



# GUIDE TO VEHICLE ACCIDENT PREVENTABILITY AND COUNTERMEASURES

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FMCSA/Department of Transportation Regulations

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This guide is designed to provide motor carriers and drivers with an introduction to the concepts of preventability analysis and accident countermeasures as determined by the Federal Motor Carrier Safety Administration (FMCSA). Determining preventability and the countermeasure case studies are guidelines and discussion tools to help carriers and drivers look at their unique operations and practices with an eye to identifying opportunities to make safety improvements.

## Determining Preventability

No two accidents are alike, but the heart of accident analysis is the same: determination of preventability. Each accident must be judged individually, based on the facts. Some types of accidents can be prevented by drivers, while others require changes in motor carrier practices and policies or equipment. The types of accidents listed below do not cover every accident that may occur, and are intended to provide general guidance to assist in determining preventability.

## Non-Preventable Accidents

### Struck in Rear by Other Vehicle

*Non-preventable if:*

- Driver's vehicle was legally and properly parked
- Driver was proceeding in his/her own lane of traffic at a safe and lawful speed
- Driver was stopped in traffic due to existing conditions or was stopped in compliance with traffic sign/signal or the directions of a police officer or other person legitimately controlling traffic
- Driver was in proper lane waiting to make turn

### Struck while Parked

*Non-preventable if:*

- Driver was properly parked in a location where parking was permitted
- Vehicle was stopped, parked or left standing in accordance with Sections 392.21/392.22 of the FMCSA Regulations

## Preventable Accidents

### Accidents at Intersections

*Preventable if:*

- Driver failed to control speed so that he/she could stop within available sight distance
- Driver failed to check cross-traffic and wait for it to clear before entering intersection
- Driver pulled out from side street in the face of oncoming traffic
- Driver collided with person, vehicle or object while making right or left turn
- Driver collided with vehicle making turn in front of him/her

### Striking Other Vehicle in Rear

*Preventable if:*

- Driver failed to maintain safe following distance and have his/her vehicle under control
- Driver failed to keep track of traffic conditions and did not slow down

- Driver failed to ascertain whether vehicle ahead was moving slowly, stopped or slowing down for any reason
- Driver misjudged rate of overtaking
- Driver came too close before pulling out to pass
- Driver failed to wait for vehicle ahead to move into the clear before starting up
- Driver failed to leave sufficient room for passing vehicle to get safely back in line

### **Sideswipe and Head-on Collisions**

*Preventable if:*

- Driver was not entirely in his or her proper lane of travel
- Driver did not pull to right and slow down or stop for vehicle encroaching on his/her lane of travel when such action could have been taken without additional danger

### **Struck in Rear by Other Vehicle**

*Preventable if:*

- Driver was passing slower traffic near an intersection and had to make sudden stop
- Driver made sudden stop to park, load or unload
- Vehicle was improperly parked
- Driver rolled back into vehicle behind him/her while starting on grade

### **Squeeze Plays and Shutouts**

*Preventable if:*

- Driver failed to yield right-of-way when necessary to avoid accident

### **Backing Accidents**

*Preventable if:*

- Driver backed up when backing could have been avoided by better planning of his or her route
- Driver backed into traffic stream when such backing could have been avoided
- Driver failed to get out of cab and check proposed path of backward travel
- Driver depended solely on mirrors when it was practicable to look back
- Driver failed to get out of cab periodically and recheck conditions when backing a long distance
- Driver failed to check behind vehicle parked at curb before attempting to leave parking space
- Driver relied solely on a guide to help him or her back up
- Driver backed from blind side when he or she could have made a sight-side approach

### **Accident Involving Rail-Operated Vehicles**

*Preventable if:*

- Driver attempted to cross tracks directly ahead of train or streetcar
- Driver ran into side of train or streetcar
- Driver stopped or parked on or too close to tracks

### **Accidents while Passing**

*Preventable if:*

- Driver passed where view of road ahead was obstructed by hill, curve, vegetation, traffic, adverse weather conditions, etc.
- Driver attempted to pass in the face of closely approaching traffic
- Driver failed to warn driver of vehicle being passed
- Driver failed to signal change of lanes

- Driver pulled out in front of other traffic overtaking from rear
- Driver cut in too short while returning to right lane

### **Accidents while Being Passed**

#### *Preventable if:*

- Driver failed to stay in his/her own lane and hold speed or reduce it to permit safe passing

### **Accidents while Entering Traffic Stream**

#### *Preventable if:*

- Driver failed to signal when pulling out from curb
- Driver failed to check traffic before pulling out from curb
- Driver failed to look back to check traffic if he/she was in a position where mirrors did not show traffic conditions
- Driver attempted to pull out in a manner that forced other vehicle(s) to change speed or direction
- Driver failed to make full stop before entering from side street, alley or driveway
- Driver failed to make full stop before crossing sidewalk
- Driver failed to yield right-of-way to approaching traffic

### **Pedestrian Accidents**

#### *Preventable if:*

- Driver did not reduce speed in area of heavy pedestrian traffic
- Driver was not prepared to stop
- Driver failed to yield right-of-way to pedestrian

### **Mechanical Defects Accidents**

#### *Preventable if:*

- Defect was of a type that driver should have detected in making pre-trip or en route inspection of vehicle
- Defect was of a type that driver should have detected during normal operation of vehicle
- Defect was caused by driver's abusive handling of vehicle
- Defect was known to driver, but ignored
- Driver was instructed to operate with known defect

### **All Types of Accidents**

#### *Preventable if:*

- Driver was not operating at a speed suitable for existing conditions of road, weather and traffic
- Driver failed to control speed so that he or she could stop within assured clear distance
- Driver misjudged available clearance
- Driver failed to yield right-of-way to avoid accident
- Driver failed to accurately observe existing conditions
- Driver was in violation of company operating rules or special instructions, the regulations of any federal or state agency, or any applicable traffic laws or ordinances

## Accident Countermeasure Case Studies

Vehicle accident countermeasures are defensive strategies designed to reduce preventable accidents. The following FMCSA case studies are true stories that highlight successful countermeasures.

### Case #1

An Oregon-based carrier transporting wood chips from the coast to the Eugene area began to have an unusual number of accidents. An analysis by the Safety Specialist revealed that the majority of the accidents occurred on a three-mile stretch of the route being used. This two-lane road was narrow, winding, frequented by tourists in summer, and plagued with fog, ice, and snow in winter. Further investigation revealed that for the past eight months construction had been underway – about the same time the accidents had been happening. The highway department indicated that construction would continue for another six months.

### Countermeasure

The Safety Specialist discussed the findings with management and recommended the carrier's vehicles be rerouted until the construction was complete. The carrier realized that it could not continue with the increased level of accidents for another six months and agreed with the recommendation. Although the new route was approximately 30 miles more each way, the benefit of reducing accidents outweighed this.

### Case #2

An Illinois-based produce hauler was experiencing a high number of driver injuries resulting in a large number of workman compensation claims. A Safety Specialist's review of the accidents revealed that drivers were wrenching their necks inside their cabovers (vs. conventional cabs) when passing over bumps in the road. The drivers were being thrown unexpectedly out of their seats and into the windshield or ceiling of their tractors. The cabovers were identified as being the primary source of these incidents – the driver's seat is located directly over the front wheels and provides little resistance or cushion to reduce the impact of bumps in the road to the driver.

### Countermeasure

The Safety Specialist recommended that the carrier insert language into their employee manual requiring drivers to wear their seat belts. The carrier agreed to the recommendation and, in addition, instructed guards at each terminal gate to check drivers before leaving to ensure they were complying with the company's policy. This simple solution, which had been overlooked by everyone, turned out to be the key in reducing this type of injury to zero.

### Case #3

An Indiana-based school bus contractor was experiencing a high number of accidents caused by driver inattention. After examining

### Countermeasure

The Safety Specialist recommended to the carrier that it should begin holding safety meetings sometime in April and provide each

all of the carrier's accidents, the Safety Specialist determined that they all were occurring during the month of June. The Safety Specialist also came to the conclusion that no specific driver or vehicle was responsible for the accidents. It seemed that the drivers, in general, were becoming inattentive because summer was near and they were anticipating the end of the school year. Further analysis revealed that the Safety Director held two safety meetings a year with the drivers, one in September and another in February.

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driver with a one-page handout in the period prior to the start of these meetings to keep them alert. This simple solution turned out to be the key in reducing these accidents to zero. When the Safety Director was asked why he had never noticed this problem, he replied "This was right there in front of me, but I just never had the time to sit down and look at it in this manner!"

#### **Case #4**

A Utah-based carrier, which conducts the majority of its business west of the Mississippi River, was experiencing a high number of accidents. After discussion with some drivers and management officials, an analysis by the Safety Specialist revealed that a high number of accidents occurred during the same time of day on a three- to five-mile section of a certain interstate, heading west. Apparently, drivers were being blinded as they came over the crest of a very large hill at sunset.

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#### **Countermeasure**

The Safety Specialist discussed the situation with management and recommended that the carrier change the time its drivers were being dispatched. The carrier agreed with the recommendation and immediately began to dispatch drivers an hour earlier or an hour later in order to avoid driving over the hill at sunset. This change eliminated the accidents.

#### **Case #5**

During a review of a large Indiana-based household goods carrier that operates over 5,000 tractor-trailers, a Safety Specialist discovered that the carrier was experiencing a high number of rear-end collisions. Some of these accidents caused damage to the extent that they were reportable to the DOT. Most, however, were of a lesser amount but still added to the carrier's cost of operation.

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#### **Countermeasure**

The Safety Specialist recommended the installation of brake and turn signal lights at the top of the carrier's trailers. This reduced accidents almost immediately.

#### **Case #6**

During a review of a Washington-based grocery company, operating over 100 tractor trailers primarily in urban areas, the Safety Specialist discovered an accident pattern – an inordinate number of right turn accidents.

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#### **Countermeasure**

The Safety Specialist discussed the findings with the carrier and recommended the installation of turn signals at a higher level on trailers. The carrier agreed and also applied signs to the back of each trailer, on

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### **Case #7**

During a recent review, a Washington-based carrier that operates over 2,400 tractor trailers west of the Mississippi River was found to have a high number of loss-of-control accidents during adverse driving conditions.

the right side, warning of wide turns. Accidents dropped dramatically over a very short period of time.

### **Countermeasure**

The Safety Specialist recommended the carrier require drivers to attend a safety meeting. To promote attendance, the carrier scheduled ten Saturday meetings in various locations and required all drivers to attend one. Drivers were paid to attend the meetings and coffee and doughnuts were provided. The safety meeting consisted of approximately four hours of training on the Federal Motor Carrier Safety Regulations, driving in adverse conditions, and other general safety information. Within a short period of time, the company records indicated a 60% reduction in accidents.

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### **Case #8**

An Oregon-based produce hauler, generally running from Portland to Los Angeles, was having a very high number of backing accidents. Considering the areas in which they were required to load and unload, the carrier had not found the number of accidents unusual. An analysis by the Safety Specialist revealed that the carrier was using qualified but relatively inexperienced drivers in sleeper teams. They were paid for load/unload time whether they actually had to do the work or not. Although most of the backing accidents involved damage costing less than \$1,000, one dock worker had been crushed between a trailer and the dock, which emphasized the danger inherent in backing accidents.

### **Countermeasure**

The Safety Specialist recommended that each driver attend a safety meeting, and that a safety notice be distributed to all drivers requiring them to assist each other during backing maneuvers. The carrier agreed with the suggestion and required every driver to attend a safety meeting (meetings were held on several Saturdays to allow attendance by all). Drivers were paid overtime and coffee and doughnuts were offered. The meeting contained about four hours of training on proper procedures for backing. In addition, a safety notice was distributed in driver's paychecks instructing them to assist each other during backing maneuvers. Backing accidents dropped quickly, and because of increased driver awareness, there was a reduction in other types of accidents as well.

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### **Case #9**

A Missouri-based farm commodity and hazardous material transporter was experiencing a high number of accidents. Examination of all its accidents revealed that they occurred during bad weather and that the majority of them were caused by drivers who were not paying attention to the road conditions (that is, they were driving too fast for the weather).

### **Countermeasure**

The Safety Specialist recommended that the carrier implement a safe driver recognition/incentive program and a driver training program geared to avoiding accident situations and to driving in adverse weather conditions. The carrier agreed with the recommendations, and now holds quarterly safety meetings with 95% driver participation. Any driver who attended the previous meeting and was accident-free during the quarter receives a \$150 U.S. Savings Bond. The carrier also implemented a driver training program and classroom instruction on accident situations and driving in adverse weather conditions. After the carrier took this proactive stance, its accident rate improved from 0.88 to 0.37 over 12 months.

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### **Case #10**

A city-based carrier that operates over 30 delivery trucks was experiencing a high number of accidents. An analysis by the Safety Specialist revealed that a majority of accidents occurred within a two- to three-block area downtown every Thursday between 9 a.m. and 10 a.m. The analysis also revealed that drivers were paid every Thursday morning, and that a number of banks are located within the problem area. Apparently, after they were paid in the morning, drivers would stop at the banks to cash their paychecks while on duty.

Driving in this highly congested area during rush hour placed both the driver and vehicle in extremely unfavorable conditions. Cashing the checks during the morning rush hour traffic was placing both the driver and vehicle in the worst possible place at the busiest time of the day and led to the high number of accidents.

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### **Countermeasure**

After further discussion with management officials, the Safety Specialist recommended that the carrier change the time the drivers were being paid. The carrier agreed with the recommendation and began paying the drivers at the end of the day. The change forced drivers to cash their paychecks after work while off-duty, and eliminated the accidents.

If you would like more information about fleet safety programs and training, please contact [at \(516\) 466-6007](tel:5164666007). We recognize that no two companies are alike, and we offer expertise in designing effective, cost-efficient fleet safety programs tailored to your unique needs.

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