

ITSMR Research Note

KEY FINDINGS

TOTAL FATALITIES

- 936 motor vehicle fatalities occurred in NYS in 2018, down from 1,148 in 2009, while fatalities nationwide increased from 33,883 in 2009 to 36,750 in 2018.
- NYS fatalities per 100M VMT dropped from 0.86 in 2009 to 0.76 in 2018, compared to the national rate which was basically unchanged (1.15 in 2009 and 1.16 in 2018).

COMPARISON OF FIVE-YEAR MOVING AVERAGES: 2009-2013 VS. 2014-2018

- 13% decrease in total NYS fatalities, compared to 8% increase in fatalities nationwide
- 9% drop in pedestrian fatalities (314 vs. 287)
- 11% decrease in speed-related fatalities (339 vs 302)
- 11% decline in impaired driving-related fatalities (477 vs 427)
 - ✓ 22% decline in alcohol-related fatalities (364 vs. 285)
 - ✓ 18% increase in drug-related fatalities (215 vs 254)
- 12% drop in motorcyclist fatalities (166 vs 146)
- Fatalities in crashes involving large truck crashes dropped 9% (101 vs 92)
- Fatalities in crashes involving young drivers decreased 31% (152 vs 105)
- Fatalities in crashes involving older drivers dropped 1% (218 vs 215)

CONCLUSIONS

- Despite the downward trend in total fatalities, the finding that drug-related fatalities are on an upward trend suggests that increased and enhanced enforcement of the drugged driving laws and more public awareness efforts are warranted by the GTSC and the state's Advisory Council on Impaired Driving.
- As the substantially large baby boom generation continues to rapidly age into retirement and beyond, more emphasis on traffic safety issues related to the older driver should be considered.

Fatalities on New York Roadways: A Decade of Progress

INTRODUCTION

Over the past decade, New York has made tremendous strides in reducing fatalities on its roadways. In 2018, there were 936 motor vehicle fatalities in New York State, compared to 1,148 in 2009. This is in contrast to fatalities nationwide, with 36,750 fatalities occurring in 2018, up from 33,883 in 2009.

Motor Vehicle Fatalities New York State and Nationwide		
	New York State	Nationwide
2009	1,148	33,883
2010	1,192	32,999
2011	1,153	32,479
2012	1,163	33,782
2013	1,188	32,893
2014	1,026	32,744
2015	1,116	35,484
2016	1,029	37,806
2017	1,000	37,133
2018	936	36,750 (Prelim)

To smooth out the annual fluctuations in the data over the past decade, five-year moving averages were examined for the years 2009-2013, 2010-2014, 2011-2015, 2012-2016, 2013-2017 and 2014-2018. As shown in Figures 1a & 1b, the five-year moving averages show that NYS fatalities dropped from 1,169 in 2009-2013 to 1,021 in 2014-2018, representing a decrease of 13%, while fatalities nationwide increased by 8% (33,207 vs. 35,983).

The NYS Governor's Traffic Safety Committee (GTSC) recently funded the Institute for Traffic Safety Management and Research (ITSMR) to conduct a study that examined changes in a number of types of fatalities, from pedestrian fatalities to fatalities in speed-related or alcohol-related crashes. This *Research Note* summarizes the results of that study.

The data for this ten-year study (2009-2018) were obtained from the National Highway Traffic Safety Administration's Fatality Analysis Reporting System (FARS) and the NYS DMV's Accident Information System (AIS). The NYS data can be viewed through its Traffic Safety Statistical Repository (TSSR) at www.Itsmr.org/tssr.

FIGURE 1a
NYS Motor Vehicle fatalities
Five-Year Moving Averages

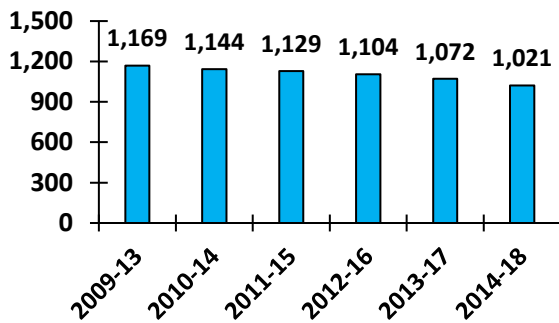
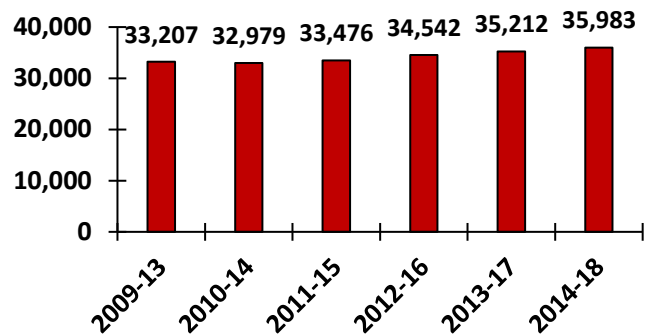


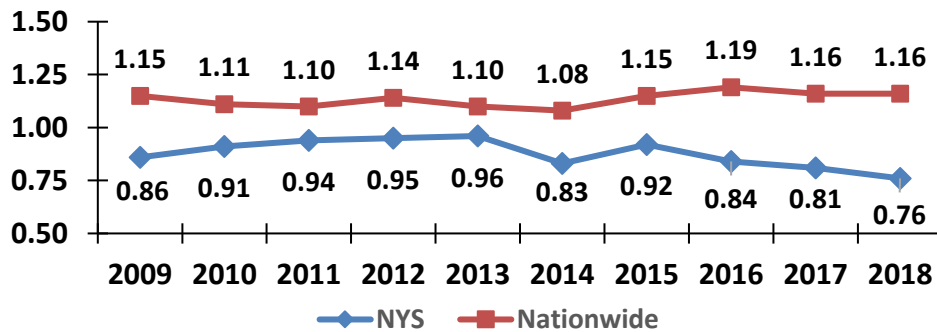
FIGURE 1b
Nationwide Motor Vehicle Fatalities
Five-Year Moving Averages



RESULTS OF ANALYSES

The initial set of analyses explored the changes in motor vehicle fatalities in New York State and Nationwide over the past ten years. Since the annual number of fatalities may vary based on the number of vehicle miles traveled (VMT) each year, the fatality rates per 100 million VMT were examined. As shown in Figure 2, the NYS fatality rate dropped 12% between 2009 and 2018, compared to basically no change in the national fatality rate.

FIGURE 2
Motor Vehicle Fatalities Per 100M VMT
New York State vs. Nationwide



The second set of analyses examined the following fatality data:

- ❖ Driver and passenger fatalities
- ❖ Pedestrian, bicyclist & motorcyclist fatalities
- ❖ Fatalities in -
 - ✓ Speed-related crashes
 - ✓ Impaired driving crashes
 - ✓ Large truck crashes
 - ✓ Crashes involving young drivers
 - ✓ Crashes involving older drivers

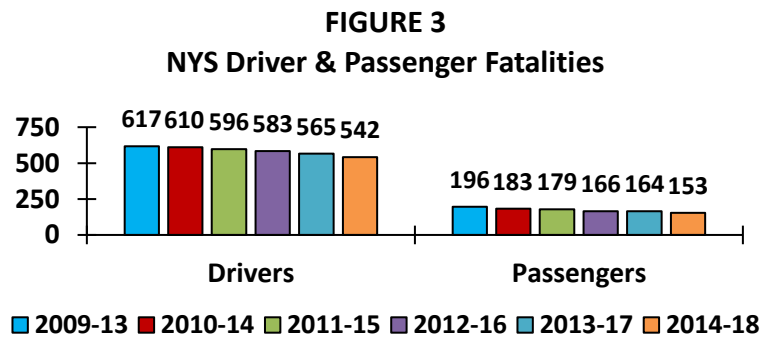
The annual fatality data for each of these fatality series is presented below in Table 1. Regardless of the fatality data examined (e.g., driver, pedestrian, alcohol-related), the data fluctuated annually over the ten years, 2009-2018. Because of these fluctuations, all of the analyses for the various data series were conducted

using the five-year moving averages for the years 2009-2013, 2010-2014, 2011-2015, 2012-2016, 2013-2017 and 2014-2018. The findings from these analyses are summarized below.

TABLE 1 NYS Motor Vehicle Fatalities Type of Fatality										
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Drivers	603	646	597	612	625	571	577	532	518	512
Passengers	209	198	203	194	178	140	181	139	181	122
Pedestrians	307	311	296	312	344	268	321	320	252	272
Bicyclists	29	36	57	45	40	47	36	38	48	30
Motorcyclists	151	183	168	164	166	146	160	130	143	150
Impaired-related	475	500	461	469	479	386	468	413	390	476
Alcohol-related	361	354	362	358	387	292	313	272	252	295
Drug-related	216	245	200	205	208	188	264	267	235	314
Speed-related	357	319	319	348	352	311	327	306	301	267
In Large Truck Crashes	103	110	96	92	105	79	109	97	101	74
In Young Driver Crashes	194	154	126	147	139	110	107	108	113	86
In Older driver Crashes	193	217	207	231	242	212	222	226	222	195

Driver and Passenger Fatalities

As indicated in Figure 3, the five-year moving averages for both driver fatalities and passenger fatalities decreased substantially over the past decade. Between 2009-2013 and 2014-2018, driver fatalities dropped by 12% (617 vs. 542) and passenger fatalities dropped by 22% (196 vs. 153).

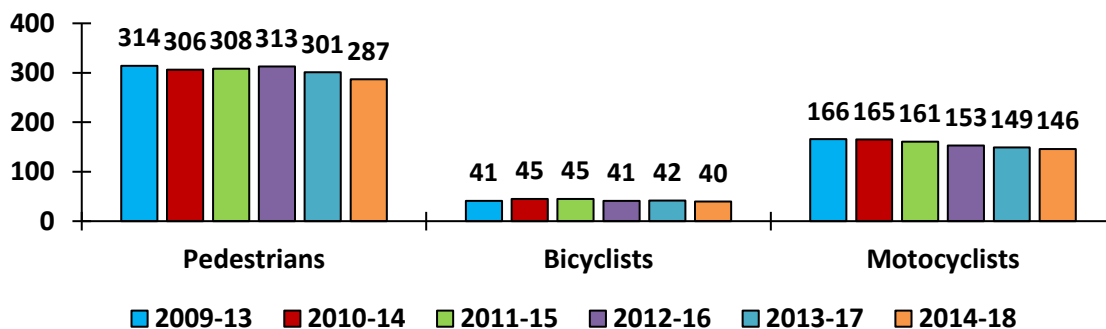


Pedestrian, Bicyclist & Motorcyclist Fatalities

Figure 4 shows the five-year moving averages for pedestrian, bicyclist and motorcyclist fatalities, from 2009-2013 to 2014-2018. The five-year moving average for pedestrian fatalities decreased by 9% between 2009-2013 and 2014-2018 (314 vs. 287). Motorcyclist fatalities are on a steady

downward trend, with the five-year moving average dropping 12% from 166 in 2009-2013 to 146 in 2014-2018. Bicyclist fatalities have fluctuated between 40 and 45 fatalities in the six five-year periods.

FIGURE 4
NYS Pedestrian, Bicyclist & Motorcyclist Fatalities



Fatalities in Impaired Driving Crashes

Since a driver can be impaired by alcohol or drugs or both alcohol and drugs, three series of fatality data were analyzed to determine what changes have occurred, if any, in the area of impaired driving:

- 1) *Impaired driving fatalities* includes fatalities in crashes that involved alcohol, drugs or both.
- 2) *Alcohol-related fatalities* includes fatalities in crashes that involved only alcohol.
- 3) *Drug-related fatalities* includes fatalities in crashes that involved only drugs.

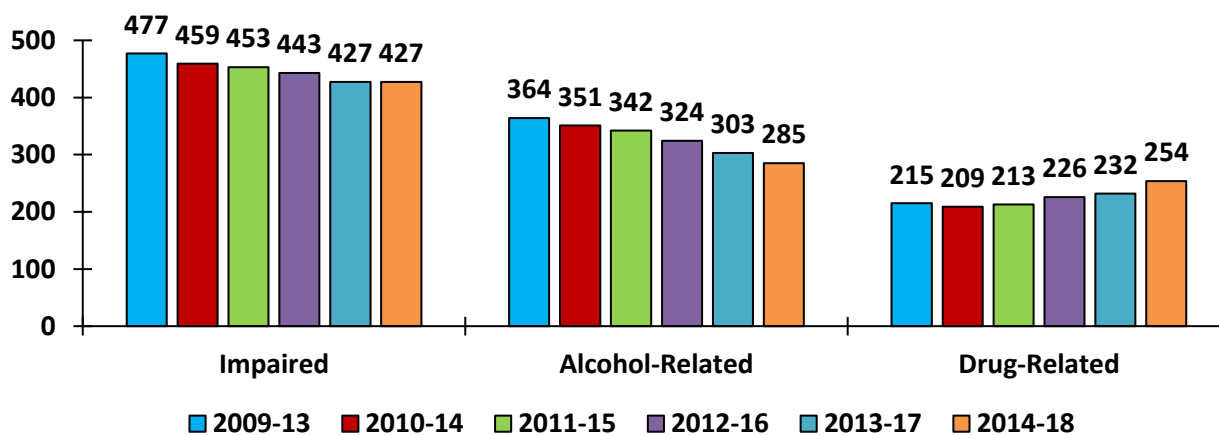
As seen in Figure 5, the five-year moving average of impaired driving fatalities has been on a downward trend over the past decade, dropping from 477 in 2009-2013 to 427 in 2013-2017 and 2014-2018. This represented a decrease of 11% over the past

ten years. This drop is due to the decrease in alcohol-related fatalities over the 10 years.

The five-year moving average for alcohol-related fatalities decreased from 364 in 2009-2013 to 285 in 2014-2018 (Figure 5). This represented a drop of 22%. In contrast, the five-year moving average for drug-related fatalities increased 18% over the same time span. It rose from 215 in 2009-2013 to 254 in 2014-2018.

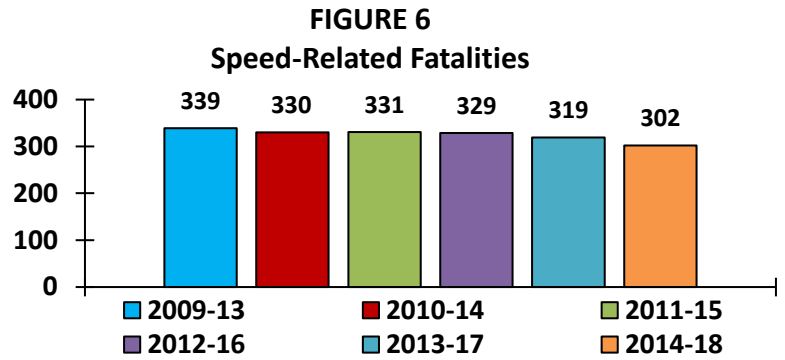
It should be noted that the numbers of alcohol-related and drug-related fatalities cannot be added together to get a total count of impaired driving fatalities, since a fatality could involve both alcohol and drugs and therefore would get doubled counted.

FIGURE 5
NYS Impaired, Alcohol-Related and Drug-Related Fatalities



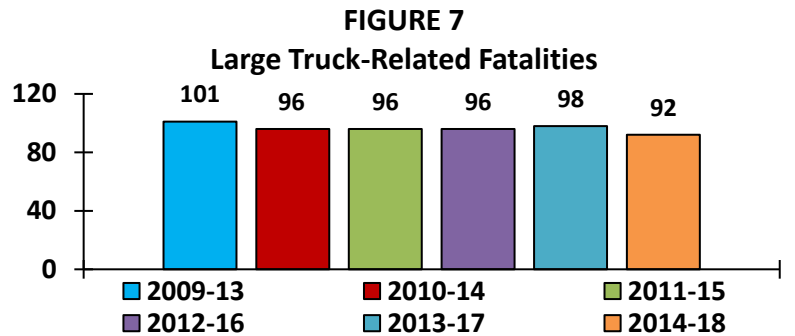
Fatalities in Speed-Related Crashes

Analyses of the five-year moving averages for fatalities in speed-related crashes showed a decline from 2009-2013 to 2010-2014, where it leveled off until declining in 2013-2017 and again in 2014-2018 (Figure 6). The overall drop between the five-year average in 2009-2013 (339) and 2014-2018 (302) represents a decrease of 11%.



Fatalities in Large Truck Crashes

As shown in Figure 7, the five-year moving average for fatalities in large truck crashes decreased from 101 in 2009-2013 to 96 in 2010-2014, where it remained constant until 2014-2018 when it dropped to 92. The decline between 2009-2013 (101) and 2014-2018 (92) was 9%.



Fatalities in Crashes Involving Young Drivers & Older Drivers

Figures 8a and 8b show the changes that have occurred over the past several years in the five-year moving averages of fatalities in crashes involving young drivers and crashes involving older drivers. With regard to crashes involving young drivers, the five-year moving average of fatalities has been on a downward trend, dropping from 152 in 2009-2013 to 105 in 2014-2018 (Figure 8a). This

represents a significant decrease of 31%. A different pattern is seen in the five-year moving average of fatalities in crashes involving older drivers. Figure 8b shows that the five-year moving average remained fairly constant over the six five-year periods of 2009-2013 to 2014-2018, decreasing 1% between 2009-2013 (218) and 2014-2018 (215).

FIGURE 8a
NYS Motor Vehicle Fatalities
in Crashes Involving Young Drivers

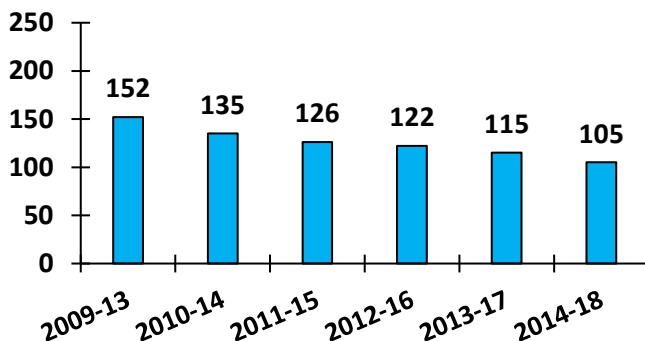
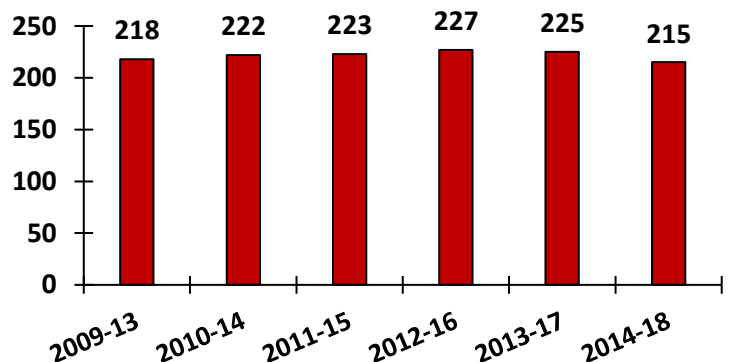


FIGURE 8b
NYS Motor Vehicle Fatalities
in Crashes Involving Older Drivers



SUMMARY

Analyses of the five-year moving averages for the total number of motor vehicle fatalities and the different types of fatalities show that each of the series experienced a decline except for drug-related fatalities. Table 2 shows that total fatalities dropped by 13% between 2009-2013 and 2014-2018. With regard to the various data sets of fatalities examined, Table 2 indicates that the largest decline in fatalities occurred in crashes involving young drivers (31%), followed by alcohol-related fatalities (22%) and passenger fatalities (22%). The only increase in the five-year moving averages over the past decade occurred in drug-related fatalities; they rose 18% between 2009-2013 and 2014-2018.

The finding that drug-related fatalities are on an upward trend while alcohol-related fatalities are on a downward trend suggests that increased and enhanced enforcement of the drugged driving laws and more public awareness efforts are warranted by the GTSC and the state's Advisory Council on Impaired Driving. In addition, because the substantially large baby boom generation continues to rapidly age into retirement and beyond, more emphasis on traffic safety issues related to the older driver should be considered.

TABLE 2			
NYS Motor Vehicle Fatalities			
Five-Year Moving Averages			
2009-2013 Vs. 2014-2018			
	2009-2013	2014-2018	Change
TOTAL	1,169	1,021	-13%
Drivers	617	542	-12%
Passengers	196	153	-22%
Pedestrians	314	287	-9%
Bicyclists	41	40	-4%
Motorcyclists	166	146	-12%
Impaired-related	477	427	-11%
Alcohol-related	364	285	-22%
Drug-related	215	254	+18%
Speed-related	339	302	-11%
In Large Truck Crashes	101	92	-9%
In Young Driver Crashes	152	105	-31%
In Older Driver Crashes	218	215	-1%

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