

Side Underride Data and Analyses



[Ratings](#)[Recalls](#)[Risky Driving](#)[Road Safety](#)[Equipment](#)[Technology & Innovation](#)[MORE](#)

Fatality and Injury Reporting System Tool (FIRST) ?

This query tool allows a user to construct customized queries from the [Fatality Analysis Reporting System \(FARS\)](#) and from the [Crash Report Sampling System \(CRSS\)](#). To view a list of crash Data Elements used on this site [click here](#). To review and open the opening splash screen

Side Underride Crashes and Fatalities in FARS Data 2007 to 2020

- Large Trucks
- Underride
- Angle
- Sideswipe

There were 1,238 fatal side underride crashes cataloged in FARS from 2007 to 2020.



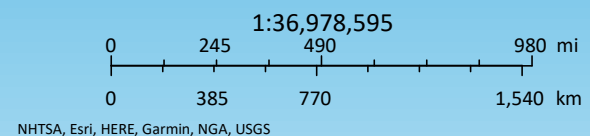
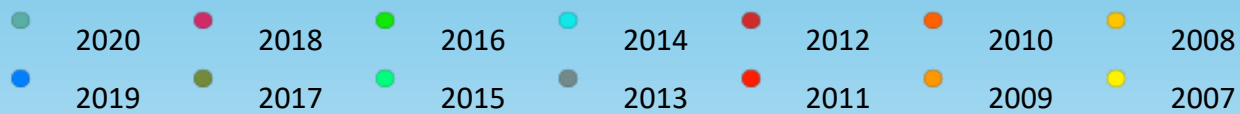
Vehicles Involved in Fatal Crashes¹

Crash Date (Year)	Crash Date (Month)												Total
	January	February	March	April	May	June	July	August	September	October	November	December	
2007	12	9	5	7	11	9	6	9	6	13	9	10	106
2008	13	5	8	6	7	7	5	10	13	12	1	7	94
2009	6	5	5	11	6	3	6	8	4	5	11	6	76
2010	9	12	7	3	4	5	6	6	4	9	12	8	85
2011	6	11	10	5	3	4	5	6	5	4	8	8	75
2012	11	14	3	10	7	7	8	13	7	7	3	11	101
2013	8	5	7	3	4	12	9	6	8	7	9	11	89
2014	12	2	4	2	3	11	8	5	6	11	7	5	76
2015	5	6	5	6	9	6	8	5	7	12	5	12	86
2016	7	6	4	6	11	5	3	13	6	10	1	8	80
2017	11	10	6	4	5	10	8	11	8	16	8	24	121
2018	8	9	7	6	4	6	10	6	5	10	8	4	83
2019	6	8	6	7	5	3	8	6	12	3	10	8	82
2020	6	6	3	5	5	6	10	10	7	11	6	9	84
Total	120	108	80	81	84	94	100	114	98	130	98	131	1,238

Location of fatalities catalogued in FARS from side underride crashes (n=1,415) 2007 to 2020.



1/17/2024



Number of side underride crashes and associated fatalities cataloged in FARS from 2007 to 2020 and resulting estimates using side underride undercount correction factors.

Source, Undercount Correction Factor	Number of Crashes in FARS	Number of Fatalities in FARS	Estimated No. of Crashes	Estimated No. of Fatalities	Estimated Average No. of Crashes and Fatalities Per Year
NHTSA, 1.77	1,238	1,415	2,191 ^A	2,505	157/179 ^B
Padmanaban, 3.1	1,238	1,415	3,838	4,387	274/313

^AExample: $1,238 \times 1.77 = 2,191$

^BHighway Safety Research Inst (1977) 195 side underride fatalities per year

Annual Baseline
Cost \$4.0 to \$5.9
billion of Side
Underride Serious
Injuries &
Fatalities
(required by OMB,
Circular A-4)

Serious Injuries: $200 \times \$313,000^1 = \63 million

NHTSA: $179 \text{ fatalities} \times \$14 \text{ million}^1 = \$2.5 \text{ billion}$

Padmanaban: $313 \text{ fatalities} = \4.4 billion

IIHS: $100 \text{ VRU fatalities} = \1.4 billion

¹ USDOT Monetized Values

Number of Semitrailers

- In 2023 ANPRM, NHTSA used data from 2013 to estimate side guards would be installed on 260,000 new semitrailers
- NHTSA did not mention their “100 percent survey” conducted in 2022 of all eight semitrailer manufacturers that would be subject to side underride guards



Trailer Output Report



Trailer	2020	2021	2022
Great Dane	34500	38200	40000
Hyundai	34739	55792	63206
Kentucky	1968	1853	2601
Stoughton	11000	15000	24750
Strick	2000	1800	1700
Utility	33850	42379	50023
Vanguard	12013	14945	20563
Wabash	36400	44045	51090
Total	166470	214014	253933
3-year average		211472	

Cost of a Side Underride Guard

- Wabash National estimated the 2018 cost of a side underride guard was \$896.00 (\$1,084.00 adjusted for 2023)
- NHTSA estimated the AngelWing side guard cost \$2,990 (retrofit)
- NHTSA believed that that adoption of side underride guards would likely lead to reduced cost due to scale and competition

Cost Benefit Analysis of Side Underride Guards for Semitrailers

- Benefits: Annually mitigate 50-150 fatalities (179 Vehicles+100 VRUs; up to 50 mph) and 50-150 serious injuries
- 2023 USDOT Monetized Values for fatalities and serious injuries
- Costs: \$1,000 to \$3,000 per semitrailer with a fuel impact of 0.25% from weight
- 245,000 semitrailers
- Subtracting costs from benefits: estimated annual benefit of side guards \$540 million to \$1.4 billion

Cost Benefit Analysis- Aero Skirts

- Aerodynamic skirts on side underride guards can save 700 gallons of diesel per trailer; annual benefit of \$750 million
- Skirts offset all costs in <1 year, resulting in a TOTAL annual benefit of \$1.1 to \$2.1 billion
- Utility Trailer's Side Impact Guard: “fully compatible with Utility's Aerodynamic Side Skirt to improve safety without sacrificing performance”

Recommendations to the ACUP

Be critical and question the accuracy of NHTSA's cost benefit analysis:

- Failed to develop a baseline for side underride deaths, injuries
- Inappropriately ignored their 2022 survey data from all semitrailer manufacturers regarding side underride data, tests, analyses, studies;
- Inflated the number of semitrailers;
- Ignored benefits to VRUs;
- Truncated the effective speed of 50 mph; and
- Led to erroneous conclusions in their Cost-Benefit Analysis

As demonstrated, benefits of side underride guards outweigh the costs

In memory of
Riley Eric Hein
1999-2015

