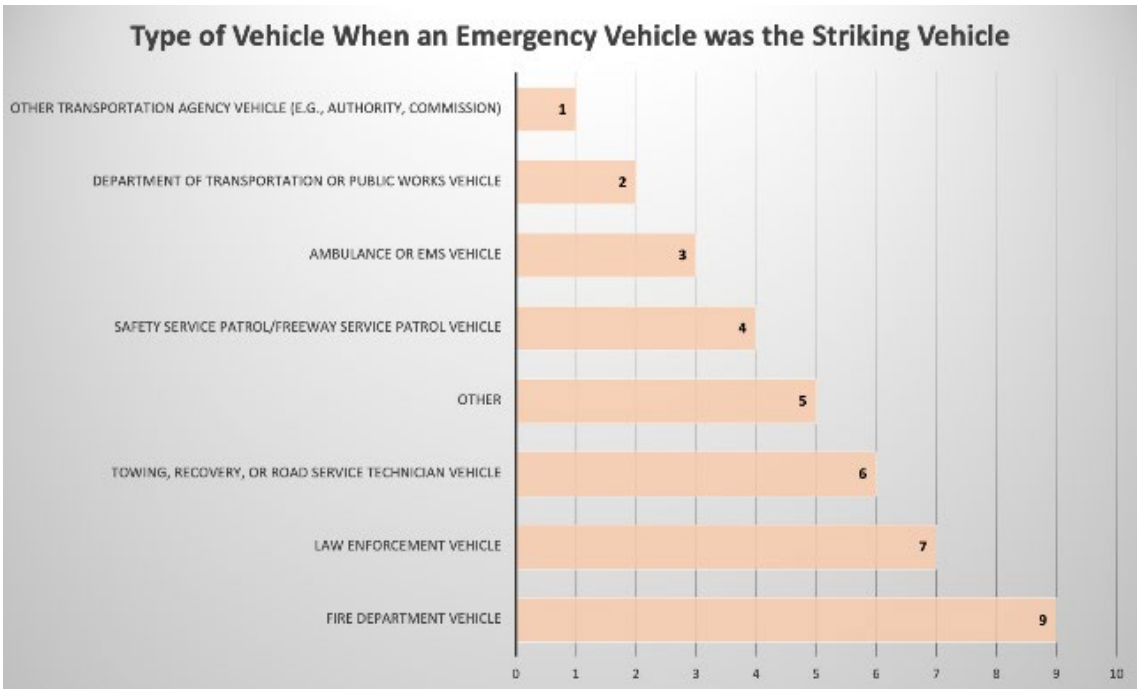

Figure 16 – The type of emergency vehicle that was a striking vehicle at the incident.

Nearly all of the submissions (92%) reported the type of civilian vehicle that was the striking vehicle (Figure 17). The most frequent responses were passenger cars (55%) and sport utility vehicles (19%). The other 26% included pickup trucks, commercial tractor-trailers, commercial single-unit trucks, motorcycles, a work van, a U-Haul cargo van, and a pick-up truck with a horse trailer.

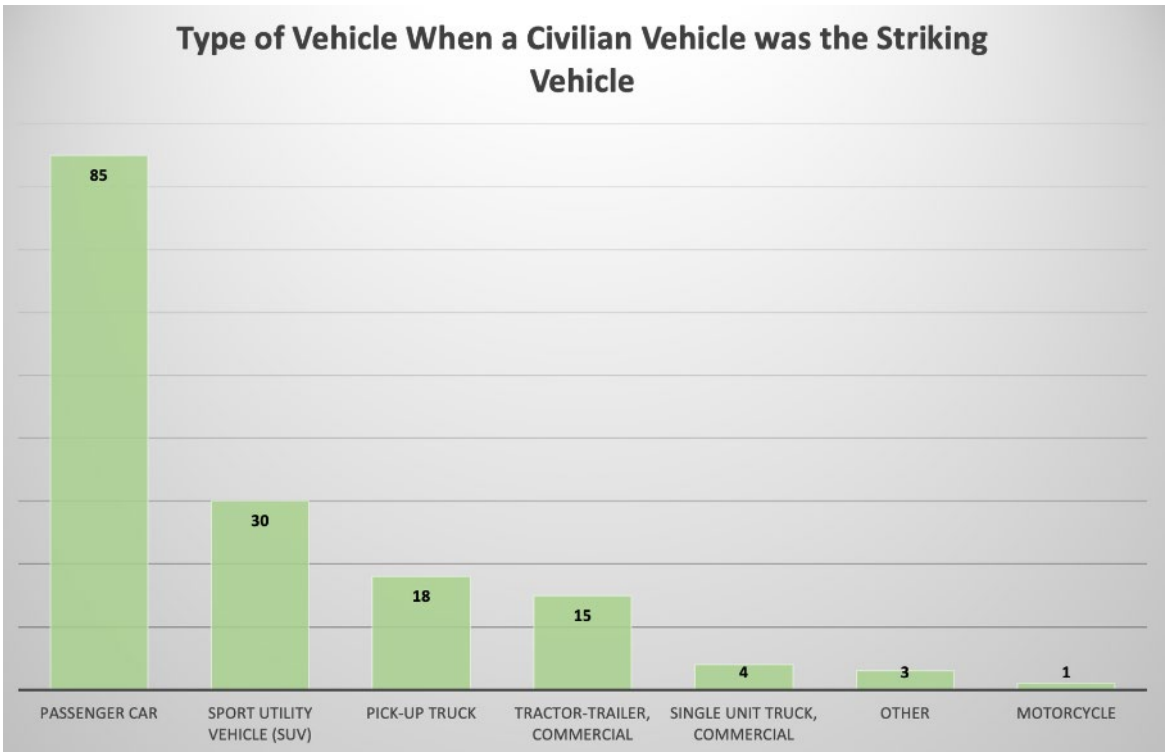

Figure 17 – Type of civilian vehicle that was a striking vehicle when the incident occurred

While there are some situations where an emergency vehicle or service vehicle is the striking vehicle, the overwhelming majority of incidents involve civilian vehicles of which 74% are either passenger cars or SUVs.

All but two of the submissions (98%) reported whether there were traffic control devices in place at the time of the incident (Figure 18). Approximately half (51%) of the submissions reported there were traffic control devices in place, 31% reported there were no traffic control devices in place, and the remaining 17% were unsure.

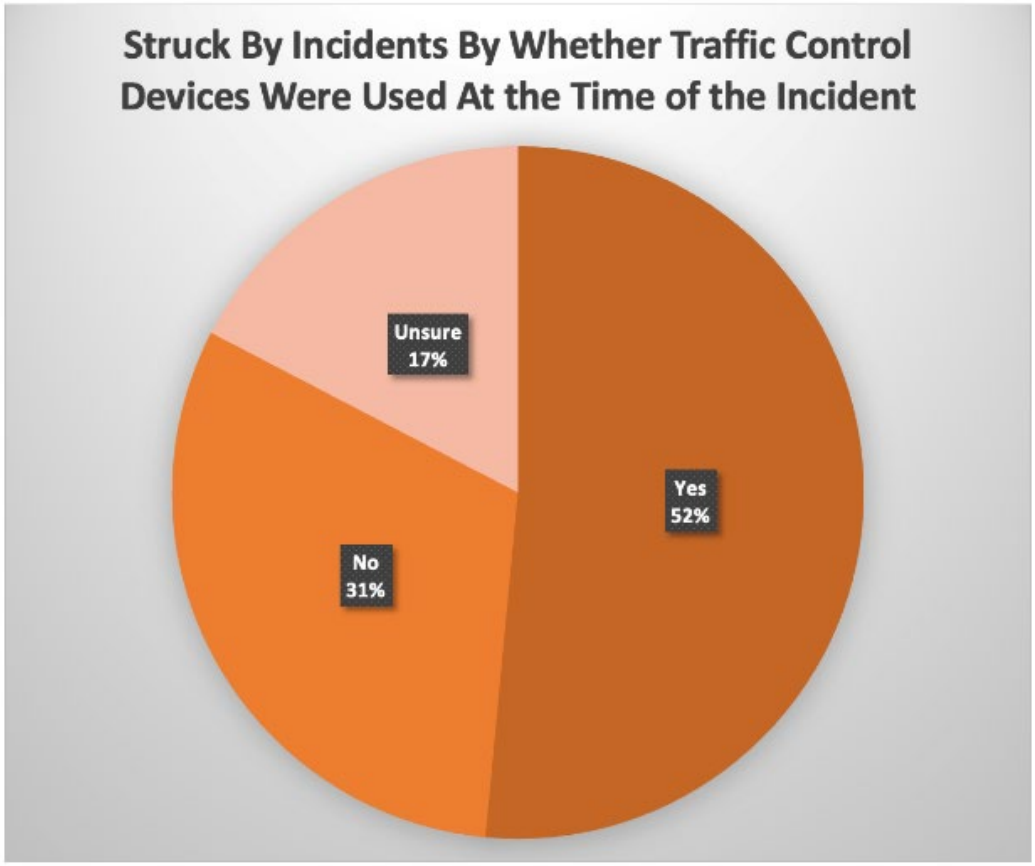

Figure 18 – Struck by incidents identified with traffic control device in use when the incident occurred

Of the submissions that reported there were traffic control devices in place at the time of the incident, all 86 reported the types of traffic control devices used (Figure 19). The most frequently used traffic control devices used were blocking apparatuses (57%) and arrow boards (41%). Other traffic control devices used included traffic cones; advanced warning signs; electronic message boards; flares; personnel directing traffic; full traffic incident management areas; emergency lights; traffic lights; and officers on scene.

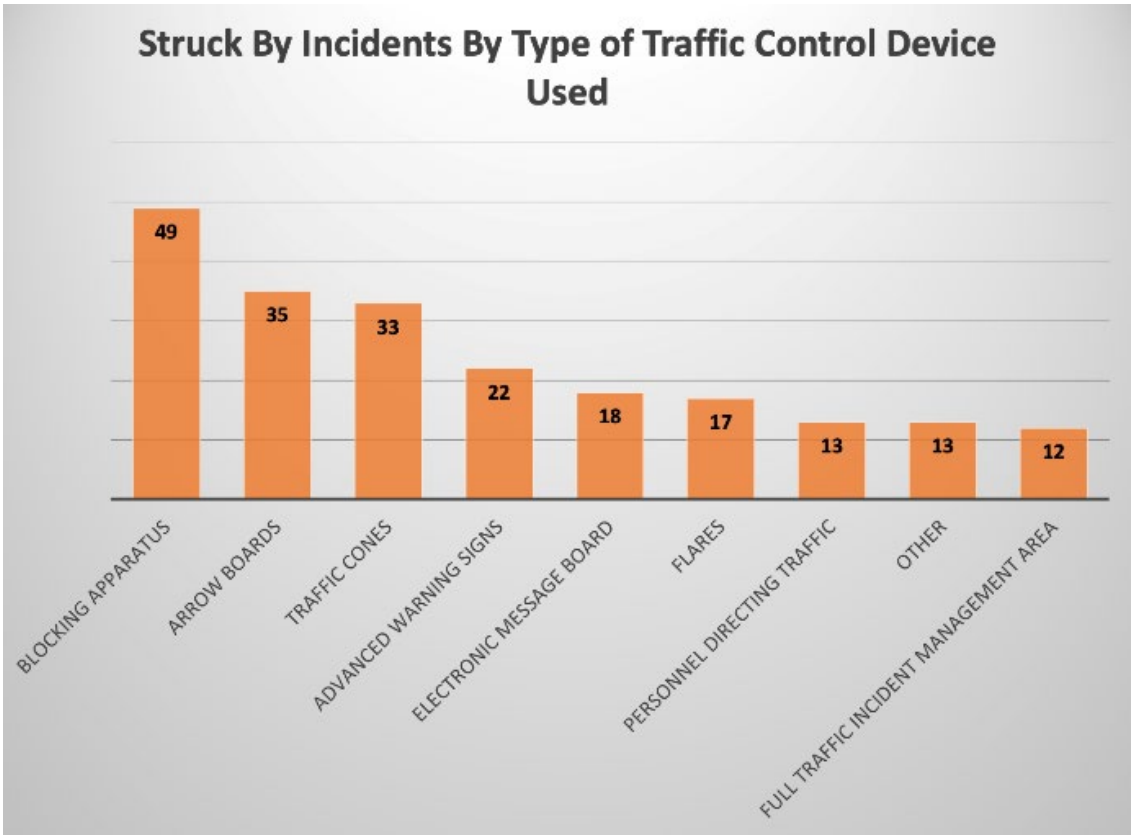

Figure 19 – Type of Traffic control device in use when the incident occurred.

Traffic control devices are in place in most struck by incidents.

Eighty-one percent of the submissions reported whether the emergency response personnel hit in the incident were wearing high-visibility apparel (Figure 20). Most (63%) reported all of the personnel who were struck were wearing high-visibility apparel, 11% reported none of the personnel were wearing high-visibility apparel, 7% reported some were wearing high-visibility apparel, and the remaining 20% were unsure.

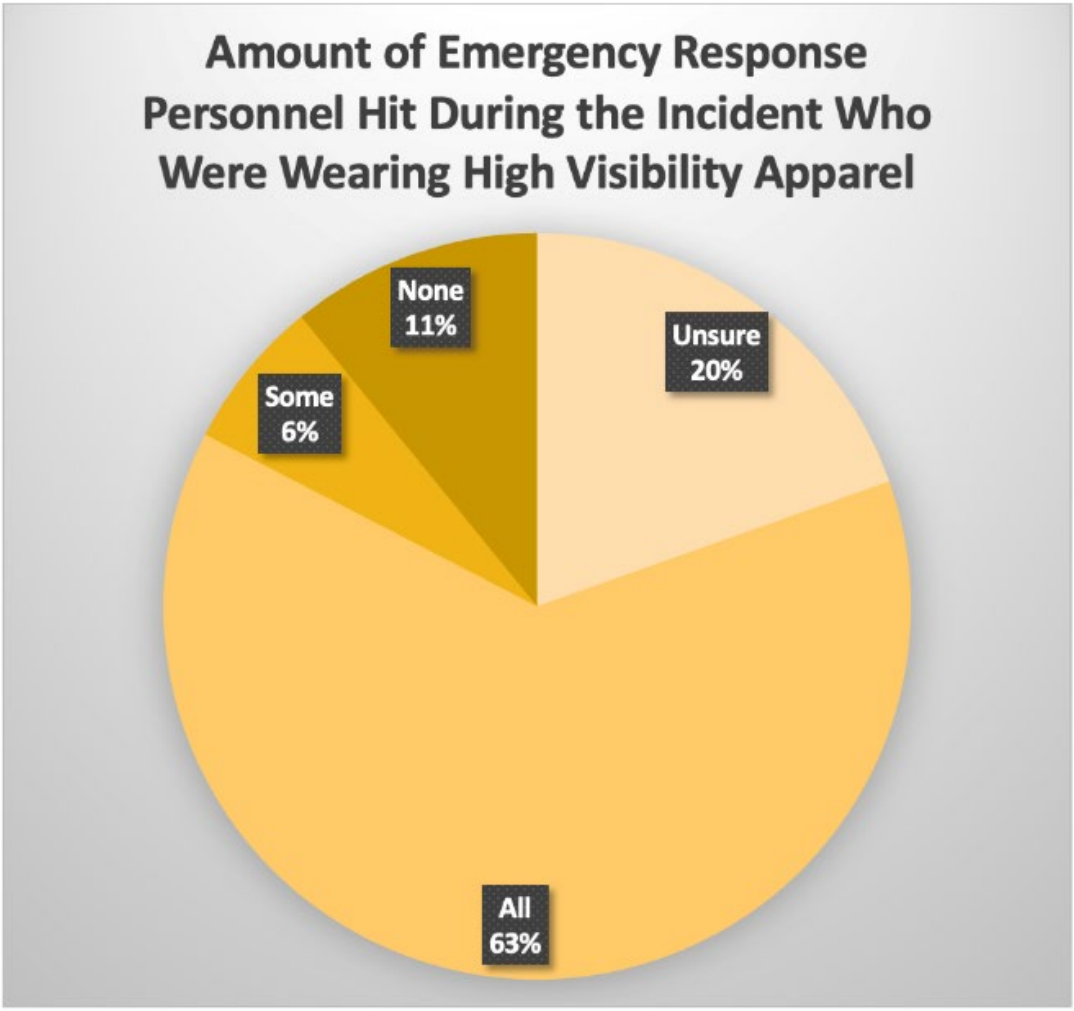

Figure 20 – Reported use of high visibility apparel by emergency personnel when the incident occurred

Proper personal protective equipment is worn in almost all struck by cases.

In Summary

The data provides insight into a number of important variables to consider and act upon in attempting to reduce struck-by accidents. This may result in actions such as standard operating guideline modification, personal protective equipment upgrades, or suggested changes to regulations and standards.

It typically takes 3-4 minutes to complete this reporting form. There are twelve very brief sections. All questions are optional. Please provide as much information as you can. If you do not know the answer to a question, skip it.

To report an incident, go to:

https://www.respondersafety.com/struck-by-near-miss/report-a-struck-by-incident/

Crash Responder Safety Week

Crash Responder Safety Week (CRSW) takes place annually the second week of November, this year its 13 – 17, 2023. This Federal Highway Administration (FHWA) sponsored initiative communicates the simple steps everyone can take in keeping our roadway responders and the public safe around traffic incidents. Every minute of every day, law enforcement, fire and rescue, emergency medical services, public works, transportation, towing, and other responders work roadside to make roadways safe for all road users. These traffic incident responders put their lives at risk when clearing each of the nearly 7-million annual motor vehicle crashes or the broader range of incidents such as stalled vehicles or roadway debris. CRSW is an opportunity to promote road user awareness and adherence to Move Over laws and Traffic Incident Management (TIM) training for all traffic incident responders. **https://ops.fhwa.dot.gov/tim/crash_responder.htm**

This years theme is “Protect Those Who Protect You”

About the Authors.

The authors of this report are Ph.D. candidates at Temple University’s _____ School of Criminal Justice, Sara _____ and Elizabeth Jenaway, currently completing dissertation requirements, various research projects, and undergraduate teaching assignments. The data was analyzed from reports submitted to the aforementioned database. Oversight was provided by project manager William Jenaway, Ph.D.; with subject matter expertise/peer review provided by Jack Sullivan, Steve Austin, Todd Leiss, Rod Ammon, and James Austrich – project steering committee personnel.