Center for Analytics & Research in Transportation Safety

Louisiana Traffic Records Data Report 2019

CARTS.lsu.edu

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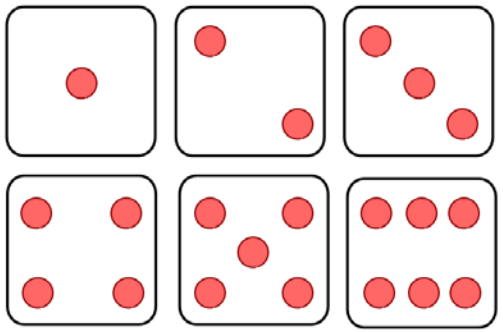
CARTS
Center for Analytics and Research in Transportation Safety

Overview

- Trends in Crashes, Fatalities & Injuries
- Explanation of trends
- Driving Under the Influence of Alcohol: Crashes and DWI Arrests
- Occupant Protection
- Crash Costs

Some Notes about Interpretation of Data

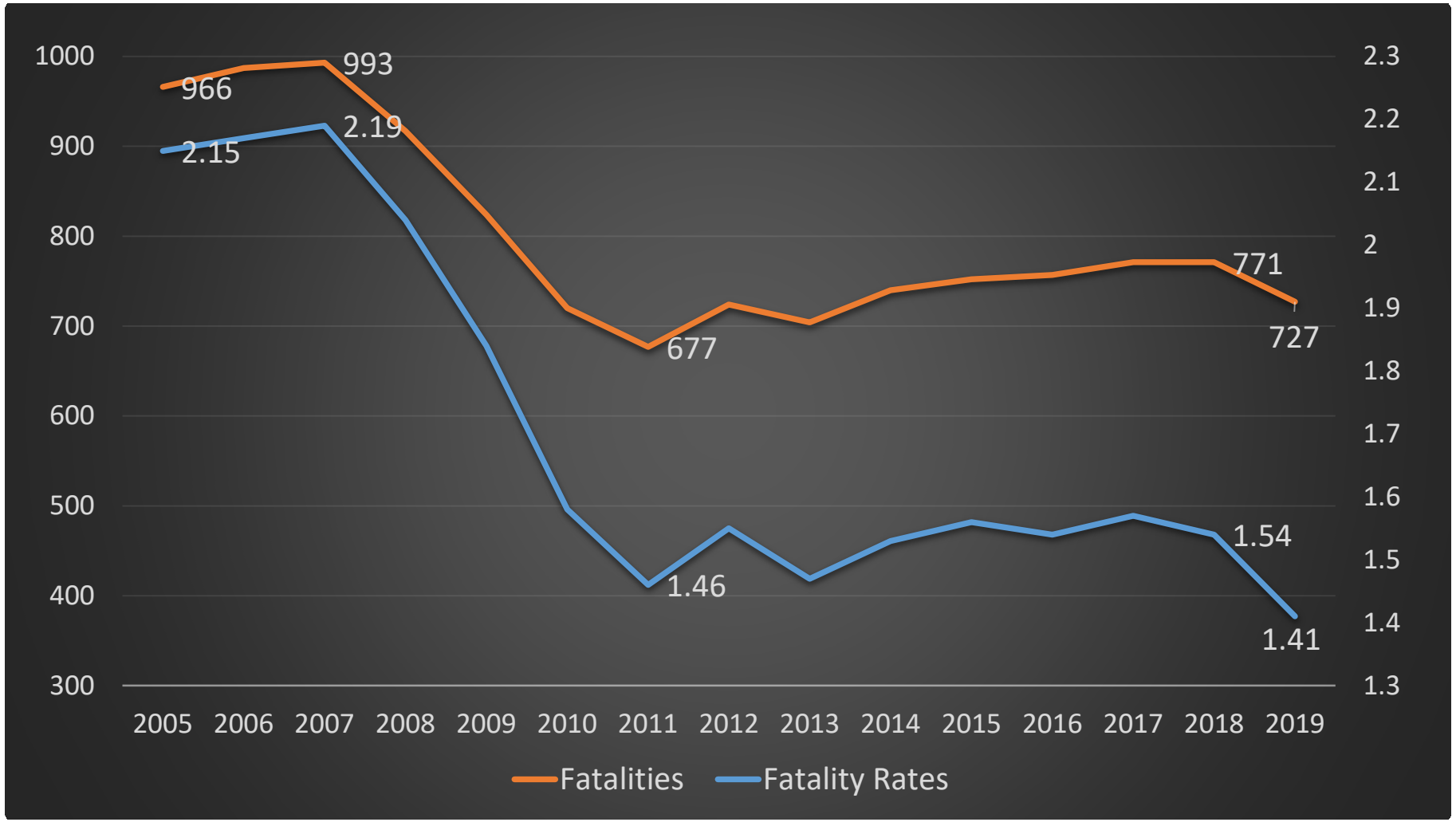


- Regression to the mean
- Explaining versus predicting
  - Predicting: Does it continue to happen?
  - Explaining: Why did it happen?
- Causation versus correlation
  - Drunk driving is associated with fatal crashes. (Correlation)
  - Does an increase in drunk driving result in an increase of fatal crashes? (Causation)
  - Drugged driving is associated with fatal crashes. (Correlation)
  - Does an increase in drugged driving result in an increase of fatal crashes? (Causation)
- Confounding
  - Confounding of factors make it difficult to interpret which factor caused the crashes to go up or down.

Trends

- What are the trends in crashes, fatalities and injuries?
- What are the trend in rates?
- What are one-year changes?
- What are changes from 2010 to 2019?
- Highlights:
  - Interstates
  - Bicycles
  - Pedestrians
  - Motorcycles
  - Young drivers
  - Crash costs

Trends in Fatalities & Fatality Rate

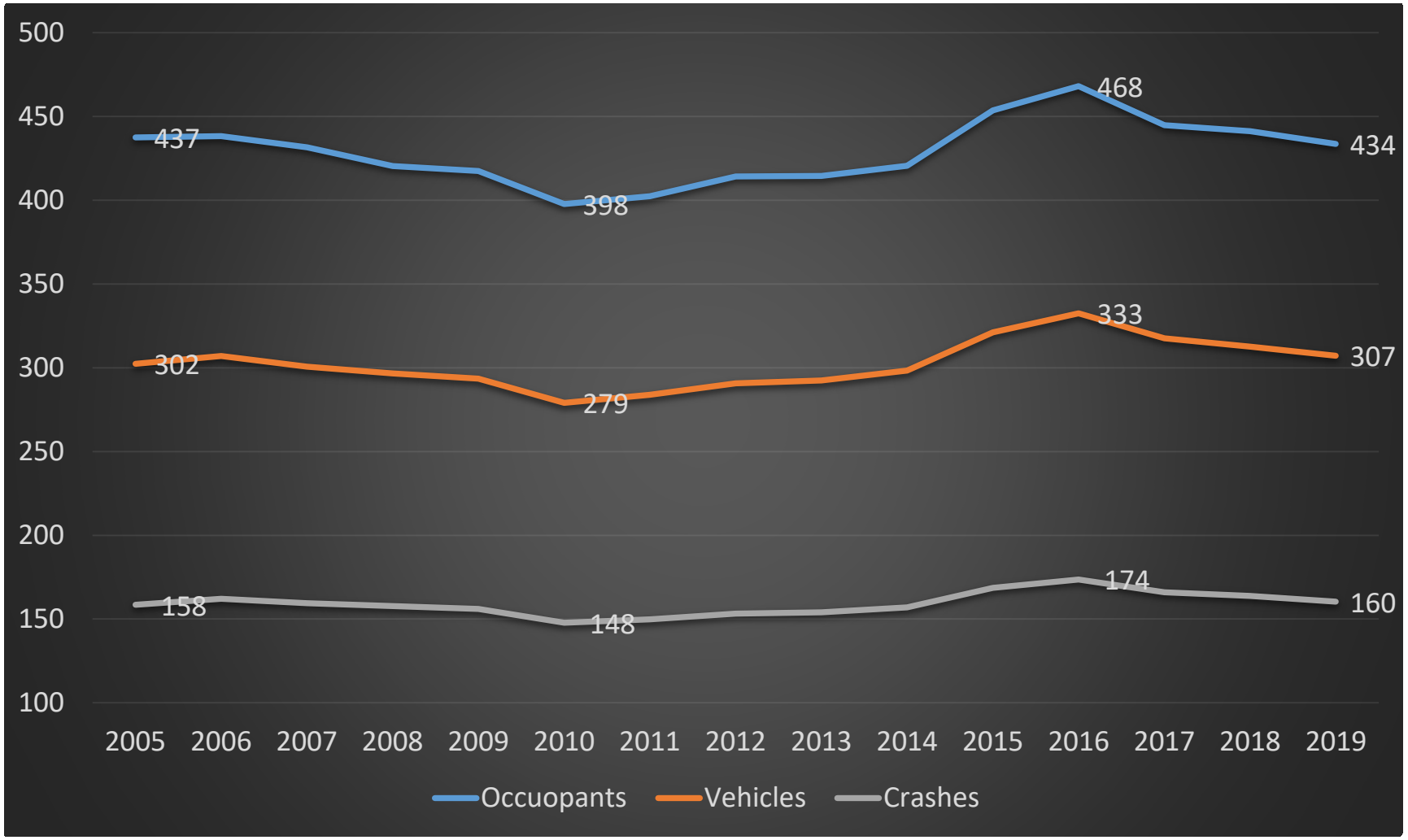


While the fatalities have been on the rise again since 2012, there was no change from 2017 to 2018, but a decline of 44 fatalities from 2018 to 2019 or 5.7%.

Fatalities per 100 million miles traveled declined by 8.4% from 2018 to 2019.

What is the cause for this “Z” curve?

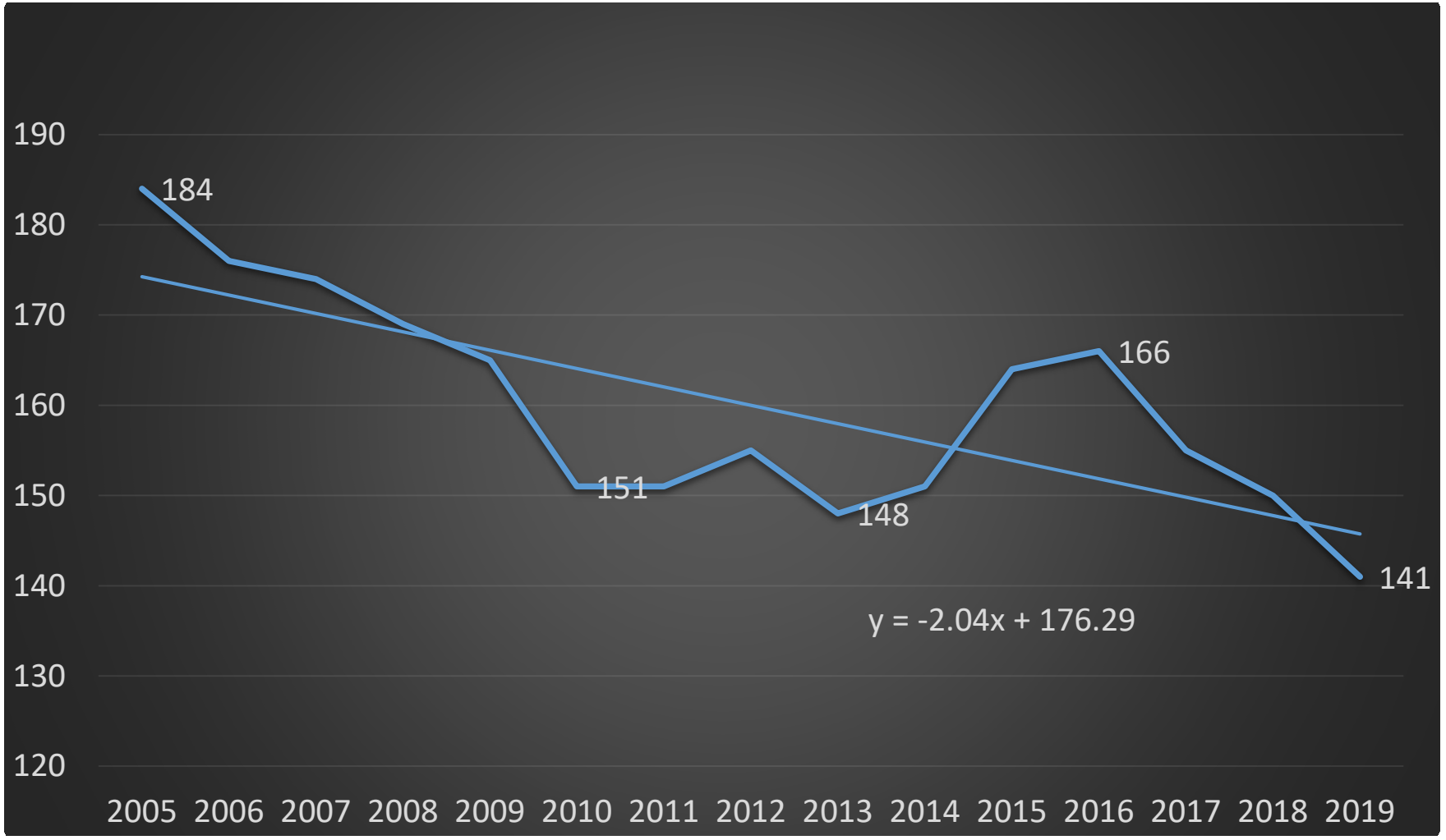
Crashes, Vehicles, Occupants (1,000)



Number of

- # of crashes
- # Occupants in Crashes
- # Vehicles in crashes

Serious and Moderate Injury Rate (per 100 Million Miles)

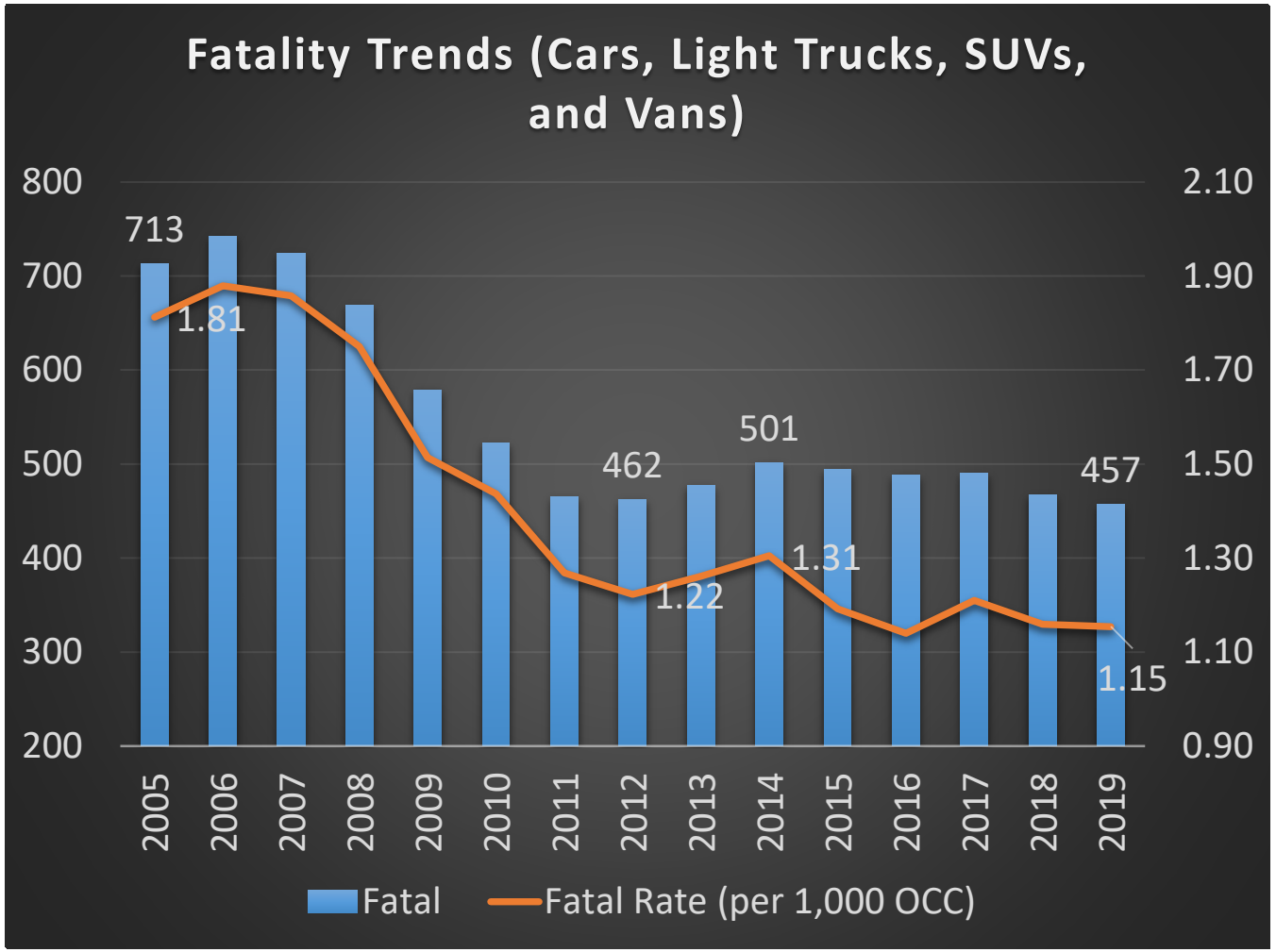


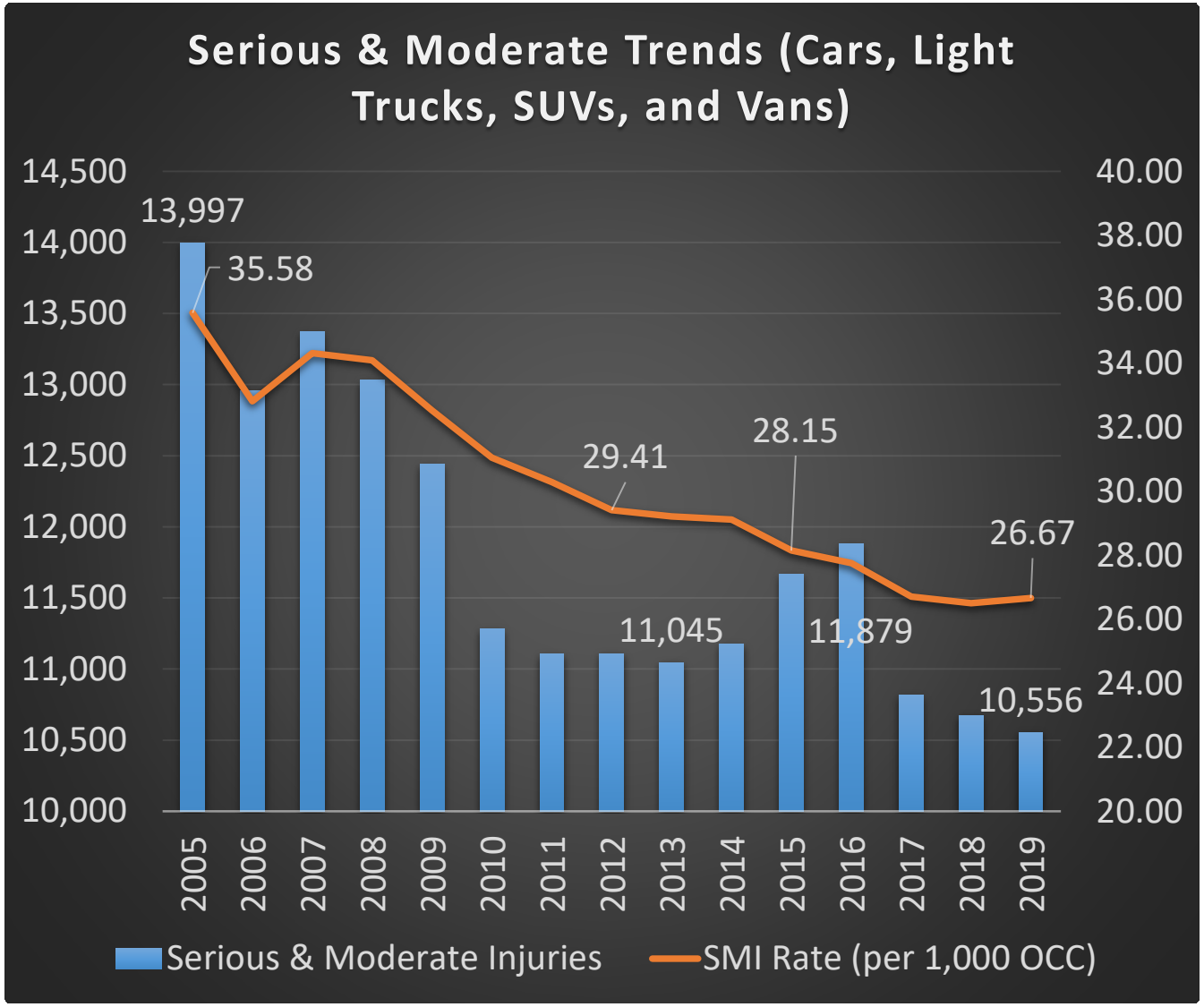
Over the past 15 years
the serious & moderate injury rate has dropped on average 2 injuries per year per 100 million miles traveled.

Fatality Rate per 1,000 Occupants of Cars, Light Trucks, SUVs, and Vans

If we still had the same fatality rate per occupant as in 2006 (1.81) we would have had 287 more fatalities in 2019.

The fatality rate per occupant seems to have shifted to a lower level starting in 2008.





Moderate and Severe Injury (Cars, Light Trucks, SUVs, and Vans)

Moderate-to- Severe Injuries:
Decreased from 13,997 in 2005 to 10,556 in 2019

The Moderate-to- Severe-Injury Rate:
(per 1,000 Occupants)
Decreased from 35.58 in 2005 to 26.67 in 2019.
Has been flat between 26.71 (2017), 26.51 (2018)
And 26.67 (2019).

If we had the same injury rate as in 2005,
we would have had 3, 528 more moderate to severe injuries in 2019.

Conclusion from the Trend Data

A comparison between 2005 and 2019 crash data for LA show:

- about the same number of **crashes**
- about the same number of **vehicles** in crashes
- about the same number of **occupants** in crashes

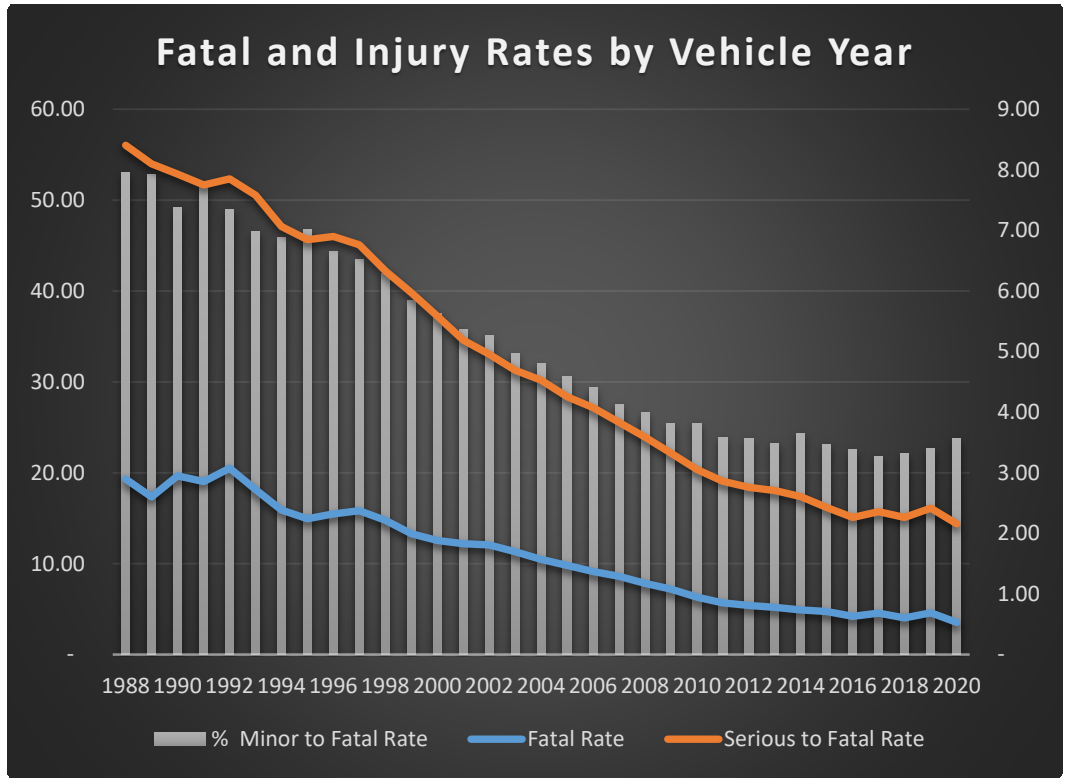
However, LA had

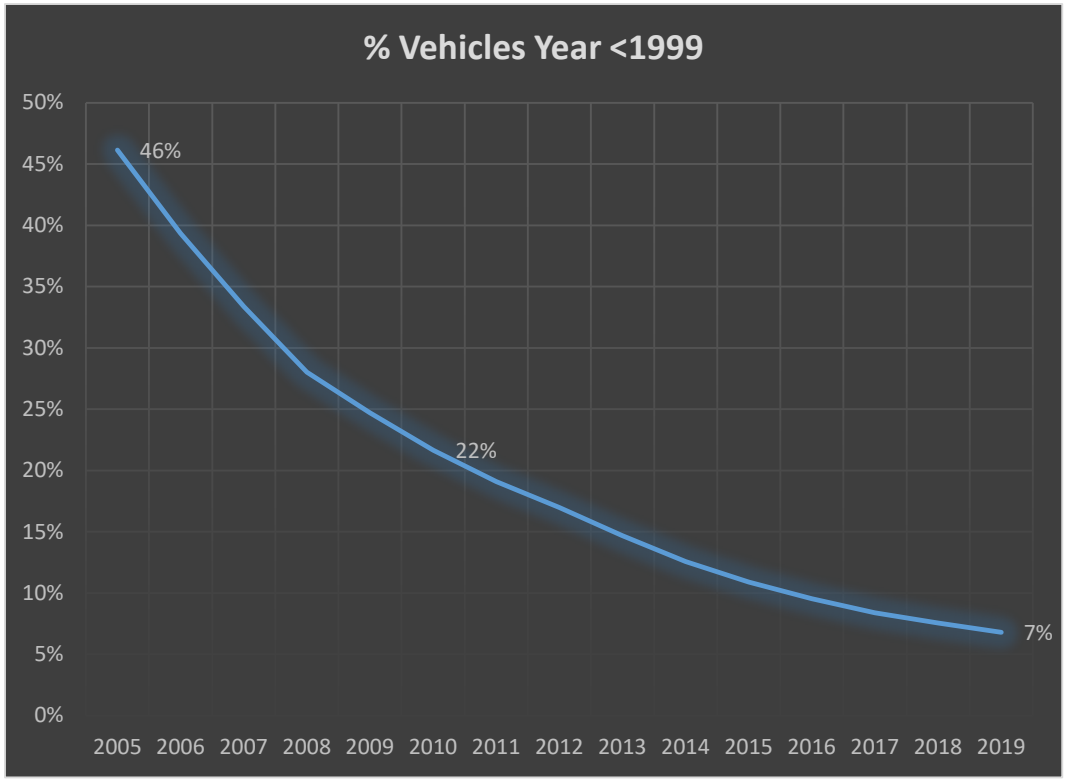
- 35.9% fewer fatalities in (Cars, Light Trucks, SUVs, and Vans)
- 24.6% fewer serious and moderate injuries in (Cars, Light Trucks, SUVs, and Vans)

Explaining Injury & Fatality Trends

- 1984 (FMVSS 208) to require cars produced after 1 April 1989 to be equipped with a passive restraint for the **driver**.
- September 1998 Federal legislation makes front **airbags** on both **sides mandatory**.
- 2009 NHTSA mandate that all automakers must phase in additional side-impact protection as a standard feature for their cars, trucks and SUVs goes in effect.

Fatality and Injury Rates by Vehicle Model Year (Per 100,000 Occupants in crashes)





The rate of serious to fatal injuries declined by **78.4%** from 1988 model vehicle to a 2000 model vehicle.
The rate of fatalities declined by **90.5%** from 1988 model vehicle to a 2000 model vehicle.

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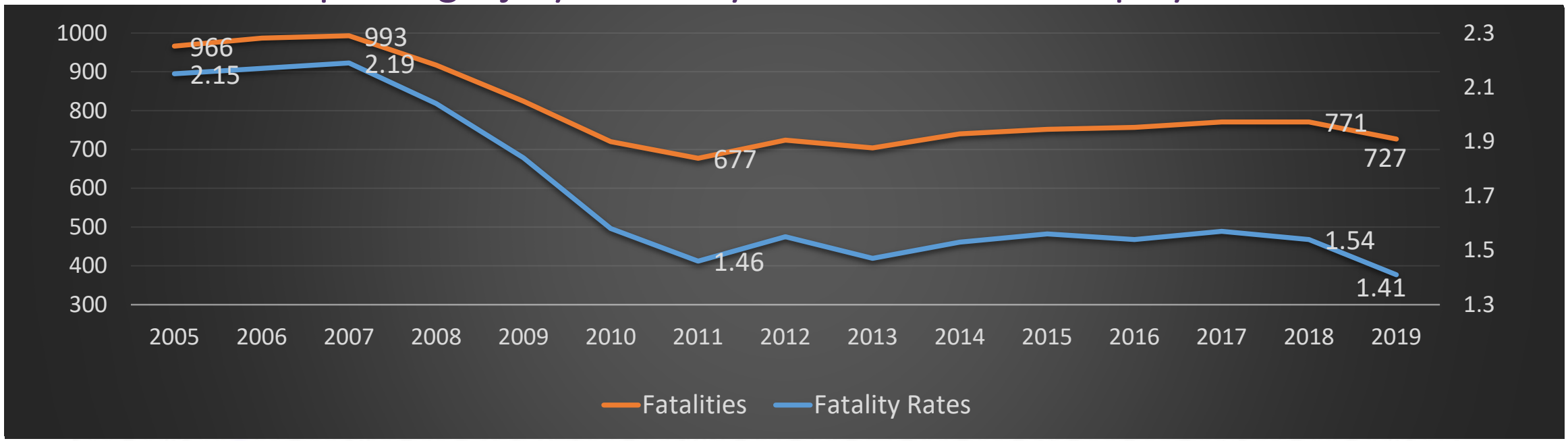
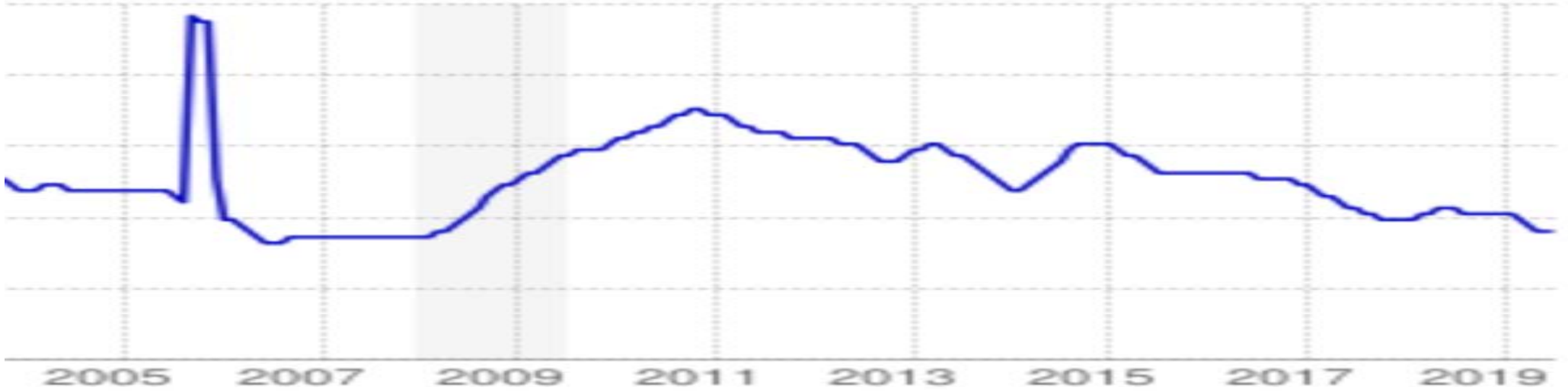
Explaining Injury & Fatality Trends versus Unemployment





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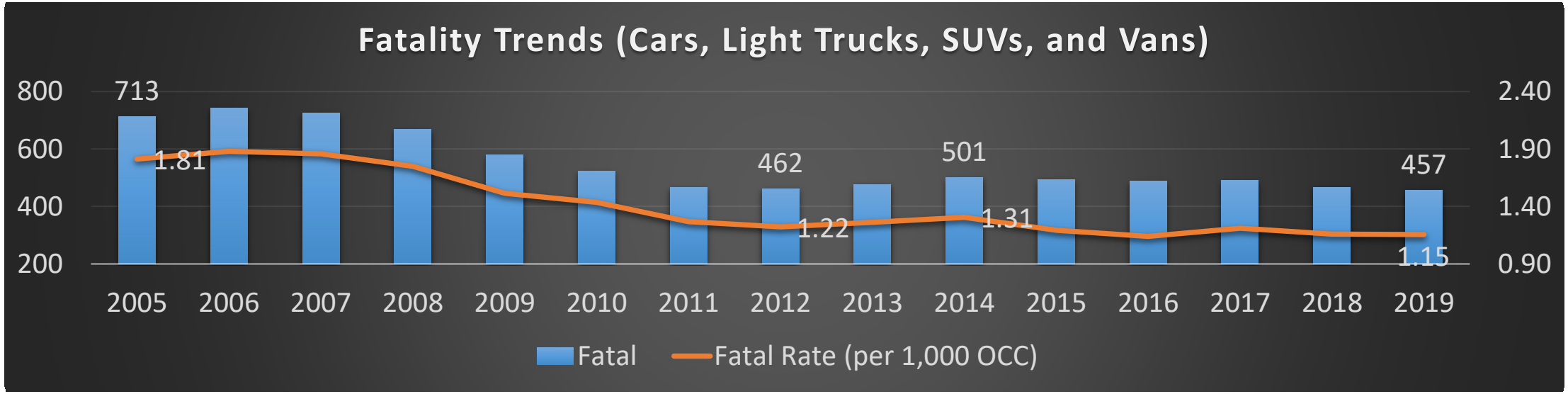
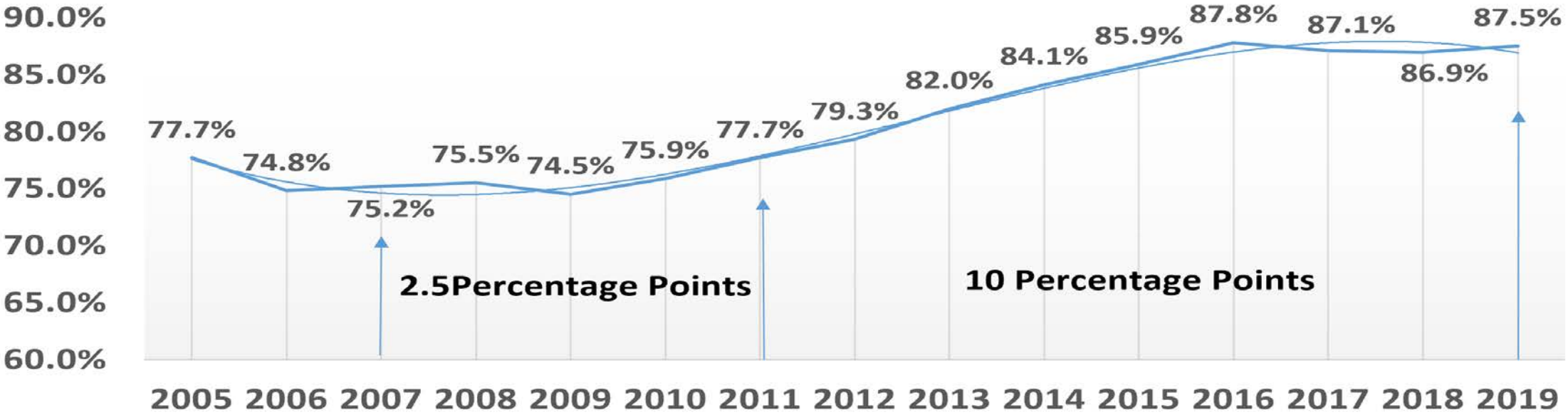
Explaining Injury & Fatality Trends versus Seat Belt Use



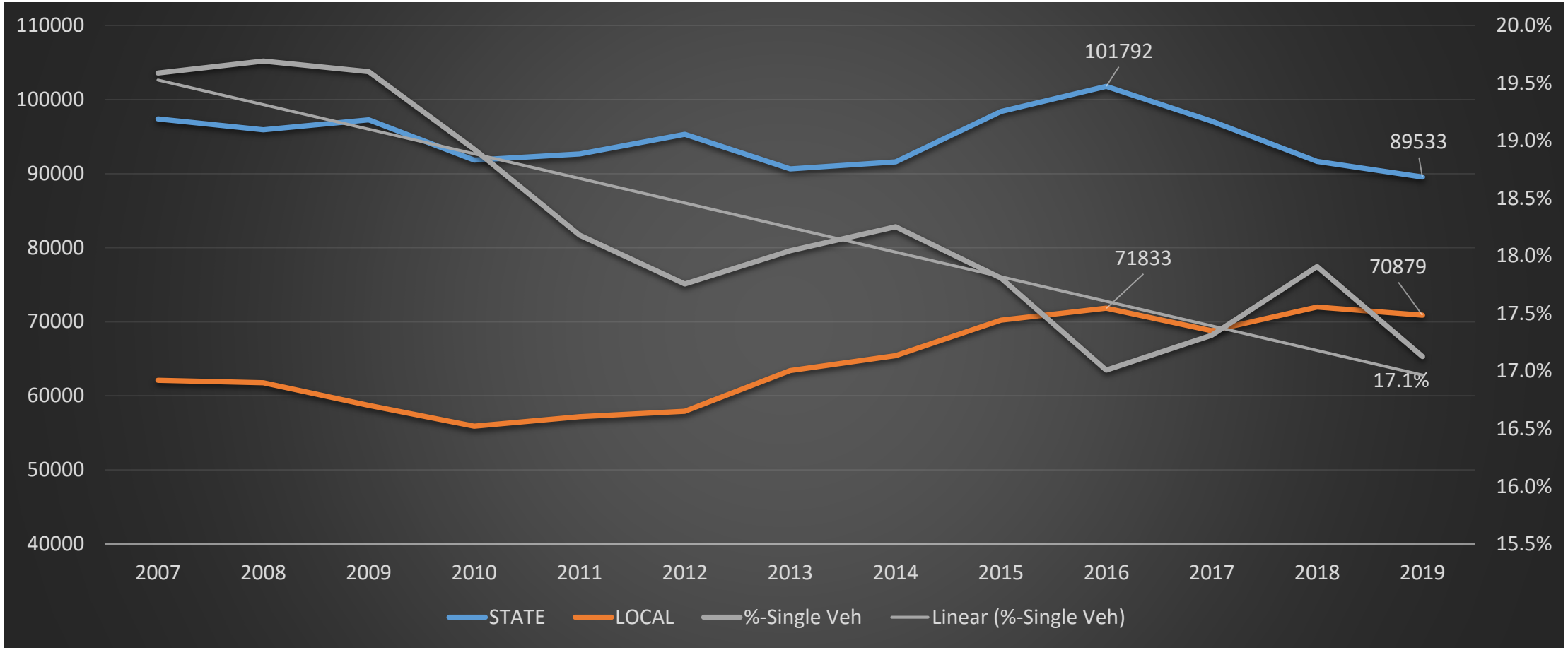


Conclusion

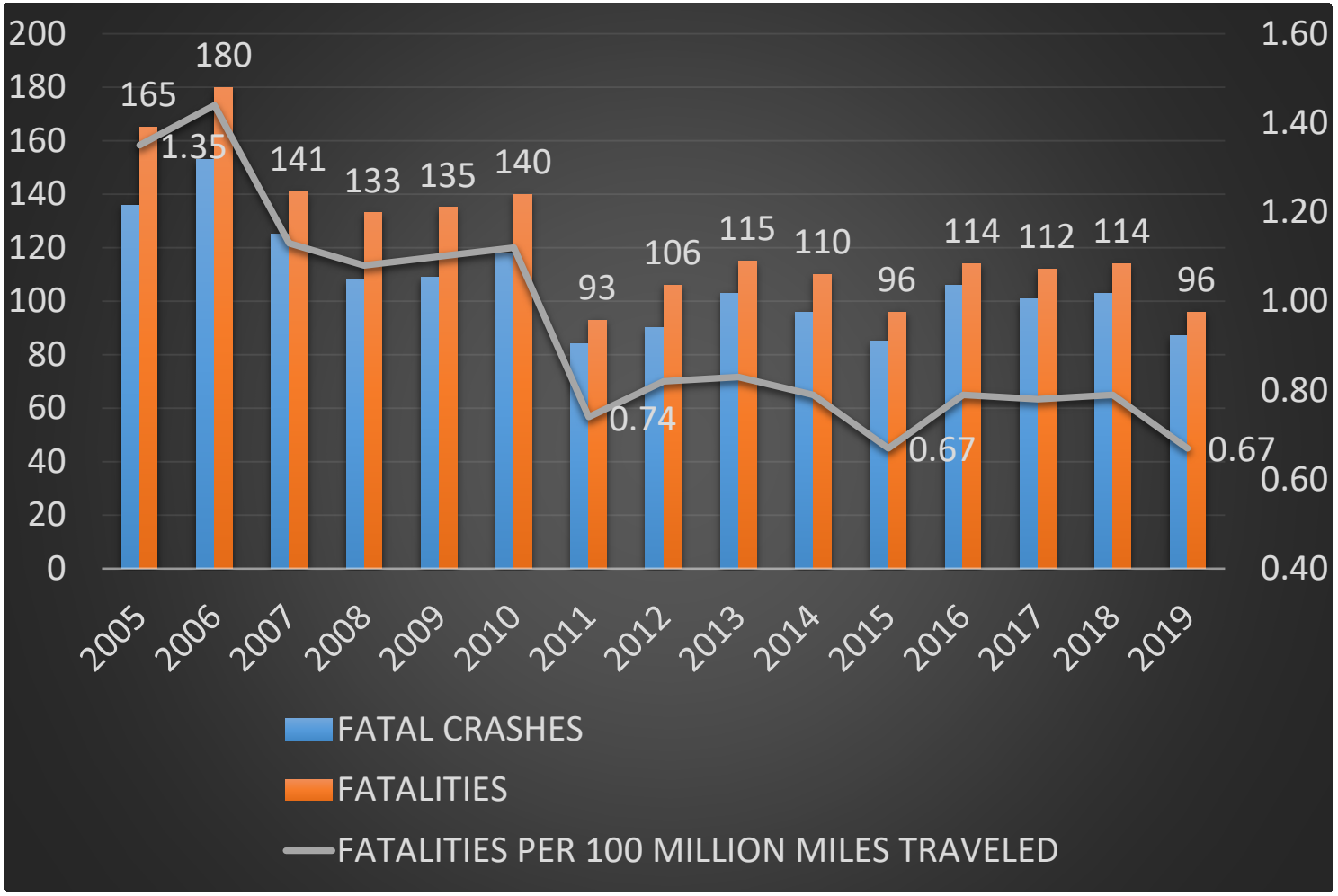
- Safer cars beginning with the 1999 models (airbags)
  - Resulting in a permanent lower injury and fatality rate per vehicle in a crash
- 2007-2011 three things where happening
  - Older less safe cars (<1999) where phased out
  - The economy had a downturn, fewer vehicles in crashes
  - Seat belt use increased by 2.5 percentage points
- 2011-2019 experienced an increase in vehicles in crashes due to increased economic activities. But
  - at much lower injury rates of safer cars, and
  - A 10 percentage point increase in seat belt use
- The result is more like a “Z” curve rather than a “V” curve

Other Trends

Crashes on State Routes and Local Roads



Interstate Fatalities

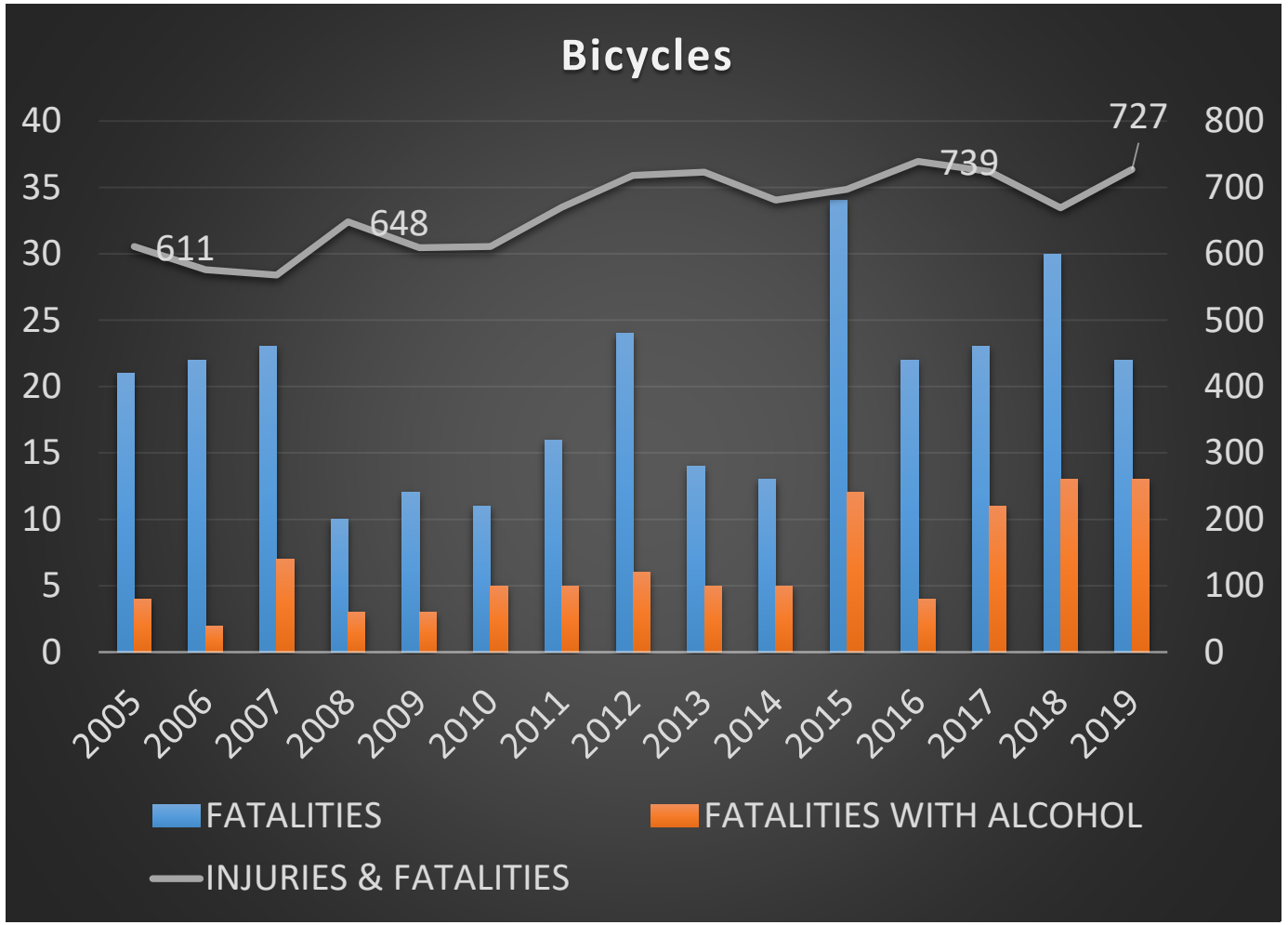


From 2018 to 2019

- Fatalities down 15.8%
- Fatality rate down 15.2%

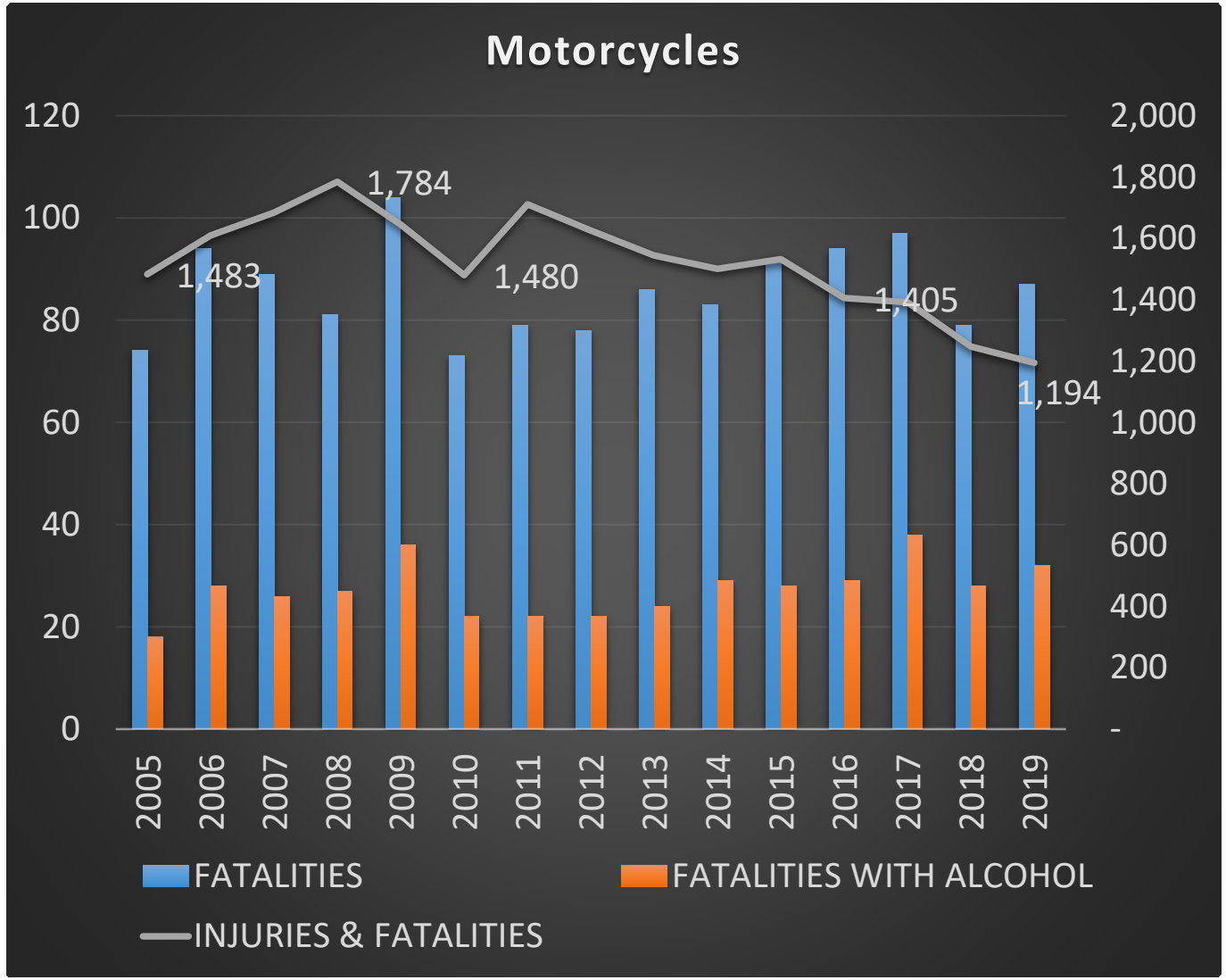
- 2017-2019 number of crashes trending downwards on state roads, US HWY & Interstates while number of crashes on local roads have not changed much.
- Single vehicle crashes on state routes US HWY & Interstates have declined by one percentage point over the past 10 years.

Bicyclist Fatalities



- 2018-2019
  - Bicyclist fatalities down 26.7%
  - Alcohol involved bicyclist's death unchanged
- All injuries went up 9.7%.
- Over the past 15 years on average Louisiana had 19.8 bicyclist fatalities per year.

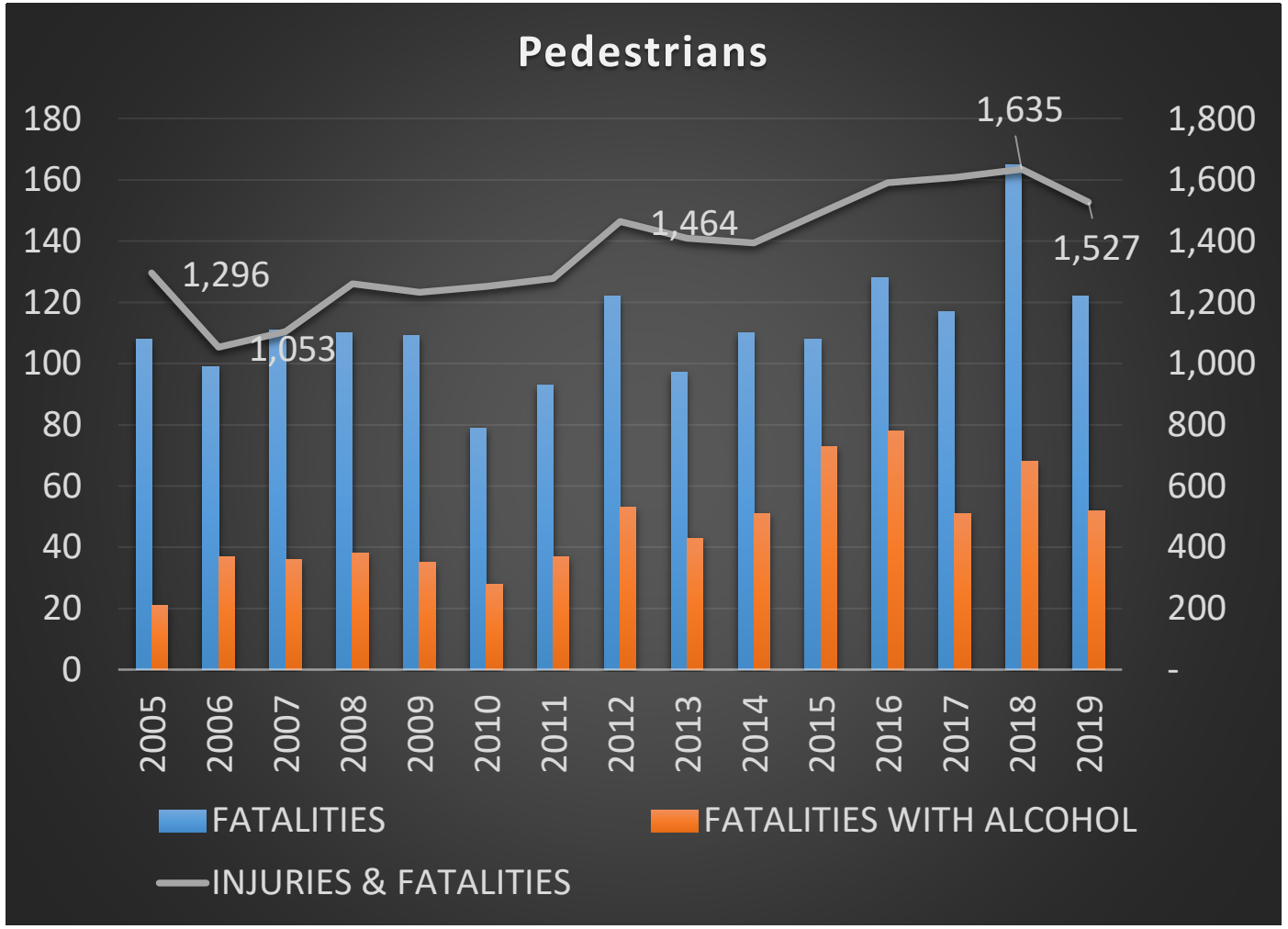
Motorcyclist Fatalities



2018-2019 Change

- Motorcyclist fatalities up 10.1%.
- Alcohol involved motorcyclist's death up 14.3%.
- Injuries down 4.3%.
- Injuries have been trending downward for the past decade.

Pedestrian Fatalities & Injuries



2018-2019 change

- 26.1% decrease in pedestrian fatalities
- 6.6% decrease in pedestrian injuries
- Injuries have trended upwards since 2006.

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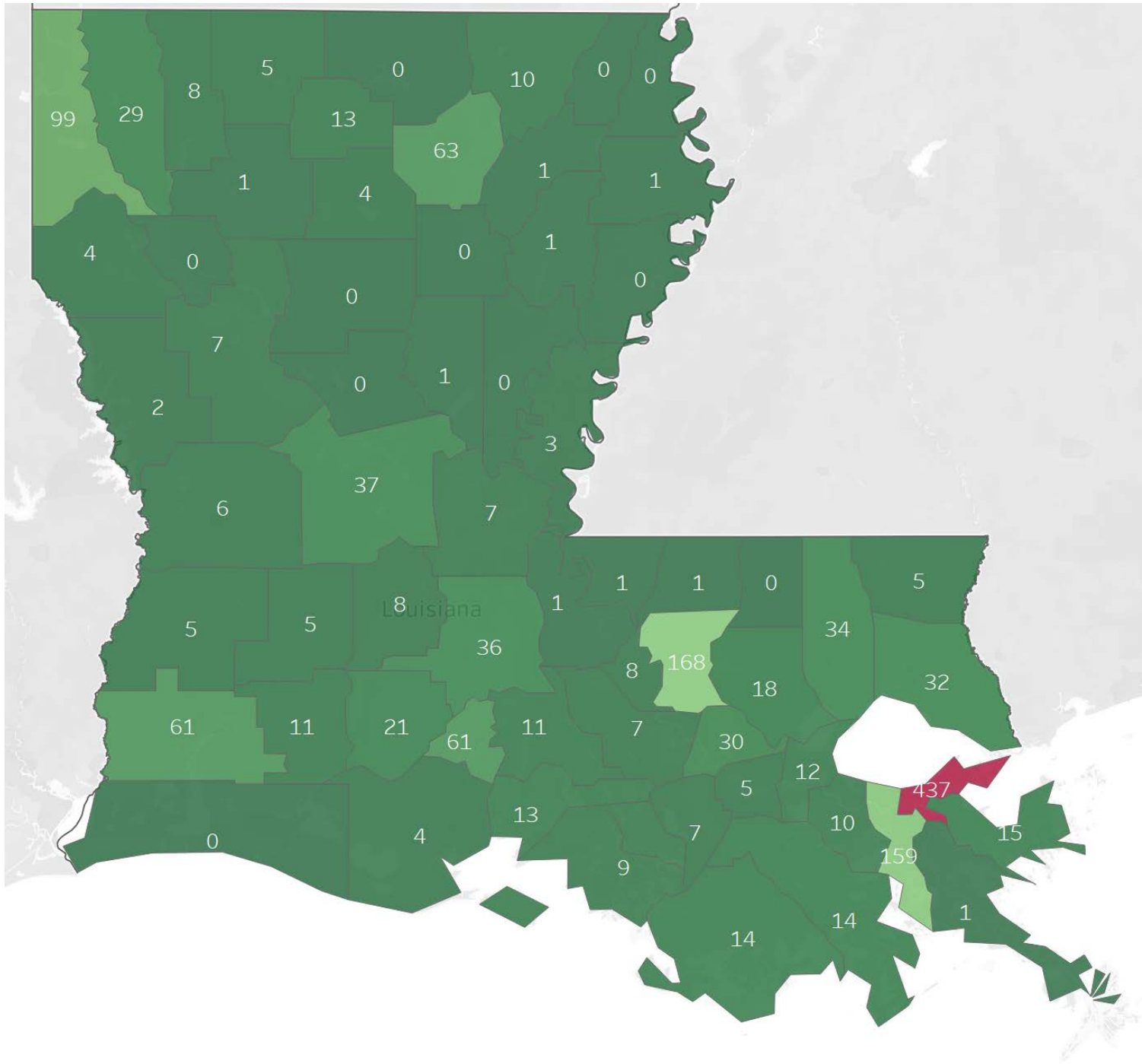
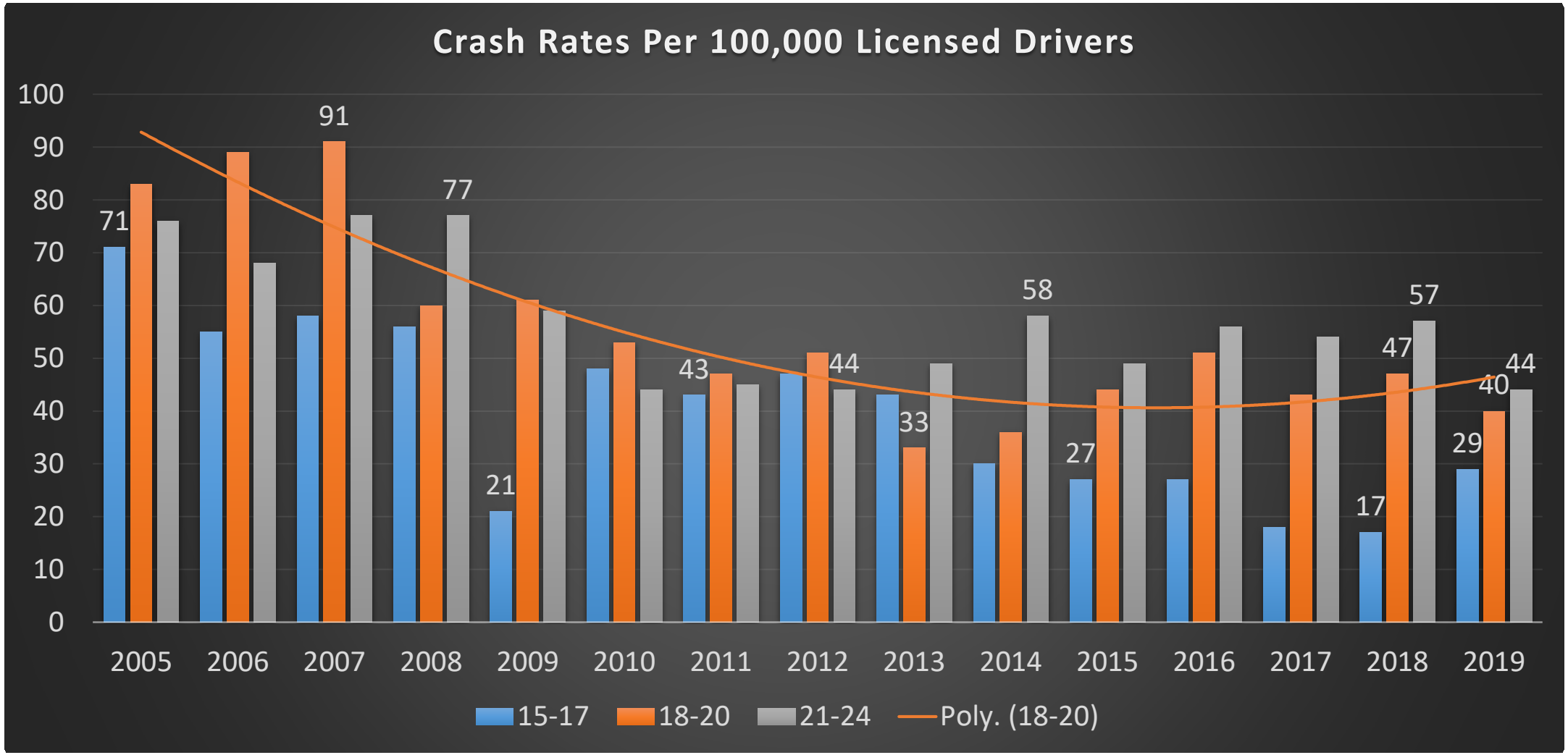
2019 Pedestrian Injured or Killed

N.O. accounted for 28.6% of injuries & 9% of fatalities

The 7 other urban centers accounted for 42.4% of injuries and 42.6% of fatalities.



Young Drivers in Fatal Crashes

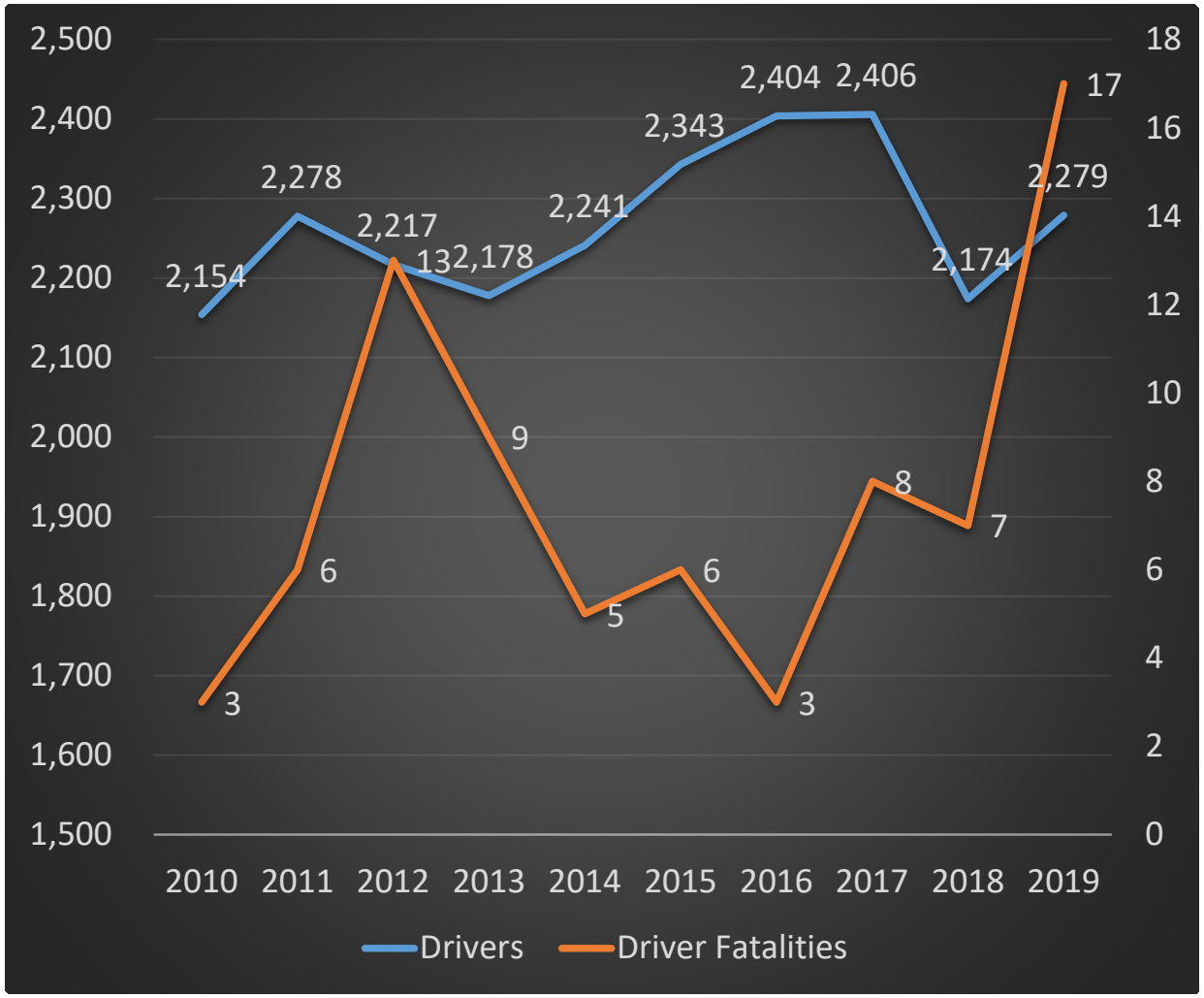


The four Major Contributing Factors

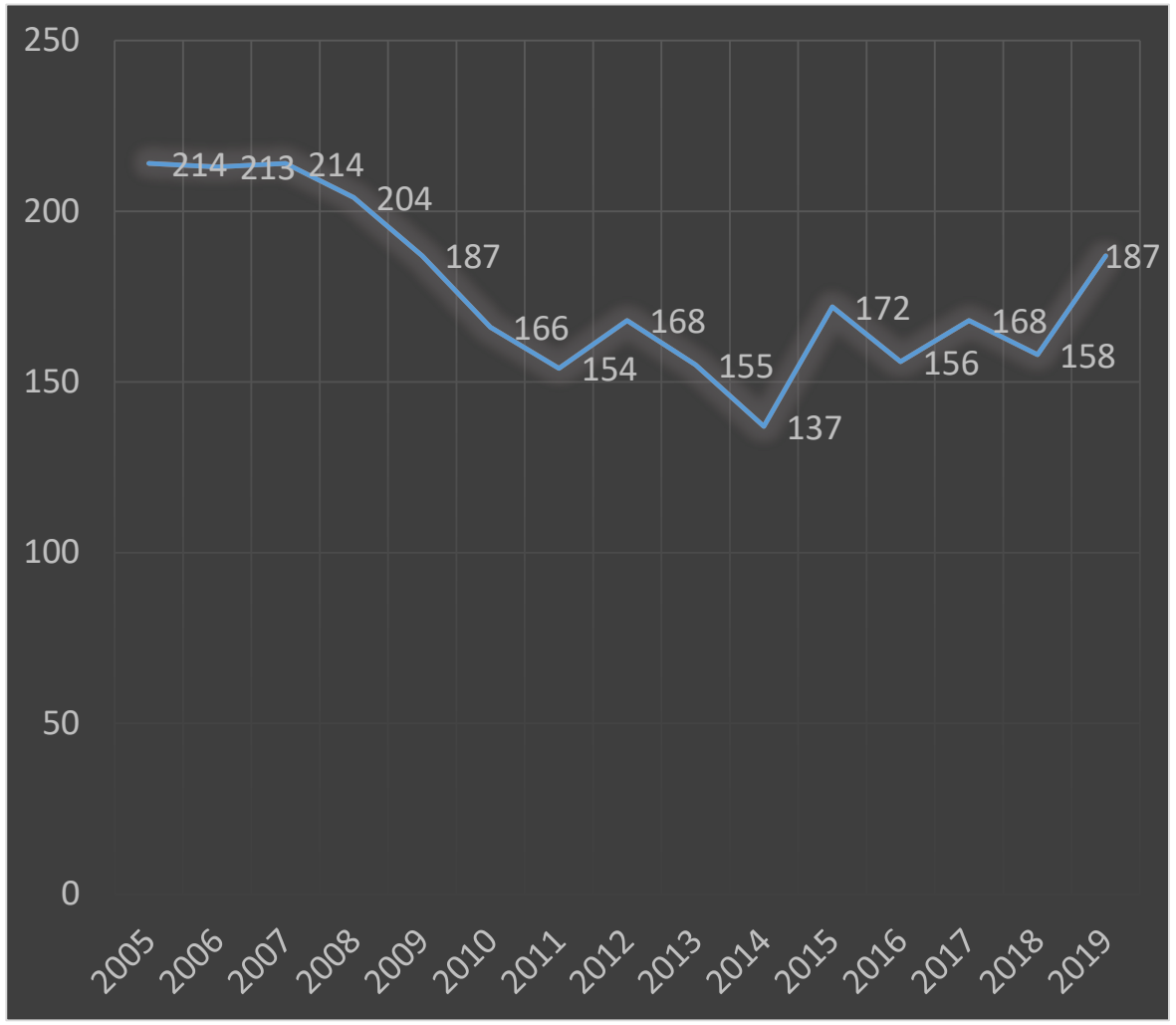
The 5-year average is
78% of fatal crashes involves
one of the four factors.

Distractions

Cell Phone Distraction



Distracted & Inattentive Fatalities

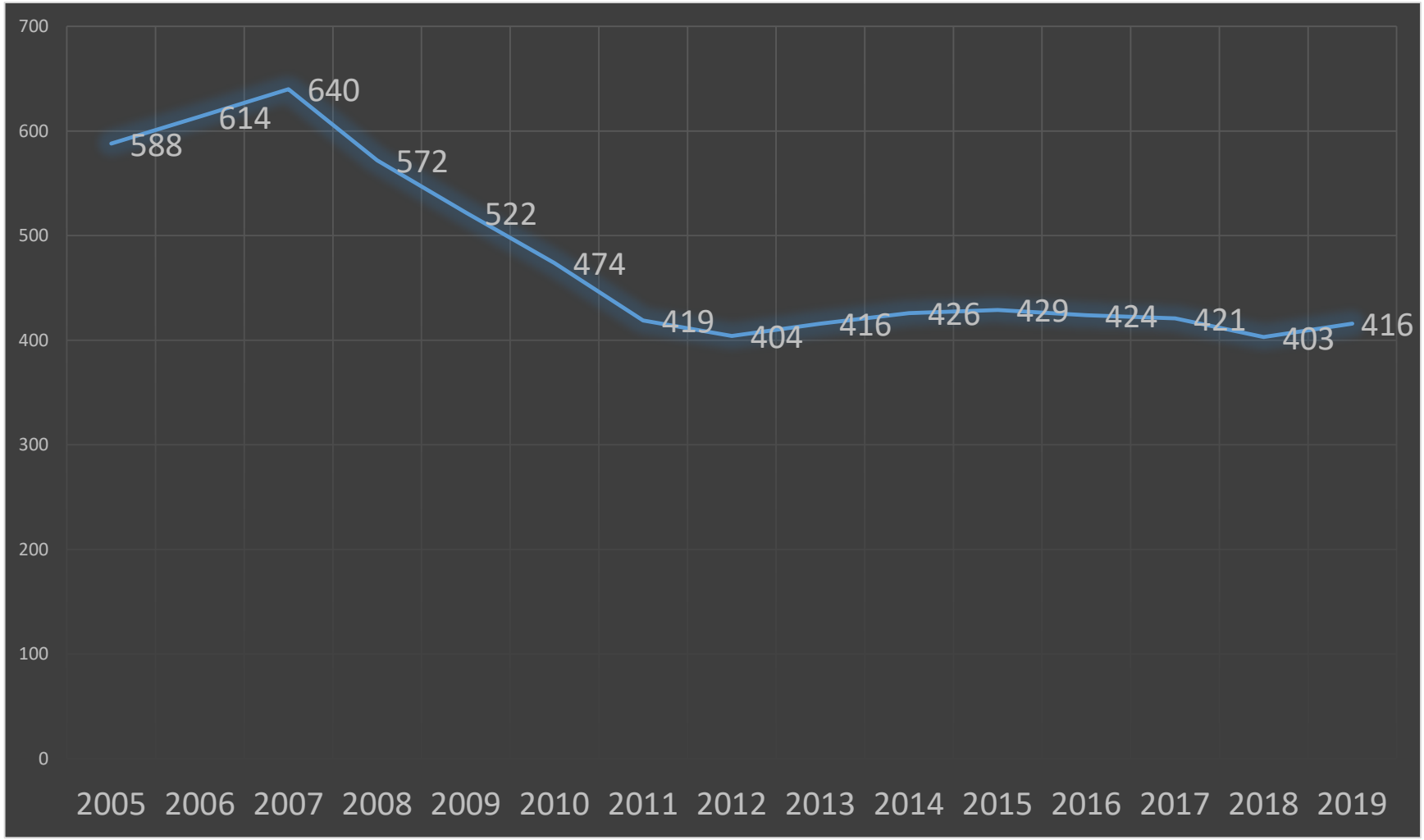


Aggressive Driving

Aggressive Driving is defined as either

- Exceeding stated speed limit
- Exceeding safe speed limit
- Failure to Yield
- Following too closely
- Improper passing
- Disregarded traffic control
- Careless operation

Fatalities & Aggressive Driving Violations



Aggressive driving violations in fatal crashes have been flat between 403 and 429 over the past 8 years.

Drinking and Driving

Surviving Driver

YEAR	BAC 0		PENDING & UNK		NOT TESTED		BAC > 0	
	DRIVERS	%	DRIVERS	%	DRIVERS	%	DRIVERS	%
2014	291	58%	10	2%	149	29%	56	11%
2015	339	59%	11	2%	152	27%	69	12%
2016	338	53%	8	1%	231	36%	61	10%
2017	324	54%	0	0%	219	37%	52	9%
2018	365	56%	0	0%	228	35%	56	9%
2019	319	51%	0	0%	243	39%	60	10%
5 YEAR	10%	-6%			63%	10%	7%	-1%

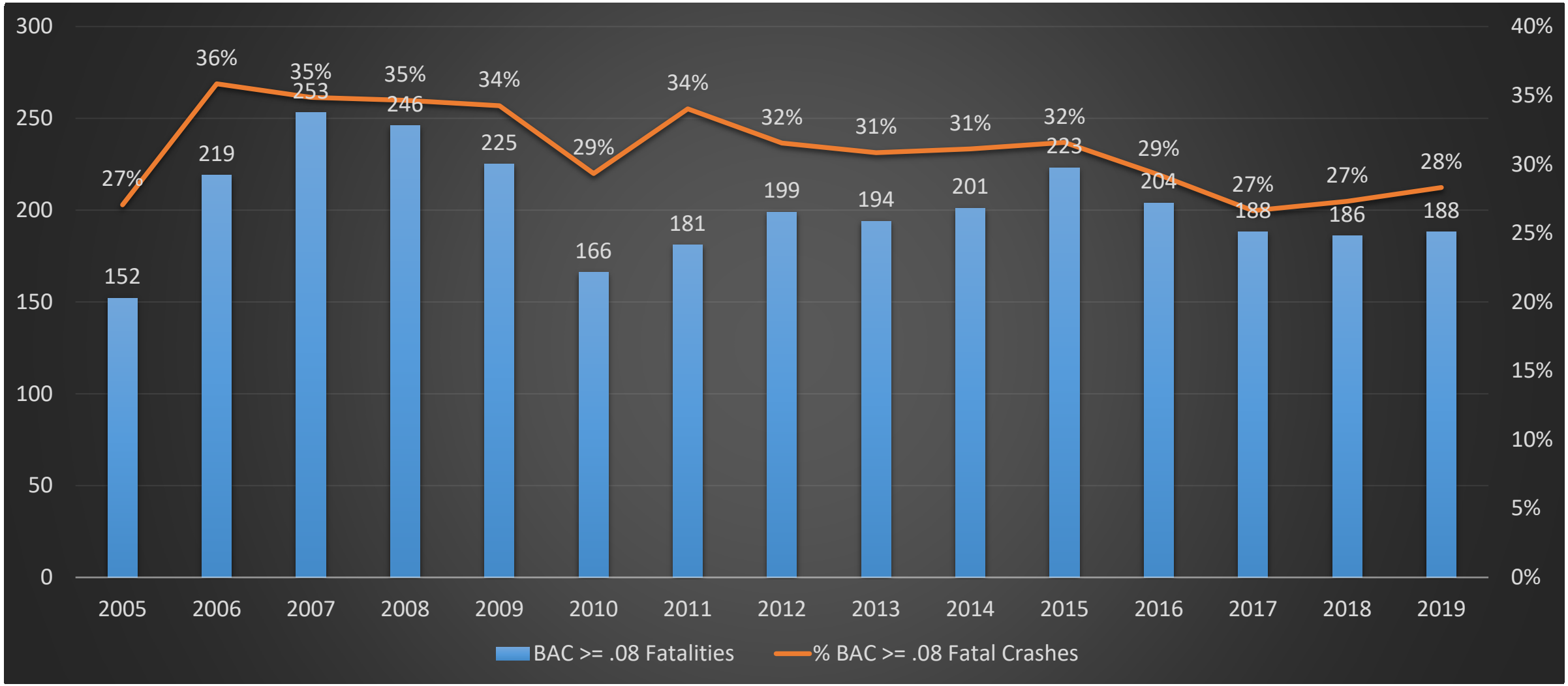
The odds of the surviving driver having NO alcohol are about 9 to 1.

Fatalities

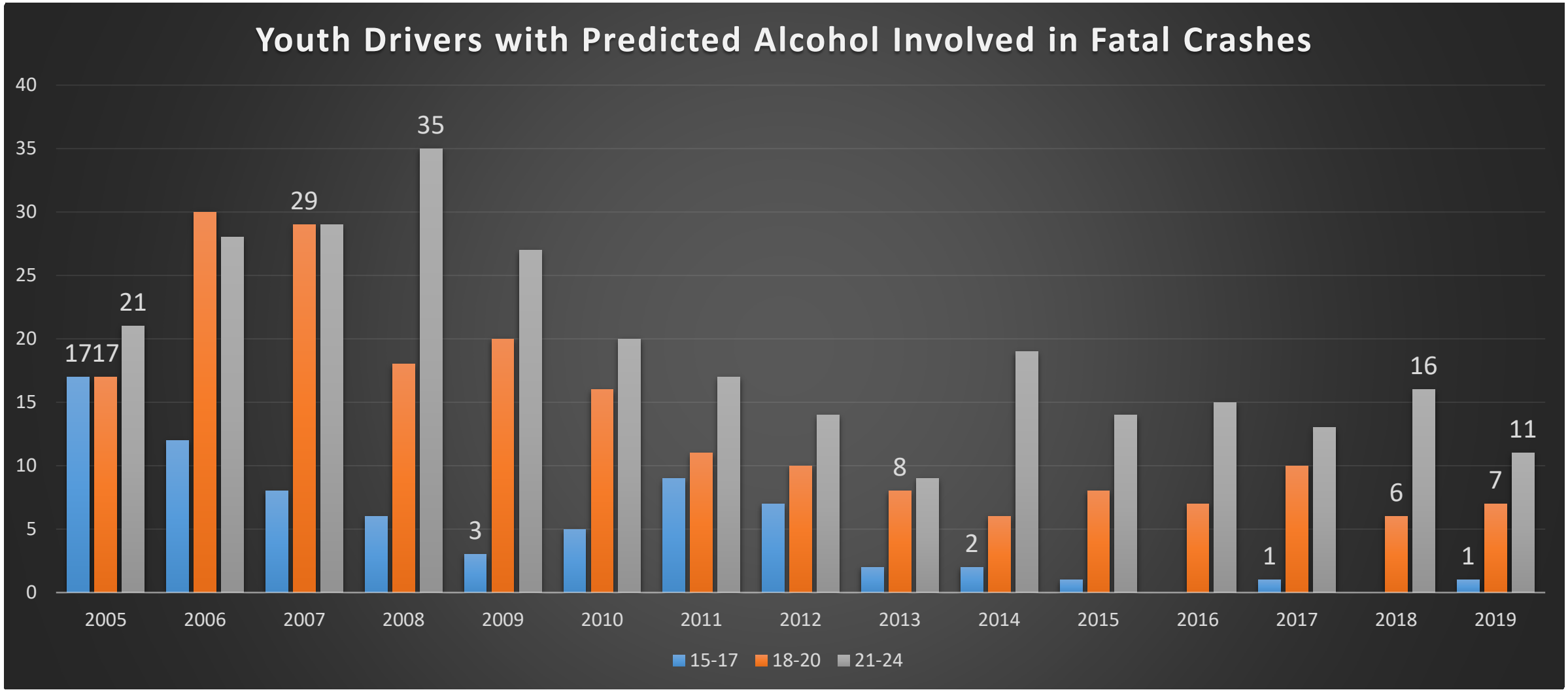
YEAR	BAC 0		PENDING & UNK		NOT TESTED		BAC > 0	
	DRIVERS	%	DRIVERS	%	DRIVERS	%	DRIVERS	%
2014	206	42%	43	8.8%	73	15%	166	34%
2015	245	47%	22	4.2%	72	14%	184	35%
2016	248	50%	3	0.6%	74	15%	167	34%
2017	277	54%	0	0.0%	67	13%	173	34%
2018	251	51%	0	0.0%	92	19%	150	30%
2019	257	54%	0	0.0%	53	11%	167	35%
5 YEAR	25%	12%			-27%	-4%	1%	1%

The odds of the killed driver having NO alcohol are about 2 to 1.
The odds of the fatal driver to have BAC>0 are about 5 times the odds of the surviving driver.

Fatalities in Crashes with BAC>=0.08



Rate (per 100,000 lic. Drivers) Youth Drivers and Alcohol Involvement in Fatal Crashes



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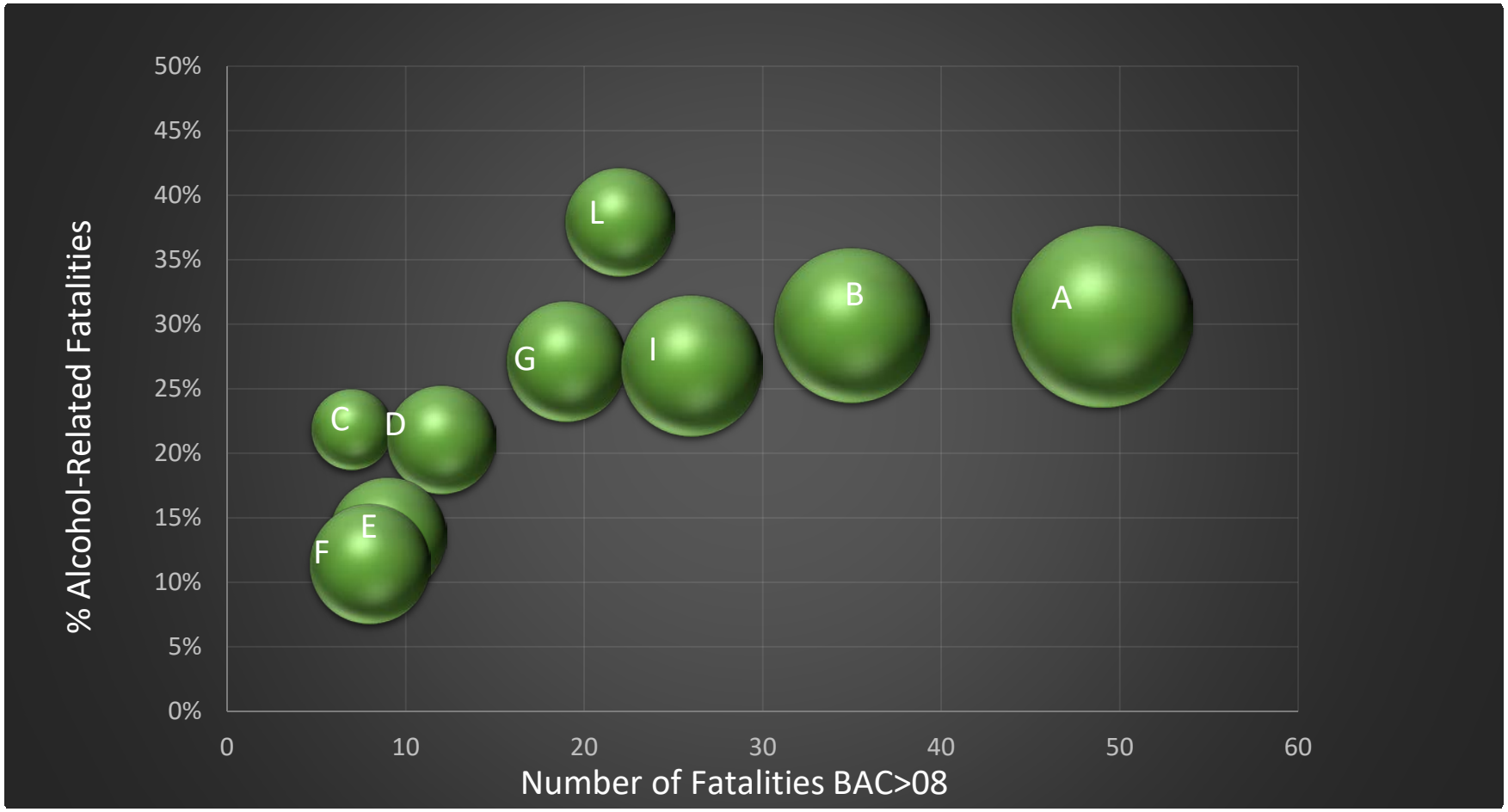
DWI Fatalities and % DWI Fatalities Involving of BAC>=0.08 by Troop Area

Size of bubble represents total number of fatalities.



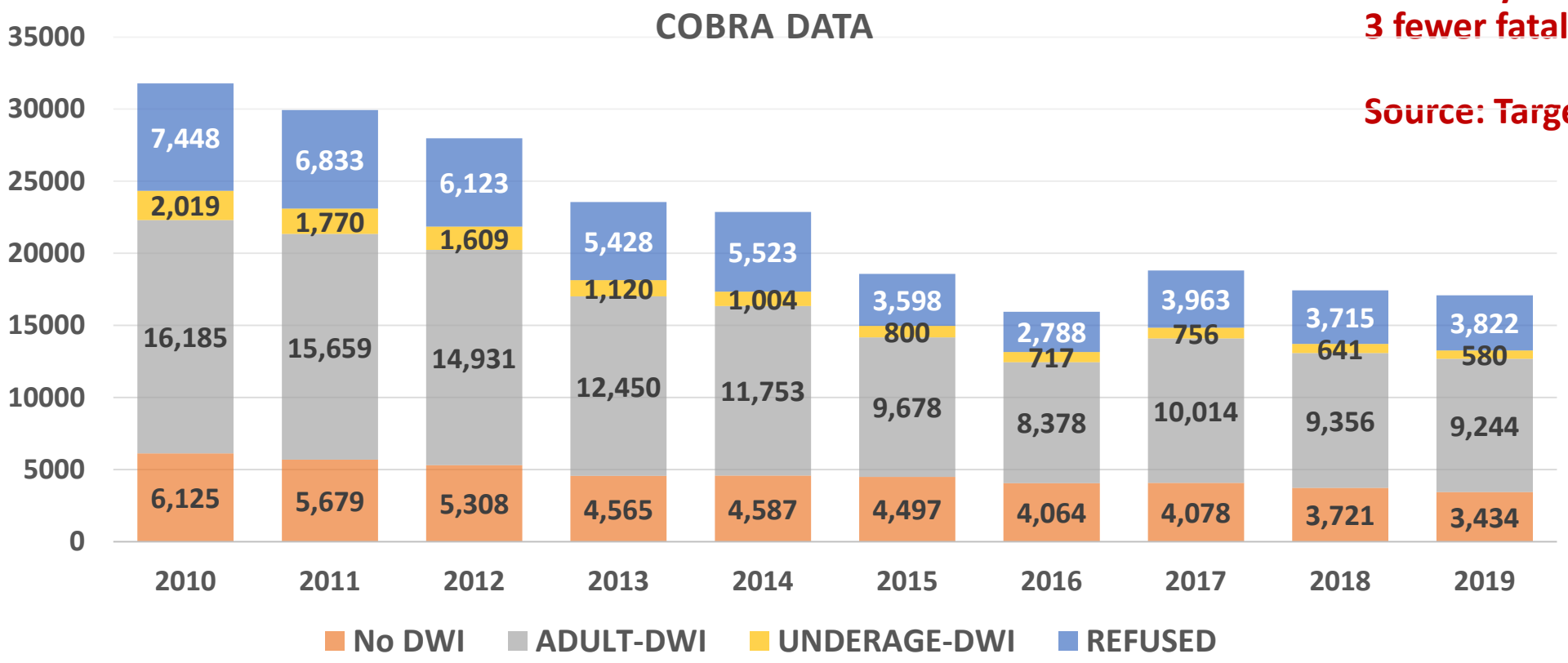
DWI Arrests from COBRA

Rule of Thumb:

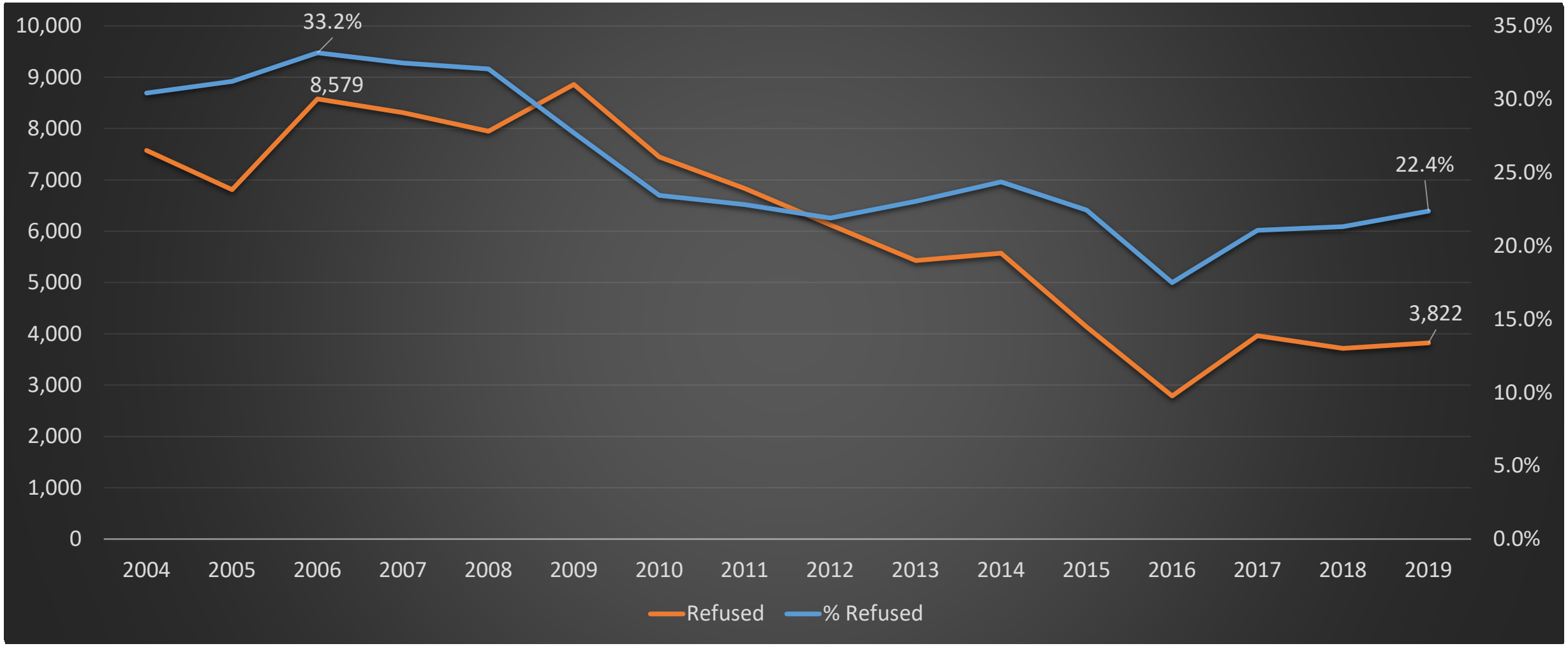
For every 1,000 hours
Saturation Patrol 4 fewer fatalities.

For every SFST conducted
3 fewer fatalities.

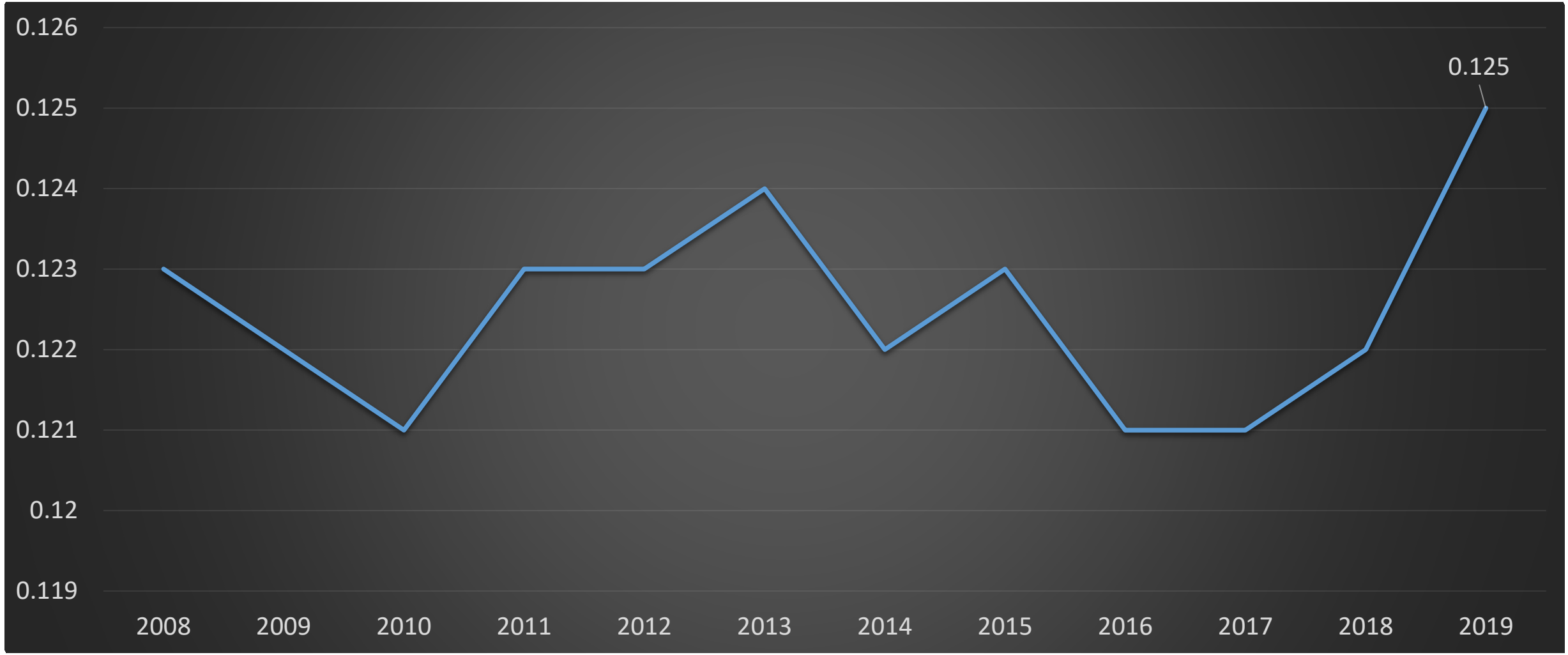
Source: Target of Opportunity Report.



COBRA: Refused Tests



COBRA: Average BAC



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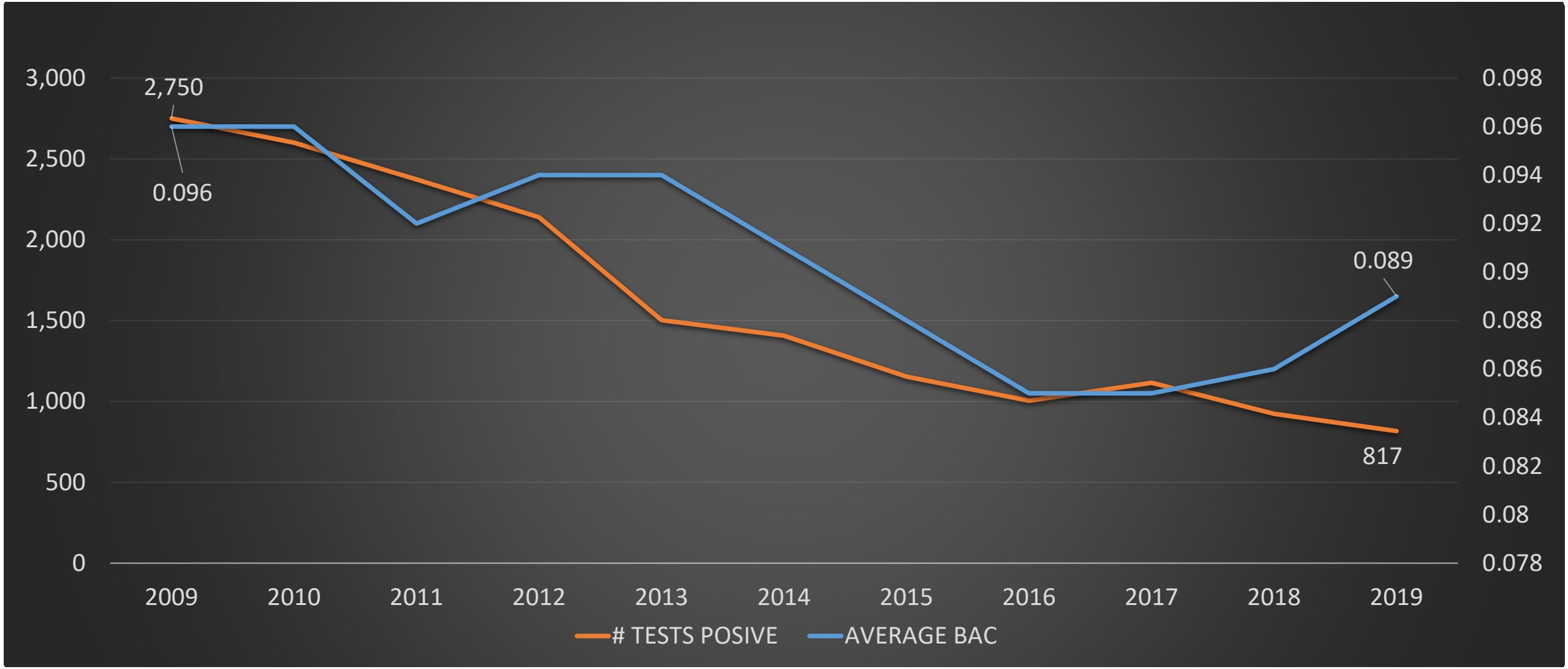
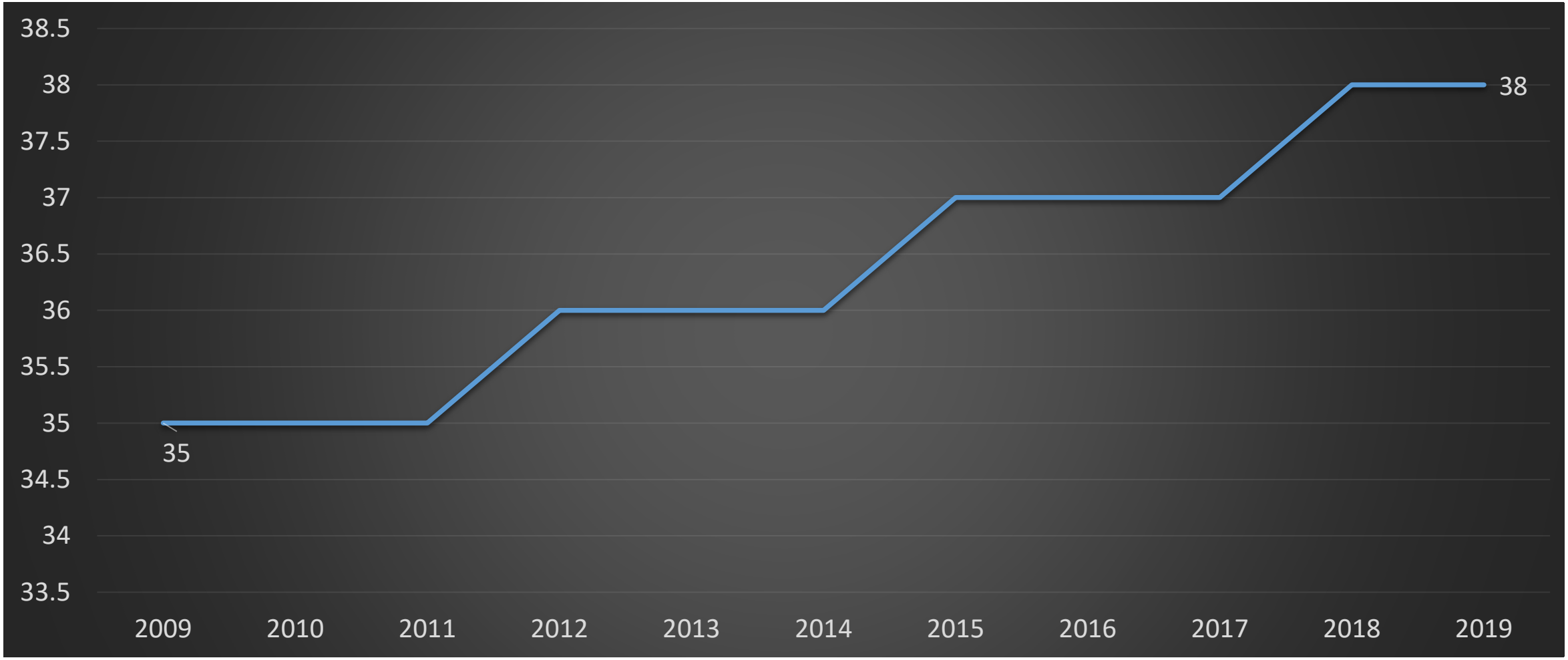
Youth (17-20) DWI Arrests



Average Age in DWI Arrests



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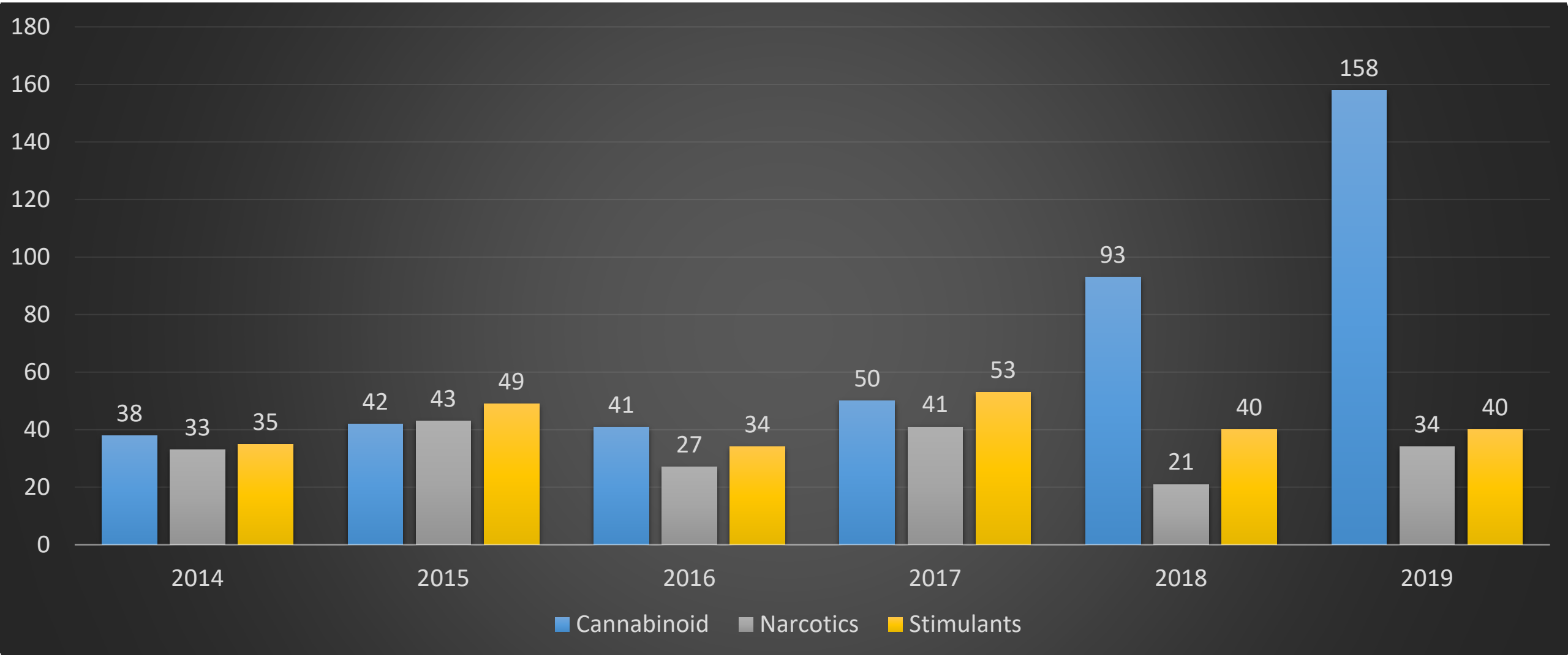
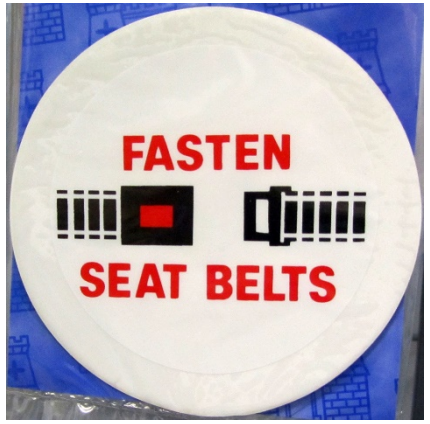
Drugs in Fatal Crashes (Crime Lab Data)



Occupant Protection



What progress has Louisiana made over the past 20 years?

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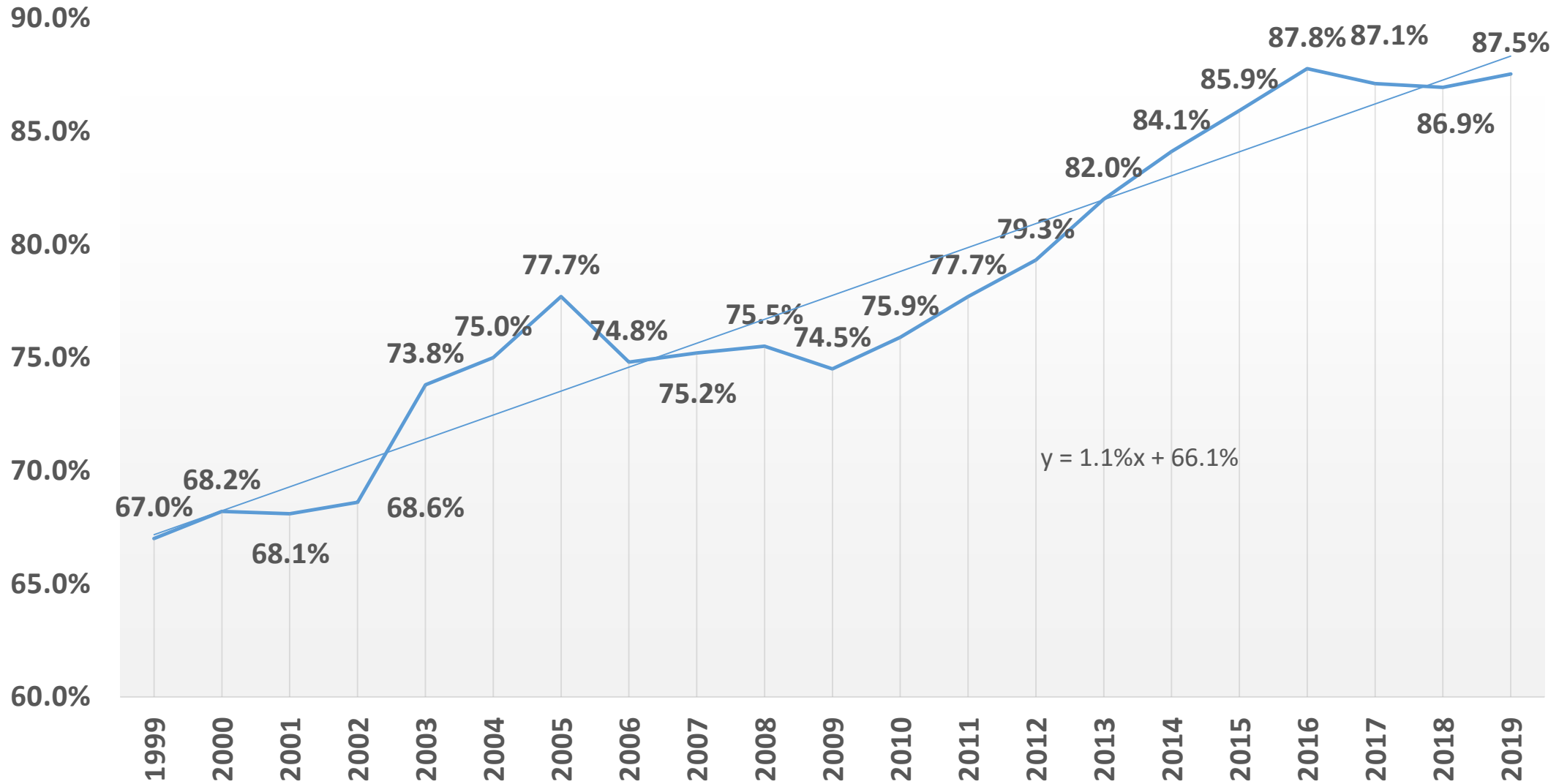
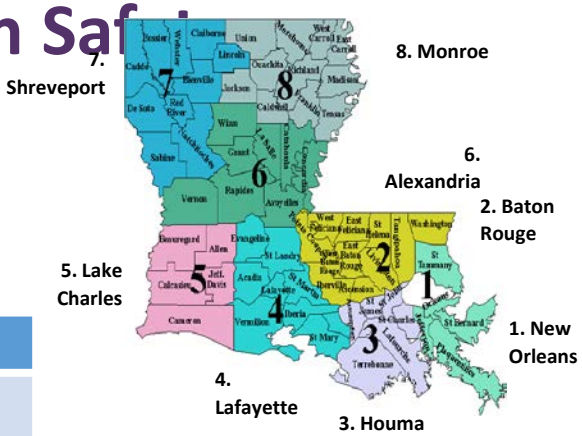
Seat Belt Usage (1999-2019)



Seat Belt Use by Region 2016-2019

Region	Estimate	STD Error
1-New Orleans	87.0%	0.2%
2-Baton Rouge	84.4%	0.2%
3-Houma	91.3%	0.2%
4-Lafayette	86.6%	0.2%
5-Lake Charles	91.1%	0.3%
6-Alexandria	81.3%	0.3%
7-Shreveport	90.1%	0.2%
8-Monroe	84.9%	0.3%
LA total	87.7%	0.1%

FIGURE 1: LOUISIANA SURVEY REGIONS



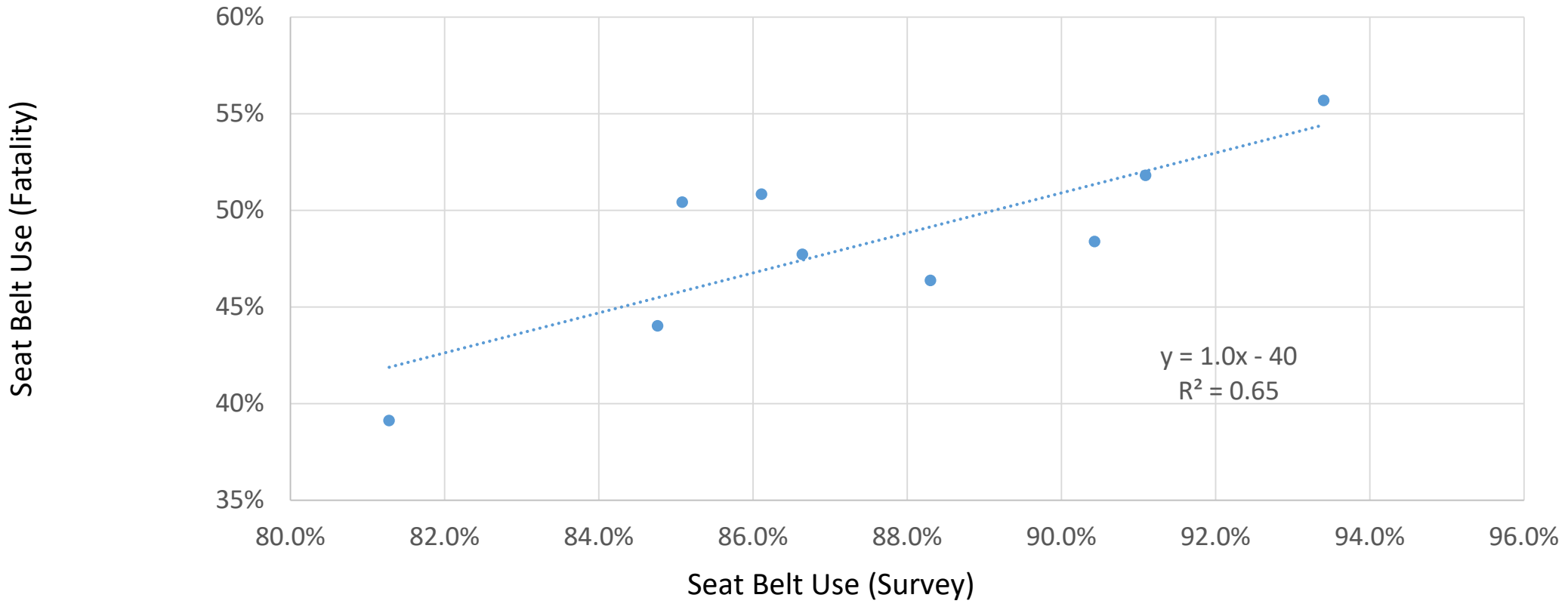
2019	
Louisiana	87.5%
Texas	90.9%
Arkansas	81.9%
Mississippi	80.5%
Alabama	92.3%

Seat Belt Use by Troop 2016-2019

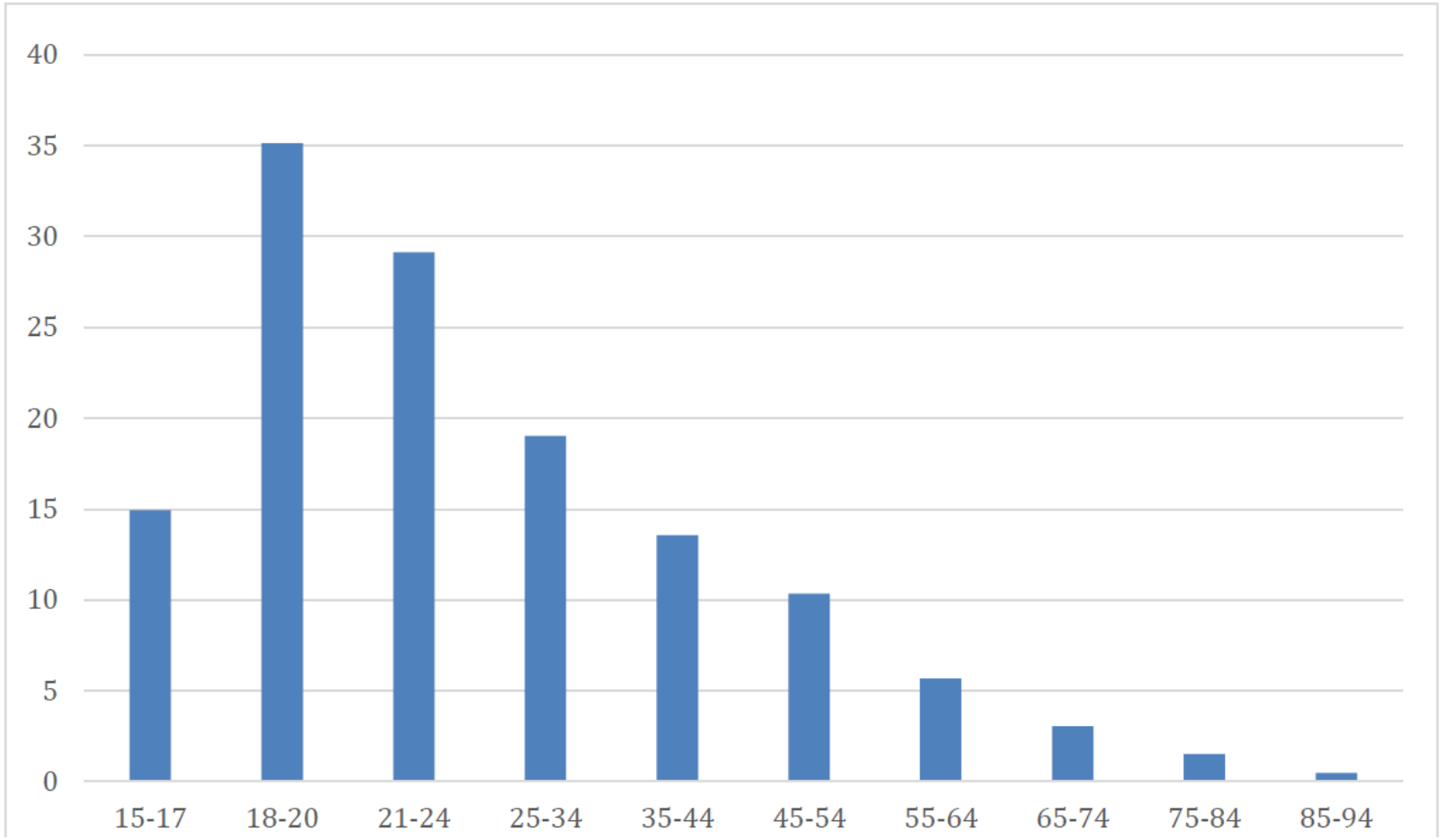
LA 87.7%

Troop	Estimate	STD Error
A-Baton Rouge	84.8%	0.2%
B-New Orleans	86.1%	0.2%
C-Houma	93.4%	0.2%
D-Calcasieu	91.1%	0.3%
E-Natchitoches	81.3%	0.3%
F-Monroe	85.1%	0.3%
G-Shreveport	90.4%	0.2%
I-Lafayette	86.6%	0.2%
L-Hammond	88.3%	0.2%

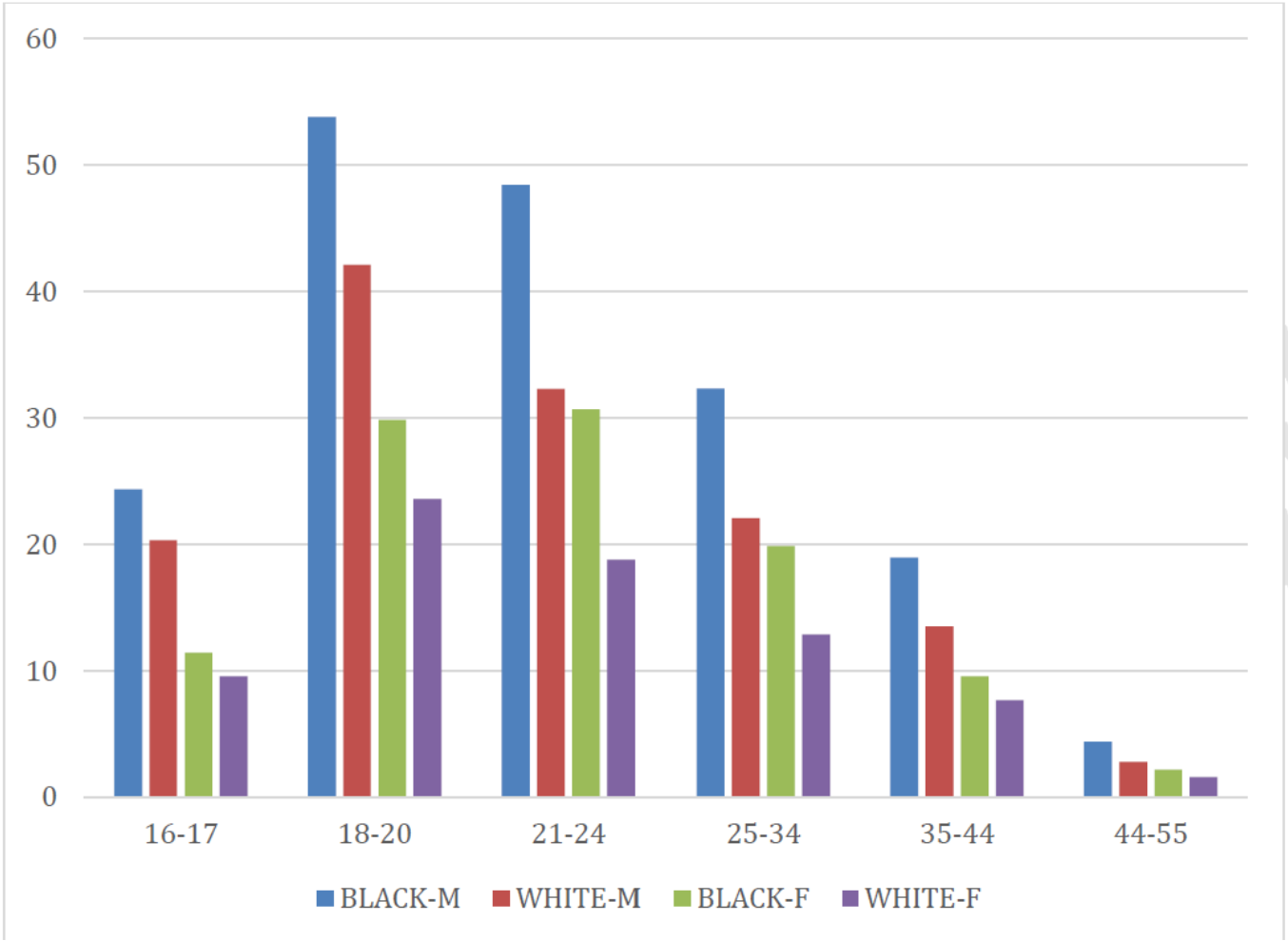
Seat Belt Use of Fatalities versus Seat Belt Use Survey by Troop



Seat Belt Tickets by Age Group per 100,000 licensed Drivers



Set Belt Tickets by Age Group, Gender and Race per 100,000 licensed drivers



Multiple Tickets

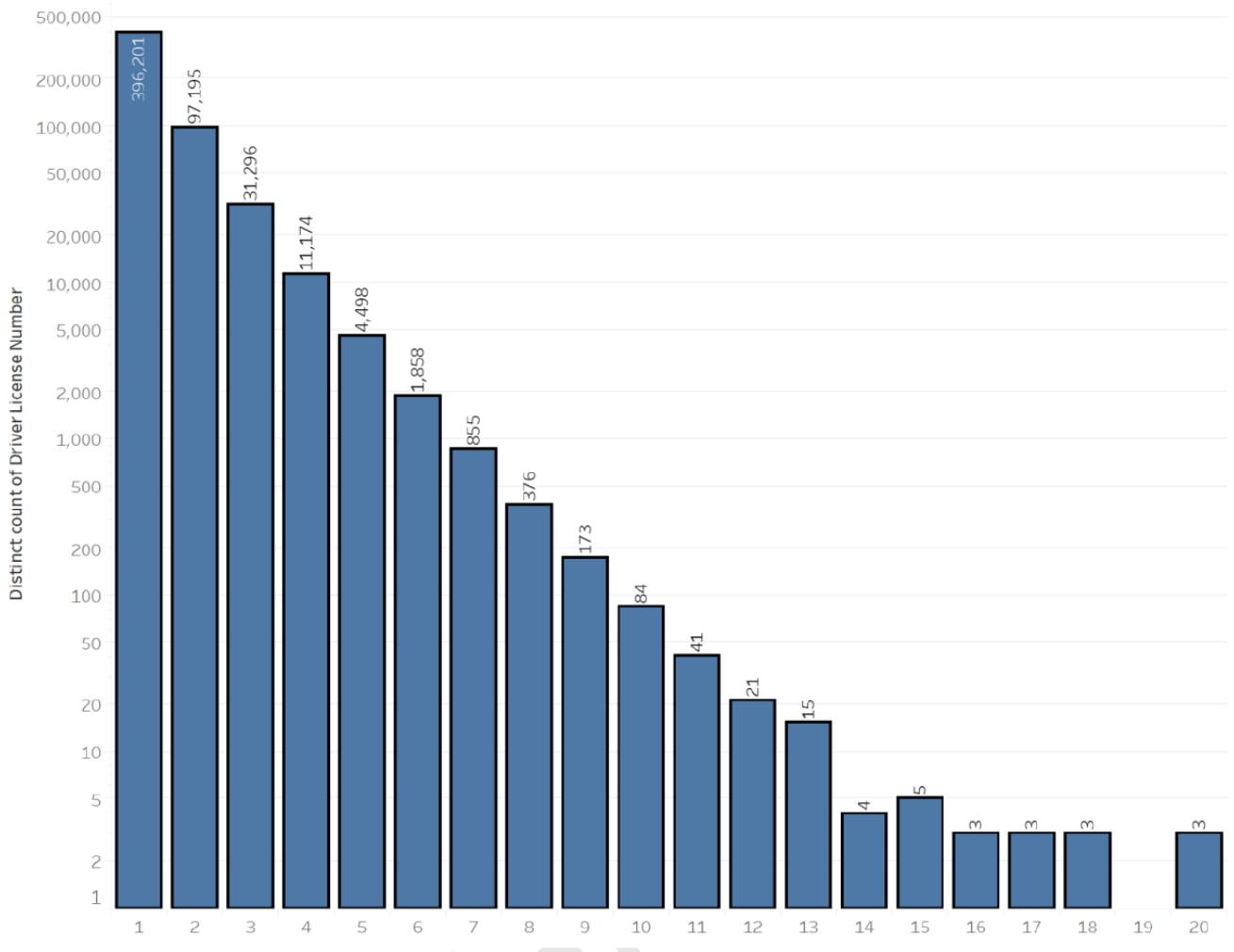


Table 5: Ratio of Estimated Percentage of Driver Receiving Seat Belt Tickets over Percentage of Drivers not Wearing a Seat Belt

Ratio of Estimated Percentage of Driver Receiving Seat Belt Tickets over Percentage of Drivers not Wearing a Seat Belt

	FEMALE			MALE		
Seat Belt Tickets	BLACK	OTHER	WHITE	BLACK	OTHER	WHITE
1	0.91	0.85	1.18	0.86	1.15	1.01
2	0.84	0.47	0.84	1.13	1.21	1.10
3	0.73	0.47	0.65	1.31	1.33	1.15
4	0.65	0.28	0.58	1.40	1.27	1.18
5+	0.53	0.19	0.47	1.54	1.15	1.23

Cost of Crashes

The Economic and Societal Impact Of Motor Vehicle Crashes, 2010, page 12, unit cost are adjusted by CPI.

Type	Average Cost per Person	Injuries	Total Cost by Injury Category in Billion Dollars	Total Cost by Injury Category in Billions Including Loss of Quality of Life
Fatal Injuries	$1,650,721	727	$1.20	$7.85
Severe Injuries	$422,227	1,348	$0.57	$2.44
Moderate Injuries	$123,869	11,536	$1.43	$6.07
Complaint Injuries	$26,879	59,629	$1.60	$3.24
Occupants with No Injury	$5,168	360,402	$1.86	$1.86
Property Damage	$7,170	307,202	$2.20	$2.20
Grand Total Cost		740,844	$8.87	$23.66
Cost per licensed Driver			$2,993	$7,989
Percent change from past year			-0.4%	-0.9%

For comparison Louisiana's fiscal year 2019 executive budget was $9.74 Billion.

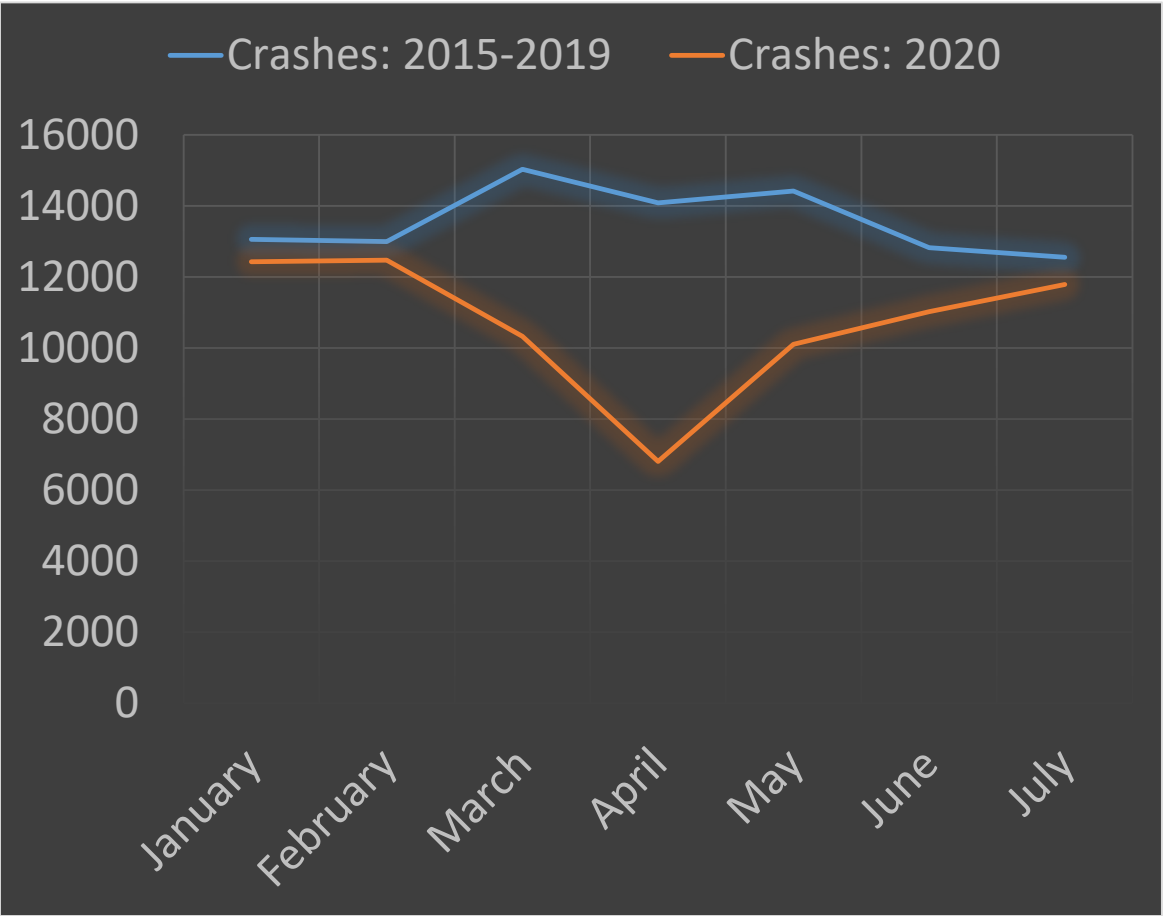
Moderate, sever & fatality make up only 36% of the economic costs but 89% of quality of life costs.

Summary

- While the number of crashes and number of people involved in crashes are about the same as in 2005, fatalities are about 25% lower than in 2005.
- Factors contributing to this are:
  - Safer vehicles.
  - Higher seat belt use, (+10%) over past 10 years
  - Alcohol impaired fatalities (BAC>0.08) slightly down over the past three years
- Cost of crashes decreased slightly from 2018 to 2019.

COVID-19 Year Outlook

Crashes



Fatalities