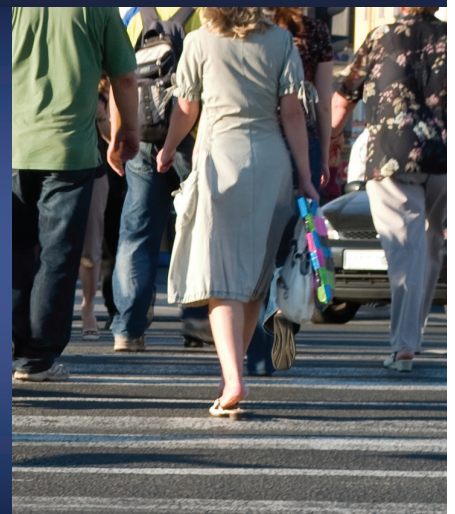


North Carolina Pedestrian Crash Facts

2008 - 2012



Prepared for
The North Carolina Department of Transportation
Division of Bicycle and Pedestrian Transportation

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General Trends

Over the past ten years, 24,714 collisions between pedestrians and motor vehicles were reported by North Carolina public safety agencies. The highest total number of collisions for the entire ten-year period occurred in 2012 (Figure 1). The first five years averaged 2,499 total pedestrian crashes per year, while the five years from 2008-2012 averaged 2,637 per year, a 6 percent increase. The number of crashes in urban areas in both 2011 and 2012 exceeded that for all other years in this ten-year period. Rural crashes also increased in 2011 and 2012.

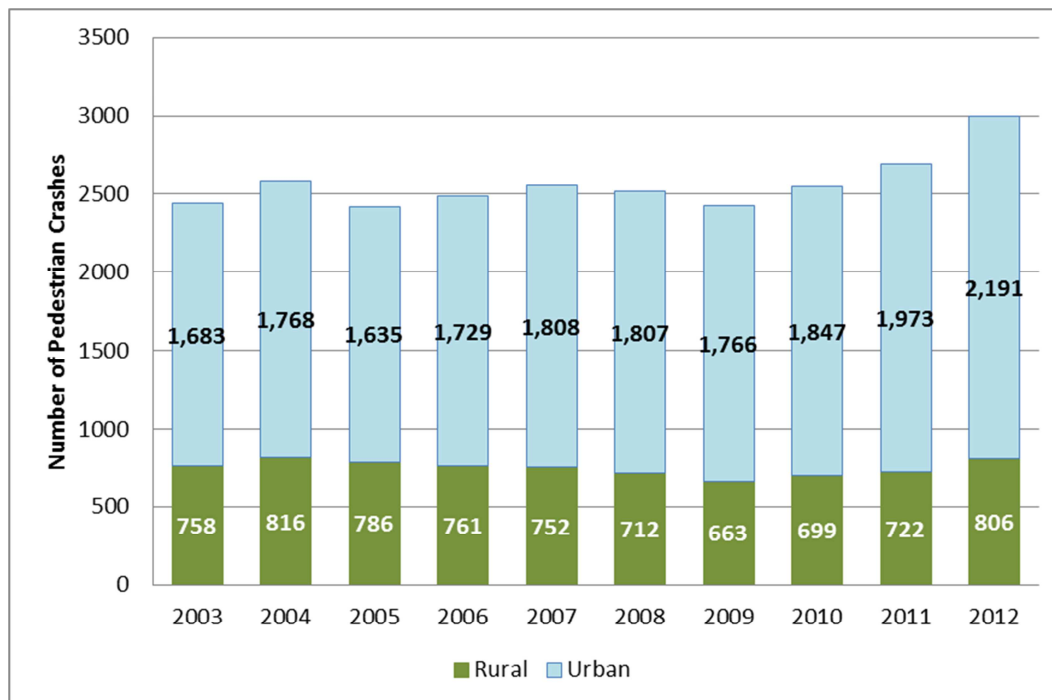


Figure 1. From 2008-2012, the average annual number of crashes reported has been about 6 percent higher than for 2003 – 2007.

Although there has been a recent uptick in crashes in rural areas, urban areas have reported an average of 11 percent more crashes from 2008-2012 compared to 2003-2007, while rural areas have actually reported 7 percent fewer. Thus, the rise in crashes over the decade has largely occurred in urban areas. Unfortunately, exposure data are lacking that might help to explain these trends in reported crashes. Increasing urbanization of the State could potentially contribute to the trend as well as an increasing trend of walking in cities and towns relative to unincorporated areas.

For 2008-2012, a total of 13,186 pedestrian crashes were reported to authorities. An average of 168 pedestrians were killed and an additional 178 were reported seriously injured in each of

those years, with the observed numbers varying year-to-year (Figure 2).¹ Thousands more received evident or possible injuries. Unfortunately, 2012 marked a year of increases in both fatal crashes and crashes involving disabling type injuries, with the highest numbers of both over this five-year period. Crashes, and especially more severe crashes tend to fluctuate year-to-year and it may take a few years to determine whether the high numbers in 2012 are a sign of an increasing trend in injury crashes, or numbers will level off again.

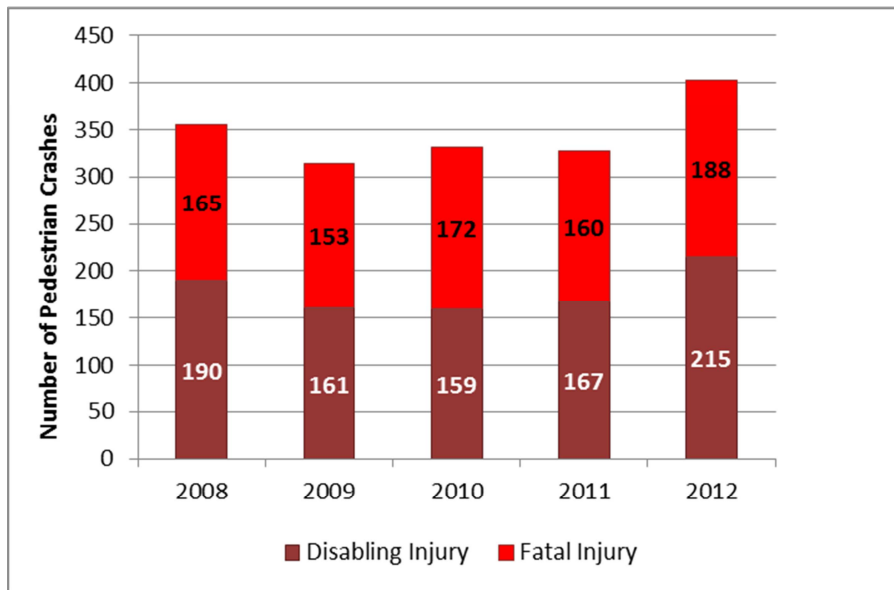


Figure 2. NC Fatal and Disabling Injury Pedestrian Crashes.

The amount, times, and locations of walking would have the greatest impact on collision frequencies and the severity of injuries involving pedestrians, but we lack data on amounts of walking in NC to compare between years. The types of facilities available - the amount of separation from traffic (places and times to safely walk and cross), the availability of lighting, and other factors - affect the risk of pedestrian collisions and injuries. Other risk factors include motor vehicle traffic volumes, speeds and driver yielding behaviors. Similarly, the knowledge and behaviors of those walking affects their risk. Alcohol or drug use by either the driver or pedestrian may be a factor. Distracted walking and driving also may play a role.

As mentioned, risk factors may be associated with the risk of more severe injuries as well as with the occurrence of crashes. For example, from 2008 to 2012, a majority of reported pedestrian collisions occurred within the counties in the Piedmont region (where most people

¹ The number of pedestrians killed and injured reflects only the "first" pedestrian reported on in the crash. A few crashes each year involve multiple pedestrians, and may include multiple injuries and fatalities. These circumstances are relatively rare, however, and in order not to over-represent the number of crashes, the data contained in this report account for only the first pedestrian, who was also verified as a pedestrian during review of the crash reports.

in the State live), with fewer occurring in the Coastal Plain and Mountain regions of the State. (Numerical crash trends by region are shown in Figure 3.)

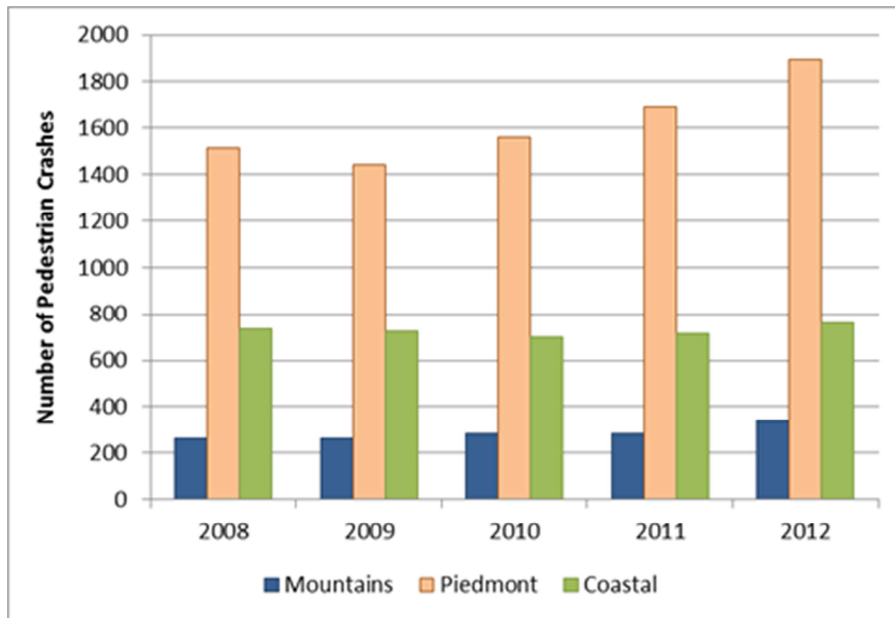


Figure 3. Five-year pedestrian crash trends by region of NC.

However, compared to the 62 percent of total pedestrian crashes, only 49 percent of fatal pedestrian crashes occurred in the Piedmont region (Figure 4). A larger share (42 percent) of fatal crashes compared to total crashes (28 percent) occurred within the Coastal Plain counties. Part of the explanation is in the extent of urban and rural crashes among the different regions. Rural areas tend to have higher speed roads, few roadways with lighting, and may not have sidewalks, paths, or shoulders to walk on. In fact, the rural areas of the State accounted for only 27 percent of total crashes, but 53 percent of fatal ones. Other factors, as already mentioned, likely also played a role in these trends.

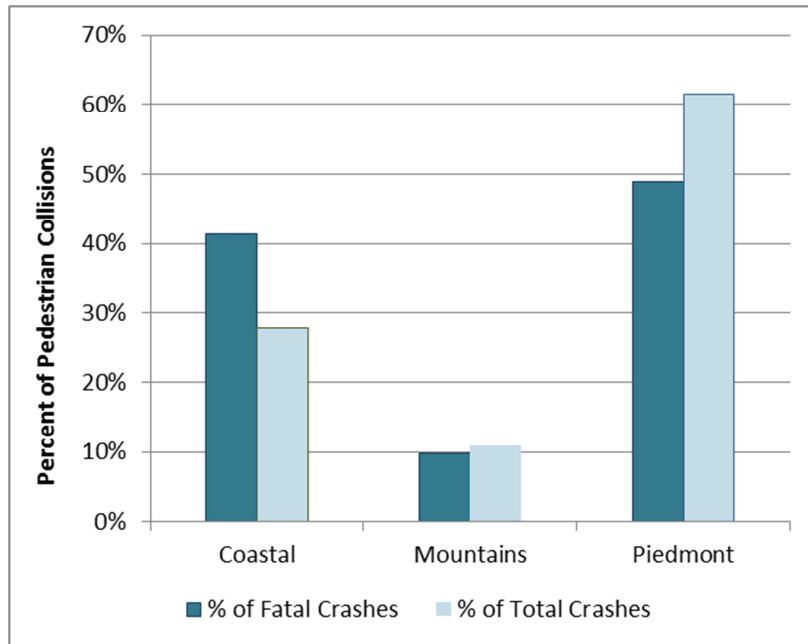


Figure 4. Fatal and Total Crash proportions by Region of the State, 2008-2012.

The remainder of this report summarizes the location types, person, time, environmental and roadway characteristics for the 13,186 pedestrian-motor vehicle crashes that were reported Statewide for 2008 - 2012. The numbers equate to approximately 2.75 pedestrian crashes per 10,000 residents Statewide and 0.175 fatal pedestrian crashes per 10,000 residents. The information described in this report, and similar information developed for local communities, can aid in the targeting of engineering, enforcement, and educational measures to address pedestrian safety issues. The companion Pedestrian Crash Types Summary report describes the types of crashes, or events leading up to the crash. That report also contains information about the types of problems and treatments that may be effective.

Note that the data in these reports, and in the query tool on the website (http://www.pedbikeinfo.org/pbcat_nc/_ped.cfm), may include non-injury collisions with low property damage that were not officially “reportable” but that had been reported to the State Division of Motor Vehicles. Non-reportable collisions may not be included in other State crash statistics; however, since under-reporting of pedestrian crashes is common,² any “non-reported” collisions that involved pedestrians were retained. As with all crash data, the reported numbers in the crash characteristics that follow undoubtedly reflect some error, including errors or gaps in reporting, as well as errors made during data entry and coding but every effort has been made to ensure the highest quality possible.³

² Injury to Pedestrians and Bicyclists: An analysis based on hospital emergency department data. Report No. FHWA-RD-99-078. US Department of Transportation, Federal Highway Administration.

³ Note that each crash report was reviewed for the data described in these reports and available on the NCDOT-DBPT website for query. This review offered the opportunity to correct some coding errors.

Where NC Pedestrian Crashes Occur

As illustrated in figure 1, more than two-thirds (71 percent) of NC pedestrian collisions over the past ten years occurred within municipal (urban) limits, with 29 percent in unincorporated areas of the State. Rural or urban is coded based on whether the crash was indicated to occur within municipal boundaries (urban), or not (rural), and may not accurately reflect area land use. The percentage of collisions occurring in urban areas seems to be increasing slightly over time: 69 percent of crashes occurred in urban areas in 2006 and nearly 73 percent in 2009 and 2010.

When looking at development density, as coded by the reporting enforcement agencies, the picture is even more heavily weighted toward areas that are at least somewhat developed. Combining urban with mixed density percentages, 86 percent of crashes occurred in areas that were at least 30 percent developed, and only 16 percent occurred in areas that were less than 30 percent developed (rural) (Table 1).

The areas that are between 30 and 70 percent developed may represent areas in transition, where infrastructure is often still more rural in nature and traffic speeds remain high, while traffic volumes and roadway complexity are increasing.

Table 1. NC pedestrian-motor vehicle crashes by development extent of crash area.

Locality	2008	2009	2010	2011	2012	Total
Rural (<30 percent Developed)	354 14.1 ¹	341 14	379 14.9	374 13.9	395 13.2	1,843 14.0 ²
Mixed (30 percent To 70 percent Developed)	353 14	349 14.4	353 13.9	358 13.3	427 14.2	1,840 14.0
Urban (>70 percent Developed)	1,812 71.9	1,739 71.6	1,814 71.2	1,963 72.8	2,175 72.6	9,503 72.1
Total	2,519 19.1 ³	2,429 18.4	2,546 19.3	2,695 20.4	2,997 22.7	13,186 100

In this and most of the following tables the formatting is as follows:

The top row for each variable level is the count of crashes with that characteristic. The numbers (with decimals) in the bottom rows for each category are percentages.

¹ = Row percent of column total

² = Row total percent of total

³ = Column total percent of total

⁴ = Total includes total minus any cases with missing or unknown data

Reflecting the information on development extent, 49 percent of pedestrian crashes, on average, occurred in areas indicated as commercial districts, 37 percent in residential areas, about 10 percent in areas designated as farms, woods, or pasture, and with smaller percentages in institutional (3.4 percent) and industrial areas (0.5 percent) (Table 2).

Table 3. Ten NC counties with highest numbers of pedestrian crashes from 2008 to 2012 and average yearly population-based crash rates.

County	2008-2012 Crash Count	% of State Total	Avg. 1- year Freq.	July 2010 Estimate	Avg. yrly crash rate/10,000 residents ⁴	Prior Avg yrly rate (2006- 2010)
Mecklenburg	2,057	15.6	411.4	923,390	4.5	4.3
Wake	1,370	10.4	274.0	906,908	3.0	3.1
Guilford	1,038	7.9	207.6	489,677	4.2	3.8
Cumberland	616	4.7	123.2	327,445	3.8	4.1
Durham	593	4.5	118.6	271,297	4.4	4.0
Buncombe	440	3.3	88.0	238,886	3.7	3.2
New Hanover	419	3.2	83.8	203,299	4.1	4.1
Forsyth	385	2.9	77.0	351,381	2.2	1.8
Gaston	338	2.6	67.6	206,139	3.3	3.3
Catawba	239	1.8	47.8	154,260	3.1	3.1
Subtotal for 10 cos.	7,496	56.8	1499	4,072,682	3.7	3.5

Table 4 shows the ten cities with the highest numbers of pedestrian-motor vehicle crashes during this five-year period. These ten cities together accounted for 45 percent of the State's 13,186 reported pedestrian crashes for this period. Among North Carolina cities, Charlotte accounted for 14.2 percent of statewide pedestrian crashes over the past five years, followed by Raleigh (7.4 percent), Greensboro (5.7 percent), and Durham (4.3 percent) and Fayetteville (3.6 percent).

Again, the cities and counties with the highest numbers of pedestrian crashes are generally those with the largest populations. However, there is not an exact correlation as shown by the population-based crash rates in the right hand columns of Tables 5. Among the ten cities with the highest counts of crashes in the State for 2008 to 2012, Asheville had the highest average yearly crash rate per population (8.1 per 10,000 residents), followed by Gastonia (5.8 per 10,000), and Greensboro (5.6 per 10,000 residents). The average crash rate based on population for all ten cities is 4.9 per 10,000 residents, a slight increase over the rate for this same set of cities (also in the top ten previously) for the period of 2006-2010.

As already mentioned, other factors besides population affect the rate of crashes. These include the extent of walking by residents and visitors, traffic volumes, characteristics of

⁴ Population estimates from North Carolina Office of State Budget and Management website, from http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/countrygrowth_2010.html

roadways where pedestrians walk, and driver and pedestrian behaviors. For example, there may be more walking in university towns or communities with high levels of tourism.

Table 4. Ten NC cities with highest numbers of pedestrian crashes from 2008-2012.

Municipality	Five-yr Crash Count	Avg. Annual Frequency	% of NC Total	Jul-2010 Pop est.	Avg. yearly crash rate / 10,000 residents ⁵	Prior Avg yrly rate (2006-2010)
Charlotte	1,869	373.8	14.2	734,052	5.1	5.1
Raleigh	975	195	7.4	406,056	4.8	5.0
Greensboro	751	150.2	5.7	269,696	5.6	4.6
Durham	569	113.8	4.3	229,014	5.0	4.4
Fayetteville	480	96.0	3.6	208,615	4.6	5.6
Asheville	340	68	2.6	83,558	8.1	7.2
Wilmington	290	58	2.2	106,760	5.4	5.4
Winston-Salem	276	55.2	2.1	229,986	2.4	2.0
High Point	216	43.2	1.6	104,665	4.1	4.1
Gastonia	207	41.4	1.6	71,760	5.8	5.7
Subtotal for 10 cities	5,973	1,194.6	45.3	2,444,162	4.9	4.7

The crash fact descriptions that follow are also undoubtedly related to exposure, or when and where people choose to walk, and other factors including the roadway and traffic conditions present, who is walking (age, and physical condition), and pedestrian and motorist behaviors. Crash numbers can also change over time simply due to chance, due to changes in crash reporting procedures, due to weather or other factors such as economics that affect the amounts of walking and driving.

⁵ Population estimates from North Carolina Office of State Budget and Management website, from: http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/rev_muniestbycounty_2010.html

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Pedestrian Characteristics

Pedestrian Age

It is difficult to draw firm conclusions about the year-to-year fluctuations in crash proportions by age across these five years (Table 5). (Note that the younger age categories span five years, while those beginning with age 31 span 10 years.) However, after a generally declining trend among younger teens, the number of crashes involving the 11 to 15 year age group increased in 2012, as did that for most other ages. Crash involvement by age reflects both population numbers of the different age groups and exposure or amount of walking among different age groups, among other risk factors.

Table 5. Age group of pedestrians involved in crashes.

Pedestrian Age	2008	2009	2010	2011	2012	Total
0-5	99	70	66	87	87	409
	4 ¹	2.9	2.6	3.3	2.9	3.1 ²
6-10	103	98	106	84	86	477
	4.1	4.1	4.2	3.2	2.9	3.7
11-15	170	152	164	164	193	843
	6.8	6.3	6.5	6.2	6.5	6.5
16-20	302	287	310	337	332	1,568
	12.1	11.9	12.3	12.7	11.2	12
21-25	275	288	295	296	366	1,520
	11	12	11.7	11.1	12.3	11.7
26-30	197	222	232	251	290	1,192
	7.9	9.2	9.2	9.4	9.8	9.1
31-40	396	365	361	423	442	1,987
	15.9	15.2	14.3	15.9	14.9	15.2
41-50	433	377	409	404	481	2,104
	17.4	15.7	16.2	15.2	16.2	16.1
51-60	295	301	314	325	350	1,585
	11.8	12.5	12.5	12.2	11.8	12.2
61-70	117	129	141	158	226	771
	4.7	5.4	5.6	5.9	7.6	5.9
71+	107	117	122	128	115	589
	4.3	4.9	4.8	4.8	3.9	4.5
Total	2,494	2,406	2,520	2,657	2,968	13,045 ⁴
	19.1 ³	18.4	19.3	20.4	22.8	

Combining age categories into larger ranges gives a picture of the overall crash involvement by children, young adults, middle-aged adults, and older adults (Figure 5). Children up to age 16, on average, accounted for about 13 percent of pedestrian crash-involvement over this time period. Teens and young adults between the ages of 16 and 30 accounted for 32 percent;

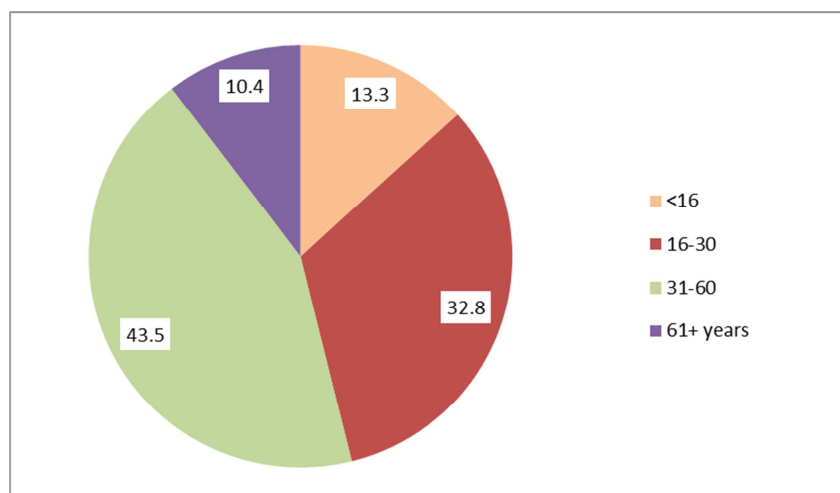


Figure 5. Percentage of NC pedestrian crashes by pedestrian age range, 2008-2012.

middle-aged adults from 31 to 60 years account for 44 percent, and older adults 61 and up for 10 percent.

Pedestrian Injury

As already mentioned, crashes of all severities increased over this time period. Table 6 shows the data for all five years for crashes where the injury severity was reported. As shown in Table 6, pedestrian crashes tend to be especially serious, with 7 percent of pedestrian crashes in North Carolina resulting in fatal injuries. This proportion compares with less than 1 percent (about 0.6 percent) of all reportable crashes resulting in fatalities for the same time period. An additional 7 percent of pedestrians suffered serious (A-type) injuries over the five years. This percentage seems to have decreased somewhat compared with the period 2006-2010.

Based on 2010 national data, North Carolina ranked 7th highest of U.S. states for pedestrian fatalities per capita (NHTSA Traffic Safety Facts 2010 Data: Pedestrians; available <http://www-nrd.nhtsa.dot.gov/CMSWeb/listpublications.aspx?Id=A&ShowBy=DocType>).

Table 6. Five-year pedestrian crash injury levels. (Counts are of crashes, with injury level of the first pedestrian in each crash).

Pedestrian Injury	2008	2009	2010	2011	2012	Total
K: Killed	165	153	172	160	188	838
	6.8	6.6	7	6.2	6.5	6.6
A: Disabling Injury	190	161	159	167	215	892
	7.9	6.9	6.5	6.5	7.5	7.1
B: Evident Injury	929	842	922	987	1,070	4,750
	38.4	36.3	37.6	38.4	37.1	37.5
C: Possible Injury	996	1022	1014	1102	1247	5,381
	41.2	44	41.3	42.9	43.2	42.5
O: No Injury	139	143	187	153	165	787
	5.7	6.2	7.6	6	5.7	6.2
Total	2,419	2,321	2,454	2,569	2,885	12,648
	19.1	18.3	19.4	20.3	22.8	

Although older pedestrians are involved in the lowest number of pedestrian collisions, their injuries tend to more often be fatal when a vehicle strikes them (Figure 6). The rise in proportion of fatal crashes from those involving children (less than 4 percent) to older adults (10 percent fatal) may reflect in part the different types of locations where different age groups were when struck, as well as vulnerability or frailty, alcohol use, and other issues.

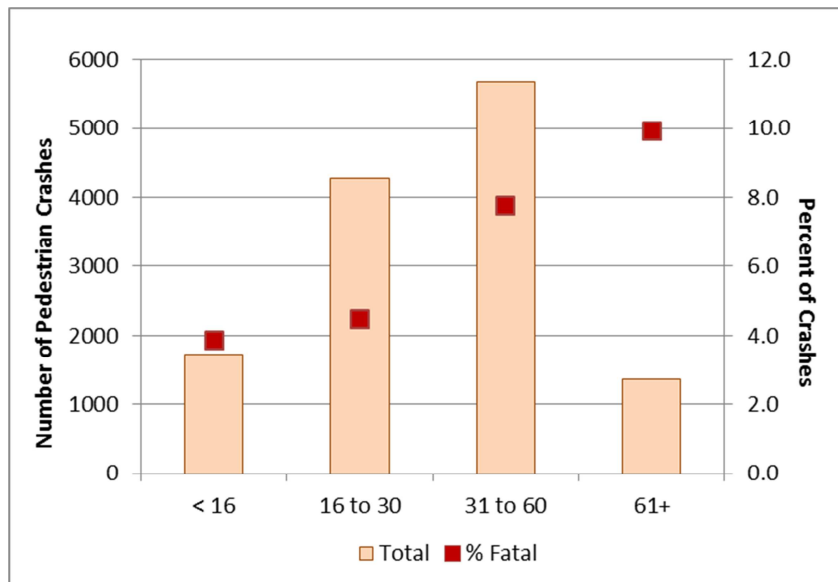


Figure 6. Pedestrian Crashes and Fatal Injury by Age Group.

Pedestrian Gender

On average, males accounted for about 60 percent and females 40 percent of the pedestrians reported involved in crashes over this five-year period (Table 7). These percentages have remained relatively the same over time. Males are, however, more likely to be involved in fatal collisions with 7.7 percent of their crashes resulted in fatal injuries compared with 4.6 percent for females (data not shown).

Table 7. Pedestrian gender for those involved in crashes.

Pedestrian Sex	2008	2009	2010	2011	2012	Total
Female	987	957	959	1,111	1,185	5,199
	39.7	40.1	38.2	41.8	40.1	40
Male	1,499	1,430	1,553	1,547	1,772	7,801
	60.3	59.9	61.8	58.2	59.9	60
Total	2,486	2,387	2,512	2,658	2,957	13,000
	19.1	18.4	19.3	20.4	22.7	

Pedestrian Alcohol Use

The investigating officer indicated alcohol use by an average of about 12 percent of the pedestrians struck by motor vehicles over these five years (Table 8). Suspected use does not necessarily imply that the pedestrian was impaired at the time of the crash, but that evidence of alcohol use was detected or suspected and may have played a role. When alcohol is involved, pedestrian crashes are also more often fatal. Although only 12 percent of crashes reportedly involved pedestrian alcohol use, 259 or **31 percent of the 838 fatal crashes implicated alcohol use by the pedestrian** (data not shown).

Table 8. Pedestrian use of alcohol.

Pedestrian Alcohol	2008	2009	2010	2011	2012	Total
No	2,194	2,097	2,229	2,361	2,636	11,517
	87.2	86.5	87.8	87.9	88.2	87.6
Yes	322	326	310	324	351	1,633
	12.8	13.5	12.2	12.1	11.8	12.4
Total	2,516	2,423	2,539	2,685	2,987	13,150
	19.1	18.4	19.3	20.4	22.7	

Driver and Vehicle Characteristics

This section describes characteristics of drivers involved in collisions with pedestrians. One of the characteristics is that 19 percent of drivers were involved in hit and run crashes with pedestrians. The other traits for these, and some additional drivers are therefore, unknown, so the numbers of drivers reported on in the following sections is lower than for the number of crashes and pedestrians.

Driver Age

There were year-to-year fluctuations in the distributions of driver age group involved in pedestrian crashes across the five years of data (Table 9). Younger drivers less than age 20 seem to have a decreasing trend, in keeping with a general decrease in crashes among younger drivers. Nevertheless, the youngest two age groups (up to age 24) accounted for nearly 22 percent of all collisions with pedestrians (but this compares to 25 percent over the five year interval from 2006-2010). Conversely, adults of ages 50 and above seem to be involved in higher numbers of pedestrian crashes observed over the past couple of years, as well as an increasing proportion of crashes.

Table 9. Age of drivers involved in crashes with pedestrians.

Driver Age	2008	2009	2010	2011	2012	Total
< 20 yrs	210	175	186	182	199	952
	10.0	8.8	8.8	8.2	8.0	8.7
20-24	272	237	289	289	326	1,413
	12.9	11.9	13.7	13.1	13.1	12.9
25-29	224	239	248	266	251	1,228
	10.6	12.0	11.8	12.0	10.1	11.2
30-39	365	363	345	385	440	1,898
	17.3	18.2	16.4	17.4	17.7	17.4
40-49	382	320	351	386	410	1,849
	18.1	16.0	16.6	17.5	16.5	16.9
50-59	311	305	314	299	366	1,595
	14.7	15.3	14.9	13.5	14.7	14.6
60-69	200	200	209	228	271	1,108
	9.5	10.0	9.9	10.3	10.9	10.1
70+	145	157	168	176	229	875
	6.9	7.9	8.0	8.0	9.2	8.0
Total	2,109	1,996	2,110	2,211	2,492	10,918
	19.3	18.3	19.3	20.3	22.8	

Driver Gender

Male drivers accounted for 55 percent of the pedestrian-motor vehicle crashes over the five years, and female drivers about 44 percent. Year-to-year fluctuations in these percentages are generally slight (Table 10).

Table 10. Gender of drivers involved in crashes with pedestrians.

Driver Sex	2008	2009	2010	2011	2012	Total
Female	961	859	947	1,004	1,111	4,882
	45.4	42.9	44.8	45.2	44.4	44.6
Male	1,156	1,142	1,166	1,216	1,391	6,071
	54.6	57.1	55.2	54.8	55.6	55.4
Total	2,117	2,001	2,113	2,220	2,502	10,953
	19.3	18.3	19.3	20.3	22.8	

Driver Injury

As would be expected, drivers are not often seriously injured in crashes with pedestrians, with 95 percent of drivers reported to receive no injuries, about 3 percent possibly receiving injuries, and another 2 percent receiving evident injuries (data not shown). However, there were five reported driver fatalities associated with pedestrian collisions and another 13 reported disabling driver injuries (A-type).

Driver Alcohol Use

The investigating officer detected or suspected alcohol use by the drivers involved in pedestrian crashes in an average of 4.5 percent of the crashes for all five years (Table 11). This means that the investigating police officer reported detecting alcohol or suspicion of alcohol use. Again, suspicion of alcohol use does not necessarily imply intoxication or that alcohol was a factor in the crash.

Table 11. Suspected alcohol use among drivers involved in crashes with pedestrians.

Driver Alcohol	2008	2009	2010	2011	2012	Total
No	2,054	1,974	2,084	2,221	2,440	10,773
	95.4	95.4	95.3	96.4	95.2	95.5
Yes	100	96	102	82	123	503
	4.6	4.6	4.7	3.6	4.8	4.5
Total	2,154	2,070	2,186	2,303	2,563	11,276
	19.1	18.4	19.4	20.4	22.7	

Temporal and Environmental Factors

Month of Year

Pedestrian crashes occur throughout the year, but are lowest in the summer months. Monthly peaks vary from year to year, but pedestrian crashes typically begin increasing in August - September with the highest average numbers occurring in the fall months of October to December, when daylight periods are shorter and children and college-age students have returned to school (Figure 7).

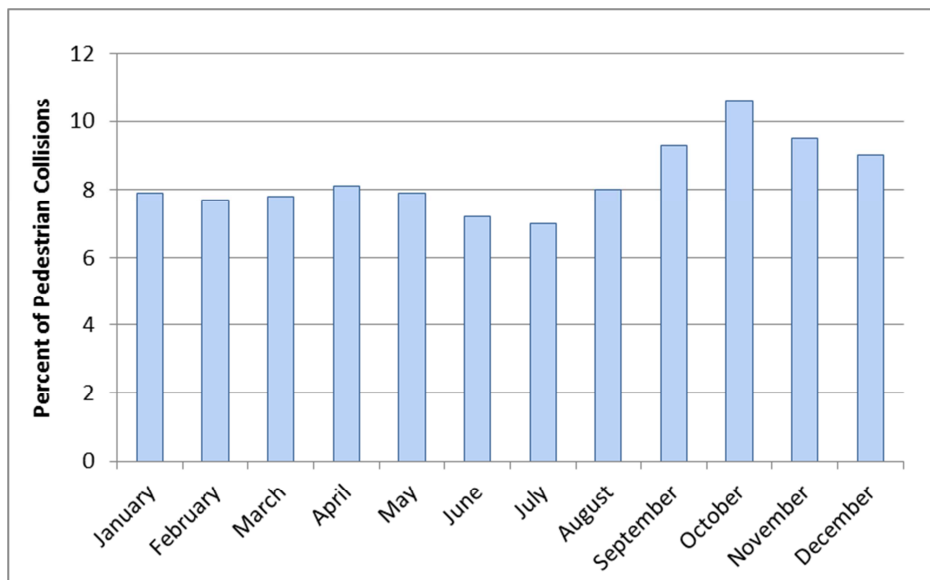


Figure 7. NC Pedestrian crashes by month of year, 2008-2012.

Day of the Week and Time of Day

Pedestrian crashes in NC are fairly evenly spread throughout the weekdays, but on average, Fridays and Saturdays are the highest crash days. Weekday peak travel times between 2 and 10 pm, along with Saturday between 6 and 10 pm account for the largest proportions of crashes and should also be the focus of enforcement and other activities (Figure 8).

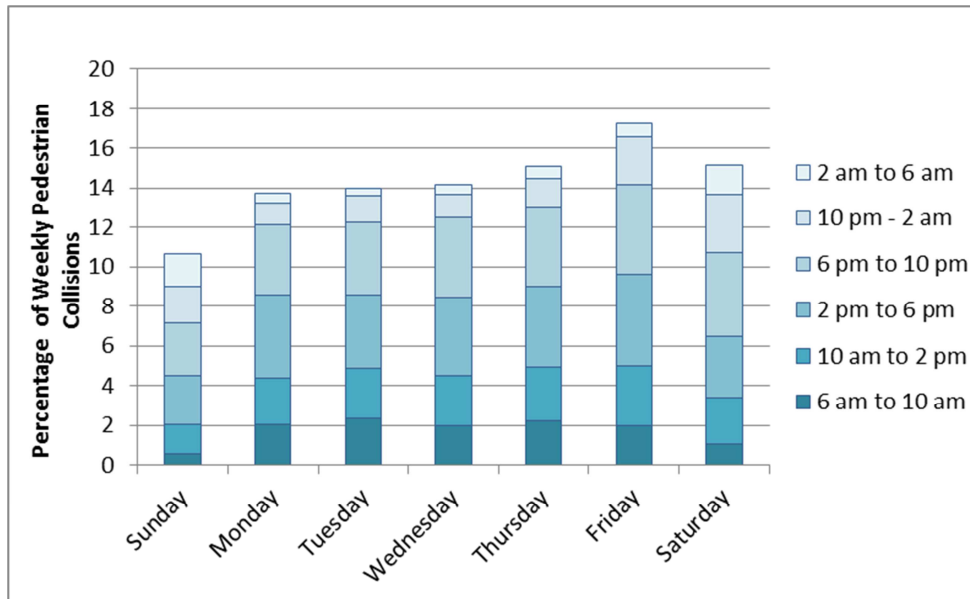


Figure 8. NC pedestrian crashes by day of week and time of day, 2008-2012.

Light Condition

While 56 percent of collisions occurred during daylight hours, 44 percent of pedestrian crashes over the past five years have occurred during non-daylight hours, including dawn and dusk. Twenty-one percent of crashes occurred at night on lighted roadways (typically urban roads) and 18 percent occurred at night on roadways indicated to have no supplemental lighting (Figure 9).

Those struck at night on unlighted roadways were nearly three times more likely to be killed (18 percent) compared with those struck at night on lighted roadways (less than 7 percent; data not shown), with the rate being about 7 times as likely as during daylight hours (less than 3 percent). The increased rate of fatalities on unlighted, dark roads likely reflects a number of factors. Unlighted roads are more likely to be rural and higher-speed roads compared with lighted roads. In addition, alcohol, and some of the other risk factors may also be factors at night. At night, compared with daylight hours, drivers' ability to detect pedestrians in order to slow down is also affected.

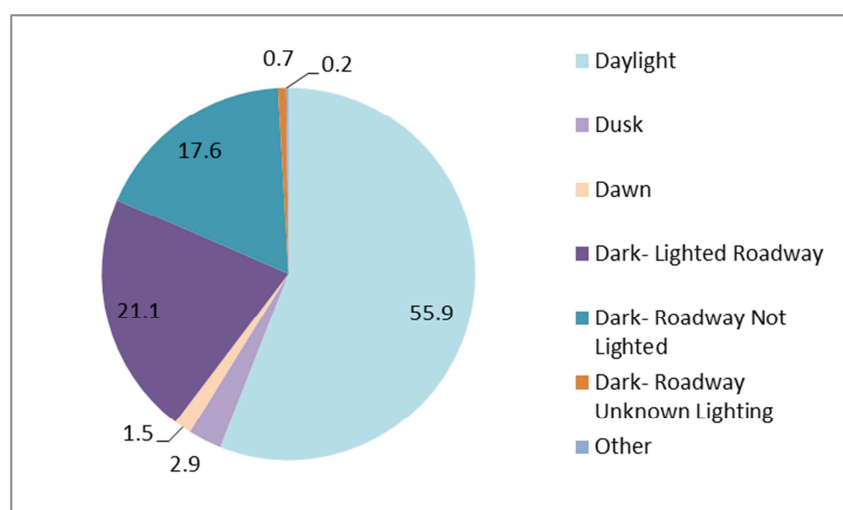


Figure 9. NC pedestrian crashes by light condition, 2008-2012.

Weather

The vast majority of pedestrian crashes occurred under clear (77 percent) or cloudy (14 percent) weather conditions on average (Figure 10), no doubt reflecting exposure. Year-to-year variation in the number of crashes occurring under rainy, snowy/icy, or foggy/smoky conditions is also likely a reflection of exposure to these conditions (e.g., more pedestrian crashes under rainy or snowy conditions in years when the State received more snowfall). Poor weather conditions, especially combined with darkness, affect the ability of drivers to detect pedestrians. Wet or icy roads may also affect stopping distance.

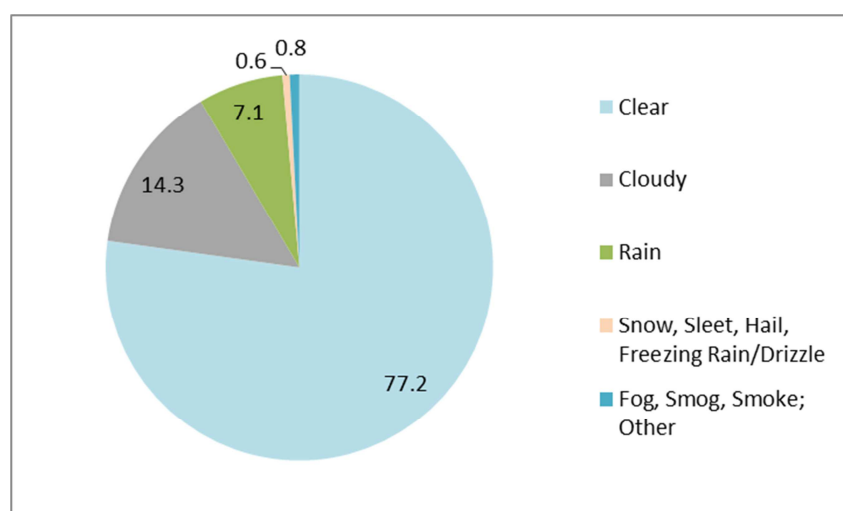


Figure 10. NC Pedestrian crashes by weather condition, 2008-2012.

Roadway Characteristics

Roadway Classification

Nearly half (48 percent) of all pedestrian-motor vehicle crashes occurred on local (mostly city) streets reflecting higher levels of walking and numbers of pedestrians in cities and neighborhoods (Table 12). Around 26 percent of reported pedestrian crashes occurred in parking lots, public driveways, or other public vehicular areas. Many other parking lot crashes probably go unreported. Thus, this is a significant issue warranting better planning and design, and educational measures. Another 10 percent occurred along State Secondary routes. All other roadway classifications accounted for about 13 percent of the total, including around 5 percent on NC Routes, 6 percent on US Routes, and approximately 2 percent on Interstate Routes. Collisions on interstates often involve pedestrians associated with disabled vehicles or who were involved in a prior vehicle-to-vehicle collision. Collisions that occurred on private property were reported frequently enough to comprise about 3 percent of these crashes. There are also likely to be a significant number of inaccuracies in these data, with many crashes that occurred within urban areas coded as on local streets, although they often occurred on roads designated as NC, US or State Secondary routes.

Table 12. Pedestrian crashes by roadway classification.

Road Classification	2008	2009	2010	2011	2012	Total
Interstate	45	49	46	43	42	225
	1.8	2	1.8	1.6	1.4	1.7
US Route	145	145	140	145	209	784
	5.8	6	5.5	5.3	7	5.9
NC Route	126	106	121	120	162	635
	5	4.4	4.8	4.4	5.4	4.8
State Secondary Route	276	237	284	290	288	1,375
	11	9.8	11.2	10.8	9.6	10.4
Local Street	1,174	1,108	1,226	1,288	1,500	6,296
	46.6	45.6	48.2	47.8	50.1	47.7
Public Vehicular Area	686	705	662	711	720	3,484
	27.2	29	26	26.4	24	26.4
Private Road, Driveway	67	79	67	98	76	387
	2.7	3.3	2.6	3.6	2.5	2.9
Total	2,519	2,429	2,546	2,695	2,997	13,186
	19.1	18.4	19.3	20.4	22.7	

Road Type/ Configuration

On average, nearly three-fourths (74 percent) of pedestrian collisions occurred on two-way, undivided roadways, about 12 percent on two-way roads divided by a median, with 8 percent on two-way roads divided with a positive median barrier (often freeways), and about 5 percent on one-way roads or sections (Figure 11).

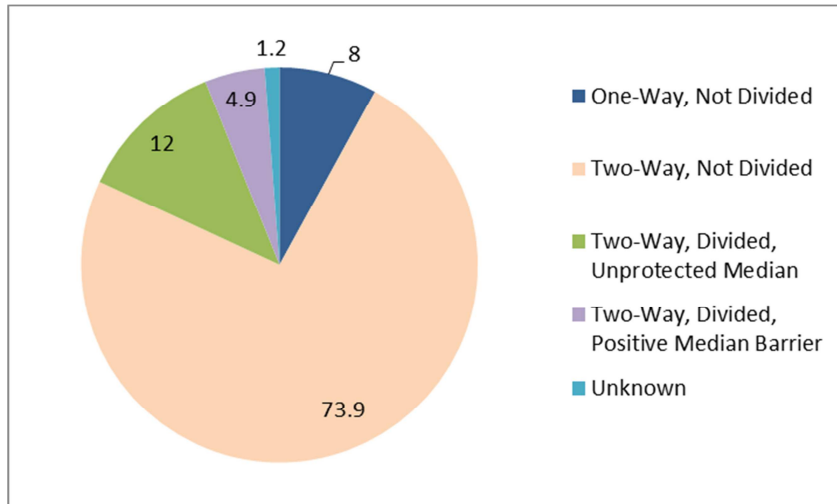


Figure 11. Road configuration and pedestrian crashes, 2008-2012.

Number of Through Lanes

Number of lanes indicated should reflect number of *through* lanes, excluding limited turn lanes and other non-continuing lanes. The figure below excludes pedestrian crashes that occurred in parking lots and other non-roadway locations (Figure 12). The majority of reported on-roadway pedestrian crashes occurred on two-lane roads (a consistent 59 - 60 percent each year), while approximately 29 percent occurred on multi-lane roadways with four or more travel lanes. One-lane, accounted for approximately 6 percent of pedestrian crashes.

The numbers of crashes reflect amounts of walking and driving on roadways with different numbers of lanes as well as other possible differences in risk exposure to crashes. There are also likely to be some inaccuracies in these data, with interpretation of numbers of lanes varying based on divided/undivided, presence of two-way turn lanes and other roadway characteristics.

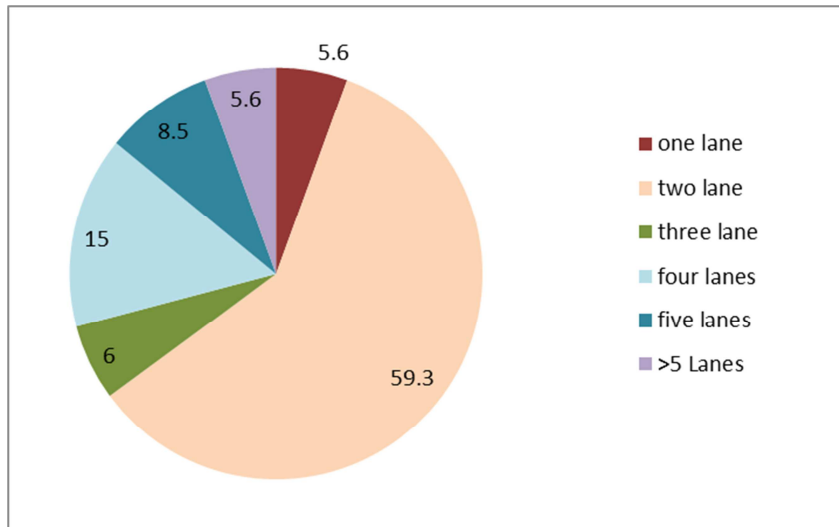


Figure 12. Pedestrian crashes by number of through traffic lanes.

Speed Limit

When speed limits were known and reported, the largest number (69 percent) of pedestrian crashes occurred on roads of 35 mph or lower. These statistics likely reflect the fact that urban streets and commercial thoroughfares, where more pedestrians tend to walk, generally have limits of 35 mph or lower.

However, pedestrian crashes on higher speed roads are typically more severe. On average 1 percent of those struck on streets and roads with speed limits of 25 mph and lower were killed. However, the proportion of those struck who died from their injuries begin to climb rapidly with higher speed limit roads (Figure 13). About 4 percent of those struck on 30–35 mph roads were killed. The proportions of pedestrians who were killed rose to 12 percent, 21 percent, and 36 percent of those struck on roads with limits of 40–45 mph, 50–55 mph, and 60–75 mph, respectively. In total, 70 percent of pedestrians killed, were struck on roadways with speed limits of 40 mph and greater. (Note that crash data do not provide good information on actual travel speeds of the striking vehicles, but the speed limit of the roadway provides general information about the prevailing travel speeds.) Although roadways of 40 mph and above accounted for 28 percent of all pedestrian crashes in the State, 72 percent of all of those killed were on roads with speed limits of 40 mph and up.

Road designs, speed limits, and adequate provision for pedestrians to cross and walk along roadways are especially important to reduce the severity of injuries that may result if crashes occur.

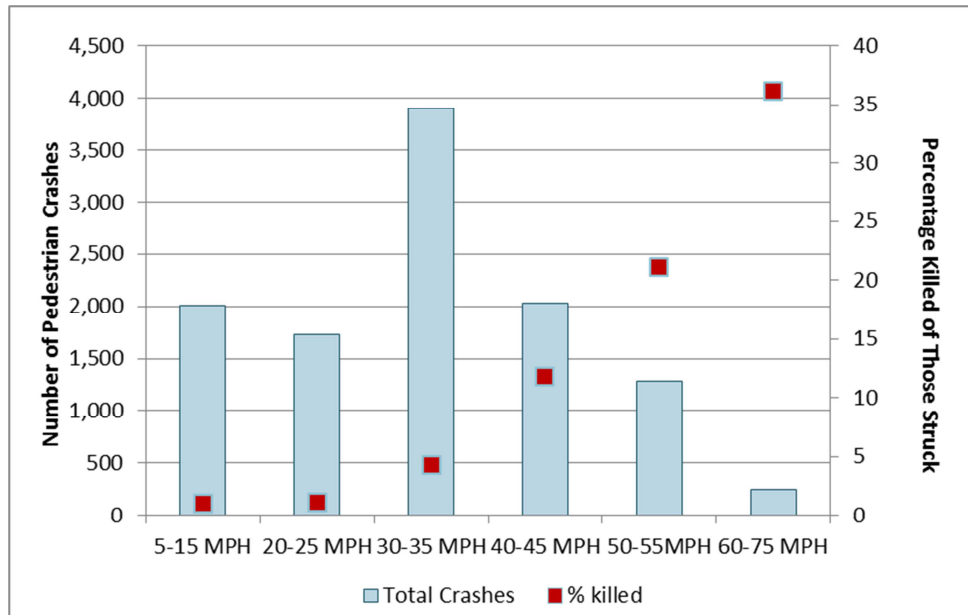


Figure 13. Pedestrian crashes and fatal injury by posted speed limit of roadway.

The crash factors discussed in this summary provide information useful for assessing problems and providing safe and accessible pedestrian facilities for local and State roads. Resources such as Pedestrian Road Safety Audit Guidelines and Prompt Lists

([http://safety.fhwa.dot.gov/intersection/resources/fhwasa09027/resources/Pedestrian percent20Road percent20Safety percent20Audit percent20Guidelines.pdf](http://safety.fhwa.dot.gov/intersection/resources/fhwasa09027/resources/Pedestrian%20Road%20Safety%20Audit%20Guidelines.pdf)) and PedSafe:

Pedestrian Safety Guide and Countermeasure Selection System

(<http://www.pedbikesafe.org/PEDSAFE/>) and others can provide additional assistance with diagnosing and identifying appropriate treatments for pedestrian safety issues.

For more information about pedestrian crashes in North Carolina and events leading up to the crashes, see the companion North Carolina Pedestrian Crash Types summary report.

