

Bridge Accidents / Over-Height Vehicle Collisions

Facts & Statistics

Industry Terms

There are a wide variety of terms to describe an event in which a commercial trucking vehicle strikes a bridge or overpass. Very often states lump these kinds of collisions into a category called “fixed-object crashes” or “stationary roadside object crashes” which also include items such as utility poles and guardrails. It is therefore difficult to get an accurate measure of the size of the problem.

- Over-height Vehicle Accident
- Inadequate Vertical Clearance Accidents
- Low Clearance Accidents
- Bridge Impacts
- Bridge Strikes
- Collision With Overhead Structure
- Stationary Object Strikes
- Stationary Object Hits

Washington State Motor Vehicle Crashes (Fatal & Non-Fatal) Involving Trucks

Note: Over-height-related crash data has not been separated from these numbers.

- 2011 – 1,614
- 2010 – 1,370
- 2009 – 1,159
- 2008 - 1,428

Source: FARS; MCMIS (April 25, 2014 data snapshot)

Over-height Collisions With Highway Bridges

There is no nationwide database on over-height collisions.

A 2004 research study reported that 62% of states that participated in the study indicated that they consider over-height collisions to be a significant problem. Washington State reported that overheight collisions were not a problem.

Source: Fu, C. C. and G. L. Chang, “Study of Overheight Vehicle collisions with Highway Bridges,” Transportation Research Record, 1865, 80-88, 2004.

In a survey conducted for a similar 2012 study Washington State officials responded that bridge strikes were a serious problem reporting a total of 84 reported bridge strikes during 2005 to 2008.

Source: A.K. Agrawal, X. Xu, and Z. Chen, Bridge-Vehicle Impact Assessment. Final Report to the New York State Department of Transportation, January 2012.

Research estimates that nearly one-third of the nation’s 600,000 highway bridges are currently in need of repair or replacements, making applications for innovative bridge concepts and construction methods vital to both traffic safety and cost-effective maintenance. Because of this pressure issue, researches are addressing a growing need for

over-height impact protection and detection systems.

Source: *Over-height Vehicle Collision Protection and Detection System for Cold Region Highway Bridges*, University of Alaska Transportation Center. <http://ine.uaf.edu/autc/projects/over-height-vehicle-collision-protection-and-detection-system-for-cold-region-highway-bridges/>

Table 1
Summary of frequency of crashes into roadside objects on urban Washington State Department of Transportation highways between 1993 and 1996

Object Struck	Property Damage Only	Possible Injury	Evident Injury	Disabling Injury	Fatality
Retaining wall, bridge abutment, bridge column, pier or pillar	140	52	39	7	1
Wood and metal sign post, guide post	292	48	48	11	0
Pole - light, railway, utility, traffic, overhead pole, or sign box	514	114	170	44	6
Culvert end or other appurtenance in ditch, roadway ditch	287	84	52	8	0
Crash Cushion	120	29	39	8	1
Guardrail, leading end	54	24	33	4	3
Guardrail face	1,012	257	239	40	6
Concrete barrier, leading end	15	8	8	3	0
Concrete barrier face	1,981	597	452	70	16
Bridge rail, leading end	16	6	5	1	2
Bridge rail face	344	82	91	14	0
Road or construction machinery	67	12	7	3	1
Rock bank or ledge	12	2	9	0	0
Earth bank or ledge	282	105	111	24	3
Tree or stump (stationary)	144	55	66	13	9
Fence	163	28	41	7	0
Mail box	14	3	9	1	1
Other	668	140	183	39	4
Total	6,125	1,646	1,602	297	53

Table Source: J. Holdridge, V. Shankar, G Ulfarsson, , *The crash severity impacts of fixed roadside objects*, *Journal of Safety Research* 36 (2005)

GPS Navigation System Use in Commercial Transportation

According to ABI Research, global shipments of commercial GPS navigation systems, such as those used in large trucks, will climb from 3 million in 2010 to 7.5 million by 2015.

In a survey in which common carriers 33% described situations in which they believed that GPS navigation systems errors contributed to crashes. Of those 34% reported that they had been navigated to roads with inadequate bridge/overpass clearance.

Source: *Assessing The Use of Navigation Systems in the Trucking Industry April 2013*. American Transportation Research Institute