# Between the Lines

## A Fact Book about Young Drivers in North Carolina

By

Carol L. Popkin
Carol A. Martell
Jeffrey C. Lowrance
Lauren M. Marchetti

University of North Carolina Highway Safety Research Center
Chapel Hill, North Carolina
May 1991

This work was sponsored by the North Carolina Governor's Highway Safety Program.
2,500 copies of this publication were printed at a cost of $0.93 per copy.

# Introduction

Regardless of the measurements used, miles driven or number of licensed drivers, young drivers in the United States are overrepresented in motor vehicle crashes -- particularly fatal and alcohol-related crashes. In fact, injuries sustained in motor vehicle crashes are the leading cause of death for young people between the ages of 15 and 24.

Adolescents and young adults are at highest risk of both fatal and non-fatal injuries related to motor vehicles. The average lifetime cost of any injury for a 15 to 24 year old in 1985* was $3,070, and for hospitalized victims the average cost was $42,028. When killed, lost productivity alone amounted to $438,884.

Alcohol continues to play a large part in the crash statistics of these younger people. In addition, younger people are less likely to use safety belts. Further information about young people involved in motor vehicle crashes in the United States is presented on the next page.

Such facts have brought about intensified deterrence efforts on the part of civic leaders, law enforcement, schools, the media, and various governmental agencies to reduce the crash risk in this segment of the driving population. In order to produce the most effective countermeasures, we need to understand what sorts of driving problems young people are having.

The North Carolina Governor's Highway Safety Program and the University of North Carolina Highway Safety Research Center have provided this information to gain a better understanding of the types of problems we are having in our state. We hope this fact book will lead to more effective countermeasure programs to help save the lives of our young people.

When using this book, it is important to keep in mind the following information. County-specific licensure, alcohol-related arrest, and moving violation conviction information is based on an individual driver's county of residence. County-specific crash information is based on the location of the crash. Population figures were provided by the Office of State Budget and Management, projecting from the 1980 U.S. Census. Alcohol-related (A/R) arrest and moving violation conviction information was obtained by examining the driver history records of those people who were 16 to 24 on January 1, 1989.

Alcohol-related arrests occurring during 1989 were included; moving violation convictions reflect those 1989 arrests adjudicated by late 1990. Ages for crashes and crash-related injuries reflect the individual's age at the time of the crash.

When using this book, the reader should remember that each county may have different enforcement levels and a different adjudication environment. Because these factors interact differently in each county, caution should be exercised when making comparisons.

*Rice DP, Mackenzie EJ, et al. Cost of Injury in the United States. A Report to Congress 1989. CDC, 1600 Clifton Road, Atlanta GA.

# National Statistics

**Facts About Young Motorists from 1989***

- 6,677 teenagers, aged 13-19, died from motor vehicle (MV) crashes during 1989.
- Teenagers comprised 10 percent of the U.S. population in 1989 and 15 percent of all MV deaths.
- Of those young people killed in MV crashes, 82 percent occurred in passenger vehicles, 7 percent occurred on motorcyclists, 6 percent were pedestrians, 3 percent occurred on bicycles and 2 percent occurred in other types of vehicles.
- Forty-four percent of these motor vehicle fatalities were drivers of passenger vehicles.
- Twenty-one percent of all passengers who died in motor vehicle crashes did so when a teenager is at the wheel. Most teenage passenger deaths 64 percent occurred in crashes in which another teenager was driving.
- More than twice as many male teenagers as female teenagers were killed in MV crashes, 4,521 male, 2,153 female and 3 unknown.
- Male 18-19 year old drivers of passenger vehicles had higher death rates than any other group -- 33 per 100,000 people, or more than twice the rate for 30-64 year old males.
- More teenage MV deaths, 31 percent, occurred during the summer -- June through August.
- More teenage MV deaths, 58 percent, occurred on the weekends, Friday, Saturday, and Sunday.
- About half of all teenage motor vehicle deaths occurred between 9 pm and 6 am. Male drivers 16-19 years old were involved in 43 nighttime fatal crashes per 100 million males travelled in 1983 -- about four times the rate for 30-54 year old men.
- Teenaged drivers with blood alcohol concentrations of 0.05-0.10 were far more likely than sober teen aged drivers to be killed in single vehicle crashes. Death is 18 times more likely for males and 54 times more likely for females. Drivers who were at least 25 years old and had similar blood alcohol concentrations were 9 (males) to 25 (females) times more likely to be killed in single-vehicle crashes, compared to sober drivers.

* These data are derived from the Insurance Institute for Highway Safety *Fatality Facts 1990.*

# State Statistics

## 1989 North Carolina Facts About Young Drivers 16-24

### Traffic Crashes in 1989

- 83,768 young drivers or 9.7 percent of licensed drivers aged 16-24 were involved in crashes. Fifty-eight percent of them were judged to be at fault.

- 39,327 young occupants, including drivers were injured *or* killed. Of these, 35,624 were driving or riding with a young driver. 5,491 were killed *or* injured in alcohol related (A/R) crashes.

- 364 young occupants were killed.
- 754 young motorcyclists were injured, 21 of these were killed.
- 398 young pedestrians were injured, 29 of these were killed.

### Crash Characteristics of Young Drivers

- 23 percent occurred during rush hour -- 7-9 am and 4-6 pm.
- 6 percent were alcohol-related.
- 34 percent occurred at night -- 6pm to 6am.
- 44 percent occurred on the weekend.

### Most harmful events of young drivers involved in crashes

- 23,142 involved in crashes rear ending another car, slowing or stopping.
- 16,145 involved in angle crashes.
- 10,808 involved collisions with a fixed object
- 8,767 involved crashes in which there was a left turn across same roadway.
- 6,366 involved left turns across traffic

### Violations associated with crashes

- 14,907 Exceeding safe speed
- 10,986 Safe movement violation
- 4,877 Failure to yield
- 3,084 DWI/Alcohol
- 2,833 Following too closely
- 2,414 Exceeding speed limit

### Alcohol-Related Activity

- 2.9 out of every 100 drivers in this age group were arrested for DWI.

- For 16-17 year olds, 1.6 out of every 100 drivers were arrested for DWI; for 18-20 year olds 3.0; and for 21-24 year olds, 3.3 were arrested for DWI. This compares with a rate of 1.9 per 100 licensed drivers aged 25 to 54.

- The average BAC reading of those arrested was .12. For 16-17 year olds, it was .09; for 18-20 year olds, it was .11; and for 21 to 24 year olds, it was .12.

# A Closer Look

## The Driving Population

Table 1 presents an estimate of the population of young people in each county based on 1980 Census data with projections to 1989, and the number of young people licensed in 1989 in each age group by county. For the entire state, 77 percent of 16-17 year olds are licensed, 79 percent of 18-20 year olds are licensed, and 96 percent of 21 to 24 year olds are. This table also shows the number of moving violation convictions such as speeding, following too closely per hundred licensed drivers. Note that all rates which involve law enforcement officers may be influenced by the level and emphasis of enforcement in that given county area.

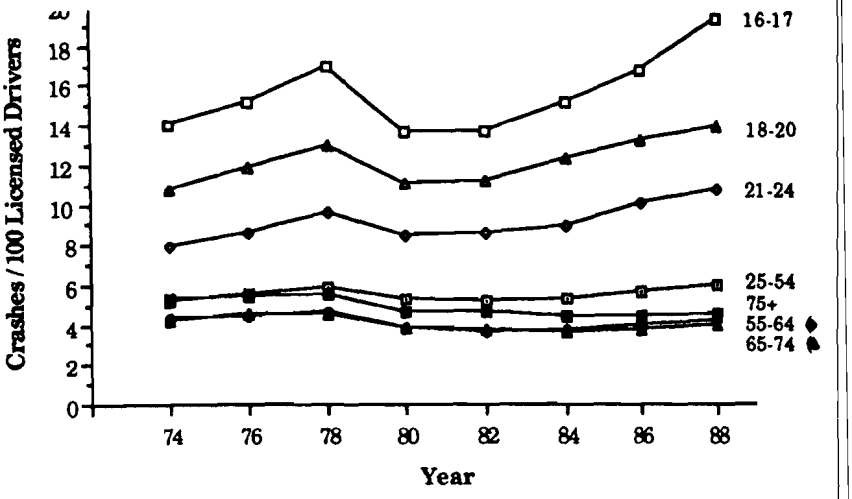



**Figure 1.** North Carolina Motor Vehicle Crashes per 100 Licensed Drivers by Age, 1974-1988 (Stutts, et al.)

## Motor Vehicle Crashes

Figure 1 shows the over-involvement of younger drivers in crashes in North Carolina -- particularly the group aged 16 and 17. A look at Table 2 shows youth involvement in 1989 North Carolina traffic accidents. Notice that during 1989 there were 83,768 young drivers between the ages of 16 and 24 involved in motor vehicle (MV) crashes which is nearly one driver in ten.

Frequently mentioned 'most harmful events' of young drivers in crashes are rear-ending, slowing or stopping, making angle turns, colliding with a fixed object, turning left (same road way), and turning left across traffic. "Rear-end type" events increase with age among

The number of crashes by county is presented on Table 3. This information is also illustrated by the maps of Figures 2 and 3 and is based on the number of licensed drivers in these age groups in each county. Notice the apparently higher crash rates which occur in more densely populated counties. On the other hand, Figure 4 shows the large percent of crashes that occur in rural areas which involve younger drivers.

Twenty-one to 24 year old drivers experience far fewer crashes than their younger counterparts -- 7.4 per hundred licensed drivers as compared to 9.2. Figure 5 provides more information about the times at which younger drivers are involved in crashes. This information is provided in numerical form on Table 2. Forty-four percent of crashes involving young people occurred on the weekend

Continued on page 10

**Table 1.** 1989 Youth Population, Licensure* and Moving Violation Rates per 100 Licensed Drivers by County and Age

| | 16 - 17 years old | | | | 18 - 20 years old | | | | 21 - 24 years old | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pop'n | # of licensed drivers | % licensed* | moving viol conv rate | pop'n | # of licensed drivers | % licensed* | moving viol conv rate | pop'n | # of licensed drivers | % licensed* | moving viol conv rate |
| Statewide | 191,881 | 147,204 | 76.7 | 24.94 | 359,462 | 285,135 | 79.3 | 27.65 | 446,587 | 430,073 | 96.3 | 19.64 |
| Alamance | 2,987 | 2,707 | 90.6 | 30.74 | 5,176 | 5,088 | 98.3 | 30.52 | 6,509 | 7,093 | 109.0 | 19.60 |
| Alexander | 883 | 718 | 81.3 | 22.56 | 1,390 | 1,200 | 86.3 | 19.17 | 1,668 | 1,671 | 100.2 | 11.73 |
| Alleghany | 293 | 266 | 90.8 | 25.19 | 403 | 441 | 109.4 | 18.14 | 529 | 616 | 116.4 | 11.36 |
| Anson | 818 | 596 | 72.9 | 16.11 | 1,253 | 1,051 | 83.9 | 22.55 | 1,477 | 1,536 | 104.0 | 18.29 |
| Ashe | 640 | 566 | 88.4 | 22.79 | 984 | 1,001 | 101.7 | 20.38 | 1,202 | 1,303 | 108.4 | 15.20 |
| Avery | 602 | 374 | 62.1 | 24.60 | 904 | 719 | 79.5 | 25.17 | 994 | 1,013 | 101.9 | 13.92 |
| Beaufort | 1,221 | 1,073 | 87.9 | 25.91 | 1,878 | 1,941 | 103.4 | 28.54 | 2,199 | 2,497 | 113.6 | 20.78 |
| Bertie | 641 | 483 | 75.4 | 13.87 | 945 | 939 | 99.4 | 20.23 | 1,136 | 1,421 | 125.1 | 16.75 |
| Bladen | 1,006 | 775 | 77.0 | 23.10 | 1,478 | 1,404 | 95.0 | 23.72 | 1,708 | 1,825 | 106.9 | 18.58 |
| Brunswick | 1,510 | 1,060 | 70.2 | 32.45 | 2,360 | 2,062 | 87.4 | 24.05 | 2,918 | 3,058 | 104.8 | 18.51 |
| Buncombe | 4,615 | 3,531 | 76.5 | 25.21 | 7,598 | 7,263 | 95.6 | 23.71 | 9,682 | 10,535 | 108.8 | 15.42 |
| Burke | 2,427 | 1,914 | 78.9 | 25.34 | 3,773 | 3,464 | 91.8 | 24.94 | 4,610 | 4,747 | 103.0 | 17.48 |
| Cabarrus | 2,778 | 2,641 | 95.1 | 24.61 | 4,720 | 4,772 | 101.1 | 23.81 | 5,658 | 6,362 | 112.4 | 17.10 |
| Caldwell | 2,070 | 1,818 | 87.8 | 30.53 | 3,549 | 3,497 | 98.5 | 24.56 | 4,554 | 4,728 | 103.8 | 18.63 |
| Camden | 160 | 151 | 94.4 | 23.84 | 275 | 269 | 97.8 | 25.65 | 362 | 364 | 100.6 | 17.03 |
| Carteret | 1,376 | 1,064 | 77.3 | 35.62 | 2,338 | 2,044 | 87.4 | 26.96 | 3,129 | 3,125 | 99.9 | 19.10 |
| Caswell | 630 | 401 | 63.7 | 17.46 | 1,099 | 828 | 75.3 | 21.74 | 1,301 | 1,135 | 87.2 | 14.19 |
| Catawba | 3,534 | 3,038 | 86.0 | 20.28 | 5,605 | 5,485 | 97.9 | 19.98 | 7,189 | 7,726 | 107.5 | 13.05 |
| Chatham | 950 | 768 | 80.8 | 23.70 | 1,596 | 1,439 | 90.2 | 21.96 | 2,070 | 1,909 | 92.2 | 16.71 |
| Cherokee | 594 | 525 | 88.4 | 23.62 | 953 | 983 | 103.1 | 18.01 | 1,084 | 1,239 | 114.3 | 11.46 |
| Chowan | 378 | 287 | 75.9 | 21.95 | 560 | 558 | 99.6 | 25.27 | 646 | 710 | 109.9 | 17.75 |
| Clay | 194 | 216 | 111.3 | 21.76 | 274 | 328 | 119.7 | 20.12 | 317 | 415 | 130.9 | 13.49 |
| Cleveland | 2,666 | 2,205 | 82.7 | 25.62 | 4,315 | 4,001 | 92.7 | 25.39 | 5,382 | 5,644 | 104.9 | 17.79 |
| Columbus | 1,615 | 1,330 | 82.4 | 19.32 | 2,330 | 2,365 | 101.5 | 19.58 | 2,843 | 3,353 | 117.9 | 15.51 |
| Craven | 2,418 | 1,748 | 72.3 | 23.86 | 5,651 | 3,345 | 59.2 | 46.22 | 7,125 | 6,025 | 84.6 | 27.54 |

*Based on the 1980 census with projections made to 1989. Some counties experienced greater population growth than anticipated, and therefore have licensure rates over 100%.

**Table 1.** continued on next page

**Table 1.** 1989 Youth Population, Licensure* and Moving Violation Rates per 100 Licensed Drivers by County and Age (**continued**)

| | 16 - 17 years old | | | | 18 - 20 years old | | | | 21 - 24 years old | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pop'n | # of licensed drivers | % licensed* | moving viol conv rate | pop'n | # of licensed drivers | % licensed* | moving viol conv rate | pop'n | # of licensed drivers | % licensed* | moving viol conv rate |
| Cumberland | 7,891 | 5,070 | 64.3 | 25.03 | 20,633 | 11,200 | 54.3 | 41.87 | 26,725 | 22,023 | 82.4 | 24.90 |
| Currituck | 433 | 284 | 65.6 | 29.23 | 712 | 546 | 76.7 | 30.22 | 926 | 805 | 86.9 | 18.63 |
| Dare | 535 | 405 | 75.7 | 39.01 | 990 | 890 | 89.9 | 32.13 | 1,364 | 1,532 | 112.3 | 24.35 |
| Davidson | 3,646 | 3,061 | 84.0 | 22.12 | 6,060 | 5,672 | 93.6 | 23.66 | 7,450 | 7,713 | 103.5 | 15.69 |
| Davie | 814 | 755 | 92.8 | 21.32 | 1,351 | 1,305 | 96.6 | 23.68 | 1,546 | 1,694 | 109.6 | 14.34 |
| Duplin | 1,289 | 1,073 | 83.2 | 21.06 | 1,969 | 1,830 | 92.9 | 26.67 | 2,246 | 2,422 | 107.8 | 20.31 |
| Durham | 5,023 | 3,267 | 65.0 | 23.91 | 10,706 | 6,606 | 61.7 | 29.17 | 15,009 | 10,983 | 73.2 | 21.88 |
| Edgecombe | 1,878 | 963 | 51.3 | 22.22 | 2,813 | 1,963 | 69.8 | 22.82 | 3,273 | 2,715 | 83.0 | 16.61 |
| Forsyth | 7,297 | 5,819 | 79.7 | 28.32 | 12,285 | 11,366 | 92.5 | 27.67 | 16,565 | 16,961 | 102.4 | 18.87 |
| Franklin | 1,222 | 630 | 51.6 | 19.37 | 1,777 | 1,254 | 70.6 | 19.86 | 1,970 | 1,915 | 97.2 | 16.66 |
| Gaston | 5,494 | 4,780 | 87.0 | 23.43 | 8,648 | 8,575 | 99.2 | 22.80 | 10,698 | 11,533 | 107.8 | 15.33 |
| Gates | 275 | 233 | 84.7 | 16.31 | 442 | 430 | 97.3 | 17.44 | 507 | 579 | 114.2 | 14.51 |
| Graham | 208 | 178 | 85.6 | 20.22 | 327 | 364 | 111.3 | 19.51 | 402 | 503 | 125.1 | 10.93 |
| Granville | 1,124 | 757 | 67.3 | 19.55 | 1,957 | 1,609 | 82.2 | 23.74 | 2,207 | 2,236 | 101.3 | 16.28 |
| Greene | 559 | 280 | 50.1 | 14.64 | 763 | 569 | 74.6 | 18.28 | 902 | 767 | 85.0 | 17.60 |
| Guilford | 9,695 | 7,576 | 78.1 | 27.09 | 18,006 | 15,376 | 85.4 | 30.36 | 24,457 | 23,884 | 97.7 | 22.43 |
| Halifax | 1,703 | 1,276 | 74.9 | 20.38 | 2,448 | 2,392 | 97.7 | 24.75 | 2,994 | 3,527 | 117.8 | 19.02 |
| Harnett | 2,255 | 1,264 | 56.1 | 25.87 | 4,255 | 2,554 | 60.0 | 26.27 | 5,494 | 3,842 | 69.9 | 17.46 |
| Haywood | 1,329 | 1,132 | 85.2 | 22.88 | 2,039 | 2,130 | 104.5 | 20.80 | 2,610 | 2,970 | 113.8 | 14.04 |
| Henderson | 1,871 | 1,583 | 84.6 | 27.04 | 2,814 | 2,898 | 103.0 | 21.26 | 3,474 | 4,068 | 117.1 | 13.62 |
| Hertford | 857 | 499 | 58.2 | 17.03 | 1,215 | 937 | 77.1 | 23.80 | 1,277 | 1,407 | 110.2 | 15.35 |
| Hoke | 867 | 413 | 47.6 | 28.33 | 1,303 | 838 | 64.3 | 21.72 | 1,468 | 1,126 | 76.7 | 19.89 |
| Hyde | 172 | 114 | 66.3 | 21.93 | 267 | 225 | 84.3 | 23.56 | 323 | 268 | 83.0 | 22.39 |
| Iredell | 2,669 | 2,339 | 87.6 | 22.06 | 4,228 | 4,293 | 101.5 | 21.22 | 5,182 | 5,930 | 114.4 | 15.55 |
| Jackson | 733 | 568 | 77.5 | 17.43 | 3,008 | 1,105 | 36.7 | 19.55 | 2,496 | 1,599 | 64.1 | 11.19 |

*Based on the 1980 census with projections made to 1989. Some counties experienced greater population growth than anticipated, and therefore have licensure rates over 100%.

**Table 1.** continued on next page

**Table 1.** 1989 Youth Population, Licensure* and Moving Violation Rates per 100 Licensed Drivers by County and Age (**continued**)

| | 16 - 17 years old | | | | 18 - 20 years old | | | | 21 - 24 years old | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pop'n | # of licensed drivers | % licensed* | moving viol conv rate | pop'n | # of licensed drivers | % licensed* | moving viol conv rate | pop'n | # of licensed drivers | % licensed* | moving viol conv rate |
| Johnston | 2,398 | 1,960 | 81.7 | 28.72 | 3,836 | 3,545 | 92.4 | 24.85 | 4,544 | 4,861 | 107.0 | 18.80 |
| Jones | 280 | 206 | 73.6 | 26.21 | 464 | 421 | 90.7 | 20.67 | 505 | 541 | 107.1 | 16.08 |
| Lee | 1,187 | 1,012 | 85.3 | 28.06 | 1,953 | 1,842 | 94.3 | 28.50 | 2,453 | 2,684 | 109.4 | 18.85 |
| Lenoir | 1,811 | 1,400 | 77.3 | 28.71 | 2,741 | 2,581 | 94.2 | 23.52 | 3,150 | 3,492 | 110.9 | 19.73 |
| Lincoln | 1,546 | 1,412 | 91.3 | 25.35 | 2,408 | 2,342 | 97.3 | 21.31 | 2,912 | 3,047 | 104.6 | 15.82 |
| McDowell | 1,176 | 565 | 48.0 | 24.42 | 1,693 | 1,076 | 63.6 | 15.71 | 1,952 | 1,406 | 72.0 | 9.25 |
| Macon | 646 | 376 | 58.2 | 31.12 | 981 | 692 | 70.5 | 26.45 | 1,080 | 1,006 | 93.1 | 15.90 |
| Madison | 614 | 692 | 112.7 | 20.23 | 938 | 1,209 | 128.9 | 22.83 | 1,200 | 1,664 | 138.7 | 17.31 |
| Martin | 832 | 862 | 103.6 | 31.55 | 1,143 | 1,654 | 144.7 | 24.37 | 1,347 | 2,306 | 171.2 | 13.83 |
| Mecklenburg | 13,168 | 9,602 | 72.9 | 21.66 | 23,462 | 21,074 | 89.8 | 23.24 | 30,988 | 34,045 | 109.9 | 16.84 |
| Mitchell | 368 | 376 | 102.2 | 22.61 | 630 | 635 | 100.8 | 16.38 | 748 | 852 | 113.9 | 9.86 |
| Montgomery | 717 | 608 | 84.8 | 21.22 | 1,193 | 1,101 | 92.3 | 23.07 | 1,407 | 1,351 | 96.0 | 16.51 |
| Moore | 1,636 | 1,251 | 76.5 | 26.86 | 2,640 | 2,353 | 89.1 | 27.58 | 3,263 | 3,498 | 107.2 | 19.78 |
| Nash | 2,245 | 2,081 | 92.7 | 19.70 | 3,381 | 3,998 | 118.2 | 20.91 | 3,963 | 5,227 | 131.9 | 16.38 |
| New Hanover | 3,430 | 2,413 | 70.3 | 29.63 | 5,917 | 5,262 | 88.9 | 29.27 | 7,747 | 7,927 | 102.3 | 20.18 |
| Northampton | 704 | 463 | 65.8 | 16.85 | 991 | 906 | 91.4 | 20.86 | 1,222 | 1,324 | 108.3 | 17.90 |
| Onslow | 3,386 | 2,087 | 61.6 | 26.78 | 18,337 | 4,891 | 26.7 | 75.30 | 20,235 | 13,240 | 65.4 | 30.74 |
| Orange | 1,955 | 1,444 | 73.9 | 29.09 | 10,496 | 3,371 | 32.1 | 29.43 | 11,934 | 6,536 | 54.8 | 20.93 |
| Pamlico | 294 | 239 | 81.3 | 28.45 | 502 | 459 | 91.4 | 23.97 | 532 | 528 | 99.2 | 15.53 |
| Pasquotank | 985 | 689 | 70.0 | 25.83 | 1,904 | 1,287 | 67.6 | 27.27 | 2,306 | 1,830 | 79.4 | 21.48 |
| Pender | 881 | 720 | 81.7 | 27.50 | 1,205 | 1,117 | 92.7 | 26.77 | 1,442 | 1,693 | 117.4 | 20.02 |
| Perquimans | 300 | 196 | 65.3 | 18.88 | 477 | 423 | 88.7 | 24.59 | 552 | 590 | 106.9 | 21.36 |
| Person | 947 | 808 | 85.3 | 24.01 | 1,370 | 1,267 | 92.5 | 24.39 | 1,633 | 1,769 | 108.3 | 18.43 |
| Pitt | 2,972 | 1,989 | 66.9 | 27.60 | 9,831 | 4,118 | 41.9 | 33.80 | 10,876 | 6,947 | 63.9 | 20.94 |
| Polk | 367 | 300 | 81.7 | 17.00 | 570 | 546 | 95.8 | 16.12 | 641 | 817 | 127.5 | 11.38 |

*Based on the 1980 census with projections made to 1989. Some counties experienced greater population growth than anticipated, and therefore have licensure rates over 100%.

**Table 1.** continued on next page

**Table 1.** 1989 Youth Population, Licensure* and Moving Violation Rates per 100 Licensed Drivers by County and Age (**continued**)

| | 16 - 17 years old | | | | 18 - 20 years old | | | | 21 - 24 years old | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pop'n | # of licensed drivers | % licensed* | moving viol conv rate | pop'n | # of licensed drivers | % licensed* | moving viol conv rate | pop'n | # of licensed drivers | % licensed* | moving viol conv rate |
| Randolph | 2,929 | 2,530 | 86.4 | 25.06 | 4,956 | 4,766 | 96.2 | 24.34 | 6,339 | 6,637 | 104.7 | 17.00 |
| Richmond | 1,431 | 1,077 | 75.3 | 18.57 | 2,109 | 1,953 | 92.6 | 22.48 | 2,486 | 2,623 | 105.5 | 13.95 |
| Robeson | 3,860 | 2,850 | 73.8 | 22.77 | 5,609 | 5,344 | 95.3 | 23.84 | 6,385 | 7,066 | 110.7 | 17.75 |
| Rockingham | 2,583 | 2,149 | 83.2 | 20.57 | 4,045 | 3,917 | 96.8 | 24.56 | 5,049 | 5,454 | 108.0 | 17.75 |
| Rowan | 2,947 | 2,307 | 78.3 | 26.18 | 5,029 | 4,208 | 83.7 | 26.43 | 6,299 | 5,689 | 90.3 | 19.28 |
| Rutherford | 1,686 | 1,392 | 82.6 | 31.82 | 2,643 | 2,683 | 101.5 | 28.03 | 3,231 | 3,602 | 111.5 | 16.94 |
| Sampson | 1,592 | 1,212 | 76.1 | 24.34 | 2,221 | 2,060 | 92.8 | 24.61 | 2,755 | 3,066 | 111.3 | 17.42 |
| Scotland | 1,292 | 862 | 66.7 | 21.46 | 1,927 | 1,619 | 84.0 | 21.74 | 2,160 | 2,119 | 98.1 | 17.08 |
| Stanly | 1,537 | 1,346 | 87.6 | 21.40 | 2,469 | 2,379 | 96.4 | 21.14 | 3,053 | 3,167 | 103.7 | 12.85 |
| Stokes | 1,208 | 964 | 79.8 | 24.69 | 1,866 | 1,654 | 88.6 | 22.97 | 2,279 | 2,180 | 95.7 | 16.70 |
| Surry | 1,825 | 1,746 | 95.7 | 24.11 | 2,892 | 3,126 | 108.1 | 20.70 | 3,582 | 4,305 | 120.2 | 14.31 |
| Swain | 333 | 315 | 94.6 | 25.71 | 511 | 623 | 121.9 | 17.34 | 622 | 892 | 143.4 | 11.88 |
| Transylvania | 853 | 598 | 70.1 | 25.08 | 1,227 | 1,206 | 98.3 | 17.41 | 1,539 | 1,799 | 116.9 | 11.40 |
| Tyrrell | 117 | 79 | 67.5 | 22.78 | 175 | 154 | 88.0 | 23.38 | 196 | 179 | 91.3 | 13.97 |
| Union | 2,925 | 2,029 | 69.4 | 20.16 | 4,635 | 3,651 | 78.8 | 22.02 | 5,632 | 4,901 | 87.0 | 15.87 |
| Vance | 1,221 | 979 | 80.2 | 19.20 | 1,894 | 1,803 | 95.2 | 20.91 | 2,217 | 2,494 | 112.5 | 15.84 |
| Wake | 11,771 | 8,543 | 72.6 | 25.24 | 24,137 | 17,617 | 73.0 | 27.03 | 33,087 | 30,321 | 91.6 | 22.03 |
| Warren | 462 | 347 | 75.1 | 13.83 | 688 | 659 | 95.8 | 18.06 | 802 | 949 | 118.3 | 14.86 |
| Washington | 381 | 331 | 86.9 | 14.50 | 707 | 716 | 101.3 | 20.11 | 887 | 950 | 107.1 | 17.47 |
| Watauga | 921 | 627 | 68.1 | 26.79 | 5,080 | 1,344 | 26.5 | 26.79 | 4,340 | 2,309 | 53.2 | 15.59 |
| Wayne | 3,067 | 2,372 | 77.3 | 21.21 | 4,891 | 4,328 | 88.5 | 22.74 | 6,696 | 6,416 | 95.8 | 19.20 |
| Wilkes | 1,846 | 1,471 | 79.7 | 27.26 | 2,889 | 2,654 | 91.9 | 21.74 | 3,608 | 3,605 | 99.9 | 14.90 |
| Wilson | 2,078 | 1,583 | 76.2 | 18.07 | 3,311 | 2,971 | 89.7 | 18.98 | 4,271 | 4,169 | 97.6 | 13.96 |
| Yadkin | 864 | 777 | 89.9 | 25.74 | 1,391 | 1,382 | 99.4 | 27.86 | 1,706 | 1,891 | 110.8 | 17.19 |
| Yancey | 462 | 371 | 80.3 | 21.83 | 674 | 667 | 99.0 | 23.99 | 877 | 911 | 103.9 | 14.05 |

*Based on the 1980 census with projections made to 1989. Some counties experienced greater population growth than anticipated, and therefore have licensure rates over 100%.

Continued from page 5

and 34 percent of their crashes occurred at night. It is interesting to note that more weekend and nighttime crashes occurred for 16 to 20 year old drivers in spite of the fact that older 21-24 year olds have more alcohol related crashes.

Table 2 describes youth involvement in crashes both as drivers and passengers. Of those young people involved in a crash, 48,854 or 58 percent were found to be at fault. The most frequent violations were speeding, safe movement violations, failure to yield, DWI/alcohol, and following too closely. Twenty-five percent of all North Carolina younger drivers charged with a violation in an accident were either exceeding the safe speed or exceeding the speed limit.

**Motor Vehicle Injuries Involving Young People in North Carolina**

Figure 6 shows the trends in serious injuries per hundred licensed drivers in North Carolina. Drivers under 25 years of age show large increases in serious injury rates from 1980 through 1986. For the age group 16 to 17 years of age, this increase has continued even though the seat belt law with its accompanying $25 fine took effect.

Table 2 also presents information on the injuries which young people sustain when involved as motor vehicle (MV) passengers and as drivers. Unless specified, the information describes the young person as an occupant of the vehicle -- not necessarily as the driver.

In 1989 there were 39,327 people between the ages of 16 and 24 who were injured in motor vehicle crashes, of which 364 died. About 91 percent of youth injuries occurred in vehicles driven by young people. According to national data provided by the Insurance Institute for Highway Safety, 64 percent of teenage passenger deaths occur in crashes in which another teenager is driving. In North Carolina, 93 percent of those fatally injured young motor vehicle occupants, were killed while riding with a young driver. There were 398 young pedestrians injured, of which 29 were killed. There were 754 young motorcyclists injured in motorcycle crashes; 21 were killed.

Table 3 shows the number of drivers involved in motor vehicle crashes and their drinking involvement by county. It also reflects serious and fatal injuries of youths in each county and includes the number of motorcyclists, bicyclists and pedestrians who were seriously injured or killed.

**Alcohol Related (A/R) Crash Behavior**

The involvement of reported alcohol use in crashes was presented previously in Table 2. Fourteen percent of youth MV injuries occurred in A/R crashes. Sixty-eight percent of those injured in A/R crashes were riding with (or were) a young drinking driver. Of young pedestrians injured, 112 or 28 percent of them were injured in A/R crashes, and of young motorcyclists, 110, or 15 percent, of them had been drinking.

**Alcohol Related Driving Behavior**

In 1983, the Safe Roads Act in North Carolina made sweeping changes in DWI laws and focused on youthful drinking and driving. In 1986 the drinking age was raised to 21 in North Carolina. A description of those sections of the Safe Roads Act which specifically target younger drivers appears on pages 24 and 25. The effect of the law can be seen by examining the trends in alcohol-related crashes and nighttime crashes for this segment of the driving population (see Figures 7 and 8). These figures indicate substantial decreases in A/R crashes among these age groups. The figure depicting the proportion of nighttime crashes also shows a decline, but one which is not as substantial as that witnessed in alcohol related crashes; this may indicate an increase in driving exposure at night which is unaccompanied by drinking.

**DWI Arrests**

While the law had a positive effect on A/R driving behavior among our young people, DWI continues to be a problem among this segment of the population. Table 4 shows that during 1989 there were 24,922 young people arrested for DWI in North Carolina. Out of every 100 drivers in this age group, 2.89 were arrested for DWI. The rates of arrests by age group and gender are presented on this table along with the mean or average blood alcohol concentration (BAC). The arrest rates per hundred licensed drivers range from a low rate of .37 for females 16-17 years old to 5.58 for males aged 21 to 24. For all age groups, males had substantially higher rates.

The average BAC reading for younger people arrested for DWI who were 16 to 17 years of age was .09 and for the 21-24 year olds was .12. This difference may reflect the fact that younger people may appear more impaired at lower BAC levels because of their inexperience with both drinking and driving. [Increased impairment by young people who are at lower BAC levels has been reported in several research studies. (Borkenstein, 1964**, Zador,*** 1989)]

The effect of these lower BAC levels may be partially responsible for the lower conviction rates of each group. Table 4 shows the arrest rates and conviction rates per 100 licensed drivers by BAC level and indicates a clear relationship between BAC level and percent convicted. At BAC levels over .12, conviction is probable, greater than 87 percent, regardless of age.

Alcohol-related arrest information by county appears in Table 5. This table provides the arrest rates, the mean BAC, the conviction rate for all persons arrested for DWI and the conviction rate for those people exceeding the per se of .10 Which is the breath alcohol concentration level at which the State of North Carolina considers a person to be impaired.) To make the data more useful to individual counties, it has been presented in Figures 9, 10, and 11.

Continued on page 18

**Figure 2.** Crashes per 100 Licensed Drivers Aged 16-20

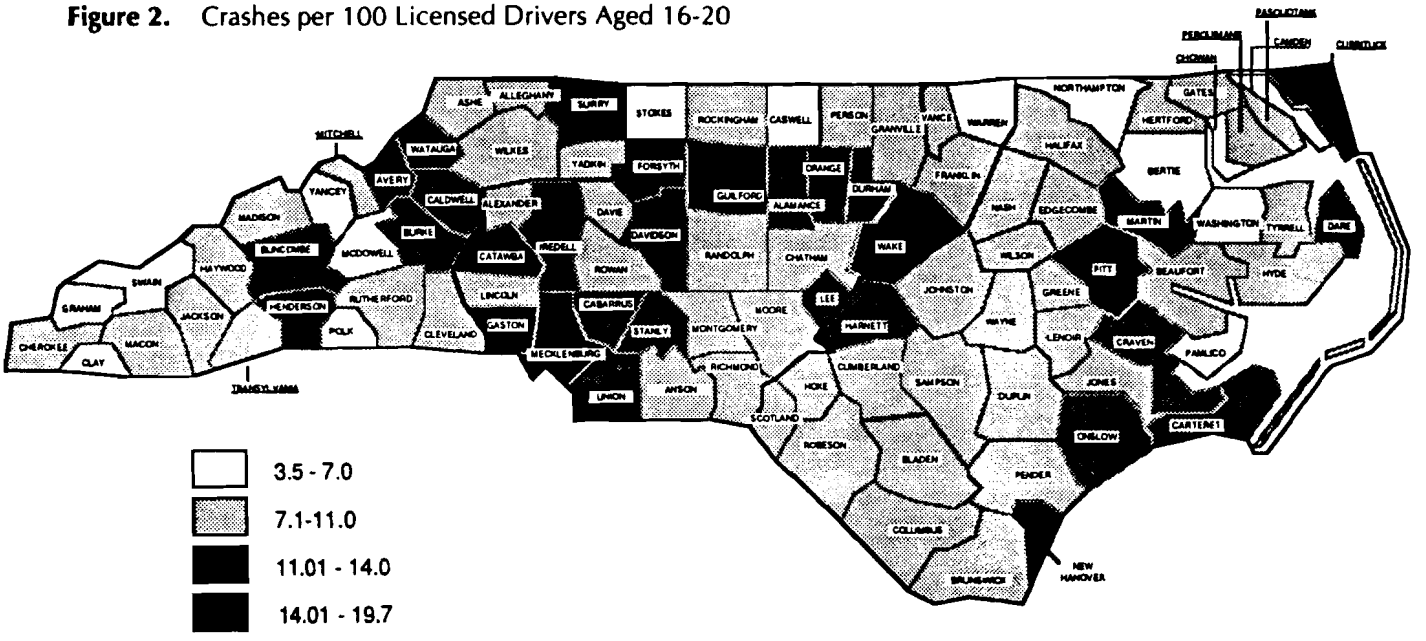


**Figure 3.** Crashes per 100 licensed Drivers Aged 21-24

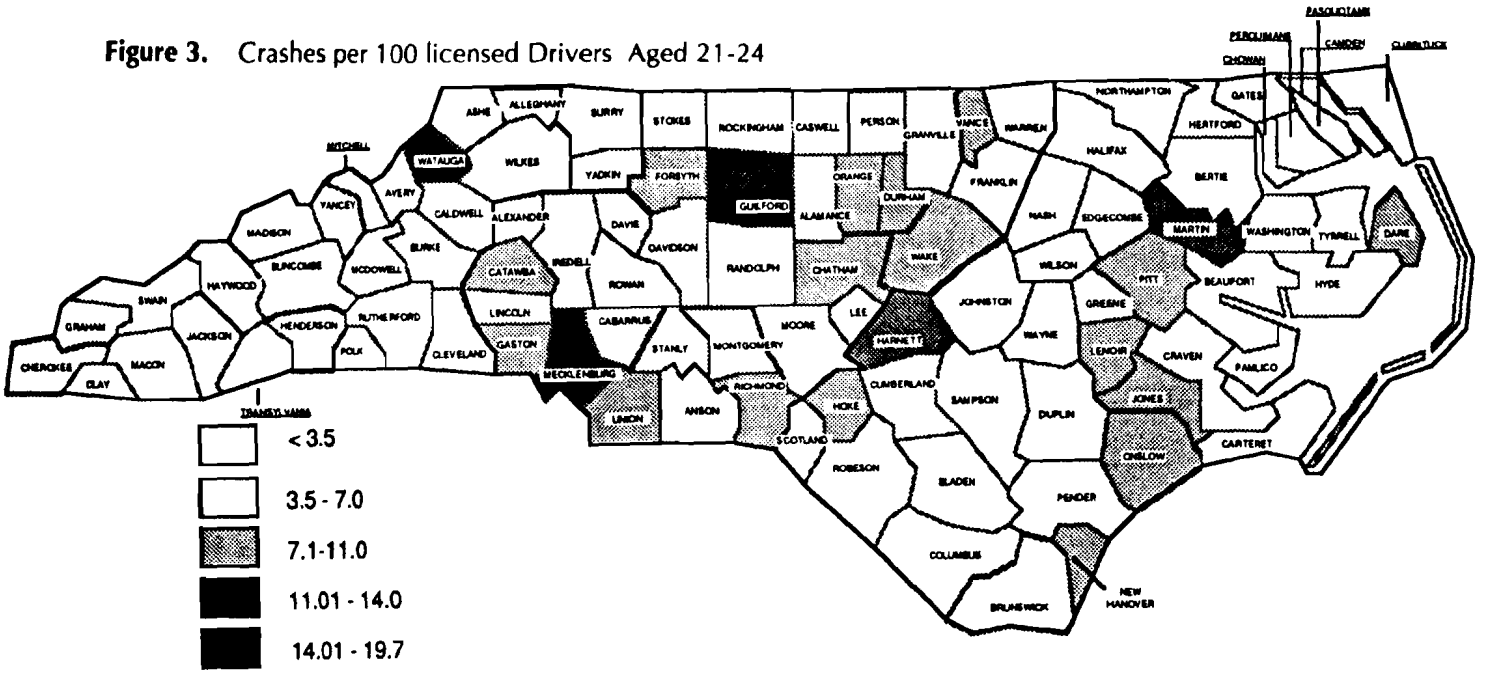
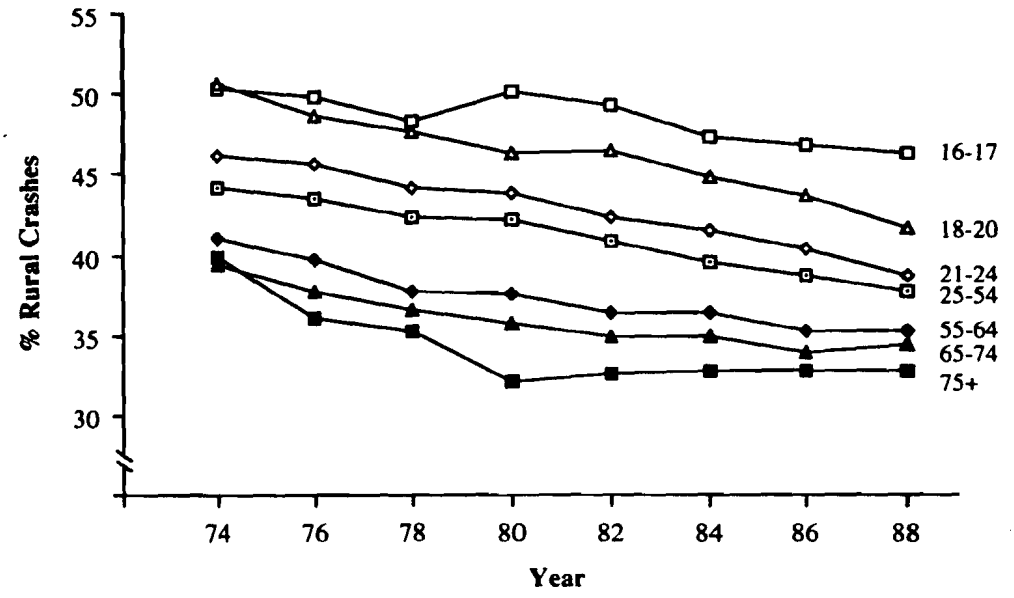



**Figure 4.** Percent of Crashes Occurring in Rural Locations



| | Automobile DRIVERS aged 16-20... | | Serious or fatal INJURIES in crashes to 16-20 year old... | | | | Automobile DRIVERS aged 21-24... | | Serious or fatal INJURIES in crashes to 21-24 year old... | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds |
| total youth-involved ACCIDENTS | 50,816 | 1,762 | 2,774 | 158 | 34 | 77 | 32,952 | 2,086 | 1,651 | 157 | 24 | 89 |
| ..alcohol related | 2,794 | 1,762 | 563 | 28 | 1 | 16 | 2,896 | 2,086 | 483 | 39 | 4 | 36 |
| ..at night (6pm to 6am) | 17,646 | 1,446 | 1,402 | 71 | 12 | 45 | 10,810 | 1,688 | 824 | 78 | 13 | 61 |
| ..at night, alcohol related | 2,227 | 1,446 | 457 | 20 | 1 | 15 | 2,273 | 1,688 | 391 | 30 | 4 | 35 |
| ..during weekend (6pm Fri - 6am Mon) | 22,734 | 1,122 | 1,387 | 77 | 15 | 29 | 14,316 | 1,267 | 875 | 79 | 8 | 44 |
| ..during weekend, alcohol related | 1,786 | 1,122 | 379 | 17 | 0 | 7 | 1,766 | 1,267 | 316 | 23 | 1 | 22 |
| ..during rush hour (7-9am,4-6pm M-F) | 11,684 | 72 | 413 | 26 | 5 | 14 | 8,011 | 107 | 256 | 20 | 2 | 7 |

| | total youth | by age group 16,17 | 18-20 | 21-24 |
|---|---|---|---|---|
| Young automobile OCCUPANTS INJURED or KILLED | 39,327 | 9,375 | 14,825 | 15,127 |
| WHILE ...riding with young driver | 35,624 | 8,660 | 13,682 | 13,282 |
| ...in a/r accident | 5,491 | 774 | 2,128 | 2,589 |
| ...riding with young driver who had been drinking | 3,749 | 477 | 1,498 | 1,774 |
| Young automobile OCCUPANTS KILLED | 364 | 57 | 141 | 166 |
| WHILE... ...riding with young driver | 337 | 53 | 135 | 149 |
| ...in a/r accident | 127 | 11 | 48 | 68 |
| ...riding with young driver who had been drinking | 100 | 9 | 41 | 50 |
| Young PEDESTRIANS INJURED or KILLED | 398 | 75 | 128 | 195 |
| IN ...a/r accidents | 112 | 8 | 30 | 74 |
| Young PEDESTRIANS KILLED | 29 | 4 | 6 | 19 |
| IN ...a/r accidents | 14 | 1 | 2 | 11 |
| Young MOTORCYCLE drivers INJURED or KILLED | 754 | 82 | 307 | 365 |
| WHO ...had been drinking | 110 | 6 | 33 | 71 |
| Young MOTORCYCLE drivers KILLED | 21 | 0 | 12 | 9 |
| WHO ...had been drinking | 6 | 0 | 3 | 3 |

| | total youth | by age group 16,17 | 18-20 | 21-24 |
|---|---|---|---|---|
| YOUNG DRIVERS ...in accidents | 83,768 | 19,499 | 31,317 | 32,952 |
| Most frequent 'MOST HARMFUL EVENT' codes in these accs | | | | |
| ...collision w/fixed object | 10,808 | 2,785 | 4,246 | 3,777 |
| ...rear end, slow or stop | 23,142 | 5,306 | 8,635 | 9,201 |
| ...left turn, same roadway | 8,767 | 1,984 | 3,283 | 3,500 |
| ...left turn, cross traffic | 6,366 | 1,565 | 2,292 | 2,509 |
| ...angle | 16,145 | 3,624 | 5,928 | 6,593 |
| YOUNG DRIVERS ...in accidents WHO ...were AT FAULT | 48,854 | 12,775 | 18,391 | 17,688 |
| Most frequent VIOLATION charges in these accidents | | | | |
| ...DWI/alcohol | 3,084 | 304 | 1,161 | 1,619 |
| ...yield | 4,877 | 1,599 | 1,688 | 1,590 |
| ...exceeding speed limit | 2,414 | 748 | 980 | 686 |
| ...exceeding safe speed | 14,907 | 4,169 | 5,707 | 5,031 |
| ...safe movement violation | 10,986 | 2,912 | 4,017 | 4,057 |
| ...following too closely | 2,833 | 679 | 1,063 | 1,091 |

Only reportable non-PVA accidents counted for these tables.

**Table 2.** Youth Involvement in 1989 North Carolina Traffic Crashes

**Table 3.** 1989 Youth Involvement in North Carolina Traffic Accidents by County

| | Automobile drivers aged 16-20... | | Serious or fatal injuries in crashes to 16-20 year old... | | | | Automobile drivers aged 21-24... | | Serious or fatal injuries in crashes to 21-24 year old... | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds |
| Statewide | 50,816 | 1,762 | 2,774 | 158 | 34 | 77 | 32,952 | 2,086 | 1,651 | 157 | 24 | 89 |
| Alamance | 928 | 40 | 54 | 3 | 1 | 0 | 494 | 38 | 40 | 1 | 0 | 0 |
| Alexander | 174 | 8 | 17 | 2 | 0 | 0 | 70 | 7 | 10 | 2 | 0 | 0 |
| Alleghany | 57 | 3 | 2 | 1 | 0 | 0 | 21 | 2 | 0 | 0 | 0 | 0 |
| Anson | 172 | 8 | 20 | 0 | 0 | 0 | 95 | 9 | 7 | 1 | 0 | 0 |
| Ashe | 133 | 7 | 10 | 1 | 0 | 0 | 44 | 5 | 3 | 0 | 0 | 0 |
| Avery | 129 | 9 | 13 | 0 | 0 | 0 | 65 | 4 | 2 | 0 | 0 | 0 |
| Beaufort | 241 | 3 | 20 | 4 | 0 | 0 | 126 | 10 | 17 | 0 | 0 | 2 |
| Bertie | 76 | 6 | 7 | 0 | 0 | 0 | 46 | 4 | 5 | 0 | 0 | 0 |
| Bladen | 159 | 3 | 23 | 0 | 0 | 0 | 92 | 5 | 13 | 1 | 0 | 0 |
| Brunswick | 234 | 14 | 22 | 2 | 0 | 0 | 131 | 17 | 9 | 1 | 0 | 0 |
| Buncombe | 1,252 | 45 | 89 | 9 | 0 | 2 | 681 | 63 | 46 | 6 | 0 | 2 |
| Burke | 598 | 26 | 42 | 0 | 0 | 0 | 322 | 25 | 20 | 1 | 0 | 1 |
| Cabarrus | 822 | 24 | 33 | 0 | 0 | 2 | 378 | 28 | 9 | 2 | 1 | 1 |
| Caldwell | 615 | 25 | 48 | 2 | 0 | 1 | 326 | 34 | 24 | 2 | 0 | 4 |
| Camden | 19 | 1 | 2 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 1 |
| Carteret | 378 | 29 | 12 | 3 | 0 | 2 | 182 | 32 | 8 | 0 | 0 | 1 |
| Caswell | 71 | 2 | 3 | 1 | 0 | 0 | 41 | 5 | 2 | 0 | 0 | 1 |
| Catawba | 1,281 | 33 | 52 | 2 | 0 | 0 | 690 | 58 | 46 | 4 | 2 | 0 |
| Chatham | 230 | 15 | 14 | 1 | 0 | 0 | 145 | 19 | 14 | 2 | 0 | 0 |
| Cherokee | 109 | 4 | 15 | 0 | 0 | 0 | 59 | 3 | 7 | 0 | 0 | 0 |
| Chowan | 51 | 4 | 2 | 0 | 0 | 0 | 28 | 4 | 3 | 0 | 0 | 1 |
| Clay | 38 | 1 | 4 | 0 | 0 | 0 | 14 | 2 | 2 | 0 | 0 | 0 |
| Cleveland | 641 | 20 | 44 | 1 | 0 | 2 | 353 | 23 | 23 | 2 | 0 | 1 |
| Columbus | 354 | 15 | 27 | 1 | 0 | 1 | 170 | 13 | 14 | 1 | 0 | 1 |
| Craven | 443 | 12 | 18 | 1 | 3 | 0 | 268 | 23 | 24 | 2 | 1 | 1 |

**Table 3.** continued on next page

**Table 3.** 1989 Youth Involvement in North Carolina Traffic Accidents by County (**continued**)

| | Automobile drivers aged 16-20... | | Serious or fatal injuries in crashes to 16-20 year old... | | | | Automobile drivers aged 21-24... | | Serious or fatal injuries in crashes to 21-24 year old... | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds |
| Cumberland | 1,790 | 46 | 60 | 7 | 1 | 3 | 1,530 | 106 | 57 | 13 | 0 | 2 |
| Currituck | 95 | 3 | 11 | 0 | 0 | 0 | 53 | 6 | 2 | 0 | 0 | 0 |
| Dare | 226 | 5 | 16 | 0 | 1 | 3 | 118 | 5 | 6 | 2 | 0 | 2 |
| Davidson | 962 | 48 | 71 | 3 | 0 | 3 | 518 | 46 | 41 | 2 | 1 | 1 |
| Davie | 183 | 2 | 14 | 1 | 0 | 0 | 82 | 8 | 4 | 3 | 0 | 0 |
| Duplin | 224 | 16 | 13 | 0 | 0 | 0 | 146 | 18 | 8 | 0 | 0 | 0 |
| Durham | 1,421 | 50 | 73 | 4 | 1 | 2 | 1,182 | 58 | 54 | 0 | 0 | 1 |
| Edgecombe | 293 | 11 | 16 | 2 | 3 | 0 | 189 | 15 | 11 | 0 | 0 | 0 |
| Forsyth | 2,219 | 70 | 80 | 5 | 1 | 6 | 1,450 | 68 | 47 | 6 | 2 | 3 |
| Franklin | 142 | 7 | 13 | 3 | 0 | 0 | 120 | 8 | 13 | 0 | 0 | 1 |
| Gaston | 1,878 | 50 | 64 | 3 | 1 | 2 | 927 | 55 | 28 | 3 | 0 | 1 |
| Gates | 48 | 1 | 7 | 0 | 0 | 0 | 24 | 4 | 3 | 0 | 0 | 0 |
| Gates | 48 | 1 | 7 | 0 | 0 | 0 | 24 | 4 | 3 | 0 | 0 | 0 |
| Graham | 34 | 4 | 7 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 |
| Granville | 237 | 7 | 19 | 1 | 0 | 0 | 141 | 13 | 14 | 1 | 0 | 0 |
| Greene | 68 | 6 | 3 | 0 | 0 | 0 | 45 | 1 | 7 | 0 | 0 | 0 |
| Guilford | 3,614 | 92 | 74 | 4 | 0 | 4 | 2,708 | 134 | 52 | 4 | 1 | 7 |
| Halifax | 298 | 13 | 24 | 0 | 0 | 0 | 207 | 13 | 10 | 1 | 0 | 0 |
| Harnett | 479 | 27 | 37 | 4 | 0 | 3 | 299 | 25 | 27 | 1 | 1 | 2 |
| Haywood | 259 | 11 | 26 | 0 | 0 | 0 | 119 | 16 | 11 | 1 | 0 | 0 |
| Henderson | 530 | 30 | 34 | 3 | 0 | 2 | 242 | 20 | 18 | 3 | 1 | 0 |
| Hertford | 104 | 6 | 2 | 1 | 0 | 1 | 81 | 8 | 5 | 0 | 0 | 0 |
| Hoke | 109 | 3 | 7 | 0 | 0 | 0 | 101 | 14 | 11 | 1 | 0 | 1 |
| Hyde | 25 | 1 | 2 | 0 | 0 | 0 | 6 | 3 | 1 | 0 | 0 | 0 |
| Iredell | 762 | 24 | 47 | 0 | 0 | 1 | 407 | 16 | 27 | 1 | 0 | 1 |

**Table 3.** continued on next page

**Table 3.** 1989 Youth Involvement in North Carolina Traffic Accidents by County **(continued)**

| | Automobile drivers aged 16-20... | | Serious or fatal injuries in crashes to 16-20 year old... | | | | Automobile drivers aged 21-24... | | Serious or fatal injuries in crashes to 21-24 year old... | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds |
| Jackson | 175 | 12 | 8 | 0 | 0 | 0 | 84 | 6 | 2 | 0 | 0 | 0 |
| Johnston | 558 | 24 | 39 | 1 | 0 | 0 | 328 | 21 | 25 | 0 | 1 | 2 |
| Jones | 46 | 3 | 11 | 0 | 0 | 0 | 53 | 5 | 9 | 1 | 0 | 0 |
| Lee | 332 | 8 | 13 | 0 | 0 | 0 | 181 | 11 | 7 | 0 | 0 | 2 |
| Lenoir | 426 | 7 | 22 | 3 | 0 | 1 | 248 | 16 | 17 | 1 | 0 | 1 |
| Lincoln | 347 | 26 | 23 | 2 | 1 | 0 | 138 | 17 | 15 | 0 | 0 | 0 |
| McDowell | 95 | 5 | 5 | 0 | 0 | 0 | 32 | 4 | 3 | 1 | 0 | 0 |
| Macon | 91 | 3 | 12 | 1 | 0 | 0 | 44 | 8 | 12 | 1 | 0 | 0 |
| Madison | 146 | 6 | 10 | 0 | 0 | 1 | 90 | 7 | 2 | 3 | 0 | 1 |
| Martin | 355 | 15 | 35 | 1 | 0 | 0 | 165 | 11 | 12 | 1 | 0 | 0 |
| Mecklenburg | 5,520 | 104 | 212 | 12 | 3 | 6 | 4,434 | 146 | 131 | 7 | 1 | 8 |
| Mitchell | 76 | 3 | 12 | 0 | 0 | 1 | 24 | 0 | 3 | 0 | 0 | 0 |
| Montgomery | 170 | 5 | 14 | 1 | 0 | 0 | 77 | 5 | 10 | 0 | 0 | 0 |
| Moore | 297 | 11 | 25 | 1 | 0 | 0 | 185 | 11 | 22 | 3 | 0 | 0 |
| Nash | 591 | 14 | 46 | 1 | 1 | 1 | 347 | 22 | 17 | 0 | 0 | 2 |
| New Hanover | 1,135 | 30 | 35 | 2 | 0 | 0 | 723 | 47 | 20 | 1 | 2 | 2 |
| Northampton | 72 | 7 | 22 | 0 | 0 | 1 | 61 | 9 | 9 | 0 | 0 | 0 |
| Onslow | 965 | 48 | 42 | 7 | 0 | 2 | 929 | 71 | 40 | 13 | 1 | 4 |
| Orange | 606 | 23 | 30 | 3 | 0 | 4 | 517 | 42 | 23 | 4 | 2 | 2 |
| Pamlico | 47 | 3 | 7 | 0 | 0 | 0 | 14 | 2 | 1 | 0 | 0 | 0 |
| Pasquotank | 183 | 9 | 12 | 2 | 0 | 1 | 86 | 4 | 5 | 0 | 0 | 0 |
| Pender | 137 | 4 | 17 | 2 | 1 | 0 | 90 | 8 | 11 | 0 | 0 | 0 |
| Perquimans | 46 | 4 | 3 | 0 | 0 | 0 | 24 | 6 | 3 | 0 | 0 | 0 |
| Person | 186 | 6 | 15 | 2 | 0 | 0 | 86 | 10 | 8 | 0 | 0 | 0 |
| Pitt | 910 | 32 | 36 | 1 | 4 | 1 | 676 | 25 | 20 | 1 | 1 | 0 |

**Table 3.** continued on next page

**Table 3.** 1989 Youth Involvement in North Carolina Traffic Accidents by County (**continued**)

| | Automobile drivers aged 16-20... | | Serious or fatal injuries in crashes to 16-20 year old... | | | | Automobile drivers aged 21-24... | | Serious or fatal injuries in crashes to 21-24 year old... | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds | in crashes | in crashes, drinking | auto-mobile occu-pants | motor-cycle drivers | bike riders | peds |
| Polk | 56 | 2 | 12 | 1 | 0 | 0 | 24 | 4 | 3 | 0 | 0 | 0 |
| Randolph | 743 | 33 | 57 | 4 | 0 | 3 | 379 | 30 | 31 | 7 | 1 | 1 |
| Richmond | 305 | 15 | 26 | 3 | 1 | 0 | 194 | 19 | 15 | 0 | 0 | 2 |
| Robeson | 667 | 30 | 32 | 4 | 1 | 0 | 459 | 31 | 26 | 4 | 0 | 6 |
| Rockingham | 553 | 18 | 33 | 3 | 1 | 0 | 299 | 17 | 11 | 1 | 0 | 0 |
| Rowan | 650 | 18 | 38 | 1 | 2 | 1 | 393 | 27 | 31 | 1 | 0 | 1 |
| Rutherford | 425 | 18 | 35 | 1 | 1 | 0 | 191 | 18 | 30 | 0 | 0 | 0 |
| Sampson | 290 | 11 | 25 | 0 | 0 | 0 | 176 | 14 | 17 | 2 | 0 | 0 |
| Scotland | 197 | 11 | 6 | 0 | 0 | 0 | 123 | 9 | 7 | 0 | 0 | 0 |
| Stanly | 424 | 14 | 51 | 2 | 0 | 1 | 186 | 23 | 20 | 5 | 0 | 1 |
| Stokes | 160 | 6 | 20 | 0 | 0 | 0 | 73 | 13 | 11 | 2 | 0 | 0 |
| Surry | 549 | 35 | 39 | 2 | 0 | 0 | 226 | 20 | 12 | 2 | 1 | 1 |
| Swain | 37 | 2 | 8 | 0 | 0 | 0 | 10 | 1 | 1 | 1 | 0 | 0 |
| Transylvania | 164 | 9 | 16 | 1 | 0 | 0 | 65 | 3 | 3 | 0 | 0 | 0 |
| Tyrrell | 18 | 2 | 4 | 0 | 0 | 0 | 7 | 1 | 2 | 0 | 0 | 0 |
| Union | 638 | 24 | 45 | 1 | 0 | 0 | 351 | 27 | 19 | 2 | 0 | 0 |
| Vance | 284 | 14 | 28 | 1 | 0 | 1 | 209 | 10 | 14 | 1 | 0 | 1 |
| Wake | 3,736 | 117 | 146 | 8 | 4 | 7 | 3,068 | 129 | 95 | 13 | 3 | 7 |
| Warren | 42 | 3 | 1 | 0 | 0 | 1 | 35 | 2 | 3 | 1 | 0 | 0 |
| Washington | 58 | 2 | 4 | 0 | 0 | 0 | 45 | 1 | 5 | 1 | 0 | 0 |
| Watauga | 388 | 12 | 14 | 0 | 0 | 0 | 307 | 11 | 7 | 1 | 0 | 2 |
| Wayne | 665 | 20 | 32 | 3 | 0 | 0 | 363 | 26 | 25 | 1 | 0 | 2 |
| Wilkes | 399 | 15 | 33 | 2 | 0 | 0 | 219 | 19 | 9 | 1 | 0 | 0 |
| Wilson | 417 | 16 | 33 | 1 | 2 | 2 | 248 | 14 | 16 | 3 | 1 | 2 |
| Yadkin | 177 | 10 | 12 | 2 | 0 | 1 | 81 | 8 | 5 | 1 | 0 | 0 |
| Yancey | 57 | 3 | 5 | 0 | 0 | 1 | 22 | 2 | 1 | 0 | 0 | 0 |

Continued from page 10

### A/R Crash Involved Drivers

As shown earlier in Table 2, 3848 or 4.6 percent of young drivers involved in crashes were judged to have been drinking by the investigating officer. Of young drivers 16 to 20 years of age, 3.5 percent were judged to have been drinking as compared to 6.3 percent of drivers 21 to 24 years of age. The percent of young drivers judged to have been drinking, by county, appears in Table 6. Of the 3848 younger drinking, crash involved drivers, 81.4 percent had been their crashes at night, between 6pm and 6 am. Sixty-two percent of their crashes occurred on the weekend, 6pm Friday to 6am Monday.

### Safety Belt Use of Young Motorists

Teenage motorists, those 13-19, have shown the lowest seat belt use rate of all age groups. In 1988, a national study found 24 percent of teens buckled up compared to 44 percent of adults.****

In North Carolina, studies have found that drivers under 25 years are less likely to use automatic seat belts correctly and fully. In cars equipped with automatic restraint systems, motorists younger than 25 were the least likely to use their shoulder belts. This rate of shoulder belt use was 74.6 percent. For the 25-54 age bracket, the corresponding rate was 80 percent.*****

** Borkenstein, RF, Crowther, RF, et al. The Role of the Drinking Driver in Traffic Accidents. Bloomington, Indiana: Indiana University, 1964.

***Zador, P. Alcohol-related relative risk of fatal driver injuries in relation to driver age and sex. Arlington, Va: Insurance Institute for Highway Safety, 1989.

****Bowman and Rounds, 1989. Restraint System Usage in the Traffic Population. 1988 Annual Report. Washington, DC. U.S. Department of Transportation.

***** Hunter, et. al. Analysis of Occupant Restraint Issues for State Accident Data. September 1990. UNC Highway Safety Research Center.

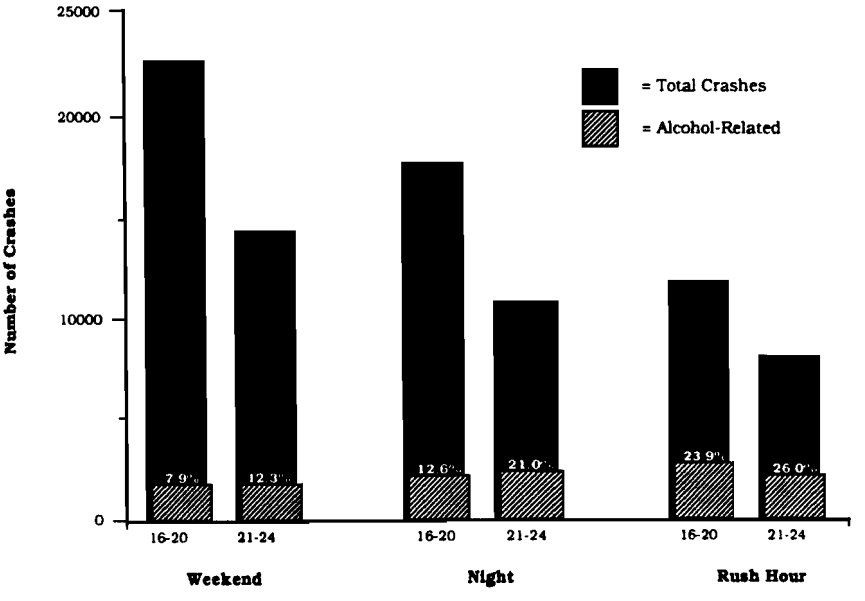



**Figure 5.** Alcohol-Related Crashes Versus total Crashes by Age and Time of Day

**Table 4.**

1989
Alcohol-Related
Arrest Information
by Age and Sex

| | pop'n | number of licensed drivers (% pop) | number of a/r arrests (% dist by age) | mean BAC | | all BACs | by BAC level .00 | .01-.02 | .03-.05 | .06-.08 | .09 | .10-.12 | .13-.14 | .15-.19 | .20+ | ref | unk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| alcohol-related arrest rates per 100 licensed drivers and % convicted - overall and by BAC level | | | | | | | | | | | | | | | | | |
| total youth related | 997,930 | 862,412 (86.4%) | 24,922 | .12 | arrest rate | 2.89 | 0.03 | 0.06 | 0.15 | 0.29 | 0.13 | 0.55 | 0.31 | 0.49 | 0.13 | 0.22 | 0.55 |
| | | | | | % conv | 62.2 | 12.6 | 1.9 | 2.0 | 3.2 | 7.4 | 75.9 | 91.7 | 93.2 | 94.2 | 73.7 | 55.4 |
| M | 512,698 | 449,062 (87.6%) | 22,166 (88.9%) | .12 | arrest rate | 4.94 | 0.05 | 0.11 | 0.27 | 0.50 | 0.22 | 0.93 | 0.52 | 0.82 | 0.21 | 0.37 | 0.92 |
| | | | | | % conv | 61.9 | 12.6 | 2.0 | 2.2 | 3.5 | 7.4 | 76.4 | 92.2 | 93.3 | 94.5 | 73.7 | 55.2 |
| F | 485,232 | 413,350 (85.2%) | 2,756 (11.1%) | .12 | arrest rate | 0.67 | 0.01 | 0.01 | 0.02 | 0.06 | 0.02 | 0.13 | 0.07 | 0.13 | 0.03 | 0.04 | 0.14 |
| | | | | | % conv | 64.6 | 12.5 | 0.0 | 0.0 | 0.5 | 7.4 | 71.7 | 87.7 | 92.4 | 92.1 | 74.0 | 56.8 |
| 16 - 17 | 191,881 | 147,204 (76.7%) | 2,303 | .09 | arrest rate | 1.56 | 0.04 | 0.10 | 0.17 | 0.21 | 0.08 | 0.29 | 0.12 | 0.16 | 0.03 | 0.06 | 0.32 |
| | | | | | % conv | 52.3 | 4.3 | 0.0 | 5.3 | 4.2 | 10.3 | 72.8 | 91.5 | 90.2 | 94.1 | 64.1 | 45.4 |
| M | 96,696 | 76,009 (78.6%) | 2,040 (88.6%) | .09 | arrest rate | 2.68 | 0.07 | 0.18 | 0.31 | 0.37 | 0.14 | 0.48 | 0.20 | 0.26 | 0.05 | 0.10 | 0.53 |
| | | | | | % conv | 51.5 | 5.0 | 0.0 | 5.7 | 4.0 | 10.0 | 72.7 | 91.4 | 90.6 | 93.5 | 63.8 | 44.2 |
| F | 95,185 | 71,195 (74.8%) | 263 (11.4%) | .10 | arrest rate | 0.37 | 0.01 | 0.01 | 0.03 | 0.04 | 0.02 | 0.08 | 0.03 | 0.05 | 0.01 | 0.01 | 0.10 |
| | | | | | % conv | 58.5 | 0.0 | 0.0 | 0.0 | 5.9 | 12.5 | 73.5 | 92.9 | 88.2 | 100.0 | 66.7 | 52.7 |
| 18 - 20 | 359,462 | 285,135 (79.3%) | 8,499 | .11 | arrest rate | 2.98 | 0.03 | 0.06 | 0.16 | 0.32 | 0.13 | 0.59 | 0.31 | 0.48 | 0.10 | 0.16 | 0.63 |
| | | | | | % conv | 59.6 | 13.2 | 2.2 | 2.3 | 3.1 | 7.1 | 76.2 | 92.5 | 92.7 | 92.7 | 69.7 | 52.0 |
| M | 187,127 | 148,391 (79.3%) | 7,582 (89.2%) | .11 | arrest rate | 5.11 | 0.05 | 0.11 | 0.28 | 0.57 | 0.23 | 1.00 | 0.53 | 0.81 | 0.17 | 0.28 | 1.08 |
| | | | | | % conv | 59.2 | 11.9 | 2.3 | 2.5 | 3.4 | 7.7 | 77.2 | 93.2 | 92.8 | 92.7 | 69.3 | 51.9 |
| F | 172,335 | 136,744 (79.4%) | 917 (10.8%) | .13 | arrest rate | 0.67 | 0.01 | 0.01 | 0.02 | 0.05 | 0.02 | 0.14 | 0.07 | 0.13 | 0.04 | 0.03 | 0.15 |
| | | | | | % conv | 63.0 | 22.2 | 0.0 | 0.0 | 0.0 | 0.0 | 69.0 | 86.9 | 92.2 | 93.0 | 73.0 | 52.7 |
| 21 - 24 | 446,587 | 430,073 (96.3%) | 14,120 | .12 | arrest rate | 3.28 | 0.02 | 0.05 | 0.14 | 0.29 | 0.15 | 0.61 | 0.37 | 0.60 | 0.18 | 0.30 | 0.57 |
| | | | | | % conv | 65.2 | 14.5 | 2.3 | 1.1 | 3.1 | 7.2 | 76.1 | 91.3 | 93.8 | 94.9 | 75.8 | 59.7 |
| M | 228,875 | 224,662 (98.2%) | 12,544 (88.8%) | .12 | arrest rate | 5.58 | 0.04 | 0.09 | 0.24 | 0.51 | 0.25 | 1.03 | 0.63 | 1.01 | 0.30 | 0.52 | 0.95 |
| | | | | | % conv | 65.0 | 15.6 | 2.4 | 1.1 | 3.4 | 6.9 | 76.5 | 91.8 | 93.9 | 95.3 | 75.9 | 59.6 |
| F | 217,712 | 205,411 (94.4%) | 1,576 (11.2%) | .13 | arrest rate | 0.77 | 0.01 | 0.01 | 0.02 | 0.06 | 0.03 | 0.14 | 0.09 | 0.15 | 0.04 | 0.06 | 0.16 |
| | | | | | % conv | 66.4 | 8.3 | 0.0 | 0.0 | 0.0 | 10.2 | 73.3 | 87.7 | 93.1 | 91.2 | 74.8 | 60.1 |

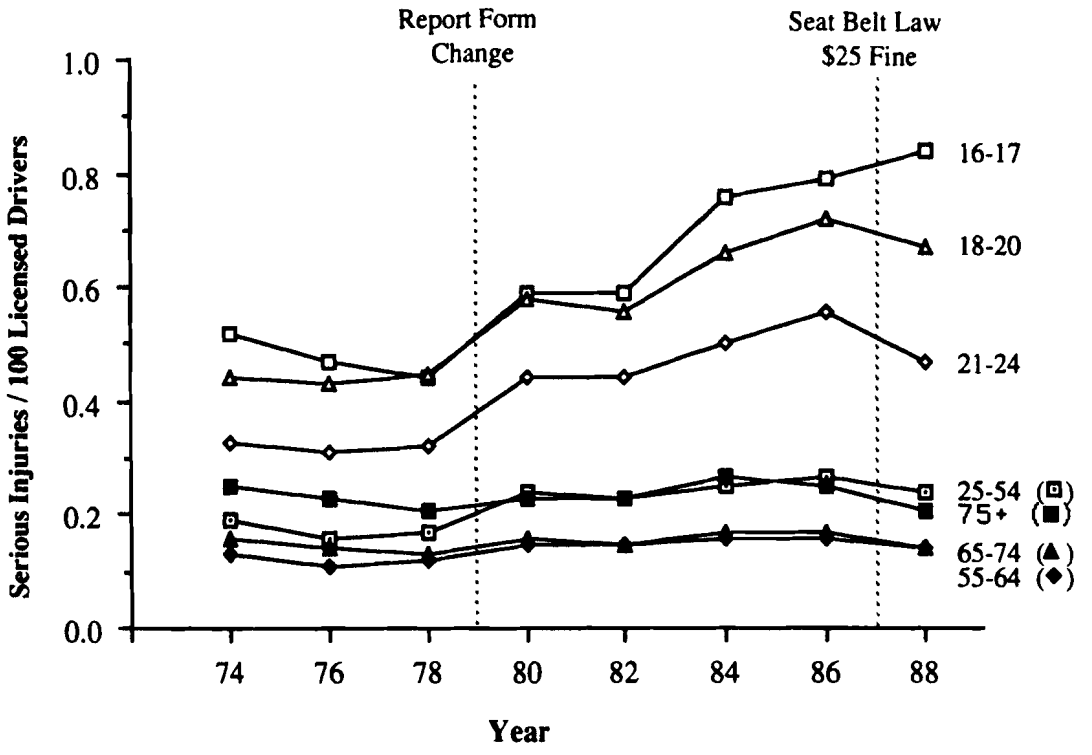



**Figure 6.** Serious Injuries per 100 Licensed Drivers by Driver Age, 1974-1988. (Stutts, et al.)

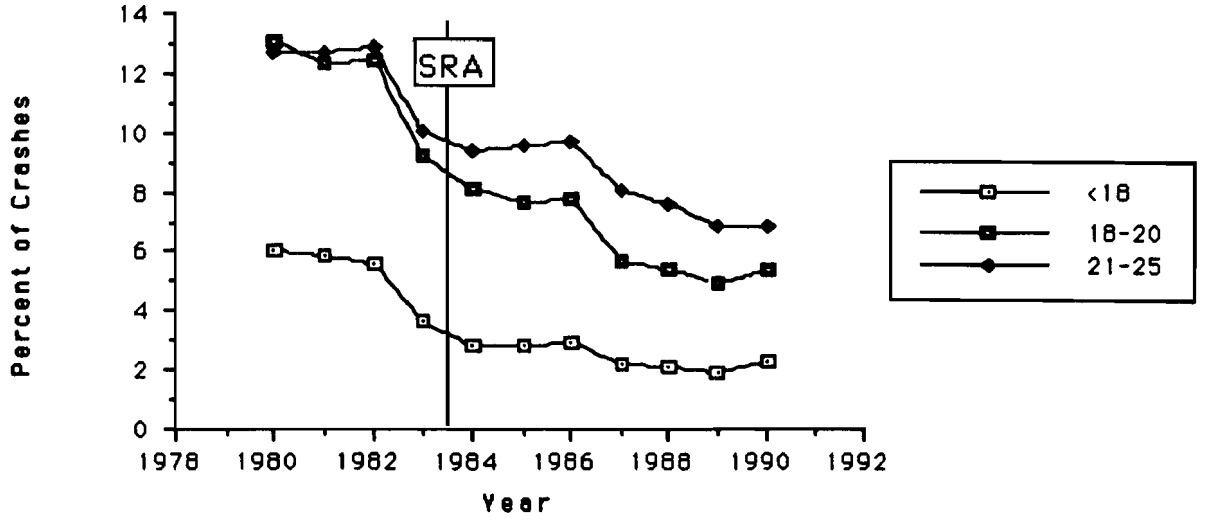



**Figure 7.** Percent of Crash Involved Drivers Judged to Have Been Drinking by Age.

**Figure 8.** Percent of Nighttime Crashes by Age.

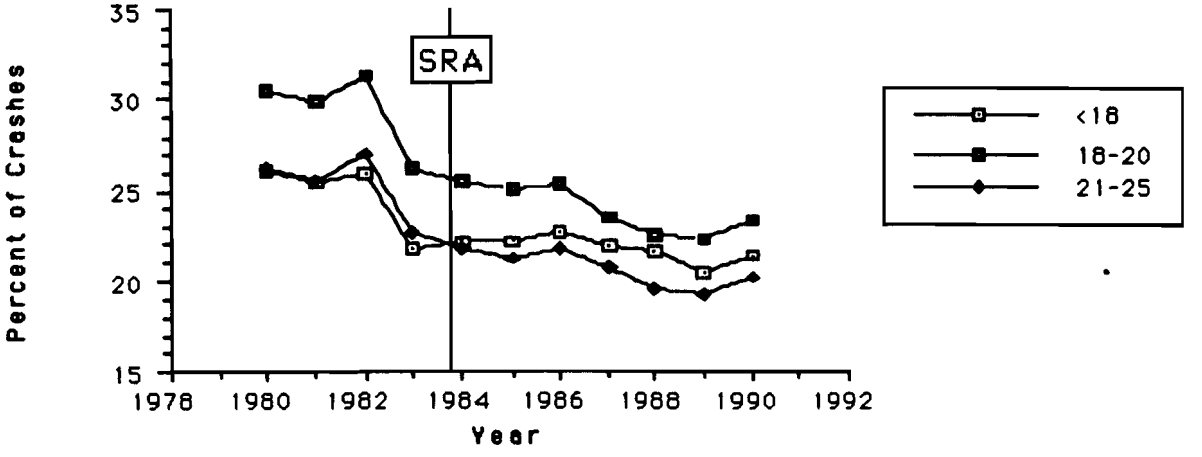


**Table 5.** 1989 Youth Licensed Driver Population and Alcohol-Related Arrest Information by County and Age Group

*no BACs collected, ** no cases adjudicated, *** no cases adjudicated with BAC .10+

| | 16 - 17 year old drivers | | | | | 18 - 20 year old drivers | | | | | 21 - 24 year old drivers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ |
| Statewide | 147,204 | .09 | 1.6 | 52.3 | 82.2 | 285,135 | .11 | 3.0 | 59.6 | 84.5 | 430,073 | .12 | 3.3 | 65.2 | 86.9 |
| Alamance | 2,707 | .08 | 2.1 | 48.7 | 81.2 | 5,088 | .12 | 2.9 | 64.4 | 94.6 | 7,093 | .12 | 3.5 | 74.0 | 92.5 |
| Alexander | 718 | .08 | 2.1 | 50.0 | 100.0 | 1,200 | .10 | 4.6 | 53.3 | 100.0 | 1,671 | .13 | 3.1 | 75.0 | 96.6 |
| Alleghany | 266 | .08 | 2.3 | 16.7 | 100.0 | 441 | .11 | 2.5 | 80.0 | 100.0 | 616 | .11 | 2.4 | 46.7 | 100.0 |
| Anson | 596 | .12 | 1.7 | 44.4 | 0.0 | 1,051 | .11 | 3.2 | 46.7 | 100.0 | 1,536 | .12 | 3.3 | 66.7 | 84.6 |
| Ashe | 566 | .10 | 1.6 | 28.6 | 100.0 | 1,001 | .11 | 3.5 | 62.9 | 93.7 | 1,303 | .13 | 2.5 | 76.7 | 95.0 |
| Avery | 374 | .10 | 1.6 | 100.0 | 100.0 | 719 | .13 | 3.3 | 62.5 | 75.0 | 1,013 | .13 | 2.7 | 76.2 | 87.5 |
| Beaufort | 1,073 | .09 | 0.7 | 40.0 | 50.0 | 1,941 | .12 | 2.5 | 53.3 | 91.3 | 2,497 | .11 | 3.1 | 56.8 | 82.9 |
| Bertie | 483 | .06 | 1.0 | 0.0 | *** | 939 | .08 | 2.2 | 36.8 | 100.0 | 1,421 | .12 | 3.3 | 64.9 | 95.0 |
| Bladen | 775 | .09 | 1.2 | 50.0 | 100.0 | 1,404 | .11 | 2.8 | 52.8 | 88.2 | 1,825 | .11 | 3.2 | 57.1 | 78.9 |
| Brunswick | 1,060 | .12 | 2.1 | 58.8 | 72.7 | 2,062 | .12 | 3.3 | 71.9 | 86.0 | 3,058 | .13 | 3.6 | 72.9 | 94.0 |
| Buncombe | 3,531 | .11 | 1.4 | 58.5 | 95.2 | 7,263 | .12 | 2.6 | 66.3 | 93.2 | 10,535 | .12 | 3.1 | 68.3 | 93.9 |
| Burke | 1,914 | .09 | 2.0 | 42.9 | 83.3 | 3,464 | .13 | 2.9 | 69.6 | 92.3 | 4,747 | .13 | 3.5 | 66.0 | 87.5 |
| Cabarrus | 2,641 | .08 | 1.6 | 57.1 | 82.4 | 4,772 | .12 | 2.9 | 66.1 | 86.7 | 6,362 | .12 | 3.0 | 64.4 | 87.0 |
| Caldwell | 1,818 | .11 | 2.3 | 64.5 | 87.5 | 3,497 | .12 | 3.5 | 67.0 | 93.2 | 4,728 | .14 | 3.7 | 71.7 | 87.5 |
| Camden | 151 | .05 | 1.3 | 0.0 | *** | 269 | .11 | 3.3 | 50.0 | 100.0 | 364 | .14 | 2.5 | 77.8 | 60.0 |
| Carteret | 1,064 | .11 | 2.4 | 38.9 | 62.5 | 2,044 | .11 | 3.1 | 45.2 | 70.8 | 3,125 | .12 | 3.4 | 53.8 | 71.1 |
| Caswell | 401 | * | 0.0 | ** | *** | 828 | .12 | 2.2 | 73.3 | 100.0 | 1,135 | .13 | 2.7 | 66.7 | 81.2 |
| Catawba | 3,038 | .09 | 1.7 | 54.1 | 82.4 | 5,485 | .11 | 2.6 | 53.7 | 80.3 | 7,726 | .13 | 2.9 | 68.5 | 90.8 |
| Chatham | 768 | .07 | 1.8 | 80.0 | 100.0 | 1,439 | .13 | 2.6 | 60.0 | 94.1 | 1,909 | .11 | 3.7 | 60.9 | 96.8 |
| Cherokee | 525 | .08 | 2.5 | 41.7 | 66.7 | 983 | .10 | 3.1 | 67.9 | 85.7 | 1,239 | .10 | 2.3 | 63.0 | 100.0 |
| Chowan | 287 | .10 | 1.7 | 75.0 | 66.7 | 558 | .14 | 2.7 | 76.9 | 100.0 | 710 | .13 | 1.7 | 88.9 | 100.0 |
| Clay | 216 | .08 | 4.6 | 30.0 | 100.0 | 328 | .16 | 2.7 | 75.0 | 100.0 | 415 | .13 | 2.2 | 88.9 | 100.0 |
| Cleveland | 2,205 | .09 | 1.6 | 50.0 | 80.0 | 4,001 | .11 | 2.7 | 62.1 | 91.8 | 5,644 | .12 | 3.3 | 70.8 | 95.5 |
| Columbus | 1,330 | .09 | 1.5 | 58.3 | 66.7 | 2,365 | .11 | 3.2 | 56.7 | 86.7 | 3,353 | .12 | 3.2 | 63.9 | 94.3 |
| Craven | 1,748 | .08 | 1.8 | 26.9 | 62.5 | 3,345 | .11 | 5.7 | 45.3 | 68.1 | 6,025 | .11 | 5.4 | 51.4 | 68.1 |
| Cumberland | 5,070 | .09 | 1.1 | 47.2 | 64.7 | 11,200 | .11 | 4.8 | 46.4 | 74.2 | 22,023 | .12 | 4.4 | 54.0 | 73.3 |
| Currituck | 284 | .07 | 0.7 | 0.0 | 0.0 | 546 | .10 | 2.7 | 69.2 | 87.5 | 805 | .14 | 2.9 | 65.0 | 80.0 |
| Dare | 405 | .12 | 3.2 | 50.0 | 66.7 | 890 | .13 | 5.1 | 65.1 | 88.5 | 1,532 | .14 | 4.7 | 63.3 | 73.0 |
| Davidson | 3,061 | .10 | 1.0 | 68.0 | 84.6 | 5,672 | .12 | 2.8 | 68.9 | 93.8 | 7,713 | .13 | 3.0 | 70.5 | 96.4 |
| Davie | 755 | .08 | 2.3 | 70.0 | 100.0 | 1,305 | .11 | 3.0 | 61.8 | 88.9 | 1,694 | .12 | 2.7 | 72.5 | 100.0 |
| Duplin | 1,073 | .05 | 1.4 | 62.5 | 100.0 | 1,830 | .10 | 3.4 | 55.6 | 88.5 | 2,422 | .13 | 4.1 | 69.8 | 89.1 |
| Durham | 3,267 | .10 | 0.9 | 50.0 | 90.0 | 6,606 | .12 | 3.2 | 62.4 | 80.2 | 10,983 | .13 | 2.8 | 71.5 | 88.5 |
| Edgecombe | 963 | .12 | 2.2 | 46.7 | 75.0 | 1,963 | .10 | 2.3 | 35.5 | 81.8 | 2,715 | .11 | 3.9 | 45.7 | 77.4 |

**Table 5.** continued on next page

**Table 5.** 1989 Youth Licensed Driver Population and Alcohol-Related Arrest Information by County and Age Group **(continued)**

*no BACs collected, ** no cases adjudicated, *** no cases adjudicated with BAC .10+

| | 16 - 17 year old drivers | | | | | 18 - 20 year old drivers | | | | | 21 - 24 year old drivers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ |
| Forsyth | 5,819 | .08 | 1.4 | 63.6 | 94.7 | 11,366 | .12 | 2.0 | 75.4 | 96.7 | 16,961 | .12 | 2.5 | 77.2 | 95.7 |
| Franklin | 630 | .08 | 2.2 | 18.2 | 66.7 | 1,254 | .12 | 2.7 | 54.8 | 73.7 | 1,915 | .14 | 3.6 | 72.4 | 91.4 |
| Gaston | 4,780 | .09 | 1.7 | 59.6 | 84.6 | 8,575 | .11 | 2.8 | 58.7 | 78.2 | 11,533 | .12 | 3.0 | 63.7 | 85.2 |
| Gates | 233 | .06 | 0.4 | 0.0 | *** | 430 | .08 | 0.9 | 50.0 | 100.0 | 579 | .12 | 1.0 | 60.0 | 100.0 |
| Graham | 178 | .08 | 3.9 | 50.0 | 100.0 | 364 | .13 | 2.7 | 66.7 | 100.0 | 503 | .13 | 3.4 | 64.3 | 100.0 |
| Granville | 757 | .06 | 0.9 | 0.0 | 0.0 | 1,609 | .13 | 2.0 | 67.9 | 82.4 | 2,236 | .13 | 3.2 | 61.9 | 80.0 |
| Greene | 280 | .13 | 0.7 | 50.0 | 50.0 | 569 | .11 | 1.9 | 45.5 | 100.0 | 767 | .15 | 2.7 | 52.9 | 80.0 |
| Guilford | 7,576 | .10 | 1.1 | 56.5 | 88.2 | 15,376 | .12 | 2.5 | 58.4 | 81.8 | 23,884 | .12 | 2.6 | 61.6 | 83.8 |
| Halifax | 1,276 | .09 | 1.6 | 35.3 | 100.0 | 2,392 | .11 | 2.6 | 54.3 | 70.0 | 3,527 | .12 | 3.9 | 65.8 | 79.7 |
| Harnett | 1,264 | .09 | 1.7 | 58.3 | 100.0 | 2,554 | .12 | 4.3 | 53.3 | 65.5 | 3,842 | .12 | 4.2 | 63.6 | 88.0 |
| Haywood | 1,132 | .10 | 1.9 | 52.6 | 81.8 | 2,130 | .12 | 2.5 | 74.0 | 93.3 | 2,970 | .14 | 2.6 | 71.4 | 94.7 |
| Henderson | 1,583 | .13 | 0.9 | 83.3 | 100.0 | 2,898 | .11 | 2.2 | 72.2 | 100.0 | 4,068 | .13 | 2.7 | 78.2 | 98.1 |
| Hertford | 499 | .05 | 0.8 | 66.7 | 100.0 | 937 | .09 | 2.0 | 47.1 | 88.9 | 1,407 | .10 | 2.7 | 57.6 | 73.3 |
| Hoke | 413 | .05 | 0.5 | 50.0 | 100.0 | 838 | .11 | 1.0 | 62.5 | 100.0 | 1,126 | .13 | 2.9 | 71.4 | 91.7 |
| Hyde | 114 | .09 | 2.6 | 66.7 | 100.0 | 225 | .15 | 1.8 | 75.0 | 100.0 | 268 | .09 | 2.2 | 40.0 | *** |
| Iredell | 2,339 | .10 | 1.8 | 75.9 | 100.0 | 4,293 | .11 | 2.6 | 61.5 | 91.1 | 5,930 | .13 | 2.9 | 70.1 | 97.5 |
| Jackson | 568 | .08 | 1.6 | 50.0 | 100.0 | 1,105 | .12 | 3.3 | 70.6 | 95.0 | 1,599 | .11 | 3.3 | 62.5 | 87.0 |
| Johnston | 1,960 | .08 | 1.8 | 19.0 | 28.6 | 3,545 | .11 | 2.9 | 54.7 | 79.2 | 4,861 | .12 | 4.1 | 53.7 | 82.9 |
| Jones | 206 | .13 | 2.4 | 75.0 | 100.0 | 421 | .12 | 2.4 | 50.0 | 75.0 | 541 | .12 | 2.4 | 63.6 | 71.4 |
| Lee | 1,012 | .08 | 2.5 | 38.9 | 50.0 | 1,842 | .12 | 3.4 | 58.3 | 80.0 | 2,684 | .12 | 3.8 | 60.0 | 83.0 |
| Lenoir | 1,400 | .08 | 1.9 | 43.5 | 100.0 | 2,581 | .11 | 3.0 | 54.9 | 87.5 | 3,492 | .14 | 3.4 | 66.3 | 86.8 |
| Lincoln | 1,412 | .10 | 2.5 | 60.0 | 78.6 | 2,342 | .11 | 2.3 | 75.0 | 96.3 | 3,047 | .13 | 2.7 | 69.1 | 93.0 |
| McDowell | 565 | .12 | 0.5 | 33.3 | 50.0 | 1,076 | .11 | 2.8 | 44.4 | 75.0 | 1,406 | .12 | 2.2 | 62.1 | 82.4 |
| Macon | 376 | .07 | 3.7 | 30.0 | 100.0 | 692 | .10 | 3.5 | 50.0 | 88.9 | 1,006 | .11 | 4.7 | 59.5 | 100.0 |
| Madison | 692 | .08 | 1.3 | 28.6 | 66.7 | 1,209 | .12 | 2.2 | 56.0 | 92.3 | 1,664 | .14 | 2.9 | 67.4 | 89.3 |
| Martin | 862 | .09 | 1.6 | 100.0 | 100.0 | 1,654 | .11 | 2.2 | 57.1 | 94.7 | 2,306 | .13 | 1.6 | 81.2 | 100.0 |
| Mecklenburg | 9,602 | .08 | 0.9 | 42.6 | 73.9 | 21,074 | .13 | 1.5 | 70.5 | 90.8 | 34,045 | .13 | 1.6 | 69.2 | 89.1 |
| Mitchell | 376 | .09 | 1.6 | 100.0 | 100.0 | 635 | .10 | 2.0 | 45.5 | 75.0 | 852 | .12 | 3.2 | 57.1 | 80.0 |
| Montgomery | 608 | .09 | 1.3 | 80.0 | 100.0 | 1,101 | .13 | 2.5 | 62.5 | 100.0 | 1,351 | .11 | 4.5 | 59.6 | 100.0 |
| Moore | 1,251 | .10 | 2.0 | 63.6 | 91.7 | 2,353 | .11 | 3.3 | 55.9 | 93.7 | 3,498 | .12 | 3.4 | 56.3 | 80.4 |
| Nash | 2,081 | .09 | 1.4 | 32.0 | 75.0 | 3,998 | .12 | 2.6 | 43.7 | 67.6 | 5,227 | .13 | 3.8 | 48.7 | 68.4 |
| New Hanover | 2,413 | .09 | 2.7 | 50.0 | 81.0 | 5,262 | .12 | 2.9 | 60.6 | 85.3 | 7,927 | .13 | 2.7 | 67.4 | 82.8 |
| Northampton | 463 | * | 0.2 | ** | *** | 906 | .08 | 2.6 | 50.0 | 83.3 | 1,324 | .10 | 4.3 | 53.1 | 85.0 |

**Table 5.** continued on next page

**Table 5.** 1989 Youth Licensed Driver Population and Alcohol-Related Arrest Information by County and Age Group (**continued**)

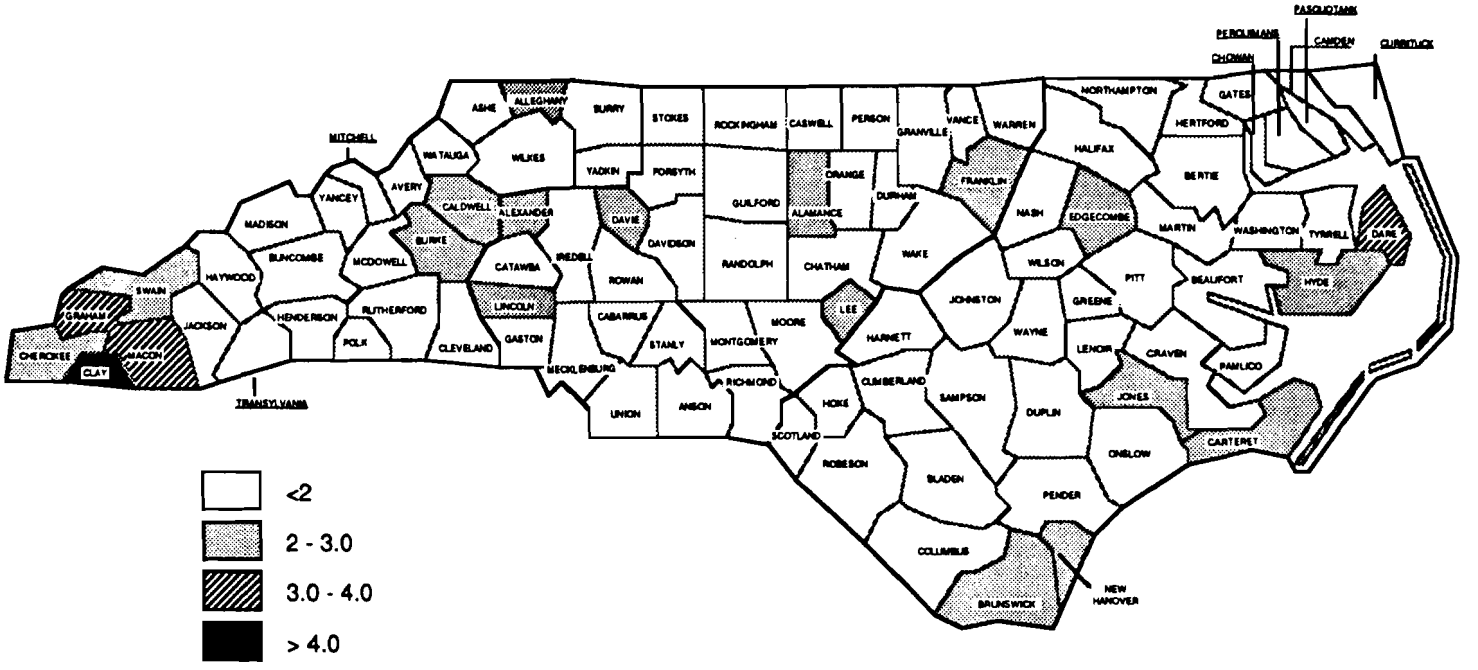
*no BACs collected, ** no cases adjudicated, *** no cases adjudicated with BAC .10+

| | 16 - 17 year old drivers | | | | | 18 - 20 year old drivers | | | | | 21 - 24 year old drivers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ | # of licensed drivers | mean BAC | a/r arrest rate | % conv | % conv BAC .10+ |
| Onslow | 2,087 | .11 | 1.4 | 66.7 | 100.0 | 4,891 | .11 | 7.6 | 63.9 | 96.1 | 13,240 | .12 | 4.4 | 69.4 | 91.2 |
| Orange | 1,444 | .08 | 1.4 | 58.3 | 100.0 | 3,371 | .11 | 2.7 | 53.1 | 82.1 | 6,536 | .12 | 2.2 | 72.4 | 91.8 |
| Pamlico | 239 | .11 | 1.3 | 0.0 | 0.0 | 459 | .11 | 3.3 | 50.0 | 71.4 | 528 | .12 | 6.2 | 57.1 | 70.6 |
| Pasquotank | 689 | .11 | 1.2 | 85.7 | 75.0 | 1,287 | .10 | 2.5 | 39.3 | 72.7 | 1,830 | .12 | 2.5 | 72.1 | 84.6 |
| Pender | 720 | .09 | 1.3 | 66.7 | 100.0 | 1,117 | .11 | 2.7 | 50.0 | 81.8 | 1,693 | .14 | 3.2 | 66.7 | 100.0 |
| Perquimans | 196 | .10 | 1.0 | 50.0 | 50.0 | 423 | .12 | 3.1 | 63.6 | 80.0 | 590 | .12 | 2.0 | 66.7 | 100.0 |
| Person | 808 | .09 | 1.0 | 66.7 | 100.0 | 1,267 | .13 | 2.2 | 80.0 | 93.7 | 1,769 | .14 | 3.1 | 87.2 | 100.0 |
| Pitt | 1,989 | .10 | 1.7 | 38.7 | 69.2 | 4,118 | .12 | 4.3 | 54.0 | 83.3 | 6,947 | .13 | 3.8 | 64.7 | 87.6 |
| Polk | 300 | .10 | 1.3 | 100.0 | 100.0 | 546 | .13 | 1.8 | 88.9 | 100.0 | 817 | .14 | 1.5 | 100.0 | 100.0 |
| Randolph | 2,530 | .09 | 1.5 | 55.6 | 100.0 | 4,766 | .11 | 2.7 | 51.8 | 72.3 | 6,637 | .12 | 3.0 | 58.4 | 85.7 |
| Richmond | 1,077 | .11 | 1.2 | 40.0 | 50.0 | 1,953 | .11 | 3.5 | 52.4 | 80.6 | 2,623 | .13 | 3.5 | 58.6 | 84.6 |
| Robeson | 2,850 | .08 | 1.6 | 45.7 | 90.0 | 5,344 | .11 | 3.1 | 56.4 | 88.9 | 7,066 | .12 | 4.1 | 64.8 | 92.7 |
| Rockingham | 2,149 | .11 | 1.2 | 73.7 | 100.0 | 3,917 | .11 | 2.4 | 65.9 | 97.5 | 5,454 | .13 | 3.0 | 69.4 | 93.6 |
| Rowan | 2,307 | .07 | 1.2 | 47.4 | 100.0 | 4,208 | .10 | 2.3 | 60.7 | 95.3 | 5,689 | .11 | 3.1 | 62.1 | 96.7 |
| Rutherford | 1,392 | .11 | 1.7 | 66.7 | 100.0 | 2,683 | .10 | 2.6 | 55.4 | 100.0 | 3,602 | .11 | 3.3 | 71.7 | 93.5 |
| Sampson | 1,212 | .08 | 1.6 | 46.2 | 80.0 | 2,060 | .11 | 2.8 | 59.6 | 91.7 | 3,066 | .12 | 3.4 | 66.3 | 83.3 |
| Scotland | 862 | .08 | 1.0 | 42.9 | 75.0 | 1,619 | .10 | 1.7 | 69.6 | 100.0 | 2,119 | .13 | 2.5 | 76.0 | 100.0 |
| Stanly | 1,346 | .10 | 1.1 | 53.8 | 100.0 | 2,379 | .09 | 2.7 | 41.4 | 76.0 | 3,167 | .11 | 3.6 | 54.7 | 92.0 |
| Stokes | 964 | .09 | 1.5 | 88.9 | 100.0 | 1,654 | .10 | 2.4 | 60.0 | 92.9 | 2,180 | .12 | 3.0 | 74.6 | 100.0 |
| Surry | 1,746 | .08 | 1.5 | 73.3 | 88.9 | 3,126 | .11 | 2.3 | 60.9 | 96.9 | 4,305 | .12 | 2.7 | 71.0 | 98.2 |
| Swain | 315 | .05 | 2.2 | 40.0 | 100.0 | 623 | .10 | 4.2 | 50.0 | 75.0 | 892 | .12 | 3.6 | 74.2 | 84.2 |
| Transylvania | 598 | .07 | 1.2 | 66.7 | 100.0 | 1,206 | .08 | 1.7 | 52.6 | 80.0 | 1,799 | .11 | 1.4 | 77.3 | 87.5 |
| Tyrrell | 79 | * | 0.0 | ** | *** | 154 | .05 | 3.2 | 60.0 | *** | 179 | .04 | 1.1 | 50.0 | *** |
| Union | 2,029 | .11 | 1.0 | 50.0 | 80.0 | 3,651 | .11 | 2.2 | 63.2 | 75.0 | 4,901 | .12 | 2.1 | 60.8 | 88.4 |
| Vance | 979 | .09 | 1.9 | 60.0 | 100.0 | 1,803 | .12 | 3.2 | 43.1 | 75.0 | 2,494 | .12 | 4.9 | 48.1 | 70.8 |
| Wake | 8,543 | .09 | 1.8 | 50.9 | 71.2 | 17,617 | .12 | 2.6 | 70.7 | 86.6 | 30,321 | .13 | 3.0 | 69.4 | 85.9 |
| Warren | 347 | .09 | 1.2 | 33.3 | 100.0 | 659 | .11 | 1.2 | 25.0 | 66.7 | 949 | .11 | 3.2 | 57.7 | 90.9 |
| Washington | 331 | .09 | 1.2 | 50.0 | 100.0 | 716 | .11 | 1.5 | 50.0 | 100.0 | 950 | .13 | 2.8 | 81.5 | 100.0 |
| Watauga | 627 | .08 | 1.8 | 75.0 | 66.7 | 1,344 | .13 | 2.3 | 63.0 | 76.2 | 2,309 | .12 | 2.6 | 73.7 | 91.9 |
| Wayne | 2,372 | .10 | 1.2 | 28.0 | 40.0 | 4,328 | .12 | 2.4 | 48.2 | 71.4 | 6,416 | .13 | 3.5 | 53.2 | 73.8 |
| Wilkes | 1,471 | .11 | 2.0 | 64.0 | 93.7 | 2,654 | .11 | 2.5 | 64.6 | 97.3 | 3,605 | .13 | 3.1 | 70.5 | 95.0 |
| Wilson | 1,583 | .10 | 2.0 | 55.0 | 69.2 | 2,971 | .13 | 2.5 | 60.7 | 83.3 | 4,169 | .13 | 2.7 | 66.7 | 81.8 |
| Yadkin | 777 | .07 | 1.8 | 25.0 | 33.3 | 1,382 | .09 | 3.1 | 48.6 | 100.0 | 1,891 | .13 | 2.9 | 78.8 | 96.6 |
| Yancey | 371 | .08 | 0.8 | 33.3 | 100.0 | 667 | .07 | 2.4 | 18.8 | 75.0 | 911 | .11 | 1.4 | 61.5 | 85.7 |

**Table 6.** 1989 Youth Crash Rates in North Carolina Motor Vehicle Accidents by County and Age

| | Automobile drivers aged 16-20 | | Automobile drivers aged 21-24 | |
|---|---|---|---|---|
| | crash rate per 100 drivers | % drinking | crash rate per 100 drivers | % drinking |
| Statewide | 11.75 | 3.47 | 7.66 | 6.33 |
| Alamance | 11.91 | 4.31 | 6.96 | 7.69 |
| Alexander | 9.07 | 4.60 | 4.19 | 10.00 |
| Alleghany | 8.06 | 5.26 | 3.41 | 9.52 |
| Anson | 10.44 | 4.65 | 6.18 | 9.47 |
| Ashe | 8.49 | 5.26 | 3.38 | 11.36 |
| Avery | 11.80 | 6.98 | 6.42 | 6.15 |
| Beaufort | 8.00 | 1.24 | 5.05 | 7.94 |
| Bertie | 5.34 | 7.89 | 3.24 | 8.70 |
| Bladen | 7.30 | 1.89 | 5.04 | 5.43 |
| Brunswick | 7.50 | 5.98 | 4.28 | 12.98 |
| Buncombe | 11.60 | 3.59 | 6.46 | 9.25 |
| Burke | 11.12 | 4.35 | 6.78 | 7.76 |
| Cabarrus | 11.09 | 2.92 | 5.94 | 7.41 |
| Caldwell | 11.57 | 4.07 | 6.90 | 10.43 |
| Camden | 4.52 | 5.26 | 2.75 | 0.00 |
| Carteret | 12.16 | 7.67 | 5.82 | 17.58 |
| Caswell | 5.78 | 2.82 | 3.61 | 12.20 |
| Catawba | 15.03 | 2.58 | 8.93 | 8.41 |
| Chatham | 10.42 | 6.52 | 7.60 | 13.10 |
| Cherokee | 7.23 | 3.67 | 4.76 | 5.08 |
| Chowan | 6.04 | 7.84 | 3.94 | 14.29 |
| Clay | 6.99 | 2.63 | 3.37 | 14.29 |
| Cleveland | 10.33 | 3.12 | 6.25 | 6.52 |
| Columbus | 9.58 | 4.24 | 5.07 | 7.65 |
| Craven | 8.70 | 2.71 | 4.45 | 8.58 |
| Cumberland | 11.00 | 2.57 | 6.95 | 6.93 |
| Currituck | 11.45 | 3.16 | 6.58 | 11.32 |
| Dare | 17.45 | 2.21 | 7.70 | 4.24 |
| Davidson | 11.02 | 4.99 | 6.72 | 8.88 |
| Davie | 8.88 | 1.09 | 4.84 | 9.76 |
| Duplin | 7.72 | 7.14 | 6.03 | 12.33 |
| Durham | 14.39 | 3.52 | 10.76 | 4.91 |
| Edgecombe | 10.01 | 3.75 | 6.96 | 7.94 |
| Forsyth | 12.91 | 3.15 | 8.55 | 4.69 |
| Franklin | 7.54 | 4.93 | 6.27 | 6.67 |
| Gaston | 14.06 | 2.66 | 8.04 | 5.93 |
| Gates | 7.24 | 2.08 | 4.15 | 16.67 |
| Graham | 6.27 | 11.76 | 3.38 | 0.00 |
| Granville | 10.02 | 2.95 | 6.31 | 9.22 |
| Greene | 8.01 | 8.82 | 5.87 | 2.22 |
| Guilford | 15.75 | 2.55 | 11.34 | 4.95 |
| Halifax | 8.12 | 4.36 | 5.87 | 6.28 |
| Harnett | 12.55 | 5.64 | 7.78 | 8.36 |
| Haywood | 7.94 | 4.25 | 4.01 | 13.45 |
| Henderson | 11.83 | 5.66 | 5.95 | 8.26 |
| Hertford | 7.24 | 5.77 | 5.76 | 9.88 |
| Hoke | 8.71 | 2.75 | 8.97 | 13.86 |
| Hyde | 7.37 | 4.00 | 2.24 | 50.00 |
| Iredell | 11.49 | 3.15 | 6.86 | 3.93 |
| Jackson | 10.46 | 6.86 | 5.25 | 7.14 |
| Johnston | 10.14 | 4.30 | 6.75 | 6.40 |
| Jones | 7.34 | 6.52 | 9.80 | 9.43 |
| Lee | 11.63 | 2.41 | 6.74 | 6.08 |
| Lenoir | 10.70 | 1.64 | 7.10 | 6.45 |
| Lincoln | 9.24 | 7.49 | 4.53 | 12.32 |
| McDowell | 5.79 | 5.26 | 2.28 | 12.50 |
| Macon | 8.52 | 3.30 | 4.37 | 18.18 |
| Madison | 7.68 | 4.11 | 5.41 | 7.78 |
| Martin | 14.11 | 4.23 | 7.16 | 6.67 |
| Mecklenburg | 17.99 | 1.88 | 13.02 | 3.29 |
| Mitchell | 7.52 | 3.95 | 2.82 | 0.00 |
| Montgomery | 9.95 | 2.94 | 5.70 | 6.49 |
| Moore | 8.24 | 3.70 | 5.29 | 5.95 |
| Nash | 9.72 | 2.37 | 6.64 | 6.34 |
| New Hanover | 14.79 | 2.64 | 9.12 | 6.50 |
| Northampton | 5.26 | 9.72 | 4.61 | 14.75 |
| Onslow | 13.83 | 4.97 | 7.02 | 7.64 |
| Orange | 12.59 | 3.80 | 7.91 | 8.12 |
| Pamlico | 6.73 | 6.38 | 2.65 | 14.29 |
| Pasquotank | 9.26 | 4.92 | 4.70 | 4.65 |
| Pender | 7.46 | 2.92 | 5.32 | 8.89 |
| Perquimans | 7.43 | 8.70 | 4.07 | 25.00 |
| Person | 8.96 | 3.23 | 4.86 | 11.63 |
| Pitt | 14.90 | 3.52 | 9.73 | 3.70 |
| Polk | 6.62 | 3.57 | 2.94 | 16.67 |
| Randolph | 10.18 | 4.44 | 5.71 | 7.92 |
| Richmond | 10.07 | 4.92 | 7.40 | 9.79 |
| Robeson | 8.14 | 4.50 | 6.50 | 6.75 |
| Rockingham | 9.12 | 3.25 | 5.48 | 5.69 |
| Rowan | 9.98 | 2.77 | 6.91 | 6.87 |
| Rutherford | 10.43 | 4.24 | 5.30 | 9.42 |
| Sampson | 8.86 | 3.79 | 5.74 | 7.95 |
| Scotland | 7.94 | 5.58 | 5.80 | 7.32 |
| Stanly | 11.38 | 3.30 | 5.87 | 12.37 |
| Stokes | 6.11 | 3.75 | 3.35 | 17.81 |
| Surry | 11.27 | 6.38 | 5.25 | 8.85 |
| Swain | 3.94 | 5.41 | 1.12 | 10.00 |
| Transylvania | 9.09 | 5.49 | 3.61 | 4.62 |
| Tyrrell | 7.73 | 11.11 | 3.91 | 14.29 |
| Union | 11.23 | 3.76 | 7.16 | 7.69 |
| Vance | 10.21 | 4.93 | 8.38 | 4.78 |
| Wake | 14.28 | 3.13 | 10.12 | 4.20 |
| Warren | 4.17 | 7.14 | 3.69 | 5.71 |
| Washington | 5.56 | 3.45 | 4.74 | 2.22 |
| Watauga | 19.69 | 3.09 | 13.30 | 3.58 |
| Wayne | 9.93 | 3.01 | 5.66 | 7.16 |
| Wilkes | 9.67 | 3.76 | 6.07 | 8.68 |
| Wilson | 9.16 | 3.84 | 5.95 | 5.65 |
| Yadkin | 8.20 | 5.65 | 4.28 | 9.88 |
| Yancey | 5.49 | 5.26 | 2.41 | 9.09 |

**Figure 9.** 1989 DWI Arrest Rate per 100 Licensed Drivers, 16-17 Years Old



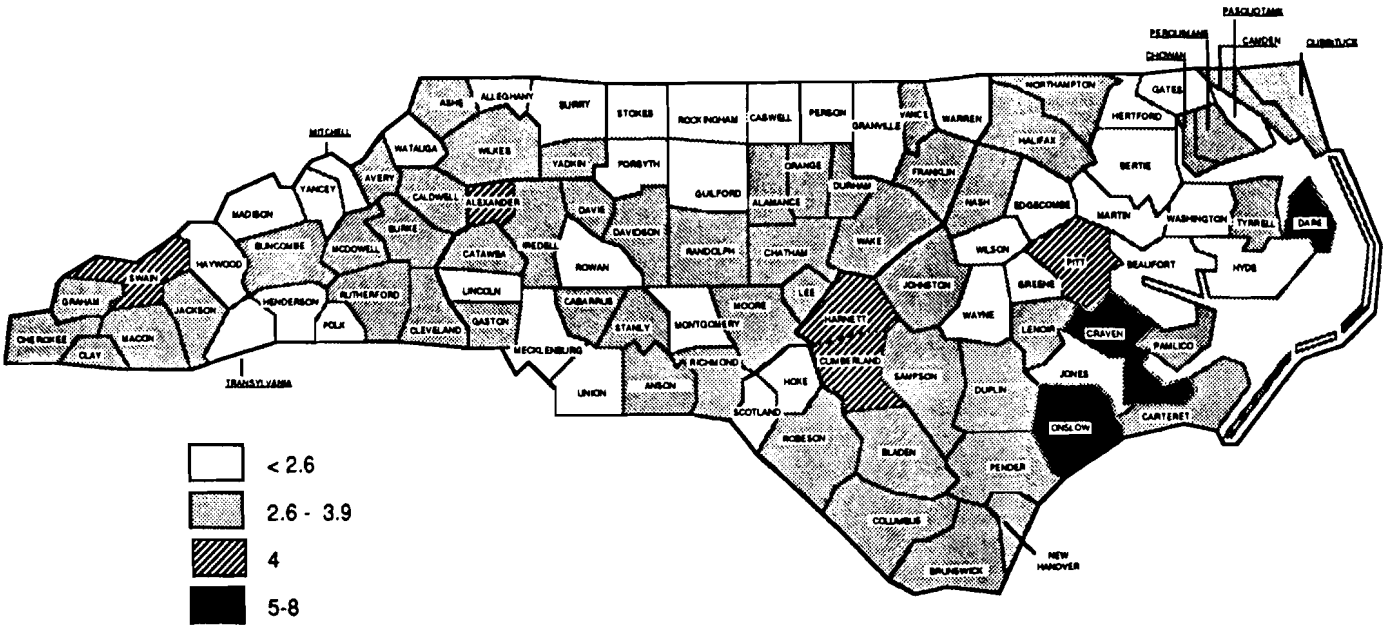



**Figure 10.** 1989 DWI Arrest Rate per 100 Licensed 18-20 Year Olds, by County

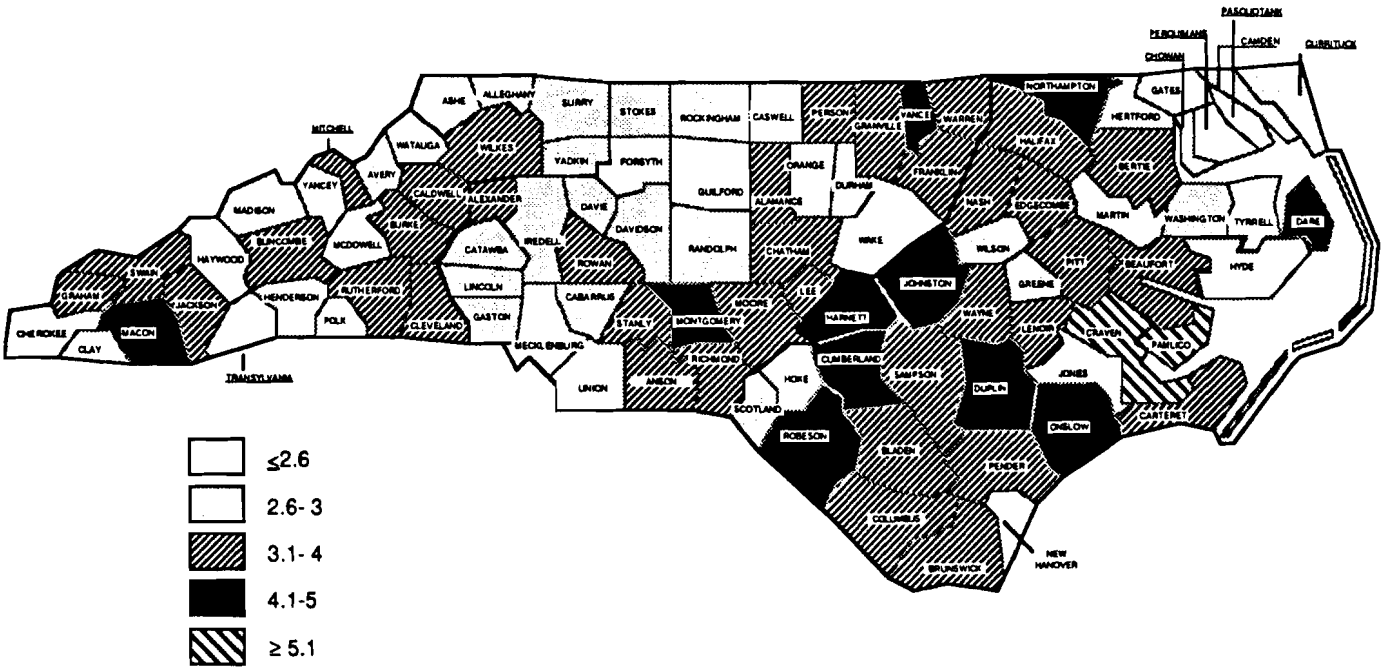



**Figure 11.** 1989 DWI Arrest Rate per 100 Licensed 21-24 Year Olds, by County

# North Carolina DWI Laws

**The Safe Roads Act**
The Safe Roads Act of 1983 repealed North Carolina's previous laws on driving under the influence of intoxicating liquor, driving under the influence of drugs, driving with a blood alcohol concentration of 0.10 or more, and reckless driving after drinking, and replaced them with the single offense of Driving While Impaired - DWI. This was the first major revision of the law in almost 40 years.

**Alcohol and Drugs**
Driving while impaired includes driving while impaired by any drug, including alcohol. This includes unlawful use of controlled substances such as marijuana, as well as use of prescription drugs or over the counter medicines such as cold capsules or cough syrup. Driving while impaired also includes impairments caused by any combination of alcohol and other drugs.

**Drinking Age**
The minimum age to purchase or possess any alcoholic beverages is 21 in North Carolina.

**Open Container**
A driver may not consume any liquor, beer or unfortified wine beverage while driving. No person may transport in the passenger area spirituous liquors in any container other than the manufacturer's unopened original container.

**Implied Consent**
A person charged with DWI may be asked to submit to a chemical test of his blood or breath. Willful refusal to take the test carries a 12-month license revocation, but a limited privilege may be granted for the last half of the revocation under certain circumstances. Officers may obtain blood samples from an unconscious person. A court may order the seizure of blood samples in certain cases without a defendant's consent.

**Enforcement**
Law enforcement agencies may set up roadblocks to check for impaired drivers. Officers may request any driver to take a preliminary breath test.

**Youthful Offenders**
All drivers, including those under age 18, are subject to the DWI offense. However, the Safe Roads Act provides additional special provisions for drivers under the age of 18. The statute prohibits a person under the age of 18 from driving while consuming any alcohol or with any alcohol in his body. This statute also prohibits driving with any drug in his body except lawfully obtained drugs taken in lawful quantities. Some people under 21 will lose their drivers license for one year if convicted of the following acts:

- He or she attempts to purchase or purchases an alcoholic beverage.
- He or she aids or abets another underage person to attempt to purchase or purchases an alcoholic beverage.
- He or she attempts to purchase, purchases, or possesses alcoholic beverages by using or attempting to use a fraudulent driver's license or other I.D., or by lending his driver's license or any other I.D. for that purpose.

**Dram Shop**
This section of the law addresses the responsibility of the alcoholic beverage provider and includes:

- Negligent sale of beer, wine or liquor to an underage person may subject the seller to civil liability under N.C. statutes if the minor consumes the beverage, the consumption contributes to the underage person's impairment, and the underage person has an accident while impaired. The statute sets a $500,000 liability limit. Proof of good practices, such as checking I.D.'s, may help prevent liability. Persons who sell alcohol to already impaired individuals may be liable under N.C. case law, if the impaired individual causes an accident.
- If a judgment is obtained as a result of a sale to an underage person, the ABC Commission must suspend the seller's ABC permit until the judgment is paid.
- A permit holder faces no liability for refusing to sell or serve a customer who cannot produce a valid I.D.
- A seller may hold a person's I.D. for a reasonable time to check its validity if the seller tells the person why it is being held.