Bicycle and Pedestrian Involved Crashes in New Jersey: A Closer Look at Crashes Involving Children and Youth

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RUTGERS–NEW BRUNSWICK
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NEW JERSEY Safe Routes

DEPARTMENT OF TRANSPORTATION
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The New Jersey Safe Routes Program, supported by the New Jersey Department of Transportation, is a statewide initiative with a mission to partner with schools and communities to prioritize and implement opportunities for people to walk, bike, or travel by other wheeled devices. By focusing on improvements to support active travel by youth, we can create safe, healthy, equitable, and appealing conditions for all.

The New Jersey Safe Routes Resource Center assists public officials, transportation and health professionals, and the general public in creating safer and more accessible walking and bicycling environments for children in New Jersey through education, training, and research.

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Cover Photo: Belleville High School, Belleville, NJ (Source: Voorhees Transportation Center)

Executive Summary

Pedestrians and cyclists are at a greater risk of severe injury or death than motorists if involved in a crash. Young pedestrians are a particularly vulnerable group since they often do not have transportation options other than walking. They are also often less aware of their surroundings and of possible dangers than adults are. New Jersey is also one of the most problematic states for pedestrian involved crashes: 4 out of the 10 deadliest intersections in the U.S. are in New Jersey. There were 5,711 bicyclist- and pedestrian-involved crashes on New Jersey roadways between 2016 and 2020, with a total of 5,869 youths (aged 17 or younger) involved. These are defined as crashes that involve one or more motor-vehicle with a driver of any age and at least one pedestrian and/or cyclist that was under the age of 18 years old. In this report, we analyze youth bicycle- and pedestrian-involved crashes using mixed methods: a hotspot analysis, a regression analysis, spatial analysis, and by investigating case studies.

For all bicycle- and pedestrian-involved crashes in New Jersey, the largest hot spot identified was the greater NYC area. Other hot spots emerged at Cape May and Atlantic City, two popular tourist destinations. For youth bicycle- and pedestrian-involved crashes, we found an additional hot spot near Lakewood Township. Forty-five percent (45%) of bicycle/pedestrian crashes involving children occurred within 0.25 miles of a school. Based on reported crashes, fifty children aged 17 or younger lost their lives while walking or cycling during the five-year period. Generally, youth bicyclists and/or pedestrians who were involved in crashes were less likely to suffer fatal injuries than adults, mainly because they are less likely to walk or cycle in dark conditions or on large capacity state roads. Eighty-nine percent of the schools that were hotspots for fatal bicycle- and pedestrian-involved crashes (i.e., had at least 3 fatal bicycle- and pedestrian-involved crashes within a 0.25-mi radius) were located in overburdened communities.

We analyzed four case studies of crashes that involved fatal outcomes for youth bicyclists and/or pedestrians near schools. Two of the crashes involved a car that drove into a sidewalk. A third crash involved a drunk driver, and the last involved a garbage truck. A safe system approach to traffic safety and Complete Streets strategies must be prioritized, especially in school zones. While our case studies had sidewalks, none of the streets had either bicycle lanes or vertical traffic calming measures. Protected bike lanes provide protection for cyclists and pedestrians walking, while traffic calming measures (such as speed bumps) force motor-vehicles to slow down. Lastly, we analyzed the relationship between crashes, schools, and the road system. There were twice as many bicycle- and pedestrian-involved crashes near schools on local roads than those on other roads but, crashes near schools on NJ Highways were three times more likely to be fatal.

I. Introduction

Pedestrians and cyclists are at a greater risk of severe injury or death than motorists if involved in a crash. New Jersey is also one of the most problematic states for pedestrian involved crashes: 4 out of the 10 deadliest intersections in the U.S. are in New Jersey (The Deadliest Intersections in the United States, 2022). The state is home to around 8.9 million residents and borders New York, Pennsylvania, and Delaware. It is a highly urbanized state with New York and Philadelphia as large commuting hubs. Around 5 million residents live in northern New Jersey, a part of the New York City metropolitan area. One million residents live in the Philadelphia metropolitan area while another one million live along the coast (within 15 miles) (Chapman et al., 2021).

Having high quality crash data is paramount in understanding the factors that ultimately decrease crash fatalities. This includes demographic information from all parties, physical conditions, temporal and weather conditions, infrastructure conditions, and spatial information. In order to identify and improve problematic intersections and identify vulnerable users, complete and timely information is crucial. We use two sources of crash data: NJ Department of Transportation (DOT) Safety Voyager and Numetric. The datasets are combined in order to obtain geocoded information from Safety Voyager, and age information from Numetric. This study supplements previous published work using similar methodology (Younes et al., 2023), with a focus on youth pedestrians.

Between 2016 and 2020, over 31,000 bicycle- and pedestrian-involved crashes were reported in New Jersey. Out of those, about 3% were fatal (4% of pedestrian involved crashes and 0.8% of cyclist involved crashes). Out of all the reported crashes for which the victims' ages were available, around 20% of them involved a bicyclist and/or pedestrian who was under the age of 18.

Belleville, NJ

II. Crashes involving youth bicyclists and/or pedestrians in New Jersey

Between 2016 and 2020, 18% of New Jersey bicycle/pedestrian crashes involved a child under the age of 18.

There were 5,711 youth bicycle- and pedestrian-involved crashes on New Jersey roadways between 2016 and 2020, with a total of 5,869 youths (aged 17 and younger) involved. These are defined as crashes that involve one or more motor-vehicle with a driver of any age and at least one pedestrian and/or cyclist that was under the age of 18 years old. Throughout this report, they will be referred to as "youth bicycle- and pedestrian-involved crashes". This represents 18.1% of all bicycle- and pedestrian-involved crashes reported in the state during that time period. 5,153 of the crash records corresponding to these collisions are geocoded (90%). The percentage of fatal youth bicycle- and pedestrian-involved crashes appears to have decreased since 2016 (**Table 1**).

Table 1: Youth bicycle- and pedestrian-involved crashes in New Jersey by year

	Youth-Involved Crashes	Youth-Involved Fatal Crashes	Percent
2016	1,058	14	1.3%
2017	1,195	9	0.8%
2018	1,195	8	0.7%
2019	1,374	12	0.9%
2020	889	5	0.6%

New Brunswick, NJ

Where applicable, we used non-geocoded records for descriptive statistics. For all spatial analysis, only geocoded records were used. There were 48 youth bicycle- and pedestrian-involved fatal crashes, 47 of which were geocoded (98%), resulting in 50 youth bicycle- and pedestrian-involved fatalities. Eleven of these involved the death of a youth cyclist. **Table 2** focuses only on the subset of youth bicycle- and pedestrian-involved crashes. We observed that bicycle- and pedestrian-involved crashes were far less likely to be fatal when they involved young people. Youth bicycle- and pedestrian-involved crashes were also more likely to occur on municipal roads than were bicycle- and pedestrian-involved crashes as a whole.

50 children lost their lives being struck by a motor-vehicle while walking or biking in New Jersey between 2016 and 2020.

Table 2: Youth bicycle- and pedestrian-involved crashes in New Jersey by roadway jurisdiction (2016-2020)

Road System	All Youth Bicycle and Pedestrian Involved Crashes (N = 5,711)	Percentage of Crashes	Fatal Bicycle- and Pedestrian Involved Crashes by road system type (Percentage)	Percent of geocoded crashes by road system type
Municipal	3,465	60.7%	17 (0.5%)	87.5%
County	1,706	29.9%	11 (0.6%)	95.0%
State Highway	447	7.8%	15 (3.4%)	98.0%
Interstate	1	0.0%	0 (0%)	100%
Other	92	1.6%	5	67.4%

Newark, NJ

Over one in four cyclist-involved crash (26%) involved a youth bicyclist and/or pedestrian compared to 15% of pedestrian-involved crashes. Eighty-seven crashes involved both a cyclist and a pedestrian, but not necessarily both were under the age of 18 (**Table 3**).

Table 3: Type of crash for all bicycle- and pedestrian-involved crashes that reported age in New Jersey (2016-2020)

Type of Crash	Bicycle- and Pedestrian-involved Crashes Not Involving Youth (N = 25,887)	Youth Bicycle- and Pedestrian-involved Crashes (N = 5,711)	Percentage of Total Crashes
Pedestrian-Involved	19,123	3,340	14.9%
Cyclist-Involved	6,955	2,458	26.1%
Pedestrian- and/or Cyclist-Involved	25,887	5,711	18.1%

III. Areas that are hot spots for bicycle- and/or pedestrian-involved crashes (2016-2020)

We identified hot spots at the Census Block Group (CBG) level for all bicycle- and pedestrian-involved crashes in New Jersey, and then for all crashes involving youth bicyclists and/or pedestrians, bicyclist- and pedestrian-involved crashes on state highways, and fatal bicycle- and pedestrian-involved crashes. The number of bicycle- and pedestrian-involved crashes in a CBG was only slightly correlated with residential population (0.10) and moderately correlated with employment population (0.24). There was no correlation between a CBG area and bicycle- and pedestrian-involved crashes (-0.06), making the scale suitable for analysis. We performed the hot spot analysis for both bicycle- and pedestrian-involved crashes in a CBG and bicycle- and pedestrian-involved crashes per capita in a CBG. The analysis results of bicycle- and pedestrian-involved crashes in a CBG are shown in **Figure 1**. The results of the hot spot analysis for crashes per capita are not very different given the low correlation between crashes and residential population in a CBG.

For all bicycle- and pedestrian-involved crashes in New Jersey, the largest hot spot identified was the greater NYC area. Other hot spots emerged at Cape May and Atlantic City, two popular tourist destinations. For youth bicycle- and pedestrian-involved crashes, we found an additional hot spot near Lakewood Township. The largest hot spot for bicycle- and pedestrian-involved crashes on state highways was also near Lakewood Township. The area encompassing Elizabeth and Edison was identified as another hot spot for state highway bicycle- and pedestrian-involved crashes. Others were found in southern New Jersey, near Mays Landing, Atlantic City and Millville. Fatal bicycle- and pedestrian-involved crashes occurring between 2016 and 2020 were heavily concentrated in southern New Jersey, particularly near Trenton and Camden, which did not appear as hot spots for other bicycle- and pedestrian-involved crash types.

Hotspots for youth bicycle- and/or pedestrian-involved crashes are in the New York City metro area, Lakewood area, and Atlantic City area.

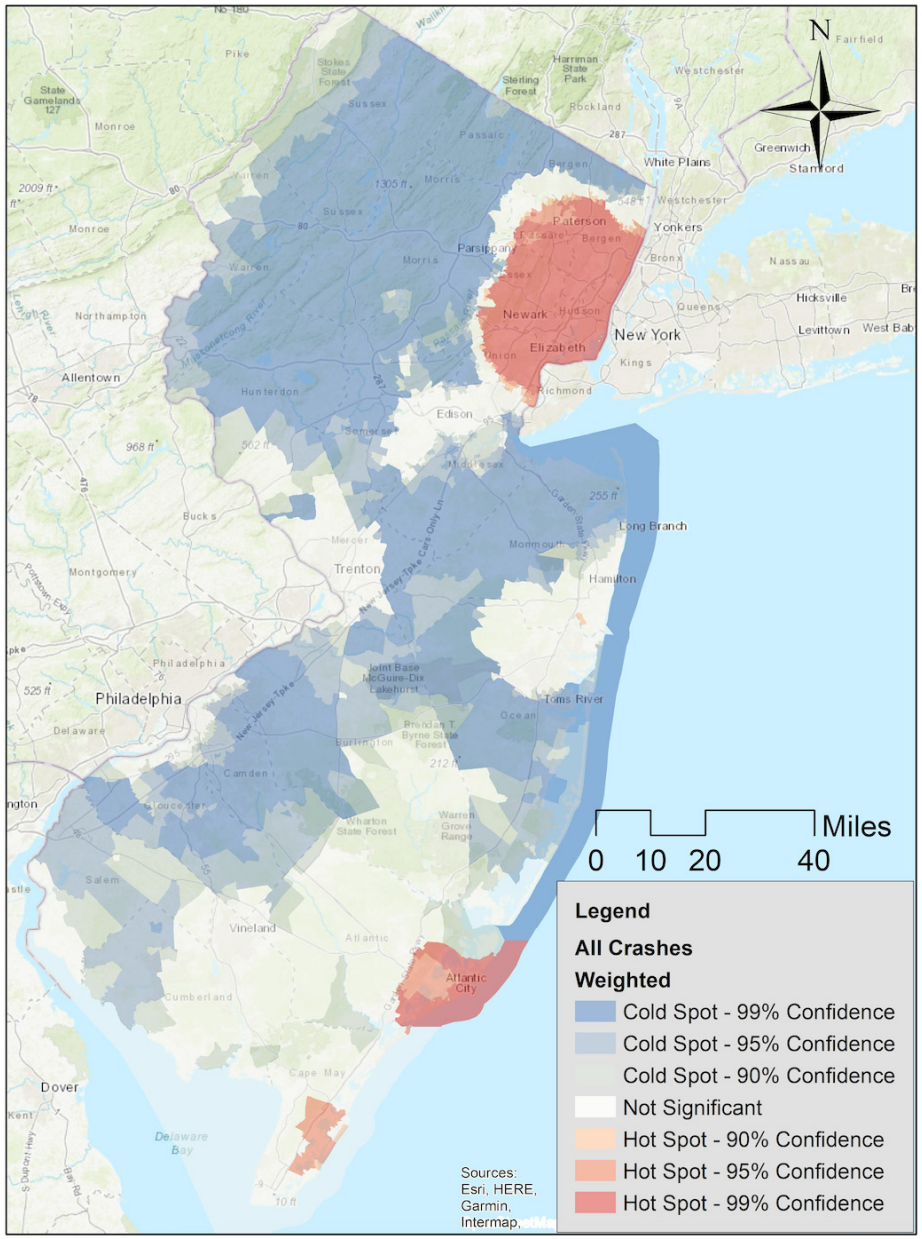


Figure 1: All Bicycle- and Pedestrian-Involved Crashes (Weighted)

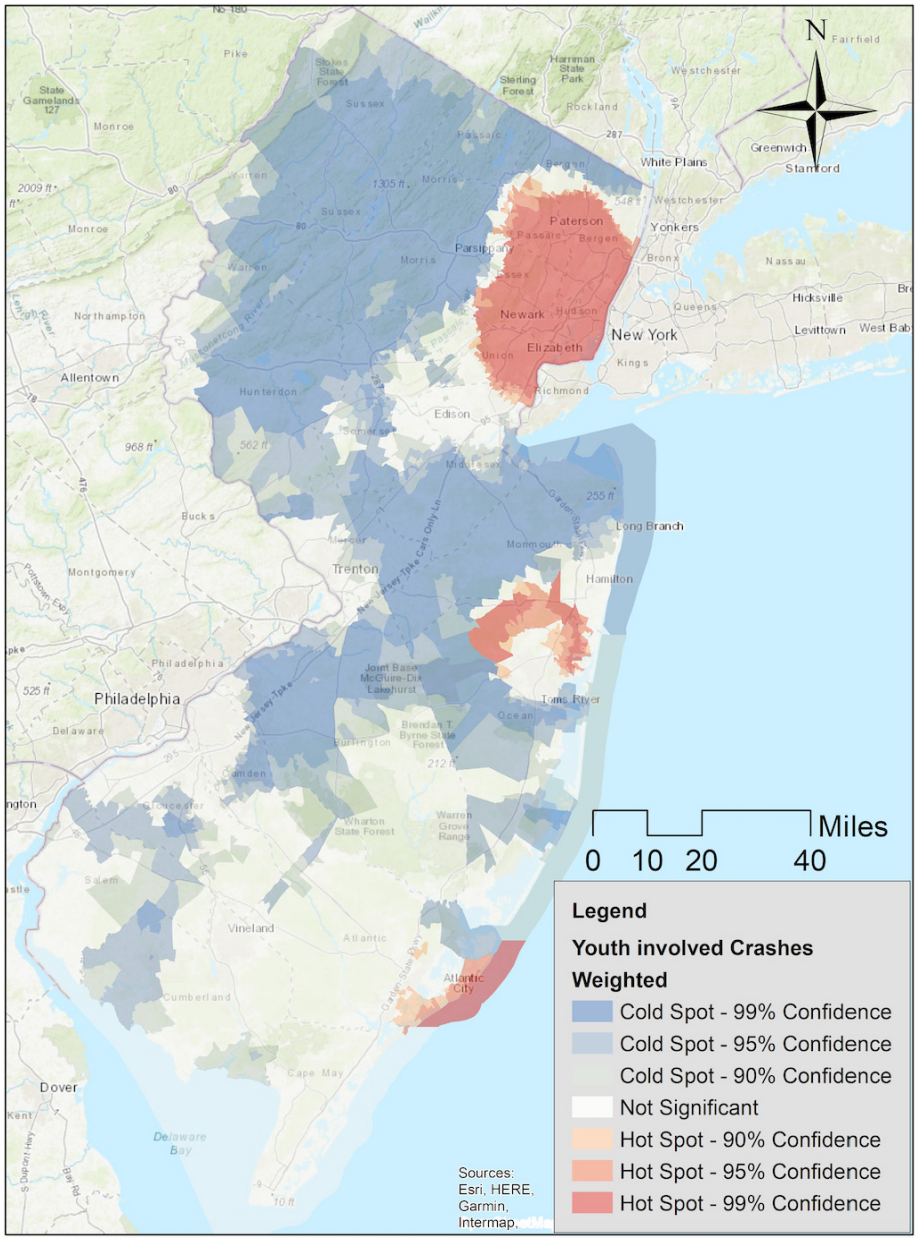


Figure 2: Youth Bicycle- and Pedestrian-Involved Crashes (Weighted)

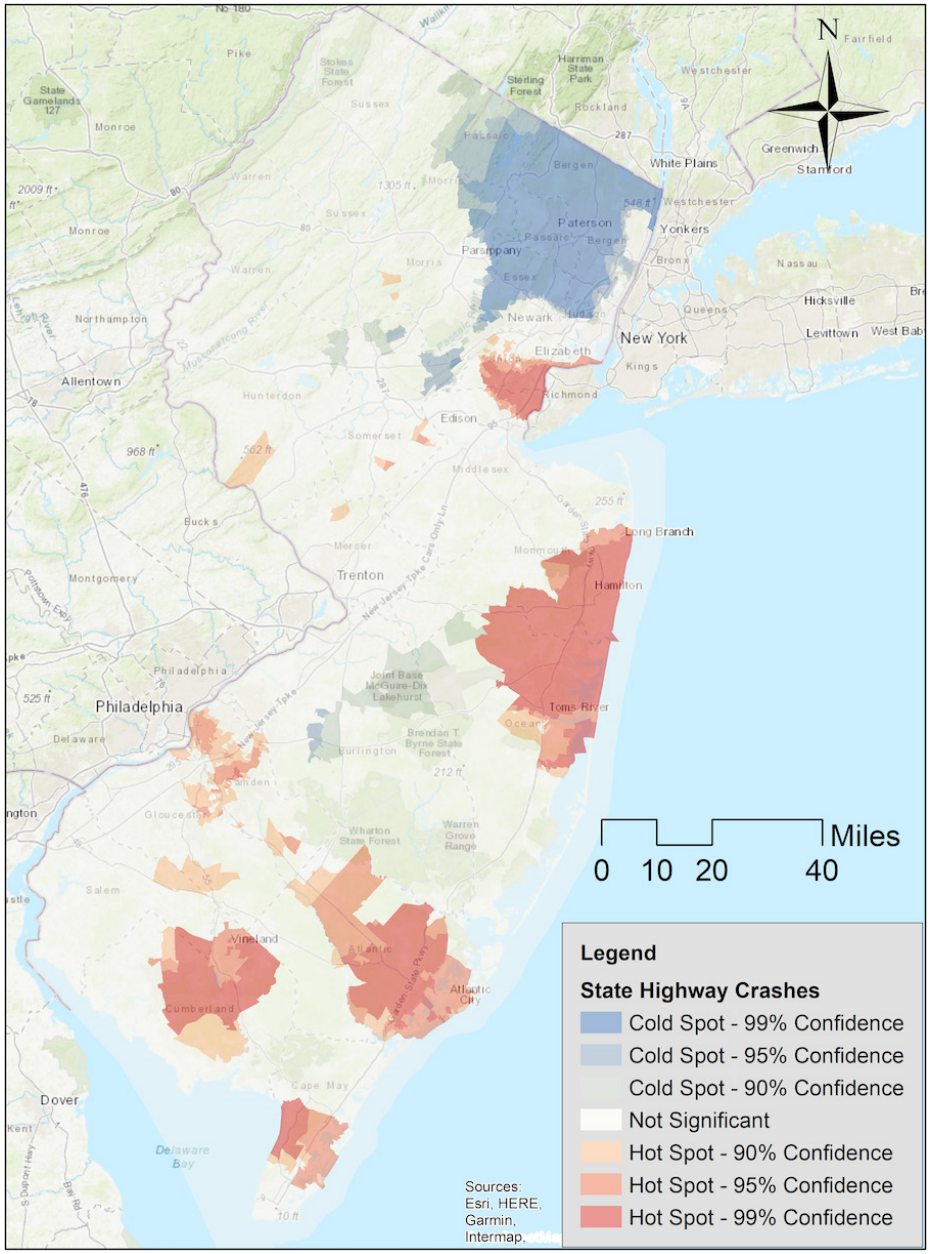


Figure 3: State Highway Bicycle- and Pedestrian-Involved Crashes

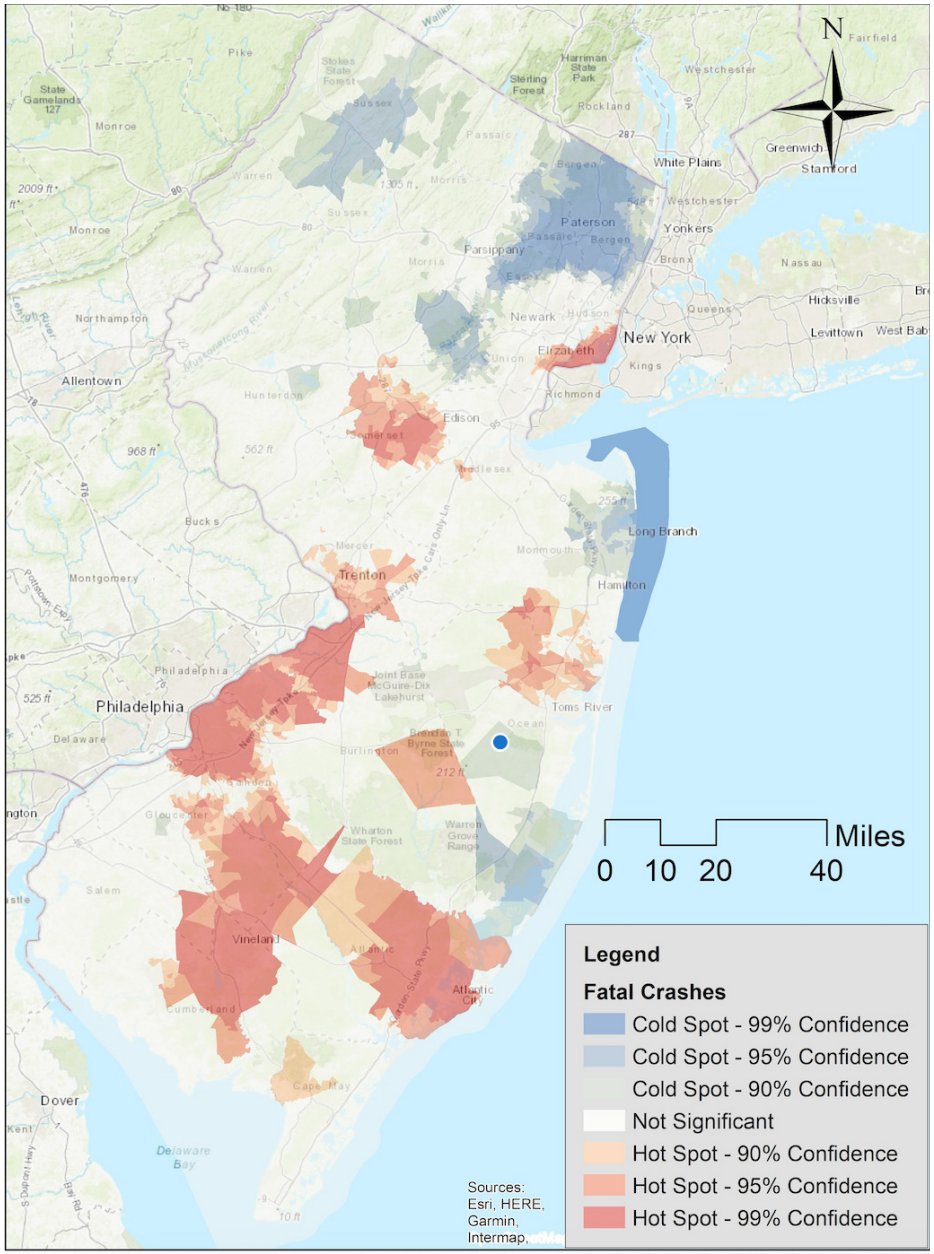


Figure 4: Fatal Bicycle- and Pedestrian-Involved Crashes

IV. Youth and Schools

4.1 Bicycle- and pedestrian-involved crashes near schools

We focus this section on youth (aged 17 or under) bicycle- and pedestrian-involved crashes and bicycle- and pedestrian-involved crashes near schools in New Jersey (2016-2020). Reported bicycle- and pedestrian-involved crashes within 0.25 miles of schools were more likely to involve children than bicycle- and pedestrian-involved crashes outside of that buffer. Children are a particularly vulnerable group since they often do not have transportation options other than walking or bicycling. They are also often less aware of their surroundings and of possible dangers than adults are.

45% of reported bicycle / pedestrian crashes involving children occurred within 0.25 miles of a school.

There were 28,643 bicycle- and pedestrian-involved crash records for which both age and spatial coordinates were available (**Table 4**). About one-fifth (18.1%) of those records involved a youth pedestrian or cyclist (17 years or younger). Forty-five percent (45%) of reported youth bicycle- and pedestrian-involved crashes occurred within 0.25 miles of a school, compared to 38% for those that did not involve a youth bicyclist and/or pedestrian. Crashes that involved youth bicyclists and/or pedestrians were less likely to end in fatality when compared to overall bicycle- and pedestrian-involved crashes (0.8% compared to 3.1%). Crashes involving youth pedestrians tended to involve fewer fatalities than bicycle- and pedestrian-involved crashes on average because fewer of them occurred on high-speed roads (> 40 mph), in dark conditions, or on a state highway (all factors that increase the likelihood that a crash is fatal).

Table 4: Number of geocoded bicycle- and pedestrian-involved crashes per year

Year	Youth-Involved (Geocoded)	Total (Geocoded)	Percent Youth Involved
2016	915	5,864	15.6%
2017	1,035	5,827	17.8%
2018	1,066	5,691	18.7%
2019	1,291	6,543	19.7%
2020	846	4,718	17.9%

4.2. School time

We filtered reported bicycle- and pedestrian-involved crashes that occurred during school arrival and dismissal times (6-10 am and 2-6 pm). We found that 11,975 total bicycle- and pedestrian-involved crashes (37%) occurred during those times. 2,929 youth bicycle- and pedestrian-involved crashes occurred during school arrival and departure, or 51% of all youth bicycle- and pedestrian-involved crashes. Two hundred and twelve (212) fatal bicycle- and pedestrian-involved crashes occurred during school arrival and dismissal times, which encompasses 22% of all fatal bicycle- and pedestrian-involved crashes; while 13 youth bicycle- and pedestrian-involved fatal crashes occurred during those times, which is 28% of all youth bicycle- and pedestrian-involved fatal crashes (**Table 5**).

Table 5: Bicycle- and pedestrian-involved crashes during school arrival and dismissal times

Crash Type	% During School Arrival and Dismissal Hours
Bicycle- and Pedestrian-Involved, Youth Involved	51%
Bicycle- and Pedestrian-Involved	37%
Fatal Bicycle- and Pedestrian-Involved, Youth Involved	28%
Fatal Bicycle- and Pedestrian-Involved	22%

4.3 Youth Bicycle- and/or Pedestrian-Involved Fatal Crashes

4.3.1. Factors influencing youth bicycle- and pedestrian-involved fatal crashes

In a binomial regression where the dependent variable is whether the crash included a youth fatality (versus youth-involved crash without fatality), we controlled for numerous roadway, neighborhood and crash characteristics, time of day, and proximity to school.

We found that youth bicycle- and pedestrian-involved crashes were more likely to be fatal in the following conditions:

The crash occurred on a state highway as opposed to a municipal or county road (1.5 times)

The crash occurred in dark conditions as opposed to daylight (1.8 times without streetlights)

The crash involved a bus or truck as opposed to a car (2.3-2.9 times)

The posted speed limit was greater than 40 mph (1.1 times)

Neighborhood income, proximity to a school, weekend, and environmental conditions were insignificant after controlling for these factors. These factors are in line with factors that involve bicyclists and/or pedestrians crashes irrespective of age (Younes et al., 2023).

4.3.2. Case studies and descriptions of youth-involved, bicycle- and pedestrian-involved fatal crashes

There were 47 geocoded youth bicycle- and pedestrian-involved crashes reported in New Jersey between 2016 and 2020. Twelve involved a cyclist death and 36 involved the death of a pedestrian (two of which involved the deaths of two pedestrians and one of which involved the death of a pedestrian and a cyclist). There was no one intersection where more than one youth bicycle- and pedestrian-involved fatal crash occurred, although the characteristics of the streets may have similarities. Out of the four youth bicycle- and pedestrian-involved crashes that were within 0.1 mile of a school, two of them involved a motorist driving onto a sidewalk and killing a cyclist (in Camden) and pedestrians (in Union City).

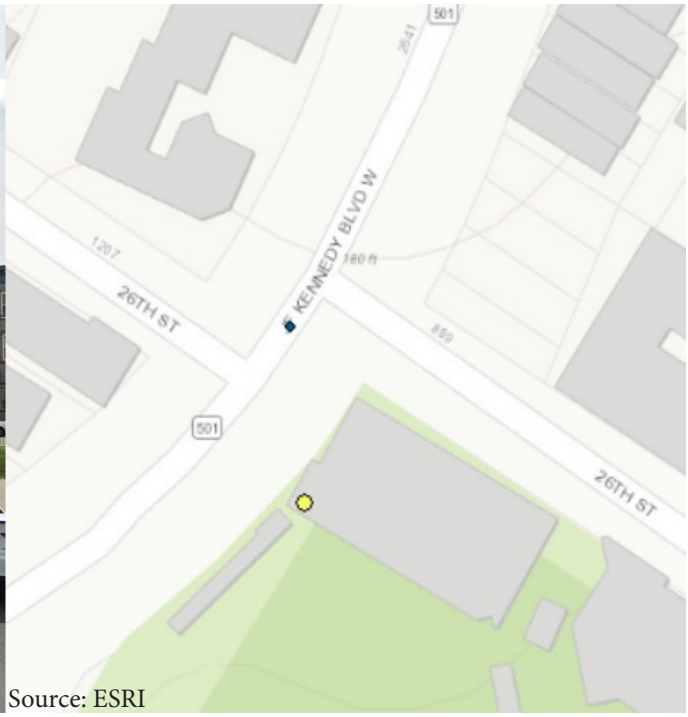
Table 6: Fatal Youth Pedestrian/Cyclist Crashes within 0.1 mile of a School

Crash Date	Day of Week	Victim Type	Light Conditions, Environment	Age(s) of Bicyclists and/or Pedestrians Involved	Location/School	Roadway Type
3/5/2016	Saturday	Pedestrian (2 fatal)	Dark (street lights on) Clear/dry	15, 16, 17	JFK Blvd/26th Street near Union City High School (Union City)	County
10/4/2017	Wednesday	Cyclist	Dark (street lights on) Clear/dry	16	31st Street and Palisade Avenue near Smiling Faces Educational Center (Union City)	Municipal
2/15/2018	Thursday	Cyclist	Daylight Clear/dry	8	State Street/ North 5th Street, Holy Name School (Camden)	Municipal
7/19/2018	Thursday	Pedestrian (skateboard)	Dark (street lights on) Clear/dry	13	Nottingham Way/Gregory Drive near Sayen Elementary School (Hamilton)	County

JFK Boulevard and 26th Street in Union City

The crash near Union City High School was fatal for two children between ages 16 and 17. It occurred near a crosswalk with a street light. According to a news report, the crash was caused by a motorist speeding (70 mph in a 25-mph zone) and swerving onto the sidewalk to avoid cars stopped at a red light.

Source: Google Maps



Source: ESRI

Figure 5: JFK Boulevard and 26th Street (Union City)

31st Street and Palisade Avenue in Union City

The crash near several elementary schools was fatal for a 16-year-old riding his bicycle. It was reported that the bicycle collided with a Union City garbage truck.

Source: Google Maps

Source: ESRI

Figure 6: 31st Street and Palisade Avenue (Union City)

State Street near North 5th Street in Camden

The crash in Camden was fatal for an 8-year-old cyclist. The child was riding on a sidewalk when she was struck by a car. An older driver was involved.


Source: Google Maps

Source: ESRI

Figure 7: State Street near North 5th Street (Camden)

Nottingham Way in Hamilton Township, Mercer County

The crash near Sayen Elementary in Hamilton was fatal for a 13-year-old. It occurred about 360 feet from the nearest crosswalk in dark conditions, with streetlights on, and clear and dry weather. The posted speed limit is 35 mph (25 mph when school is in session – which it was not). The crash was caused by a motorist who was operating a sport utility vehicle while under the influence of alcohol. According to official reports, the driver crossed the double yellow line and struck the 13-year-old riding on a skateboard.


Source: Google Maps

Source: ESRI

Figure 8: Nottingham Way (Hamilton Township)

4.4. New Jersey schools with the most bicycle- and pedestrian-involved crashes occurring within a 0.25-mile buffer (2016-2020)

Schools in Paterson, Newark, and Passaic had the most bicycle and pedestrian crashes involving a young person.

89% of the schools with the most bicycle / pedestrian fatal crashes were in overburdened communities.

We analyzed bicycle- and pedestrian-involved crashes near schools regardless of whether they involved a youth bicyclist or cyclist. About 42.2% of reported bicycle- and pedestrian-involved crashes were within 0.25 miles of a school; 76.8% of bicycle- and pedestrian-involved crashes were within 0.5 miles of a school; and 93.4% were within one mile of a school.

We found that schools in Paterson, Newark, and Passaic had the most reported bicycle- and pedestrian-involved crashes within a 0.25-mile buffer. Eighteen schools had at least three fatal bicycle- and pedestrian-involved crashes within a 0.25-mile buffer between 2016 and 2020. The schools with the most bicycle- and pedestrian-involved fatal crashes were in Newark, Elizabeth, Fort Lee, and North Bergen. **Table 7** shows the schools with at least four fatal bicycle- and pedestrian-involved crashes within a 0.25-mile radius (seven schools). For Saint Michael School in Newark, the six fatal bicycle- and pedestrian-involved crashes were spread out along McCarter Highway (3), Broadway (2), and Bloomfield Avenue (1). Perpetual Help Day School is nearby, and the 0.25-mile radius around it contains the same five fatal bicycle and/or pedestrian-involved crashes, save for the one on Bloomfield Avenue, which is slightly beyond the radius.

Around 18% of New Jersey schools fall in an overburdened community zone. Remarkably, 16 out of the 18 schools with the most fatal bicycle- and pedestrian-involved crashes (89%) are in locations identified as overburdened communities (the schools in Fort Lee and Linden are the exceptions), reinforcing the need for priority action to address equity issues.

Ramsey, NJ

Table 7: New Jersey schools with the most fatal bicycle- and pedestrian-involved crashes within a 0.25-mile radius (2016-2020)

School Name	City	County	Type	# of Geocoded Crashes (# weighed in parenthesis)	# Geocoded as Fatal	Percent Fatal	In an Over-Burdened Community
Saint Michael School	Newark	Essex	Private	54 (62)	6	11.1%	Yes
Perpetual Help Day Nursery	Newark	Essex	Private	44 (51)	5	11.4%	Yes
Fort Lee High School	Fort Lee	Bergen	Public	41 (44)	4	9.8%	No
Elizabeth High School – Frank J Cicarell Academy	Elizabeth	Union	Public	50 (66)	4	8%	Yes
Technology High School	Newark	Essex	Public	50 (58)	4	8%	Yes
JFK Elementary	North Bergen	Hudson	Public	56 (59)	4	7.1%	Yes
Thomas Jefferson Arts Academy	Elizabeth	Union	Public	54 (71)	4	7.4%	Yes

Eleven additional schools were identified as having three fatal bicycle- and pedestrian-involved crashes between 2016 and 2020 in the cities of Newark, Elizabeth, Jersey City, Irvington, New Brunswick, Linden, Pleasantville, and Paterson. Two schools stood out for having 15% or more of crashes resulting in fatalities: Chancellor Avenue Elementary School in Newark and Decatur Avenue Early Childhood Center in Pleasantville. A small number of crashes took place within a 0.25-mile radius (19 and 16, respectively), but in both locations, three of those were fatal. In Newark, the three fatal bicycle- and pedestrian-involved crashes were located at Schley Street, Wainwright Street, and Chancellor Avenue. In Pleasantville, the fatal bicycle- and pedestrian-involved crashes were located on or near Route 322 (Black Horse Pike).

4.4.1. The relationship between state roads and bicycle- and pedestrian-involved crashes

In this section, we address the following questions: Are there more bicycle- and pedestrian-involved crashes, and more fatal bicycle- and pedestrian-involved crashes, near schools on US and NJ highways than near schools on other roads? We analyze all bicycle- and pedestrian-involved crashes, regardless of whether they involved a child.

We analyzed whether the type of road that the school is located on (US Highway, State Highway, County Road, or Municipal Road) affects the number of bicycle- and pedestrian-involved crashes (**Table 8)**. Private schools are more likely to be located on US Highways and NJ Highways (7.5%) than other school types (3.7%). We found an interesting pattern: there were, on average, twice as many bicycle- and pedestrian-involved crashes near schools on local roads than those on other roads but, crashes near schools on NJ Highways were three times more likely to be fatal on average (**Table 9**). One possible explanation is that there are more pedestrians walking on local roads than along state highways.

Table 8: School type and road type in New Jersey (2020 school data)

	US Highways	**NJ Highways**	**500 Series County Routes**	**Other Country Routes**	**Local Roads**	**Total**
Public	21 (0.9%)	66 (2.7%)	179 (7.3%)	476 (19.4%)	1,712 (69.8%)	2,454
Private	2 (1.5%)	7 (5.1%)	8 (5.8%)	15 (10.9%)	105 (76.6%)	137
Charter	33 (3.1%)	47 (4.4%)	119 (11.2%)	225 (21.1%)	643 (60.3%)	1,067
All	56 (1.5%)	120 (3.3%)	306 (8.4%)	716 (19.6%)	2,460 (67.2%)	3,658 (100%)

Table 9: Bicycle- and pedestrian-involved crashes near New Jersey schools depending on road type

	Number of Schools	**Average # of Bicycle- and Pedestrian-Involved Crashes**	**Average % Fatal**
US Highways	56	5.0	6.4%
NJ Highways	120	5.8	**9.6%**
500 Series County Routes	306	5.7	7.4%
Other County Routes	716	5.1	3.6%
Local Roads	2,460	**10.6**	3.1%

The alternative to using the NJ Roadway Network to analyze the nearest road type to each school would be Tiger Lines from the U.S. Census. However, we did not find that dataset more useful for our purposes. Even though it included more geocoded roads, many of them had a blank road type. In Middlesex County, 21% of the road segments had an unspecified road type. For that reason, the NJ Roadway Network was our chosen data source.

V. Conclusions

There were over 31,000 bicycle- and/or pedestrian-involved crashes reported in New Jersey between 2016 and 2020. Of those, 5,711 involved a youth bicyclist and/or pedestrian. Based on reported crashes, fifty children aged 17 or younger lost their lives while walking or cycling during the five-year period. Generally, youth bicyclist and/or pedestrian who were involved in crashes were less likely to suffer fatal injuries than adults, probably because they are less likely to walk or cycle in dark conditions or on large capacity state roads. Eighty-nine percent of the schools that were hotspots for fatal bicycle- and pedestrian-involved crashes (i.e., had at least 3 fatal bicycle- and pedestrian-involved crashes within a 0.25-mi radius) were located in overburdened communities.

We analyzed four case studies of crashes that involved fatal outcomes for youth bicyclists and/or pedestrians near schools. Two of the crashes involved a car that drove into a sidewalk. A third crash involved a drunk driver, and the last involved a garbage truck. A safe system approach to traffic safety and Complete Streets strategies must be prioritized, especially in school zones. While our case study locations had sidewalks, none of the streets had either bicycle lanes or vertical traffic calming measures. Protected bike lanes provide protection for cyclists and pedestrians walking, while traffic calming measures (such as speed bumps) force motorists to slow down. Lastly, we analyzed the relationship between crashes, schools, and the roadway jurisdiction. There were twice as many bicycle- and pedestrian-involved crashes near schools on local roads than those on other roadway types but, crashes near schools on NJ Highways were three times more likely to be fatal.

50 children lost their lives while walking or cycling in New Jersey between 2016 and 2020.

0 of the eleven fatal youth bike crashes had bike lanes available.

Crashes near schools on state roads were **3** times more likely to be fatal than crashes near schools on local roads.

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