UNDERSTANDING REAR-END CRASHES INVOLVING LARGE TRUCKS:

Rural Versus Urban Crashes in Northwest Texas

A Fact Sheet for Law Enforcement Officers

Texas A&M Transportation Institute | Center for Transportation Safety

THE PROBLEM:

Large Truck Crashes in Texas

Texas is one of the top 10 states for the number of fatal truck and bus crashes.[1]

Rural roadways carry an increased risk for fatal and serious injury (KA) crashes because compared to urban roadways, the posted speed limits are higher, congestion is lower, and the roadway design safety features and traffic controls differ.

Overall, in Texas, **crashes on rural roads are nearly 4 times more likely to be fatal** compared to urban roads.[2]

Over 50 percent of Texas truck miles are traveled on rural roadways based on 2019 and 2020 estimates.

The **heavy weight** of trucks can increase crash severity.

The **full scale of rear-end collisions with trucks on rural roads** in Texas is greater than previously shown by data. On average, approximately 20.4% of all two-vehicle crashes involving a large truck are rear-end crashes.[3]

Freeways account for almost half of all two vehicle rear-end crashes involving a heavy truck, although the proportion of fatal and suspected serious injury crashes are highest on two-lane and multi-lane undivided roadways.

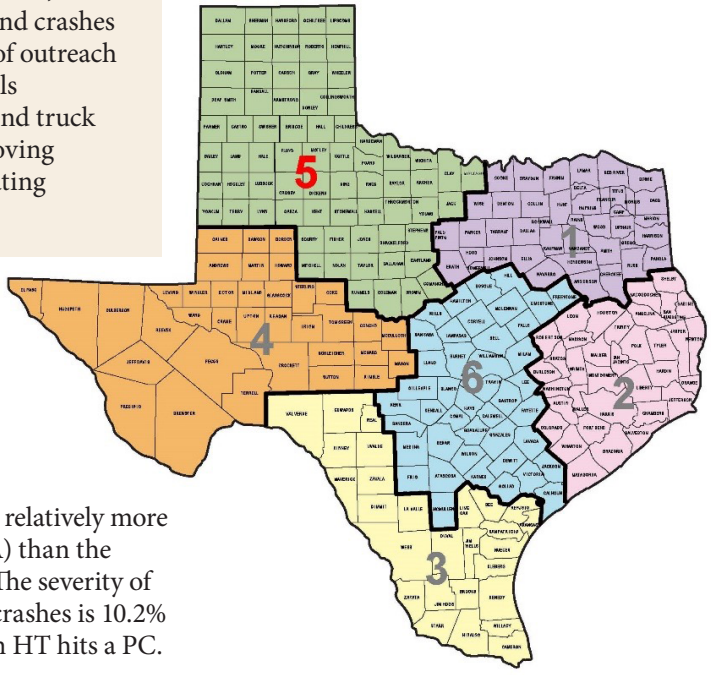
PROJECT OVERVIEW:

To address rear-end collisions involving a heavy truck (HT)[4] in Texas, this project conducted an in-depth data analysis of two-vehicle rear-end crashes involving an HT, followed by the production and dissemination of outreach and educational materials. The outreach and educational materials include factsheets, tip cards and videos for improving employer and truck driver knowledge of rear-end crashes and their prevention, improving crash data collection among law enforcement officers, and generating recommendations for increased truck conspicuity.

PROJECT DATA:

DPS Region 5 (Northwest Texas)

The DPS Region 5 encompasses Northwest Texas and comprises 71 counties.



Rear-end crashes involving heavy trucks (7.2%) in this region are relatively more severe (fatal or suspected serious injury denoted by the letters KA) than the overall rear-end crashes involving heavy trucks (4.8%) in Texas. The severity of rear-end crashes varies by vehicle at-fault: the proportion of KA crashes is 10.2% when a passenger car (PC) hits an HT compared to 4.8% when an HT hits a PC.

[1] FMCSA. 2019 CMV Traffic Safety Fact Sheet. Available at: https://w2958ww.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/safety/data-and-statistics/473411/cmvtrafficsafetyfactsheet2018.pdf

[2] TxDOT. (2022). Rural and Urban Crashes and Injuries by Severity. Available at: https://ftp.txdot.gov/pub/txdot-info/trf/crash_statistics/2022/11.pdf

[3] Based on all 2017-2021 TxDOT reportable two-vehicle crashes involving a truck tractor or truck, and excluding pedestrian or pedalcyclist involved crashes.

[4] Defined as a truck tractor or truck with a gross vehicle weight of 10,001 pounds or more.

CRASH YEAR	TOTAL PC hit HT	% KA	TOTAL HT hit PC	% KA	TOTAL HT hit HT	% KA	TOTAL HT INVOLVED REAR-END	% KA
2017	143	6.3%	125	5.6%	37	0.0%	305	5.2%
2018	177	13.0%	125	7.2%	37	2.7%	339	9.7%
2019	179	10.6%	138	5.1%	32	3.1%	349	7.7%
2020	134	9.7%	106	2.8%	45	6.7%	285	6.7%
2021	162	10.5%	155	3.2%	56	3.6%	373	6.4%
TOTAL	**795**	**10.2%**	**649**	**4.8%**	**207**	**3.4%**	**1,651**	**7.2%**

PC: Passenger Car; HT: Heavy Truck; KA: Crash resulting in death or serious injury

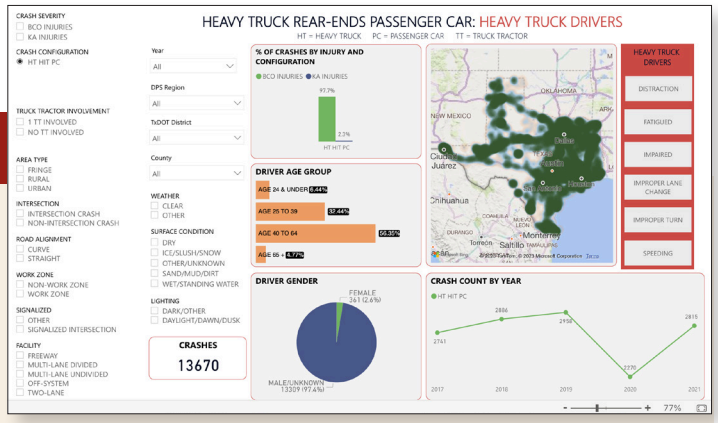
Rear-end crashes in rural and fringe areas are more generally severe compared to urban areas, regardless of vehicle at fault.

VEHICLE AT-FAULT * / FACILITY TYPE	PASSENGER CAR	HEAVY TRUCK
% DISTRACTION that are KA in rural vs fringe vs urban	17% vs **15%** vs 4%	**13%** vs 0% vs 2%
% FATIGUE that are KA in rural vs fringe vs urban	**13%** vs **20%** vs 0%	**20%** vs **100%** vs 0%
% IMPAIRMENT that are KA in rural vs fringe vs urban	**33%** vs **50%** vs **27%**	**100%** vs 0% vs 0%
% IMPROPER LANE CHANGE that are KA in rural vs fringe vs urban	0% vs 0% vs 0%	0% vs 0% vs 0%
% IMPROPER TURN that are KA in rural vs fringe vs urban	0% vs n/a vs 0%	0% vs 0% vs **7%**
% SPEEDING that are KA in rural vs fringe vs urban	14% vs **13%** vs 5%	**9%** vs **5%** vs 0%

Numbers highlighted in red represent percentages that are higher than statewide percentages.

**Excludes crashes involving two heavy trucks*

***No crashes observed within this category*



A SOLUTION:

- Crash Data Dashboard
- Fatal Crash Diagrams
- Map Tools to Identify High-Risk Roads for Truck Crashes
  - Web-based version (users can filter roadways by amount of truck travel and risk level)
  - Google Earth Map version

Funding source:
Federal Motor Carrier Safety Association (FMCSA)
FM-MHP-0542

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Website
https://cts.tti.tamu.edu/heavy-truck-involved-rear-end-crash-analysis-dashboard/