Commercial Motor Vehicle/Pedestrian Accidents

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Table of Contents

Table of Authorities

Cases

Statutes

Table of Figures

I. Introduction

The inspiration to write a paper on this topic came from having recently defended a series of cases involving pedestrian accidents. The experience came through jury trials, mock trials and evaluating and working cases up through comprehensive discovery.

This topic merited treatment in a paper both because of the prevalence of pedestrian accidents and how jurors, both actual and in jury research, placed significant responsibility on motor vehicle drivers even in the face of unsafe jaywalking and otherwise unreasonable risk taken by pedestrians.

Serving as a guide post for my write up will be four anecdotal case experiences I was personally involved in. These matters ironically involved fact pattern - accident scenarios that coincide with the three most commonly re-occurring pedestrian accident profiles documented by controlling data in the United States. Throughout this written presentation, I will offer my assessment in what I experienced and view to be critical aspects of the factual dispute and legal risk features of these anecdotal case scenarios. Where no citation to legal, medical or scientific authority is noted, the conclusions or opinions are likely only a trial lawyer's view of things.

Where the point made is the product of the scientific process, official government statistical publication or legal precedence or standard, such references will be cited to.

This writing is intended by the undersigned to trigger awareness to key issues in pedestrian accidents and their interplay with commercial motor vehicles. Against that backdrop, careful evaluation of the pedestrian accident legal, medical and scientific literature revealed that this space is principally unoccupied. That said, the reader of this paper would be well served to review in some detail the referenced comprehensive bibliography and the bibliographies of those sources as some of the most informative available works discussing this issue.

Finally, as the process of learning is a continuum, the author welcomes any, constructive or otherwise, from anyone having taken the time to consider the information presented herein.

II. Overview

Over the course of many years defending, litigating and trying pedestrian v. commercial vehicle accidents and pedestrian accidents arising out of other settings, I have developed perspective on critical issues and strategies on the investigation and defense of these matters. This experience has offered feedback and opinions from experts, juries, witnesses, and accident participants themselves. This information merits consideration in the defense of pedestrian claims and suits involving commercial vehicles.

1. Use of statistics in the defense of pedestrian accidents.

Pedestrian accident statistical information tends to come from police report data and the general consensus is that the majority of pedestrian accidents, including fatalities, are caused by pedestrians. The nature of pedestrian accidents has been catalogued by the available scientific

literature by describing almost other issues the nature of the entry point into the roadway by the pedestrian, the age of the pedestrian, whether the pedestrian is impaired or distracted in any manner, the state of artificial lighting in the area of an accident, speed limits and general actions of motorists.

The takeaway from pedestrian accident data is that pedestrians engage in risky behavior and it is validated in a fairly representative block of scientific studies, some conducted in the United States, others in foreign countries.

In era where tort litigation and trials for example are often saturated by attempts to offer evidence of commercial driver risky behavior, the pedestrian accident data model provides a scientific starting point on mounting a defense to the claim or suit brought by pedestrians. From an advocacy standpoint, the persuasive impact of having compelling accident statistics can counter anti-motor carrier bias and anti- truck driver bias encountered through this type of litigation.

To aid the risk management professional and motor carrier defense lawyer, this paper has assembled a bibliography containing studies and corresponding data that chronicle the variables of the most commonly reoccurring pedestrian accident scenarios.

2. Using good science - accident reconstruction, human factors and toxicology to correlate a subject pedestrian accident to the accident patterns demonstrated in the scientific literature.

Relative to the key claim and litigation issue of causation, it is persuasive when the pedestrian decision making or lack thereof leading up to an accident, fits the profile of risky pedestrian behavior in the general sense. It supports the conclusion that the behavior of the subject pedestrian was scientifically prone to increasing the prospect of an accident to occur.

Invariably in all pedestrian accident cases, two key components must be established when assessing the behavior and decision making of a pedestrian. First, that the time and distance considerations between the pedestrian and a commercial motor vehicle are scientifically explained via accident reconstruction by the available physical evidence. Second, that the acceptance of risk made by a pedestrian (human factor considerations) was unreasonable given their assumptions of how quickly they could cross a roadway or what an expected perception reaction of an oncoming commercial motor vehicle driver would be.

As the cited statistics confirm impairment by alcohol or drugs is a common feature in pedestrian accidents as is nighttime conspicuity. Also, distractions by cell phone is becoming more prevalent in pedestrian accidents. Consequently, in a high percentage of pedestrian accident claim or suit defense, use of the three disciplines of accident reconstruction, human factors and toxicology are necessary. Evidence preservation of BAC levels, cell phone usage, autopsy results, walking habits of the pedestrian, visibility of the pedestrian clothing in nighttime accidents are critical to reasoned claim or case assessment.

Obviously in the modern age with so much on board technology available, electronic evidence will be vital to preserve. But even in the presence of this type of accident documentation

technology, it is helpful to document and preserve that pedestrian information that serves to line up your particular accident with the known unreasonable risk decisions made by pedestrians in the general experience.

3. Nighttime conspicuity and entry point into a roadway.

Most pedestrian accidents occur at night and typically, pedestrians enter the roadway at points other than where the roadway is designed to accommodate entry. Night time J-walking is a deadly combination. Because pedestrian accidents involving commercial vehicles will not typically occur on a residential street, the expected speed limit of a commercial vehicle involved in a pedestrian accident (other than when involving a turn) will trend to be approaching at least 35+ mph. At that rate of speed and with the reach of low beam headlights being approximately 250+ feet, when a pedestrian darts out onto a roadway at night, an approaching commercial truck driver is given virtually no physical opportunity to prevent impact.

Commercial truck drivers are often forced into the night time conspicuity challenge by the fact that pedestrians involved these accidents, chose not to enter the roadway at logical entry points, such as at an intersection or designated crosswalk. In-block accidents are the norm in this scenario and limit what even the most highly skilled and best professionally trained driver can do.

Obviously on board drive cam systems provide gold standard exonerating evidence. But in the absence of that, night time testing, drive approaches are extremely helpful. Reasonable similarity to the accident in question is typically the admissibility standard. Consequently, in the absence of drive cam footage, night time approach simulation study are extremely effective in illustrating the real time challenges of perception reaction.

4. The focus on commercial truck driving education and training for the emergency situation encountered with a potential pedestrian accident.

A recent line of attack experienced by the undersigned is the notion that for commercial truck driving education and training to be effective, it must include hands on, real time, actual behind the wheel or at the minimum, simulator training on the subject emergency situation.

So in the case of the pedestrian accident, a great deal of effort will be spent in surgical dissection of a commercial driver's truck driving school curriculum, orientation, safety training, computer based education dedicated to contending with pedestrian accidents. From the anecdotal experience of the undersigned, pedestrian accident emergency scenario is not going to be a common specific area of instruction. Rather, commercial drivers are trained on good reliable defensive driving techniques to scan the roadway and be aware of their surroundings at all times.

Once in the focused tunnel of a clam or litigation, allegations will be made that the accident scenario involved in a specific accident was never addressed specifically with a commercial truck driver. It will then be contended that the commercial driver was not competent to contend with the emergency situation at hand and that the employing motor carrier, in the face of available public data on pedestrian accidents, should have dedicated specific training to contend with the specific disputed issue.

Truck driving school curriculums and commercial driver safety orientations teach and reinforce the fundamentals of safe equipment handling and defensive driving. Pedestrian accident prevention is best served by refining commercial truck driving judgment and skill of a commercial truck driver.

The new mode of claim and suit presentation however, is to convert what may have in the past background issues, now front and center trial themes. Also where truck driving schools for example are owned and sponsored by commercial motor carriers, this line of attack and case theme is seeing increasing frequency.

Be prepared to defend the state of the art of the commercial truck driver education general model and specific approach undertaken by your motor carrier relating to pedestrian accident prevention. Accomplished truck drivers with long standing varied experience may be tremendous sounding boards to refute this type of contention.

5. Routing of the commercial motor vehicle.

Certain aspects of commercial driving, such as close quarter driving or the making of left turns have been declared to be challenging for even the most skilled commercial driver. The statistics bear out that the majority of pedestrian accidents occur in urban settings, not too surprising given the density of people and vehicles.

That said, jurors logically believe that given the higher frequency of pedestrian accidents in urban settings, that a reasonable and prudent commercial motor carrier should undertake steps to route its drivers away from areas known to be frequented by pedestrians.

In the general experience, certain commercial enterprises with large fleets of vehicles prohibit certain driving maneuvers, left turns for example, given the multiple of variables that a commercial driver has to clear before successfully making such a turn. Municipalities and other government agencies routinely prohibit commercial traffic in particular areas during certain hours of the day or in certain lane positions on certain roadways. In most instances, those considerations deal with competing motor vehicle traffic versus pedestrians, but the logic follows consistently.

Particularly when leaving terminals where juries would expect motor carriers and commercial drivers to be more familiar with their surroundings. Child pedestrian accidents for example tend to occur in proximity to schools, therefore, good route planning should take that into consideration. Other factors such as time of day and particular periods of the year, logically when school is in or out of session, will be expected to at least have been considered in route selection.

Be prepared to discuss all the good measures your motor carrier client undertakes to consider these types of variables in planning its routing, notably in the urban setting. Juries will want to hear that there was a process, grounded in awareness of the environment and common sense to avoid creating the conflict between the commercial motor vehicle and the pedestrian.

6. Dissuading jurors, claimants and plaintiff lawyers of bad assumptions - namely that a pedestrian in the line of sight of a commercial driver is fairly appreciated as a risk by a commercial truck driver.

A former Judge I clerked for told me a story that goes like this:

"A witness to an automobile accident testified that from the vantage of several blocks he was able to perceive the movement of a pedestrian and a commercial motor vehicle and gave an incredibly detailed account of how a particular accident occurred. The lawyer for the commercial motor carrier commented to the witness that it was remarkable that he could see so far with so much precision. The trucking lawyer then asked the witness generally how far he could see. The witness responded 'well each night I can see the moon from by backyard, how far is that?"

Many persons involved in pedestrian accidents or prosecuting/defending pedestrian accidents make a fundamental error in equating having a pedestrian or vehicle within one's line of sight with the ability of appreciating risk presented by the said pedestrian or vehicle and a corresponding opportunity to initiate perception reaction and an avoidance maneuver.

Particularly on flat roadways, daytime, when visibility is perfect, depending on traffic conditions, line of sight may go for a very long way. In the wide open expanse of West Texas for example, I am convinced there are stretches of Interstate 10 where one can see almost forever. But my sense is that it can be scientifically determined on any roadway when an object on a roadway, can be appreciated to be either a pedestrian or a vehicle moving or stopped. Also determinable at some point, is where more or less the pedestrian or motor vehicle is on the roadway and whether they are moving or not. At even closer vantage point, the pedestrian and the motor vehicle become into sharper focus and at some point, each roadway, for a variety of reasons (lighting, topography, orientation of the road) will afford a commercial driver the vantage point of appreciating whether a driver input is required to avoid a conflict with the pedestrian or motor vehicle that is being approached. Conversely, the oncoming presence of the commercial motor vehicle should come into focus at some level by pedestrian or motor vehicle driver being approached.

The science of when something in a line of sight converts into an appreciable potential risk and eventually an actual risk that requires commercial driver input is arguably the most misunderstood concept by jurors, claimants, and lawyers alike. This evolving appreciation merits careful consideration on how best to demonstrate this reality. Left unexplained or presumed to be dealt with simply by imploring the use of common sense is not enough.

Consequently, one of the major takeaways that I would offer to any risk management professional or commercial motor carrier defense lawyer is work to combat this misconception that over the course of a 32+ year courtroom career, is one of the most problematic issues facing motor carrier defendants in pedestrian accidents. Be prepared to diffuse this erroneous notion.

7. Children and elderly pedestrians.

In all bell curves examining the features of the most volatile pedestrian, children and elderly persons appear to be in the greatest risk category. The science suggests that while

pedestrians tend to be creatures of habit and repeat taking of common risks, children and elderly pedestrians tend to be even more pronounced in their risk taking and likely more habitual in their decision making. Relative to how best to use the science to defend a claim or suit, the nature of the risks prone to be taken, walking cadence, processing of information and assumptions made on roadways differ amongst different pedestrian age profiles. Elderly pedestrians are influenced to accept and take risks using an entirely different metric of what is reasonable to them. Factors such as direct access to a destination such as a church, restaurant or store and familiarity with an area may dictate the entry point into a roadway for an elder pedestrian. As compared to children pedestrians whose decisions regarding point of entry into a roadway may be influenced by simply following the lead of other children, having no correlation to convenience or more direct paths of travel.

Finding general scientific treatment of particular aspects of how children and elderly pedestrians function relative to examples of where to enter and attempt to cross a roadway is helpful. The propensity of being distracted by cell phone or the over optimistic estimate of how much ground a pedestrian can cover over a certain time span is helpful to establish behavior known to be consistent with an increased in crash risk.

This approach certainly can prove helpful in diffusing argument that pedestrian accidents are the result of unsafe driving. The point being is that there is a solid foundational basis to place into context the risk taking of virtually all profiles of pedestrians, in all types of roadways, and at varied of entry points at all times of the day.

8. Be prepared to litigate the fitness contest between the ability of the pedestrian to make decisions as to when and how to cross a roadway and your commercial truck driver's physical ability to perceive and react.

So much of the pedestrian v motor vehicle conflict begins with the pedestrian decision as to where to enter the roadway and at what time to do so. Naturally, when the decision making by the pedestrian is so poor, distractions and impairments become the focus of attention.

A reoccurring feature to the investigation and discovery in these matters is the push by claimants to discover the medical fitness of the commercial truck driver to perceive, react and make judgment in emergency settings, such as to contrast that with the pedestrian. Gone are the days when a valid medical certificate could be produced and the inquiry regarding medical fitness of the driver would end.

Common place in the new era of motor carrier litigation including pedestrian accidents is scorched earth discovery seeking driver D.O.T. long forms, medical records, pharmaceutical regiment, VA files, workers compensation files, health insurance and life insurance physical files of commercial truck drivers. In one instance, a plaintiff lawyer is making the unprecedent request for what is tantamount to an IME of a driver to gauge fitness to function in an emergency setting involving a pedestrian accident. While there is no legal precedence for this type of request, I have it now on record of the request having been made. While I am optimistic that the trial court will summarily reject the request, it nonetheless is remarkable that the request is being made.

While the scope of permissible discovery should be guided by the fact that the pedestrian as a claimant/plaintiff is voluntarily placing their medical condition at issue and making it relevant for full assessment, more claimants/plaintiffs are seeking comprehensive medical information on drivers.

To challenge a commercial driver's ability to function in the acute emergency situation, plaintiffs arguments require a far deeper assessment of the medical and medication information offered beyond a valid medical certificate.

For a multitude of reasons, invading the medical privacy of commercial truck drivers is objectionable yet many trial courts are opening up this avenue of discovery. Again, particularly when the perception reaction of both driver and pedestrian are in play, which in the normal pedestrian accident scenario can be expected, aggressive defense against efforts to discover the historical medical information on drivers should be planned and executed where appropriate.

Related to this is the use of medications that may have or may have not been disclosed to motor carriers by a commercial truck driver. Here, the *Havner*[1] causation test, namely the burden of a plaintiff to prove that a certain type of medication is known to have certain known side effects generally such as fatigue or impaired judgment then specifically the facts of the particular pedestrian accident demonstrates physical evidence of a known side effect of a particular medication that is construed to be relevant to the cause of a particular accident.

Anecdotally in this author's experience, the deep dive into the relevant medical and medication prescription history has been more pronounced in the pedestrian accident setting. Likely just coincidental but case experiences that have raised itself as an issue in many pedestrian accident claims and suits. Obviously if these issues are raised, pharmacology and toxicology will become essential features of an expert roster.

9. Pedestrian accidents and the experience of failure to stop and render aid by the commercial truck driver.

Because a collision between a commercial tractor and trailer and pedestrian will often not be felt or perceived by the commercial truck driver, failure to stop and render aid may arise in pedestrian accidents. Obviously in those scenarios where on board technology documents an occurrence, well then the ability to prove particular material aspects of a pedestrian accident may be available. However even in the presence of a strong cadre of on board technology applications, however the failure to stop and render aid issue does certainly arise in pedestrian accidents. Separate counsel may be necessary given the potential for criminal prosecutions against the driver.

While the post-accident behavior of a driver is not relevant to how an accident occurred, it is argued with regularity that such failure to stop and render aid bears upon the state of mind of the driver, thus making it a punitive damages issue.

If failure to stop and render aid is in your case, at least in my experience, when involving pedestrian accident, there is strong prospect that the impact may not have been perceived by the

[1] *Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 732 (Tex. 1997).

commercial truck driver. Further in the event of such occurrence, getting separate counsel involved and demonstrating that the failure to stop and render aid was not causative to the underlying accident should be pointed out where applicable.

10. **That evasive maneuver by a commercial truck driver, namely releasing the foot off the accelerator, covering the brake and being able to perceive and react given a heightened vantage point makes executing an evasive maneuver easier than the avoidance required by a pedestrian to diffuse an emergency situation.**

Many actual and mock trial jurors have expressed a preconceived belief, namely that commercial truck drivers because of their licensure status, training and experience can be viewed to be in a better position to initiate evasive maneuvers that will dramatically reduce the prospect of a pedestrian accident from occurring or far less likely to occur. This issue falls in line with the disproving misimpressions on science which may in a particular claim or suit require refuting.

The travel distance, perception reaction, conspicuity and speed of both the involved vehicle and the positioning of the pedestrian relative to the point of impact are essential considerations.

Again defusing bad science and clarifying corresponding unsubstantiated beliefs that may be held by prospective jurors or the adverse parties is essential to the effective defense of pedestrian accident/claims and suits.

11. **Juries being far more inclined to believe that a commercial truck driver can predict the behavior or intention of a pedestrian that the other way around.**

Right or wrong, the professional licensure status draws many prospective jurors to presume that all things being equal, a commercial truck driver will by training and instinct will be better positioned to determine the "state of mind" of a pedestrian than the other way around. This pre-disposition bias is not grounded in science but like all of these matters must depending on the facts of a particular case be the subject of void dire.

12. **Pedestrian accident data can serve defense counsel well in making for Daubert challenges relative to causation opinions by demonstrating risk taking by pedestrians is unreasonable.**

Speculative conclusions as to what logical pedestrian movements would foreseeable be or the existence of clues or opportunities to detect a pedestrian, are common in the litigation setting. It is imperative to challenge the foundation for all opinions relative to pedestrian propensities in general and in specific application. The cited science can be a tremendous starting point relative to a variety of relevant variables such as information processing, physical capabilities and risk tolerance. These factors are naturally relevant to the causation calculus and opposing experts must be examined in detail regarding these matters. Depending on whether a reliable methodology may be articulated, a viable expert exclusion motion based on Daubert or similar common law may be in order.

III. Scientific Treatment of Pedestrian Accidents

The intersecting issue of commercial tractor/trailer combinations and pedestrians merits evaluation given the increased frequency of pedestrian motor vehicle fatalities in recent years. Pedestrian fatalities increased by 35% between 2008 (4,414) and 2017 (5,977) according to data issued by the Governors Highway Safety Association.[2] Additionally, between 2017 and 2018, nationwide pedestrian fatality accidents increased to 6,227 in 2018, representing a 4% increase from 2017. Statistically, distraction by pedestrians caused by cell phones is the single distinctive cause for this increase.[3] Relative to distraction by pedestrians, smart phone usage in the United States has quintupled from 2010 to 2017 and wireless data usage during this same period has jumped 4,000 %.[4]

As is indicated below, specific data compilations of pedestrian v. commercial motor vehicles are largely absent in the scientific community, but the scientific principles involving all motor vehicles provides a reliable benchmark for considering the case of the commercial motor vehicle.

Graphic 1

Total Fatalities and Pedestrian Fatalities in Traffic Crashes, 2008–2017

Year	Total Fatalities	Pedestrian Fatalities	Percentage of Total Fatalities
2008	37,423	4,414	12%
2009	33,883	4,109	12%
2010	32,999	4,302	13%
2011	32,479	4,457	14%
2012	33,782	4,818	14%
2013	32,893	4,779	15%
2014	32,744	4,910	15%
2015	35,484	5,494	15%
2016	37,806	6,080	16%
2017	37,133	5,977	16%

Source: Fatality Analysis Reporting System (FARS) 2008-2016 Final File, 2017 Annual Report File (ARF)[5]

[2] Richard Rettting & Sam Schwartz, *Pedestrian Traffic Fatalities by State*, GOVERNOR HIGHWAY SAFETY ASSOCIATION 5 (Feb. 2019), https://www.ghsa.org/sites/default/files/2019-02/FINAL_Pedestrians19.pdf.

[3] Vanessa Romo, *Pedestrian Death Reaches Highest Level in Decade, Report Says*, NPR (Feb. 28, 2019), https://www.npr.org.

[4] Danielle Boykin, *Dangers on the Streets*, NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS (Feb. 2020), https://www.nspe.org/resources/pe-magazine/january-2020/danger-the-streets.

[5] U.S. Department of Transportation National Highway Traffic Safety Administration, *Traffic Safety Facts 2017 Data* 2 (March 2019), https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812681.

Graphic 2

Pedestrians Killed in Single-Vehicle Crashes, by Vehicle Type Involved and Initial Point of Impact, 2017

Vehicle Type	Initial Point of Impact on Vehicle										Total	
	Front		Right Side		Left Side		Rear		Other/Unknown			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Passenger Car	2,009	89.6%	65	2.9%	40	1.8%	16	0.7%	113	5.0%	2,243	100.0%
Light Truck*	2,029	88.6%	58	2.5%	43	1.9%	31	1.4%	130	5.7%	2,291	100.0%
–SUV	*977*	*90.5%*	*16*	*1.5%*	*17*	*1.6%*	*15*	*1.4%*	*55*	*5.1%*	*1,080*	*100.0%*
–Pickup	*792*	*85.5%*	*38*	*4.1%*	*22*	*2.4%*	*13*	*1.4%*	*61*	*6.6%*	*926*	*100.0%*
–Van	*243*	*92.4%*	*3*	*1.1%*	*4*	*1.5%*	*3*	*1.1%*	*10*	*3.8%*	*263*	*100.0%*
Large Truck	206	71.0%	20	6.9%	7	2.4%	23	7.9%	34	11.7%	290	100.0%
Bus	25	75.8%	2	6.1%	0	0.0%	0	0.0%	6	18.2%	33	100.0%
Other/Unknown Vehicle	260	51.4%	7	1.4%	5	1.0%	0	0.0%	234	46.2%	506	100.0%
Total	*4,529*	*84.4%*	*152*	*2.8%*	*95*	*1.8%*	*70*	*1.3%*	*517*	*9.6%*	*5,363*	*100.0%*

Source: FARS 2017 ARF

6 *Light-truck totals include other/unknown light trucks.

In 2017, approximately 323 fatality accidents occurred in the United States involving pedestrians v. commercial tractors/trailers and/or commercial buses.[7] What is not recorded are the number of pedestrian v. commercial vehicle accidents resulting only in injuries. In virtually all pedestrian accident claims and suits encountered by undersigned, a combination of accident reconstructionist or human factor engineers collaborate to evaluate the relative causes of these types of accidents.

Graphic 3

Distribution of Pedestrian Pre-Crash Scenarios by Relation to Junction
(Based on 1995-1998 GES)

Rank No.	Basic Scenario Description	Non-Junction	Inters.	Inters. Related	Driveway / Alley	Other	Scen. Freq.
1	Vehicle is going straight and pedestrian crossing the roadway	25.4%	15.9%	3.1%	0.7%	0.3%	45.4%
2	Vehicle is going straight and pedestrian darting onto the roadway	15.5%	2.2%	0.4%	0.3%	0.0%	18.5%
3	Vehicle is turning left and pedestrian crossing the roadway	0.1%	7.6%	0.9%	0.2%	0.0%	8.6%
4	Vehicle is turning right and pedestrian crossing the roadway	0.0%	5.9%	0.7%	0.1%	0.0%	6.8%
5	Vehicle is going straight and pedestrian is walking along the roadway	4.1%	0.0%	0.0%	0.1%	0.0%	4.3%
6	Vehicle is going straight and pedestrian is doing "unknown/other"	3.6%	0.5%	0.0%	0.0%	0.1%	4.3%
7	Vehicle is going straight and pedestrian is not in the roadway	1.8%	0.3%	0.2%	0.2%	0.0%	2.8%
8	Vehicle is backing	1.9%	0.4%	0.2%	0.1%	0.0%	2.5%
9	Vehicle is going straight and pedestrian is playing/working in roadway	1.0%	0.2%	0.1%	0.0%	0.0%	1.2%
10	Other	2.0%	0.5%	0.5%	2.8%	0.0%	5.9%
	Relation to Junction Totals	55.3%	33.4%	6.3%	4.5%	0.5%	100.0%

8

Inevitably, these experts will hypothicate on the projected actions and reactions to certain accident relevant factors – ultimately weighing on proximate cause opinions. In many instances,

[6] *Id.*

[7] Federal Motor Carrier Safety Administration, *Large Truck and Bus Crash Facts 2017* (May 6, 2019), https://www.fmcsa.dot.gov/safety/data-and-statistics/large-truck-and-bus-crash-facts-2017.

[8] Marc P. DaSilva, et al., *Analysis of Pedestrian Crashes*, U.S. DEPARTMENT OF TRANSPORTATION 12 (April 2013), www. nhtsa.dot.gov.

opposing experts will offer opinions regarding pedestrian tendencies without considering the prevailing scientific basis to make reliable reasoned opinions in accordance with Daubert.

The points raised herein, beyond describing many causative variables affecting pedestrians and drivers in these accidents, may form the basis of foundational challenges to unreliable opinions offered by expert witnesses in the litigation setting. From that perspective, it is an aspirational goal for this paper to offer some practical information for the legal practitioner.

Pedestrian accident data collection methodology at a certain level seems crude [to the undersigned] for its complete reliance on the skill of the law enforcement investigative authority. The methodology adhered to in the cited studies referenced in this paper follows the state of the art relative to how the peer reviewed scientific community grounds many of the scholarly offerings on this subject. That said, generally pedestrian crash data comes from law enforcement crash reports. The depth of detail of the investigation and the presence of pre-disposed bias of an investigation will often dictate the helpfulness of the reports. A survey of a representative sampling of the relevant scientific literature, confirms that the approach of accumulating pedestrian crash data in the United States is similar if not identical to that carried out in Europe, Asia and Australia. The data while typically contained in safety studies conducted over several year periods in specific geographical areas, examines repeat accident scenarios to cultivate common features in pedestrian accident causation. Ultimately, the research community looks to offer conclusions to the public safety infrastructure whether in road design, traffic control or safety awareness education and to pass on the good work from these studies to make life safer for pedestrians and motorists alike.

Thus, from the standpoint of the accuracy of the cited data behind the referenced studies throughout this paper, the corpus of the bibliography cited herein and the statistics reflected is reliable and the studies authoritative.

The frequency of pedestrian accidents being as prevelant as they are, allows cataloguing of re-occurring instances and crash scenarios. As noted, this paper draws upon the real life case experience of undersigned to discuss the key macro pedestrian crash scenarios in the context of four distinct pedestrian accidents. These scenarios align with what the National Highway Transportation Safety Administration research confirms are amongst the most commonly reoccurring pedestrian v. motor vehicle accident scenarios. Specifically, the four scenarios include a night time commercial delivery box truck left turn accident involving a young adult pedestrian, a day time left turn accident involving a commercial coach passenger bus and a minor child-approximately 10 years of age, a mid block road entry day time accident involving two elderly pedestrians and a night time rural accident occurring on a service road to a U.S. Interstate involving an elderly pedestrian horserider, stopped on a roadway to load horses onto a horse trailer and a collision with a commercial boom truck.

The vast majority of pedestrian accidents occur in an urban setting.[9] New York, the most densly populated urban center, not surprisingly presents with the highest volume of pedestrian

[9] *Pedestrian Safety*, CENTERS FOR DISEASE CONTROL AND PREVENTION (March 6, 2020), https://www.cdc.gov/motorvehiclesafety/pedestrian_safety/index.html.

accidents. My home town of El Paso, Texas registered a 32% incident rate of pedestrian fatalities within their total count of 2017 traffic fatalities.

Graphic 4

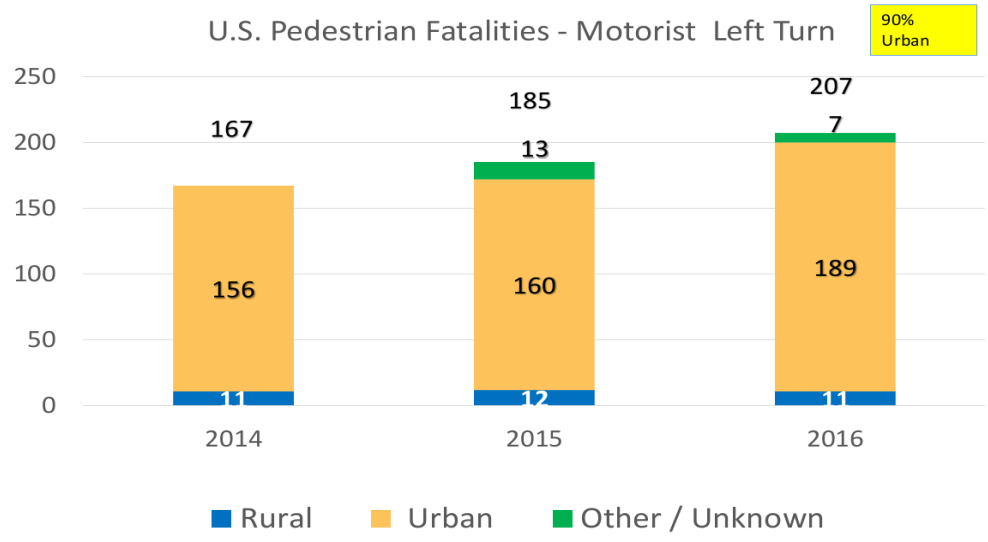
Population, Total and Pedestrian Traffic Fatalities, Percentage of Fatalities Who Were Pedestrians, and Pedestrian Fatality Rates, in Cities With Populations of 500,000 or Greater, 2017 (sorted by highest to lowest resident population)

City	Resident Population	Total Traffic Fatalities	Pedestrian Fatalities	Percentage of Total Traffic Fatalities who were Pedestrians	Fatality Rate per 100,000 Population	
					Total	Pedestrian
New York, NY	8,622,698	207	95	45.9%	2.40	1.10
Los Angeles, CA	3,999,759	257	116	45.1%	6.43	2.90
Chicago, IL	2,716,450	147	41	27.9%	5.41	1.51
Houston, TX	2,312,717	245	73	29.8%	10.59	3.16
Phoenix, AZ	1,626,078	249	98	39.4%	15.31	6.03
Philadelphia, PA	1,580,863	94	37	39.4%	5.95	2.34
San Antonio, TX	1,511,946	146	45	30.8%	9.66	2.98
San Diego, CA	1,419,516	74	31	41.9%	5.21	2.18
Dallas, TX	1,341,075	194	52	26.8%	14.47	3.88
San Jose, CA	1,035,317	45	13	28.9%	4.35	1.26
Austin, TX	950,715	80	23	28.8%	8.41	2.42
Jacksonville, FL	892,062	145	38	26.2%	16.25	4.26
San Francisco, CA	884,363	25	15	60.0%	2.83	1.70
Columbus, OH	879,170	58	15	25.9%	6.60	1.71
Fort Worth, TX	874,168	110	32	29.1%	12.58	3.66
Indianapolis, IN	863,002	96	27	28.1%	11.12	3.13
Charlotte, NC	859,035	103	27	26.2%	11.99	3.14
Seattle, WA	724,745	30	12	40.0%	4.14	1.66
Denver, CO	704,621	49	13	26.5%	6.95	1.84
Washington, DC	693,972	31	11	35.5%	4.47	1.59
Boston, MA	685,094	26	11	42.3%	3.80	1.61
El Paso, TX	683,577	50	16	32.0%	7.31	2.34
Detroit, MI	673,104	103	28	27.2%	15.30	4.16
Nashville, TN	667,560	68	24	35.3%	10.19	3.60
Memphis, TN	652,236	99	37	37.4%	15.18	5.67
Portland, OR	647,805	48	19	39.6%	7.41	2.93
Oklahoma City, OK	643,648	96	25	26.0%	14.91	3.88
Las Vegas, NV	641,676	45	18	40.0%	7.01	2.81
Louisville, KY	621,349	89	21	23.6%	14.32	3.38
Baltimore, MD	611,648	38	17	44.7%	6.21	2.78
Milwaukee, WI	595,351	70	18	25.7%	11.76	3.02
Albuquerque, NM	558,545	84	29	34.5%	15.04	5.19
Tucson, AZ	535,677	64	19	29.7%	11.95	3.55
Fresno, CA	527,438	61	23	37.7%	11.57	4.36
Sacramento, CA	501,901	69	20	29.0%	13.75	3.98

[10] Sources: FARS 2017 ARF; Population – U.S. Bureau of the Census

[10] *Traffic Safety Facts 2017 Data, supra* note 3, at 9.

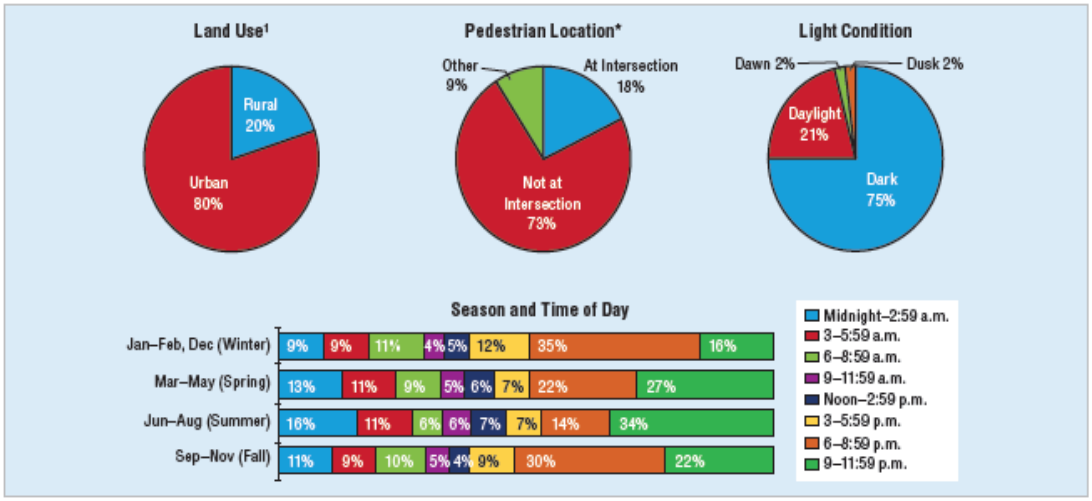
Graphic 5 - Season and time of day of pedestrian accidents



[11]

Graphic 5.1

Percentage of Pedestrian Fatalities in Relation to Land Use,[1] Pedestrian Location, Light Condition, and Time of Day and Season, 2017



Source: FARS 2017 ARF

*Based on location of pedestrian struck at the time of the crash. "Other" includes sidewalk, bicycle lane, median/crossing island, parking lane/zone, shoulder/roadside, driveway access, shared-use path, and non-traffic area, which may or may not have been at intersection, but were not distinguished by collected data. Thus, "At Intersection" and "Not at Intersection" do not include those in the "Other" category that were at intersection or not at intersection.

Note: Percentage values may not add up to 100% due to independent rounding. Unknown values were removed before calculating percentages.

[12] [1] See the U.S. Census Bureau link to define urban and rural areas: www.census.gov/geo/reference/ua/urban-rural-2010.html.

[11] Libby Thomas, et al., *PBIC Crash Type Series Left Turn Crashes Involving Pedestrians*, PBIC WEBINAR (Oct. 25, 2018), http://www.pedbikeinfo.org/pdf/Webinar_PBIC_102518.pdf.

[12] *Traffic Safety Facts 2017 Data, supra* note 3, at 2.

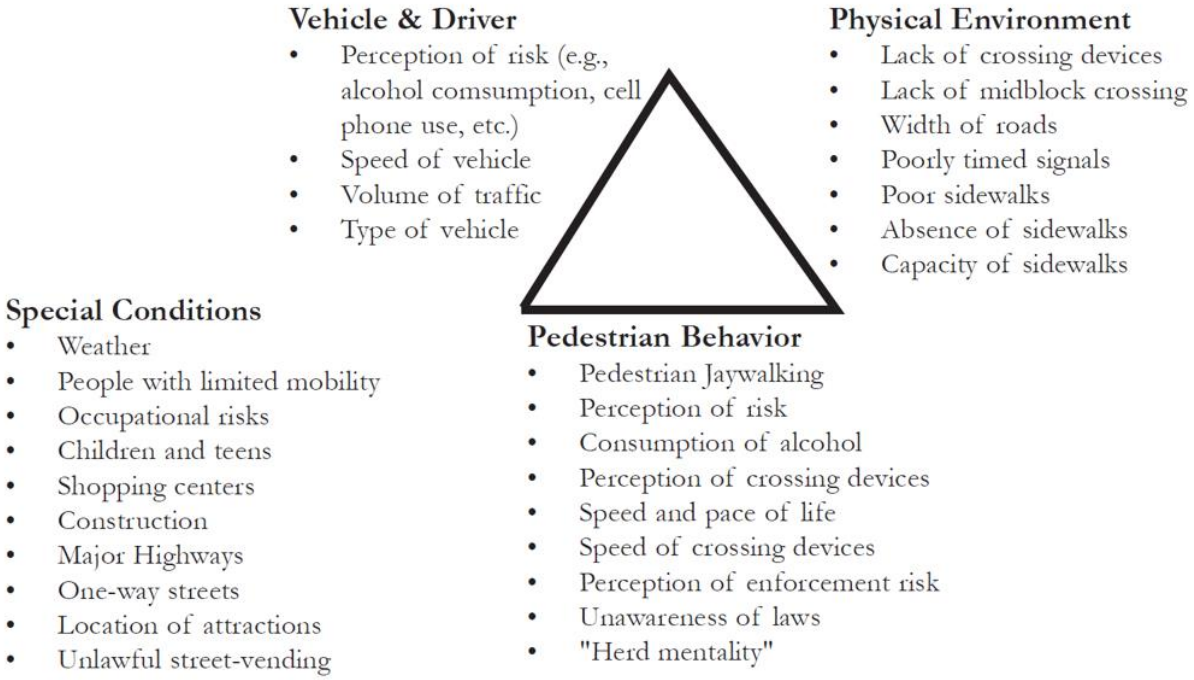
IV. Pedestrian - Commercial Motor Vehicle

Causation Analysis

Causation – analysis of a pedestrian commercial motor vehicle accidents naturally will encounter a host of variables. As the graphic on the succeeding page denotes, the attempt to organize the experience of the pedestrian accident results in identification of variables that are prone to present themselves in the analysis of the causation issue. Those variables include but are not limited to (1) the Pedestrian behavior including where entering the roadway, level of alertness and attentiveness, whether impaired or distracted by a cellular phone, compliance with applicable traffic laws, walking cadence, age, whether the pedestrian has limited mobility and the ability to perceive and react to potential or real hazards, (2) Special conditions such as weather, lighting and nature of the roadway being crossed, (3) The Driver including skill, level of alertness and attentiveness and ability to perceive and react, whether the driving task requires considering challenges from different directions, such as a left turn and (4) The Vehicle speed, whether there are any particular visibility or handling dynamic issues with the vehicle and for injury causation, whether the occurrence is a sedan or a commercial vehicle.[13]

Causation Analysis Variables[14]

Lists multiple specific causes of pedestrian-vehicle crashes along each side of the triangle, as well as a set of special conditions you should consider. Each of these is described next.



Pedestrian-vehicle crash triangle and specific causes of crashes

[13] Justin A. Heinonen & John E. Eck, *Pedestrian Injuries and Fatalities*, ASU CENTER FOR PROBLEM-ORIENTED POLICING (2007), https://popcenter.asu.edu/content/pedestrian-injuries-fatalities-0.
[14] *Id.*

A summary of key pedestrian accident cauasation analysis considerations

2013 Finland based pedestrian study made several interesting findings. [15]

(1). The number of accidents that involved pedestrians against traffic ***is less*** compared to the number of accidents involving pedestrians walking with traffic.

(2). Pedestrian accidents occurring on secondary roads are less than on main roads due to the width of main roads and crossing time.

(3). Fatal pedestrian accidents are more frequent during the weekend. (also cited Kong et. al. – 1996 National Highway Traffic Safety Administration 1992)

(4). The speed of the collision between the vehicle and the pedestrian increases the injury severity.

(5). While accidents in rural communities are less than in urban areas, the injury severity in rural settings is more severe.

(6) Pedestrian injury accidents frequency higher within uncontrolled intersections than in controlled intersections.

(7) Vehicle size showed a positive correlation to the injury severity, i.e. the larger the vehicle, the more severe the injury was.

(8). Increase in pedestrian accidents involving cellular phone use by the pedestrians. Further, higher incidence of cellular phone distraction related accidents for pedestrians under 31.[16]

(9) Higher incidence of pedestrian accidents occur in industrial v. residential areas.

(10) Pedestrians under age 17 and over age 65 are more vulnerable to fatal collisions.

(11) Proximity to schools increases children pedestrian accident frequency.[17]

(12) Pedestrians were at fault in causing accidents at much higher frequency than vehicle drivers.

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[15] Zaniba Bianco, *Analysis of Pedestrian Crash Characteristics and Contributing Causes in Central Florida*, UNIVERSITY OF CENTRAL FLORIDA STARS 9 (2017), Electronic Theses and Dissertations, 2004-2019. 5362, https://stars.library.ucf.edu/etd/5362/.

[16] Jack L. Nasar & Derek Troyer, *Pedestrian Injuries Due To Mobile Phone Use In Public*, NATIONAL LIBRARY OF MEDICINE NATIONAL CENTER FOR BIOTECHNOLOGY INFORMATION (2013), https://pubmed.ncbi.nlm.nih.gov/23644536/.

[17] Zaniba Bianco, *supra* note 14, at 5.

Pedestrian Accident Causation Variables

Graphic 6

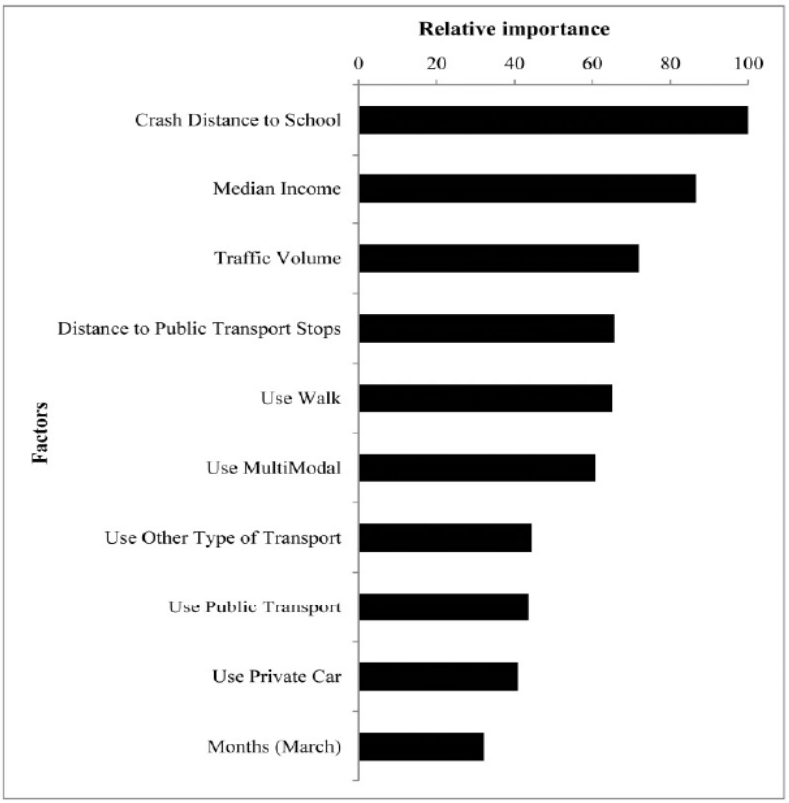
Categorical explanatory variables applied in BDT model.

Variables		Percent	Variables		Percent
Severity	Fatal Crash	0.6	Light Condition	Day	98.1
	Serious Injury Crash	37.5		Dusk/Dawn	1.5
	Minor Injury Crash	61.9		Other	0.4
Day of Crash (school days)	Monday	18.3	Node Type	Intersection	49.5
	Tuesday	23.1		Mid-Blocks	49.8
	Wednesday	18.4		Other	0.7
	Thursday	19.7	Surface Condition	Dry	87.6
	Friday	20.5		Wet	9.1
Time of Crash	Firs Peak (7:00–9:00 am)	32.7		Other	3.3
	Off-Peak (10:00 am–3:00 pm)	67.3	Atmosphere Condition	Clear	90.4
Month of Crash	January	4.8		Rainy	5.8
	February	8.8		Other	3.8
	March	10.4	Pedestrian Gender	Male	54.2
	April	7.9		Female	44.7
	May	11.4	Driver Gender	Male	47.5
	June	7.7		Female	43.8
	July	7.9	Speed Limit	Under 50 km/h	49.6
	August	8.6		60–70 km/h	41.8
	September	9.8		>70 km/h	5.5
	October	8.2		Other	3.1
	November	7.2			
	December	7.4			

[18] Alireza Pour, et al., *Influencing Factors on Vehicle-Pedestrian Crash Severity of School-Aged Pedestrian*, WIT TRANSACTIONS ON THE BUILT ENVIRONMENT, Vol 176 p.3 (2017), https://www.witpress.com/Secure/elibrary/papers/UT17/UT17040FU1.pdf.

Accident Causation Weighted Predictor Variables for School Aged Pedestrian Accidents

Graphic 7



Top 10 relative importance of predictor variables for school-aged vehicle-pedestrian crashes in BDT model.

19

During a journey, the pedestrian needs to perform maneuvers, detect obstacles, and make decisions. An error in these skills or physical limitations of the pedestrian may lead to serious injuries or death as the pedestrian interacts with vehicles. This section presents an overview of pedestrian characteristics including crossing time and visual search at intersections. 15th Percentile. In addition, they found that the walking speed is influenced by many factors such as weather conditions, type of street crossed, signal cycle lengths, medians, and crosswalk markings. [20]

Additionally, while pedestrian v. commercial motor vehicle accidents can occur at any time of the day, conspicuity challenges lead to increased frequency of pedestrian accidents in the

[19] Alireza Pour, *supra* note 17, at 7.

[20] Dominique Lord, et al., *Pedestrian Accidents with Left Turning Traffic at Signalized Intersections; Characteristics, Human Factors and Unconsidered Issues,* https://safety.fhwa.dot.gov/ped_bike/docs/00674.pdf.

nighttime setting. Commercial driver perception reaction systemically evaluated under the metric of hours of service naturally raise the question of work hour compliance, necessary sleep and rest and the attentiveness of the driver. Coupled with the fact the presence of registered blood alcohol content rises in pedestrians involved in nighttime accidents.[21]

In the experience of the undersigned writer, the complete causation analysis of the commercial vehicle v. pedestrian accident would further factor in (1) the speed, reach of head light illumination and maintenance of the lane position of the commercial driver, (2) a reasoned decision by the pedestrian to gauge his entry into the roadway at the point that he does, (3) awareness of the oncoming vehicle, (4) "Circadian Rhythm" attentiveness by the driver to receive and react with the ability to demonstrate either by electronic or written record or anecdotal description of adequate sleep during the 24 hour period before the collision, (5) an absence of impairment to the pedestrian caused by alcohol for example.

These variables touch upon disciplines of accident reconstruction, traffic engineering, human factors, D.O.T. compliance and toxicology.

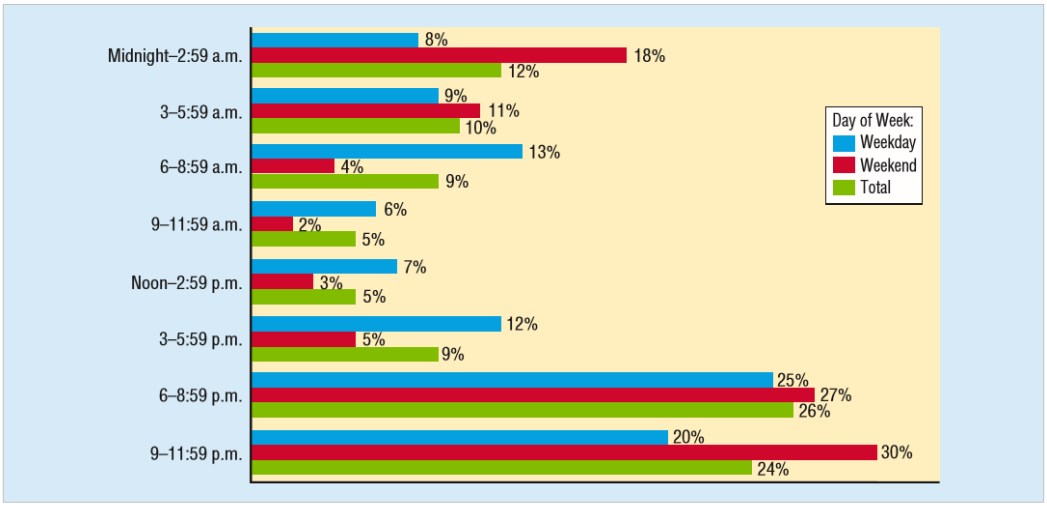
Therefore, as expressed in the introductory remarks of this paper, the pedestrian v commercial tractor accident causation analysis lends itself to being shaped scientifically in a reliable way such that it can be relied upon by the risk management community and legal system.

[21] Justin A. Heinonen, *supra* note 12, at 2.

When are pedestrian accidents more prone to occur.

Graphic 8

Percentage of Pedestrian Fatalities, by Time of Day and Day of Week, 2017



Source: FARS 2017 ARF
22 Note: Weekday: 6 a.m. Monday to 5:59 p.m. Friday; Weekend: 6 p.m. Friday to 5:59 a.m. Monday

Weekend evening and early "wee" morning hours are the highest frequency points for pedestrian accidents.[23] Data correlates to the logical conclusion that a notable percentage of pedestrians during these hours demonstrate a higher frequency of having been impaired or potentially impaired[24]. The other notable conclusion is that as nighttime falls, conspicuity becomes an increasingly more serious challenge for both the driver and pedestrian.

Graphic 9

Alcohol Involvement in Crashes That Resulted in Pedestrian Fatalities, 2017

	Driver, No Alcohol		Driver, BAC=.01–.07 g/dL		Driver, BAC=.08+ g/dL		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Pedestrian, No Alcohol	3,098	53%	96	2%	556	9%	3,749	64%
Pedestrian, BAC=.01–.07	179	3%	9	0%	50	1%	238	4%
Pedestrian, BAC .08+	1,426	24%	91	2%	386	7%	1,903	32%
Total	*4,703*	*80%*	*196*	*3%*	*991*	*17%*	*5,890*	*100%*

Source: FARS 2017 ARF
25 Note: The alcohol levels in this table were determined using the alcohol levels of the pedestrians killed and the involved drivers (killed or survived).

In the case by case experience of undersigned, the location of pedestrian accidents reflects upon several factors including the (a) expectations of the pedestrian and the commercial truck

[22] *Traffic Safety Facts 2017 Data, supra* note 3, at 3.
[23] *Id.*
[24] *Id.* at 5.
[25] *Id.*

driver relative to what their respective rights are on the roadway, (b) perceived driving or walking behavior of the other party, (c) the opportunity to complete a clearance or driving maneuver to accommodate the other user of the roadway, and (d) building in a safety exit plan in the event an imminent accident scenario presents itself requiring evasive maneuver or escape to prevent a crash. These factors begin with the expectations and perceived accident risk by accident participants. These factors then lead to the natural factual disputes that often dictate the resolution of a claim or suit.

The duty to exercise reasonable care for one's and other's safety

Commercial truck drivers and pedestrians assume that others using the roadway will act in a manner consistent with safety and preservation of life. It is axiomatic in the common law that commercial truck drivers and pedestrians may assume that other users of the roadway will fairly meet their legal obligations.

The duty of a commercial driver to keep a proper lookout includes the duty to observe, in a careful and intelligent manner, traffic and the general situation in the vicinity, including speed and proximity of other vehicles as well as rules of the road and common experience.[26]

As to pedestrians, commercial truck owes a duty to exercise due care to avoid colliding with a pedestrian on a roadway. [27] Pedestrians because they utilize the roadway, must show a responsibility to care for their safety. Pedestrians are under a duty to maintain a proper lookout for their own safety. [28] This rule applies whether or not the pedestrian has the right-of-way. [29]

The Texas Department of Public Safety Drivers Handbook delineates a number of rules and safety guidelines for pedestrians. All pedestrians shall obey traffic control signals unless otherwise directed by a pedestrian control signal. When crossing a street at any point other than within a crosswalk at an intersection, the pedestrian must yield the right-of-way to all vehicles, and when crossing a street without using a pedestrian tunnel or overhead pedestrian crossing which has been provided, the pedestrian must yield the right-of-way to all vehicles.[30]

This duty to exercise ordinary care for their own safety has been applied to pedestrians, motorists, and street workmen.[31]

The duty of motorists and of pedestrians on the streets and highways to use due care in the interest of public safety is reciprocal, and the quantum of care to meet the requirements of the law in this regard is preferable to the place and conditions under which it is called in question. [32] On urban streets where pedestrians are numerous and crossings constant, greater precautions are

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[26] *Ciguero v. Lara*, 455 S.W.3d 744, 748 (Tex. App.—El Paso 2015, no pet.)

[27] Tex. Transp. Code § 552.008.

[28] Texas Torts and Remedies § 30.04 (2020), (quoting *Smith v. State Farm Ins. Co*., 431 S.W.2d 775, 779 (Tex. Civ. App.—Beaumont 1968, writ ref'd n.r.e))

[29] Texas Torts and Remedies § 30.04 (2020), (quoting *Lane v. Dallas Transit Co.*, 331 S.W.2d 821, 823 (Tex. Civ. App.—Amarillo 1959, writ ref'd n.r.e.))

[30] Texas Department of Public Safety, *Texas Driver Handbook* 64 (2017), https://www.dps.texas.gov/internetforms/forms/dl-7.pdf

[31] *Via Metro. Transit v. Garcia*, 397 S.W.3d 702, 705–709 (Tex. App.—San Antonio 2012, pet. denied.)

[32] *Koock v. Goodnight*, 71 S.W.2d 927, 930 (Tex. Civ. App.--Austin 1934, writ ref'd.)

required for safety of pedestrians.[33] To that end, speed limits for motorists are reduced, safety zones provided, traffic police, stop signals, and intermittently changing lights are frequently in operation. Pedestrians are usually required to cross streets at designated places, but where that is not done, courts have uniformly held that a pedestrian crossing in the middle of a block is charged with a greater amount of care for his own safety against injury from motor traffic than when crossing at a street intersection or other designated place.[34] The uniform rule seems to be that the vigilance required of a pedestrian in crossing a street or highway must be proportionate to and commensurate with the dangers involved. [35]

A proper lookout encompasses the duty to observe, in a careful and intelligent manner, for traffic and the general situation in the vicinity, including speed and proximity of other vehicles as well as rules of the road and common experience. [36] Although not required to anticipate negligent or unlawful conduct on the part of others, a motorist is not entitled to ignore plainly visible hazards, even if possessing the right of way and which would have been observed by a person of ordinary prudence similarly situated.[37]

From a general awareness standpoint, the undersigned author opines that a pedestrian is tasked with a duty to exercise care for her safety including the responsibility to remain attentive of risks and threats to her safety as she attempts to enter the roadway. This responsibility would require (a) stopping and checking her surroundings for competing traffic as she changes direction and begins initiating a change in walking path she is using, (b) maintaining awareness of her conspicuity with competing traffic and confirming that in fact motorists can in fact see her and that she communicates the intention of crossing the roadway at the cross-walk or intersection (c) if the pedestrian cannot confirm that motorists are able to see her as she begins to initiate a crossing of a roadway, that she utilize adequate personal reflective equipment or appropriate clothing to afford motorists an opportunity to see her and (d) Avoid engaging in activity that distracts from the surrounding traffic environment such as cell phones or head phones that block outside noise including audible warnings.

If an accident occurs in the evening, when conspicuity is challenged and the ability of the pedestrian to confirm motorist awareness of her presence is not similarly limited, then the pedestrian is tasked with a higher level of awareness to the critical need of these safety issues.

The most central of all assumptions is that other parties will yield the right of way. This assumption is essential to ensure reasoned traffic flow.

Texas sets forth that a pedestrian must yield the right-of-way to vehicle operators when crossing the roadway at a place other than a marked or unmarked crosswalk at an intersection, or where a pedestrian tunnel or overhead pedestrian crossing has been provided.[38] When traffic

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[33] *Id.*

[34] *Id.*

[35] *Id.*

[36] *Montes v. Pendergrass,* 61 S.W.3d 505, 509 (Tex. App.—San Antonio 2001, no pet.)

[37] *Id.*

[38] Tex. Transp. Code § 552.005(a)

control signals are in operation at adjacent intersections, pedestrians may cross only in a marked crosswalk. [39]

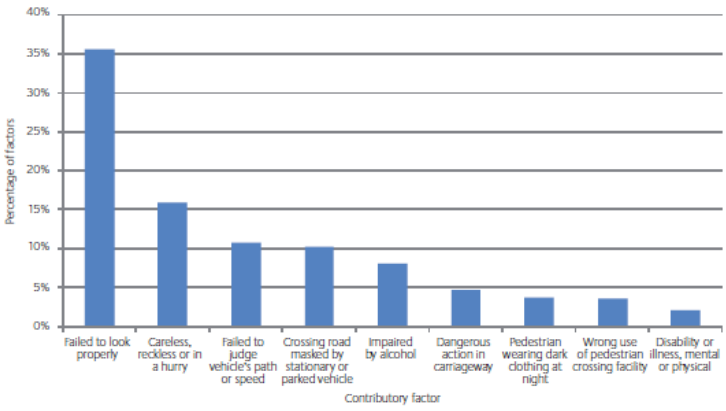
A bona fide dispute may arise as to who arrived at the intersection first, the commercial tractor driver or pedestrian. The right of way dispute will turn on defining the parameters of an intersection. An intersection is defined as: a common area at the junction of two highways, other than the junction of an alley and a highway.[40]

Who enters the intersection first – and who is owed right-of-way?

The Causation Analysis continued

Graphic 10

2011 Data



41

Figure 3.5 Pedestrian contributory factors in KSI accidents in STATS19

[39] Tex. Transp. Code § 552.005 (b)

[40] Tex. Transp. Code § 541.303

[41] RE Cookson, et al., *The characteristics of pedestrian road traffic accidents and the resulting injuries*, TRL INSIGHT REPORT 12 (2011), https://trl.co.uk/sites/default/files/INS009.pdf.

Graphic 11

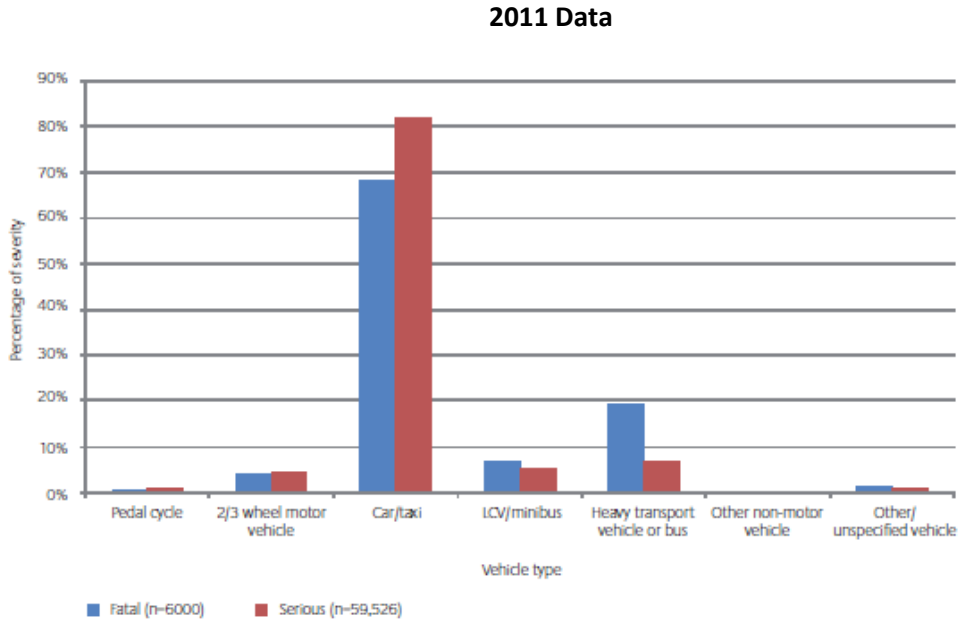


Figure 3.9 Vehicle type related to accident severity in STATS19 for KSI pedestrian accidents

[42]

Graphic 12

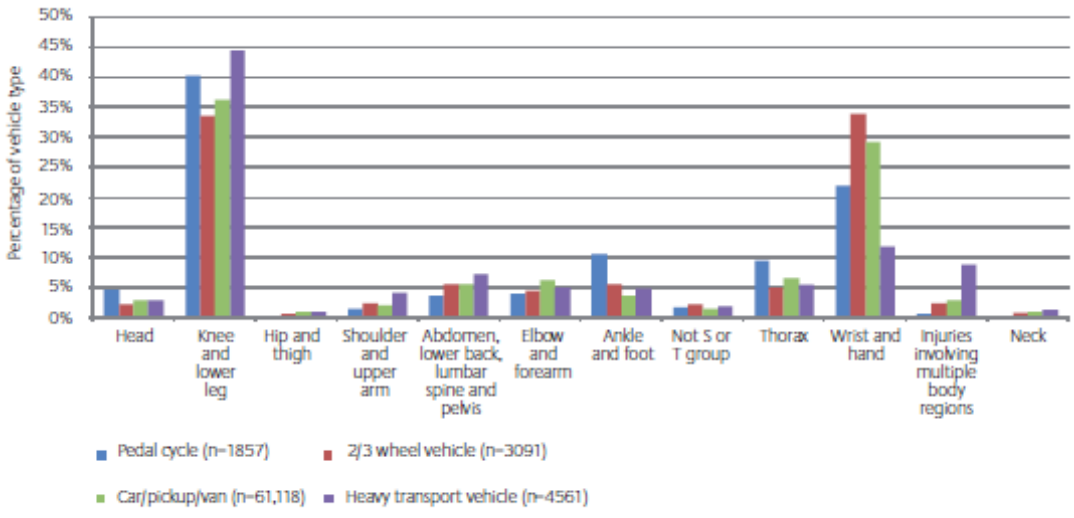


Figure 4.5 Pedestrian injuries caused by different vehicle types in HES

[43]

As indicated at the commencement of this paper, what follows are the 3 case scenarios that illustrate key causation variables in some of the most commonly reoccuring accidents.

[42] *Id*. at 14.

[43] *Id.* at 21.

V. Scenario One — The Nighttime Left Turn

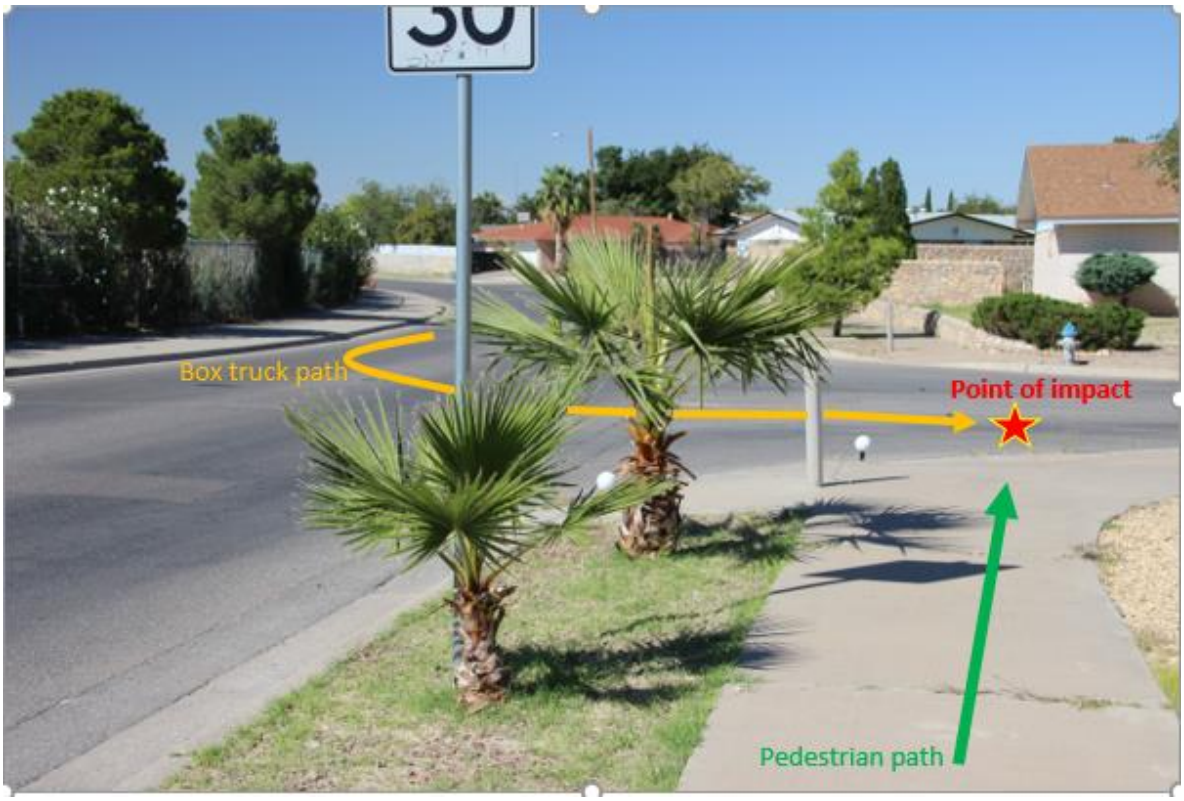
A newly licensed commercial driver operating a consumer package delivery box truck completing a day long route of deliveries. It being approximately 7:24 p.m. and dark, the driver is traveling southbound on a street abutting a commercial use and a residential area. With the speed limit of 30 MPH and traveling approximately 11 MPH, the commercial driver intends on making a left turn onto a residential street. The commercial driver recalls reducing speed from approximately 23 MPH to 11 MPH, having his low beam headlights engaged and ultimately engaging his left turn signal. Upon completing his left turn with the front of his box truck unit facing east, a pedestrian suddenly appears and an impact occurs. The pedestrian had been walking northbound towards the street where the box truck driver was making his left turn.

The pedestrian, an 18 year old female wearing dark clothing, had just been dropped off by a city bus on an adjoining intersecting street, walked in a easterly direction before turning left and beginning to walk north towards the residential street where the impact was soon to occur.

Short palm trees planted in the parkway abutting the home at the corner of the street where the impact would soon occur, would logically have obscured the commercial box truck's driver ability to perceive the pedestrian and potentially the line of sight of the subject pedestrian of the box truck.

Residential street where accident occur

Graphic 13

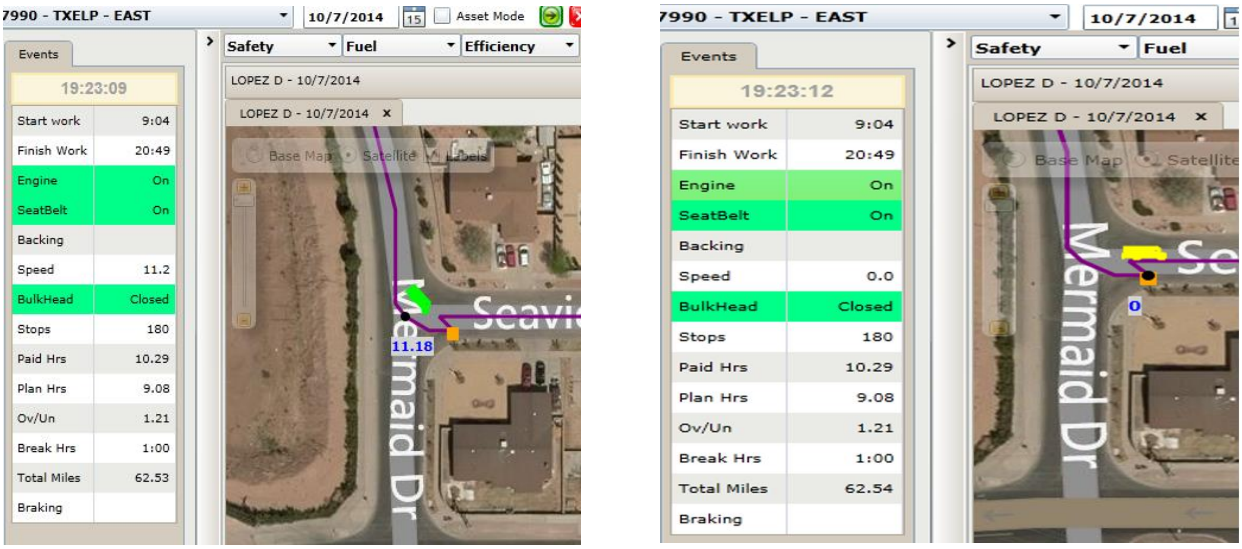


Notwithstanding the fact that the box truck had decelerated, engaged a left turn signal and was logically moving towards beginning to make a left turn, the pedestrian stepped into the street as the turn is initiated. The pedestrian proceeded to walk approximately 10 -12 feet into the street and was struck by the box truck approximately 83 feet from where the box truck driver had commenced his turn.

First responders consisting of ambulance, fire and police responded to the scene. Investigating law enforcement did not cite the commercial driver. The pedestrian was taken to a local hospital where she was diagnosed and discharged with nasal contusions, dental injury, neck & back pain and knee sprain. Ultimately, the pedestrian was said to have developed cognitive impairment as a result of having sustained mild head trauma from the subject impact.

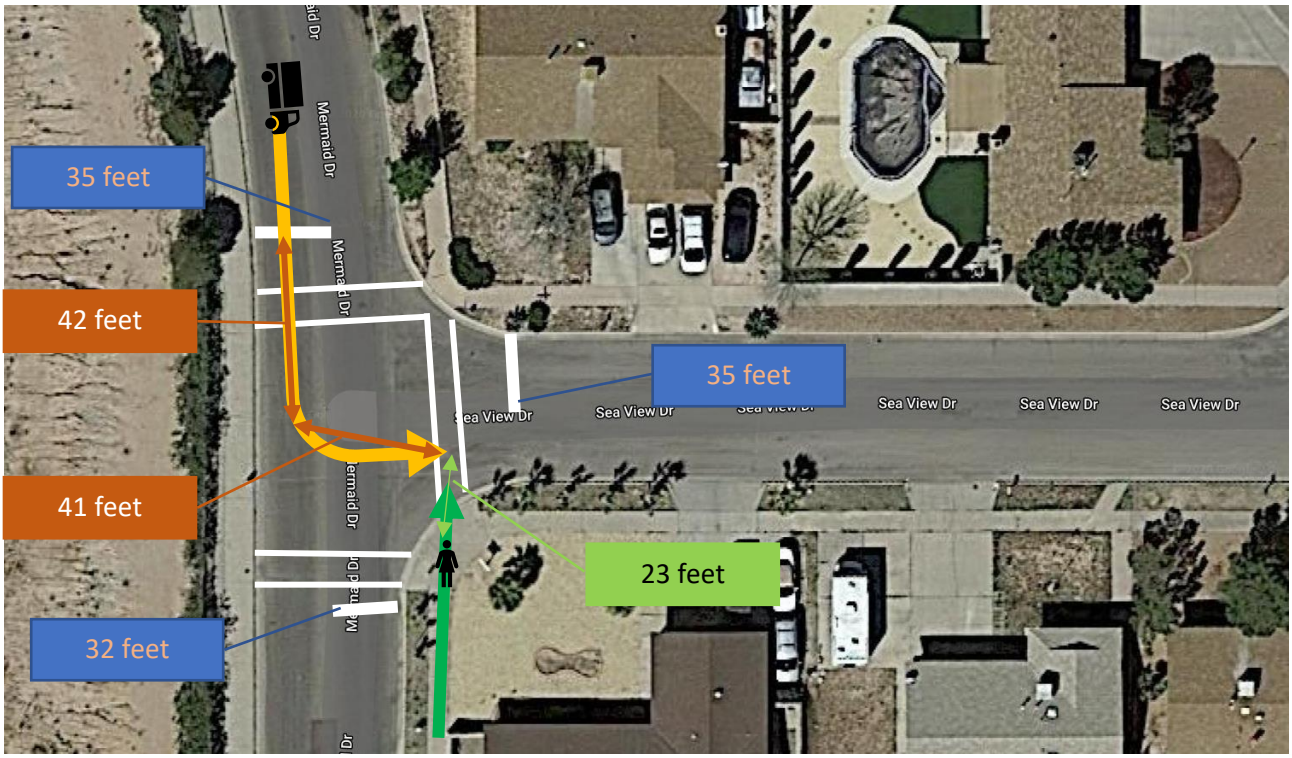
Telematics Print Screen – Documenting movement of the box truck

Graphic 14



The commercial driver, despite decelerating to less than half of the speed limit on the road he was on prior to initiating left turn, with head lamps engaged and executing a good left turn, was unable to avoid impact with the subject pedestrian. As the ensuing image depicts, the debate as between point 1 and 2, noting the respective positions of the driver and pedestrian, triggers the debate of who entered the intersection first and who is thus owed the right of way.

Graphic 15



When they entered the intersection

The truck travelling at 11MPH will take 5.1 seconds to travel 83 feet

The female travelling at 3.1MPH will take 2.8 seconds to walk 13 feet

Under the Texas Transportation Code, an intersection is defined as:
a common area at the junction of two highways, other than the junction of an alley and a highway. Tex. Transp. Code § 541.303.

(a) In this subtitle, "intersection" means the common area at the junction of two highways, other than the junction of an alley and a highway.

(b) The dimensions of an intersection include only the common area:

(1) within the connection of the lateral curb lines or, in the absence of curb lines, the lateral boundary lines of the roadways of intersecting highways that join at approximate right angles; or

(2) at the place where vehicles could collide if traveling on roadways of intersecting highways that join at any angle other than an approximate right angle.

(c) Each junction of each roadway of a highway that includes two roadways at least 30 feet apart with the roadway of an intersecting highway, including each roadway of an intersecting highway that includes two roadways at least 30 feet apart, is a separate intersection.

Graphic 16

Scenario One Causation Analysis

One of the central issues in this case was right of way and who had it. That issue came down to defining what the boundaries of the "intersection" were and calculating who, as between the box truck and the pedestrian, entered the intersection first. Counsel for the pedestrian advocated a position that the intersection as between the pedestrian and the box truck meant the roadway segment where the pedestrian would cross and the box truck would turn into the Eastern most boundaries of the intersection. The obvious defense response was that the intersection included that area where the box truck initially occupied before commencing its turn and the curb line. From that perspective, regardless of how the pedestrian's counsel defined it, the box truck would have been the first to the intersection and thus owed the right of way by the pedestrian. But as is often the case in litigated cases, the precise parameter definitions of what is "an intersection" is not clearly defined by either legal or technical civil or traffic engineering concepts. Consequently, this very all important issue of "right of way" that could ultimately be disposed of by partial summary judgment was to be left to the province of the jury. Notably, juries will be prone to give pedestrians the benefit of the doubt particularly in close calls.

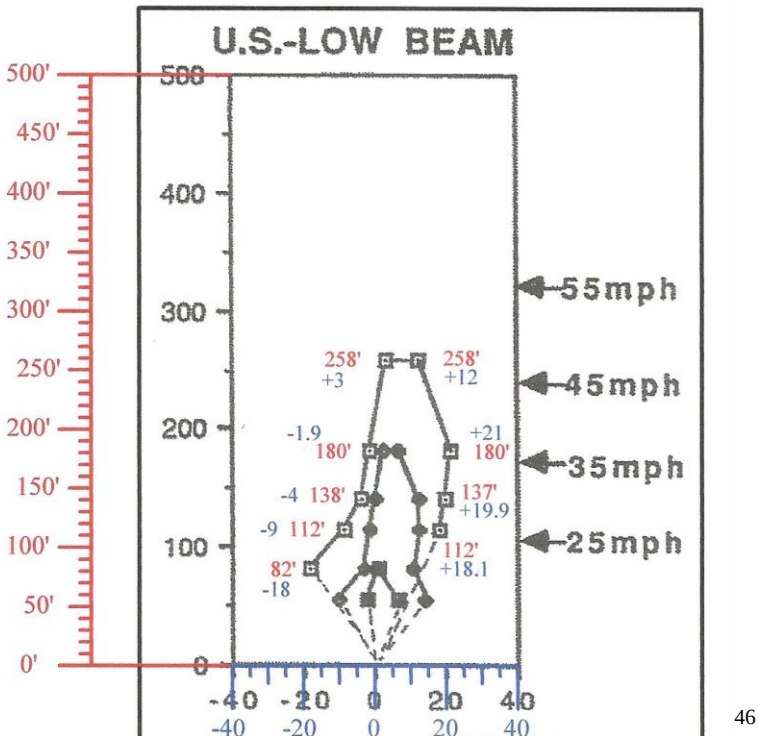
The first in the intersection contention can be readily disputed by the pedestrian who, as in this anecdotal example, indicated her walking cadence was altered after entering the street and in response to the oncoming box truck. The inherent factual dispute as to who, as between the pedestrian and box truck, was in the intersection first and thus is owed the right of way, would have been a quintessential fact issue for the jury. Thereafter, the voice of retained accident reconstructionist, and traffic engineers routinely differ on drawing of intersection boundaries, and thus the race to claim "the right of way".

Beyond the race to occupy the right of way position, several other considerations merit evaluation, including whether the box truck driver, in scanning his mirrors and scanning the roadway he was turning onti could see the pedestrian. The box truck driver testified he did not visualize the pedestrian until almost the point of impact. Additionally, it must be assessed what the appreciation of the box truck making a left turn would have been for the pedestrian. Further, any indication that the pedestrian was engaged in an activity understood to cause distraction, such as a cell phone, headphones or walking a dog, must be considered. If the box driver was in a position to have observed the pedestrian in a potential distractive state, it will be contended the best course of defensive driving would be to reduce speed and defer initiating the turn until the pedestrian cleared the intersection.

This issue will direct further attention to the box driver's maintenance of a line of sight. According to FMCSA, a commercial truck driver traveling below 40 mph should leave at least one second of forward looking visibility for every 10 feet of vehicle length[44]. For a typical tractor-trailer, this results in 5 seconds between the commercial motor carrier and the leading vehicle. For speeds over 40 mph, one additional second should be added[45]. Consequently, in the example discussed above, the commercial box truck should have maintained a total of 5-6 seconds (80-100 feet) of forward facing visibility prior to initiating a left turn. But, so too should have the pedestrian maintained awareness, stop walking, reverse course and avoid the collision.

[44] United States Department of Transportation, *CMV Driving Tips – Following Too Close*, FMCSA (Feb. 11, 2015), https://www.fmcsa.dot.gov/safety/driver-safety/cmv-driving-tips-following-too-closely.
[45] *Id.*

Graphic 17



[46]

Commercial Driver Line of sight leading up to and during left turn – General Principles

The professional truck driver is expected to appreciate and plan accordingly relative to executing an intended driving maneuver such as completing a turn. Traveling speed, deceleration and braking relative to the distance point leading to the turn, scanning of mirrors and appreciating the presence of persons, objects or vehicles in the area encompassed by the turning maneuver and angle of turn are all good features of a well-executed turning maneuver.

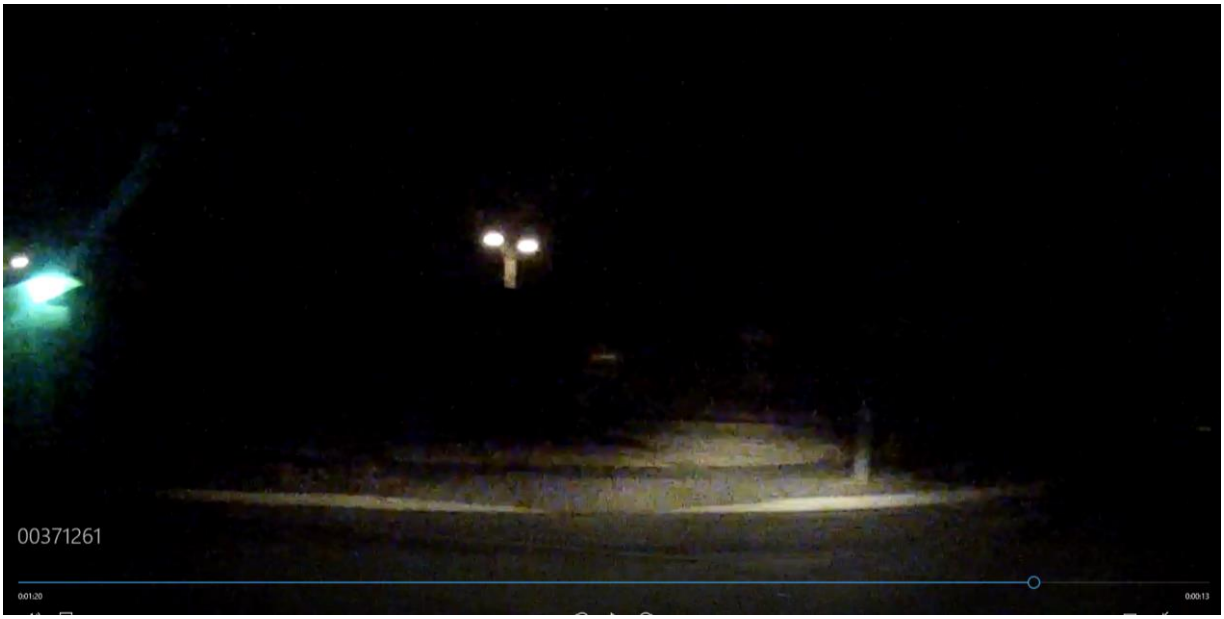
For example, when approaching a left turn, in an area known to be occupied with pedestrians, commercial truck drivers are expected to modulate speed and make reasoned judgment regarding brake application while approaching the turning point. Lookout and scanning the area in front and the area to be occupied by the turning movement is also essential. Avoiding a clipping impact where the distance narrows between the turning tractor/trailer combination and the point where directional change is complete must be avoided. Many times, pedestrians waiting on a curb enter the roadway while the turn by the commercial vehicle is being completed, such a frequently arising occurrence.

In certain scenarios, completion of a left turn has been noted to involve other challenges.

[46] Taylor & Francis, *Human factors considerations in the design of vehicle headlamps and signal lamps,* AUTOMOTIVE ERGONOMICS 185-204 (1993)

Daytime and nighttime view of the intersection above where left turn completed

Graphic 18



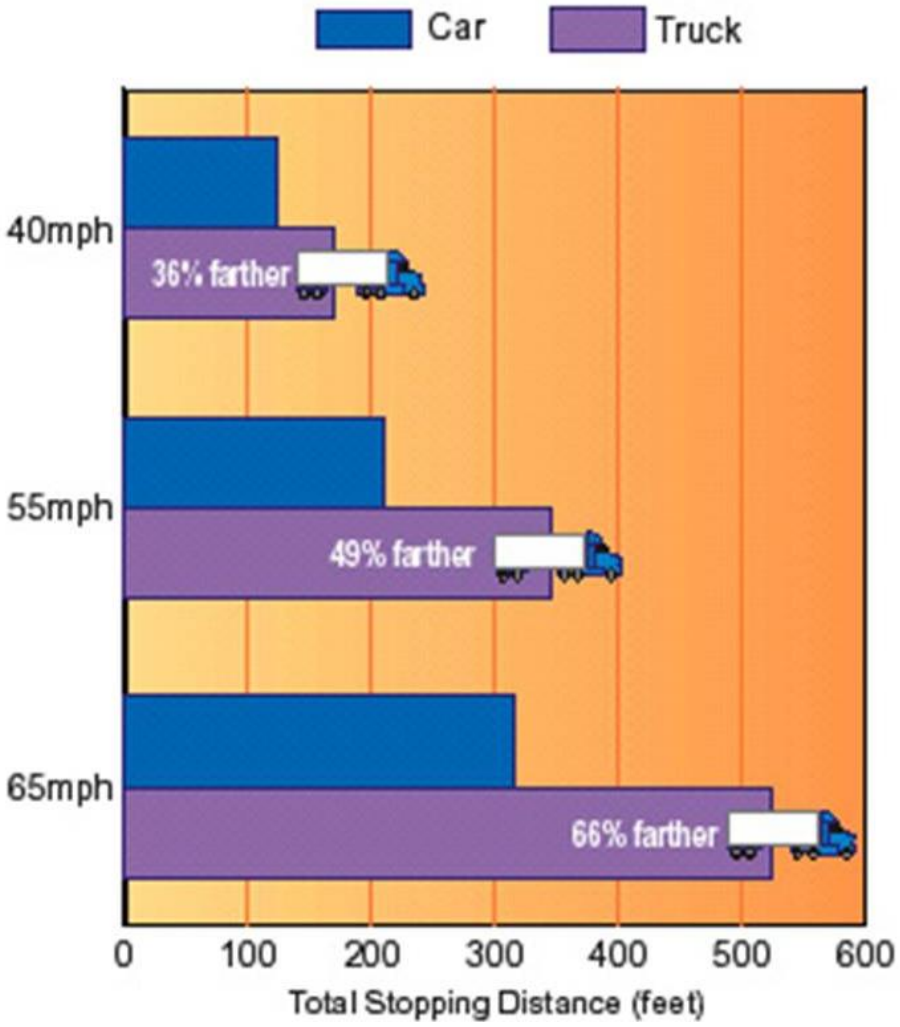
Simultaneous with the box truck driver decelerating and initiating the left turn signal and actually beginning the turn, the pedestrian stepped off the curve. Estimated to have been walking at a normal cadence of 4.5 feet per second, the pedestrian walked approximately 3-4 steps into the street, when an impact occurred.

The Texas Transportation Code provides for an operator to yield the right-of-way to a pedestrian crossing a roadway in a crosswalk if no traffic control signal are in place or in operation and the pedestrian is on the half of the roadway in which the vehicle is traveling or approaching so closely from the opposite half of the roadway as to be in danger.[47]

[47] Tex. Transp. Code § 552.003.

In residential areas with posted speed limits of 35 mph, a commercial delivery box truck on a standard width roadway of 35 feet will take approximately 5.1 seconds to complete a left turn.[48] Assuming, the commercial box truck executes a proper turn, a pedestrian walking off the curve will take (3-4) steps as the commercial vehicle makes its turn walking at a distance of 3 feet per second for a total of 12 feet. In this scenario, the perception reaction of the commercial driver and the stopping distance of the commercial vehicle may turn on seconds to prevent a potential fatality or serious injury accident.

Graphic 19



[49]

[48] United States Department of Transportation, *Methods and Practices for Setting Speed Limits: An Information Report*, FMCSA (Oct. 15, 2014), https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa12004/.

[49] US Department of Transportation of Federal Highway Administration, *The difference between large cars and trucks* (Dec. 10, 2014), https://safety.fhwa.dot.gov/wz/resources/fhwasa03010/.

Perception Reaction – Stopping Distance

Graphic 20

Miles Per Hour	How Far the Tractor Will Have Traveled in 1 Second	Driver Perception Distance	Driver Reaction Distance	Vehicle Braking Distance	Total Stopping Distance
15 mph	22 ft	17 ft	17 ft	29 ft	63 ft
30 mph	44 ft	33 ft	33 ft	115 ft	181 ft
45 mph	66 ft	50 ft	50 ft	260 ft	360 ft
50 mph	73 ft	55 ft	55 ft	320 ft	430 ft
55 mph	81 ft	61 ft	61 ft	390 ft	512 ft

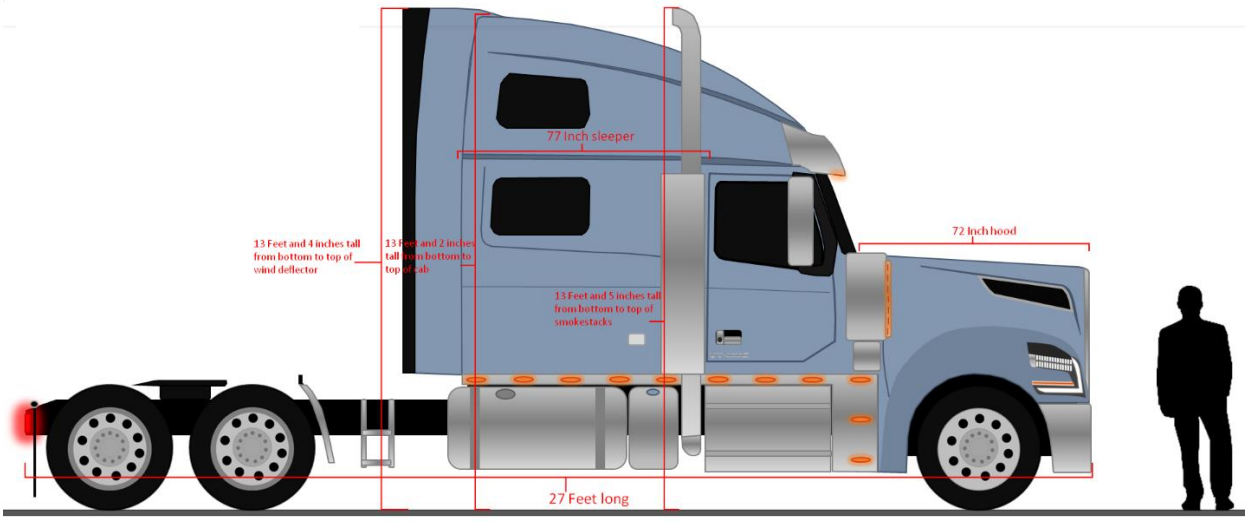
[50]

The increased perception reaction time of 2.0 seconds for a commercial truck driver[51], makes coming to a stop to avoid a collision statistically improbable where the distance between the accident participants is as the anecdotal example depicted in graphic.

Also to be factored into this scenario is the elevated vantage point of the commercial truck driver and whether with the benefit of that perspective a commercial driver should see an oncoming pedestrian.

Standard commercial tractor dimensions

Graphic 21



[52]

The dimensions of a commercial tractor or commercial box truck will similarly effect line of sight that may depending on the accident scenario affect perception reaction.

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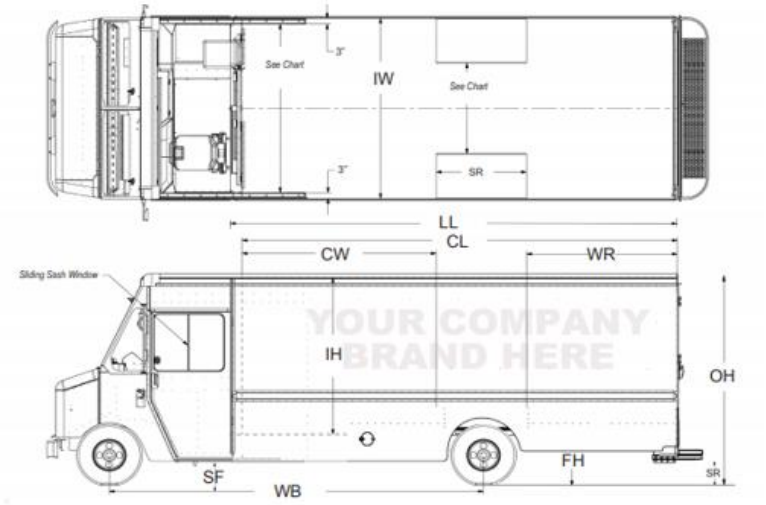
[50] Tolmage, Peskin, Harris & Falick New York's Personal Injury Attorneys, *Driving a Truck Safely Semi Truck Driving Safety Tips*, https://www.stephanpeskin.com.

[51] Kelvin G. Hooper & Hungh W. McGee, *Driver Perception-Reaction Time: Are Revisions to Current Specifications Values in Order*? TRANSPORTATION RESEARCH RECORD 904, http://onlinepubs.trb.org/Onlinepubs/trr/1983/904/904-004.pdf

[52] 2019 Volvo VT-880 dimensions, https://www.deviantart.com/lambo9871/art/Volvo-VT-880-2019-Dimensions-779849460.

Standard box truck dimensions

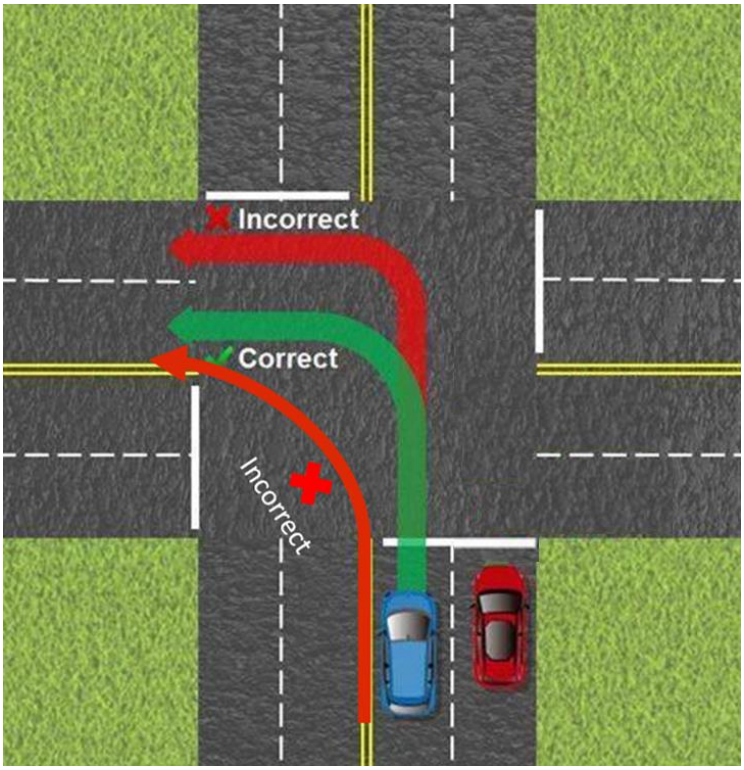
Graphic 22



[53]

Left Turns into the Correct Lane Wed, 2014-01-22 22:10 - DriveSmartBC

Graphic 23



[54]

[53] Morgan Olson, *MT45/MT55 Freightliner Custom Classic*, https://morganolson.com/wp-content/uploads/2014/12/Morgan-Olson-FCCCmt-45.55-chassisBODYrev2016.pdf.

[54] DriveSmartBC, *Left Turns Into the Correct Lane*, https://www.drivesmartbc.ca/intersections/left-turns-correct-lane.

Left turns inherently disrupt traffic flow, namely the commercial operator is called upon to cut across at least one competing lane of traffic[55]. When the left turn is made without an express right of way, the commercial driver is required to gauge distance, relative speed and timing relative to completing a turn within the available time gap. The frequency of pedestrians in, abutting or in proximity to designated or unmarked cross walks add an additional variable the commercial driver must contend with.[56]

Commercial drivers who come at turns at too high a rate of speed to reduce the ability to complete scanning or who because of speed have to shorten the turning radius on a turn, and will in the event of an accident, will be said to not have afforded themselves an adequate opportunity to have safely completed the left turning maneuver.

All commercial truck driver schools and new hire truck driver orientation programs preach and teach defensive driving such as The Smith System. The learned principle for defensive driving is "intentionally driving in such a way as to reduce the risk of an accident".[57]

The challenge of The Left Turn

Recommended defensive driving best practices for commercial drivers making left turns have included:

(1) Have good planning before making a left turn – anticipate making a left turn
(2) Before making the turn, check behind you for traffic approaching from the driver or passenger side
(3) Engage a turn signal indicator before initiating a left turn
(4) As the preparation for making the turn begins, decelerate
(5) Keep wheels oriented straight
(6) Allow oncoming traffic (pedestrians) to clear
(7) Be mindful of pedestrians and yield to pedestrians
(8) Turn into the lane next to the center line
(9) Maintain tractor and trailer position to the right of and close to the center line of the road just entered
(10) Maintain the wheels of units on the right side of the center line

Pedestrians attempting to beat a commercial vehicle through an intersection are a classic driving challenge to be experienced by commercial drivers, thus presenting a classic defensive driving scenario. Scanning mirrors, proper deceleration, turn radius, proper front and side lookout and awareness of blind spots are essential.

It further will be contended that the failure to provide oneself an adequate opportunity to complete a turn for example reduces the ability of a pedestrian to have taken evasive actions to reduce the prospect of an injury occurring.

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[55]AAMVA, *Model Commercial Driver License Manual 2005 CDL Testing Model* 2-18 (July 2010), https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/2005%20CDL%20DRIVER%20MANUAL%20FINAL%20July%202010.pdf

[56]United States Department of Transportation, *Intersection Safety*, FMCSA, (Feb 11, 2020), https://safety.fhwa.dot.gov/intersection/vuln_users/.

[57] United States Department of Transportation, *Defensive Driving Tips for CMV Drivers: An Internet Based Approach*, FMCSA 7 (Sept. 2019).

In addition to the aforementioned risks of left turns, the angle and speed of the executed left turn should not reduce the perception reaction time of a soon to be conflicting pedestrian. Proper form of a left turn increases the perception and reaction time of a pedestrian abutting a roadway facilitating the completion of a left turn and will similarly afford the commercial operator with increased time to scan his surroundings and increase his ability to enter an intersection with increased awareness of his surroundings. Similarly, a wider slower angle will also afford a pedestrian with increased visibility to complete their crossing of the intersection.

THE SAFETY CHALLENGE OF PEDESTRIAN ACCIDENTS WITH LEFT-TURNING TRAFFIC AT SIGNAL CONTROLLED INTERSECTIONS

Approximately one out of five accidents at signalized intersections involve a turning vehicle hitting a pedestrian (2). The split between left-turning and right-turning accidents is about 60/40 (2, 3). Furthermore, the proportion of accidents involving pedestrians and left-turning vehicles varies from 17 to 32 percent of all pedestrian accidents at the intersection. Thus, left-turning movements at signalized intersections represent a considerable safety problem to pedestrians.

With the exception of pedestrian accidents with straight-through vehicles, accidents involving left turning vehicles had the highest proportion of accidents for all types of intersections.

Left-turning drivers can face three different signal alternatives at signalized intersections:

1) the permissive scheme, under which a driver has to let oncoming vehicles cross the intersection before undertaking the left-turning maneuver; 2) the protected scheme, under which a driver can turn without oncoming vehicles disturbing the maneuver; and, 3) the permissive/protected scheme, under which a driver can turn without oncoming vehicles disturbing the maneuver during a segment of the green phase (e.g., flashing green or green arrow). According to Hummer et al. (9), the understanding by motorists of these different signal alternatives varies. These authors conducted a survey of drivers on the different signal alternatives for left-turning maneuvers in California. They found that the protected signals were best understood, followed by the permissive signals and the permissive/protected respectively.[58]

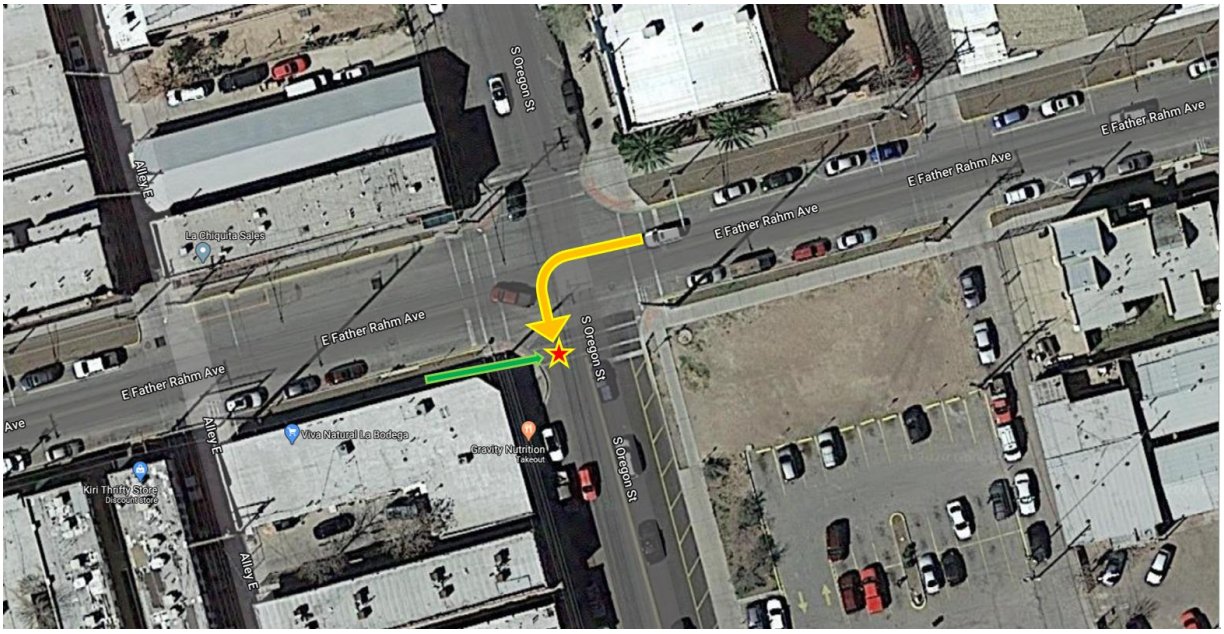
The case of the left turn at signal controlled intersections is not treated in this paper beyond raising awareness of its relative place in potential accident environments.

VI. Scenario Two – Challenges Presented by Children Pedestrians

A day time sunny weather bus accident where a cross-border commuter bus being driven towards a terminal came to a complete stop and, after checking for traffic, pulled away from a stop sign, and began steering left and while in the process of making a left turn collided with a boy approximately 12 years of age. The investigating police officer concluded that the bus driver failed to yield right of way to a pedestrian at an intersection. The bus driver claims to have never seen the boy and the boy, was removed complaining of unknown orthopedic injuries.

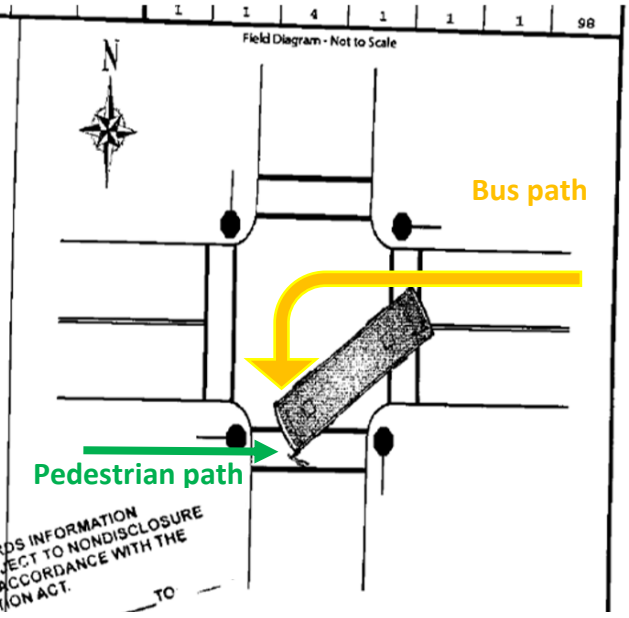
[58] Dominique Lord, *supra* note 19.

The bus driver noted, while clearing the intersection never seeing the boy who entered the intersection walking west to east and misjudging the clearance required by the passenger side of the bus.



Investigator's Narrative Opinion of What Happened
(Attach Additional Sheets if Necessary)

The driver stated he saw 2 vehicles clear the intersection, but he never saw a pedestrian. The driver said that he proceeded to make his left turn and suddenly he felt a bump, but he thought he had struck the curb with the front right tires of the bus…. The witness stated the pedestrian had already started to make his way across the street and was more then 1/3rd of the way across when the bus moved and continued forward even after striking the pedestrian…. The witness said that the pedestrian was dragged by the bus from the original point of impact. A second witness came forward who corroborated the accounts of W1. W2 was standing at the S/W corner of the listed intersection and also stated that the pedestrian was well on his way across when the bus struck him and continued moving….



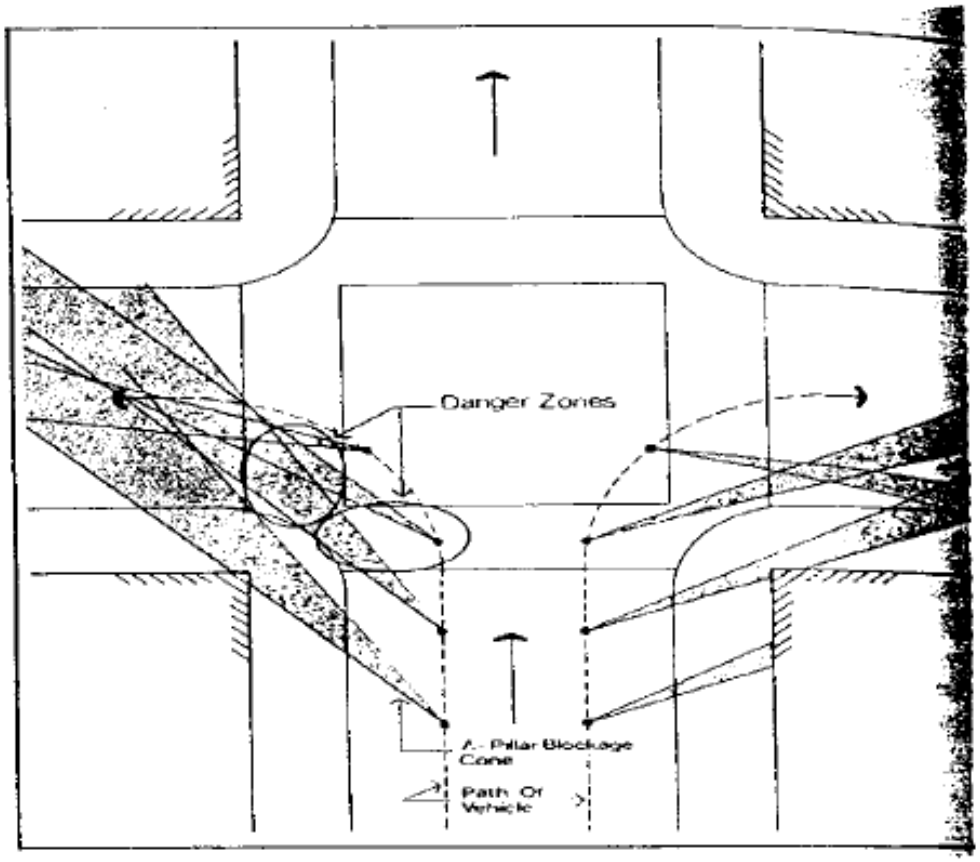
PUBLIC RECORDS INFORMATION
CASE ELEMENTS SUBJECT TO NONDISCLOSURE
REMOVED IN ACCORDANCE WITH THE
INFORMATION ACT.

Relative to the making of a left turn, researchers have noted material features in a driver's behavior.

(1) Visual search of drivers turning left at intersections is more frequent toward the right than left.
(2) Drivers making left turns made more head movements towards the right and closer to the intersection than right-turning drivers.
(3) Visual search time increased with the increase in traffic. Also obeserved that the last search before turning left on a highway was to the right (the fixations lasted for at least one second). Therefore, any changes to the left side of the driver would be unnoticed during this period.[59]

[59] *Id.*

Driver's visibility Impediment During Intersection Manoeuvres



(4, p. 34)

Age relevant factors of pedestrians involved in accidents.

As data from NHTSA's pedestrian crash statistics of 2017 documents, the age and experience profile of pedestrians involved in crashes ranges radically.[60]

[60] *Traffic Safety Facts 2017 Data, supra* note 3, at 4.

Graphic 24

Pedestrians Killed in Traffic Crashes and Fatality Rates Per 100,000 Population, by Age and Gender, 2017

	Male			Female			Total		
Age (Years)	Killed	Population (thousands)	Fatality Rate*	Killed	Population (thousands)	Fatality Rate*	Killed	Population (thousands)	Fatality Rate*
<5	47	10,196	0.46	34	9,743	0.35	81	19,939	0.41
5–9	27	10,368	0.26	20	9,936	0.20	47	20,304	0.23
10–14	54	10,605	0.51	32	10,173	0.31	86	20,778	0.41
Children (≤14)	*128*	*31,169*	*0.41*	*86*	*29,852*	*0.29*	*214*	*61,022*	*0.35*
15–19	159	10,800	1.47	82	10,331	0.79	241	21,132	1.14
20–24	294	11,349	2.59	95	10,769	0.88	389	22,119	1.76
25–29	338	11,902	2.84	128	11,468	1.12	468	23,370	2.00
30–34	314	11,089	2.83	108	10,883	0.99	422	21,972	1.92
35–39	295	10,616	2.78	143	10,616	1.35	438	21,232	2.06
40–44	287	9,753	2.94	115	9,890	1.16	402	19,643	2.05
45–49	326	10,386	3.14	149	10,588	1.41	476	20,974	2.27
50–54	422	10,520	4.01	150	10,881	1.38	572	21,401	2.67
55–59	455	10,701	4.25	162	11,307	1.43	618	22,008	2.81
60–64	364	9,557	3.81	133	10,430	1.28	498	19,988	2.49
65–69	232	7,930	2.93	127	8,907	1.43	359	16,836	2.13
70–74	162	5,947	2.72	76	6,900	1.10	238	12,847	1.85
75–79	144	3,899	3.69	93	4,842	1.92	237	8,741	2.71
80+	218	4,789	4.55	113	7,645	1.48	331	12,434	2.66
Seniors (65+)	*756*	*22,565*	*3.35*	*409*	*28,294*	*1.45*	*1,165*	*50,859*	*2.29*
*Total***	*4,177*	*160,408*	*2.60*	*1,769*	*165,311*	*1.07*	*5,977*	*325,719*	*1.84*

Sources: FARS 2017 ARF; Population – U.S. Bureau of the Census
*Rate per 100,000 population.
61 **Total includes fatalities of unknown age and/or gender.

A survey of the relevant scientific literature examining tendencies of children pedestrians and drivers and their engagement to intersections, streets and vehicles generally include the following:[62]

(1) Drivers have difficulty estimating the possible path of a pedestrian in motion, which in turn may lead to a collision.
(2) Children tended to increase their head movements when approaching the curb, while at the curb no significant differences were found.
(3) Children make few head movements at a signalized pedestrian crossing than at other crossing situations since they appear to look more at the signal.
(4) 12% to 23% percent of children in Los Angeles, Columbus and Milwaukee perform proper visual search.

[61] *Id.*

[62] Dominique Lord, *supra* note 19.

Unique aspects of pedestrian age and accident specifics

Legal considerations of child pedestrians accidents

With respect to children pedestrian accidents, the age of the child and his/her ability to be negligent as a matter of law interacts with the involvement of a guardian or parent into the proximate cause analysis. Consideration must be given to common law doctrine, such as parental immunity and whether the actions or inactions of a supposed supervising adult can be fairly considered by the trier of fact for purposes of fault allocation.

Under the parental immunity doctrine, an unemancipated minor is barred in bringing a negligence action against his parents if the actionable conduct involves a reasonable exercise of parental authority or discretion.[63] The doctrine is limited to ordinary negligence and unintentional wrongs.[64] Consequently, since the child is prohibited from pursuing a claim against his parents, a defendant in a pedestrian accident case is likewise unable to assert a claim for contribution against the parents because the contribution claim is derivative of the child's right to recover damages.[65]

With respect to the judgment of children as pedestrian, a pivotal issue will be whether the child is incapable of being negligent. For that to occur, it must be demonstrated that the child pedestrian failed to exercise that level of care that a child of the same age would exercise under the same or similar circumstances.[66]

In Texas for example, a child who is beneath the age of five is incapable of negligence as a matter of law. Where the negligence of a child above the age of five is at issue, the child's negligence is to be judged by a standard of conduct applicable to a child of the same age and not by that standard that is applicable to an adult.[67] In general, a child between the ages of five and fourteen can be held negligent, but would be held to a child's standard of care – defined as what an ordinarily prudent child of the same age, experience, intelligence, and capacity would or would not have done under the same or similar circumstances. [68] A child over the age of fourteen will be held to an adult's standard of care, unless it can be shown that the child lacks discretion or is under the handicap of some mental disability.[69]

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[63] *Hudson v. City of Houston*, No. 14-03-00565-CV, 2005 Tex. App. LEXIS 173, at *20 (Tex. App.--Houston [14th Dist.] January 6, 2005, no pet.)

[64] *Id.*.

[65] *Id.*.

[66] *Id.*.

[67] *Yarborough v. Berner*, 467 S.W.2d 188, 190 (Tex.Sup. 1971).

[68] Eagle International Associates, *An Overview of the Age of a Child Contributory/Comparative Negligence and Assumption of Risk in the 50 State and District of Columbia* 39 (June 2015), (quoting *Guzman v. Guajardo*, 761 S.W.2d 506, 510 (Tex. App.— Corpus Christi 1988, writ denied), https://www.eagle-law.com/wp-content/uploads/OverviewAgeOfAChild-June2015.pdf.

[69] *Id*.at 39, (quoting *City of Austin v. Hoffman*, 379 S.W.2d 103, 107 (Tex. App.—Austin 1964, writ dism'd).

Graphic 25

Under age 5: A child could not be negligent
Under age 7: A child could not be negligent
Between age 7 and 14: There was a rebuttable presumption that the child could not be negligent.
After the age of 14: There was a rebuttable presumption that the child was capable of negligence.

In *Kerr*, a six-year-old child died as a result of injuries he sustained when a Suburban operated by Defendant drove over him in a store parking lot. The evidence presented in court indicated that the child may have ran in front of the vehicle when he dropped his toy and attempted to pick it up. The trial court instructed the jury on the defense of unavoidable accident over the mother's objection. This Court held that an unavoidable accident instruction was appropriate in a case involving a young child who was legally incapable of negligence. The representatives of the child argued that a child under five is incapable of negligence, but a five or six-year-old is not too young to be capable of negligence and his conduct thus cannot properly be made the subject of an unavoidable accident instruction. However, the Court did not agree with the representative's argument and reasoned that although the common-law rule that a child under the age of seven was legally incapable of negligence had been modified by decisions finding children of five and six years old to be capable of negligence, there was no bright line rule as to the age when a child became able to understand and avoid a danger. The Court explained that a child who was five or six years old could be found either capable or incapable of negligence, depending on the characteristics of the child and the risks involved in the child's conduct. [70]

In *Hudson*, the suit arose from an accident in which a two-year-old child was struck and killed by a sanitation truck driven by a City employee. The child's father was caring for him at the time of the accident. The City filed suit against the father seeking contribution and indemnity alleging the father failed to properly supervise the child and that this failure allowed the child to run into the street where he was struck by the City's truck. The Court haled that the City failed to bring the issue of parental immunity to the attention of the trial court and thus, waived the issue for review. Moreover, the Court reasoned that "a jury's apportionment of responsibility, as contrasted with its threshold findings of negligence, is within the sound discretion of the jury." Therefore, the only question submitted to the jury regarding the father's negligence would be one of apportionment because there was evidence the father knew the child could unlatch the gate, the father placed the child inside the gate, failed to lock it and then proceeded to cross the street to speak to a neighbor. The Court also acknowledged that the child could not be negligent in this case and there could be no percentage of responsibility assigned to his estate. [71]

[70] *Kerr v. Brown*, No. 07-05-00043-CV, 2007 Tex. App. LEXIS 1450, 698-700 (Tex. App.--Amarillo [7th Dist.] Feb. 28, 2007, pet. denied).
[71] *Hudson v. City of Houston*, *supra* note 62, at *16-24.

Most states recognize an age, when a child can be engaged in conduct that would fall below that which would be engaged and by members of their peer group.

Taking this into consideration, it becomes imperative when defending a pedestrian accident involving a minor to develop a well-informed assessment of the awareness, education, knowledge, cognitive ability of the minor along with information and instruction offered by parents and teachers alike to create a sense of appreciation of risk. In most public-school settings, as early as the first grade, school officials and crossing guards, law enforcement and fire fighters make outreach on common hazards such as crosswalks, railroad tracks and playing with matches.

Jury pools are aware from their own or children's experience of the need to raise risk awareness. Once information is gathered, eliciting testimony covering the extent and regularity of public awareness that the subject minor child and his guardians and parents would have had access to can be an extremely helpful piece of information to elicit and develop.

Discussion on parental immunity: The affirmative defense of parental immunity operates to shield parents from tort liability to their unemancipated minor children for alleged acts of negligence that

> "involve a reasonable exercise of parental authority" (e.g., disciplining or supervising a child). The purpose and effect of the parental-immunity defense is to remove, as a matter of policy or prudence, certain parenting decisions from the judicially created regulatory regime that is the negligence tort. Although historically rooted in judicial reluctance to encourage adversarial litigation that could undermine peace and order within families, the modern justification for parental immunity in Texas is stated in terms of preventing the disruption or distortion of parental decision-making within the "wide sphere of reasonable discretion which is necessary . . . to provide nurture, care, and discipline for their children" that would otherwise result from the imposition of the negligence "reasonably prudent person" standard of conduct and its attendant economic incentives and disincentives. Elements to the parental-immunity affirmative defensive could arise when the claim is based on the defendant's alleged negligence. And when the minor's alleged injury arises from the defendant's "reasonable exercise of parental authority" such as supervising a child. Parental immunity protects a parent's performance of "essentially parental activities, including, for example, matters of supervision and discipline."[72]
>
> Parental immunity also restricts a tortfeasor's contribution claim against an injured child's parent in a suit by the parent on the child's behalf. Courts have applied parental immunity to Tex. Civ. Prac. & Rem. Code § 33.016 contribution apportionments but also to apportionment under Sections 33.003 and 33.012(a). The child's recovery would not be reduced for the negligence of the parent by apportionment between joint tortfeasors because the Courts have concluded that parental immunity protected the child's estate's recovery from such a reduction.

[72] *Sepaugh v. LaGrone*, 300 S.W.3d 328, 332-4 (Tex.App.—Austin [3rd Dist.]2009, pet. denied).

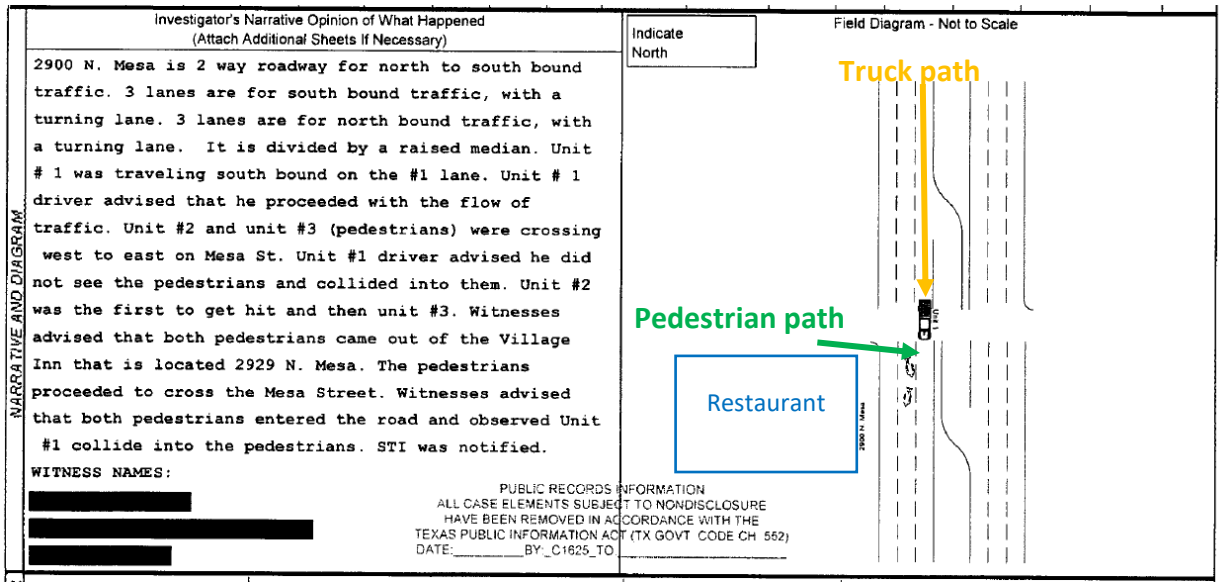
Further, Section 33.013 governs reductions in defendants' liability for damages in proportion to their own percentages of responsibility. That section refers to "a liable defendant" or "each liable defendant." Tex. Civ. Prac. & Rem. Code § 33.013(a), (b). Parental immunity, when it applies, prevents the parents from being a "liable defendant" with respect to any injuries suffered by their children and prevents the tortfeasor from using Section 33.013(a) to reduce its liability in proportion to any liability that may have been apportioned to the injured child's parents. [73]

VII. Scenario Three – Elderly Pedestrians and the Issue of Traffic Gaps

A company pick-up truck (1999 Ford F-350) proceeding during the day through a pedestrian area abutting the University of Texas at El Paso was proceeding south on a commercial stretch of this 3 lane roadway with a speed limit of 35 MPH and traveling 35 MPH. Throughout this accident sequence and before decelerating prior to impact, the pick-up truck was traveling approximately 35 miles per hour, with traffic being light. The company pick-up was driven by a 71 year old male.

At the same time, an elderly couple, a 93 year old male and his 92 year old wife, had just left a restaurant where they had dined and were proceeding to cross over the south bound lane, access a median and then cross over 3 east bound lanes on their way to reach a grocery store parking lot where they had left their vehicle. Discovery revealed that this couple had a habit of patronizing the referenced grocery store across the street from the restaurant they had just frequented and walk across a combined 6 lanes of travel and 2 turn lanes to reach the said restaurant.

Graphic



[73] *Ruff v. Univ. of St. Thomas*, 582 S.W.3d 707, 713-14 (Tex. App.—Houston [1st Dist.] 2019).

Unfortunately, despite these two elderly pedestrians having ample opportunity to visualize the white company pick-up truck within their line of sight, they proceeded into the roadway. Relying on their judgement timing gaps in traffic, they reached the lane occupied by the said pick-up and presumably expecting the pick-up truck to stop, walked directly into its path. The woman was killed instantly. The male survived for a few hours before dying at a local emergency room.

In trial, counsel for the estates and family of decedents argued that because both pedestrians were in the line of sight of the pick-up driver, he should have immediately reduced speed or come to a complete stop. Counsel also argued, the area abutting the university was known to frequent jay walkers, thus there should have been elevated awareness by the pick-up driver of the potential for the subject jay-walkers to appear. Additionally, it was contended that a "crosswalk ahead" advisory sign, including the crosswalk 530 feet from the point of impact, should have alerted the pick-up driver to reduce speed ahead.

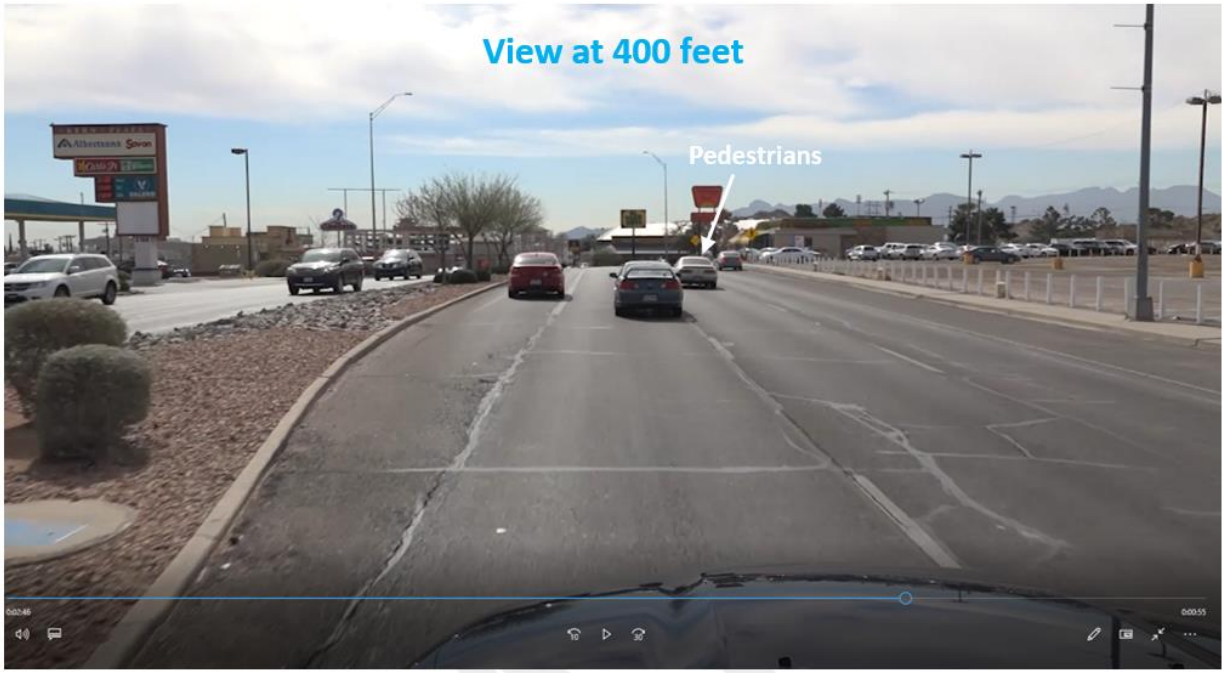
The position of the pick-up driver was, he had the right of way, was maintaining lane position throughout, was traveling below the speed limit, and the pedestrians knew they were jay walkers, yet took this risk knowing they walked slow and took longer to cross the street. Further, the risk taken by these pedestrians exceeded a time gap acceptance risk that was beyond what reasonably prudent adult pedestrians would accept as safe. Additionally, the pedestrians chose not to walk south approximately 530 feet to reach a designated crosswalk. Finally, that the mere line of sight condition did not trigger in the driver of the pick-up truck an appreciable risk that would prompt an avoidance maneuver. By the time the pedestrians positioned themselves to become fully engaged with the driver of the pick-up truck, the decision to enter the roadway and position themselves in such proximity and enter the pick-up's lane of travel, made impact inevitable.

Because this stretch of roadway is in such close proximity to a university, vehicular traffic is typically at least more than modest. A marked cross walk exists approximately 530 feet south of where the ultimate impact occurred.

Aerial View

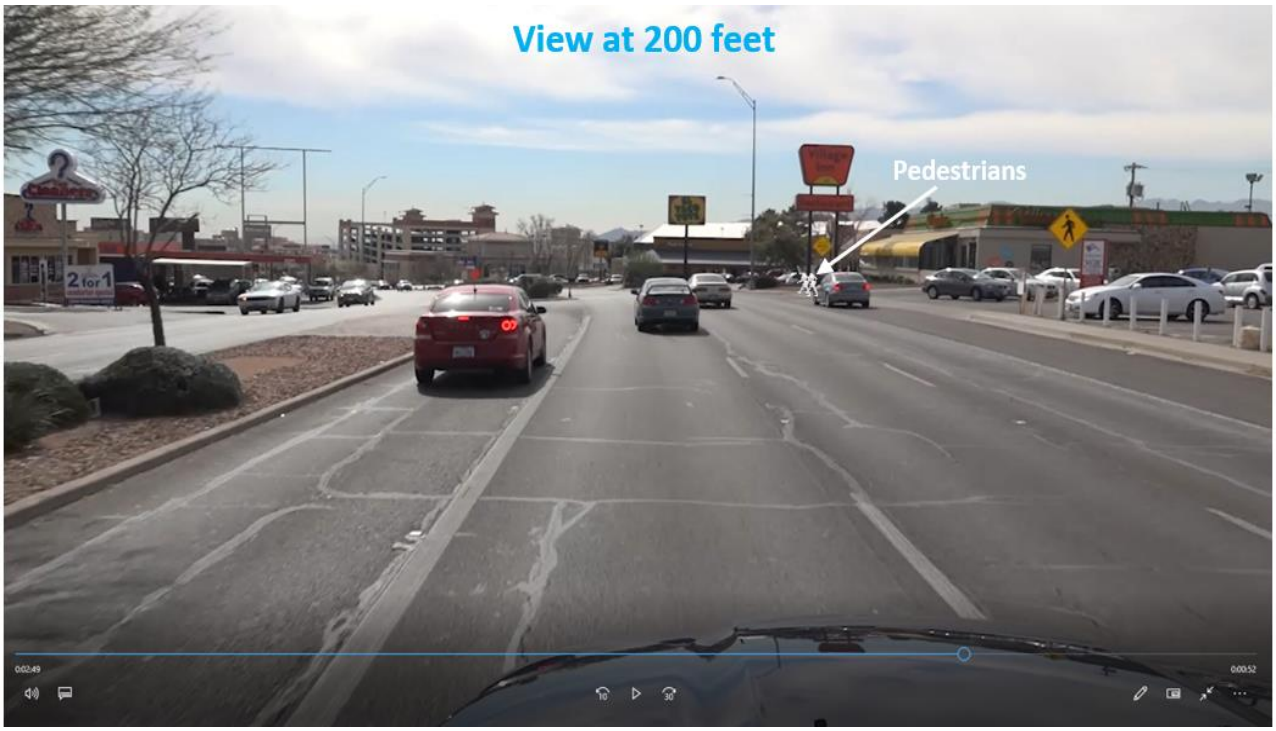
Traffic Gap Accident Scenario – Image 1

Traffic Gap Accident Scenario – Image 2



Traffic Gap Accident Scenario – Image 3

Traffic Gap Accident Scenario – Image 4



Traffic Gap Accident Scenario – Image 5

Traffic Gap Accident Scenario – Image 6

Traffic Gap Accident Scenario – Image 7

4.2.4 Gap Acceptance and Time-of-Arrival Measures

Scoring of traffic variables allowed calculations of pedestrian judgments of gap acceptance and time-of-arrival estimates. A basic skill that is necessary for crossing a road safely is to judge whether a gap in the traffic is large enough to allow crossing without collision. This entails visually judging the time of arrival at the crossing point of the nearest vehicle with the planned crossing line and starting to cross only when the time-of-arrival is greater than the time required to cross. Gap acceptance judgements are based purely on distance, while time-of-arrival judgements take both distance and speed of an approaching car into account along with judgements of one's own walking speed. Both variables are of interest because the ability to make accurate decisions of safety based on judging accurately the speed and distance of oncoming vehicles is vital for safe road crossing. Further, gap acceptance and time-of-arrival measures can give an indication of depth perception abilities, and motion perception abilities associated with the ability to combine both sources of information with one's own walking speed and the ability to adapt travel speed in case of danger.

Average gap acceptance was longer for older pedestrians than for younger pedestrians, and difference of just under 16 meters.[74]

Commercial truck drivers and most pedestrians have experienced the scenario where pedestrians assume a risk of entering a roadway for which they have no safe entry into the roadway nor a right of way but where they believe in earnest they can cross through traffic safely.

A traffic gap scenario arises when a pedestrian knowingly enters a roadway occupied by interspersed traffic, and modulates crossing the roadway by entering unoccupied lanes repeating the process, then standing and waiting, completely at the mercy of approaching traffic occupying other lanes. Once passed by the approaching traffic, the pedestrian then enters the abutting unoccupied lane until safely crossing the entire roadway.

In this instance, pedestrians accept a calculated risk assessment ("a traffic gap") that commercial drivers will absolutely see them and presume the commercial driver will slow down, stop and not make a perilous lane change into the lane occupied by the pedestrians, leading to imminent injury or death. The pedestrians in this scenario make the unscientific presumption that by simply being positioned within the line of sight of a commercial driver, that the commercial driver will automatically and without any visual stimulation other than being within the line of sight of the driver, reduce speed or change the orientation of the commercial unit.

The pedestrian's presumption in this regard is flawed as all drivers, including commercial drivers, have many other variables that may be consuming their immediate attention or focus. Motor vehicles or other pedestrians for example that occupy the commercial driver's line of sight in closer proximity to the commercial unit would naturally draw the first order of attention and focus of the commercial truck driver. Additionally, commercial truck drivers, like all other motorists, are empowered to assume that pedestrians will adhere to applicable rules of the road

[74] Jennie Oxley, et al., *An Investigation of Road Crossing Behaviors of Older Pedestrians*, MONASH UNIVERSITY ACCIDENT RESEARCH CENTER 34 (Nov. 1995), https://pdfs.semanticscholar.org/3c94/f51c316494d62a77708e875c4db0630a8075.pdf.

and exercise reasonable judgment. This would include presuming that pedestrians will not deliberately make highly risky and unsafe decisions as to where to enter a roadway.

Further, there is a distance from where even the most attentive commercial driver cannot discern persons from a distance. At that point, the risk taking pedestrian simply enters a roadway making a critical risk; acceptance decision not grounded on a rationale decision making process that a reasonable and prudent person in the same or similar circumstances would exercise.

A commercial truck driver can therefore expect both through science and common sense that simply having a pedestrian within his line of sight and the commercial truck within the line of sight of the pedestrian, does not convert a dangerous road crossing into a safe one. Another consideration: A pedestrian 500 feet away gives no indication that they are intending to undertake an inadvisable risk, consequently, there is no stimulus that is in play that would tend to trigger any type of perception/reaction response on the part of the commercial truck driver.

As the gap between the pedestrian and commercial motor vehicle begins to shorten, the risk of a perceived unsafe decision by the pedestrian, while more prone to be perceived by the commercial truck driver, compromises the physical ability of the commercial truck to bring the commercial unit to a stop prior to impact. Stopping distance being affected by the speed and weight of a vehicle in most instance makes sudden unexpected risk decisions by pedestrians physically impossible scenarios for commercial truck drivers to mitigate.

The pedestrian in this scenario chooses when and where to enter the roadway and has the benefit of the same line of sight of an oncoming commercial motor vehicle who under this circumstance would have the right of way. Further, the pedestrian has the ability to stop moving further into an irreversible collision point by stopping to walk, which can be accomplished within 1 second. Additionally, the pedestrian has the choice to ignore available marked crossing points and forces the commercial truck driver to speculate as to what the pedestrian's next move will be.

Invariably, the pedestrian unilaterally stacks the deck entirely against the commercial truck driver in terms of avoidance. Despite that, when crashes occur between the pedestrian and commercial motor vehicle in this scenario, claims and suits often ensue. The argument focusing on the fact that the commercial driver should have seen the pedestrian prior to impact and immediately commenced reducing speed and anticipating the pedestrian would not yield the right of way.

Pedestrian claimants will draw upon the land use application of the area where the accident and the known uses of the areas abutting the roadway as providing a clue that pedestrians do or could attempt to cross where such accidents occur. Pedestrians will also center arguments that as they move in the line of sight of the commercial driver, that simple avoidance such as removing the foot off the accelerator or braking to decelerate are all evasive maneuvers that may be implemented with little effect to avoid a collision.

The scenario becomes life altering when either party acts in a manner that is inconsistent with the level of risk the other perceived the other accident participants would take. For example, a pedestrian who is crossing a roadway through traffic, modulating his moves into unoccupied

lanes, waiting for traffic to move, before stepping into the next abutting unoccupied lane presents significant variables for a commercial truck driver to react to. Should a commercial motorist expect a pedestrian in that scenario to position himself within a few feet of the commercial vehicle as the pedestrian waited for the commercial vehicle to pass? Would a commercial motorist expect a pedestrian to step into the lane occupied by the commercial motorist expecting that the commercial motorist who would have the pedestrian in his line of sight reduce his speed and come to a stop? If the pedestrian makes that choice and enters an occupied lane in that scenario, should that choice by the pedestrian be anticipatable by the commercial driver?

These inquires populate the inquiry of reasonable care and avoidance and comparative fault. And even in scenarios where the commercial motor vehicle is otherwise operating under a right of way, within his lane of travel, below the posted speed limit, juries are free to consider the totality of the circumstances and conclude that despite the enormous risk taken by a pedestrian, that the commercial driver by virtue of having the pedestrian within his line of sight for some distance and enough time and distance to bring his unit to a stop to avoid a collision, is despite all the counter-weighing evidence in a better position to avoid the crash.

Commercial drivers are to drive their units within the requirements of the law, exercise reasonable judgment under the circumstances and drive defensively. One of the ultimate keys to solving the inquiry is at what point was it reasonably anticipatable that the subject jaywalking pedestrians were to present a risk or threat of an accident. Logically in this hypothetical, the offending pedestrians who chose jaywalking over crossing a roadway safely create an impossible situation for the commercial driver. But a dispute resolvable as a matter of law, unlikely.

Relative to the decision by the pedestrian to enter the road way at unmarked areas, all drivers including commercial drivers are drawn to exercise more attention and care to marked crossings due to the expectation of encountering pedestrians at unnatural roadway entry points. This expectation will foster increased defensive driving measures subconsciously such as removing the foot off the accelerator, scanning the roadway and elevating alertness to expect pedestrians. By contrast, where a pedestrian is standing off the curb a considerable distance away from where either the commercial motor vehicle and pedestrian pose a threat to one another, no risk evoked response nor corresponding defensive driving measures are triggered that promote accident avoidance.

Material considerations relative to pedestrians' features correlated to age.

> To cross this street requires any pedestrian to gauge traffic gaps and manipulate walking cadence and position to navigate unoccupied segments of roadway, allowing vehicles to pass you, and then quickly occupying lane space just vacated by vehicles.
>
> (1) Pedestrian visual search and detection failures are the most common accident causal factors after the inappropriate crossing "manoeuvre".
>
> (2) Visual search and detection of vehicles by pedestrians are very important factors when it comes to crossing manoeuvres.

(3) Visual search of pedestrians at signalized intersections differs to according to age.

(4) Adult pedestrians make more head movements while approaching the curb than when they are at the curb, preparing to cross.

(5) Adults make their assessment of the road situation before the curb is reached, often with the apparent aim to reduce delay at the curb.

(6) Pedestrians tended to search for potential threats during the DON'T WALK phase, but they did not search during the WALK PHASE (during the process of crossing).

(7) Children and elderly pedestrians have different visual search patterns.

(8) Elderly pedestrians may require more information than younger adults on which to base a decision

(9) Older pedestrians may not internalize as much information per observation (or head movement) as younger adults

(10) Elderly pedestrians may need more time to differentiate relevant from irrelevant information

(11) Elderly pedestrians have reduced mobility

(12) Elderly pedestrians are generally hit on the nearside of roadways, as they often do not see the vehicles that strike them

(13) When elderly pedestrians see a vehicle pre-impact they usually believe that the driver has seen them and will take evasive action.

(14) Elderly pedestrians expect the driver to brake or alter their course to avoid them. [Sheppard & Pattinson (1986)]

(15) Elderly pedestrians generally do not accurately assess a driver's future actions

(16) Crashes involving elderly pedestrian accidents were generally close to home, occurring within one [kilometer] of their home.

(17) Elderly pedestrians were found to occur on a regular trip (such as shopping) and occurred at or near shopping centers or recreational venues where these people tend to spend much of their time away from home.

(18) The most fatal and serious injury crashes involving older pedestrians occurred in inner city suburbs, on straight road sections and most occurred in daylight hours. [Fildes 1994]

(19) The nature of performance change with increasing age may be usefully approached by identifying specific decrements in sensory, cognitive and motor function which may lead to difficulties in performing everyday functions.

(20) Relevant pedestrian safety features reduce over time including visual and auditory acuity, use of preparatory information, perception of motion and depth, proprioceptive responses, memory capacity, information processing, attentional performance, reaction time, and physical mobility such as the ability to rotate neck, walking and muscle control, balance and postural control. [Alexander et. al., 1990]

(21) Visual and cognitive changes in the elderly road user might overwhelm some of the normal attempts at compensation, such as maintaining longer gaps between the cars to allow for increased time. [Yanik and Momforton (1991)]

(22) Age related declines in the visual system are perhaps the most recognized performance change in the aging literature.

(23) Relationship between visual capacity and traffic performance in the elderly which has attracted the attention of researchers. While vision is considered to be responsible for 95% of traffic-related sensory inputs for drivers, it is difficult to determine what specific visual skills are essential for safe road crossing. ([Shinar & Scheiver, 1991] [Kline, Fozard, Scheiber & Sekuler, 1992])

(24) There is a marked increase in different with increasing age; the visual difference found between the best and the worst performing older adult are many times larger than the difference found between the best and worst performing younger adult. (Briggs 1987).

(25) Time-of-arrival estimates were combined with individual walking speeds to assess differences in crossing strategies and to demonstrate difficulties older pedestrians might experience in juding speed and distance of an oncoming vehicle while taking slower walking speed into consideration. [Staplin & Lyles (1991)][75]

VIII. Conclusion

Identify the most relevant accident causation features of a particular occurrence and contrast them with the known repeat characteristics of that type of occurrence generally as reflected in the scientific literature. If a pedestrian behaves consistent with what has been empirically proven to be risky behavior, it is critical to establish that feature of your accident sequence. Thereafter, reconcile the case specific particulars of a subject pedestrian accident to draw comparisons with what has been shown to be relevant in causation analysis.

[75] Zaniba Bianco, *supra* note 14, at 4-6.

Understand the safety behavior demographics of the pedestrian involved in a crash occurrence and develop an appreciation for what scientifically has been established to be known propensities in certain pedestrian accident scenarios. Again, this will require substantially deep inquiry into many facets of their audible, cognitive, functional, optical and physical aspects of their capacity.

When evaluating the nature of the driving maneuver (left turn) involved in a particular pedestrian accident, evaluate from the perspective of a commercial truck driver, each of the most challenging aspects of the driving maneuver relative to pedestrian observation and accident avoidance. Then isolate how the commercial driver successfully overcame each challenge in establishing exercise of reasonable care.

In pedestrian accidents involving children or elderly pedestrians, understand all aspects of their general approach to risk aversion, safety awareness and safety habits generally and then their specific appreciation of known risks faced while attempting to cross a particular roadway.

Given the frequency of distraction and impairment in pedestrian accidents, be certain to preserve and pursue evidentiary benchmarks for what the attentiveness level and/or ability to perceive and react of the pedestrian was at the time of the occurrence was. Disciplines such as audiology, cellular phone technology, human factors and toxicology are becoming increasingly more common in pedestrian accident forensic causation analysis. It is therefore essential to confirm the existence or not of these types of factual features of any particular accident scenario.

Develop an appreciation for how the Smith system, on board electronic accident avoidance technology and commercial truck driving experience and training generally aid your commercial truck driver in being proactive in anticipating pedestrian accidents. Understand that commercial truck drivers will be far more prepared to prevent a pedestrian accident than a regular driver of the motoring public. This training and skill differential would serve well in the current climate where punitive damage exposure is to a constant feature of the tort process.

Finally, consider establishing advantageous baselines from the scientific literature and on board electronics on reasoned reactions by commercial truck drivers to safety risks presented by pedestrians. Be prepared to however contrast what is reasonably anticipatable versus what is not and therefore what is preventable or not by demonstrating risk increasing behavior by pedestrians generally and what was shown to have occurred in a specific instance.

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