

# National and NC Crash Data Trends Overview

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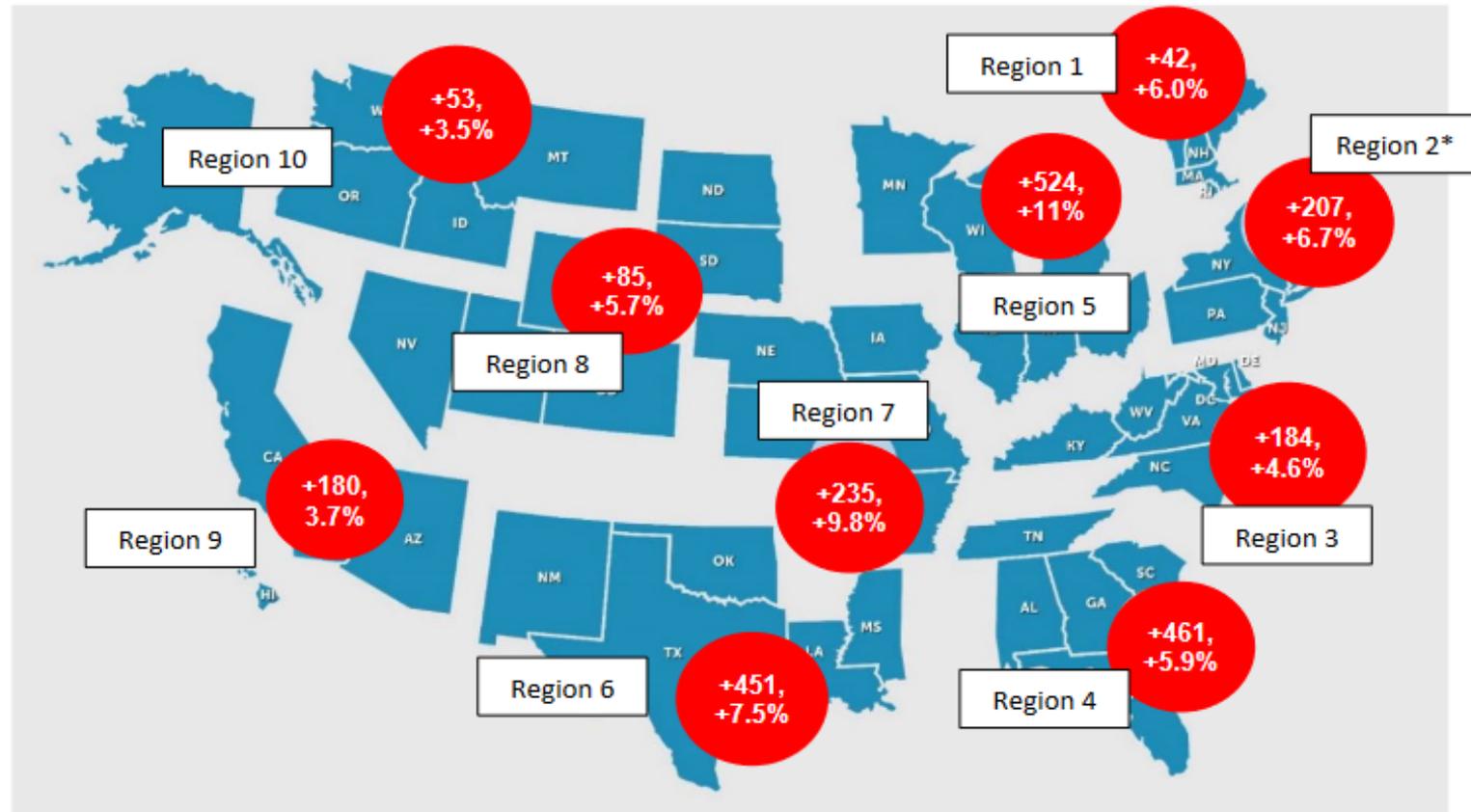
Presentation to the NC Executive Committee for Highway Safety



[www.hsrc.unc.edu](http://www.hsrc.unc.edu)

May 6, 2022

# Traffic fatalities are rising across the US

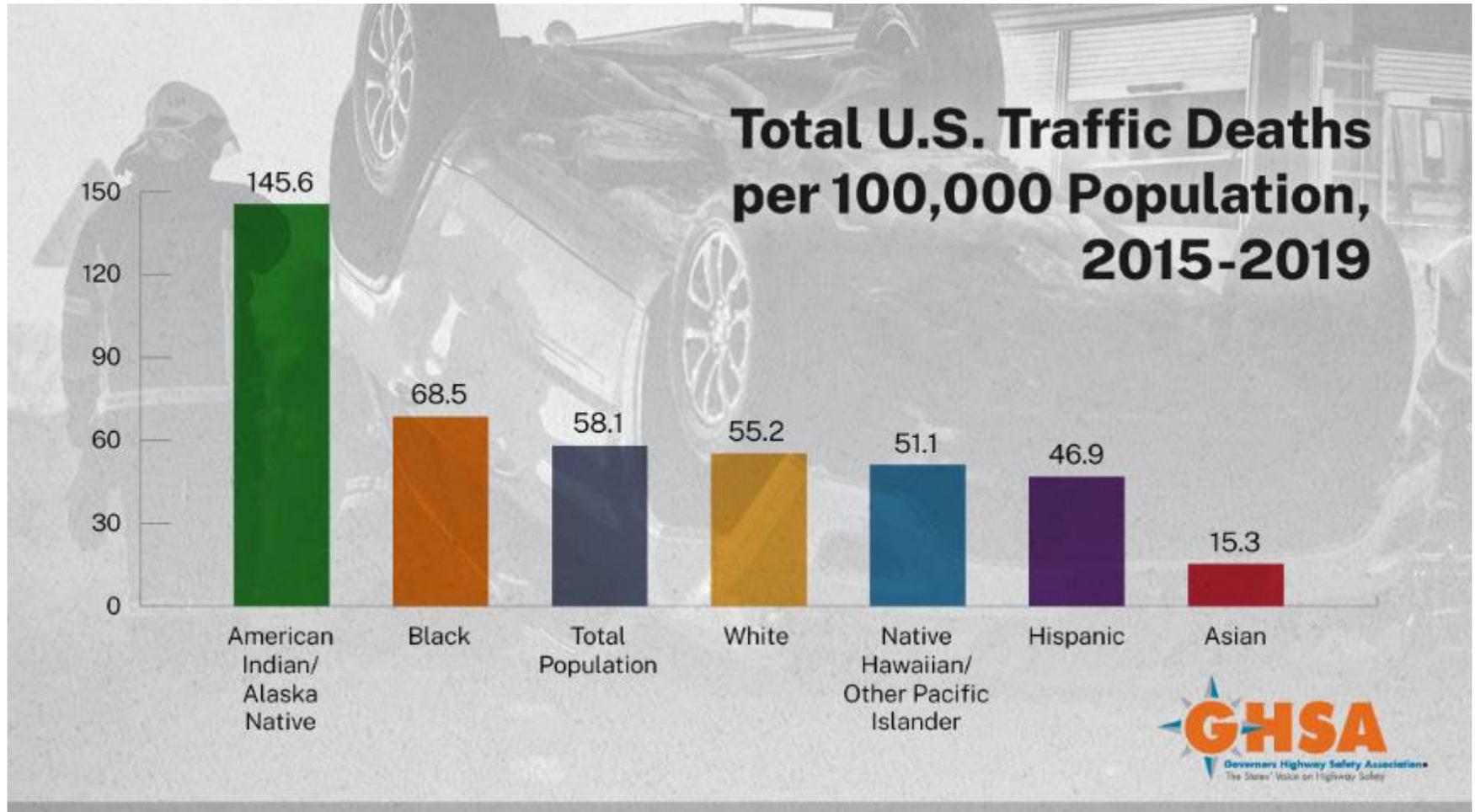


Source: FARS 2019 Final File, 2020 ARF

\*Includes Puerto Rico.

Figure 11. 2020 Number Changes and Percentage Changes in Traffic Fatalities From 2019, by NHTSA Region

# Who is involved in fatal crashes?

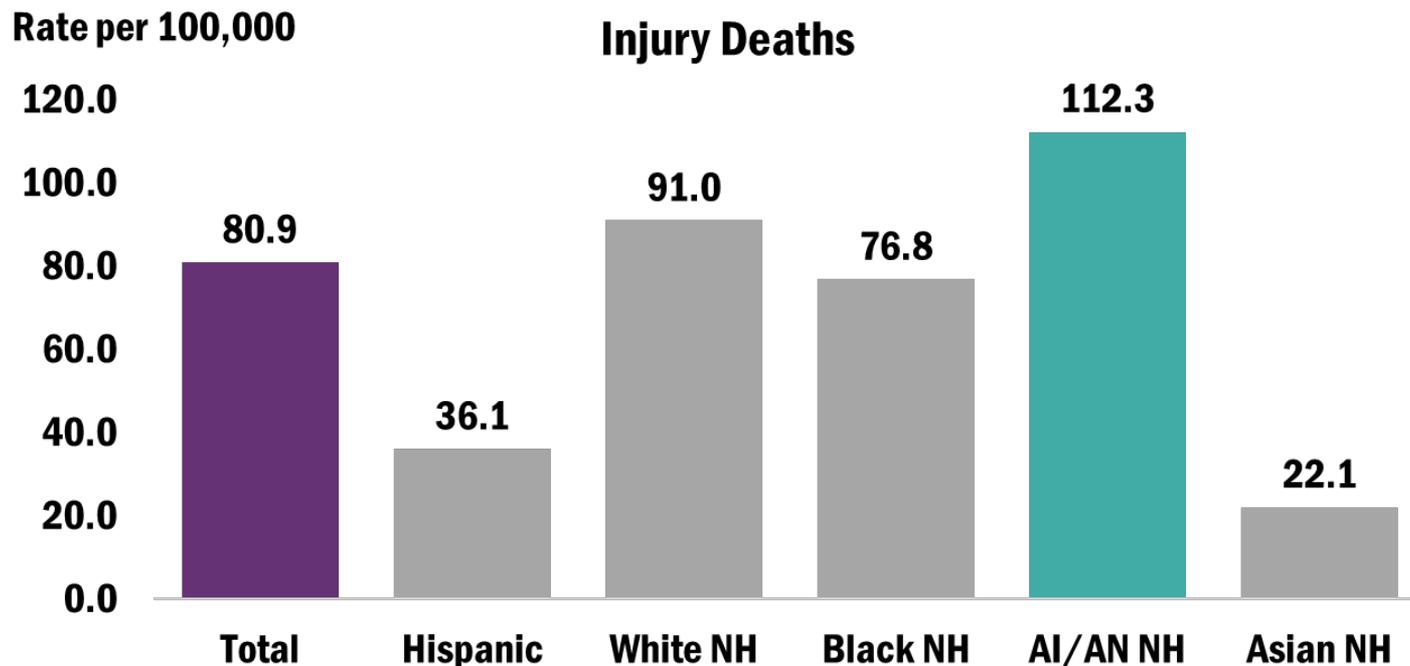


Source: GHSA, *An Analysis of Traffic Fatalities by Race and Ethnicity*, June 2021:

[https://www.ghsa.org/sites/default/files/2021-](https://www.ghsa.org/sites/default/files/2021-06/An%20Analysis%20of%20Traffic%20Fatalities%20by%20Race%20and%20Ethnicity_0.pdf)

[06/An%20Analysis%20of%20Traffic%20Fatalities%20by%20Race%20and%20Ethnicity\\_0.pdf](https://www.ghsa.org/sites/default/files/2021-06/An%20Analysis%20of%20Traffic%20Fatalities%20by%20Race%20and%20Ethnicity_0.pdf)

# American Indian residents had the highest rate of injury deaths in 2019.



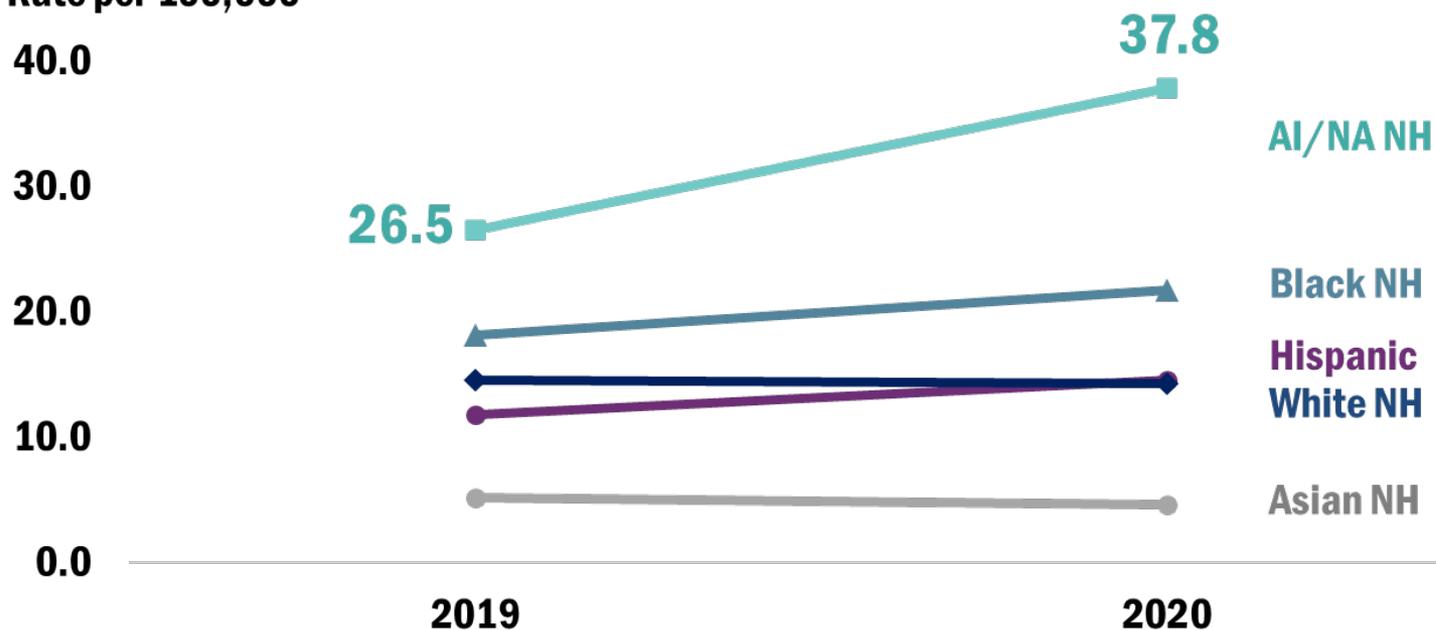
Limited to NH AI/AN NC residents; Note: AI/NA – American Indian/Alaskan Native; NH – Non-Hispanic; Rates - crude death rates per 100,000 population  
Source: NC SCHS Death Certificate data, 2019

Source: Scott Proescholdbell, NCDHHS, Division of Public Health, NCPHA: Motor Vehicle Deaths among American Indians in North Carolina, April 28, 2022

# American Indians experienced a 43% increase in the rate of MVT deaths from 2019-2020.

## Unintentional MVT Deaths by Race/Ethnicity, 2019-2020

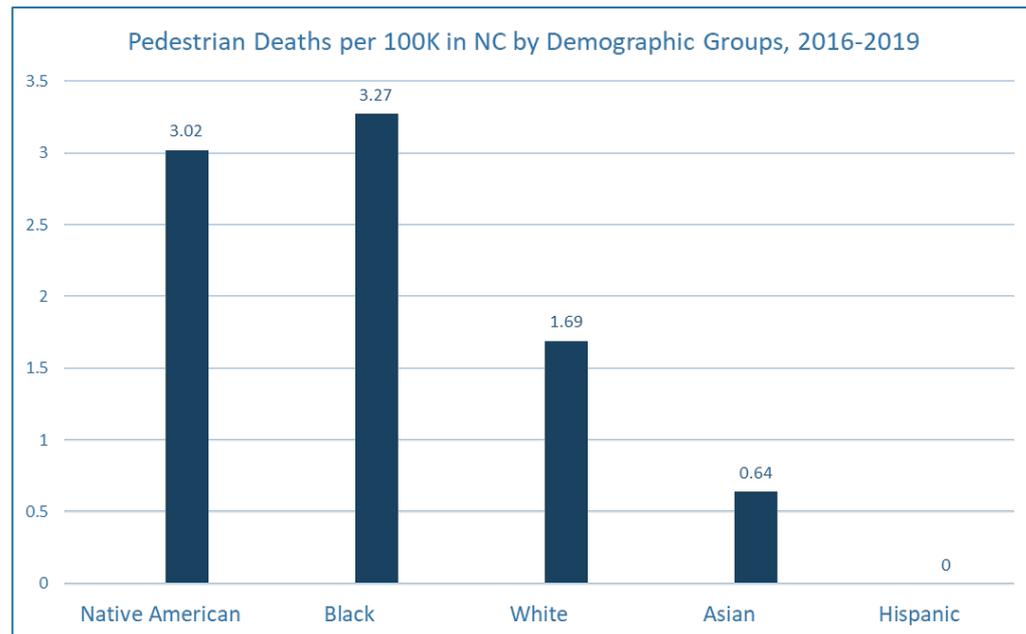
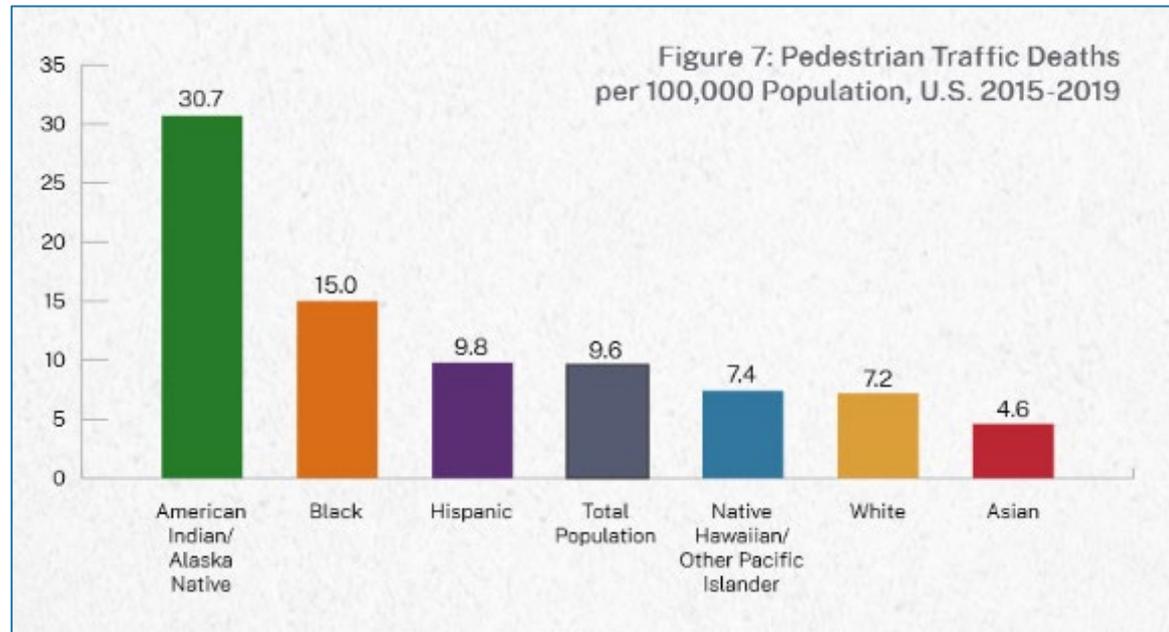
Rate per 100,000



Limited to NC residents; Note: AI/NA – American Indian/Alaskan Native; NH – Non-Hispanic; Rates - crude death rates per 100,000 population  
Source: NC SCHS Death Certificate data, 2019-2020

Source: Scott Proescholdbell, NCDHHS, Division of Public Health, NCPHA: Motor Vehicle Deaths among American Indians in North Carolina, April 28, 2022

Vulnerable road users: those offered the least protection from fatal injury



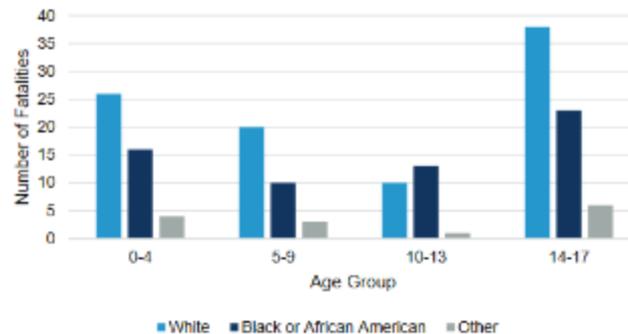
Sources: GHSA Equity Report and Carolina Center for Health Informatics:  
<https://cchi.web.unc.edu/nc-transportation-safety-public-health-data-dashboard/>

# A look at vulnerable road users

## GHSA Report Findings:

- “Black children ages 4–15 had the highest rates of fatalities involving pedestrians and people not in vehicles as a percentage of all motor vehicle traffic fatalities.”
- “Census tracts where low-income and BIPOC populations are more concentrated have measurably higher levels of vehicle traffic and higher speed arterials.”

Child Pedestrian Fatalities by Age Group and Race

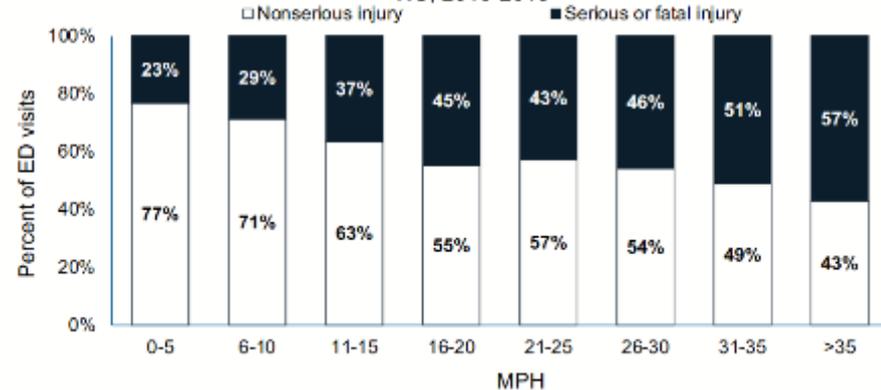


While the number of fatalities was higher among White children for most age groups, the number of Black/African American pedestrian fatalities exceeded all other racial groups among children aged 10-13 years.

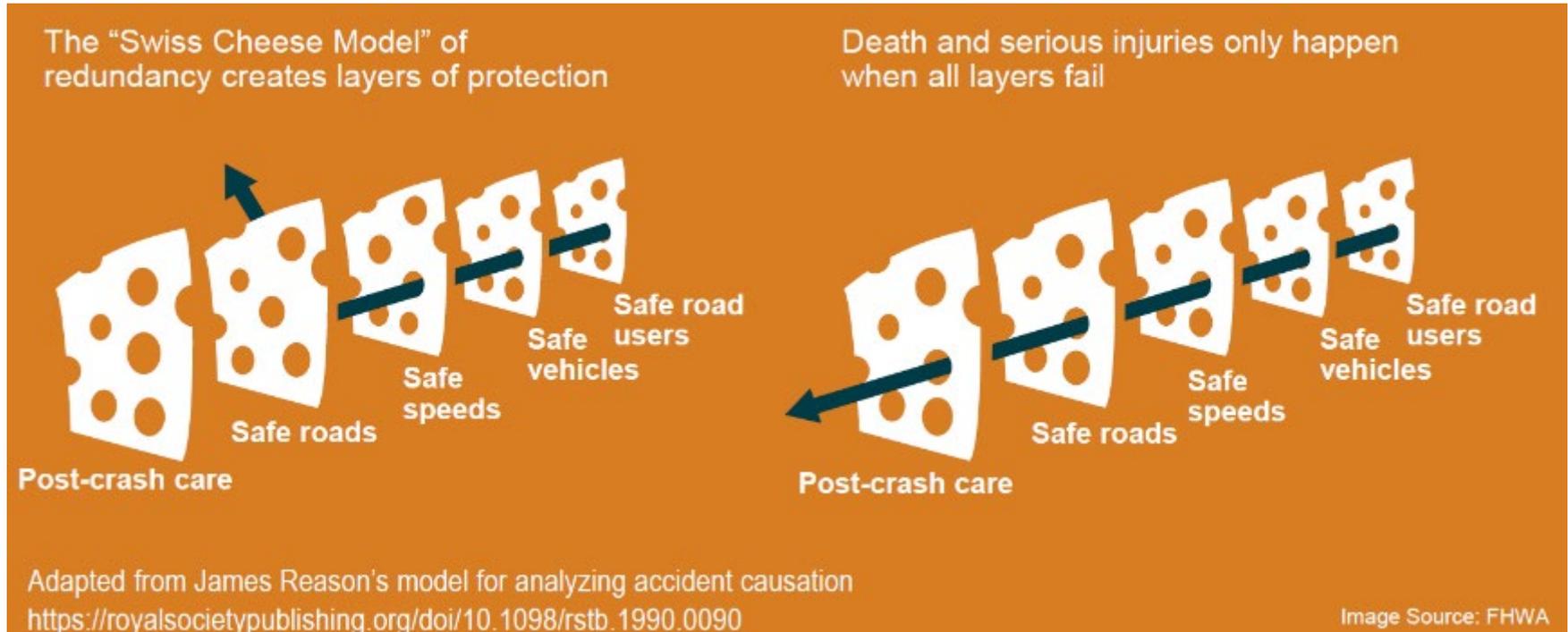


Not surprisingly, estimated speed at impact was also highly associated with pedestrian injury severity, with higher speeds resulting in more serious injuries

Frequency of serious pedestrian injuries, by estimated speed at impact: NC, 2010-2015



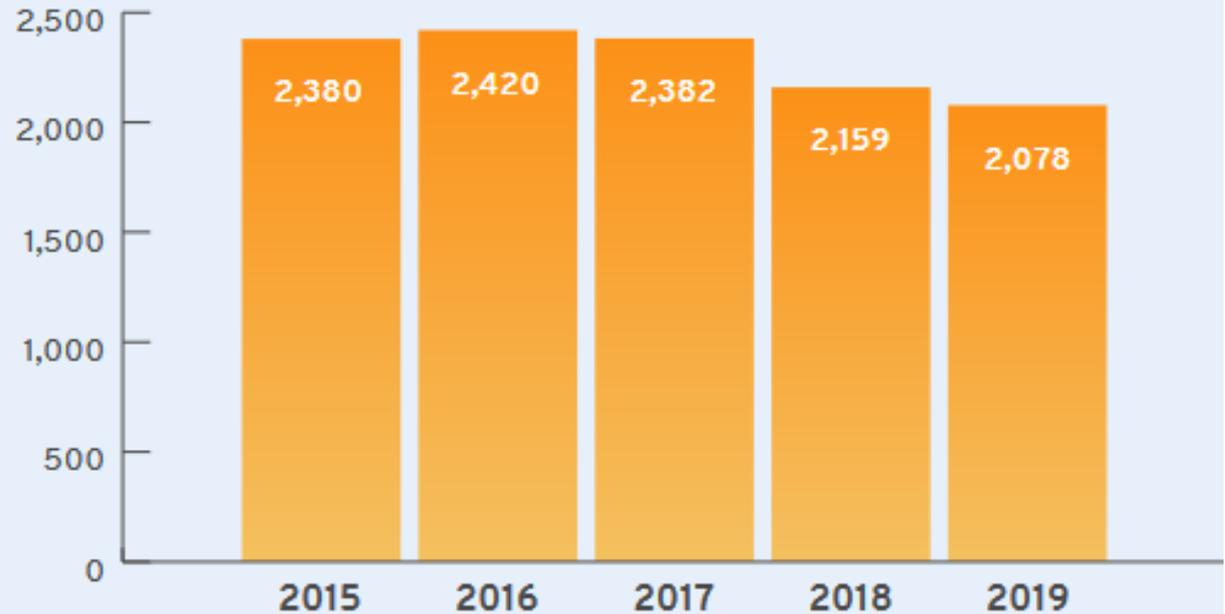
# National and local roadway fatality trends in key “system” redundancy areas



# Safe road user focus: Inexperienced drivers

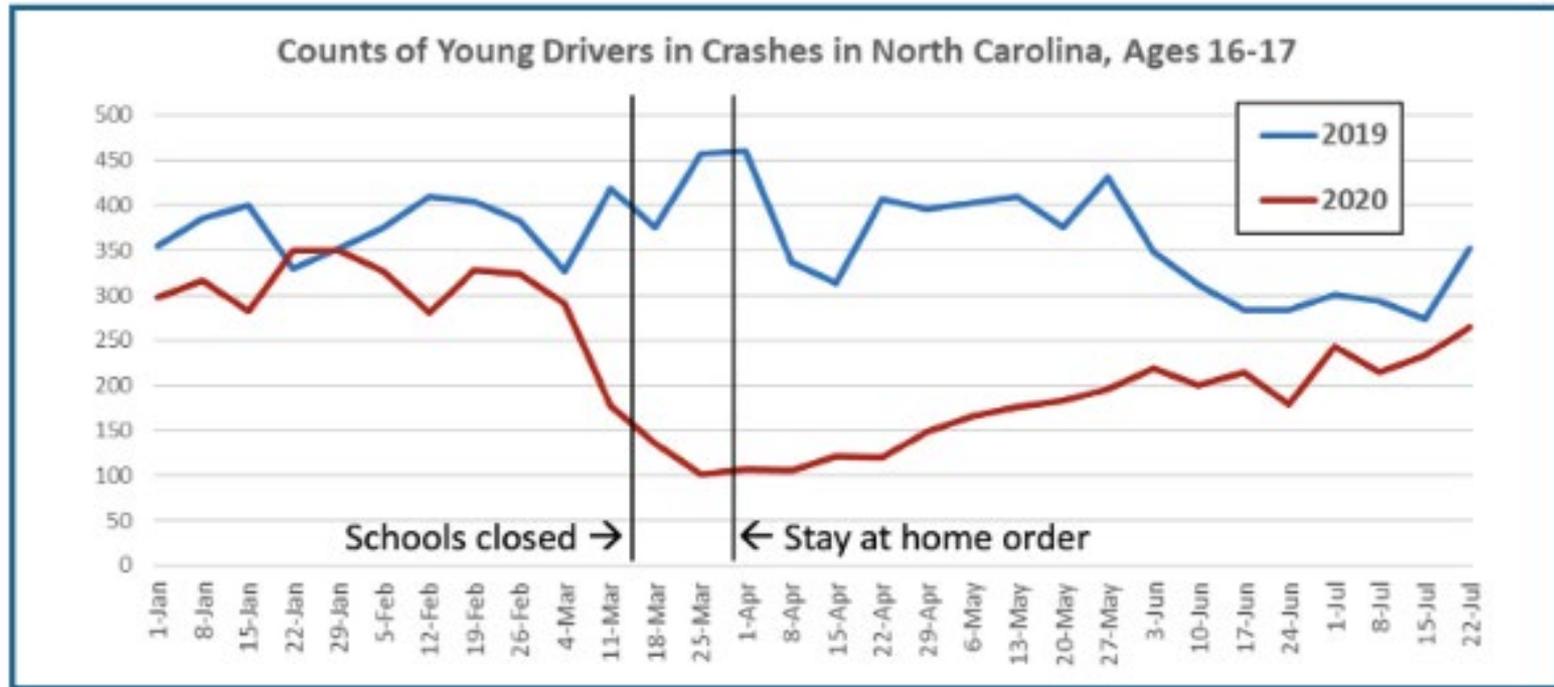
**FIGURE 1 >>**

Teen Drivers and Passengers  
Killed in Motor Vehicle  
Crashes, 2015-2019



Source: GHSA, Teens and Speeding: [https://www.ghsa.org/sites/default/files/2021-02/GHSA\\_TeenSpeeding\\_Feb16.pdf](https://www.ghsa.org/sites/default/files/2021-02/GHSA_TeenSpeeding_Feb16.pdf)

# Safe road user focus: Inexperienced drivers

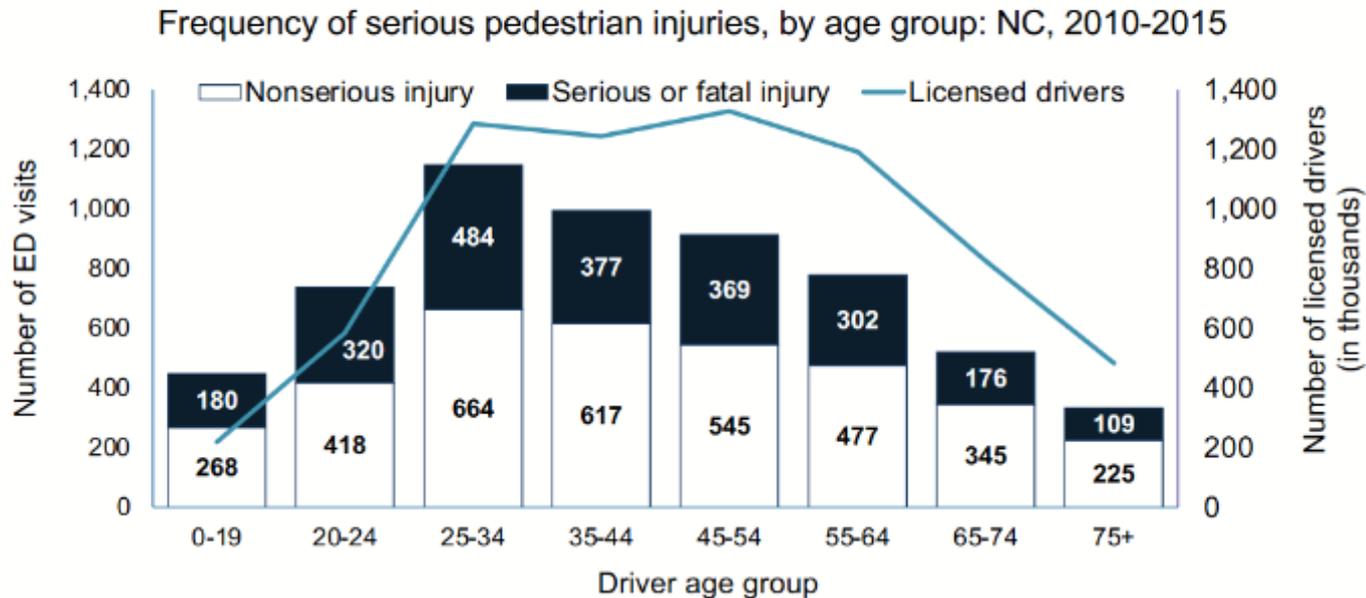


Source: O'Brien, C19 Mobility and Health Tech Brief:

[https://www.c19mobilityandhealth.unc.edu/docs/C19\\_TechBrief\\_02.pdf](https://www.c19mobilityandhealth.unc.edu/docs/C19_TechBrief_02.pdf)

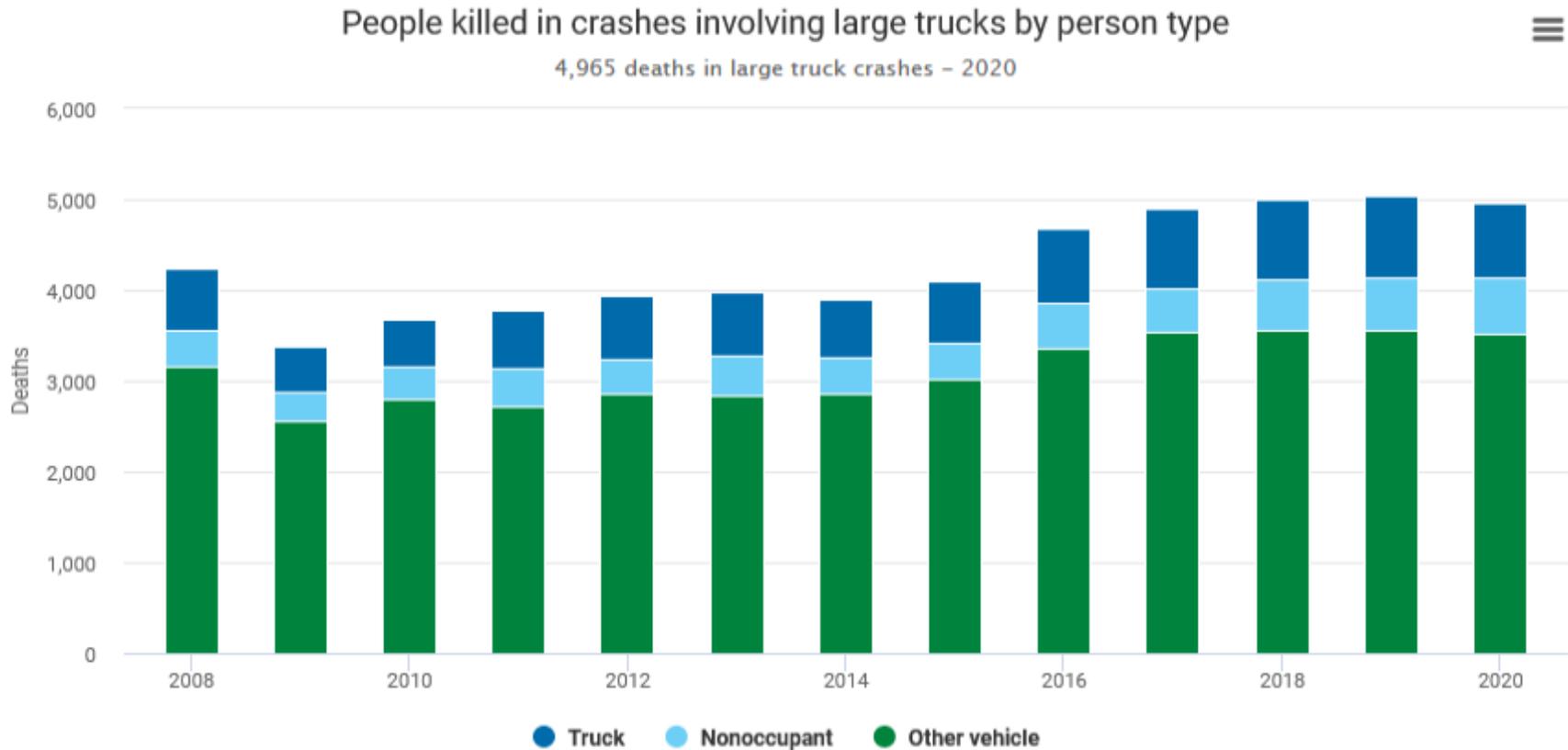
# Inexperienced drivers can harm all road users

Striking driver age was also significantly associated with serious pedestrian injury, with young adults being overrepresented



Source: Harmon, CSCRS R22 Study: [https://www.roadsafety.unc.edu/wp-content/uploads/2021/06/Slidedeck\\_R22.pdf](https://www.roadsafety.unc.edu/wp-content/uploads/2021/06/Slidedeck_R22.pdf)

# Safe vehicle focus: Large trucks

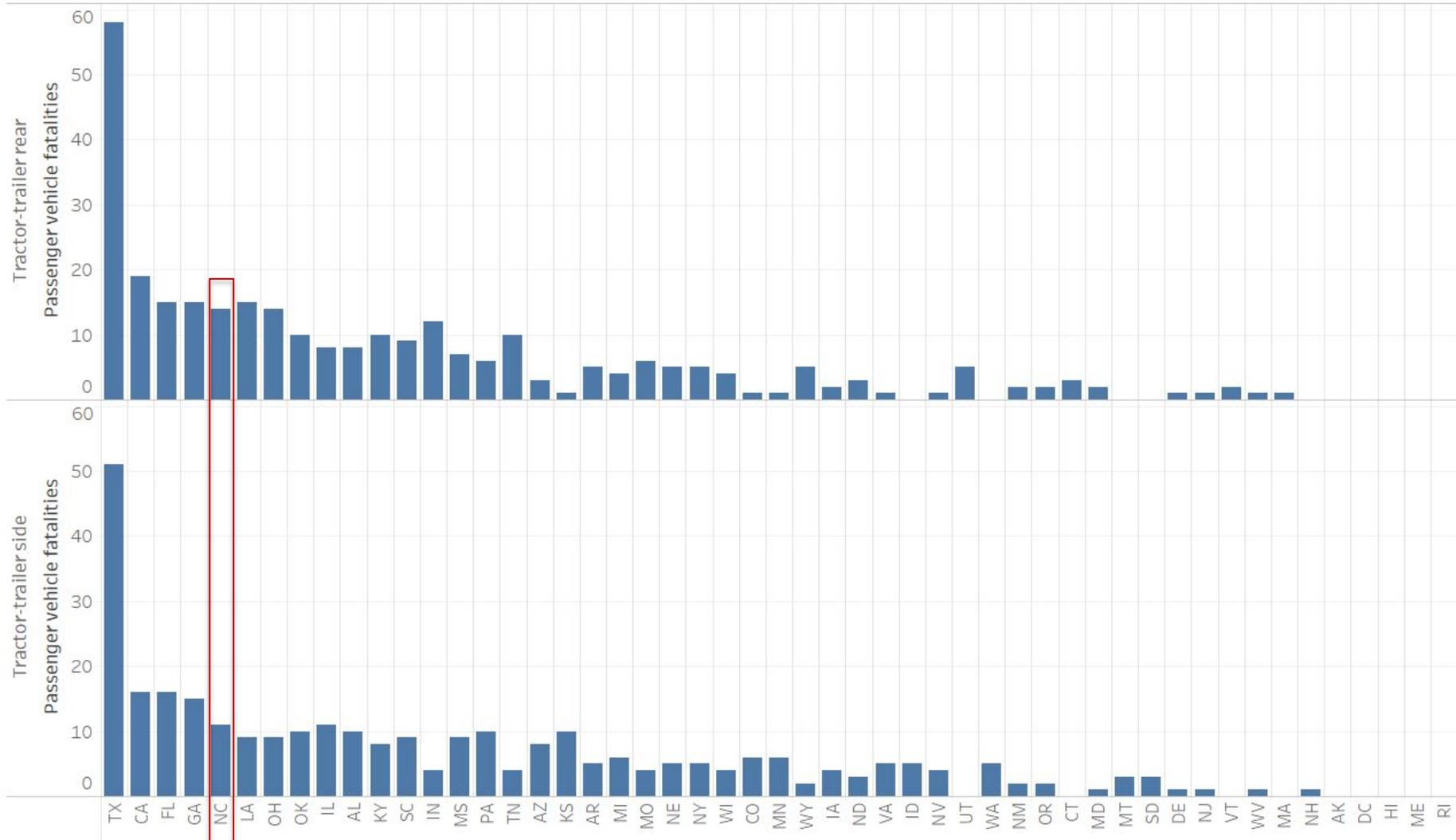


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Source: National Safety Council: <https://injuryfacts.nsc.org/motor-vehicle/road-users/large-trucks/>

# Safe vehicle focus: Large trucks

2015 Passenger vehicle occupant fatalities in 2-vehicle crashes with tractor-trailers



# Trends in commercial vehicle risks

- **Driver inexperience:** Truck driver shortage, retention, and turnover
- **Exposure change:** Increasing e-commerce/freight demand and VMT
- **Delivery schedule pressure:** Associated with speeding, lack of belt use, and crashes (increasing in urban areas)

Cargo van crashes involving pedestrians in NC in urban areas, by year and type

| Model            | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Total |
|------------------|------|------|------|------|------|------|------|------|-------|
| <i>NV Cargo</i>  | 0    | 0    | 0    | 1    | 1    | 2    | 2    | 5    | 11    |
| <i>ProMaster</i> | 0    | 0    | 0    | 0    | 2    | 0    | 2    | 2    | 6     |
| <i>Sprinter</i>  | 1    | 1    | 1    | 1    | 1    | 0    | 1    | 1    | 7     |
| <i>Transit</i>   | 0    | 0    | 0    | 1    | 2    | 13   | 7    | 2    | 25    |
| <b>Total</b>     | 1    | 1    | 1    | 3    | 6    | 15   | 12   | 10   | 49    |

Source: CSCRS Project R30: Urban freight and road safety: Trends and innovative strategies:  
<https://www.roadsafety.unc.edu/research/projects/2019r30/>

# Safe speed focus: US

Urban Interstate Range of Speeds – 1st Percentile to 99th Percentile by Month, January 2019 – June 2021



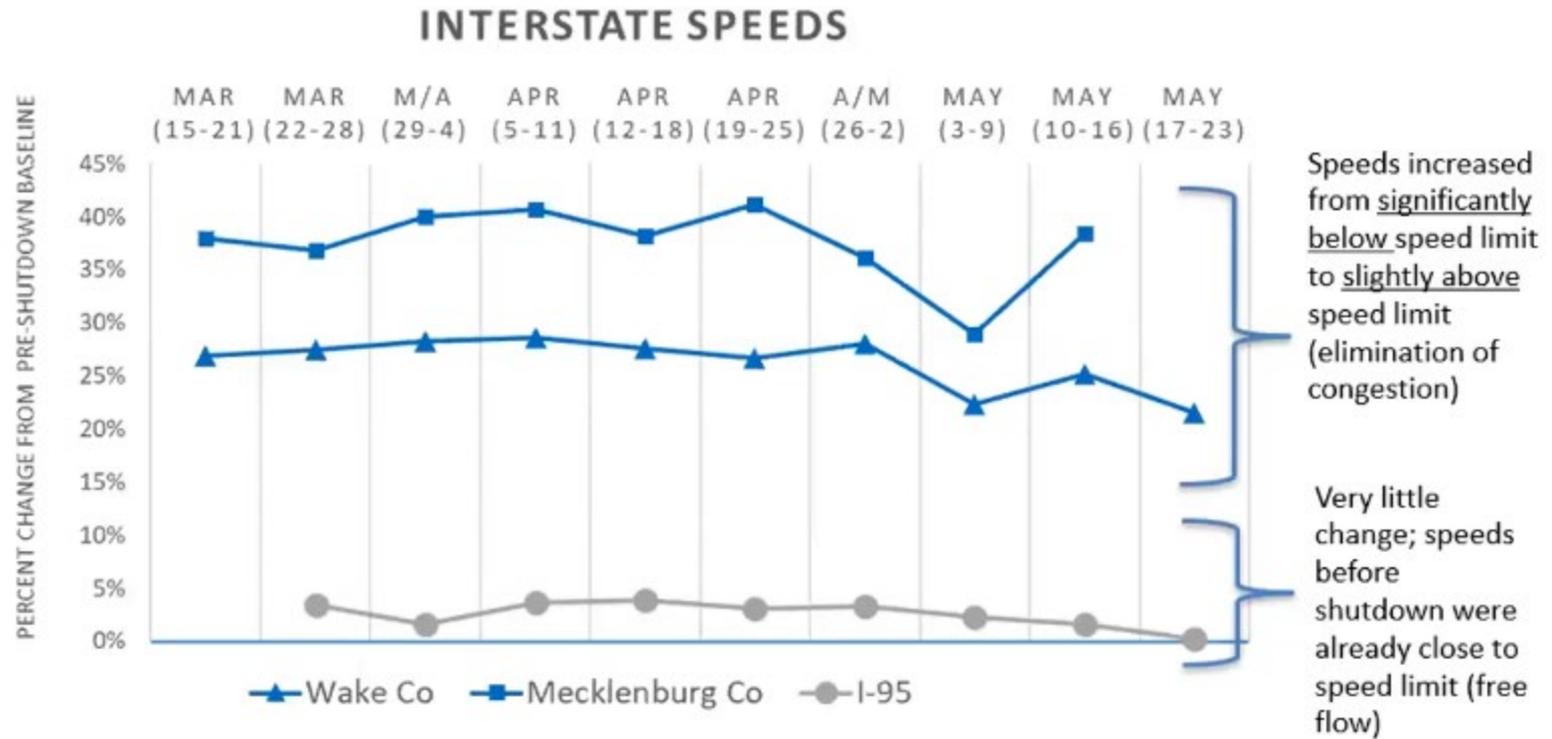
Source: NPMRDS

Rural Interstate Range of Speeds – 1st Percentile to 99th Percentile by Month, January 2019 – June 2021



Source: NPMRDS

# Safe speed focus: NC



NOTE: Data from 4:00-6:00pm on weekdays

Source: Daniel Carter, NCDOT, TRB presentation: <https://www.trb.org/Main/Blurbs/180648.aspx>

# Safe road focus



Source: National Safety Council: <https://injuryfacts.nsc.org/motor-vehicle/motor-vehicle-safety-issues/work-zones/>

# Examining AV performance in work zones



Source: Cummings, CSCRS Project R27: Safety testing for connected and automated vehicles through physical and digital iterative deployment, <https://www.roadsafety.unc.edu/research/projects/2019r27/>

# Post-crash harm reduction: belt use in US

Ejections per 100 Motor Vehicle Crash EMS Activations by Week of Year



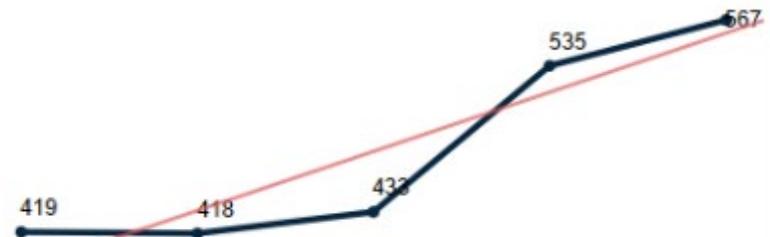
Source: NEMSIS

Source: NHTSA, [https://www.nhtsa.gov/sites/nhtsa.gov/files/2021-10/Traffic-Safety-During-COVID-19\\_Jan-June2021-102621-v3-tag.pdf](https://www.nhtsa.gov/sites/nhtsa.gov/files/2021-10/Traffic-Safety-During-COVID-19_Jan-June2021-102621-v3-tag.pdf)

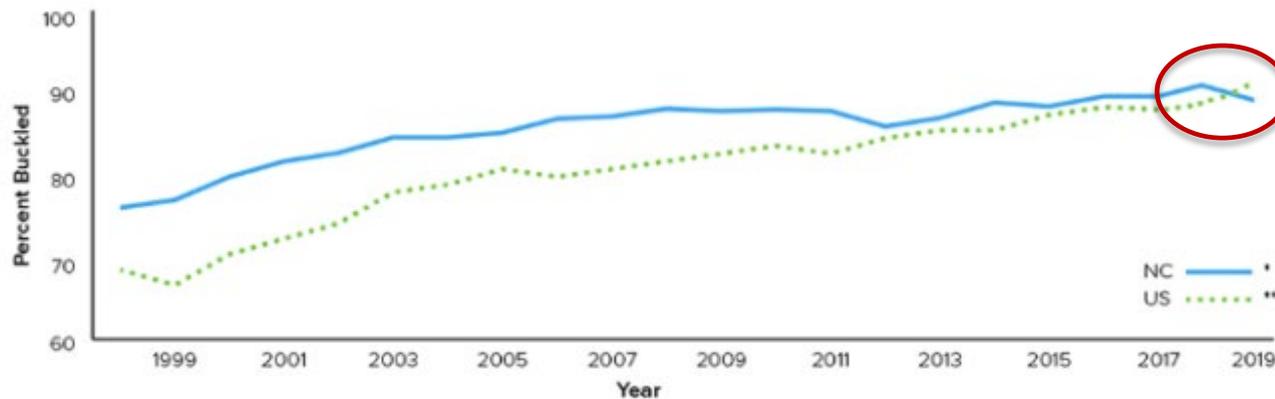
# Post-crash harm reduction: belt use in NC



1,630  
Persons Involved  
2017 – 2021  
Unbelted fatalities



## Seat Belt Use Trends in North Carolina Compared to United States Overall



\*Source: North Carolina Observational Study of Seat Belt Use.

\*\*Source: National Occupant Protection Use Survey (NOPUS).

# Additional Roadway Crash Data Resources

- National

- <https://injuryfacts.nsc.org/motor-vehicle/overview/introduction/>
- <https://www.cdc.gov/transportationsafety/index.html>

- North Carolina

- [www.hsrc.unc.edu](http://www.hsrc.unc.edu)
- [www.roadsafety.unc.edu](http://www.roadsafety.unc.edu)
- <https://cchi.web.unc.edu/nc-transportation-safety-public-health-data-dashboard/>
- [www.ncvisionzero.org](http://www.ncvisionzero.org)