Analysis: AVs Could Have Saved Over 500 Lives and Stopped 83,000 Injuries in New York Over the Last Five Years.

*Pending legislation would authorize the use of autonomous vehicles within New York*

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Introduction

New York is considering legislation, A539B and S1012B, that would authorize autonomous vehicle (AV) use throughout the state. If passed, these bills could benefit New York residents by allowing AVs to be used on the state's roads, opening the door for potential benefits from AVs including lower emissions and increased mobility for disabled and elderly communities.

Recent research shows that AVs are 85% less likely than human drivers to get into accidents that cause injuries. If these bills become law and AVs are authorized for commercial use in New York, New York will likely see lives saved and injuries prevented as AVs replace human drivers.

New York traffic fatalities have risen steadily since 2018. Between 2018 and 2022, almost 5,000 people were killed in traffic accidents in the state. The graph below shows traffic fatalities in New York over this five-year period.

New York Traffic Fatalities by Year

Data from NY State Traffic
Safety Statistical Repository
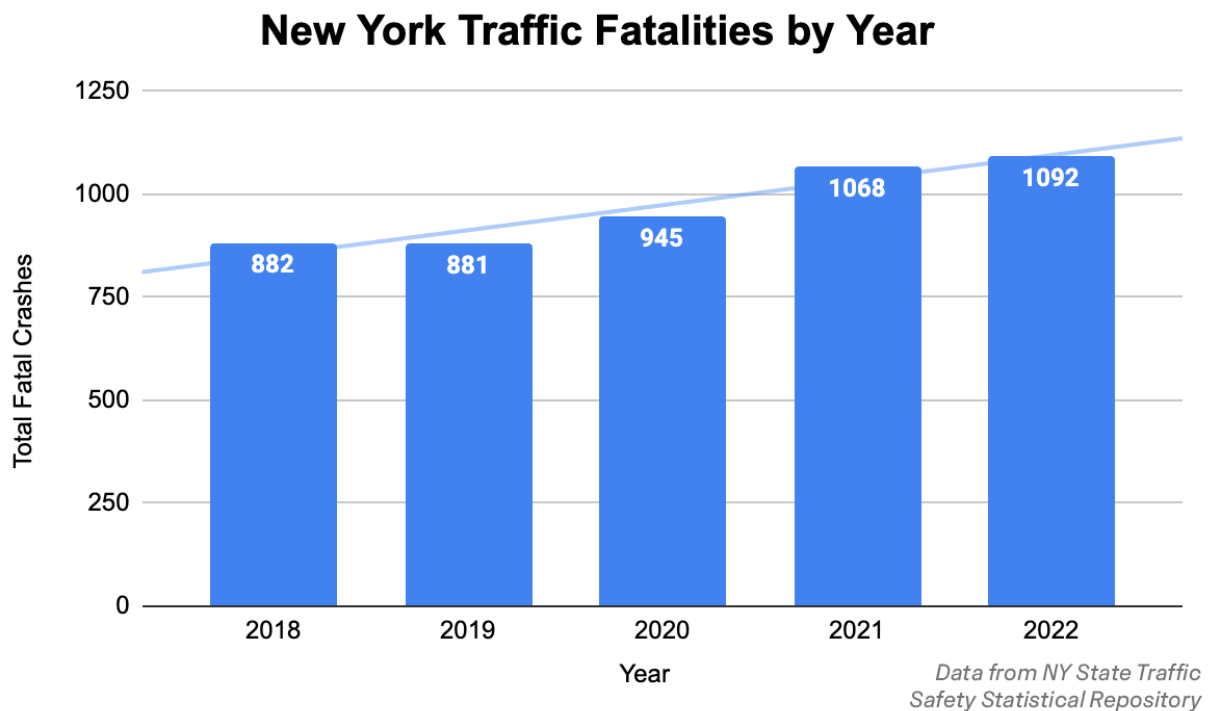
As policymakers consider ways to make roads safer, AVs offer a path toward reduced traffic fatalities, injuries, and accidents.

Research finds AVs safer than human drivers

AVs have operated on roads in Phoenix, San Francisco, and Los Angeles for years and researchers were recently able to compare safety outcomes of AVs to those of human-driven vehicles. A recent study by researchers at Waymo found that **AVs were 85% less likely to be involved in a crash** resulting in injury as compared to human drivers.

The findings from the study suggest that states could see significant safety improvements with increases in AV deployment. A539B and S1012B would allow the use of AVs to expand in New York, likely allowing for the prevention of some traffic fatalities, injuries, and crashes.

Now, let's examine how traffic fatalities and injuries could decrease if AV adoption in New York increased.

Potential safety gains from AV adoption in New York

New York's Institute for Traffic Safety Management & Research (ITSMR) reports data on traffic accidents via the New York State Traffic Safety Statistical Repository (TSSR). The data provide information on the number of accidents as well as details on how many accidents resulted in fatalities and injuries. For this analysis, I examined fatalities, injuries, and accidents that occurred in New York for the five most recent years of data, 2018-2022.

Recall, the research from Waymo found AVs to be 85% less likely to be involved in an accident resulting in injury than human drivers.

In order to consider how AV adoption in New York may affect traffic fatalities, I modeled three scenarios of adoption based on a Chamber of Progress report prepared by the consultancy Steer earlier this year.

The report outlines a conservative scenario where AVs make up 1.3% of the total US share of vehicles on the road, a moderate scenario where AVs comprise 3.2% of vehicles on the road, and an optimistic scenario where 13% of vehicles on the road are AVs.

I applied these same scenarios to New York data in order to develop estimates of the safety benefits of various levels of AV adoption in New York. For each scenario, I assumed that the relevant percentage of vehicles involved in accidents were instead AVs and thus 85% less likely to be involved in an accident.

Potential fatalities avoided by AV adoption scenario

For my analysis, I considered the five most recent years of complete data provided by New York: 2018-2022. The graph below shows the estimated traffic fatalities avoided if AVs replaced human drivers, by scenario. Recall, the conservative scenario assumes 1.3% of vehicles are replaced by AVs, the moderate scenario assumes 3.2%, and the optimistic scenario assumes 13% of vehicles are replaced by AVs.

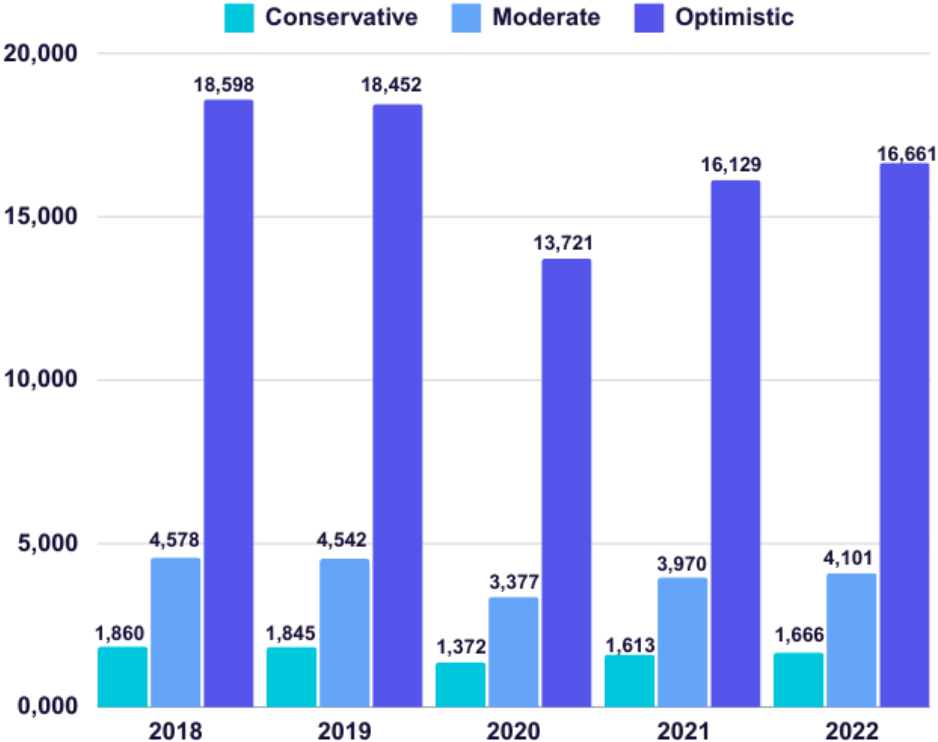## NY Fatalities Potentially Avoided due to AV Adoption
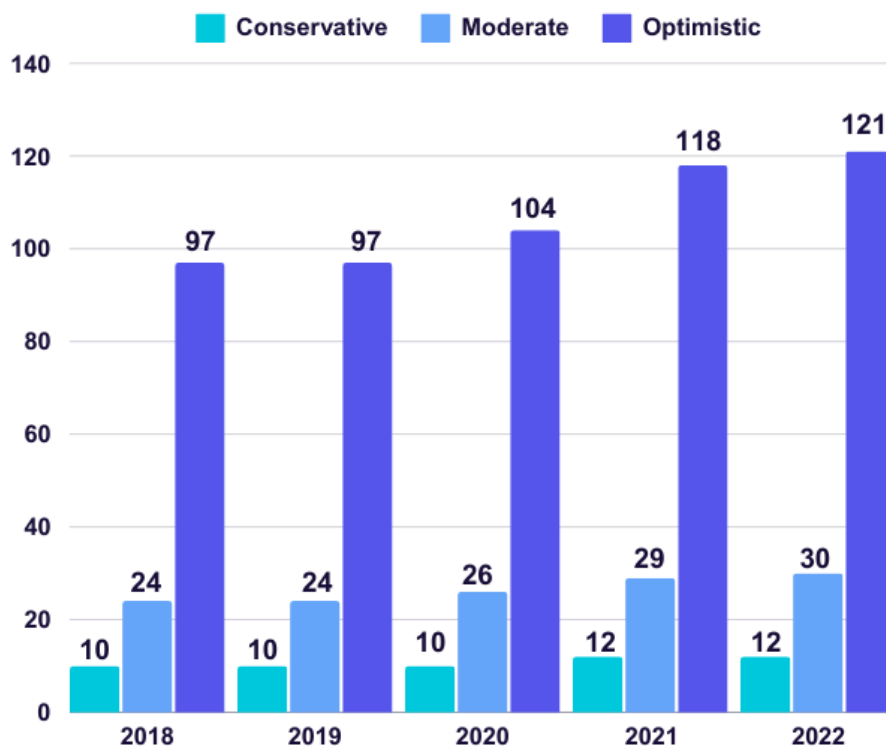
Under the **conservative adoption scenario**, replacing 1.3% of vehicles with AVs could **save on average 10 lives per year, with a total of 54 lives saved across five years**. The **moderate scenario** estimates that 3.2% of vehicles are replaced by AVs, **saving an average of 26 lives per year, or a total of 133 lives across a five-year period.** Under the **optimistic scenario**, replacing 13% of vehicles with AVs could **save 108 lives annually on average, and a total of 538 lives over a five-year period.**

Potential injuries avoided by AV adoption scenario

The graph below presents totals for injuries that could be avoided with expanded AV adoption.

NY Injuries Potentially Avoided due to AV Adoption

Legend: Conservative, Moderate, Optimistic

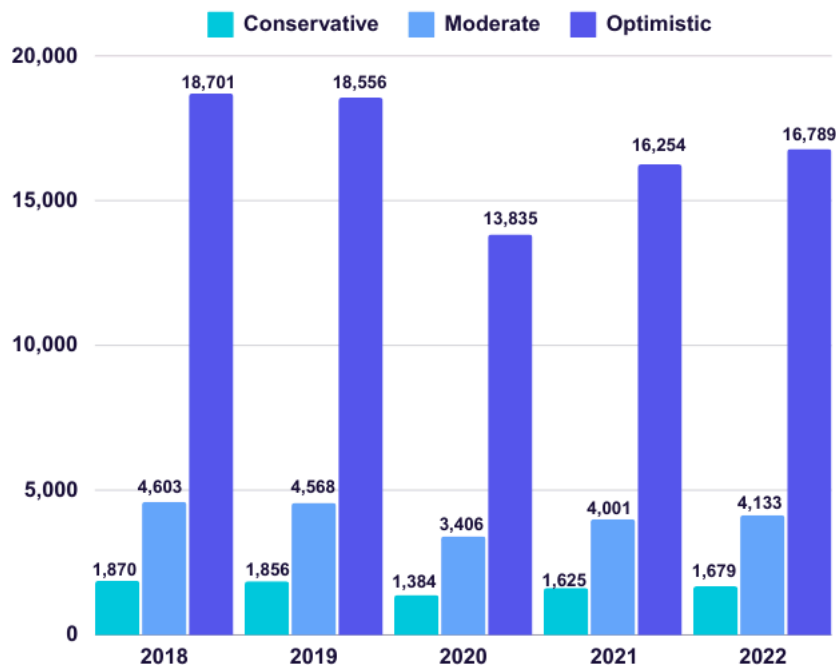| Year	Conservative	Moderate	Optimistic
2018	1,860	4,578	18,598
2019	1,845	4,542	18,452
2020	1,372	3,377	13,721
2021	1,613	3,970	16,129
2022	1,666	4,101	16,661

Under the **conservative adoption scenario**, replacing 1.3% of vehicles with AVs could **prevent on average 1,671 injuries per year, with a total of 8,356 injuries prevented across five years**. The **moderate scenario** estimates that 3.2% of vehicles are replaced by AVs, **preventing 4,114 injuries per year, or a total of 20,568 across a five-year period.** Under the **optimistic scenario**, replacing 13% of vehicles with AVs could **prevent 16,712 injuries annually on average, and a total of over 83,000 over a five-year period.**

Potential accidents avoided by AV adoption scenario

Under the **conservative adoption scenario**, replacing 1.3% of vehicles with AVs could **prevent 1,683 accidents per year, with a total of 8,414 accidents prevented across five years.** The **moderate scenario** estimates that 3.2% of vehicles are replaced by AVs, resulting in **4,142 accidents avoided per year, or a total of 20,711 across a five-year period.** Under the **optimistic scenario**, replacing 13% of vehicles with AVs could **prevent 16,827 accidents annually on average, and a total of 84,135 over five years.**

The graph below shows the potential accidents avoided due to AV adoption, by scenario type.

NY Accidents Potentially Avoided due to AV Adoption

Legend: ■ Conservative ■ Moderate ■ Optimistic

Year	Conservative	Moderate	Optimistic
2018	1,870	4,603	18,701
2019	1,856	4,568	18,556
2020	1,384	3,406	13,835
2021	1,625	4,001	16,254
2022	1,679	4,133	16,789

Conclusion

New York lawmakers can save lives in the state by authorizing the deployment of AVs. Research suggests that AVs are less likely than humans to get into accidents resulting in injury. If New York chooses to more fully embrace AVs, it could see a decrease in fatalities, injuries, and crashes on its roads.

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