U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
Research Note

NHTSA

DOT HS 812 501 | Summary of Statistical Findings | March 2018

Police-Reported Motor Vehicle Traffic Crashes in 2016

Summary

In 2016, there were an estimated 7,277,000 police-reported motor vehicle crashes in the United States, resulting in 37,461 fatalities and 3,144,000 people injured. Among these crashes, less than 1 percent (34,439) were fatal crashes, close to 30 percent (2,177,000) were injury crashes, and almost 70 percent (5,065,000) were property-damage-only crashes (Table 1).

Introduction

The National Highway Traffic Safety Administration (NHTSA) is releasing data from the newly modernized Crash Report Sampling System (CRSS)—a replacement of the National Automotive Sampling System General Estimates System (NASS/GES). NHTSA designed CRSS to replace GES to select a more efficient and flexible sample using updated traffic and demographic information and optimizing the sample to better meet data users' needs. For more information see the upcoming Technical Report "Crash Report Sampling System: Sample Design and Estimation." In 2016, police crash reports were sampled and coded at 53 newly selected sites across the Nation, and weights and estimation procedures were applied to generate nationally representative estimates of police-reported crashes. This Research Note presents an overall summary of motor vehicle crashes in 2016 and provides background on CRSS. For a more detailed explanation of the sample design, estimation protocols and guidance on how to analyze the new data, please refer to the companion Technical Report (NHTSA, DOT HS 812 509). Fatal crash data presented in this Research Note comes from the Fatality Analysis Reporting System (FARS)—a nationwide census of fatal motor vehicle traffic crashes. For more information, see www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars. Injury and property damage crash estimates are derived from CRSS. CRSS collects general information from a probability sample of police accident reports (PARs).

Results

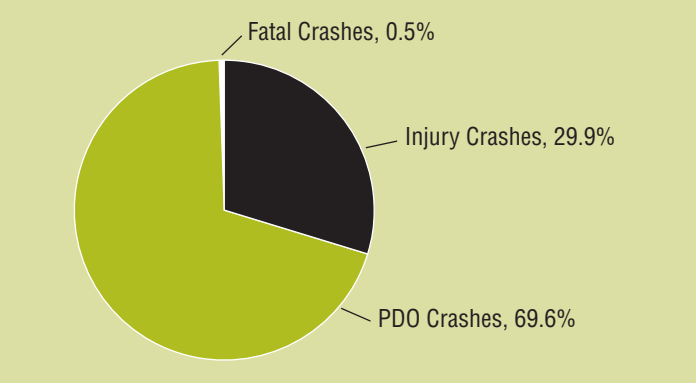
Crashes: As shown in Table 1 and Figure 1, there were an estimated 7,277,000 police-reported crashes in 2016. A large portion (~70%) were property-damage-only (PDO) crashes. There were an estimated 2,177,000 crashes that resulted in injuries. Data from NHTSA's FARS reported 34,439 fatal crashes in 2016 in the United States. While NHTSA usually reports estimates on police-reported non-fatal crashes rounded to the nearest thousand, unrounded estimates and the associated standard errors are also presented in Table 1. Crash Severity is the maximum injury severity among all people involved in the crash.

Table 1
Motor Vehicle Traffic Crashes in 2016, by Crash Severity

Crash Severity	Estimates [Unrounded Estimates/Standard Error]	Percent of Total Crashes
Fatal Crashes	34,439	0.5%
Injury Crashes	2,177,000 [2,177,201/142,291]	29.9%
PDO Crashes	5,065,000 [5,064,889/322,942]	69.6%
Total	7,277,000 [7,276,529/436,753]	100%

Source: 2016 FARS and 2016 CRSS. CRSS estimates have been rounded to nearest thousand. Percentages have been computed based on unrounded estimates.

Figure 1
Motor Vehicle Traffic Crashes in 2016, by Crash Severity



Source: 2016 FARS and CRSS

People Involved: As shown in Table 2, there were an estimated 17.7 million people involved in motor vehicle traffic crashes in 2016. Among the 17.7 million people involved in crashes, 9.6 million people (54.3%) were occupants of passenger cars; 7 million (39.7%) were occupants of light trucks and

vans; 585,000 (3.3%) were occupants of large trucks; 139,000 (0.8%) were motorcyclists; and 94,000 (0.5%) were pedestrians. Among the 17.7 million people involved in crashes, 14.6 million did not suffer any injury, 3.1 million suffered injuries, and 37,461 were fatally injured.

Table 2
People Involved in Police-Reported Crashes in 2016, by Vehicle Type and Injury Severity

Injury Severity	Passenger Cars	Light Trucks	Large Trucks	Motorcyclists	Pedestrians	Pedal cyclists	Others*	Total	Percent
Fatal	13,412	10,302	722	5,286	5,987	840	912	37,461	0.2%
Injured	1,739,000	1,071,000	38,000	105,000	85,000	60,000	45,000	3,144,000	17.7%
No Injury (PDO Crashes)	7,880,000	5,958,000	546,000	29,000	3,000	6,000	144,000	14,566,000	82.1%
Total	9,633,000	7,039,000	585,000	139,000	94,000	67,000	190,000	17,747,000	100%
Percent	54.3%	39.7%	3.3%	0.8%	0.5%	0.4%	1.1%	100%	

*Others include occupants of buses and other/unknown vehicles and other/unknown nonoccupants.
Source: 2016 FARS and 2016 CRSS. CRSS estimates have been rounded to nearest thousand. Percentages have been computed based on unrounded estimates.

Table 3 shows the fatality rate and estimated injury rate of people per 100,000 resident population, per 100,000 licensed drivers, per 100,000 registered vehicles, and per 100 million vehicle miles traveled (VMT). In 2016, the fatality rate was 11.59 per 100,000 resident population, 16.90 per 100,000 licensed drivers, 13.01 per 100,000 registered vehicles and 1.18 per 100 million VMT. The corresponding injury rates were 973 per 100,000 resident population, 1,418 per 100,000 licensed drivers, 1,091 per 100,000 registered vehicles and 99 per 100 million VMT.

Table 3
Fatality and Injury Rates in 2016 per Population, Licensed Drivers, Registered Vehicles, and VMT

Injury Severity	Number	Resident Population (Thousands)	Rate per 100,000 Population	Licensed Drivers (Thousands)	Rate per 100,000 Licensed Drivers	Registered Motor Vehicles (Thousands)	Rate per 100,000 Registered Vehicles	Vehicle Miles Traveled (Billions)	Rate per 100 Million VMT
Fatalities	37,461	323,128	11.59	221,712	16.90	288,034	13.01	3,174	1.18
Injuries	3,144,000		973		1,418		1,091		99

Source: 2016 FARS and 2016 CRSS. Injury rate estimates have been rounded to 1 and fatality rates rounded to the hundredths. CRSS estimates have been rounded to nearest thousand.

Table 4 shows the estimated numbers of people injured by type—occupants (people in a motor vehicle or on a motorcycle) or nonoccupants (pedestrians, pedalcyclists, etc.)—and by age group. An estimated 606,000 occupants injured in 2016 were 25 to 34 years old, the largest number among the age categories shown. For the same age group, about 29,000 nonoccupants were injured.

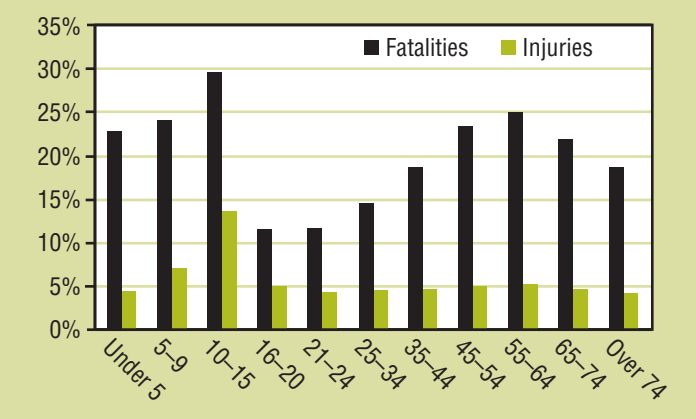
Table 4
People Injured in 2016, by Age Group and Person Type

Injury Severity	Age Group												
	Person Type	< 5	5–9	10–15	16–20	21–24	25–34	35–44	45–54	55–64	65–74	> 74	Total
Fatal	Occupant	304	288	463	2,832	3,173	5,889	4,055	4,073	3,874	2,664	2,728	30,382
	Nonoccupant	90	91	194	370	417	1,002	930	1,244	1,289	748	624	7,079
Injured	Occupant	63,000	77,000	100,000	366,000	309,000	606,000	435,000	416,000	327,000	177,000	108,000	2,983,000
	Nonoccupant	3,000	6,000	16,000	19,000	14,000	29,000	21,000	21,000	18,000	9,000	5,000	161,000

Source: 2016 FARS and 2016 CRSS. CRSS estimates have been rounded to nearest thousand.

Figure 2 depicts the estimated percentage of all people involved in certain age groups who were nonoccupants, by their injury severity. In every age group, the percentage who were nonoccupants was higher for those who were fatally injured as compared to those who were injured. Among all age groups, 10- to 15-year-olds had the highest percentage of nonoccupants, both for people killed and people injured, with about 30 percent for fatalities and 14 percent for injured people.

Figure 2
Percentage of People Involved in Crashes Who Were Nonoccupants in 2016, by Age Group and Injury Severity



Source: 2016 FARS and CRSS

Vehicles Involved: As shown in Table 5, in 2016, an estimated 12.9 million vehicles were involved in police-reported motor vehicle traffic crashes of which 7.2 million (55.7%) were passenger cars, 5 million (38.7%) were light trucks, 502,000 (3.9%) were large trucks, 129,000 (1%) were motorcycles and 71,000 (0.5%) were buses. An estimated 8.9 million vehicles were involved in a crash that resulted in no injuries (PDO crashes), 4 million were involved in injury crashes and 52,231 were involved in fatal crashes.

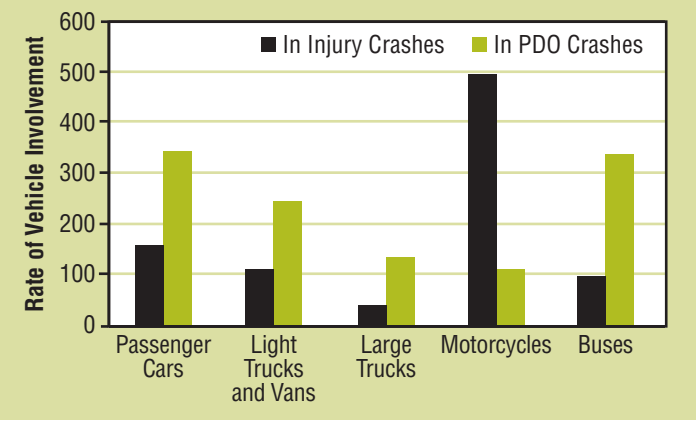
Table 5
Vehicles Involved in Crashes in 2016, by Vehicle Type and Crash Severity

Crash Severity	Passenger Cars	Light Trucks	Large Trucks	Motorcycles	Buses	Other / Unknown Vehicle	Total
Fatal (FARS)	20,839	20,069	4,213	5,421	227	1,462	52,231
Injury	2,247,000	1,529,000	110,000	101,000	16,000	6,000	4,009,000
PDO	4,931,000	3,461,000	388,000	23,000	55,000	14,000	8,872,000
Total	7,200,000	5,010,000	502,000	129,000	71,000	22,000	12,934,000
Percent	55.7%	38.7%	3.9%	1.0%	0.5%	0.2%	100%

Source: 2016 FARS and 2016 CRSS. CRSS estimates have been rounded to nearest thousand. Percentages have been computed based on unrounded estimates.

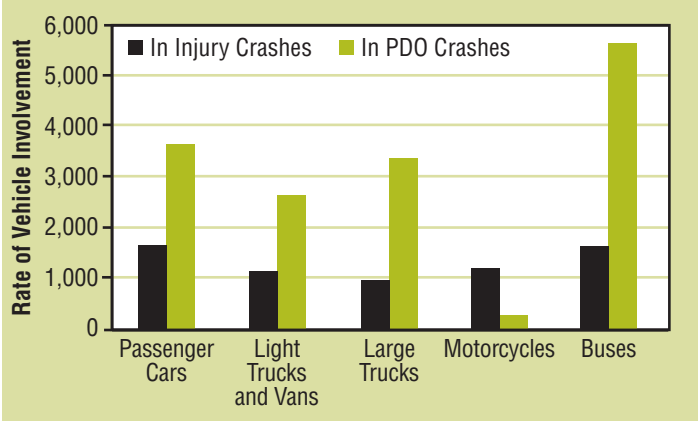
Figures 3 and 4 and Table 6 show the estimated rate of vehicles involved in injury or PDO crashes per 100 million VMT or per 100,000 registered vehicles. In 2016, the vehicle involvement rate for passenger cars in injury crashes was 1,666 per 100,000 registered vehicles. The corresponding rate in PDO crashes for passenger cars was 3,656 per 100,000 registered vehicles.

Figure 3
Vehicle Involvement Rates in Injury and PDO Crashes per 100 Million VMT, 2016



Source: 2016 FARS and CRSS

Figure 4
Vehicle Involvement Rates in Injury and PDO Crashes per 100,000 Registered Vehicles, 2016



Source: 2016 FARS and CRSS

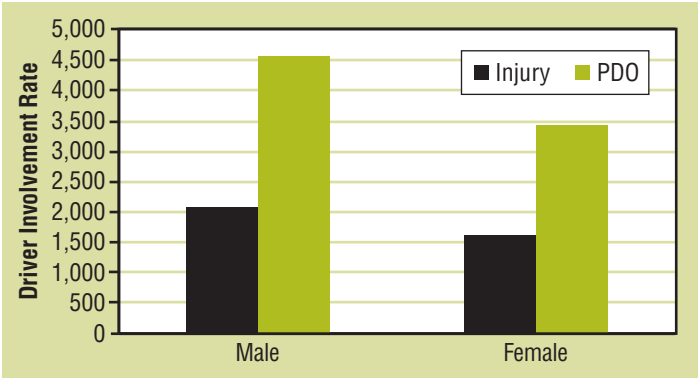
Table 6
Vehicle Involvement Rates per Vehicle Miles Traveled in 2016, by Registered Vehicles by Crash Severity and Vehicle Type

Crash Severity	Number	Involvement Rate per 100 Million VMT	Involvement Rate per 100,000 Registered Vehicles	Number	Involvement Rate per 100 Million VMT	Involvement Rate per 100,000 Registered Vehicles	Number	Involvement Rate per 100 Million VMT	Involvement Rate per 100,000 Registered Vehicles
	Passenger Cars			Light Trucks and Vans			Large Trucks		
Fatal	20,839	1.45	15.45	20,069	1.42	15.20	4,213	1.46	36.64
Injury	2,247,000	156	1,666	1,529,000	108	1,158	110,000	38	954
PDO	4,931,000	342	3,656	3,461,000	246	2,622	388,000	135	3,372
	Motorcycles			Buses			Other/Unknown Vehicles		
Fatal	5,421	26.52	62.46	227	1.39	23.25	1,462	–	–
Injury	101,000	496	1,167	16,000	96	1,609	6,000	–	–
PDO	23,000	110	260	55,000	337	5,652	14,000	–	–

Source: 2016 FARS and 2016 CRSS. Injury and PDO rate estimates are rounded to 1 and fatal rate estimates rounded to hundredths. Other CRSS estimates have been rounded to nearest thousand.

Driver Involvement Rates: Figure 5 and Table 7 show the estimated rate of drivers older than 15 involved in a crash per 100,000 licensed drivers by crash severity and driver's gender. Rates were higher for male drivers in crashes of all severities. The PDO crash involvement rate per 100,000 registered drivers was 4,547 for male drivers (older than 15) and 3,401 for female drivers (older than 15). The corresponding rates of driver involvement in injury crashes were 1,981 and 1,609, for male and female drivers, respectively. Finally 34.09 per 100,000 registered male drivers and 11.78 per 100,000 registered female drivers were the driver involvement rates in fatal crashes.

Figure 5
Driver (>15 Years of Age) Involvement Rate in 2016 per 100,000 Licensed Drivers, by Crash Severity and Gender



Source: 2016 CRSS

Table 7
Drivers Involved in Crashes and Involvement Rates per Licensed Driver in 2016, by Crash Severity and Gender

Crash Severity	Male (> 15 Years Old)			Female (> 15 Years Old)			Total (> 15 Years Old)		
	Number Involved in Crashes	Licensed Drivers (Thousands)	Involvement Rate per 100,000 Licensed Drivers	Number Involved in Crashes	Licensed Drivers (Thousands)	Involvement Rate per 100,000 Licensed Drivers	Number Involved in Crashes	Licensed Drivers (Thousands)	Involvement Rate per 100,000 Licensed Drivers
Fatal	37,352	109,556	34.09	13,208	112,093	11.78	50,581	221,649	22.82
Injury	2,170,000		1,981	1,803,000		1,609	3,974,000		1,793
PDO	4,982,000		4,547	3,812,000		3,401	8,794,000		3,967

Source: 2016 FARS and 2016 CRSS. CRSS estimates have been rounded to nearest thousand. Injury and PDO rate estimates are rounded to 1 and fatal rate estimates rounded to hundredths.

Restraint Use Among Passenger Vehicle Occupants: Table 8 shows the estimated numbers of passenger vehicle occupants (persons in a passenger car or on a light truck) by restraint use and their injury severity. Among the injured passenger vehicle occupants, about 5 percent were known to have not used a restraint as compared to 44 percent of fatally injured occupants.

Table 8
Restraint Use Among Occupants of Passenger Vehicles in 2016, by Injury Severity

Injury Severity	Restraint Used		No Restraint Used		Restraint Use Unknown		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Fatal	11,282	47.6%	10,428	44.0%	2,004	8.5%	23,714	100%
Injured	2,452,000	87.2%	130,000	4.6%	229,000	8.1%	2,811,000	100%

Source: 2016 FARS and 2016 CRSS. CRSS estimates have been rounded to nearest thousand. Percentages have been computed based on unrounded estimates.

Driver's Restraint Use: Table 9 shows the restraint use among drivers of passenger vehicles, by crash severity. Among drivers involved in injury crashes, about 3 percent of passenger vehicle drivers did not use a restraint as compared to about 24 percent of passenger vehicle drivers involved in fatal crashes.

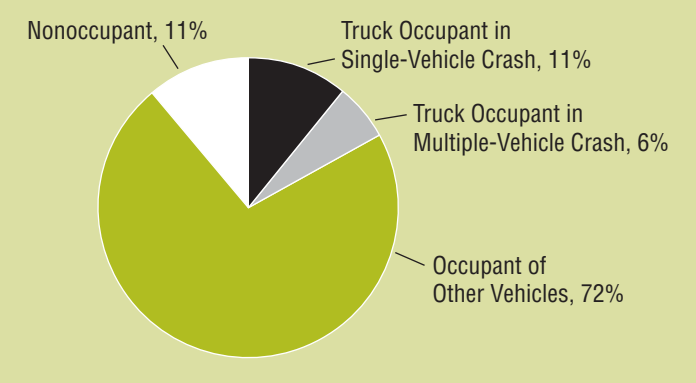
Table 9
Restraint Use Among Drivers of Passenger Vehicles in 2016, by Crash Severity

Crash Severity	Restraint Used		No Restraint Used		Restraint Use Unknown		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Fatal	27,587	67.8%	9,657	23.7%	3,437	8.4%	40,681	100%
Injury	3,343,000	88.6%	97,000	2.6%	332,000	8.8%	3,772,000	100%
PDO	7,471,000	89.2%	79,000	0.9%	828,000	9.9%	8,378,000	100%

Source: 2016 FARS and 2016 CRSS. CRSS estimates have been rounded to nearest thousand. Percentages have been computed based on unrounded estimates.

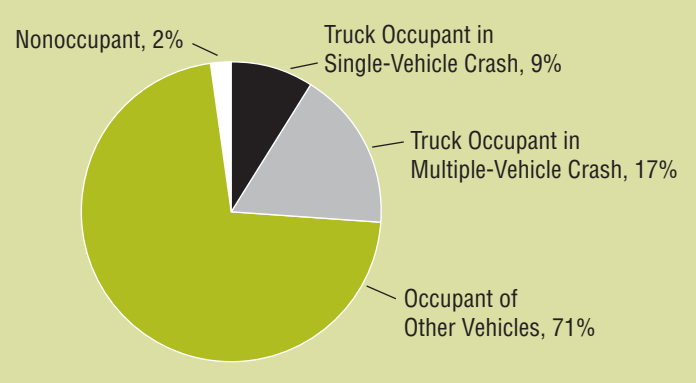
People in Large-Truck Crashes: Figures 6 and 7 as well as Table 10 show the number of people killed and the estimated number of people injured in large-truck-related crashes—crashes involving at least one large truck. In 2016, among the estimated 145,000 people injured in large-truck-related crashes, about three-quarters (71%) were occupants of other vehicles (other than the large truck) involved in the crash.

Figure 6
Fatalities in Large-Truck Crashes by Person Type, 2016



Source: 2016 FARS

Figure 7
People Injured in Large-Truck Crashes by Person Type, 2016



Source: 2016 CRSS

Table 10
People Killed or Injured in Large-Truck Crashes in 2016, by Crash Type, Injury Severity and Person Type

Injury Severity	Truck Occupants by Crash Type			Other People			Total
	Single Vehicle	Multiple Vehicle	Total	Occupant of Other Vehicles	Nonoccupant	Total	
Fatal	460	262	722	3,127	468	3,595	4,317
Injury	14,000	24,000	38,000	103,000	4,000	107,000	145,000

Source: 2016 FARS and CRSS. CRSS estimates have been rounded to nearest thousand.

Comparisons of 2016 CRSS With FARS and GES

Comparisons of 2016 CRSS estimates with GES estimates should be performed with caution. Estimates of fatal crashes from the GES have been consistently and significantly lower than the totals reported from FARS. However, comparisons among GES estimates are less likely confounded by this issue. For a broader discussion of this, and guidance on how to analyze the new data, please refer to the companion Technical Report (NHTSA, DOT HS 812 509).

FARS is a national census of fatal crashes. FARS totals do not have probability sampling errors. Fatal crash estimates from CRSS, taking into account their sampling errors, are comparable to the corresponding totals from FARS, thereby correcting a long-standing underreporting in GES. However, NHTSA will continue calculate fatal-crash counts from FARS.

The 2016 CRSS Sample

The map on the next page shows the 60 data collection sites selected for CRSS.

In 2016, the CRSS sample comprised of 47,872 police accident reports (PARs) out of which 47,515 were eligible to be included in the final analytic file for weighting and estimation. These PARs were collected in 337 police jurisdictions in 53 responding sites across the country. In 2017, NHTSA collected data across all 60 sites.

Validation of the 2016 CRSS Weights

Broadly, NHTSA used known population parameters such as fatal crashes and census population estimates to assess the performance of CRSS weights. These evaluations support the reliability of the weights and the results will be documented in the upcoming CRSS sample design and weighting report.

Downloading and Analyzing 2016 CRSS Data

The 2016 CRSS can be downloaded here: ftp://ftp.nhtsa.dot.gov/CRSS/.

The analytic user's manual can be found here: https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812510.

A statistical Users Guide and Q&A can be found here: https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812509.

A comprehensive technical report detailing the various aspects of the three-stage probability-based sample design and the estimation protocols will be released by NHTSA later this year.

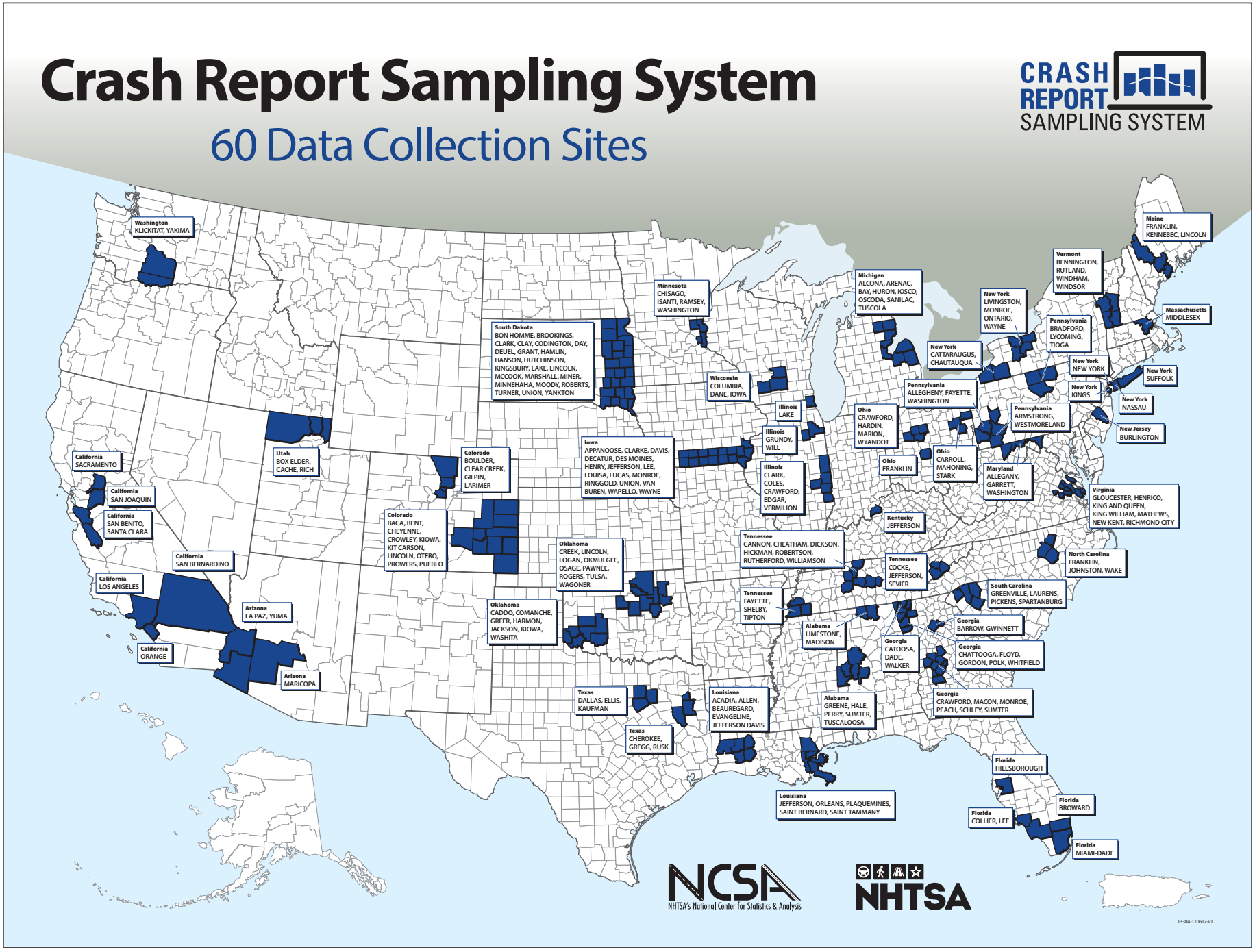
Suggested APA Format Citation for this document:

National Center for Statistics and Analysis. (2018, March). *Police-reported motor vehicle traffic crashes in 2016*. (Research Note Report No. DOT HS 812 501). Washington, DC: National Highway Traffic Safety Administration.

U.S. Department of Transportation
National Highway Traffic Safety Administration

For questions regarding the information presented in this document, please contact NCSAWEB@dot.gov. Access this Crash•Stats and other general information on traffic safety at www-nrd.nhtsa.dot.gov/CATS/index.aspx.

Figure 8
CRSS Data Collection Sites



13585-032118-v3