

SAFE STREETS MONMOUTH

Safety Action Plan Appendices



U.S. Department of Transportation
Federal Highway
Administration

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Monmouth County Safe Streets for All Safety Action Plan

**CRASH ANALYSIS
MEMORANDUM**

SAFE STREETS
M O N M O U T H



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Introduction

Safety analysis is the core of all safety action plans and understanding the crash patterns, trends and roadway characteristics are key to the development of a successful action plan. It is also one of the seven components of a successful Action Plan according to USDOT's Safe Streets and Roads For All (SS4A) program.¹

This safety analysis technical memorandum aims to provide an overview of existing conditions and historical trends to provide a baseline level of crashes involving fatalities, serious and minor injuries (KAB) crashes within the County. It includes an analysis of the crash locations by severity as well as contributing crash factors and types by all roadway users such as pedestrians, bicyclists, drivers.

The crash analysis uses 5 years of crash data from January 1, 2017 to December 31, 2021 obtained from the New Jersey Department of Highway and Traffic Safety's (NJDOT) Numetric tool. At the time of this analysis, 2022 and 2023 datasets were not available on Numetric and therefore not included in this analysis.

This analysis will support the County in advancing its Comprehensive Safety Action Plan and achieving its safety goal of zero deaths and serious injuries. The crash data will be utilized to develop a high-injury network which is a geospatial identification of higher-risk crash locations in the County's roadway network.

KAB Crashes

This plan is intended to address fatal, serious injury and minor injury crashes (KAB) and identify safety countermeasures for Monmouth County to consider for implementation. The KAB crash acronym is taken from the KABCO scale defined by the Model Minimum Uniform Crash Criteria, also known as MMUCC. The KABCO scale is a functional measure of the injury severity of any person involved in a crash.

- (K)Fatal Injury,
- (A)Suspected Serious Injury,
- (B)Suspected Minor Injury,
- (C)Possible Injury,
- (O)No Apparent Injury.

Several safety action plans focus only on KSI or FSI crashes for crashes where a person was killed (K or F) or severely injured (SI or A). However, as noted earlier, the Monmouth County SAP will focus on KAB crashes for the initial analysis. This is particularly relevant with regards to vulnerable road users (pedestrians and bicyclists) where the difference between a minor injury crash and a more severe or fatal crash can be a minimal change in the roadway environment such as slightly higher speed or different angle of impact.

Key Findings

This section summarizes some of the key findings of the crash analysis in Monmouth County. These findings are based on absolute crash numbers and do not factor in exposure or activity data. For example, areas where there is more pedestrian activity may experience more crashes and vice versa for areas with low pedestrian activity. However, this analysis does provide insight on the key crash trends, factors, locations, and several other statistics that will be beneficial in identifying recommendations to improve safety in the County.

Overall Trends

- Between 2017 and 2021, there were a total of 83,363 crashes in the County. Of those, 5,404 or 6.5% were KAB crashes averaging to over 1,000 KAB crashes every year on all roads in the County.
- Overall, there has been a downward trend in all crashes and fatal crashes in the County from 2017-2021. However, KAB crashes have been trending upwards from 2017 (829 crashes) to 2021 (1,459 crashes).
- The most common crash types across the county were Right Angle crashes (1,153, 21.3%), Rear End crashes (1,107, 20.5%), and Fixed Object crashes (1,077, 19.9%).
- There were 352 or 6.5% pedestrian KAB crashes and 317 or 5.9% bicyclist KAB crashes reported in the County.
- Municipalities vary significantly by size and population. The municipalities with the most crashes per 1,000 people were Deal Borough (31, 34.4 per 1,000 people), Allenhurst Borough (15, 31.8 per 1,000 people), and Upper Freehold Township (162, 22.3 per 1,000 people). The municipalities with the most crashes per square mile were Asbury Park (146, 102.8 crashes per square mile), Neptune City (79, 83.2 crashes per square mile), and Red Bank (135, 77.6 crashes per square mile).

County Roads: Crash Trends

- More than 22% or 18,460 crashes occurred on County roads. Of those, 1,415 were KAB crashes (6.7% of all County Road crashes, 26.2% of all KAB crashes) averaging 283 KAB crashes every year on County roads.
- County roads were the second-highest in KAB crashes by road system (behind state roads) and bicyclist crashes (behind municipal roads), and third-highest in pedestrian crashes (behind state and municipal roads).
- County roads exhibit a higher overall and KSI crash rate per mile when compared to the total roadway network in the County.
- County roads exhibit a lower KAB bicyclist and pedestrian crash rate per mile when compared to the total roadway network in the County.
- Like on all roads, the top three most common crash types on county roads were Right Angle (25.6%), Rear End (18.1%), and Fixed Object (9.0%).
- The most common crash contributing factor for motorists on county roads was Driver Inattention (23.0%).
- The most common roads for KAB crashes on the county road system were County Route 537 (161), County Route 3 (84), County Route 524 (84), County Route 520 (81), and County Route 516 (80).

Vulnerable Road Users

- Pedestrians stand out with a disproportionately high fatality rate compared to other travel modes (14.9%).
- Among non-motorist crashes, a significant number involve children under the age of 16.
- Overall, most fatal and injurious crashes are located on NJDOT-maintained roadways (1,827 of 5,404, 34%). These are typically high-volume and high-speed roadways.
- Pedestrian crashes are concentrated on NJ 35 and US 9.
- The top five corridors of NJ 35, US 9, NJ 36, NJ 71, and NJ 33 account for more than one-third of all pedestrian crashes.
- Bicyclist crashes follow a similar pattern, with over one-third occurring along just four key roadways: NJ 35, NJ 71, NJ 36, and Monmouth County Route 18 III.
- Bicyclist and Pedestrian crashes were both highest overall in Middletown Township, Neptune Township, and Freehold Township.

Seasonal Crash Trends

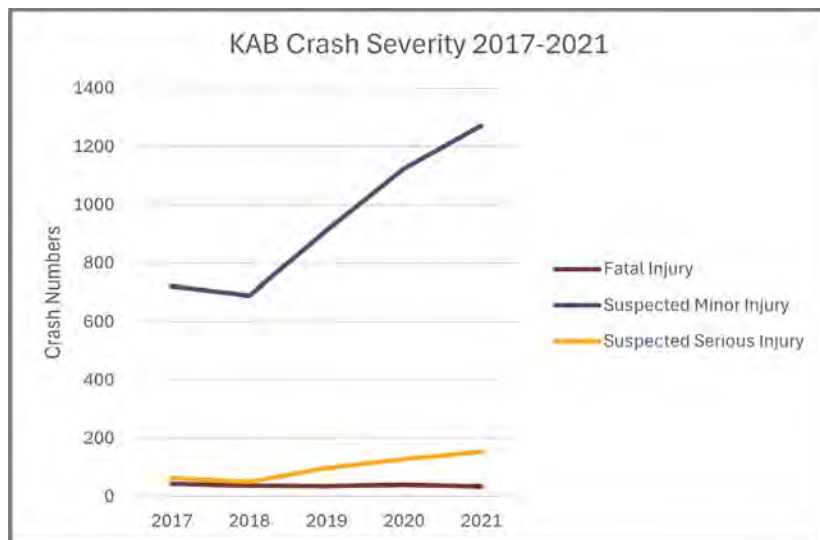
- A third of all KAB crashes in the County occurred in the summer months likely a factor of exposure due to more activity in those months (June-August).
- Pedestrian KAB crashes were higher in the fall/autumn months (September-November).
- Bicyclist KAB crashes were higher in the summer months potentially also a factor of exposure due to more activity during those months.
- Middletown township, Neptune township and Wall township had the highest number of KAB crashes in the summer.
- The majority of the crashes in the summer were right angle crashes followed by same direction-rear end and fixed object crashes.

Overall Crash Trends

Between 2017-2021, Monmouth County recorded a total of 83,363 crashes of which 5,404 were KAB crashes. On average, this amounts to almost 1,100 people either killed, seriously injured or had minor injuries every year or almost 3 people every day.

Of these KAB crashes, 193 or 4% were fatal crashes, 493 or 9% were serious injury crashes, and 4,718 or 87% were minor injury crashes. Fatal crashes trended downwards between 2017-2021, however, minor injury crashes increased significantly (57%) from 722 in 2017 to 1,271 in 2021. Serious injuries also saw a sharp increase (41%), from 63 in 2017 to 153 in 2021.¹

Figure 1: KAB Crash Trends



¹ Beginning in 2019, New Jersey updated the police crash report to be consistent with the federally required injury classifications (Killed, Suspected Serious Injury, Suspected Minor Injury, Possible Injury, and No Apparent Injury). As a result of this change, injuries not previously attributed to the serious injury classification are now included in this number. For example, a crash victim with a broken arm that would have previously been classified as a Moderate Injury is now classified as a Suspected Serious Injury. As a result, New Jersey saw an increase in reported serious injuries due to the changes in reporting as well.

When compared to the other 20 counties in New Jersey and statewide, Monmouth County appears to have lower overall crash and severity rates.

By vehicle miles traveled (VMT) per day, the crash rate in the County is 2.7 crashes per one million VMT compared to the state crash rate of 3.5 crashes per one million VMT. Hudson County has the highest crash rate per one million VMT (8.4) and Hunterdon and Salem County have the lowest crash rate per one million VMT (2.0). The trend is the same for KAB crashes.

Similarly, the crash rate per roadway mile in the County (4.7) is significantly lower than the crash rate per roadway mile for New Jersey (6.5).

KAB Crash Types

Every crash in the database is assigned a crash type that indicates which users or vehicles were involved and also the collision type. The most common crash types in Monmouth County were right angle (1,153 crashes, 21%), rear end (1,107, 20%), and fixed object (1077, 20%) crashes (see Table 1). These crash types, combined with pedestrian (6.5%) and bicyclist crashes (6%) account for almost 75% of KAB crashes in the County.

Table 1: KAB Crash Types

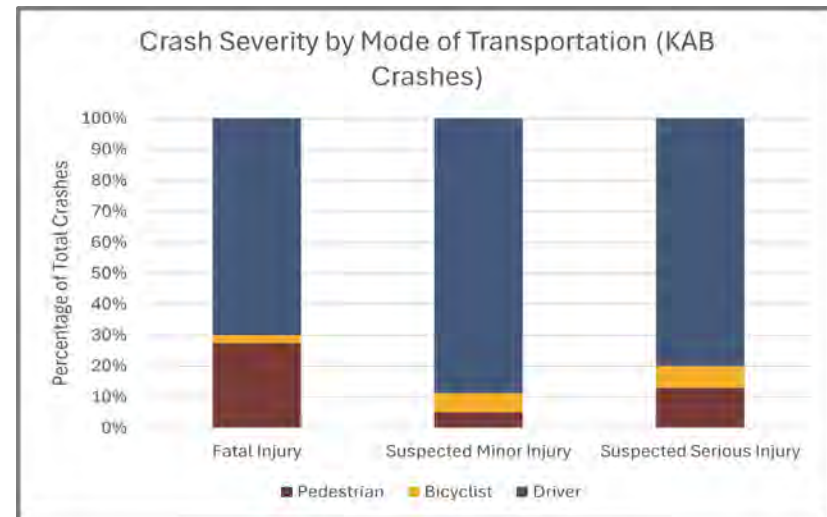
Crash Type	KAB Crashes	Percent
Right Angle	1153	21.34%
Same Direction - Rear End	1107	20.48%
Fixed Object	1077	19.93%
Pedestrian	352	6.51%
Pedalcyclist	317	5.87%
Opposite Direction - Head On/Angular	305	5.64%
Same Direction - Side Swipe	229	4.24%
Left Turn / U Turn	205	3.79%
Struck Parked Vehicle	199	3.68%
Overtaken	175	3.24%
Animal	92	1.70%
Other	92	1.70%
Opposite Direction - Side Swipe	42	0.78%

Bicyclist and Pedestrian Crashes

Over the five-year period, pedestrian and bicyclist crashes accounted for 669 incidents, representing 13% of all KAB crashes. However, as commonly seen in crash analysis, these vulnerable road users constitute for a disproportionately higher share of severe crashes. One-fifth (20%) of serious injury crashes are bicyclists and pedestrians and almost a third of fatal crashes (30%) are bicyclists and pedestrians.

Among pedestrians, there were 53 fatal crashes, 64 crashes resulting in suspected minor injuries, and 239 crashes with suspected minor injuries. Bicyclists experienced fewer fatal crashes, with 5 recorded, along with 35 suspected serious injury crashes and 294 suspected minor injury crashes.

Figure 2: Crash Severity By Mode of Transportation (KAB Crashes)



Crashes at Intersections

Intersection-related crashes accounted for roughly one-third (36.4%) of all crashes. At intersections, there were less K crashes than A crashes with 51 fatalities (26.4%) and 173 serious injuries (35.1%).

Table 2: KAB Crashes by Intersection

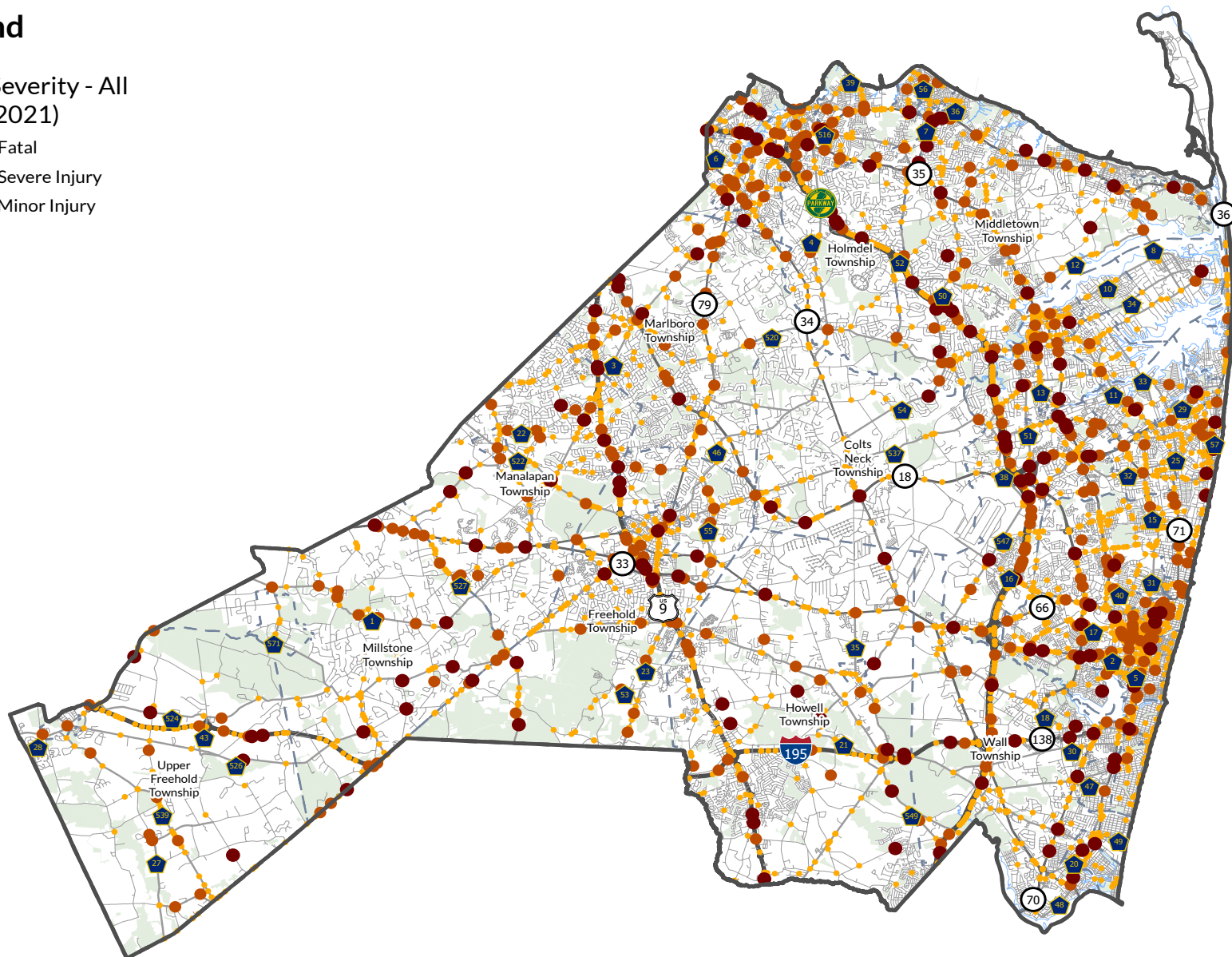
Intersection Related	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Yes	51	173	1740	1964
No	142	320	2978	3440
Grand Total	193	493	4718	5404

Map 1: All KAB Crashes

Legend

Crash Severity - All
(2017-2021)

- K - Fatal
- A - Severe Injury
- B - Minor Injury



Data Source: NJ DOT Crash Records Database (2017-2021)

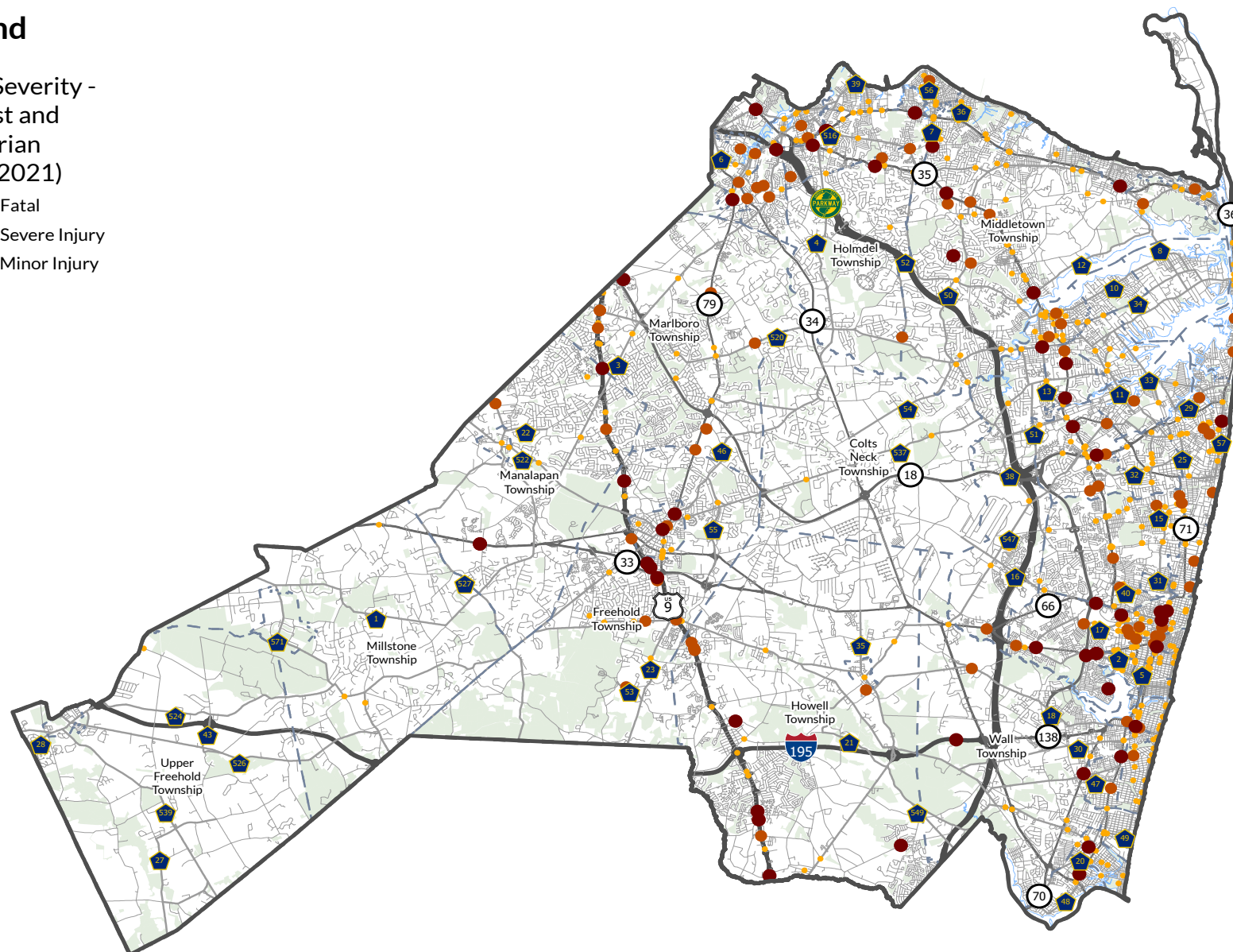


Map 2: Bicycle and Pedestrian KAB Crashes

Legend

Crash Severity -
Bicyclist and
Pedestrian
(2017-2021)

- K - Fatal
- A - Severe Injury
- B - Minor Injury



Data Source: NJ DOT Crash Records Database (2017-2021)



0 1 2
Miles

Crash Data: Demographics

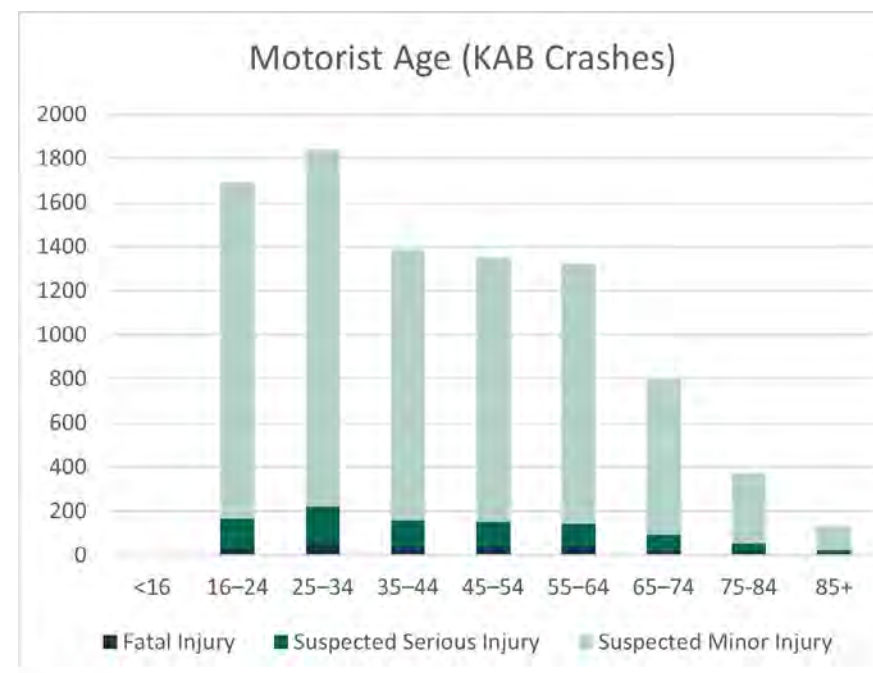
Motorist Age

Motorist crashes show clear differences by age in both volume and severity. Younger drivers (16–24) were involved in the most crashes, with over 1,800 crashes, but their fatality rate was relatively low at about 2%. Middle-aged drivers (25–54) had steady totals around 1,300–1,700 crashes and fatality rates of 3–3.2%, reflecting consistent but moderate risk. Older drivers (75+) were the most vulnerable, with far fewer crashes overall but the highest fatality rates, reaching 7.8% for drivers 85 and older.

Table 3: KAB Crashes by Motorist Age

Age	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
<16	0	0	0	0
16–24	41	149	1,636	1,826
25–34	51	155	1,504	1,710
35–44	41	108	1,171	1,320
45–54	43	114	1,194	1,351
55–64	40	90	1,089	1,219
65–74	26	66	658	750
75–84	19	33	301	353
85+	8	10	85	103

Figure 3: KAB Crashes by Motorist Age



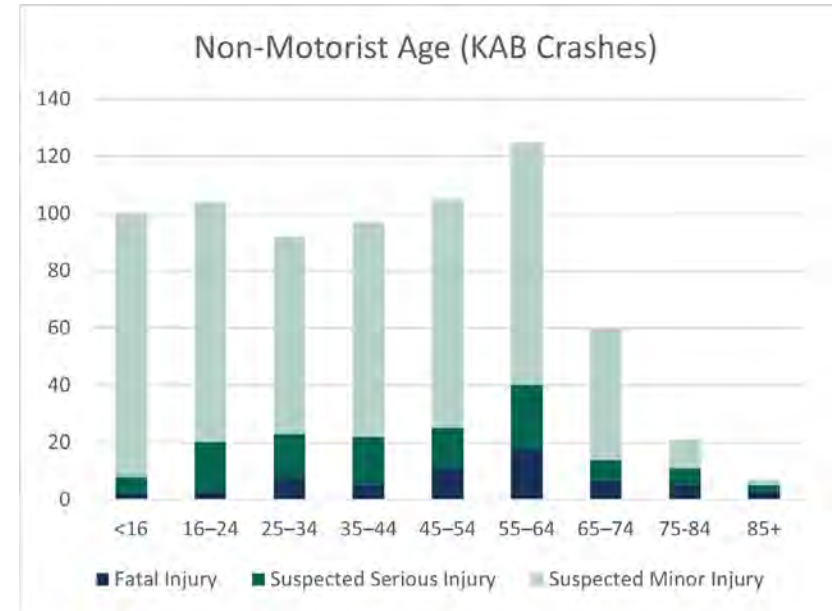
Non-Motorist Age

Adults between 45–64 accounted for the highest totals, with 105 crashes for ages 45–54 and 125 crashes for ages 55–64, while both groups also had relatively high fatal counts (11 and 18 fatalities, respectively). Older adults (75+) had fewer crashes in total, but their fatality rates were disproportionately high, reflecting greater vulnerability when struck. This suggests that middle-aged and older non-motorists, despite differences in exposure, face the most severe outcomes in crashes.

Table 4: KAB Crashes by Non-Motorist Age

Age	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
<16	2	6	92	100
16–24	3	17	84	104
25–34	8	15	69	92
35–44	5	17	75	97
45–54	11	14	80	105
55–64	18	22	85	125
65–74	7	7	46	60
75–84	5	6	10	21
85+	3	2	2	7

Figure 4: KAB Crashes by Non-Motorist Age



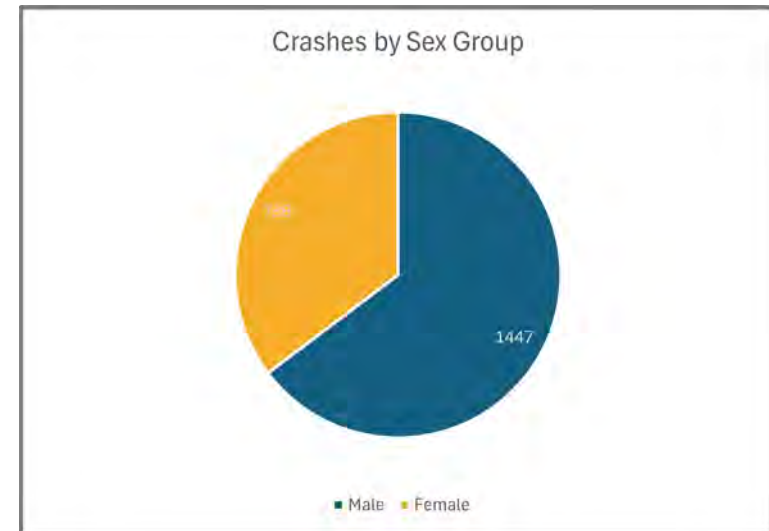
Gender

Crash data shows that male motorists are involved in more crashes across all severity levels compared to females. Male crash victims represent the largest share of KAB crashes, with 1,447 total injuries, including 87 fatalities and 162 serious injuries. Females accounted for 789 crashes, including 35 fatalities and 90 serious injuries. A smaller number of cases were left unspecified, totaling 75 crashes.

Table 5: KAB Crashes by Gender

Sex Group	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Female	35	90	664	789
Male	87	162	1198	1447
Blank	3	10	62	75
Total	193	493	4718	5404

Figure 5: KAB Crashes by Sex Group



Pre Crash Actions

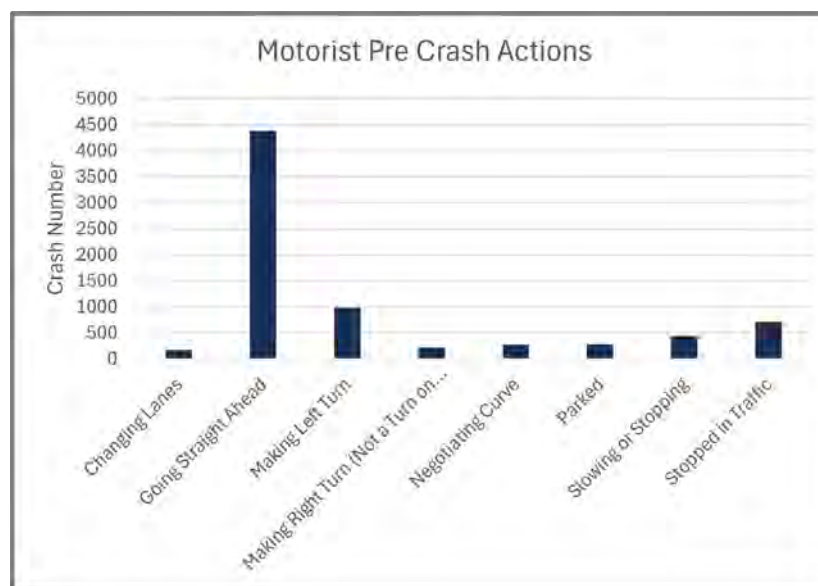
Motorist Pre Crash Actions

The breakdown of motorist pre-crash actions indicates that most crashes occurred while drivers were going straight ahead (4,376 total crashes), followed by vehicles that were stopped in traffic (713 crashes) and those slowing or stopping (435 crashes). Other pre-crash actions, such as making a left turn, negotiating curve, or parked, were less frequent but still counted towards KAB totals.

Table 6: KAB Crashes by Motorist Pre-Crash Action

Pre-Crash Action	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Going Straight Ahead	158	399	3,819	4,376
Stopped in Traffic	7	29	677	713
Slowing or Stopping	5	22	408	435
Making Left Turn	16	86	884	986
Negotiating Curve	16	34	222	272
Parked	7	29	264	290
Changing Lanes	6	13	152	171
Making Right Turn (Not a Turn on Red)	3	14	198	215

Figure 6: Motorist Pre-Crash Action



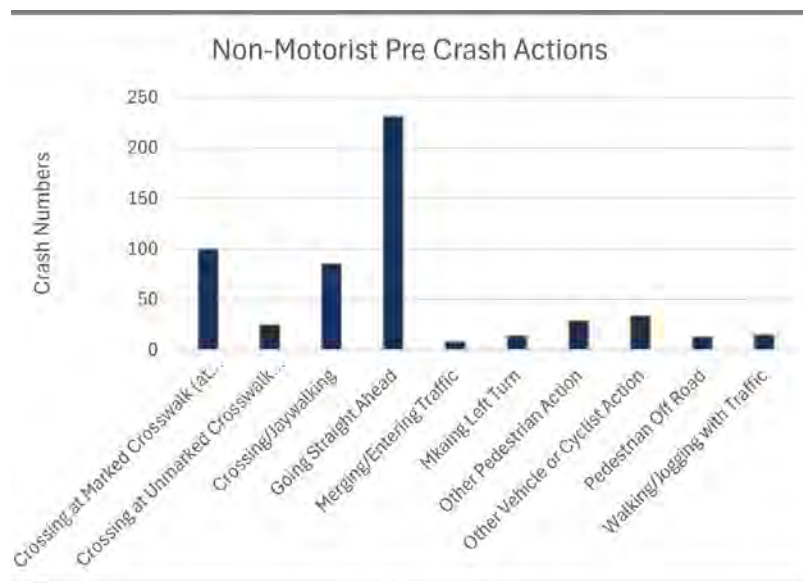
Non-Motorist Pre Crash Actions

Most non-motorist crashes occurred when pedestrians went straight ahead (231 crashes), followed by crossing at marked crosswalks at intersections (100 crashes), crossing/jaywalking (85 crashes), and other vehicle or cyclist actions (34 crashes). While going straight ahead accounted for the largest number of crashes, those crashes had a relatively low fatality rate of 0.87%. In contrast, crossing at a marked crosswalk had a fatality rate of 10%, more than nine times higher, and jaywalking was even deadlier at 16.5%, highlighting that crossing scenarios pose risks for pedestrians.

Table 7: KAB Crashes by Non-Motorist Pre-Crash Action

Pre-Crash Action	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Going Straight Ahead	2	28	200	231
Crossing at Marked Crosswalk (at Intersection)	10	20	70	100
Crossing/Jaywalking	14	21	50	85
Other Vehicle or Cyclist Action	0	2	32	34
Other Pedestrian Action	2	8	19	29
Crossing at Unmarked Crosswalk (Intersection)	3	5	17	25
Walking/Jogging with Traffic	0	2	13	15
Making Left Turn	0	1	13	14
Pedestrian Off Road	3	4	6	13
Merging/Entering Traffic	0	2	6	8

Figure 7: Non-Motorist Pre-Crash Action



Contributing Factors

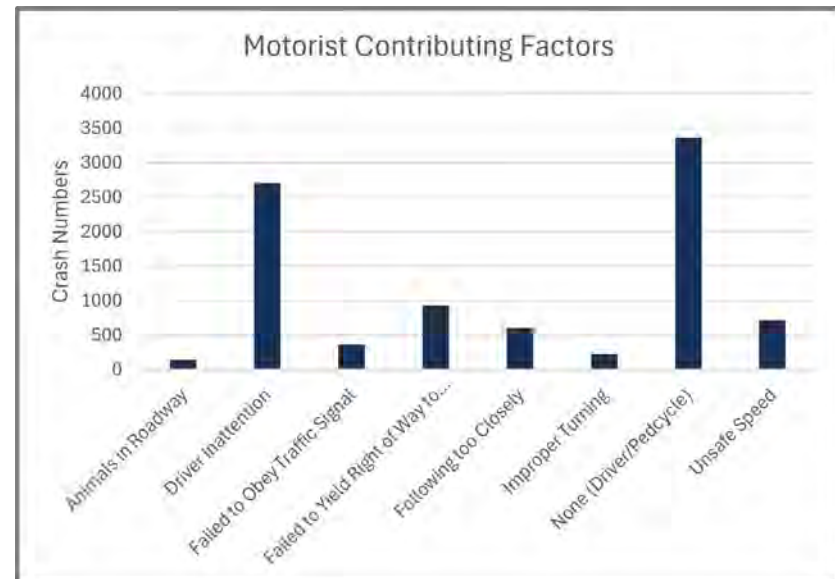
Motorist Contributing Factors

Leading contributing factors to KAB crashes from motorists were “None (Driver/Pedcycle)” and “Driver Inattention,” together accounting for the majority of crashes. Unsafe speeds also appeared as a notable factor, though on a smaller scale. Other factors include improper turning and failure to yield.

Table 8: KAB Crashes by motorist contributing factors

Pre-Crash Action	Total
None (Driver/Pedcycle)	3364
Driver Inattention	2702
Failed to Yield Right of Way to Vehicle/Pedestrian	928
Unsafe Speed	721
Following too Closely	603
Failed to Obey Traffic Signal	364
Improper Turning	228
Animals in Roadway	139

Figure 8: Motorist Contributing Factors



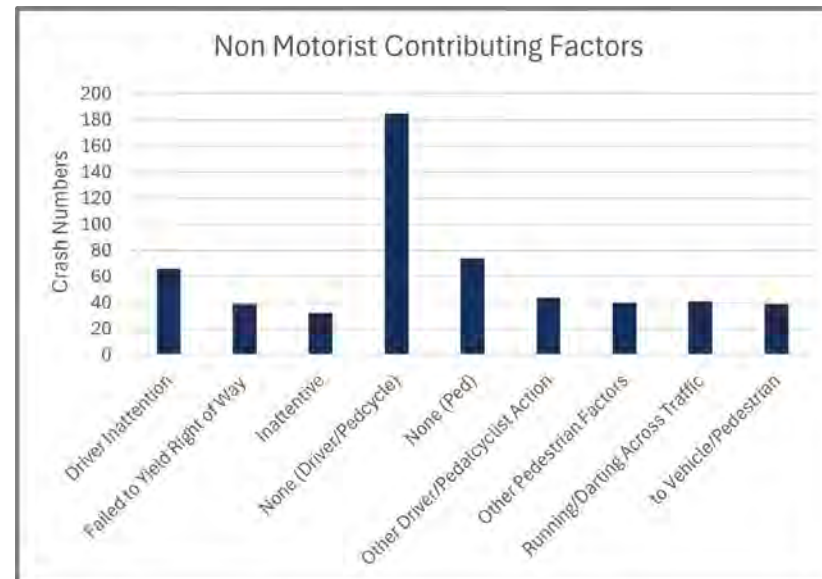
Non-Motorist Contributing Factors

Crashes involving bicyclists or pedestrians, most had no identified contributing factor from the bicyclist (185) or pedestrian (74). Of those where a contributing factor was attributed to the non-motorist, the most common were driver inattention (66 crashes) and other pedestrian-related behaviors, such as running/darting across traffic (41 crashes), were also notable.

Table 9: KAB Crash by non-motorist contributing factors

Pre-Crash Action	Total
None (Driver/Pedcycle)	185
None (Ped)	74
Driver Inattention	66
Other Driver/Pedalcyclist Action	44
Running/Darting Across Traffic	41
Other Pedestrian Factors	40
Failed to Yield Right of Way to Vehicle/Pedestrian	39
Inattentive	32

Figure 9: Non-Motorist Contributing Factors



Road and Vehicle Characteristics

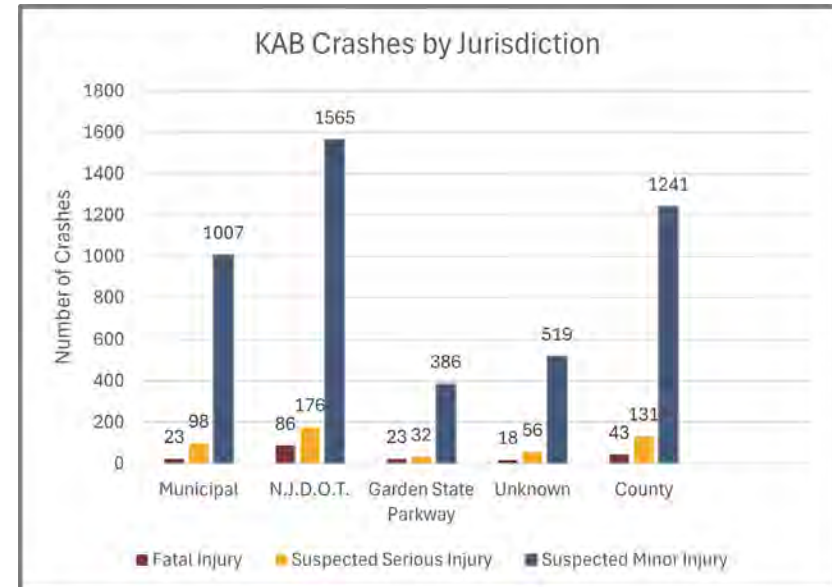
Road Jurisdiction

NJDOT roads accounted for the largest share of KAB crashes (1,827), followed by County roads (1,415) highlighting their disproportionate crash burden.

Table 10: KAB Crash by Jurisdiction

Jurisdiction	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Municipal	23	98	1007	1128
NJDOT	86	176	1565	1827
New Jersey Turnpike Authority (incl. Garden State Parkway)	23	32	386	441
Unknown	18	56	519	593
County	43	131	1241	1415
Total	193	4718	493	5404

Figure 10: KAB Crashes by Jurisdiction



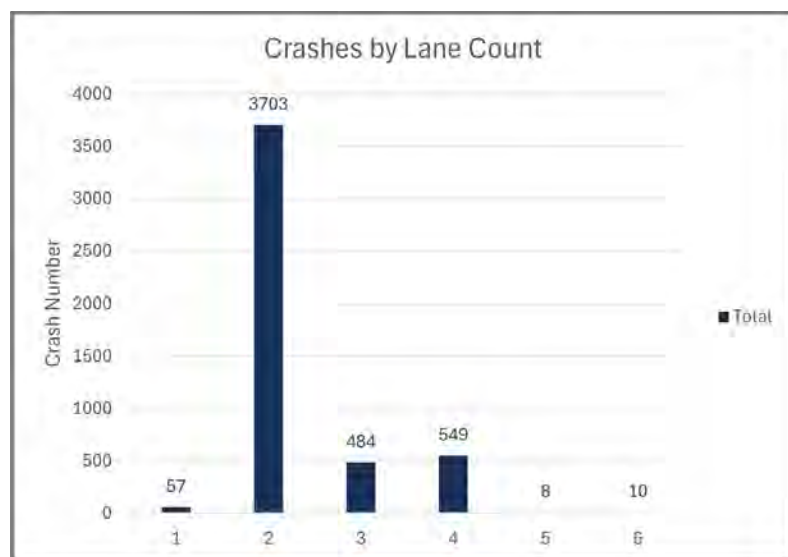
Number of Lanes

Two-lane roads had the most KAB crashes in Monmouth County, with 3,703 (68.5%). Three lane roads had the highest fatality rate (6.2%). Double of two and four (3.4%, 3.2%).

Table 12: KAB Crash by Number of Lanes

Number of Lanes	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
1	1	6	50	57
2	129	341	3233	3703
3	26	33	425	484
4	18	55	476	549
5		7	1	8
6	1	1	8	10

Figure 12: Crash by Lane Count



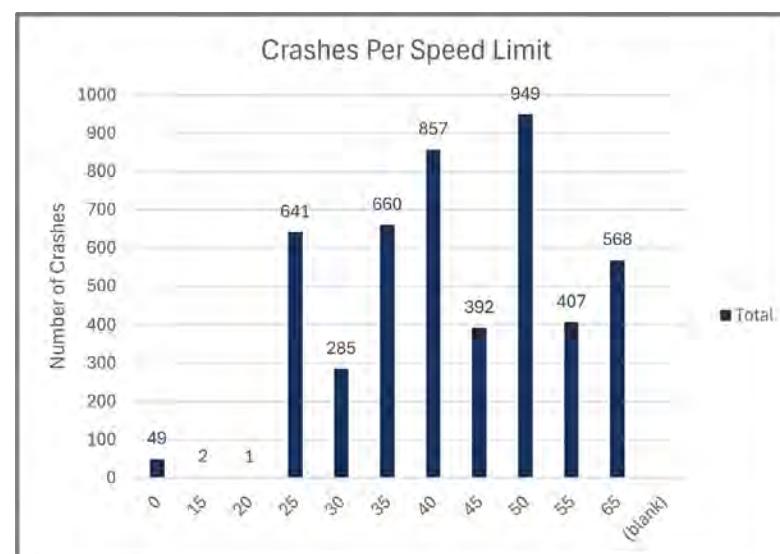
Speed Limit

Roads with a 50 mph speed limit had the most fatal crashes (35), followed by 40 mph (30).

Table 11: KAB Crash by Speed Limit

Speed Limit	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
50	35	95	819	949
40	30	71	756	857
35	15	72	573	660
25	12	50	579	641
(blank)	18	56	519	593

Figure 11: Crashes by Speed Limit



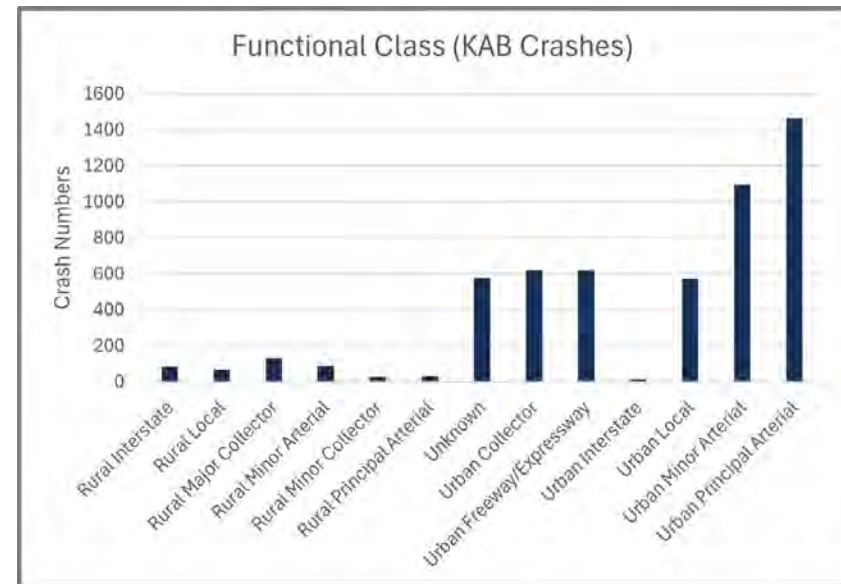
Functional Class

Urban Principal Arterials contained the most amount of KAB crashes (1463), followed by Urban Minor Arterial with (1097), and Urban Collectors with (621). Collectors and rural arterials recorded far fewer incidents by comparison.

Table 13: KAB Crash by Functional Class

Functional Class	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Urban Principal Arterial	63	144	1256	1463
Urban Minor Arterial	21	90	986	1097
Urban Collector	12	57	552	621
Urban Freeway/Expressway	40	46	532	618
Unknown	18	55	505	578
Urban Local	13	50	511	574
Rural Major Collector	12	12	109	133
Rural Minor Arterial	5	12	73	90
Rural Interstate	4	8	75	87
Rural Local	3	9	55	67
Rural Principal Arterial	1	1	30	32
Rural Minor Collector	1	7	22	30
Urban Interstate		2	12	14

Figure 13: Crashes by Functional Classification



Vehicle Type

The majority of KAB crashes involved passenger vehicles, with cars, station wagons, and minivans accounting for 1,175 crashes, followed by SUVs at 378. Motorcycles (184) and pickups (156) were the next most common, while larger commercial vehicles such as cargo vans, buses, and semi-trailers contributed to far fewer crashes. The predominance of passenger vehicles reflects their higher presence on the road, but the inclusion of larger trucks and motorcycles highlights a diverse mix of vehicle types in crash involvement.

Figure 14: Crashes by Vehicle Type

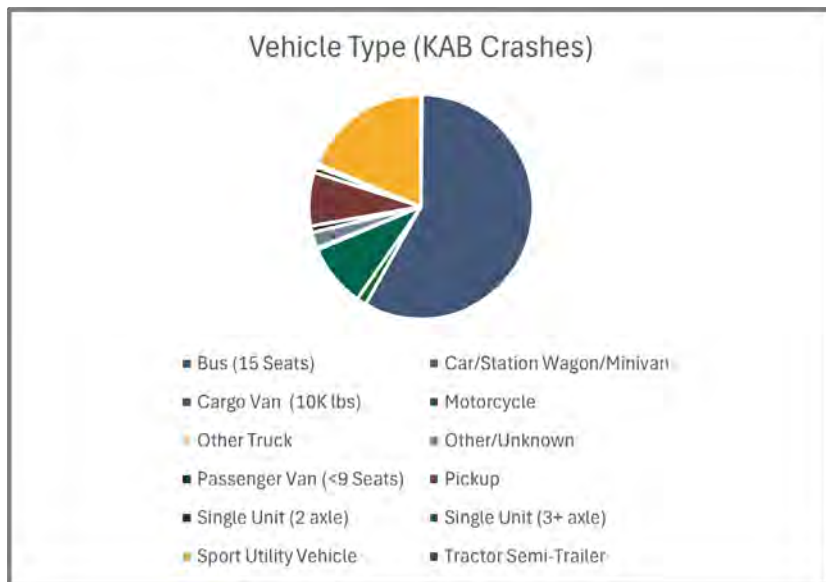


Table 14: KAB Crashes by Vehicle Type

Vehicle Type	K-FATAL	A - SERIOUS INJURY	B - INJURY	Total
Car/Station Wagon/Minivan	70	127	978	1175
Sport Utility Vehicle	21	57	300	378
Pickup	7	21	128	156
Motorcycle	9	25	150	184
Cargo Van 10K lbs)	1	5	22	28
Passenger Van (<9 Seats)	1	0	18	19
Bus (15 Seats)	0	0	3	3
Single Unit (2 axle)	2	3	13	18
Single Unit (3+ axle)	1	0	8	9
Tractor Semi-Trailer	0	0	1	1
Other Truck	0	0	5	5
Other/Unknown	3	5	39	47

Additional Factors

Environmental Factors

Most KAB crashes occurred under clear weather conditions (4,486 crashes), with rain being the second most common condition (585 crashes). Overcast conditions accounted for 191 crashes, while snow was the least frequent weather condition recorded, with 86 crashes.

Table 15: KAB Crashes by Environmental Factors

Number of Lanes	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Clear	159	414	3913	4486
Rain	18	45	522	585
Overcast	12	22	157	191
Snow	1	5	80	86
Fog / Smog / Smoke	2	3	19	24
Freezing Rain	1	2	5	8
Sleet / Hail		1	5	6
Unknown		1	3	4
Blowing Snow			3	3
Severe Crosswinds			2	2
Blowing Sand / Dirt			1	1

Hit and Run

Hit-and-run crashes made up a small portion of the total, with 181 incidents compared to 5,223 crashes where drivers remained at the scene.

Table 16: Hit and Run KAB Crashes

Hit N Run	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Yes	9	17	155	181
No	184	476	4563	5223

Alcohol Involvement

Crashes involving alcohol accounted for 516 incidents, resulting in 47 fatalities and 77 serious injuries. Although less frequent, these crashes resulted in a higher fatality rate of 9.1% versus 2.7% with non alcohol crashes.

Table 17: KAB Crash by Alcohol Involved

Alcohol Involved	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Yes	47	77	392	516
No	146	416	4326	5223

Crashes by Municipality

Monmouth County is composed of 53 municipalities. Middletown Township has the highest number of crashes at 468, followed by Neptune Township with 397 and Freehold Township with 369. Since municipalities vary greatly in size and population, two separate tables were created to highlight the top ten municipalities by crashes per 1,000 residents and crashes per square mile. Long Branch City ranked first in both measures, with Neptune Township placing second in each. The third spot differed between the two rankings: Tinton Falls Borough ranked third in crashes per 1,000 residents, while Spring Lake Borough ranked third in crashes per square mile.

Crashes per 1,000 People

Table 18: Crashes by Municipality (per 1,000 people)

Municipality	Crashes	Population	Crashes Per 1,000 People
Deal Borough	31	900	34.44
Allenhurst Borough	15	472	31.78
Upper Freehold Township	162	7,273	22.27
Neptune City Borough	79	4,626	17.08
Millstone Township	175	10,376	16.87
Sea Bright Borough	22	1,449	15.18
Eatontown Borough	205	13,597	15.08
Neptune Township	397	28,061	14.15
Tinton Falls Borough	263	19,181	13.71
Wall Township	326	26,525	12.29

Municipality	Crashes	Population	Crashes Per 1,000 People
Keyport Borough	86	7204	11.94
Spring Lake Borough	30	2789	10.76
Red Bank Borough	135	12936	10.44
Freehold Township	369	35369	10.43
West Long Branch Borough	86	8,857	9.71
Asbury Park City	146	15188	9.61
Ocean Township (Monmouth Co)	261	27672	9.43
Hazlet Township	182	20125	9.04
Holmdel Township	155	17400	8.91
Sea Girt Borough	16	1866	8.57

Crashes by Per Square Mile

Table 19: Municipalities by Crashes per Square Mile

Municipality	Crashes	Land Area (sq mi)	Crashes per Square Mile
Asbury Park City	146	1.42	102.82
Neptune City Borough	79	0.95	83.16
Red Bank Borough	135	1.74	77.59
Keyport Borough	86	1.40	61.43
Allenhurst Borough	15	0.26	57.69
Neptune Township	397	8.18	48.53
Freehold Borough	94	1.95	48.21
Bradley Beach Borough	25	0.61	40.98
Belmar Borough	41	1.05	39.05
Keansburg Borough	38	1.07	35.51

Municipality	Crashes	Land Area (sq mi)	Crashes Per Square Mile
Eatontown Borough	205	5.83	35.16
Hazlet Township	182	5.56	32.73
Sea Bright Borough	22	0.73	30.136
West Long Branch Borough	86	2.86	30.07
Matawan Borough	65	2.26	28.76
Long Branch City	150	5.27	28.46
Aberdeen Township	143	5.45	26.24
Manasquan Borough	36	1.38	26.09
Deal Borough	31	1.24	25
Ocean Township	261	10.88	23.99

Crashes by Municipality, by Road Jurisdiction

Table 20: Crashes by Municipality, with Jurisdiction Breakdown

Municipality	County	Municipal	N.J.D.O.T	NJ Turnpike Authority	Unknown	Total
Middletown Township	123	114	114	74	43	468
Neptune Township	73	63	233		28	397
Freehold Township	174	45	129		21	369
Wall Township	50	24	129	106	17	326
Howell Township	55	76	128		48	307
Marlboro Township	54	76	120		23	273
Tinton Falls Borough	85	16	26	118	18	263
Ocean Township (Monmouth Co)	36	89	105		31	261
Manalapan Township	77	73	71		27	248
Eatontown Borough	33	12	135		25	205
Hazlet Township	16	36	89	22	19	182
Millstone Township	66	48	30		31	175
Upper Freehold Township	63	24	48		27	162
Holmdel Township	30	13	16	84	12	155

Municipality	County	Municipal	N.J.D.O.T	NJ Turnpike Authority	Unknown	Total
Long Branch City	16	79	22		33	150
Asbury Park City	16	95	14		21	146
Aberdeen Township	31	23	35	37	17	143
Red Bank Borough	66	24	17		28	135
Freehold Borough	8	38	34		14	94
West Long Branch Borough	30	7	39		10	86

Municipal Crash Maps (Most Crashes)



FREEHOLD TWP

Legend

Crash Severity - All (2017-2021)

- K - Fatal
- A - Severe Injury
- B - Minor Injury

Road Jurisdiction

- Garden State Parkway
- Interstate
- US Highway
- State Highway
- County Route
- Local Road



WALL TWP

Legend

Crash Severity - All (2017-2021)

- K - Fatal
- A - Severe Injury
- B - Minor Injury

Road Jurisdiction

- Garden State Parkway
- Interstate
- US Highway
- State Highway
- County Route
- Local Road



HOWELL TWP

Legend

Crash Severity - All (2017-2021)

- K - Fatal
- A - Severe Injury
- B - Minor Injury

Road Jurisdiction

- Garden State Parkway
- Interstate
- US Highway
- State Highway
- County Route
- Local Road



MARLBORO TWP

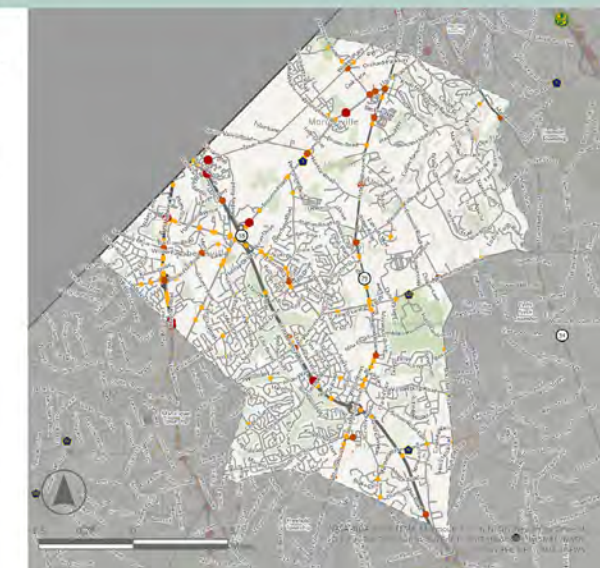
Legend

Crash Severity - All (2017-2021)

- K - Fatal
- A - Severe Injury
- B - Minor Injury

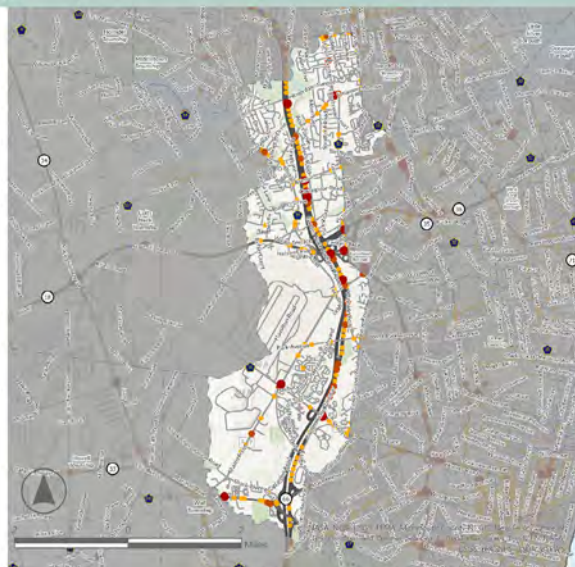
Road Jurisdiction

- Garden State Parkway
- Interstate
- US Highway
- State Highway
- County Route
- Local Road



TINTON FALLS BORO

- Legend**
- Crash Severity - All (2017-2021)
- K - Fatal
 - A - Severe Injury
 - B - Minor Injury
- Road Jurisdiction
- Garden State Parkway
 - Interstate
 - US Highway
 - State Highway
 - County Route
 - Local Road



OCEAN TWP

- Legend**
- Crash Severity - All (2017-2021)
- K - Fatal
 - A - Severe Injury
 - B - Minor Injury
- Road Jurisdiction
- Garden State Parkway
 - Interstate
 - US Highway
 - State Highway
 - County Route
 - Local Road



MANALAPAN TWP

- Legend**
- Crash Severity - All (2017-2021)
- K - Fatal
 - A - Severe Injury
 - B - Minor Injury
- Road Jurisdiction
- Garden State Parkway
 - Interstate
 - US Highway
 - State Highway
 - County Route
 - Local Road



EATONTOWN BORO

- Legend**
- Crash Severity - All (2017-2021)
- K - Fatal
 - A - Severe Injury
 - B - Minor Injury
- Road Jurisdiction
- Garden State Parkway
 - Interstate
 - US Highway
 - State Highway
 - County Route
 - Local Road



HAZLET TWP

- Legend**
- Crash Severity - All (2017-2021)
- K - Fatal
 - A - Severe Injury
 - B - Minor Injury
- Road Jurisdiction
- Garden State Parkway
 - Interstate
 - US Highway
 - State Highway
 - County Route
 - Local Road



MILLSTONE TWP

- Legend**
- Crash Severity - All (2017-2021)
- K - Fatal
 - A - Severe Injury
 - B - Minor Injury
- Road Jurisdiction
- Garden State Parkway
 - Interstate
 - US Highway
 - State Highway
 - County Route
 - Local Road



UPPER FREEHOLD TWP

- Legend**
- Crash Severity - All (2017-2021)
- K - Fatal
 - A - Severe Injury
 - B - Minor Injury
- Road Jurisdiction
- Garden State Parkway
 - Interstate
 - US Highway
 - State Highway
 - County Route
 - Local Road



HOLMDEL TWP

- Legend**
- Crash Severity - All (2017-2021)
- K - Fatal
 - A - Severe Injury
 - B - Minor Injury
- Road Jurisdiction
- Garden State Parkway
 - Interstate
 - US Highway
 - State Highway
 - County Route
 - Local Road



Bicycle Crashes

Bicyclist-involved crashes were highest in Middletown Township, Neptune Township, and Freehold Township.

Table 21: Crashes with Bicyclists Involved, by Municipality

Municipality	Yes	Total
Middletown Township	27	468
Neptune Township	25	397
Freehold Township	12	369
Wall Township	8	326
Howell Township	12	307
Marlboro Township	9	273
Tinton Falls Borough	2	263
Ocean Township (Monmouth Co)	29	261
Manalapan Township	2	248
Eatontown Borough	10	205
Hazlet Township	11	182
Millstone Township	2	175
Upper Freehold Township	2	162
Long Branch City	14	150
Asbury Park City	18	146
Aberdeen Township	2	143
Red Bank Borough	15	135
Freehold Borough	10	94
West Long Branch Borough	4	86
Holmdel Township	6	155

Pedestrian Crashes

Pedestrian crashes, like Bicyclist crashes, had the highest numbers in Middletown, Neptune Township, and Freehold Township.

Table 22: Crashes with Pedestrians Involved, by Municipality

Municipality	Yes	Total
Middletown Township	32	468
Neptune Township	33	397
Freehold Township	13	369
Wall Township	11	326
Howell Township	12	307
Marlboro Township	17	273
Tinton Falls Borough	10	263
Ocean Township (Monmouth Co)	13	261
Manalapan Township	12	248
Eatontown Borough	12	205
Hazlet Township	9	182
Millstone Township	3	175
Upper Freehold Township	1	162
Holmdel Township	6	155
Long Branch City	19	150
Asbury Park City	22	146
Aberdeen Township	15	143
Red Bank Borough	21	135
Freehold Borough	10	94
West Long Branch Borough	4	86

Crashes by Municipality per Roadway Mile

The highest crash rates per roadway mile occurred in smaller, denser municipalities such as Red Bank Borough, Freehold Borough, and Asbury Park City, each exceeding three crashes per mile. Larger townships like Middletown, Marlboro, and Howell had high total crashes but lower crash rates per mile, reflecting a large volume of roads but lower crashes.

Table 23: Crashes by Municipality per Roadway Mile

Municipality	Crashes	Roadway Miles	Crashes Per Mile
Red Bank Borough	135	30	4.5
Freehold Borough	94	25	3.76
Asbury Park City	146	45	3.24
Eatontown Borough	205	65	3.15
West Long Branch Borough	86	28	3.07
Neptune Township	397	145	2.73
Tinton Falls Borough	263	102	2.57
Hazlet Township	182	77	2.36
Aberdeen Township	143	73	1.95
Long Branch City	150	80	1.87
Holmdel Township	155	93	1.66
Freehold Township	369	222	1.66
Wall Township	326	214	1.52

Municipality	Crashes	Roadway Miles	Crashes Per Mile
Ocean Township (Monmouth Co)	261	175	1.49
Millstone Township	175	124	1.41
Manalapan Township	248	180	1.37
Upper Freehold Township	162	120	1.35
Middletown Township	468	350	1.33
Marlboro Township	273	206	1.32
Howell Township	307	233	1.31

High-Crash Locations

High-Crash Corridors

The top 20 crash corridors of Monmouth County show that the Garden State Parkway has the highest total crashes (441), followed closely by NJ 35 (423) and NJ 36 (297). While these major corridors carry the largest crash volumes, certain routes stand out for their high fatal crash rate. NJ 18 records a fatality percentage of 9% which includes, 13 deaths out of 142 crashes, significantly higher than the Parkway and NJ 35, both at 3–5%. Secondary corridors like NJ 33 and Monmouth County Route 3 also both report a fatality rate of 6%.

Table 24: High-Crash Corridors

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Garden State Parkway	23	32	386	441
NJ 35	14	44	365	423
NJ 36	15	28	254	297
US 9	13	26	203	242
NJ 33	12	23	179	214
ROUTE 537	5	15	167	187
NJ 18	13	11	118	142
NJ 71	7	13	116	136
ROUTE 520	1	9	92	102
I-195	4	10	87	101

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
NJ 34	1	11	87	99
ROUTE 524	4	12	70	86
MONMOUTH COUNTY 3	5	6	74	85
NJ 79	2	8	74	84
ROUTE 516		12	69	81
NJ 66	1	4	58	63
ROUTE 547	2	5	48	55
MONMOUTH COUNTY 16	2	2	44	48
ROUTE 527	2	5	33	40
MONMOUTH COUNTY 15	2	1	35	38

Pedestrian High-Crash Corridors

The top 10 pedestrian crash corridors in Monmouth County include NJ 35 (31 crashes, 32.3% fatal injury rate) and US 9 (27 crashes, 29.6% fatal injury rate). NJ 36 and NJ 71 also had notable totals with 19 and 17 pedestrian crashes respectively, though their fatality rates were lower. NJ 33 (41.7%) stands out with the highest fatal injury rate despite fewer crashes overall, and County Route 537 has the highest number of pedestrian crashes for a non state or US route. With the exception of US 9, all of these roads pass through urban cores which correlate to, but not always, having high traffic volumes and high pedestrian activity.

Table 25: Pedestrian High-Crash Corridors

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
NJ 35	10	3	18	31
US 9	8	11	8	27
NJ 36	5	3	11	19
NJ 71	3	4	10	17
NJ 33	5	2	5	12
ROUTE 537	2	1	4	7
ROUTE 516		2	5	7
MONMOUTH COUNTY 40 A		1	6	7
MONMOUTH COUNTY 11 I		1	5	6
MONMOUTH COUNTY 10		1	5	6

Bicyclist High-Crash Corridors

The leading bicycle crash corridor in Monmouth County is NJ 35, with 27 crashes, including 4 serious injuries. NJ 71 (24 crashes) and NJ 36 (20 crashes) also show high totals, with each reporting at least one fatality. Several other corridors, such as Monmouth County 18 III, NJ 33, Route 516, and Route 537, recorded between 7 and 14 crashes, though with fewer severe crashes. Low-volume corridors like Monmouth County 15, NJ 79, and Route 520 each had 6 crashes, primarily minor injuries. Overall, NJ 35, NJ 71, and NJ 36 account for the bulk of bicycle crashes, while a number of secondary corridors were still home to meaningful bicyclist crash counts.

Table 26: Bicyclist High Crash Corridors

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
NJ 35		4	23	27
NJ 71	1	2	21	24
NJ 36	1	2	17	20
MONMOUTH COUNTY 18 III			14	14
NJ 33		1	6	7
ROUTE 516		1	6	7
ROUTE 537		1	6	7
MONMOUTH COUNTY 15			6	6
NJ 79		1	5	6
ROUTE 520		1	5	6

High-Crash Intersections

The top intersections on county and state roads show a mix of patterns, with several locations standing out for both crash frequency and fatal crash percentage. NJ 36 and Grant Avenue recorded 22 crashes, with a fatality percentage of 4.55%, while US 9 and Route 520/Robertsville Road had 18 crashes with a slightly higher fatality percentage of 5.56%. Disproportionate fatality rates were observed at NJ 33 and CR 17/West Bangs Avenue (15 crashes, 13.3% fatality rate) and NJ 36 and Route 516/Middle Road (14 crashes, 14.3% fatality rate). In contrast, several intersections, including US 9 at Taylors Mills Road, NJ 36 at Route 547/Wyckoff Road, and NJ 33 at Neptune Boulevard, showed relatively high crash counts (13–18) but no fatalities, suggesting crash severity there may be generally lower.

Table 27: High-Crash Intersections

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
NJ 36 AND GRANT AVE	1	1	20	22
US 9 AND ROUTE 520 / ROBERTSVILLE RD	1	3	14	18
US 9 AND TAYLORS MILLS ROAD		2	16	18
NJ 33 AND CR 17 / WEST BANGS AVE	2	1	12	15
NJ 36 AND ROUTE 547 / WYCKOFF RD		3	12	15
US 9 AND NJ 79 / SCHANCK RD / SOUTH ST	1	1	13	15
NJ 36 AND ROUTE 516 / MIDDLE RD	2	2	10	14
ROUTE 537 AND STILLWELLS CORNER RD / WEMROCK RD	1	1	11	13
NJ 66 AND BOWNE RD / WAYSIDE RD		1	12	13
NJ 33 AND NEPTUNE BLVD		2	11	13

Pedestrian High-Crash Intersections

US 9 / County Route 520 (Robertsville Road) was the intersection with the most Pedestrian KAB crashes, including one serious injury. Other notable intersections include NJ 36 / County Route 516 (Middle Road), which had three KAB crashes but two resulted in a fatality, and County Route 517 and NJ 79 (Court Street/South Street) which had three KAB crashes with one fatality.

Table 28: Pedestrian High-Crash Intersections

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
US 9 AND ROUTE 520 / ROBERTSVILLE RD		1	3	4
NJ 36 AND ROUTE 516 / MIDDLE RD	2		1	3
ROUTE 537 AND NJ 79 / COURT ST / SOUTH ST	1		2	3
MONMOUTH COUNTY 3 AND IVYHILL DR		1	2	3
US 9 AND TAYLORS MILLS RD		1	2	3

Bicyclist High-Crash Intersections

The intersection of NJ 36 and County Route 520 was the only intersection with three KAB crashes involving bicyclists, although all were minor injury crashes. Of those with two crashes, County Route 520 and Boundary Road/Conover Road was the only with a severe injury.

Table 29: Bicyclist High-Crash Intersections

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
NJ 36 AND ROUTE 520 / RUMSON RD			3	3
ROUTE 520 AND BOUNDARY RD / CONOVER RD		1	1	2
NJ 71 AND US 30 / 18TH AVE			2	2
MONMOUTH COUNTY 18 III AND PARK PLACE AVE			2	2
ROUTE 537 AND NJ 35			2	2

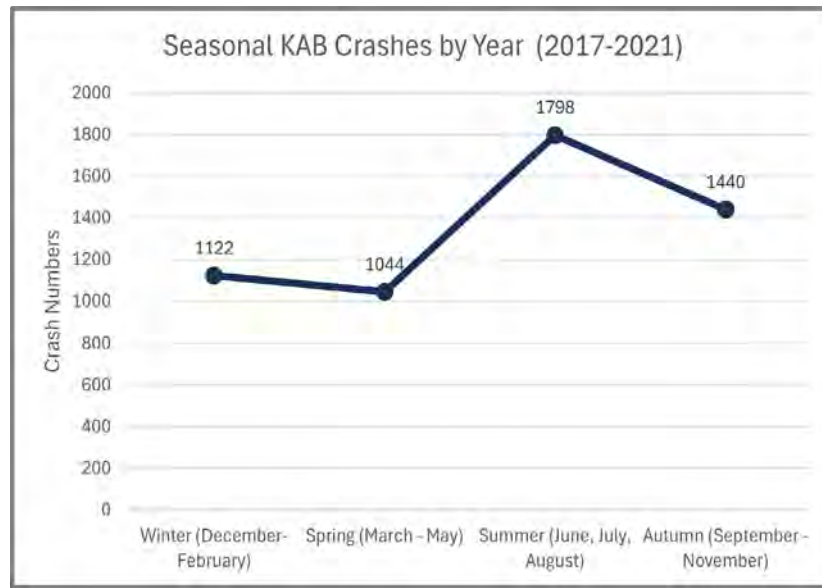
Seasonal Analysis

The seasonal analysis examined KAB crash categories across the year, divided into the four seasons: Winter (December - January), Spring (March - May), Summer (June-August), and Autumn (September - November). Total KAB crashes, bicyclist and pedestrian crashes, municipal crashes by time of day, and crash types were all evaluated.

Most KAB crashes across all categories occurred during the Summer (June-August). The main exception were pedestrian crashes, which peaked in Autumn (September - November). Across all seasons, the afternoon (12 PM-5:59 PM) was the most common time for crashes to occur.

The number of KAB crashes peaked during the Summer (June-August) between 2017 and 2021, likely due to increased visitors, travel and outdoor activity during the summer months. Followed by Autumn (September - November) and the lowest being Spring (March - May).

Figure 6: Seasonal KAB Crashes by Year



Bicyclist (Seasonal)

For bicyclists, the number of KAB crashes also peaked during the Summer (June-August). This mimics the trends of overall KAB crashes but with a more distinct difference between the seasons.

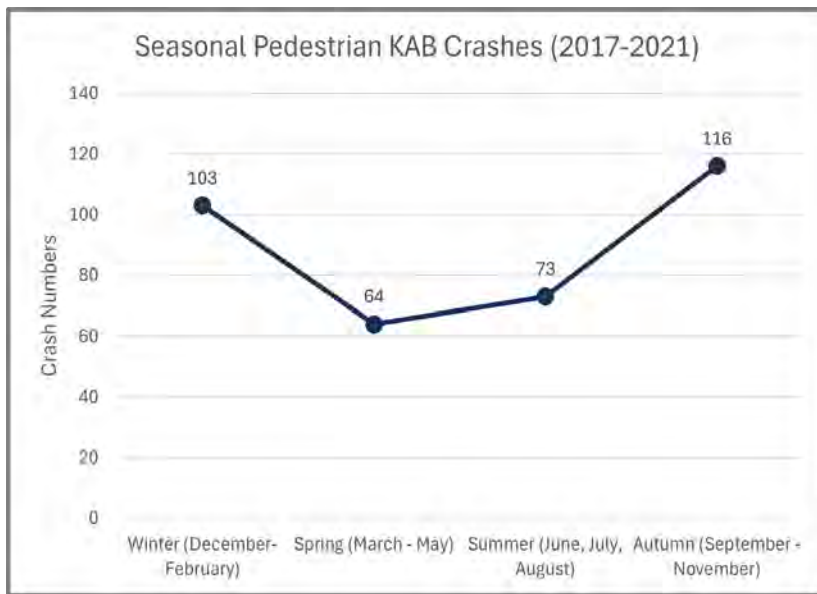
Figure 7: Seasonal KAB Bicycle Crashes



Pedestrian (Seasonal)

Pedestrian crashes displayed a different seasonal trend compared to overall crashes, with the highest concentration occurring during Autumn (September - November). This spike may be attributed to reduced daylight hours, increased pedestrian activity due to school and during the holiday season, and potentially more adverse weather conditions that reduce visibility and road safety.

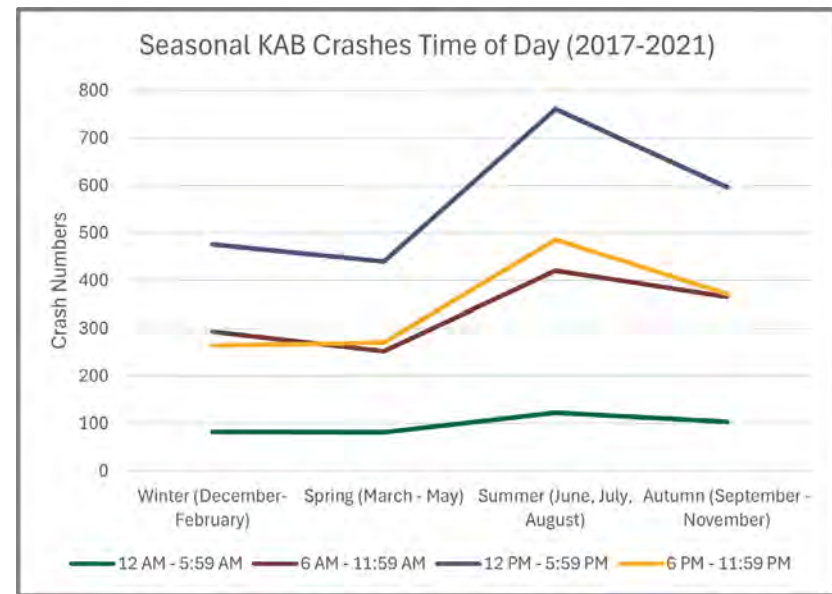
Figure 8: Seasonal KAB Pedestrian Crashes



Time of Day (Seasonal)

Afternoon hours (12 PM - 5:59 PM) consistently had the highest number of crashes across all seasons, peaking in the Summer months (June - August). Meanwhile, late-night/early morning crashes (12 AM - 5:59 AM) remained the lowest throughout the year, though there were still a slight increase in the summer months.

Figure 9: Seasonal KAB Crashes Time of Day



Municipal Crashes (Seasonal)

Middletown Township consistently recorded the highest number of KAB crashes across all four quarters, with its peak occurring between Summer (June - August). Neptune Township ranked second with a total of 397 crashes, while Freehold Township followed closely with 369 crashes, showing its highest concentration in the Autumn (September - November) period.

Table 18: Seasonal KAB Municipal Crashes Top 10

Municipality	Winter (December- January)	Spring (March - May)	Summer (June - August)	Autumn (September - November)	Total
Middletown Township	104	98	133	133	468
Neptune Township	87	79	137	94	397
Freehold Township	87	75	99	108	369
Wall Township	56	69	116	85	326
Howell Township	61	64	94	88	307
Marlboro Township	70	42	85	76	273
Tinton Falls Borough	59	43	86	75	263
Ocean Township (Monmouth Co)	54	36	103	68	261
Manalapan Township	74	51	66	57	248
Eatontown Borough	33	41	54	77	205

Crash Types (Seasonal)

The table shows that right-angle, rear-end, and fixed-object crashes are the most common types year-round, with noticeable increases during the Summer (June - August). Pedestrian crashes, however, stand out with their peak in the Autumn (September - November), reflecting a different seasonal trend.

The graph highlights the overall seasonal rise in most crash types during the summer months (June - August), with pedestrian crashes diverging by peaking later in the year.

Figure 10: Seasonal KAB Crash Types

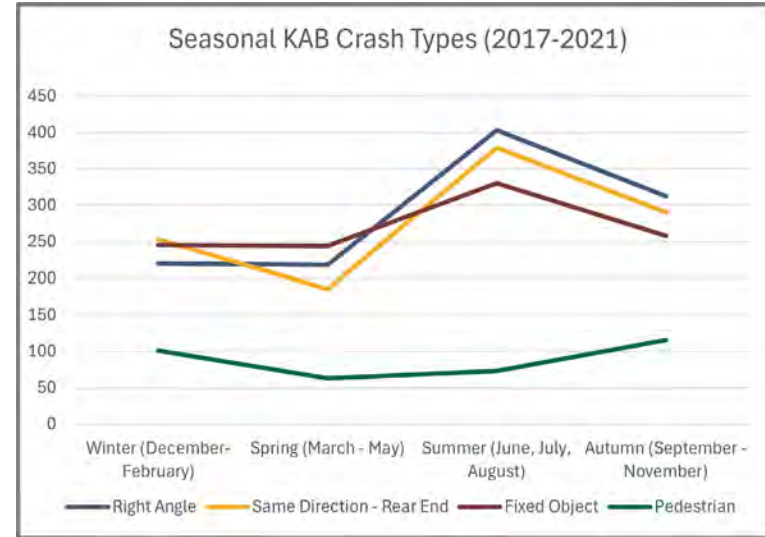


Table 19: Seasonal KAB Crash Types Top 10

Crash Type	Winter (December-January)	Spring (March - May)	Summer (June - August)	Autumn (September - November)	Total
Right Angle	220	218	373	312	1153
Same Direction - Rear End	253	185	330	290	1107
Fixed Object	245	244	302	258	1077
Pedestrian	101	63	87	115	352
Pedalcyclist	27	58	157	85	317
Opposite Direction - Head On/Angular	65	59	104	74	305
Same Direction - Side Swipe	42	46	77	56	229
Left Turn / U Turn	52	29	61	60	205
Struck Parked Vehicle	43	51	46	54	199
Overtaken	26	52	60	37	175

County Roads

The County has direct authority and control over its own roadway network, making these roads the most practical starting point for implementing safety improvements. By concentrating on County-owned roads, the plan ensures that recommended safety projects can be executed efficiently without jurisdictional barriers.

Therefore, an analysis of the crashes occurring on county roads is an important piece of this crash analysis. County roads were analyzed using the same categories as all roadway jurisdictions. Overall, they follow similar crash patterns observed in the broader KAB analysis. Notable trends include:

- County roads generally follow the same crash patterns observed in the overall KAB analysis
- They account for the second-highest total KAB crashes (1,415), behind NJDOT roads
- County roads had the third-highest pedestrian KAB crashes (81), following NJDOT and municipal roads
- For bicyclist KAB crashes (91), county roads ranked second behind municipal roads.
- With regards to pre-crash actions, majority of the motorists and non-motorists were going straight ahead prior to the crash.
- Driver inattention was the leading factor for motorists involved in KAB crashes on County-owned roads. Failure to yield right of way to vehicle or pedestrians was also a significant factor.
- Majority of KAB crashes on County-owned roads occurred on two-lane roads (1208 or 85%).
- Roadways with a 45 mph posted speed limit accounted for 30% or 445 KAB crashes on County-owned roads.
- More than 50% of the KAB crashes (811) on County-owned roads occurred on urban minor arterials.
- County-owned roads with no shoulders accounted for almost 50% of the KAB crashes (668) on County-owned roads.

- Severe weather conditions were not a factor for KAB crashes on County-owned roads.
- Senior drivers (75+) accounted for almost 50% of KAB crashes on County-owned roads.
- Among non-motorists, children (16 and under) accounted for a high number of KAB crashes on County-owned roads compared to other age groups.
- Passenger vehicles account for a majority of KAB crashes on County-owned roads (75%) followed by SUVs at 34%.
- Less than 50% of all KAB crashes on County-owned roads occurred at intersections (656 or 46%).
- Hit and run incidents were not a factor in KAB crashes on County-owned roads.

KAB Crashes (County Roads)

From 2017-2021, there were a total of 43 fatalities, 131 serious injuries, and 1,241 minor injuries on County-owned roads, totaling 1,415 KAB crashes.

Table 30: County Roads KAB Crash Severity

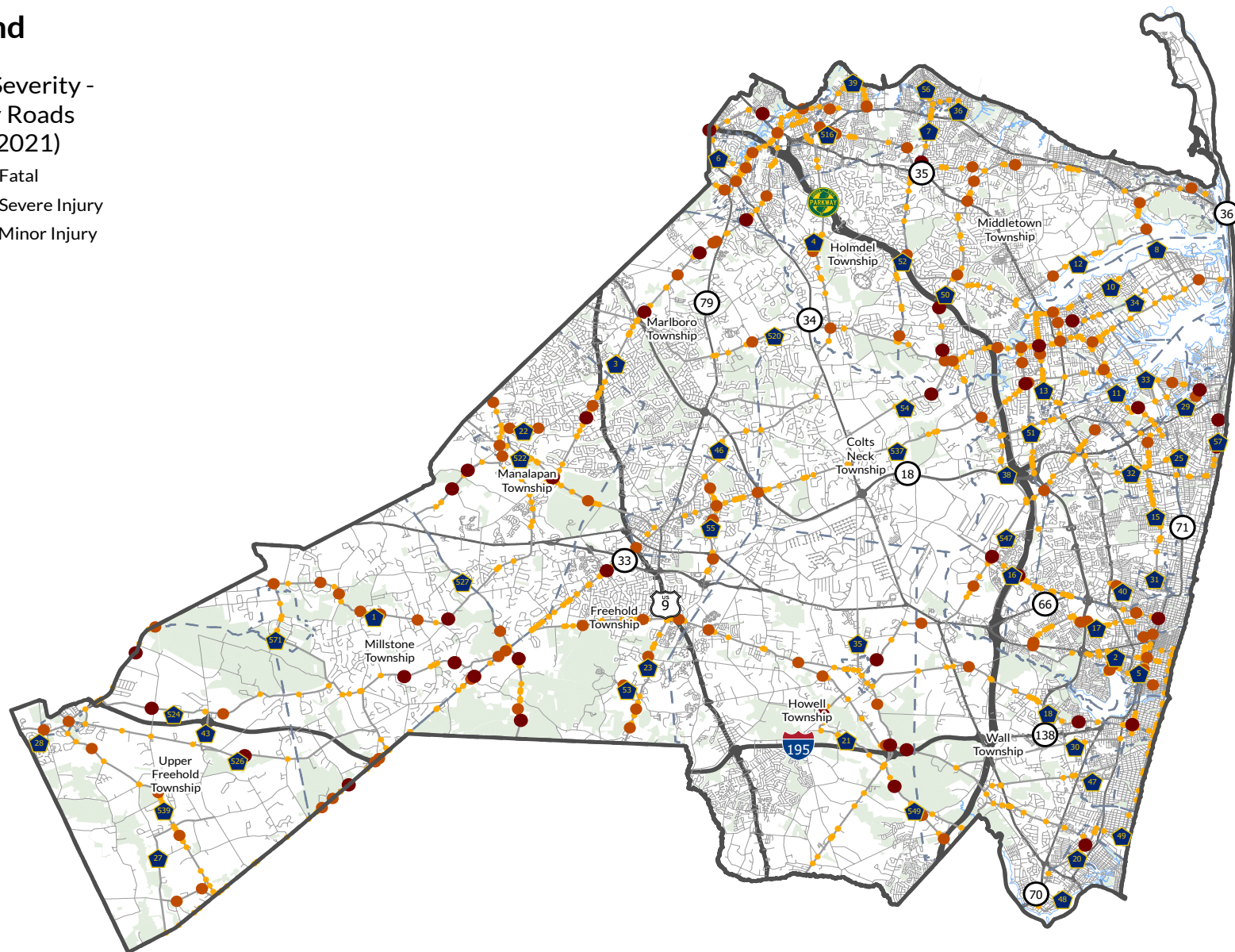
Jurisdiction	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
County Roads	43	131	1241	1415
All Crashes	193	493	4718	5404

Map 4: County Roads KAB Crashes

Legend

Crash Severity -
County Roads
(2017-2021)

- K - Fatal
- A - Severe Injury
- B - Minor Injury



Data Source: NJ DOT Crash Records Database (2017-2021)

Crashes by County

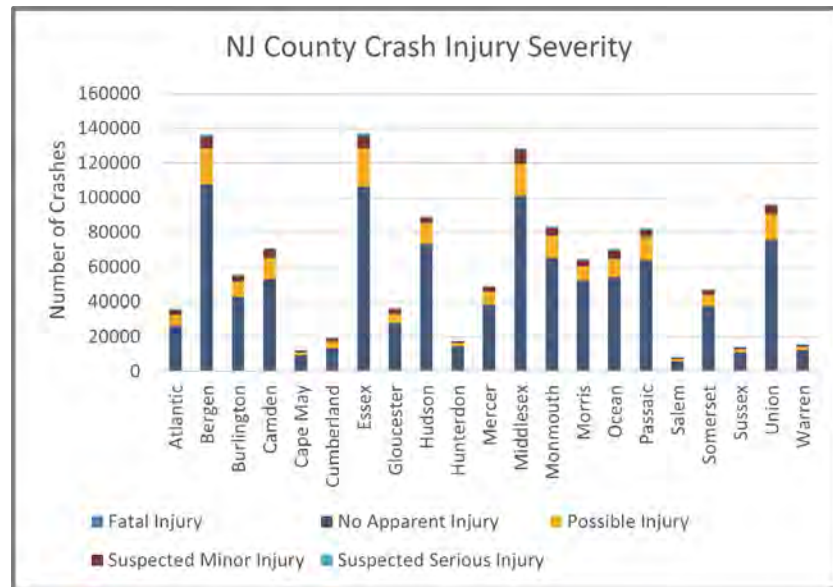
Across NJ counties, the highest crash counts are concentrated in more densely populated counties like Essex, Bergen, and Middlesex. By comparison, Monmouth County reports a mid-range crash count: 193 fatal injuries and about 12,774 possible injuries, with an overall crash-to-population ratio (0.129) slightly lower than the state's highest (Union at 0.168).

Table 31: Crashes by County, Detailed by Crash Severity

County	K - FATAL	A - SERIOUS INJURY	B - MINOR INJURY	C - POSSIBLE INJURY	O - NO INJURY	Population	Crashes per Capita
Atlantic	189	520	2,949	6,239	26,389	274,534	0.132
Bergen	187	989	7,069	20,485	107,606	955,732	0.143
Burlington	203	445	3,577	8,850	42,632	461,860	0.121
Camden	254	613	5,199	12,071	52,907	523,485	0.136
Cape May	64	199	1,104	1,503	9,526	95,263	0.131
Cumberland	119	299	1,888	3,578	13,580	154,152	0.127
Essex	240	1,315	7,342	22,140	106,157	863,728	0.159
Gloucester	200	476	2,912	5,200	27,853	302,294	0.121
Hudson	124	498	3,480	11,786	73,269	724,854	0.123
Hunterdon	44	158	1,153	1,819	14,578	128,947	0.138
Mercer	146	313	2,707	7,435	38,311	387,340	0.126
Middlesex	266	791	8,238	18,500	100,817	863,162	0.149
Monmouth	193	493	4,718	12,774	65,185	643,615	0.129

County	Fatal Injury	No Apparent Injury	Possible Injury	Suspected Minor Injury	Suspected Serious Injury	Population	Crashes per Capita
Morris	137	52,136	8,204	3,589	368	274,534	0.126
Ocean	212	54,051	10,341	5,048	671	955,732	0.110
Passaic	122	63,810	13,617	4,068	513	461,860	0.157
Salem	65	5,991	1,057	963	175	523,485	0.127
Somerset	108	37,359	6,348	2,818	366	95,263	0.136
Sussex	53	11,192	1,718	1,144	166	154,152	0.099
Union	155	75,619	14,652	5,128	696	863,728	0.167
Warren	57	12,306	1,944	1,136	175	302,294	0.142

Figure 15: Crashes by County



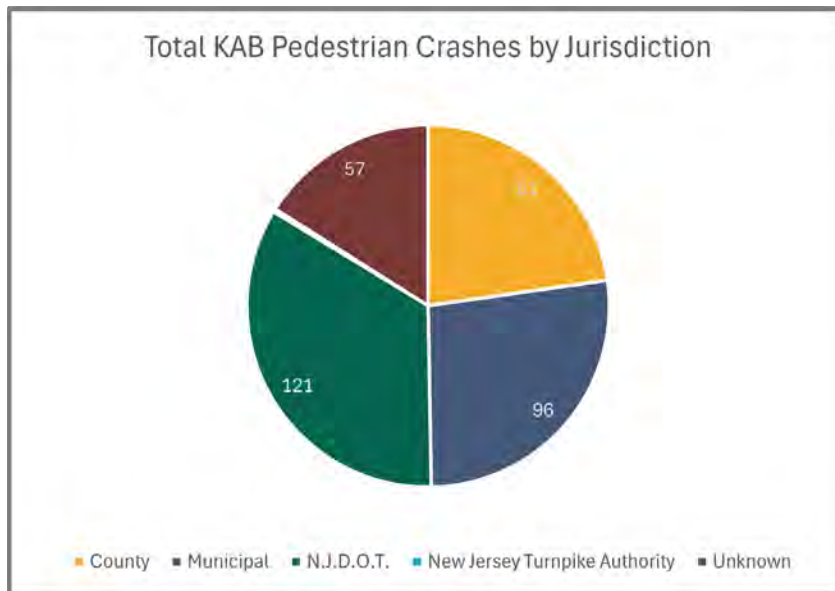
Pedestrian Crashes (County Roads)

Pedestrian-involved crashes on county roads resulted in 6 fatalities, 12 serious injuries, and 63 minor injuries, totaling 81 crashes. In comparison, pedestrians experienced a significantly higher fatality rate of 7.4%, nearly three times greater than the 2.7% rate for crashes without pedestrians.

Table 32: Pedestrian Crashes on County Roads

Pedestrian Involved	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Yes	6	12	63	81
No	37	119	1178	1334

Figure 16: Pedestrian Crashes by Jurisdiction



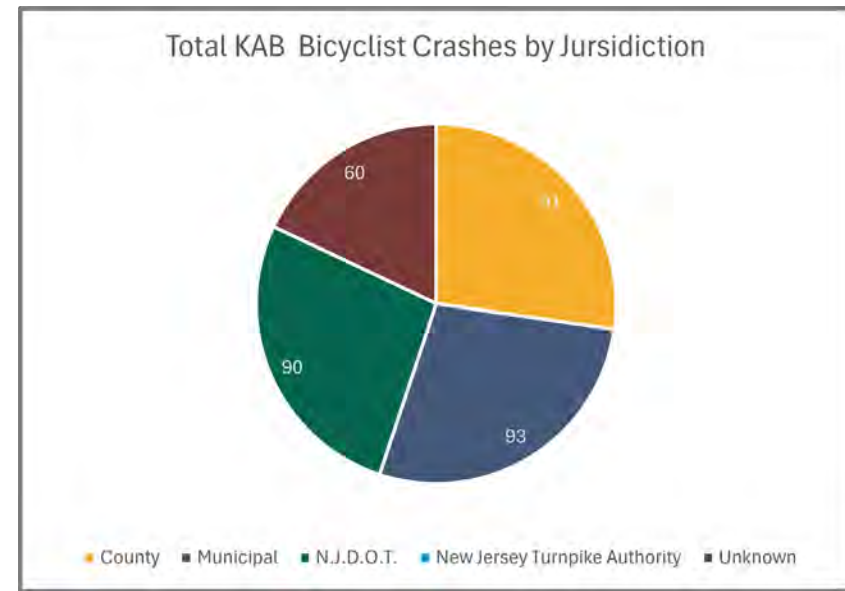
Bicyclist Crashes (County Roads)

There were 91 total KAB crashes involving bicyclists on county roads, including 8 serious and 83 minor. In contrast, non-bicyclist crashes made up the overwhelming majority, with 1,324 KAB crashes. While bicyclist-involved crashes are far fewer in number, they highlight a vulnerable road user group that requires targeted safety improvements.

Table 33: County Roads KAB Bike Crashes

Bicyclist Involved	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Yes		8	83	91
No	43	121	1158	1324

Figure 17: Bicyclist Crashes by Jurisdiction

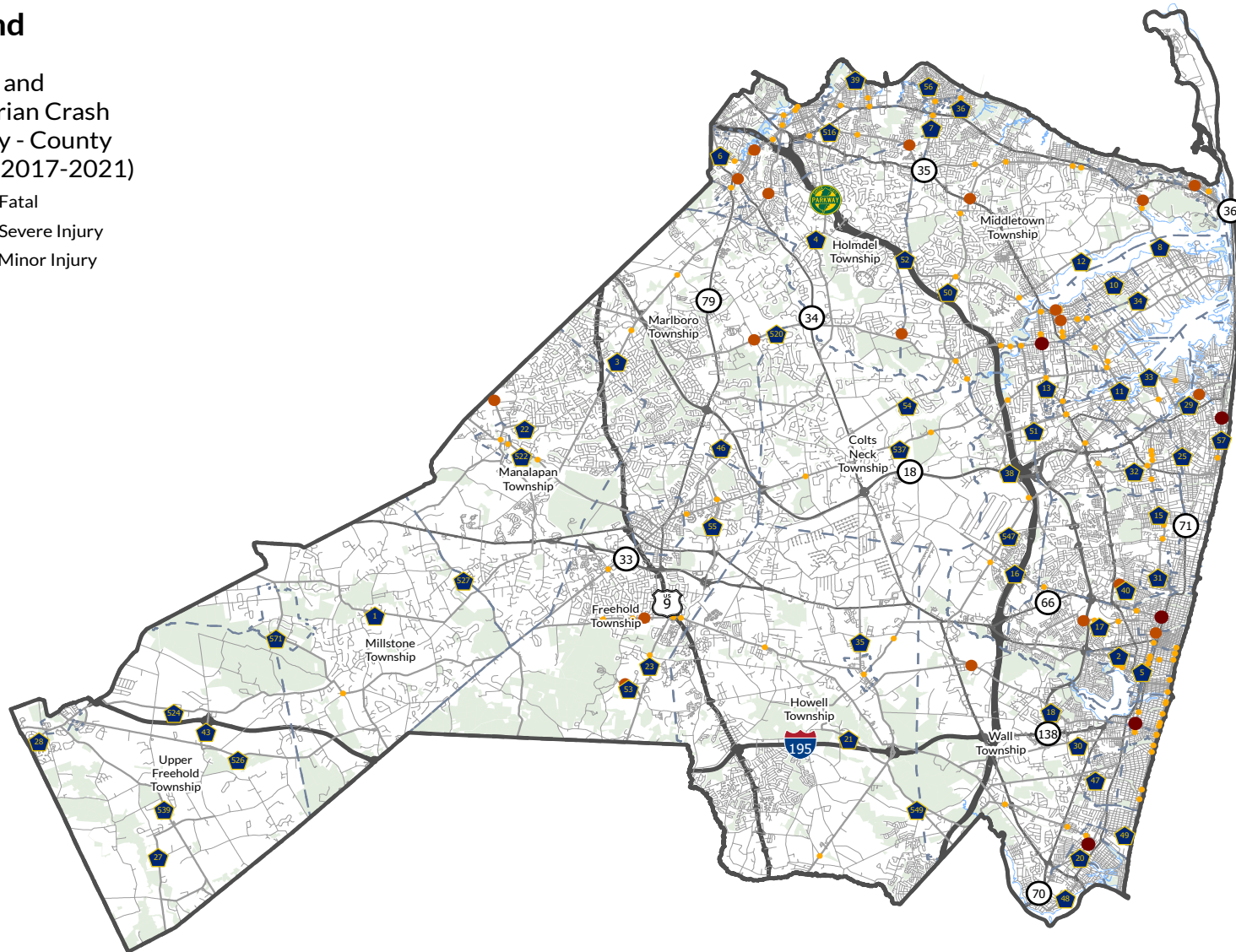


Map 5: County Roads Bicycle and Pedestrian KAB Crashes

Legend

Bicycle and
Pedestrian Crash
Severity - County
Roads (2017-2021)

- K - Fatal
- A - Severe Injury
- B - Minor Injury



Data Source: NJ DOT Crash Records Database (2017-2021)



Crashes by Municipality (County Roads)

Freehold Township had the highest number of county road KAB crashes with 174, including 152 fatalities, followed by Middletown Township with 123. Tinton Falls Borough, Manalapan Township, and several other municipalities each recorded between 63 and 85 crashes.

Table 34: County Roads KAB, by Municipality

Municipality	K - FATAL	A - SERIOUS INJURY	B - INJURY	Grand Total
Freehold Township	152	17	5	174
Middletown Township	107	14	2	123
Manalapan Township	65	8	4	77
Tinton Falls Borough	75	6	4	85
Neptune Township	66	7	0	73
Millstone Township	47	15	4	66
Red Bank Borough	60	5	1	66
Upper Freehold Township	53	7	3	63
Marlboro Township	48	4	2	54
Howell Township	45	5	5	55

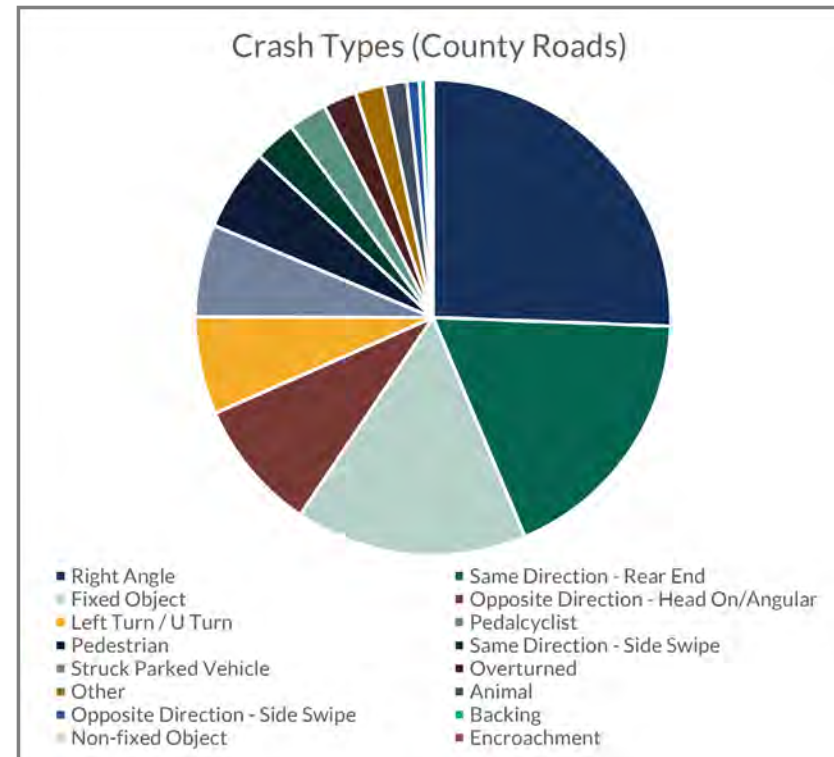
Crash Types (County Roads)

Right Angle crashes were the most common type of crash on county roads, with 362 (25.6%). While overall the third-most common crash type on county roads, Fixed Object crashes had a much higher severity rate, with the most fatal crashes (16, 36% of all fatal crashes on county roads) and the most serious injury crashes (31, 23.7% of all severe injury crashes on county roads). This is likely due in part to the higher speeds typical of roads operated by the county, but further investigation is warranted. Other notable crash types include Read End crashes (256, 18.1%), Head On/Angular crashes (127, 9.0%), and Left Turn/U-Turn crashes (94, 6.6%). Also notable is that the sixth- and seventh-most common crash types were bicyclist (89, 6.3%) and pedestrian (79, 5.6%) crashes.

Table 35: Crash Types (County Roads)

Crash Types	K - FATAL	A - SERIOUS INJURY	B - INJURY	TOTAL
Right Angle	5	29	328	362
Same Direction - Rear End	3	10	243	256
Fixed Object	16	31	176	223
Opposite Direction - Head On/Angular	5	16	106	127
Left Turn / U Turn	6	7	81	94
Pedalcyclist		8	81	89
Pedestrian	6	12	61	79
Same Direction - Side Swipe	1	8	32	41

Figure 18: Crash Types (County Roads)



Contributing Factors (County Roads)

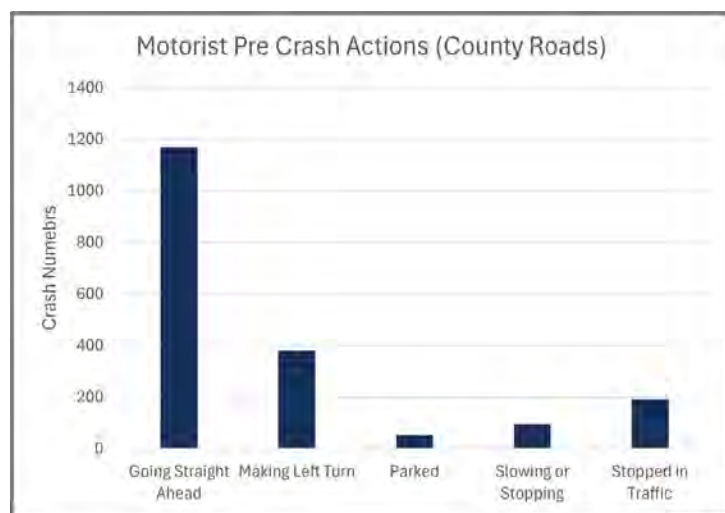
Motorist Pre Crash Actions

The majority of KAB crashes on county roads happened when motorists were going straight ahead, with 1169 crashes recorded. Left turns and stopped in traffic followed as the next most common contributing actions.

Table 36: Motorist Pre-Crash Actions (County Roads)

Pre-Crash Action	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Going Straight Ahead	32	106	1031	1169
Making Left Turn	9	26	346	381
Stopped in Traffic	2	8	181	191
Slowing or Stopping	1	7	88	96
Parked	0	1	52	53

Figure 19: Motorist Pre Crash Actions (County Roads)



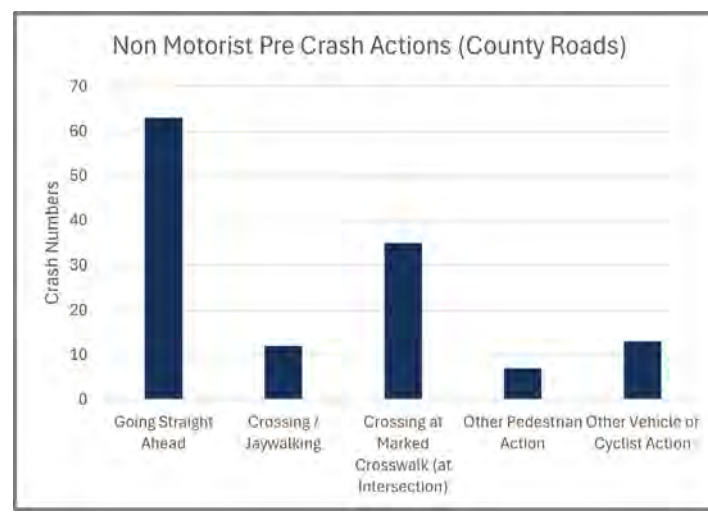
Non Motorist Pre Crash Actions

Most non-motorist KAB crashes on county roads occurred while traveling straight ahead, with 63 total crashes recorded. Crossing at marked crosswalks accounted for 35 crashes, while jaywalking contributed to 12 crashes.

Table 37: Non-Motorist Pre-Crash Actions (County Roads)

Pre-Crash Action	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Going Straight Ahead	0	5	58	63
Crossing at Marked Crosswalk (at Intersection)	4	4	27	35
Crossing / Jaywalking	1	3	8	12
Other Vehicle or Cyclist Action	0	0	13	13
Other Pedestrian Action	0	1	6	7

Figure 20: Non Motorist Pre Crash Actions (County Roads)



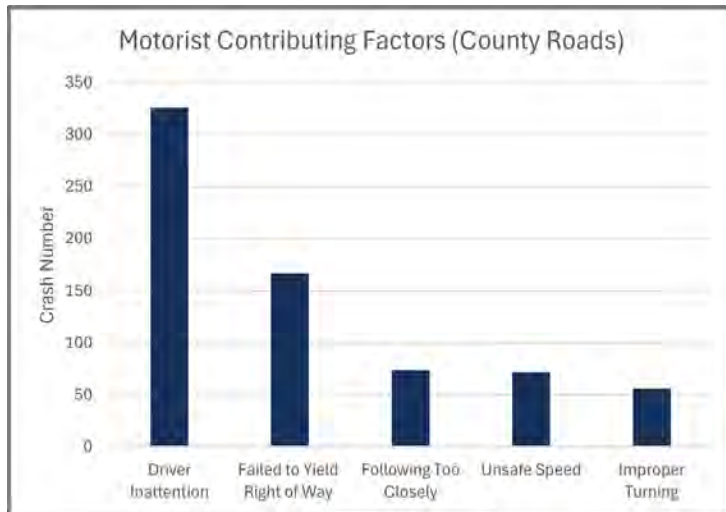
Motorist Contributing Factors

Driver inattention is the leading factor for motorists on county roads, contributing to 326 crashes. Other significant factors included failing to yield (167 crashes) and following too closely (74 crashes). Unsafe speed and improper turning also played notable roles in contributing factors.

Table 39: Motorist Contributing Factors (County Roads)

Pre-Crash Action	Total
Driver Inattention	326
Failed to Yield Right of Way to Vehicle/Pedestrian	167
Following Too Closely	74
Unsafe Speed	72
Improper Turning	56

Table 40: Motorist Contributing Factors (County Roads)



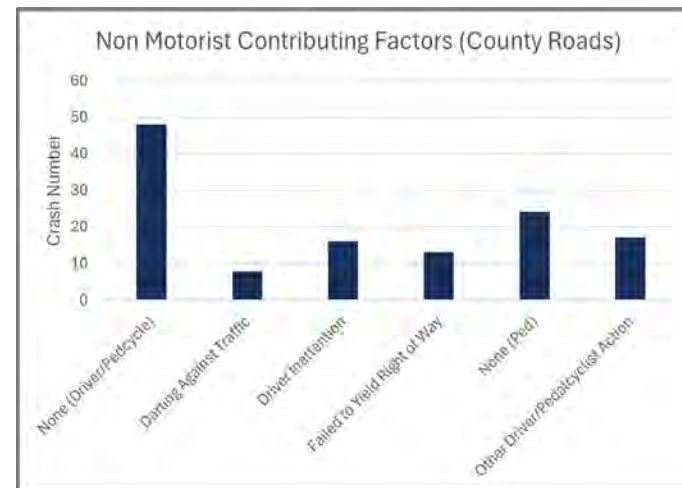
Non Motorist Contributing Factors

For non-motorists, the majority of crashes occurred where no clear pedestrian or cyclist contributing factor was identified (48 crashes). Among identifiable causes, driver inattention (16 crashes) and Failed to Yield Right of Way to Vehicle/Pedestrian (13 crashes) were the most common.

Table 38: Non-Motorist Contributing Factors (County Roads)

Pre-Crash Action	Total
None (Driver/Pedcycle)	48
None (Ped)	24
Other Driver/Pedalcyclist Action	17
Driver Inattention	16
Failed to Yield Right of Way to Vehicle/Pedestrian	13
Darting Against Traffic	8

Figure 21: Non-Motorist Contributing Factors (County Roads)



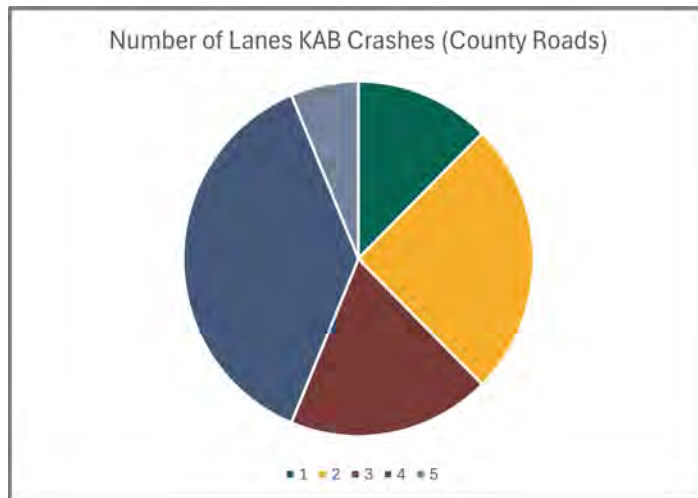
Number of Lanes (County Roads)

The majority of KAB crashes occurred along two-lane roads. Four-lane roads also showed a significant amount of crashes, while higher-lane roadways (six or more) reported fewer incidents.

Table 41: KAB Crashes by Number of Lanes (County Roads)

No. of Lanes	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
1	0	0	2	2
2	38	112	1058	1208
3	1	0	13	14
4	3	18	164	185
6	1	1	4	6

Figure 22: KAB Crashes by Number of Lanes (County Roads)



Speed Limit (County Roads)

KAB crashes were most concentrated on roads with posted speed limits of 40 and 50 mph. Moderate speeds (35–45 mph) also showed a high crash numbers, while crashes at low or unposted speeds were minimal. Roads with 25 mph, which are atypical among county roads, accounted for the least amount of crashes as well as the lowest fatal crash rate (1.25%).

Table 42: County Roads KAB Crashes by Speed Limit

Speed Limit	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
25	1	3	76	80
30	3	14	130	147
35	6	27	219	252
40	15	34	396	445
45	7	20	185	212
50	10	32	228	270

Functional Class (County Roads)

Most crashes on county roads occurred along urban minor arterials, with 811 crashes, followed by urban collectors with 310 crashes. Rural major arterials accounted for 129 crashes, rural minor arterials accounted for 69 crashes, and urban principal arterials accounted for 56 crashes.

Table 44: KAB Crashes by Functional Class (County Roads)

Functional Class	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Urban Minor Arterial	16	62	733	811
Urban Collector	8	31	271	310
Rural Major Collector	11	12	106	129
Rural Minor Arterial	4	9	56	69
Urban Principal Arterial	2	6	48	56
Rural Minor Collector	1	7	9	17
Urban Local	0	2	14	16
Rural Local	1	2	4	7

Shoulder Width (County Roads)

Crashes are most common where no shoulder is present, totaling 668 incidents. Of crashes occurring where a shoulder is present, the most common shoulder width is 2 feet.

Table 43: KAB Crashes by Shoulder Width (County Roads)

Shoulder Width	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
0	13	55	600	668
1	2	9	59	70
2	7	24	213	244
3	6	13	81	100
4	7	12	99	118

Environmental Factors (County Roads)

Clear weather accounted for the majority of crashes (1,173), followed by rain (158) and overcast conditions (54). Snow, fog, and other severe weather events contributed to fewer crashes in comparison. This may be influenced by factors such as reduced travel during adverse conditions, and some of the conditions listed below are uncommon.

Table 45: KAB Crashes by Environmental Factors (County Roads)

Functional Class	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Clear	37	111	1025	1173
Rain	5	13	140	158
Overcast	1	6	47	54
Snow	0	1	13	14
Fog / Smog / Smoke	0	0	8	8
Blowing Snow	0	0	2	2
(blank)	0	0	2	2
Blowing Sand / Dirt	0	0	1	1
Freezing Rain	0	0	1	1
Severe Crosswinds	0	0	1	1
Sleet / Hail	0	0	1	1

Motorist Age (County Roads)

Crash severity on county roads among motorists is highest in the 75+ age group, which accounts for 248 total crashes, including 21 fatalities. Younger motorists aged 16–20 also experience elevated crash counts (49), though with fewer fatalities compared to older drivers. Middle-aged groups, particularly 45–54 (113 crashes) and 55–64 (122 crashes), also represent significant portions of county road crashes.

Table 46: KAB Crashes by Motorist Age (County Roads)

Age	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
<16	0	0	0	0
16–20	5	11	33	49
21–24	2	17	32	51
25–34	9	27	61	97
35–44	12	25	57	94
45–54	10	25	78	113
55–64	5	28	89	122
65–74	10	29	37	76
75+	21	54	173	248

Non-Motorist Age (County Roads)

Non-motorist crashes are most concentrated among individuals under 16 (29 total) and ages 45–54 (25 total), highlighting vulnerability at both ends of the age spectrum. Older non-motorists, particularly those 55–64 (23 total) and 65–74 (18 total), also show notable crash involvement. The relatively low totals for younger adult groups (21–34) suggest that seniors and children are disproportionately represented in non-motorist crashes.

Table 47: KAB Crashes by Non-Motorist Age (County Roads)

Age	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
<16	0	4	25	29
16-20	0	2	19	21
21-24		1	2	3
25-34	0	4	18	22
35-44	1	1	19	21
45-54	0	1	24	25
55-64	2	4	17	23
65-74	2	3	13	18
75+		2	1	3

Driver Gender (County Roads)

Male drivers account for the majority of crash-involved injuries on county roads, with 306 crashes compared to 180 among female drivers. Males experienced nearly three times the number of fatalities (15 vs. 5) and a significantly higher share of serious injuries. This trend does not have a readily apparent cause and is worth additional investigation.

Table 48: KAB Crashes by Sex Group (County Roads)

Age	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Female	5	21	154	180
Male	15	37	254	306

Vehicle Type (County Roads)

Most county road crashes involved passenger vehicles, particularly cars, station wagons, and minivans, with 276 crashes recorded. Sport utility vehicles (80 crashes) and pickups (33 crashes) followed, while motorcycles accounted for 38 crashes.

Age	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Car/Station Wagon/Minivan	33	87	940	1060
Sport Utility Vehicle	11	41	434	486
Pickup	8	19	150	177
Motorcycle	8	21	78	107
Cargo Van (10K lbs or less)	1	2	24	27

Intersection Crashes (County Roads)

Out of 1,415 total county road crashes, 656 occurred at intersections. These included 14 fatal crashes, 57 serious injury crashes, and 585 minor injury crashes. The remaining 759 crashes occurred at non-intersection locations.

Table 49: Crashes at Intersections (County Roads)

	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
At Intersection	14	57	585	656
Grand Total	43	131	1241	1415

Alcohol Involved (County Roads)

A total of 121 crashes on county roads involved alcohol, resulting in 10 fatalities and 22 serious injuries. The remaining 1,294 crashes did not involve alcohol. While alcohol-related crashes made up a relatively small share of the total, the fatal crash rate for alcohol-related crashes was 8.2%, more than three times higher than the 2.5% fatal crash rate for non-alcohol-related crashes.

Table 51: Alcohol-Related Crashes (County Roads)

Alcohol Involved	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
No	33	109	1152	1294
Yes	10	22	89	121

Hit and Run (County Roads)

Hit-and-run incidents accounted for 37 county road crashes, including 1 fatality and 2 serious injuries. While these represent a small share of total crashes. The vast majority of county road crashes (1,378) did not involve hit-and-run.

Table 50: Hit-and-Run Crashes (County Roads)

Hit and Run	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
Yes	1	2	34	37
No	42	129	1207	1378

High-Crash Locations (County Roads)

High-Crash Corridors (County Roads)

The top 20 county road corridors in Monmouth County show several critical crash concentrations. Route 537 stands out with 161 total crashes, the highest among county roads, followed by Monmouth County 3 and Route 524, each with 84 crashes. Route 520 (81 crashes) and Route 516 (80 crashes) also contribute substantially. Mid-tier corridors such as Monmouth County 16, Route 547, Route 527, and Monmouth County 17 II recorded between 36–46 crashes, while Monmouth County 15 had 34.

The second tier of corridors, including Monmouth County 13 (33 crashes), Route 539 (32), Monmouth County 40A (31), and Monmouth County 50 (30), show smaller totals but remain significant given their mix of serious and fatal injuries. Several other corridors Monmouth County 18 III, Monmouth County 55, Monmouth County 18 I, Monmouth County 4 II, Monmouth County 12/52, and Monmouth County 23 range from 20–27 crashes.

Table 52: High Crash Corridors (County Roads)

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
ROUTE 537	4	13	144	161
MONMOUTH COUNTY 3	5	6	73	84
ROUTE 524	4	11	69	84
ROUTE 520	1	8	72	81
ROUTE 516		12	68	80
MONMOUTH COUNTY 16	2	2	42	46
ROUTE 547	2	5	37	44
ROUTE 527	2	5	33	40
MONMOUTH COUNTY 17 II		5	31	36
MONMOUTH COUNTY 15		1	33	34

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
MONMOUTH COUNTY 13		2	31	33
ROUTE 539	1	4	27	32
MONMOUTH COUNTY 40 A		4	27	31
MONMOUTH COUNTY 50	2	3	25	30
MONMOUTH COUNTY 55		4	23	27
MONMOUTH COUNTY 18 III			27	27
MONMOUTH COUNTY 18 I	1	1	25	27
MONMOUTH COUNTY 4 II		2	21	23
MONMOUTH COUNTY 12 and 52		2	19	21
MONMOUTH COUNTY 23		3	17	20

Pedestrian High-Crash Corridors (County Roads)

Pedestrian crashes on county road corridors are concentrated on a handful of routes, with Route 516 reporting the most (7 crashes). Monmouth County corridors 40A, 10, and 11I each recorded 6 crashes, followed closely by Monmouth County 3 with 5 crashes. Several others, including Monmouth County 17 III, 18 III, 8, and 16, had between 3 and 4 pedestrian crashes, while Monmouth County 57 recorded 2 crashes.

Table 53: Pedestrian High-Crash Corridors (County Roads)

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
ROUTE 516		5	2	7
MONMOUTH COUNTY 40 A		5	1	6
MONMOUTH COUNTY 10		5	1	6
MONMOUTH COUNTY 11 I		5	1	6
MONMOUTH COUNTY 3		4	1	5
MONMOUTH COUNTY 17 III		4		4
MONMOUTH COUNTY 18 III		3		3
MONMOUTH COUNTY 8		2	1	3
MONMOUTH COUNTY 16	1	2		3
MONMOUTH COUNTY 57	1		1	2

Bicyclist High-Crash Corridors (County Roads)

On county roads, KAB crashes involving bicyclists are highest on Monmouth County 18 III, with 14 total crashes (substantially higher than any other corridor). Route 537 and Route 516 each recorded 7 crashes, followed closely by Route 524 and Monmouth County 15 with 6 crashes each. Smaller but notable totals include Route 520 (5 crashes) and Monmouth County 50 (4 crashes). Several corridors, including Monmouth County 17 II, Monmouth County 30 II, and Route 547, each reported 3 crashes.

Table 54: Bicyclist High-Crash Crash Corridors (County Roads)

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
MONMOUTH COUNTY 18 III		14		14
ROUTE 537		6	1	7
ROUTE 516		6	1	7
ROUTE 524		6		6
MONMOUTH COUNTY 15		6		6
ROUTE 520		4	1	5
MONMOUTH COUNTY 50		3	1	4
MONMOUTH COUNTY 17 II		2	1	3
MONMOUTH COUNTY 30 II		3		3
ROUTE 547		3		3

High-Crash Intersections (County Roads)

The highest KAB crash intersection on county roads is Route 537 at Stillwells Corner Road/Wemrock Road, with 13 crashes, including a fatality and a serious injury. Monmouth County 16 at Brownie Road follows closely with 10 crashes, nearly all injury-related. Several other intersections Monmouth County 3 at Harbor Road/Spring Valley Road, Route 537 at Gravel Hill Road, and Route 527 at Ely Harmony Road recorded 8–10 crashes each. Additional locations, such as Monmouth County 40A at 7th Avenue, Route 537 at Kozloski Road, and Route 537 at Thompson Grove Road, each reported 7–8 crashes. Overall, Route 537 stands out with multiple high-crash intersections, making it a clear priority corridor for further investigation.

Table 55: High-Crash Intersections (County Roads)

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
ROUTE 537 and STILLWELLS CORNER RD / WEMROCK RD	1	1	11	13
MONMOUTH COUNTY 16 and BOWNE RD		1	9	10
MONMOUTH COUNTY 3 and HARBOR RD / SPRING VALLEY RD			10	10
ROUTE 537 and GRAVEL HILL RD			8	8
ROUTE 527 and ELY HARMONY RD		1	7	8
MONMOUTH COUNTY 40 A and 7TH AVE / LAREINE AVE		1	7	8
ROUTE 537 and CR 55 / KOZLOSKI RD		1	6	7
ROUTE 537 and THOMPSON GROVE RD			7	7
MONMOUTH COUNTY 16 and GREEN GROVE RD				7
ROUTE 537 and IRON BRIDGE RD				6

Pedestrian High-Crash Intersections (County Roads)

Pedestrian crashes at county road intersections have identical total of crashes. The top five locations each reporting two to three total crashes. Monmouth County 3 and Ivyhill D saw one serious injury along with Route 15 and High St / Railroad Plaza,

Table 56: Pedestrian High-Crash Intersections (County Roads)

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
MONMOUTH COUNTY 3 and IVYHILL DR		1	2	3
ROUTE 516 and HIGH ST / RAILROAD PLAZA		1	1	2
MONMOUTH COUNTY 40 A and SPRINGWOOD AVE			2	2
MONMOUTH COUNTY 10 and BRIDGE AVE			2	2
MONMOUTH COUNTY 11 I and MECHANIC ST			2	2

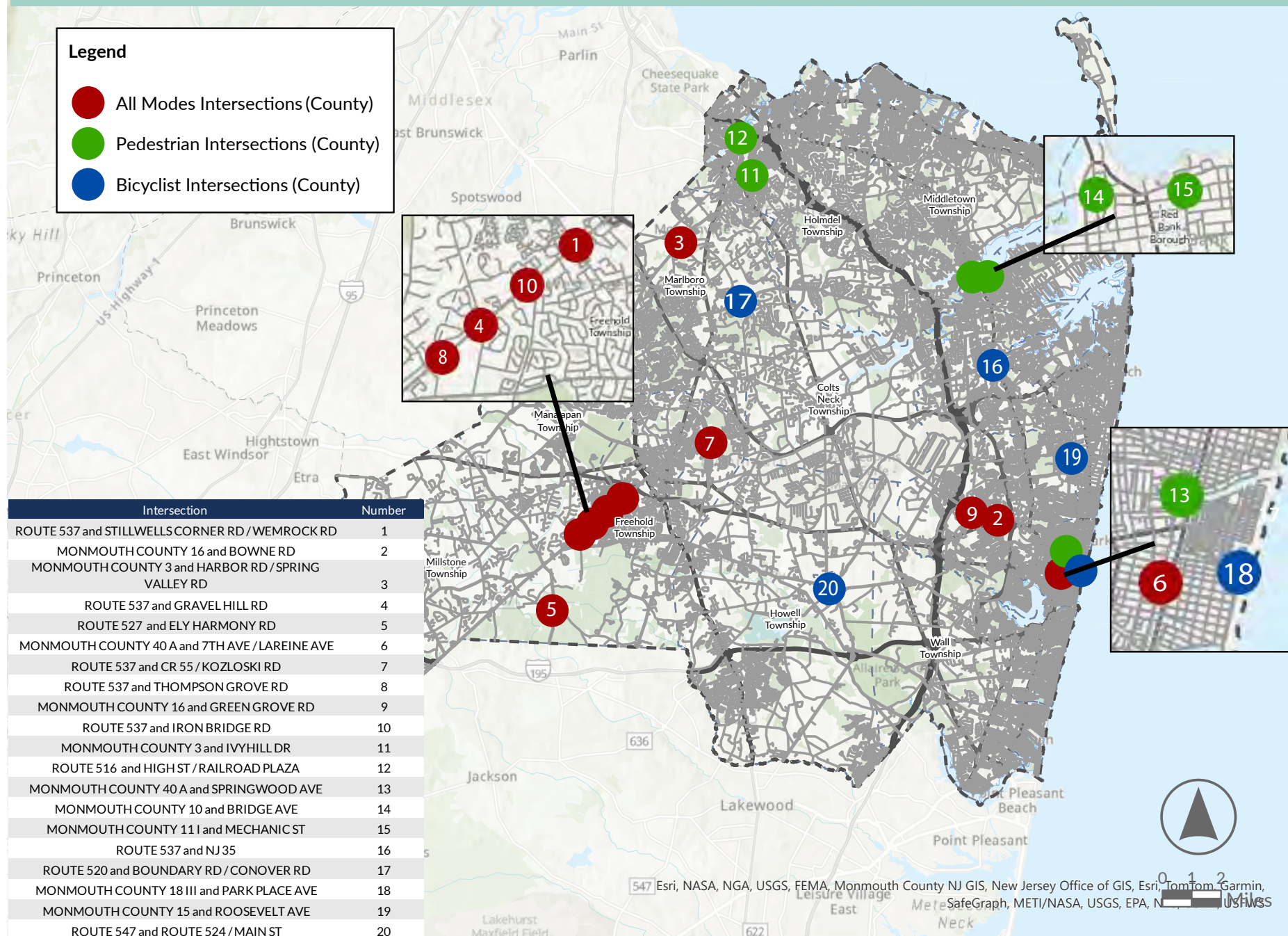
Bicyclist High-Crash Intersections (County Roads)

Four intersections on County Roads in Monmouth County had two minor injury crashes.

Table 57: Bicyclist High-Crash Intersections (County Roads)

Corridor	K - FATAL	A - SERIOUS INJURY	B - INJURY	Total
ROUTE 537 and NJ 35			2	2
ROUTE 520 and BOUNDARY RD / CONOVER RD			2	2
MONMOUTH COUNTY 18 III and PARK PLACE AVE			2	2
MONMOUTH COUNTY 15 and ROOSEVELT AVE			2	2
ROUTE 547 and ROUTE 524 / MAIN ST			1	1

Map 6: Highest-Crash Intersections (County)



Summary & Next Steps

Monmouth County is a blend of rural and urban, busy and quiet, touristic and residential. This memorandum captures the crash trends across the county, but there is more in depth analysis that can be performed beyond this point. Factors that lead to crashes in individual municipalities, specific roadways, and specific times can all be investigated in greater detail, but this memorandum is an attempt to provide the project team and Monmouth County with the baseline information on what factors should be investigated further. Some of those initial key findings that encourage further study include, but are not limited to:

- Crashes are higher during the summer (July - September). This can be attributed to tourism at the various parts of the Jersey Shore within and near Monmouth County, but the ways in which those crashes are different or impact people differently can be explored further.
- Crashes disproportionately affect men as opposed to women. This is worth investigating as it relates to overall driver trends (do men drive more?), driver behavior, and the potential impact this finding may have on messaging efforts.
- Specific high-crash locations will continue to be an issue until addressed, and will be identified more specifically in the High-Injury Network for the county. These locations will be optimal locations for safety improvements and will likely be assessed further in this plan.
- Seasonal differences between bicyclist crashes and pedestrian crashes are intriguing, as the rates of bicyclist crashes follow expected trends but those involving pedestrians are somewhat the inverse. Investigation into why pedestrian crashes increase during the colder and darker months is worthwhile.
- Age-related statistics, specifically those which indicate higher crash rates and severity for older drivers and non-motorists, are worth looking into in greater detail.

This crash analysis will be followed by the aforementioned High-Injury Network, which will pinpoint specific road segments which have high levels of severe crashes. Using the information in this memorandum as well as in that effort will help the project team identify specific countermeasures that may be effective in improving road safety in Monmouth County. The incorporation of INRIX near-miss data will also bolster the reliability of these findings.

Public outreach can, and should, also be informed by this data. Some of the aforementioned findings regarding specific demographic groups (age, active transportation) should be considered when planning the events, approach, and messaging to be used in order to acquire the best and most useful input possible.

Monmouth County Safe Streets for All Safety Action Plan

HIGH-INJURY NETWORK MEMORANDUM



SAFE STREETS MONMOUTH

NOVEMBER 2025



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Summary

The purpose of this technical memorandum is to present the initial high-injury network (HIN) for Safe Streets Monmouth – the County’s safety action plan. It provides a summary of the methodology adopted in developing the initial HIN for the County. Based on discussion and direction of the County, the team utilized the latest available five-year crash data (2017-2021) in the NJDHTS Numetric tool to develop and further refine the HIN. This initial HIN will then be prioritized based on a variety of factors including but not limited to outreach, county priorities, access for all/demographic analysis, recent fatal crash data and other relevant factors.

and 600-series routes). There are a total of 406.4 miles of county-owned roads in the county, and a total of 1,415 crashes on these roads (43 fatalities, 131 serious injuries, and 1,241 minor injuries) during the 2017-2021 study period. This data was acquired using the NJDHTS Numetric tool, which was also used to create the sliding window analysis discussed in the following section.

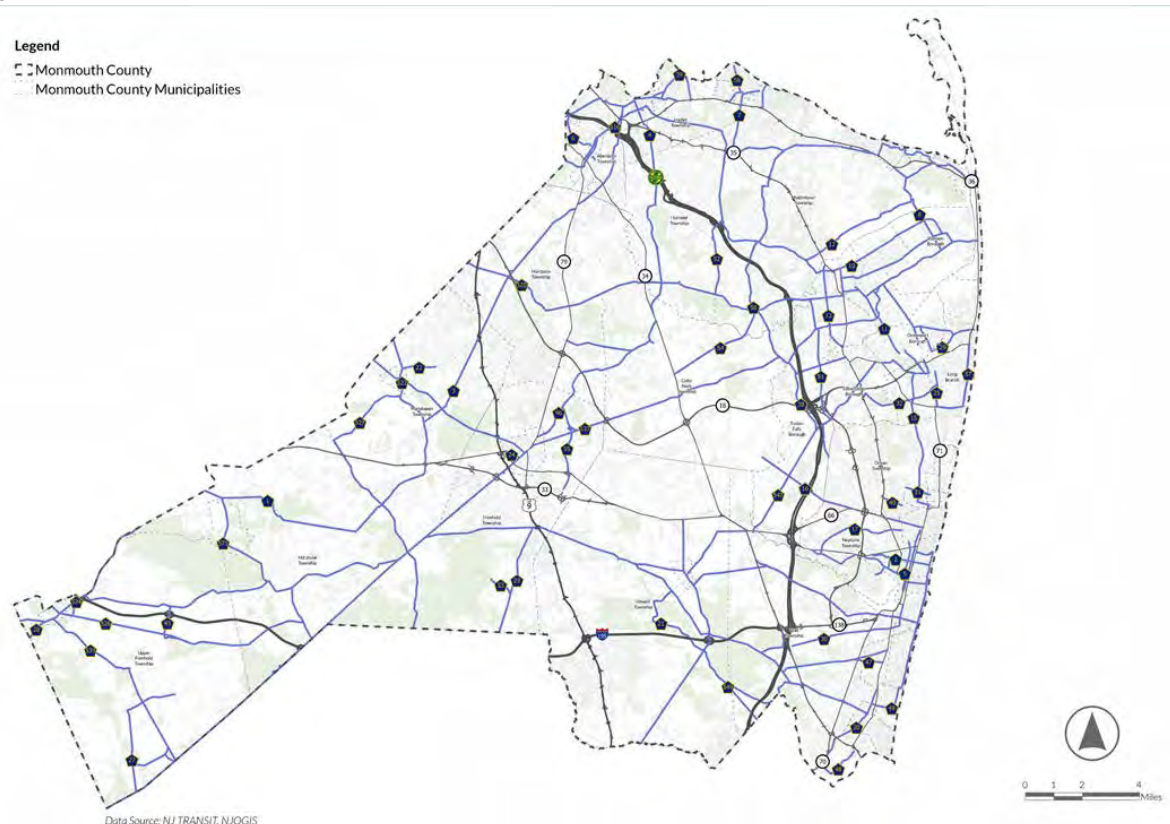
High-Injury Network Overview

A HIN consists of roadway segments where there is a higher concentration of severe crashes than the rest of the segments within a set geographic area. It is a data-driven process that helps identify the high-crash locations to prioritize for further study and investment to achieve the county’s crash reduction goals.

High-Injury Network Data

For the Safe Streets Monmouth plan, the study area for the HIN is the Monmouth County-owned road network .(500-series

Figure 1: Study Area Roads (in blue)



Initial High-Injury Network Methodology

The high injury network was created using a network screening method called a sliding window analysis that combines the number of crashes (HIN score) experienced within a set length of a roadway, referred to as a “window.” For Safe Streets Monmouth, the sliding window (set to one mile) was run along the roadway network to find the highest sum of ePDO (equivalent property damage only; see Table 1). The ePDO metric serves as a weight to compare crash severity, and in the Numetric tool, fatal and severe injury crashes weighed an ePDO of 55.04 and minor injury crashes weighed 16.68.

After combining a final score for the window, the next one-mile segment or “window” is moved along the roadway by 0.1 miles. This process was repeated to identify scores to every one-mile segment of County-owned roadways with 0.1 mile spacing between segments. The sliding window analysis process used in this plan removes overlapping segments, with the highest-scoring segment retained in any one set of consecutive sliding windows; this ensures that in the final set of sliding windows, each crash is counted exactly once.

Three separate HINs were created utilizing different crash types (all crashes, bicyclist crashes only and pedestrians crashes only). A HIN built from all crashes in the study area identifies

Figure 2: Sliding Window Analysis Process



the overall areas of high-risk road conditions, but can often be skewed towards the highest-volume locations. Beyond this, additional crash analysis (including what is found in the Safe Streets Monmouth crash analysis memorandum and in other safety analyses) consistently shows that crashes involving vulnerable road users are typically more likely to result in severe outcomes. For this reason, two additional HINs are included in this analysis: a HIN including just pedestrian-related crashes, and a HIN including just bicyclist-related crashes. These three HINs, including the top locations and HIN-wide statistics, are discussed in the following sections.

Table 1: Equivalent Property Damage Only (ePDO) Score Rates

Crash Severity	KABCO Scale	Dollars	ePDO Value
Fatal Injury	(K) Fatal Injury	\$655,000	55.0
Suspected Serious Injury	(A) Suspected Serious Injury	\$655,000	55.0
Suspected Minor Injury	(B) Suspected Minor Injury	\$198,500	16.7
Possible Injury	(C) Possible Injury	\$125,600	10.6
No Apparent Injury	(O) Property Damage-Only	\$11,900	1.0

All Modes HIN

The initial Sliding Window Analysis creates a set of one-mile segments that contain all study area crashes. This set contains the highest-crash road segments, but also many road segments which contain comparatively few crashes, some with just one minor injury crash, meaning windows across the study area (the county route network) were generated that contained all KAB crashes, with one-mile windows ranging from an ePDO sum of 16.7 (one minor injury crash) to 620.5. Sorting these segments by their ePDO value brings the road segments with the highest concentration of crash severity to the top of the list, which contain a disproportionate share of this crash severity and volume. The project team reviewed this ranked list to identify the ePDO cutoff/threshold value where all HIN segments above that cutoff/threshold value contain 50% of KAB crashes within the study area. The cutoff/threshold value for the all modes HIN segments is 155.13.

Isolating the segments above that ePDO threshold significantly reduces the total road length while reducing the ePDO by no more than 50%. Based on this approach, the total roadway length in the All Modes Sliding Window Analysis was reduced from 284 miles to 75 miles (a 73% reduction) while retaining 52.8% of KAB crashes. The resulting All Modes High Injury Network also contains 63.3% of KSI crashes (56.8% of fatal crashes, 65.4% of severe injury crashes). The 75-mile HIN makes up 18.5% of the county road system while containing the majority of KAB crashes and an even larger majority of KSI crashes.

Table 2: All Modes HIN Threshold Process and Result

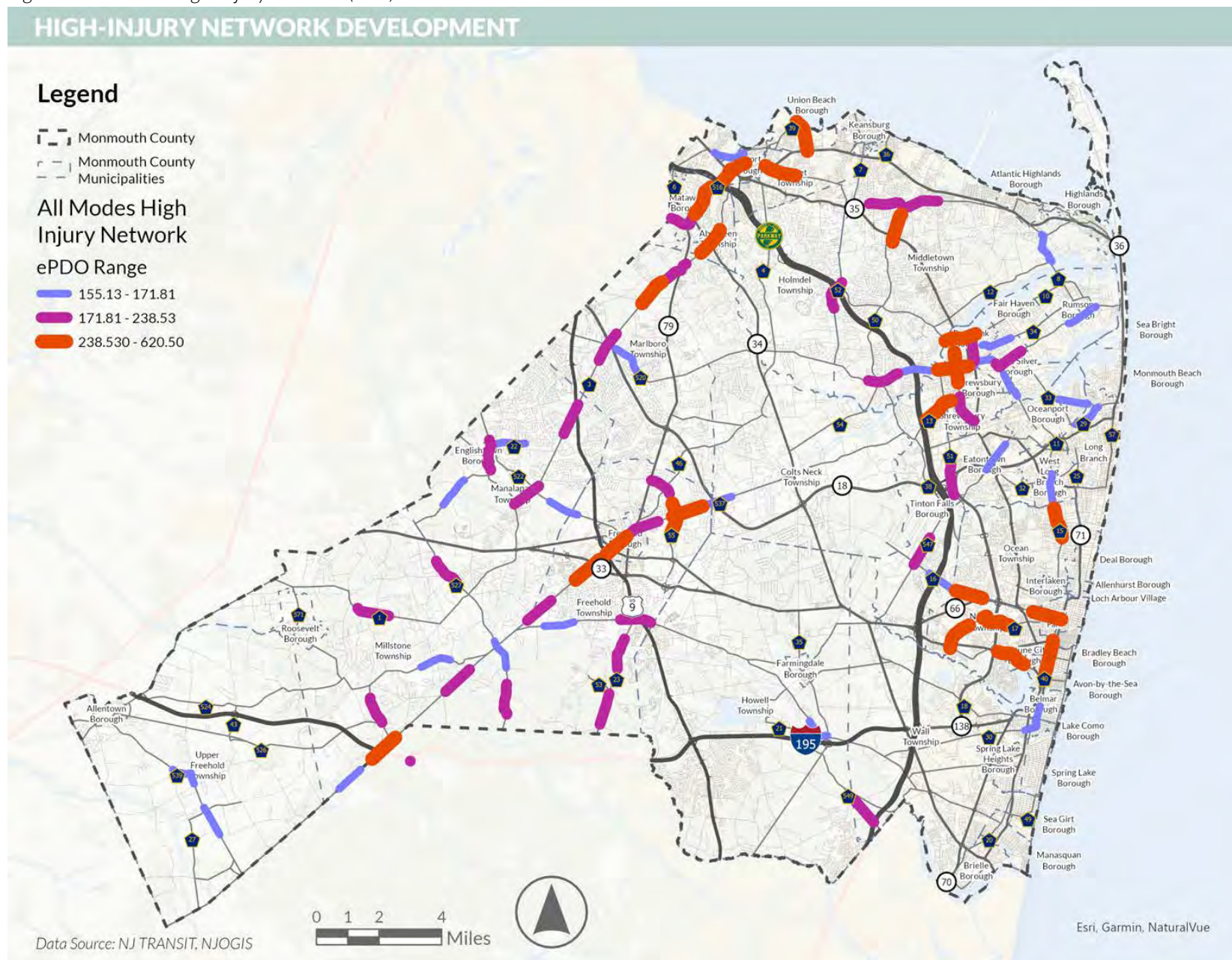
All Modes HIN by ePDO Threshold Values	TOTAL	ePDO Threshold Value
		155.13
Number of HIN Windows/Miles	284	75
KAB Crashes	1432	756
Fatal Crashes (K)	44	25
Severe Injury Crashes (A)	136	89
Minor Injury Crashes (B)	1252	642

Table 3: Top 20 All Modes HIN Segments

Road Name	Start/End	Fatal Crashes	Severe Crashes	Minor Crashes	ePDO	Municipality
W. Main Street (County Route 537)	MP 50 – MP 51	2	2	24	620.50	Freehold Township
Memorial Drive (County Route 40-A)	MP 0.6 – MP 1.6	0	3	22	532.10	Neptune Township Neptune City Bradley Beach Avon-by-the- Sea
W. Main Street (County Route 537)	MP 51.3 – MP 52.3	1	2	15	415.34	Freehold Borough
W. Bangs Avenue (County Route 17-2)	MP 1.5 – MP 2.5	0	3	13	381.97	Neptune Township
Newman Springs Road (County Route 520)	MP 15.6 – MP 16.6	1	1	16	376.97	Red Bank Tinton Falls Shrewsbury Borough
Asbury Avenue (County Route 16)	MP 5.2 – MP 6.2	1	2	12	365.29	Asbury Park Neptune Township
Shrewsbury Avenue (County Route 13)	MP 1.4 – MP 2.4	0	2	13	326.93	Red Bank Tinton Falls Shrewsbury Borough
Kozloski Road (County Route 55)	MP 1.4 – MP 2.4	0	2	13	326.93	Freehold Township
Asbury Avenue (County Route 16)	MP 2.6 – MP 3.6	0	0	19	316.93	Ocean Neptune Township
Broad Street (County Route 516)	MP 7.3 – MP 8.3	0	2	12	310.25	Matawan

Jade Drive (County Route 3)	MP 7.7 – MP 8.7	1	1	11	293.57	Marlboro
Main Street (County Route 516)	MP 8.8 – MP 9.8	0	1	13	271.89	Keyport Aberdeen
Colts Neck Road (County Route 537)	MP 53.8 – MP 54.8	0	1	13	271.89	Freehold Township
W. Front Street (County Route 10)	MP 0 – MP 1	0	1	13	271.89	Red Bank Middletown
Monmouth Road (County Route 15)	MP 2.3 – MP 3.3	0	0	16	266.89	Ocean
Monmouth Road (County Route 537)	MP 41.3 – MP 42.3	0	2	9	260.21	Millstone
Lloyd Road (County Route 3)	MP 10.3 – MP 11.3	1	1	9	260.21	Aberdeen
Sycamore Avenue (County Route 13-A)	MP 0.7 – MP 1.7	1	1	9	260.21	Tinton Falls
W. Bangs Avenue (County Route 17-2)	MP 0 – MP 1	0	2	9	260.21	Neptune Township
W. Sylvania Avenue (County Route 17-3)	MP 0.4 – MP 1.4	0	1	12	255.21	Neptune City

Figure 3: All Modes High-Injury Network (HIN)



Pedestrian HIN

Like the All Modes HIN, the initial Pedestrian sliding window analysis created a set of one-mile segments that contain all specified crashes: pedestrian KAB crashes on county roads. A HIN was developed utilizing only pedestrian KAB crashes. However, after review with the County, it was determined that given the vulnerability of pedestrians it was important to identify areas where any pedestrian crash occurred regardless of the severity. For a pedestrian, the difference between a minor and severe crash can result from a minor change in factors such as higher speeds, different angle of impact, etc. A revised HIN was therefore developed that included all pedestrian crashes on County roads, not just fatal, severe, and minor injury crashes.

The revised HIN contains the highest-crash road segments, but also many road segments which contain comparatively few

crashes, ranging from an ePDO sum of 1.00 to 195.79. Like the All Modes High Injury Network, an ePDO cutoff/threshold value was identified to identify the smallest HIN segments that contain at least 50% of KAB crashes. The cutoff/threshold value for the Pedestrian HIN segments was 55.04

Based on this approach, the Pedestrian HIN total roadway length was reduced from 90 miles to 20 miles (a 77.8% reduction) while retaining 54.1% of KAB crashes. Notably, this resulting set of sliding windows segments, which is the Pedestrian High Injury Network, also contains every KSI crash (7 fatal, 13 severe injury). The resulting 20-mile HIN comprises just 4.9% of the county road system while containing the aforementioned majority of KAB crashes and all KSI crashes.

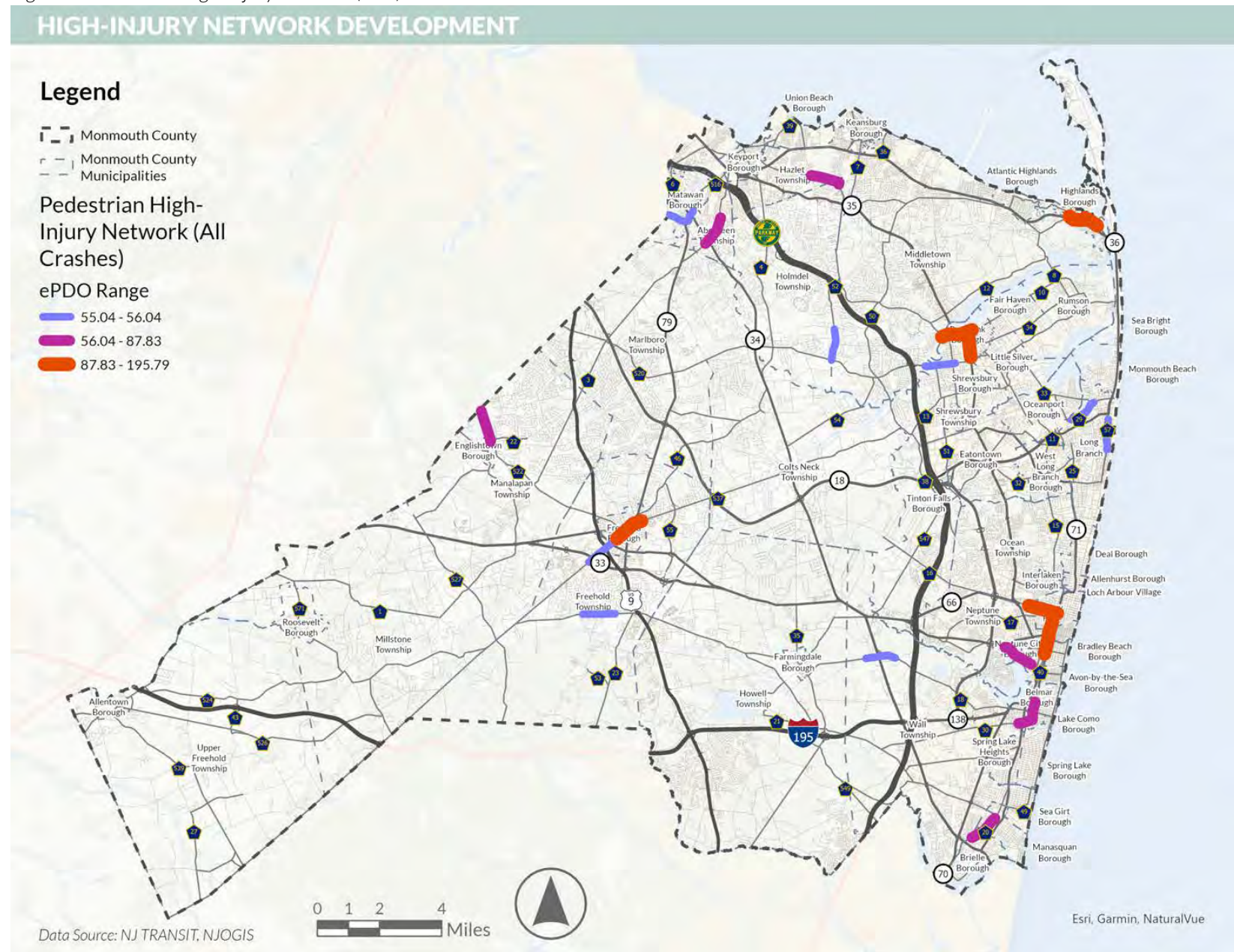
Table 4: Pedestrian HIN Threshold Process and Result

All Modes HIN by ePDO Threshold Values	TOTAL	ePDO Threshold Value
		55.04
Number of HIN Windows/Miles	90	20
KAB Crashes	85	46
Fatal Crashes (K)	7	7
Severe Injury Crashes (A)	13	13
Minor Injury Crashes (B)	65	26
Possible Injury Crashes (C)	58	19
Property Damage Only Crashes (O)	51	14

Table 5: Top 10 Pedestrian HIN Segments

Road Name	Start/End	Fatal Crashes	Severe Crashes	Minor Crashes	Possible Injury Crashes	Property Damage Only	ePDO	Municipality
E. Main Street (County Route 537)	MP 51.8 – MP 52.8	1	1	3	3	4	195.79	Freehold Borough
W. Front Street (County Route 10)	MP 0 – MP 1	0	1	5	3	1	171.11	Red Bank Middletown
Memorial Drive (County Route 40-A)	MP 0.2 – MP 1.2	0	1	5	2	2	161.55	Neptune Township Neptune City Asbury Park Bradley Beach
Broad Street (County Route 11-1)	MP 0 – MP 1	0	1	4	1	0	132.32	Red Bank
Scenic Drive/Linden Avenue/ Waterwich Avenue/Bay Avenue (County Route 8)	MP 2.8 – MP 3.8	0	1	2	1	0	98.96	Highlands
Asbury Avenue (County Route 16)	MP 5.2 – MP 6.2	1	0	1	2	1	93.83	Asbury Park Neptune Township
W. Sylvania Avenue (County Route 17-3)	MP 0 – MP 1	0	0	4	2	0	87.83	Neptune City
Middle Road (County Route 516)	MP 12.2 – MP 13.2	0	1	1	1	0	82.28	Hazlet Holmdel
Lloyd Road (County Route 3)	MP 10.6 – MP 11.6	0	1	1	1	0	71.72	Aberdeen
18th Avenue/ Main Street (County Route 30-2)	MP 3.4 – MP 4.4	1	0	0	1	2	67.60	Belmar Lake Como Wall

Figure 4: Pedestrian High-Injury Network (HIN)



Bicyclist HIN

The initial bicyclist sliding window analysis created a set of one-mile segments that contain all specified crashes: bicyclist KAB crashes on county roads. Like the pedestrian HIN, after review with the County, it was determined that given the vulnerability of bicyclists it was important to identify areas where any bicyclist crash occurred regardless of the severity. For a bicyclist, the difference between a minor and severe crash can be a minor change in factors such as higher speeds, different angle of impact, etc. A revised HIN was developed that included bicyclist crashes on County roads that may not have led to injury.

This set contains the highest-crash road segments, but also many road segments which contain comparatively few crashes, ranging from an ePDO sum of 1.00 to 211.06. The ePDO cutoff/threshold value to identify the smaller HIN network that contains at least 50% of KAB crashes was 34.36.

Based on this approach, the bicyclist sliding window analysis total roadway length was reduced from 119 miles to 24 miles (a 79.8% reduction) while retaining 53.8% of KAB crashes. This resulting set of sliding windows segments, which is the Bicycle High Injury Network, also contains every KSI crash (0 fatal, 8 severe injury). The 24-mile HIN comprises just 5.9% of the county road system while containing the aforementioned majority of KAB crashes and all KSI crashes.

Table 6: Bicyclist HIN Threshold Process and Result

All Modes HIN by ePDO Threshold Values	TOTAL	ePDO Threshold Value
		34.36
Number of HIN Windows/Miles	119	24
KAB Crashes	91	49
Fatal Crashes (K)	0	0
Severe Injury Crashes (A)	8	8
Minor Injury Crashes (B)	83	41
Possible Injury Crashes (C)	91	44
Property Damage Only Crashes (O)	71	20

Table 7: Top 10 Bicyclist HIN Segments

Road Name	Start/End	Fatal Crashes	Severe Crashes	Minor Crashes	Possible Injury Crashes	Property Damage Only	ePDO	Municipality
Ocean Avenue (County Route 18-3)	MP 2.3 – MP 3.3	0	0	5	12	1	211.06	Belmar Lake Como
Lower Main Street/ Atlantic Avenue (County Route 516)	MP 7.9 – MP 8.9	0	1	1	2	0	92.83	Matawan Aberdeen Township
Ocean Avenue (County Route 18-3)	MP 3.9 – MP 4.9	0	0	4	2	4	91.83	Bradley Beach Avon-by-the-Sea
Church Street/ Kings Highway/New Monmouth Road (County Route 50)	MP 6.2 – MP 7.2	0	1	1	1	0	82.28	Middletown Township
Monmouth Road (County Route 15)	MP 2 – MP 3	0	0	4	1	3	80.28	Ocean Township
Main Street/Palmer Avenue (County Route 7-1)	MP 1.1 – MP 2.1	0	0	2	4	2	77.58	Keansburg Hazlet Holmdel Middletown
Newman Springs Road (County Route 520)	MP 6.9 – MP 7.9	0	1	1	0	0	71.72	Marlboro Colts Neck
W. Main Street (County Route 537)	MP 50 – MP 51	0	1	1	0	0	71.72	Freehold Township
Locust Point Road (County Route 8-A)	MP 2 – MP 3	0	1	1	0	0	71.72	Middletown Township
Ocean Avenue (County Route 18-3)	MP 0.1 – MP 1.1	0	0	2	3	1	66.03	Spring Lake

HIGH-INJURY NETWORK DEVELOPMENT

Legend

- Monmouth County
- Monmouth County
- Municipalities

Pedestrian High-Injury Network (All Crashes)

ePDO Range

- 55.04 - 56.04
- 56.04 - 87.83
- 87.83 - 195.79

Data Source: NJ TRANSIT, NJOGIS

Esri, Garmin, NaturalVue

Next Steps

These HINs provide insight into areas of high traffic volumes, possibly unsafe road conditions, and travel habits of bicyclists and pedestrians that may not match where adequate infrastructure is provided to those road users. Further investigation of the conditions along these corridors is needed to fully understand some of the nuances of what is occurring, and the HIN locations will play a considerable role in the selection of priority segments. Prior to selecting the segments for concepts and further investigation, there will be a HIN prioritization process undertaken to incorporate additional factors. These can range from considerations regarding access for all, county priorities that span beyond crash data, and the incorporation of INRIX near-miss and high-risk data. Combining these additional factors with the three HINs will result in a final Prioritized HIN which should be used to guide the county to advance towards its safety goal.

Monmouth County Safe Streets for All Safety Action Plan

APPENDIX

SAFE STREETS
M O N M O U T H



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All Modes HIN Segments

Rank	Road Name	County Route Number	Beginning MP	Ending MP	Fatal	Serious	Minor	ePDO	Municipality
1	West Main Street	537	50	51	2	2	24	620.5	Freehold Township
2	Memorial Drive	40-A	0.6	1.6	0	3	22	532.1	Neptune City Borough
3	West Main Street	537	51.3	52.3	1	2	15	415.34	Freehold Borough
4	West Bangs Avenue	17-2	1.5	2.5	0	3	13	381.97	Neptune Township
5	Newman Springs Road	520	15.6	16.6	1	1	16	376.97	Red Bank Borough
6	Asbury Avenue	16	5.2	6.2	1	2	12	365.29	Neptune Township
7	Shrewsbury Avenue	13	1.4	2.4	0	2	13	326.93	Colts Neck Township
7	Kozloski Road	55	1.4	2.4	0	2	13	326.93	Freehold Township
9	Asbury Avenue	16	2.6	3.6	0	0	19	316.93	Ocean Township
10	Broad Street	516	7.3	8.3	0	2	12	310.25	Matawan Borough
11	Tennent Road	3	7.7	8.7	1	1	11	293.57	Marlboro Township
12	Maple Place	516	8.8	9.8	0	1	13	271.89	Keyport Borough
12	Colts Neck Road	537	53.8	54.8	0	1	13	271.89	Freehold Township
12	West Front Street	10	0	1	0	1	13	271.89	Red Bank Borough
15	Monmouth Road	15	2.3	3.3	0	0	16	266.89	Ocean Township
16	Monmouth Road	537	41.3	42.3	0	2	9	260.21	Millstone Township
16	Lloyd Road	3	10.3	11.3	1	1	9	260.21	Aberdeen Township
16	Sycamore Avenue	13-A	0.7	1.7	1	1	9	260.21	Colts Neck Township
16	West Bangs Avenue	17-2	0	1	0	2	9	260.21	Neptune Township
20	West Sylvania Avenue	17-3	0.4	1.4	0	1	12	255.21	Neptune City Borough
21	Middle Road	516	10.6	11.6	0	3	5	248.53	Hazlet Township
22	Front Street	39	1.2	2.2	0	2	8	243.53	Union Beach Borough
22	New Monmouth Road	50	6.8	7.8	0	2	8	243.53	Middletown Township
24	Rumson Road	520	17.7	18.7	0	1	11	238.53	Little Silver Borough
24	Tennent Road	3	5.4	6.4	1	0	11	238.53	Marlboro Township
24	Broad Street	11-1	0	1	0	1	11	238.53	Red Bank Borough

27	Monmouth Road	537	48	49	0	0	14	233.53	Freehold Township
28	Siloam Road	527	20.1	21.1	1	1	7	226.85	Freehold Township
28	Main Street	3	0	1	1	1	7	226.85	Manalapan Township
28	Tennent Road	3	2.8	3.8	1	1	7	226.85	Manalapan Township
31	Hope Road	51	0.3	1.3	0	0	13	216.85	Colts Neck Township
32	Monmouth Road	537	44.5	45.5	1	2	3	215.17	Millstone Township
33	Park Avenue	527	29.6	30.6	0	2	6	210.17	Englishtown Borough
33	Herbertsville Road	549	15	16	0	2	6	210.17	
35	Jackson Mills Road	23	2.2	3.2	0	1	9	205.17	Freehold Township
35	Everett Road	52	1.8	2.8	0	1	9	205.17	Holmdel Township
37	Millstone Road	571	24.2	25.2	0	0	12	200.17	Millstone Township
38	Perrineville Road	1	2.5	3.5	0	3	2	198.49	Millstone Township
39	Leonardville Road	516	16	17	0	2	5	193.49	Middletown Township
39	Newman Springs Road	520	13.3	14.3	0	2	5	193.49	Middletown Township
39	Tennent Road	3	8.7	9.7	0	2	5	193.49	Marlboro Township
39	Kozloski Road	55	2.6	3.6	0	2	5	193.49	Freehold Township
43	Cherry Tree Farm Road	516	14.7	15.7	0	1	8	188.49	Middletown Township
43	Elton Adelphia Road	524	24.6	25.6	0	1	8	188.49	Freehold Township
43	East Main Street	537	52.3	53.3	0	1	8	188.49	Freehold Borough
46	Shrewsbury Avenue	13	0	1	0	0	11	183.49	Colts Neck Township
47	Broad Street	516	6.3	7.3	0	2	4	176.81	Matawan Borough
47	Smithburg Road	527-A	0.5	1.5	0	2	4	176.81	Millstone Township
47	Shafto Road	547	23.1	24.1	1	1	4	176.81	Colts Neck Township
47	Jackson Mills Road	23	0.3	1.3	0	2	4	176.81	Freehold Township
51	Pinckney Road	520	16.7	17.7	0	1	7	171.81	Little Silver Borough
51	Englishtown Freehold Road	522	16.9	17.9	0	1	7	171.81	Manalapan Township
51	Elton Adelphia Road	524	22.1	23.1	0	1	7	171.81	Freehold Township
51	Allentown Davis Station	539	40.4	41.4	0	1	7	171.81	
51	Wyckoff Road	547	27	28	0	1	7	171.81	
51	Locust Point Road	8-A	2	3	0	1	7	171.81	Middletown Township

51	Branch Avenue	11-2	1.2	2.2	0	1	7	171.81	Little Silver Borough
51	Asbury Avenue	16	1.6	2.6	1	0	7	171.81	Colts Neck Township
51	Monmouth Boulevard	33	0.3	1.3	0	1	7	171.81	Oceanport Borough
51	Harding Road	34	0.3	1.3	1	0	7	171.81	Red Bank Borough
61	Locust Avenue	15	3.4	4.4	0	0	10	166.81	
62	Squankum Yellowbrook Road	524-A	2.8	3.8	1	1	3	160.13	Howell Township
62	Iron Ore Road	527-A	4	5	2	0	3	160.13	Manalapan Township
62	Monmouth Road	537	39.8	40.8	1	1	3	160.13	Millstone Township
62	Gordons Corner Road	22	0.1	1.1	0	2	3	160.13	Manalapan Township
62	Atlantic Avenue	29	1	2	1	1	3	160.13	Long Branch City
67	Newman Springs Road	520	4.3	5.3	0	1	6	155.13	Marlboro Township
67	Newman Springs Road	520	14.4	15.4	0	1	6	155.13	Middletown Township
67	Rumson Road	520	20.5	21.5	0	1	6	155.13	Rumson Borough
67	Stage Coach Road	524	17.7	18.7	1	0	6	155.13	Millstone Township
67	Siloam Road	527	21.6	22.6	1	0	6	155.13	Freehold Township
67	Colts Neck Road	537	54.8	55.8	0	1	6	155.13	Colts Neck Township
67	Forked River Road	539	38.6	39.6	0	1	6	155.13	
67	Amboy Road	6-1	0.1	1.1	1	0	6	155.13	Aberdeen Township
67	18th Avenue	30-2	3.5	4.5	1	0	6	155.13	

Pedestrian HIN Segments

Rank	Road Name	County Route Number	Beginning MP	Ending MP	Fatal	Serious	Minor	Possible	No Injury	ePDO	Municipality
1	East Main Street	537	51.8	52.8	1	1	3	3	4	195.79	Freehold Borough
2	West Front Street	10	0	1	0	1	5	3	1	171.11	Red Bank Borough
3	Memorial Drive	40-A	0.2	1.2	0	1	5	2	2	161.55	Neptune Township
4	Broad Street	11-1	0	1	0	1	4	1	0	132.32	Red Bank Borough
5	Bay Avenue	8	2.8	3.8	0	1	2	1	0	98.96	Highlands Borough
6	Asbury Avenue	16	5.2	6.2	1	0	1	2	1	93.83	Asbury Park City
7	West Sylvania Avenue	17-3	0	1	0	0	4	2	0	87.83	Neptune City Borough
8	Middle Road	516	12.2	13.2	0	1	1	1	0	82.28	Hazlet Township
8	Lloyd Road	3	10.6	11.6	0	1	1	1	0	82.28	Aberdeen Township
10	18th Avenue	30-2	3.4	4.4	1	0	0	1	2	67.6	Lake Como Borough
11	Wilson Avenue	527	30.4	31.4	0	1	0	1	1	66.6	Manalapan Township
11	South Street	20	1	2	1	0	0	1	1	66.6	Manasquan Borough
13	New Brunswick Avenue	516	6.3	7.3	0	1	0	0	1	56.04	Matawan Borough
13	West Main Street	537	50.6	51.6	1	0	0	0	1	56.04	Freehold Township
15	Newman Springs Road	520	15.3	16.3	1	0	0	0	0	55.04	Red Bank Borough
15	Elton Adelphia Road	524	23.4	24.4	0	1	0	0	0	55.04	Freehold Township
15	Belmar Boulevard	18-1	2	3	0	1	0	0	0	55.04	Wall Township
15	Atlantic Avenue	29	1	2	0	1	0	0	0	55.04	Long Branch City
15	Everett Road	52	0	1	0	1	0	0	0	55.04	Holmdel Township
15	Ocean Boulevard	57	1	2	1	0	0	0	0	55.04	Long Branch City

Bicyclist HIN Segments

Rank	Road Name	County Route Number	Beginning MP	Ending MP	Fatal	Serious	Minor	Possible	No Injury	ePDO	Municipality
1	Ocean Avenue	18-3	2.3	3.3	0	0	5	12	1	211.06	Belmar Borough
2	Atlantic Avenue	516	7.9	8.9	0	1	1	2	0	92.83	Matawan Borough
3	Ocean Avenue	18-3	3.9	4.9	0	0	4	2	4	91.83	Bradley Beach Borough
4	Kings Highway	50	6.2	7.2	0	1	1	1	0	82.28	Middletown Township
5	Monmouth Road	15	2	3	0	0	4	1	3	80.28	Ocean Township
6	Palmer Avenue	7-1	1.1	2.1	0	0	2	4	2	77.58	Hazlet Township
7	Newman Springs Road	520	6.9	7.9	0	1	1	0	0	71.72	Marlboro Township
7	West Main Street	537	50	51	0	1	1	0	0	71.72	Freehold Township
7	Locust Point Road	8-A	2	3	0	1	1	0	0	71.72	Middletown Township
10	Ocean Avenue	18-3	0.1	1.1	0	0	2	3	1	66.03	Spring Lake Borough
11	Sunset Avenue	40	0	1	0	1	0	1	0	65.6	Ocean Township
12	Memorial Drive	40-A	0	1	0	0	2	3	0	65.03	Neptune Township
13	Main Street	30-2	3.6	4.6	0	0	3	1	3	63.6	Lake Como Borough
14	Newman Springs Road	520	15.3	16.3	0	0	3	1	0	60.6	Red Bank Borough
15	Ocean Avenue	18-3	1.3	2.3	0	0	1	4	1	59.9	Spring Lake Borough
16	West Bangs Avenue	17-2	1	2	0	1	0	0	0	55.04	Neptune Township
16	Georgia Road	53	0	1	0	1	0	0	0	55.04	Freehold Township
18	Monmouth Road	15	3.4	4.4	0	0	2	1	0	43.92	West Long Branch Borough
19	Oakwood Lane	11-2	1.4	2.4	0	0	1	2	1	38.79	Little Silver Borough
19	Front Street	39	0.9	1.9	0	0	1	2	1	38.79	Union Beach Borough
19	Ocean Boulevard	57	0	1	0	0	1	2	1	38.79	Long Branch City

22	West Sylvania Avenue	17-3	0	1	0	0	1	2	0	37.79	Neptune City Borough
23	Elton Adelphia Road	524	24.4	25.4	0	0	2	0	1	34.36	Freehold Township
23	West Bangs Avenue	17-2	2.2	3.2	0	0	2	0	1	34.36	Neptune Township

High Injury Network Systemic Analysis – Monmouth County

Introduction

The Safe Streets Monmouth process included development of a Monmouth County High-Injury Network (HIN) as part of county-wide roadway safety conditions evaluation. HIN development used a “sliding window” methodology. Sliding window analysis is a method which generates iterations a fixed length “window” along each corridor to identify segments with unusually high crash concentration. In Monmouth County, a 1-mile window was used to analyze study area roads.

This methodology resulted in the creation of three High Injury Networks, each focused on different crash attributes: one HIN counted all KAB (Fatal, Severe, and Minor Injury) crashes, the second HIN counted only crashes involving people walking, and the third HIN counted only crashes involving people riding bicycles

Creating separate HIN datasets for people walking and people riding bicycles provides opportunities to identify factors contributing to particularly serious crashes involving vulnerable roadway users. In doing so, these targeted High Injury Networks allow planners, engineers, and safety advocates to better address multimodal roadway safety through interventions targeted to address specific roadway characteristics.

This document provides a baseline evaluation of roadway segments identified in each of the three Monmouth County High Injury Networks using authoritative NJOGIS roadway data and additional information collected for specific HIN segments. The analysis examines the correlation between crash severity and select roadway characteristics to identify common patterns among high-injury corridors and support data-driven prioritization of future safety improvements.

ePDO Network Screening

CRASHES WERE MEASURED ACCORDING TO A WEIGHTED “EQUIVALENT PROPERTY DAMAGE ONLY” (EPDO) SCORE. USING THIS METHOD, EACH CRASH IS ASSIGNED A SCORE BASED ON ITS MAXIMUM SEVERITY, WHERE MORE WEIGHT IS ASSIGNED TO MORE SEVERE CRASH OUTCOMES. EPDO SCORES ARE THEN AGGREGATED AND ASSIGNED TO CORRESPONDING ROADWAY SEGMENTS TO IDENTIFY AREAS OF HIGH-SEVERITY CRASH FREQUENCY. THIS METHOD PRIORITIZES CRASHES THAT RESULT IN FATALITIES AND SERIOUS INJURIES.

Table 1 compares ePDO statistics for the three Monmouth County High Injury Networks. The All Modes HIN is the largest, geographically, and contains the greatest number of ePDO crashes across all categories and the highest ePDO average. This is expected, as the All Modes HIN is the most comprehensive of the three and likely contains some or all of the crashes included in the Bicycle and Pedestrian High Injury Networks.

Compared to the All Modes HIN, the Bicycle and Pedestrian HINs have significantly lower High ePDO cutoffs and ePDO averages. Of the two Vulnerable User networks, the Bicycle HIN has a higher ePDO high-end cutoff and more roadway miles, but a lower ePDO sum and average than the Pedestrian HIN. This implies that, despite the highest-scoring single sliding window having a higher ePDO value in the Bicycle

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HIN than in the Pedestrian HIN, there are not as many high-concentration areas of severe bicycle crashes compared to those involving pedestrians.

This could be attributed to the larger range of bicycling, as any destination could be paired with a wider variety of possible origins (and vice versa) for bicyclists, meaning more possible bicycling routes, compared to pedestrian activity typically being concentrated more heavily in walkable areas with mixed uses. Further study of actual bicycling traffic volumes would be needed to confirm this inference.

TABLE 1: HIN STATISTICS

	All Modes	Bicycle	Pedestrian
# of segments / total miles	75	24	20
Highest ePDO	620.5	211.06	195.79
Lowest ePDO (cutoff)	155.13	34.36	55.04
ePDO sum	16,983.9	1,608.66	1,749.07
ePDO range	465.37	176.7	140.75
ePDO average	226.45	67.03	87.45

Roadway Characteristics, by High Injury Network

Table 2 compares the averages of several roadway characteristics across each HIN to identify some ways in which the roadways on each HIN may differ and identify potential outliers, specifically in the Bicycle and Pedestrian HINs. Some findings per HIN relative to each other include:

- **All Modes HIN** roads are typically narrower (but not necessarily having fewer lanes), have higher speeds and volumes, and more frequently have a shoulder.
- **Bicycle HIN** roads are typically lower in average vehicular traffic volumes, are considerably wider, and have a smaller portion of their intersections signalized. The average number of signals is similar to the All Modes HIN but the percentage of signalized intersections is much lower, meaning there is on average a higher total number of intersections along these segments. This aligns with the roads being lower in traffic volumes (the assumption being that high-volume arterials and highways are typically limited in how many intersections they have per mile) but passing through areas where a large number of roads intersect, making these roads the “trunk” of the grid, particularly in residential areas.
- **Pedestrian HIN** roads typically have more signals, and a larger portion of their intersections are signalized. This may correlate with downtown environments, where there is more traffic spread across a dense grid which necessitates signalization (particularly on the “main streets” of a downtown). Signalized intersections are also typically more pedestrian-friendly, as most (if they have crosswalks) include pedestrian walk signals as well.

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TABLE 2: GENERAL AVERAGES, BY HIN

	All Modes	Bicycle	Pedestrian
AADT	12,591	10,465	12,906
Width	31.25	38	33.8
Speed Limit	40.8	35.63	35.75
# of lanes	2.35	2.33	2.2
# of signals	1.68	1.71	3
% of intersections signalized	21.94%	14.08%	26.70%

The presence of medians and shoulders on roadway segments was also compared between the HINs. Medians may reduce conflict points for all users by separating opposing traffic, but in turn may make them less attractive for pedestrians and bicyclists should they also reduce the number of opportunities to cross the road and move to a new road. Shoulders are both a bicycle-friendly feature which creates an informal bicycling facility (not a true bicycle lane, but a space which can function as one) and a feature which could have a positive or negative impact on driver behavior. The shoulder is not a physical barrier so it is possible that drivers could treat a road as wider than it really is and drive faster or less cautiously; it may conversely improve safety by providing drivers with a safe space to pull over when needing a moment to pause or in an emergency, along with providing space to maneuver to avoid a crash at high speeds. Their impact on pedestrian safety is less clear, outside of the impact on driver behavior.

Both features are more common on high-speed, high-volume roads, which require these features for the aforementioned reasons to reduce the chance of crashes. Local and collector roads rarely have medians, and the presence of shoulders is more varied, but high-volume roads typically must have at least one if not both.

- Medians are less common (5.3%, vs. 8.3% [bicycle] and 10% [pedestrian]) on the All Modes HIN, and where present they are much narrower on average (4.5', vs. 9' [bicycle] and 7' [pedestrian]).
- Shoulders are more common on the All Modes HIN (57.3%) and are least common on the Pedestrian HIN (35%); the Bicycle HIN is similar to the Pedestrian HIN (37.5%). The range of shoulder width is within one foot, with Pedestrian HIN roads averaging 4.57' and All Modes HIN roads averaging 3.67'.

TABLE 3: MEDIAN AND SHOULDER PRESENCE AND WIDTH, BY HIN

	All Modes	Pedestrian	Bicycle
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	Prevalence	Average where present (ft)	Prevalence	Average where present (ft)	Prevalence	Average where present (ft)
Median	4 / 75	4.5	2 / 20	7	2 / 24	9
Shoulder	43 / 75	3.67	7 / 20	4.57	9 / 24	4

Miscellaneous Features' Frequency (present or not present)

- Pedestrian HIN segments cross municipal lines (50%) and rail tracks (25%) more frequently than other HINs.
- All Modes HIN segments have pedestrian paths (including sidewalks) and crosswalks much less frequently than other HINs, which may correlate with highway-type roadways.

TABLE 4: FREQUENCY OF VARIOUS ROADWAY FEATURES, BY HIN (BINARY)

	All Modes		Pedestrian		Bicycle	
	Yes	No	Yes	No	Yes	No
School	3	72	1	19	2	22
Crosses between municipalities	23	52	10	10	9	15
Crosses rail tracks	10	65	5	15	3	21
Has a rail station	2	73	0	20	0	24
Has pedestrian paths	42	33	17	3	22	2
Has marked crosswalks	41	34	17	3	20	4

Miscellaneous Features' Frequency (multiple possible categories)

- All HINs are primarily on **Urban Minor Arterial** roads.
- Bicycle HIN includes a much more significant portion of **Urban Major Collector** roads.
- All Modes HIN is the only to include **rural** roads.

- Few HIN segments include a median, but those that do most often include **positive** medians (medians including a physical element which is taller than a simple curb).

TABLE 5: FREQUENCY OF VARIOUS ROADWAY FEATURES, BY HIN (NOMINAL)

	All Modes	Pedestrian	Bicycle
Functional Class			
Urban Principal Arterial	7	3	2
Urban Minor Arterial	51	13	13
Urban Major Collector	16	6	12
Urban Local			1
Rural Minor Arterial	3		
Rural Major Collector	6		
Rural Minor Collector	1		
Median Type			
Curbed	1	1	
Painted / Unprotected	1		
Positive	2	1	2
None	71	18	22

Average ePDO

Comparing the frequency of roadway features is the simplest way to compare the HINs, but not all HIN segments are created equal. The average ePDO value for various characteristics was also evaluated, in order to identify not only if there were outliers in the number of segments containing these characteristics but also if these segments were unusually high in ePDO within their respective HINs, flagging any features which contribute to not only a high number of segments but also segments with particular crash volume or severity correlation.

Width and Number of Lanes

- All Modes and Pedestrian HIN segments were largely **40' wide or less**, but the Bicycle HIN included many more **over 40' wide**.
- On all HINs, segments wider than 40' averaged a **much higher** ePDO.
- Almost all** HIN segments were two-lane roads, with some on four-lane roads.

TABLE 6: ePDO BY ROAD WIDTH RANGE, BY HIN

Road Width	All Modes		Pedestrian		Bicycle	
	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
<30'	207.18	39	64.29	6	51.58	7
30'-40'	233.29	28	98.01	11	61.98	9
>40'	296.49	8	285.19	3	86.22	8

TABLE 7: ePDO BY NUMBER OF LANES, BY HIN

# of lanes	All Modes		Pedestrian		Bicycle	
	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
2	215.86	63	85.08	18	68.626	20

4	293.12	11	108.80	2	59.035	4
6	160.13	1	-	0	-	0

Speed Limit and Volume

- 35- and 40-MPH roads are the **most common** on all HINs, but the All Modes HIN also has many 45- and 50-MPH roads.
- On the Bicycle and Pedestrian HINs, **lower-speed roads** tend towards **higher ePDO** on average.
- The majority of all HIN segments are primarily on roads **under 20,000 AADT**, with most Bicycle and Pedestrian segments **under 10,000 AADT**. However, while segments in higher AADT ranges were rare, their average ePDO was higher on the All Modes HIN.

TABLE 8: ePDO BY SPEED LIMIT, BY HIN

Speed Limit	All Modes		Pedestrian		Bicycle	
	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
25	236.30	3	119.07	3	98.48	5
30	258.21	5	123.34	3	51.91	2
35	225.71	16	77.07	6	66.26	6
40	238.77	21	72.96	6	54.63	8
45	221.59	13	-	0	71.72	2
50	204.58	17	60.82	2	34.36	1

TABLE 9: ePDO BY TRAFFIC VOLUME (AADT), BY HIN

AADT	All Modes	Pedestrian	Bicycle
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	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
<10,000	205.11	27	66.98	10	68.76	15
10,000-19,999	232.46	36	126.56	7	63.56	7
20,000-29,999	232.86	5	82.28	1	-	0
30,000+	296.24	5	55.54	2	66.16	2

Intersections

Number of Signalized Intersections

- Most** HIN segments have between 0 and 2 signalized intersections.
- Road segments with higher numbers of signalized intersections (3+) averaged a **higher ePDO**.

TABLE 10: ePDO BY NUMBER OF SIGNALIZED INTERSECTIONS, BY HIN

Number of Signalized Intersections	All Modes		Pedestrian		Bicycle	
	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
0	194.97	18	66.6	1	87.11	6
1	206.52	21	87.78	7	66.31	8
2	246.87	20	68.66	2	43.31	4
3	284.04	7	68.66	2	56.47	3
4	236.58	6	91.21	3	77.58	1
5	-	0	93.68	2	-	0

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6	271.89	1	119.36	2	67.66	2
7	260.21	2	-	0	-	0
8	-	0	-	0	-	0
9	-	0	93.83	1	-	0

Signalization Rate

- **Most** HIN segments had between 1 and 20 percent of their intersections signalized.
- The All Modes HIN had a **larger variance** in intersection signalization percentage, and was the only one with roads with more than 60 percent of their intersections signalized.

TABLE 11: ePDO BY PERCENT OF INTERSECTIONS SIGNALIZED, BY HIN

Percentage of Intersections Signalized	All Modes		Pedestrian		Bicycle	
	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
0	194.97	18	66.6	1	87.11	6
1 to 20	239.95	27	80.67	10	62.80	13
21 to 40	219.21	19	125.38	3	49.48	4
41 to 60	307.47	6	83.28	6	71.72	1
61 to 80	206.84	3	-	0	-	0
81 to 100	182.65	2	-	0	-	0

Medians

- The **vast majority** of HIN segments had no median, and those that did typically had a lower ePDO.

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TABLE 12: ePDO BY MEDIAN TYPE, BY HIN

Median	All Modes		Pedestrian		Bicycle	
	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
Yes	204.75	4	55.04	2	49.70	2
Curbed	326.93	1	55.04	1	0	-
Painted	176.81	1	0	-	0	-
Positive	157.63	2	55.04	1	49.70	2
No	227.53	71	91.055	18	68.60	22

Other Miscellaneous Features

- Pedestrian and Bicycle HIN segments tended to **not** have shoulders, while All Modes segments were the **opposite**.
- HIN segments crossing rail tracks tended to have a **higher ePDO**.
- Pedestrian HIN segments with pedestrian infrastructure were **more common** and tended to have a **higher ePDO**.

TABLE 13: AVERAGE ePDO AND COUNT OF OTHER SELECTED FEATURES, BY HIN

	All Modes		Pedestrian		Bicycle	
	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
Shoulder						
Yes	208.50	43	78.24	9	51.58	7
No	250.57	32	95.00	11	73.39	17
Rail Crossing						

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Yes	263.22	10	116.67	5	79.57	3
No	220.80	65	77.71	15	65.24	21
Rail Station						
Yes	241.03	2	-	0	71.3	3
No	226.05	73	87.45	20	66.42	21
School						
Yes	225.18	3	55.04	1	48.98	2
No	226.50	72	89.16	19	68.67	22
Has Pedestrian Path						
Yes	229.43	42	92.49	17	67.36	22
No	222.66	33	58.89	3	63.38	2
Has Marked Crosswalks						
Yes	243.61	41	92.49	17	67.76	20
No	205.76	34	58.89	3	63.38	4

Functional Class

- Segments on rural roads tended to have a **lower** ePDO.
- All Modes and Pedestrian segments on Principal Arterial roads had a **much higher** ePDO.
- Bicycle HIN segments varied little in ePDO by functional class.

TABLE 14: ePDO BY FUNCTIONAL CLASS, BY HIN

Functional Class	All Modes	Pedestrian	Bicycle
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	Average ePDO	Count	Average ePDO	Count	Average ePDO	Count
Urban Principal Arterial	313.17	4	125.42	2	60.6	1
Urban Principal Arterial / Urban Minor Arterial	310.25	3	56.04	1	71.72	1
Urban Minor Arterial	222.64	44	85.22	11	60.95	9
Urban Minor Arterial / Rural Minor Arterial	260.21	1	-	0	-	0
Urban Minor Arterial / Urban Major Collector	159.02	3	67.6	1	61.7	3
Urban Major Collector	240.65	11	87.44	5	76.40	9
Urban Major Collector / Rural Major Collector	157.63	2	-	0	-	0
Urban Local	-	0	-	0	55.04	1
Rural Minor Arterial	187.65	2	-	0	-	0
Rural Major Collector	182.65	4	-	0	-	0
Rural Minor Collector	198.49	1	-	0	-	0

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Identifying Priority High-Risk Roadway Factors

Completion of EPDO calculations for High-Injury Network (HIN) crashes in Monmouth County allowed the project team to evaluate relative EPDO scores by factor for each of the three HINs. **Table 15**, below, summarizes the EPDO calculation comparison for roadway risk factors across Monmouth County's HINs. Some factors, such as presence of a curbed median, only have a high EPDO value for one HIN. Others, like presence of a rail crossing, have high EPDO values across all three HINs.

TABLE 15: RELATIVE EPDO BY RISK FACTOR FOR ALL THREE MONMOUTH COUNTY HIGH-INJURY NETWORKS

Roadway Risk Factor	All-Modes HIN relative EPDO	Ped HIN relative EPDO	Bike HIN relative EPDO
Curbed median	HIGH		
No Median		HIGH	HIGH
Speed Limit 25 MPH		HIGH	HIGH
Speed Limit 30 MPH	HIGH		HIGH
Urban Major Collector			HIGH
Urban Principal Arterial	HIGH	HIGH	
Urban Principal Arterial/Urban Minor Arterial	HIGH		
Two (2) travel lanes			HIGH
Four (4) travel lanes	HIGH		HIGH
Roadway width > 40'	HIGH	HIGH	HIGH
AADT < 10,000			HIGH
AADT 10,000 - 19,999		HIGH	
AADT > 30,000	HIGH		
At a rail crossing	HIGH	HIGH	HIGH
0% of intersections signalized			HIGH
21% to 41% of intersections signalized		HIGH	
41% to 60% of intersections signalized	HIGH		
Presence of pedestrian path		HIGH	
Presence of Marked Crosswalks		HIGH	
No shoulder	HIGH	HIGH	HIGH

High-EPDO risk factors were evaluated based upon their relative EPDO across HINs, relative EPDO for Vulnerable Road User (VRU) HINs, number of KAB crashes and VRU crashes on HIN roadways with each risk factor, and potential for systematic countermeasure application across Monmouth County's roadway network. This evaluation resulted in the identification of five **Priority High-Risk Roadway Factors (PHRRFs)**:

1. Presence of rail crossing
2. Urban Principal Arterial
3. Presence of pedestrian path
4. Presence of marked crosswalk
5. <40% of intersections signalized

These five Priority High-Risk Roadway Factors form the basis of the approach to systemic countermeasure implementation across Monmouth County.

What is a Proven Safety Countermeasure?

FHWA's Proven Safety Countermeasures initiative (PSCI) provides countermeasures and strategies that have been proven effective in reducing crash fatalities and serious injuries. FHWA organizes countermeasures into five Focus Areas based on type of crash, crash location, and/or contributing driver behavior:

- 1) Speed Management
 - a) Appropriate Speed
 - b) Variable Speed Limits
 - c) Speed Safety Cameras
- 2) Pedestrian/Bicyclist
 - a) Bicycle Lanes
 - b) Crosswalk Visibility Enhancements
 - c) Leading Pedestrian Intervals
 - d) Medians and Pedestrian Refuge Islands in Urban and Suburban Areas
 - e) Pedestrian Hybrid Beacons
 - f) Rectangular Rapid Flashing Beacons (RRFB)
 - g) Road Diets (Roadway Reconfiguration)
 - h) Walkways
- 3) Roadway Departure
 - a) Enhanced Delineation for Horizontal Curves
 - b) Longitudinal Rumble Strips and Stripes on Two-Lane Roads
 - c) Median Barriers
 - d) Roadside Design Improvements at Curves
 - e) SafetyEdgeSM
 - f) Wider Edge Lines
- 4) Intersections
 - a) Backplates with Retroreflective Borders
 - b) Corridor Access Management
 - c) Dedicated Left- and Right-Turn Lanes at Intersections
 - d) Reduced Left-Turn Conflict Intersections
 - e) Roundabouts
 - f) Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections
 - g) Yellow Change Intervals
- 5) Crosscutting
 - a) Lighting
 - b) Local Road Safety Plans
 - c) Pavement Friction Management
 - d) Road Safety Audit

FHWA's Proven Safety Countermeasure (PSC) tool allows engineers, planners, and other roadway safety practitioners to identify appropriate countermeasures based on specific filters including

Roadway Area Type, Roadway Classification, Focus Area, AADT, Contributing Factor(s), Crash Type(s), PSC Keyword(s), and Safe System Roadway Design Hierarchy Alignment. Detailed PSC information, including PSC evaluation criteria, are available via FHWA's Crash Modification Factors Clearinghouse website.

Evaluating Proven Safety Countermeasures

Using the Clearinghouse, Practitioners can identify PSCs based on targeted criteria, defined applicability, and effectiveness measured by a **Crash Modification Factor (CMF)** and/or a **Crash Reduction Factor (CRF)**. When examined in context, CMF and CRF values provide insight into how effective a given countermeasure is likely to be when implemented within specific roadway contexts.

CMF values represent the proportion of existing crashes that would be expected after implementation of a countermeasure. A CMF value below 1 indicates that a countermeasure is expected to result in a lower number of crashes following implementation, while a value about 1 indicates that a countermeasure is expected to result in a higher number of crashes following implementation. A CMF value above 1 does not necessarily indicate that a PSC is ineffective; an increase in total number of crashes may be accompanied by a decrease in crash severity, indicating increased overall safety. None of the PSCs identified for Monmouth County have a CMF value above 1.

CRF values represent the percentage decrease in crashes that would be expected after countermeasure implementation. Positive values indicate a decrease in expected crashes following implementation, while negative values indicate an increase in expected crashes following implementation. Like CMF value, a CRF does not account for crash severity, and a CRF value below 0 does not necessarily indicate that a PSC is ineffective. None of the PSCs identified for Monmouth County have a negative CRF value.

Identifying Systemic PSCs for Monmouth County

The project team identified appropriate PSCs for Monmouth County based on the five High-Risk Roadway Factors identified using the EPDO analysis. In total, 32 unique PSCs were identified for systemic implementation. They are identified by name and searchable CMF ID in **Table 16**, below.

TABLE 16: UNIQUE PROVEN SAFETY COUNTERMEASURES IDENTIFIED TO ADDRESS THE FIVE PRIORITY HIGH-RISK ROADWAY FACTORS IN MONMOUTH COUNTY

Safety Countermeasure Name/Description	CMF ID
Add dashed white edge-lines along major roads through intersections	8867
Add exclusive pedestrian phasing	5244
Advance street name plaques	8867
Backplates with Retroreflective Borders	1410
Convert all-way, stop-controlled intersection to mini roundabout	11534
Convert intersection with minor-road stop control to modern roundabout	232
Double-up intersection warning signs	8867
Double-up STOP or YIELD signs	8867

15

Implement transit signal priority	9820
Implementing signs and crossbucks at unprotected crossings	481
Increase length of pedestrian signal phases	5253
Install a traffic signal	320
Install advanced yield or stop markings and signs	9019
Install automatic gates at crossings with passive traffic control	488
Install bicycle lanes at signalized intersections with exclusive right turn lanes	3257
Install bicycle lanes at signalized intersections with shared through/right turn lanes	3255
Install flashing lights and sound signals	482
Install pedestrian hybrid beacon (PHB or HAWK) with advanced yield or stop markings and signs	9023
Install raised pedestrian crosswalks	136
Install right-turn lane	5650
Install sidewalk	11246
Install supplemental intersection shaped pavement markings	9058
Install transverse rumble strips as traffic calming device	138
Mark all turn lanes with lane arrows and ONLY text	8867
Place edgeline and centerline markings	101
Prohibit right-turn-on-red	5194
Provide "Stop Ahead" pavement markings	396
Provide split phases	5247
Remark all existing stop bars, crosswalks, arrows and word messages	8867
Retroreflective strips on sign posts	8867
Widen shoulder	8712
Yellow Change Intervals	384

Some of the PSCs in Table 2 are applicable to multiple PHRRFs, while others are specific to only one. **Table 3**, below, details which interventions were identified for each PHRRF, what types of crashes they are intended to address, and the CMF and CRF values for each.

TABLE 17: PSC INTERVENTIONS BY PHRRF FOR MONMOUTH COUNTY

PHRRF	KAB Crash Types	Systemic Interventions	CMF ID	CMF Value	CRF Value
Rail Crossing	Distracted Driver: 80% Pedestrian: 11% Bicycle: 10% Unsafe Speed: 8%	Backplates with Retroreflective Borders	1410	0.85	15
		Double-up intersection warning signs	8867	0.89	10.1
		Retroreflective strips on sign posts	8867	0.89	10.1
		Implement transit signal priority	9820	0.949	5.1
		Install advanced yield or stop markings and signs	9019	0.8	20
		Remark all existing stop bars, crosswalks, arrows and word messages	8867	0.89	10.1
		Implement signs and crossbucks at unprotected crossings	481	0.75	25

16

Urban Principal Arterial	Right Angle: 24% Rear End: 22% Distracted Driver: 52%	Install flashing lights and sound signals	482	0.5	50
		Install automatic gates at crossings with passive traffic control	488	0.33	67
		Install transverse rumble strips as traffic calming device	138	0.66	34
		Install sidewalk	11246	0.598	40.2
		Backplates with Retroreflective Borders	1410	0.85	15
		Yellow Change Intervals	384	0.88	12
		Double-up intersection warning signs	8867	0.89	10.1
		Advance street name plaques	8867	0.89	10.1
		Double-up STOP or YIELD signs	8867	0.89	10.1
		Retroreflective strips on sign posts	8867	0.89	10.1
		Install advanced yield or stop markings and signs	9019	0.8	20
		Add dashed white edge-lines along major roads through intersections	8867	0.89	10.1
		Remark all existing stop bars, crosswalks, arrows and word messages	8867	0.89	10.1
		Mark all turn lanes with lane arrows and ONLY text	8867	0.89	10.1
		Install sidewalk	11246	0.598	40.2
		Install bicycle lanes at signalized intersections with exclusive right turn lanes	3257	0.97	3
		Install bicycle lanes at signalized intersections with shared through/right turn lanes	3255	0.6	40
Has Pedestrian Path	Right Angle: 28% Rear End: 17% Pedestrian: 10% Bicycle: 9%	Install advanced yield or stop markings and signs	9019	0.8	20
		Double-up STOP or YIELD signs	8867	0.89	10.1
		Remark all existing stop bars, crosswalks, arrows and word messages	9019	0.8	20
		Install raised pedestrian crosswalks	8867	0.89	10.1
		Install transverse rumble strips as traffic calming device	138	0.66	34
		Prohibit right-turn-on-red	5194	f(x) ¹	-
		Install pedestrian hybrid beacon (PHB or HAWK) with advanced yield or stop markings and signs	9023	0.876	12.4
Has Marked Crosswalks	Right Angle: 28% Rear End: 17% Distracted Driver: 53% Pedestrian: 11% Bicycle: 10%	Add exclusive pedestrian phasing	5244	0.65	35
		Increase length of pedestrian signal phases	5253	0.89	11
		Provide split phases	5247	0.85	15
		Double-up STOP or YIELD signs	8867	0.89	10.1
		Prohibit right-turn on red	5194	f(x) ¹	-
		Remark all existing stop bars, crosswalks, arrows and word messages	8867	0.89	10.1
		Install raised pedestrian crosswalks	136	0.55	46
		Install advanced yield or stop markings and signs	9019	0.8	20

1. This CMF is evaluated on a case-specific basis using the formula $CMF = 0.98^{n_{prohib}}$. For additional information, see Part D (Chapters 13-17) of the Highway Safety Manual (American Association of State Highway and Transportation Officials, Washington, DC, 2010.)

<40% of intersections signalized	Right Angle: 27% Rear End: 16% Distracted Driver: 50%	Install pedestrian hybrid beacon (PHB or HAWK) with advanced yield or stop markings and signs	9023	0.876	12.4
		Install supplemental intersection shaped pavement markings	9058	0.58	42
		Install right-turn lane	5650	0.7	30
		Install Sidewalk	11246	0.598	40.2
		Convert all-way, stop-controlled intersection to mini roundabout	11534	0.8813	11.87
		Convert all-way, stop-controlled intersection to mini roundabout	11538	0.5422	45.78
		Convert intersection with minor-road stop control to modern roundabout	232	0.19	81
		Install a traffic signal	320	0.33	67
		Provide "Stop Ahead" pavement markings	396	0.78	22
		Install Sidewalk	11246	0.598	40.2
No Shoulder	Pedestrian: 12% Bicycle: 11%	Place edgeline and centerline markings	101	0.76	24
		Widen shoulder	8712	f(x) ²	-
		Install transverse rumble strips as traffic calming device	138	0.66	34

2. This CMF is evaluated on a case-specific basis using the formula $CMF = \exp\{-0.0347 \times (SW - Base_{SW})\}$ where: SW = Shoulder Width (feet); $Base_{SW}$ = Baseline Shoulder Width (feet).

APPENDIX C: PUBLIC ENGAGEMENT AND COLLABORATION

Safe Streets Monmouth: Outreach Memorandum

TO: Monmouth County, NJ
FROM: Rachana Sheth, Gene Angeles
DATE: 2.12.2026
PROJECT: Project # 2860725-0003323.00

Introduction

Public outreach is a critical component of the Safe Streets Action Plan providing residents, stakeholders, and roadway users with opportunities to identify transportation safety concerns to help shape future safety improvements within Monmouth County. To ensure the recommendations reflect the experiences and priorities of the community, the project team implemented a robust community and stakeholder engagement program that combines both online engagement tools and in-person public events.

Outreach activities include:

1. Outreach Tools:
 - a. Project Website
 - b. Safety survey
 - c. Interactive mapping tool
 - d. Flyers and printed promotional material
 - e. Social media share kit
2. Outreach events:
 - a. Pop-Up Events
 - b. Workshop In a Box
 - c. Municipal Informational Meeting

This summary provides an overview of the outreach activities conducted, summarizes the results of each outreach effort, highlights key themes that emerged from public feedback, and identifies recurring safety concerns across Monmouth County.

Project Website

A project website was created to provide information to the public. The website contained a project overview, regional statics, project resources, and links to the following interactive outreach tools:

- **Survey:** Hosted online and provided on paper during in-person outreach
- **Interactive Mapping Tool:** Participants can pinpoint locations they wished to flag due to safety concerns or areas in need of improvement.



FIGURE 1: PROJECT WEBSITE

Safety Survey

The community survey was developed using ArcGIS Survey 123. And remained available to the public throughout the outreach period. During this time a total of **350 survey responses** were collected. The survey consisted of thirteen questions organized into three main categories, General Travel, Traffic Safety Perceptions, and Demographics.

Key survey results include:

- Driving is the dominant typical mode of travel, but bicycling, followed by walking, are not uncommon
- The most commonly cited concerns about roads in Monmouth County were distracted driving (67%) and speeding on neighborhood streets (65%).
- Most respondents (74%) were “concerned” or “extremely concerned” about day-to-day traffic safety in Monmouth County.
- A majority of respondents (67%) avoid certain roads or intersections for safety reasons, and nearly half (48%) noted avoiding driving at certain times
- Approximately 2/3 of respondents avoid certain intersection/ corridors based on safety.
- Conditions for vulnerable road users are perceived as largely unsafe.
- Half of respondents personally knew someone involved in a crash, and 80% of respondents had experienced or knew someone who has experienced a near miss incident. Frequently noted conditions at these locations included:
 - Merging at high speeds
 - Poor intersection control
 - Lack of pedestrian accommodation
 - Limited sightlines
 - Driveway conflict.
- When asked about tradeoffs, participants supported stronger law enforcement and implementing neighborhood “slow zones.”

The survey results provide valuable insight into residents' travel behaviors, safety concerns, and priorities, helping to inform the development of the Safe Streets Monmouth Action Plan.

General Travel

Travel in Monmouth

Survey participants were asked to identify their typical weekday travel modes and indicate how frequently they use each option. Results show that driving overwhelmingly dominates daily travel behavior, with 90% of respondents identifying it as their most frequent mode. Walking represents the most common non-motorized activity, with a significant share reporting that they walk either most often or sometimes. Bicycling is used less frequently as a primary mode but still reflects periodic use among respondents. In contrast, transit, taxi/rideshare services, motorcycles, scooters/skateboards, and horseback travel demonstrate very limited regular use, with most respondents indicating they never rely on these options. Overall, the data reflects a transportation system that remains highly auto-dependent, with comparatively lower reliance on multimodal alternatives.

Q. How do you typically travel in Monmouth County on weekdays?

Mode of Travel	MOST OFTEN	SOMETIMES	NEVER
DRIVING	90%	8%	0%
WALKING	54%	23%	17%
BICYCLING	43%	43%	7%
TRANSIT	2%	12%	75%
TAXI/UBER/LYFT	3%	32%	55%
MOTORCYCLE	2%	5%	80%
SCOOTER/SKATEBOARD	2%	4%	83%
HORSE	0%	1%	86%

FIGURE 2: TRAVEL MODE SUMMARY TABLE

Major Roadway Concerns

Q. What are your major concerns about the roadway infrastructure in the county?

Participants were asked to identify their primary concerns related to roadway infrastructure in Monmouth County and were permitted to select multiple responses. Most concern categories received substantial support, generally ranging between 30% and 60% of respondents. The most frequently cited issues were distracted driving (67%), speeding on neighborhood streets (65%), and speeding on major roads (51%).

roadways (51%), underscoring a strong perception that driver behavior poses a significant safety risk.

Infrastructure-related concerns were also prominent. Nearly half of respondents identified incomplete or poorly maintained sidewalks (49%), lack of safe bicycling facilities (45%), and unsafe crossing conditions (43%) as key issues. Seventeen percent selected the "Other" category and provided written responses.

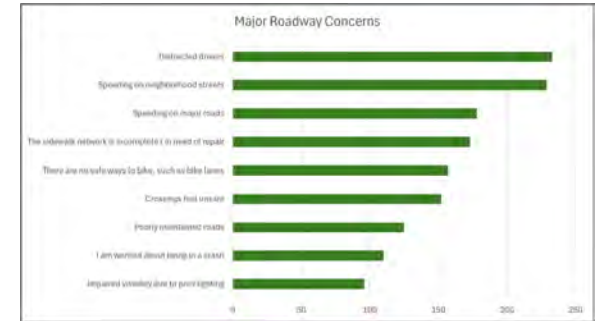


FIGURE 3: MAJOR ROADWAY CONCERNS

Comments within the "Other" category largely reinforced the themes above, emphasizing aggressive and reckless driving behaviors, red-light violations, limited enforcement presence, poor intersection visibility, and congestion associated with ongoing development. Several responses also referenced infrastructure that has not kept pace with population growth, highlighting perceived gaps in pedestrian, bicycle, transit, and overall roadway design.

FIGURE 2: MAJOR ROADWAY/TRAFFIC CONCERNS

Traffic Safety Perceptions

Daily Traffic Safety Concern

Q. How concerned are you about traffic safety in the County on a daily basis?

When asked about their level of concern regarding traffic safety on a daily basis, the majority of respondents expressed elevated concern. Approximately 41% reported being concerned, while 33% indicated they were extremely concerned. Fifteen percent felt

neutral, and only 3% reported being not very concerned. Combined, nearly three-quarters of respondents expressed a heightened level of concern, reflecting a widespread perception that roadway conditions and driver behavior present ongoing safety risks.

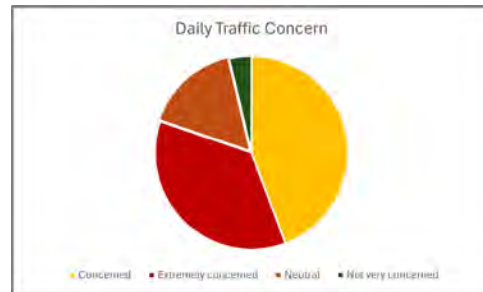


FIGURE 4: DAILY TRAFFIC CONCERN

Personal Traffic Crash Experience

Respondents were asked whether they had personally been involved in a traffic crash or knew someone who had been involved within the past ten years. Nearly half (45%) indicated they know someone who had been involved in a crash, and 11%

Q. In the past 10 years, have you or someone close to you been involved in a traffic crash?

reported personal involvement. These figures suggest that crash exposure, directly or indirectly, is relatively common within the community.



FIGURE 5: PERSONAL TRAFFIC CRASH EXPERIENCE

Willingness to Share Personal Stories

Q. If yes, would you be willing to share your story with us to create awareness about safety?

Written responses to this question revealed numerous accounts of serious crashes, including fatalities and life-altering injuries affecting motorists, bicyclists, pedestrians, and motorcyclists. Many stories attributed crashes to speeding, distracted driving (particularly cellphone use), red-light running, failure to yield, and aggressive maneuvers. Respondents frequently referenced specific high-risk intersections and corridors, citing poor visibility, inadequate signalization, lack of shoulders or bike lanes, and insufficient enforcement. Collectively, these accounts

underscore both the emotional and practical impacts of traffic safety issues and reinforce the urgency of implementing targeted improvements.

Traffic Safety Influence on Travel Behavior

Respondents were asked how traffic safety concerns have influenced their daily travel decisions. A substantial majority (67%) reported avoiding certain streets or intersections due to safety concerns. Fifty percent indicated that they feel anxious about roadway

Q. How has traffic safety influenced your daily travel choices?



FIGURE 6: TRAVEL SAFETY & DAILY CHOICES

conditions and driver behavior, while 48% avoid traveling at certain times of day. Additionally, 26% reported changing how they travel or discouraging their children from walking or bicycling due to perceived risks. Only 6% stated that traffic safety has not influenced their travel behavior.

Responses submitted under "Other" further illustrate behavioral adaptation. Many residents described modifying routes, using back roads instead of highways, driving more cautiously, slowing significantly at certain intersections, limiting walking or bicycling, and remaining hyperaware while traveling. These responses indicate that perceived safety concerns are actively shaping daily mobility patterns.

Near Misses

Q. In the past ten years, have you experienced or witnessed a near miss or crash?

Eighty percent of respondents reported experiencing or witnessing a near miss within Monmouth County in the past year, while 7% reported they had not. Twelve percent skipped the question. The high rate of reported near misses

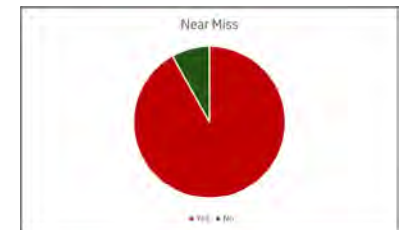


FIGURE 7: NEAR MISSES

suggests that close-call incidents are common and may contribute to heightened safety concerns throughout the County.

If Yes, Where Did It Happen?

Near misses were reported across a wide geographic area, with frequent references to major state highways including Routes 9, 18, 33, 34, 35, 36, 66, 71, 79, 520, and 537, as well as the Garden State Parkway. Traffic circles, particularly the 33/34 Circle, Asbury Circle, and Manasquan Circle, were repeatedly mentioned. Municipalities such as Red Bank, Rumson, Middletown, Ocean Township, Neptune, Eatontown, Howell, Freehold, and Millstone appeared frequently in responses.

Many comments identified specific conditions contributing to near misses, including high-speed merge areas, poorly controlled intersections, inadequate pedestrian crossings, limited sightlines, driveway conflicts, and school-zone traffic. The geographic distribution of responses suggests that both major corridors and local streets experience recurring safety challenges.

Non-Motorized Safety Perception

When asked to assess the safety of walking and bicycling in the County, responses skewed toward concern. Thirty-three percent reported feeling somewhat unsafe, and 15% reported feeling very unsafe. Twenty-one percent felt neutral, while only 4% indicated they feel very safe. These findings suggest that a majority of respondents perceive current conditions for non-motorized users as less than fully safe.

Q. How safe do you feel walking or biking in your community ?



FIGURE 8: NON-MOTORIZED SAFETY TRAVEL

Safety Priorities

Q. Which trade-offs would you be willing to accept in order to prioritize the safety, comfort, and well-being ?

Participants were asked to identify priority strategies for improving roadway safety. The strongest support was for increased enforcement (54%), including DUI checkpoints and behavioral enforcement. Nearly half (49%) supported the creation of neighborhood slow zones, and 37% favored narrowing roadways to widen sidewalks or add bicycle lanes.

Additional priorities included lowering speed limits (35%), increasing pedestrian signal timing (25%), reducing on-street parking (20%), and implementing route modifications such as closures or one-way conversions

(11%). The range of responses indicates support for both behavioral enforcement and infrastructure-based solutions.



FIGURE 9: TRAFFIC SAFETY PRIORITIES

Open-Ended Safety Recommendations

Open-ended responses emphasized a combination of stronger enforcement and comprehensive infrastructure improvements. Frequently cited recommendations included enhanced enforcement of speeding, distracted driving, and red-light violations; lower residential speed limits; installation of additional traffic signals and stop signs at high-risk intersections; improved street lighting; and expansion of sidewalk and protected bicycle networks.

Respondents also called for traffic calming measures such as speed humps, raised crosswalks, curb extensions, and roundabouts, as well as improved pedestrian crossing treatments and signal timing adjustments. Several comments referenced roadway maintenance, signage clarity, truck restrictions in village centers, expanded transit options, and infrastructure investments that keep pace with population growth. Overall, feedback reflects broad public support for a safer, more multimodal, and consistently enforced transportation system.

Drivers

Driver-related concerns are heavily concentrated along major regional corridors and high-volume roadways including Route 35, Route 36, NJ Route 18, Route 33, I-195, County Route 547, and U.S. Route 9. These corridors show repeated reports related to vehicle operations, speed, and conflict points, indicating areas where driver safety concerns are most prevalent.

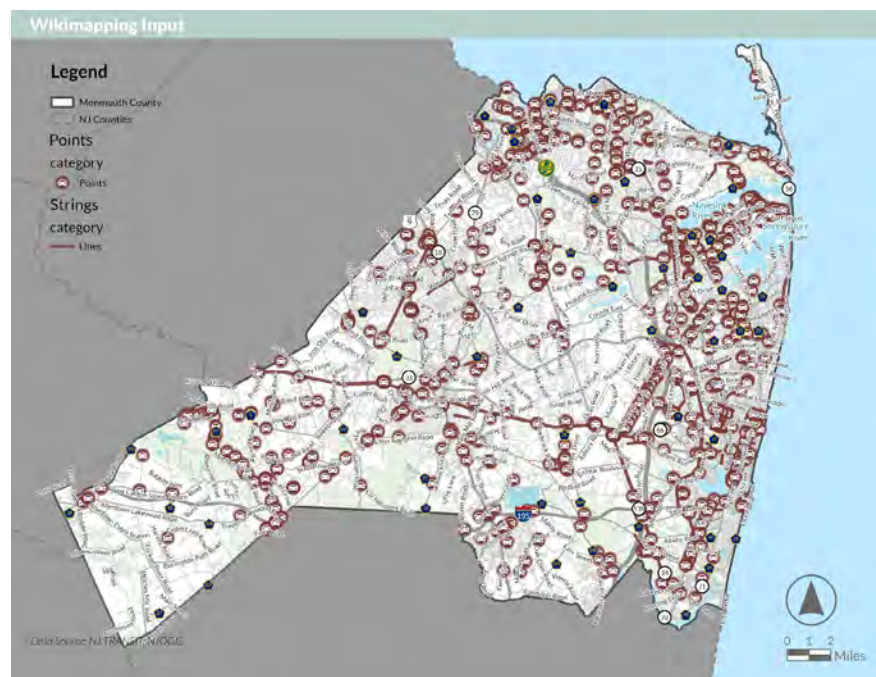


FIGURE 13: WIKIMAPPING DRIVING

Pedestrians

Pedestrian-related submissions are most densely clustered in Red Bank Borough, which shows the highest concentration of pedestrian safety concerns in the County. Additional smaller clusters are present along North Rochdale Avenue in Roosevelt Township and along Main Avenue in Asbury Park. Pedestrian-related concerns are also more broadly distributed throughout northern Monmouth County, particularly in areas with higher activity and mixed land uses.

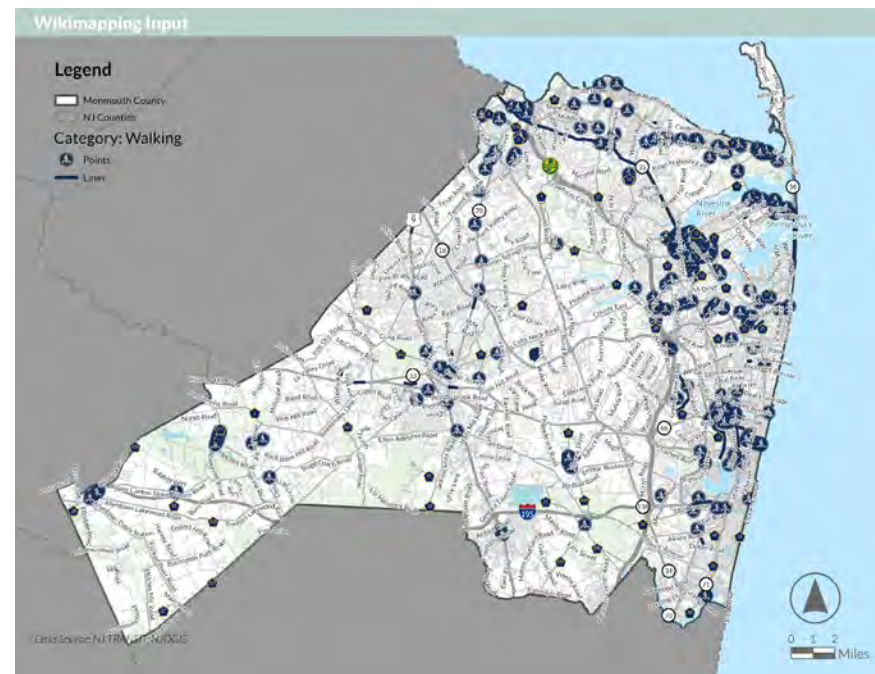


FIGURE 14: WIKIMAPPING WALKING

Bicycle

Bicycle-related concerns are more localized, appearing along specific corridors and neighborhood streets. Notable clusters are observed in West Freehold, particularly along West Main Street and Wemrock Road. Additional clusters appear in Interlaken along Raymere Avenue, Grassmere Avenue, and Bendermere Avenue. Bicycle-related concerns are also present along Route 36, indicating both local and corridor-level safety issues for bicyclists.

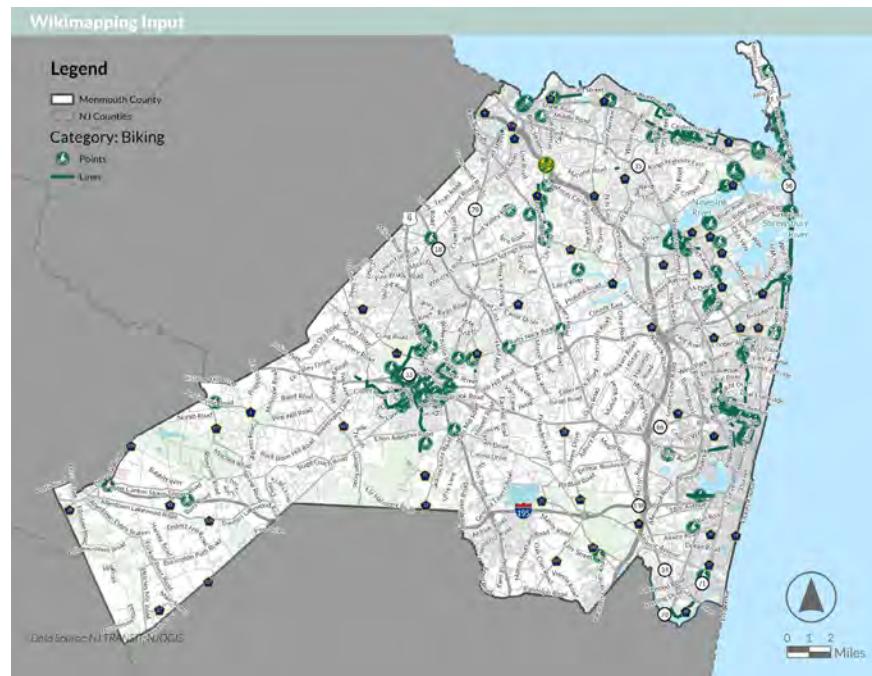


FIGURE 15: WIKIMAPPING BICYCLING

Other: The “Other” category consists of e-bike/scooter, transit, and equestrian modes. These points are primarily concentrated in the northeastern portion of the county, particularly in Red Bank Borough. Smaller clusters are present in the southeastern area near Asbury Park, with additional dispersed points distributed throughout the western portion of the county.

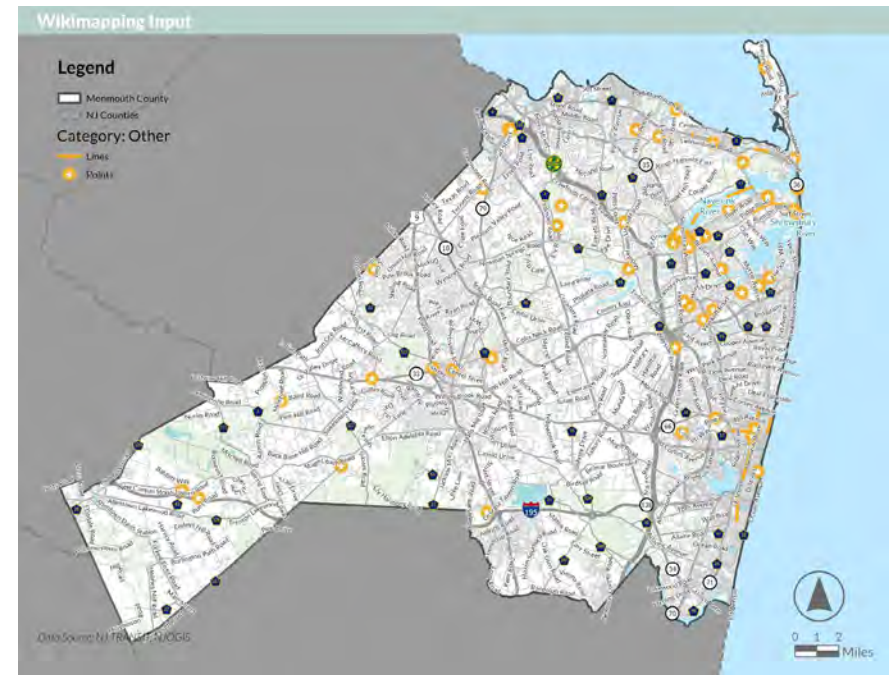


FIGURE 16: WIKIMAPPING OTHERS

Pop-up Events

Pop-up events are one of NV5's preferred methods of public outreach and engagement because they provide an opportunity to meet residents where they are in informal settings. Unlike formal planning events or public meetings, pop-up events tend to provide opportunities to meet residents that may not attend a more formal meeting, allowing for a broader swath of feedback from individuals that may not otherwise participate in the planning process.

The Safe Streets Monmouth project team attended four (4) in-person pop-up events to engage the public in Monmouth County and solicit feedback regarding transportation safety. The project team had conversations with residents, distributed surveys and collected responses, educated the public about the analysis that the project team has researched and prepared, and made an effort to talk to a variety of people hailing from different municipalities in the County. The events resulted in an increased understanding of micro and macro transportation safety concerns throughout the County for pedestrians, bicyclists, and motorists.

This memorandum summarizes the four (4) pop-up outreach events attended by members of the project team from NV5 and the Monmouth County Planning Department.

Outreach Events:

- Count Basie Park in Red Bank, New Jersey on October 25, 2025.
- Freehold Borough Christmas Tree Lighting on Wednesday, December 3rd, 2025.
- First Friday Art & Sound in Asbury Park, New Jersey on Friday, December 5th, 2025.
- Made in Monmouth in Lincroft (Middletown Township), New Jersey on Saturday, December 13th, 2025.

Count Basie Park in Red Bank

The project team participated in the FC Monmouth pre-game activities in Red Bank Borough on Saturday, October 25th, 2025 from 4:00 PM to 5:30 PM. The event was held outdoors at the grounds surrounding the large track and soccer field at the park, between the entrance and the bleachers.

Before the game, various organizations and vendors set up booths to engage with FC Monmouth supporters. It was attended by numerous residents of all ages, and families with children were among the most common group engaged with. Supporters engaged in conversations with the project team, completed surveys, and marked areas of concern on the Monmouth County board provided by the project team.



Freehold Borough Christmas Tree Lighting

The project team attended the Freehold Borough Christmas Tree Lighting ceremony in Freehold Borough on Wednesday, December 3rd, 2025 from 5:00 PM to 7:00 PM. The event was held outdoors in the plaza in front of the Monmouth County Hall of Records on East Main Street.

The event was a gathering of residents for the annual lighting of a large Christmas tree in Freehold Borough. It was attended by numerous residents of all ages including families with children in tow.

The Safe Streets Monmouth project team was one (1) of two (2) booths set up during the event. Residents engaged in conversations with the project team, completed surveys, and marked areas of concern on the Monmouth County board provided by the project team.



FIGURE 17: THE PROJECT TEAM SET UP A BOOTH WITH ACCOMPANYING MAP DISPLAYS THAT WERE COMMENTED ON BY RESIDENTS ATTENDING THE EVENT.

First Friday Art & Sound in Asbury Park

The project team attended the First Friday Art & Sound event at the Asbury Park Transportation Center on Friday, December 5th, 2025 from 5:00 PM to 8:00 PM. The event was held indoors at the Transportation Center adjacent to the Asbury Park Train Station in the plaza in front of the Monmouth County Hall of Records on Main Street.



FIGURE 18: THE EVENT WAS HELD IN THE TRANSPORTATION CENTER AND INCLUDED RESIDENTS, VENDORS, EVENT STAFF, AND LOCAL

The event was a shopping and performance event. It featured local and regional vendors selling artwork, jewelry, clothing, and other artisanal and hand crafted items. It also featured musical performances. It was primarily attended by adults, most from Asbury Park, but some from the County more generally. Event staff were also in attendance and provided feedback.

The Safe Streets Monmouth project team was one (1) of several booths set up during the event. Residents engaged in conversations with the project team, completed surveys, marked areas of concern on the Monmouth County board, and signed the safety pledge provided by the project team. The project team was proactive in engaging customers and, when the event had slower periods, the vendors, event staff, and performers.

Made in Monmouth in Lincroft (Middletown)

The project team attended the Made in Monmouth event at the Robins J. Collins Arena at Brookdale Community College on Saturday, December 13th, 2025 from 10:00 AM to 4:00 PM. The event was held indoors in the Brookdale Community College campus in the Robins J. Collins Arena on Arena Drive.



FIGURE 19: MEMBERS OF THE PROJECT TEAM ENGAGING WITH THE PUBLIC AT MADE IN MONMOUTH.

The event was a large shopping event. It featured local and regional vendors selling artwork, jewelry, clothing, food, mead, woodwork, and other artisanal and hand crafted items. It was the largest pop-up event that the project team attended. Hundreds of patrons attended, including a range of different ages and residents of many communities throughout Monmouth County.

The Safe Streets Monmouth project team was one (1) of hundreds of booths set up during the event. The event table was located near the main entrance, allowing the project team to interact with many attendees. Residents engaged in conversations with the project team, completed surveys, marked areas of concern on the Monmouth

County board, and filled out longer comment sheets. Some attendees that filled out larger comment sheets agreed to having their photographs taken to be included in the final plan.

Technical Advisory Committee and 4 All Committee Meetings

Technical Advisory Committee (TAC)

The TAC consists of governmental and non-governmental representatives. Their primary purpose was provide input on the overall development of the plan, gather ideas from their communities and support future implementation and progress of Safe Streets Monmouth. Three TAC meetings were held at different stages of planning development.

4 All Committee (4AC)

The 4AC committee consisted of a diverse group of representatives that serve vulnerable and underserved populations in the County. Their primary purpose was to guide the demographic analysis, provide input on 4All methodology and ensure the results reflect their local insight in identifying underserved populations and areas in the County. Two 4AC meetings were held at different stages of the plan development

Meetings Summary

Throughout the planning process, the Technical Advisory Committee (TAC) and 4A Committee (4AC) meetings provided opportunities to review project progress, share technical findings, and gather stakeholder input. Early meetings focused on project introductions, the SS4A program, crash analysis, and the 4A framework, while later meetings reviewed outreach results, High Injury Network (HIN) development, systemic and near-miss analyses, policy recommendations, and the adopted safety goal to guide the development of the Safe Streets Action Plan.

Workshop In a Box

The project team created a package of all the outreach materials including flyers, boards, coloring pages, and other materials to provide the County. The County team set up a table like the pop-up events with project materials, flyers, survey and map QR codes. They engaged with the library patrons and posted flyers to capture additional input after the outreach.

The County team visited the following county libraries:

1. Wall Township Library (TUESDAY 11/18/250)
2. Allentown Library (WEDNESDAY 11/19/25)
3. Marlboro Library (THURSDAY 11/20/2025)
4. County Headquarters Library (TUESDAY 11/25/25)
5. Hazlet Township Library (WEDNESDAY 11/26/25)

Survey Data

Safe Streets Monmouth Community Survey - Copy

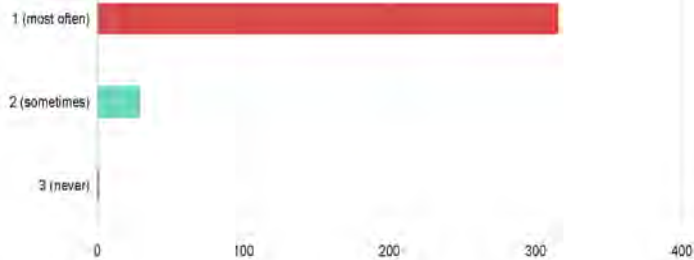
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Safe Streets Monmouth Community Survey - Copy

General Travel

General Travel > Travel in Monmouth

Driving



Answers

Count

Percentage

1 (most often)

315

90%

2 (sometimes)

29

8.29%

3 (never)

1

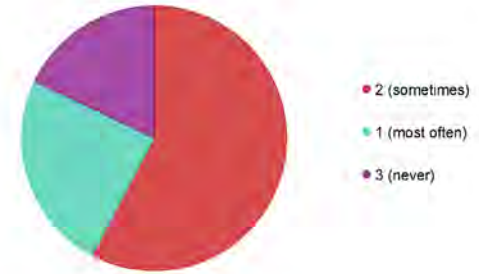
0.29%

Answered: 345 Skipped: 5

Walking

Safe Streets Monmouth Community Survey - Copy

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Answers

Count

Percentage

2 (sometimes)

190

54.29%

1 (most often)

80

22.86%

3 (never)

59

16.86%

Answered: 329 Skipped: 21

Bicycling

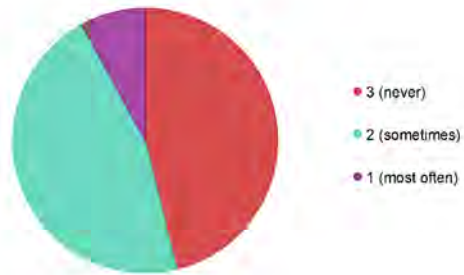
2 of 18

2/12/2026, 8:50 AM

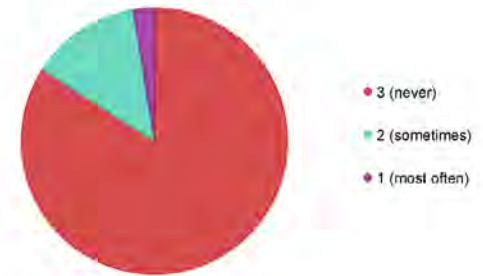
1 of 48

2/12/2026, 8:50 AM
19

20



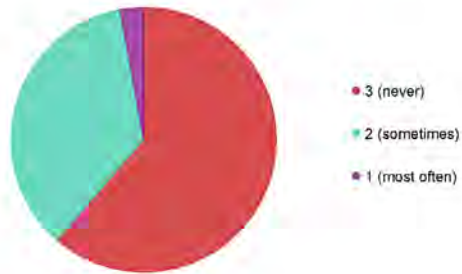
Transit



Taxi / Uber / Lyft

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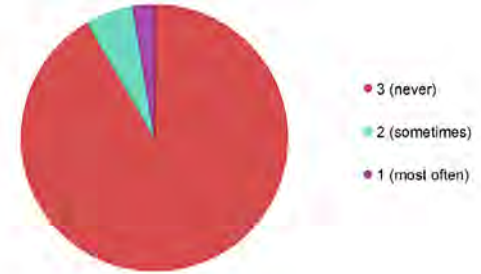
Answers	Count	Percentage
3 (never)	192	54.86%
2 (sometimes)	112	32%
1 (most often)	9	2.57%

Answered: 313 Skipped: 37

o o MotoRcycle

Safe Streets Monmouth Community Survey - Copy

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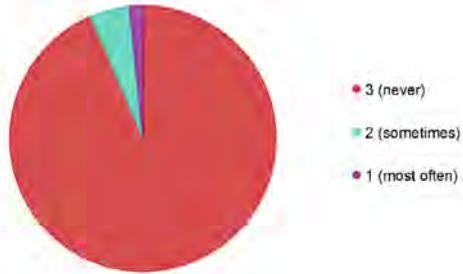
Answers	Count	Percentage
3 (never)	283	80.86%
2 (sometimes)	18	5.14%
1 (most often)	8	2.29%

Answered: 309 Skipped: 41

o o Scooter / Skateboard

Safe Streets Monmouth Community Survey - Copy

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Answers	Count	Percentage
3 (never)	289	82.57%
2 (sometimes)	15	4.29%
1 (most often)	5	1.43%

Answered: 309 Skipped: 41

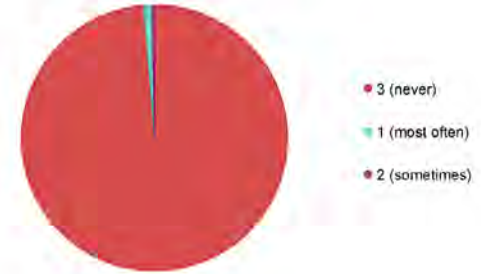
o o Horse

7 of 48

2/12/2026, 8:50 AM
25

Safe Streets Monmouth Community Survey - Copy

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Answers	Count	Percentage
3 (never)	302	86.29%
1 (most often)	3	0.86%
2 (sometimes)	1	0.29%

Answered: 306 Skipped: 44

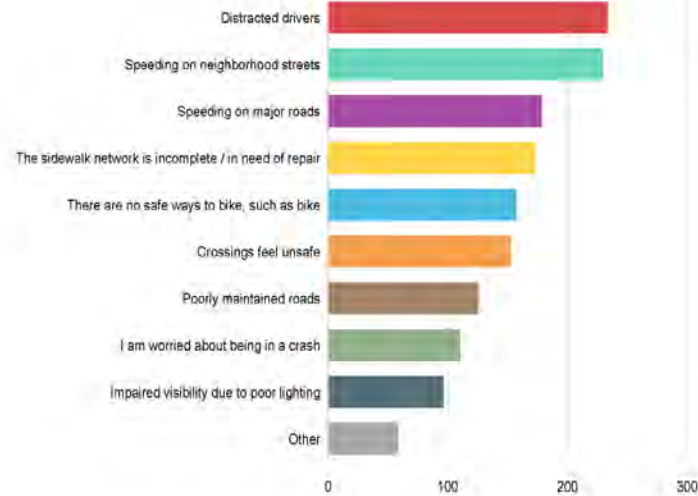
o What are your major concerns about the roadway infrastructure in the County?

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2/12/2026, 8:50 AM
26

Safe Streets Monmouth Community Survey - Copy

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Percentage

age

Distracted drivers	233	66.57%
Speeding on neighborhood streets	229	65.43%
Speeding on major roads	178	50.86%
The sidewalk network is incomplete / in need of repair	173	49.43%
There are no safe ways to bike, such as bike lanes	157	44.86%
Crossings feel unsafe	152	43.43%
Poorly maintained roads	125	35.71%
I am worried about being in a crash	110	31.43%
Impaired visibility due to poor lighting	96	27.43%

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2/12/2026, 8:50 AM
27

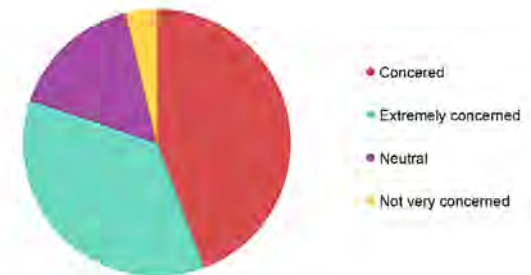
Safe Streets Monmouth Community Survey - Copy

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Other	50	16.57%
Answered: 347 Skipped: 3		

Travel Safety

How concerned are you about traffic safety in the County on a daily...



Answers

Count

Percentage

Concerned	143	40.86%
Extremely concerned	116	33.14%
Neutral	52	14.86%
Not very concerned	12	3.43%

Answered: 323 Skipped: 27

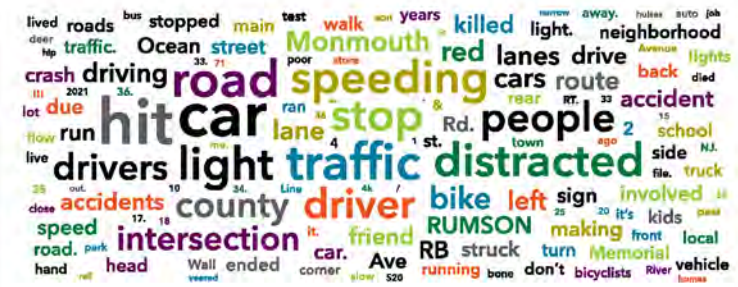
In the past 10 years, have you or someone close to you been involved in a traffic...

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2/12/2026, 8:50 AM
28



◻ If yes, would you be willing to share your story with us to create awareness about...



Count	Int
Yes	3
Car on hulses corner / farmingdale rd went into oncoming lane to pass bicyclists on blind curve. Oncoming car veered left to avoid head-on collision, resulting in the death of one of the cyclists.	1
20 years ago my brother died in a car accident on Rt. 34. He was avoiding a deer in the road, and hit a tree. There wasn't much traffic. He was 17. (This is not what you asked, but I wanted to share, since it was close to what you asked.)	1
A bicyclist who was killed when struck by a motorist.	1
A cyclist was hit at an intersection in Rumson	1
A distracted young driver was on her phone and didn't see the line of traffic stopped ahead of her and crashed into the rear of the car.	1
A driver was distracted while driving and ran a red light and hit my car as I was driving through a green light in Neptune, NJ	1
A local student at RBMS was hit by a car on his bike at Front Street. There are no bike lanes, but there is on street parking and considerable traffic.	1
A resident of Allentown was struck by a car and passed away. Trucks speed on Church and Main St in Allentown. I walk my dogs daily and had a few close calls on Church St. We need sidewalks on Lukaview Drive in Allentown. Bike lanes would be fantastic.	1

A teenager rang a stop sign because she was distracted and t-boned a friend of mine who had medical issues resulting from the accident.

A woman pedestrian was crossing via crosswalk at Church and Main Streets in Allentown and was involved in a car-pedestrian accident and subsequently died.

Bicycles hogging the road side by side not in a single file. Watched someone go around them and ended up in a head on collision. speeding - hitting a deer or a tree - slow down

Both accidents involved making a left hand turn where there's confusion about a single lane or double lane road. Seven bridges and Rumson's road and Shrewsbury avenue and 520.

Crashes are a common occurrence in the county. There are too many drivers on the roadways and too many distracted drivers, which cause people who are annoyed with the distracted drivers to become irritated. This leads them to drive faster to get away from the distracted driver. Road infrastructure needs to be expanded to allow for better flow of traffic around the county. Traffic light technology needs to be expanded to help traffic flow better at peak times. Alternative means of transportation need to be installed to connect major sections of the county, such as light rail or new highways. Unfortunately, I see major housing complexes being built and all that is argued is the amount of homes being built. Why are we not looking to have these complexes add parking, mix use buildings, and road infrastructure, so that when people need to get a cup of coffee, go to dinner or go to food store, they don't need to travel very far. They can walk down the street inside their community.

Crashes were due to (1) speeding and illegal passing (2) distracted driving

Crossway of Route 36 & Monroe Ave in Neptune, NJ. There needs to be a light there. I was crossing over, and a car hit my vehicle flipping it. My hand was flayed open with bone exposed, my hip is out of place, and I have permanent nerve damage in my hand and back. They put up a sign to right turn only, but nobody follows it. Almost died that day.

distracted drivers, speeding, wrong side of the road, lack of all vehicle lights working, poor signal timing at certain intersections during peak hours leaving small window for green light.

Driver not looking before pulling out from a stop sign hitting a passing auto

Friend on E bike killed by speeding car on memorial drive over summer

Hi, I signed up to this to report a concern I have at the junction of Washington St. in Rumson and River Road. People park immediately adjacent to Wells Fargo Bank on the corner completely eliminating visibility to traffic approaching from the west.

I am often hounded by aggressive drivers who push me to go faster especially on merges on Route 18 between Route 36 and Neptune exits. The Garden State Parkway exits and entrances are dangerous in Neptune/Asbury area. The terminus of Route 33 at Route 71 is rough. I have witnessed bicyclists hit, cars run up onto the sidewalk, and rear-ending accidents by the Broadway War Memorial at the entrance to Ocean Grove. Cars have extremely loud mufflers and speakers that sound like they are getting ready to race. They do race on Route 33.

I could provide the name of the person to you.

I don't really know the details.

I have lived in NJ my entire life; grew up in North Jersey and lived in Mercer County for 27-years. We moved to Monmouth County 2-years ago. I have never seen drivers this bad. They always turn in front of you when you have the right of way and are completely unaware of other drivers.

I have witnessed several accidents on the intersection of Rumson Road and Eingham. I live just 2 blocks away. An accident actually began at that intersection and landed on my property, with a car crashing through my front hedges. There needs to be a traffic light there.

I know (knew) two people who where pedestrians killed Crossing Rt 36. One in Hazlet. One in Port Monmouth.

I live in front of the intersection of Main St., Colts Neck Rd. And West Main St. in Farmingdale. The crosswalk there is extremely dangerous due to low visibility of the curve and due to distracted drivers. We witness at least 15 crashes a year at this intersection. There have been numerous times that vehicles lose control around the curve and crash into the property on 2 main st. I'm terrified to walk my children to school, let alone let them play in our yard as I fear the possibility of being hit in a crash is very high in this area. Maybe another guardrail or speed bump is needed.

I live on a county road where speeding occurs daily. Driveways have no skid markings on both sides making it difficult to back out of your own driveway. Sight triangles are not consistent throughout town. Large paneled trucks and vehicles block driver vision to see oncoming traffic when entering traffic.

I recently got run off the road into the shoulder at White Castle on 35 by Monmouth mall. Drivers in far left turning lane think they are the only lane turning right. See illegal lefts into pot store by fort Monmouth and dunkin further up. Spouse got rear ended when someone didn't think he should stop at red lights before turning on industrial to 35. Truck blew stop sign at 4 way on wall and Parker in Eatontown and almost t-boned me.

I was bicycling west on Route 520 (Rumson Road) in Little Silver at the light at Mitchell Rd. There is no shoulder or bike lane on that piece of road - just 2 lanes for car traffic. A woman quite literally tried to run me off the road because she perceived I was in her way (which I was). The bike lanes run out. Why?

I was hit while driving on Memorial Drive in Asbury Park. It was a hit and run. I was hit on the passenger side which drove me into a telephone pole. I had to be extracted from the car and suffered chest and head injuries.

I was rear ended.

I was running on a local road and a school bus almost hit me, I had to jump out of the way and hit my head - needed MRI.

I've lived in Monmouth County my entire life but roads and speed limits are maintained haphazardly. Anytime a road in a neighborhood is used by drivers, cyclist & pedestrians, especially when a lot of tourists and kids use the road and it's near schools it should be 25!

I've been in 2 no fault accidents on my end in the last 10 years in Monmouth County, where my vehicles were significantly damaged but no bodily injury. One was on Monmouth Road and Lake. Driver entered intersection without looking and I boned me. Another one last month was on Wall Street extension, driver crossed into my lane from oncoming traffic, hit his brakes in rain and skid into me - both distracted driving.

Intersection of Rumson Rd and Bingham. Pickup truck going east on Rumson Rd made a left onto Bingham crashing into my friend's vehicle, which was traveling west on Rumson Rd, causing a major accident.

It was in Maryland. I was the passenger. Driver was distracted and pulled out into traffic from curb and was struck by approaching vehicle. Driver was killed. I was airlifted to trauma center in Baltimore.

It's not my story to tell.

Memorial Drive in Neptune City killed my friend on a bicycle.

My comments aren't for Monmouth County as on a whole the county is safe to drive, walk, bike. Locally Red Bank is an absolute disaster to walk, bike or even drive. Traffic laws are not enforced. It is so dangerous to bike in RB that I gave away my bike. Cross walks in RB are for cars to speed up and try to beat the walker across. With an avg of 10-12 pedestrians/cyclists hit by cars in RB and at least one death annually, it is time for RB to enforce traffic laws. If the county is allowed to patrol the county roads in RB, in particular Shrewsbury and Maple Ave and enforce violations it would go a long way for people driving through RB to be more careful. I drive through towns where I know 1 mile above the speed limit could result in a ticket. RB is known for being lawless and consequently people in cars behave dangerously.

My co-workers wife was involved in a head on collision on RT. 34 that resulted in the passing of his toddler daughter.

My friend wasn't aware she was at a 2 way stop (there are a lot of 4 way stops in her area) and she got hit and totaled her car.

My husband was stopped at a stop light on his motorcycle. A distracted driver turned left off the cross road and ran into him while making the turn. Bike was totaled, husband was not seriously injured only because he was watching the distracted driver coming and attempted to jump off his bike.

My son was injured and their designated driver was killed in a head on crash by a drunk driver.

My son was involved in an MVA on a terrible intersection that sees accidents constantly in Millstone and we started a local neighborhood Facebook group which county commissioner, county safety official and our township council have heard from us about certain intersections, we have more to do!

My traffic crash did not involve serious injury thank goodness but very well could have. It was at the intersection of Stagecoach and Monmouth Rd. I always try to avoid that stop sign/intersection because it is very difficult to make the turn onto Monmouth with how fast the cars are going.

No.

No thank you.

No. You should already be aware of accident reports.

Not comfortable sharing.

Not sure about serious injury but this was at Logan and Sunset Ave intersection when a red light was run. I think both cars doing 35-40mph. I always take Sunset going westbound and can say there is poor visibility of the red light for that intersection even at a block away.

One friend killed while bicycling with a group in a single file. Another friend hit by a truck while riding a bicycle during an organized bicycling fund raiser. One friend killed by an automobile while riding a motorcycle, where he and his motorcycle ended up under the car. (Clear evidence at fault was the automobile driver.). Multiple friends involved in minor auto crash, primarily due to distracted drivers or speeding drivers.

One of my son's friends was running with a group during track practice and was struck by a motorist who did not stop for a red light as they were making a right onto route 35. He was ok but it could have been serious.

People are always speeding out of the hospital and someone hit me

People crash due to distracted My neighbor have been run over in cross walks on bike. Walking dogs. On disability scooter Some now have brain injuries

People don't fully stop at stop signs.

Person on Ocean Avenue in Bradley Beach was hit while on a Vespa. In Avon and Ocean Grove drivers often back up without looking to see if there is a bicycle and the lanes are narrow on Ocean Ave. Bicycle lanes on Ocean Ave would help

Personal vehicle I was a passenger in in was T-boned by a landscape truck and trailer that failed to stop for red light.

Please lower the speed limit to 25 mph all along Ridge road as you did in River road. Please please don't wait for a bad accident to do it. Too many schools, a recreational park and bike lanes makes it imperative. There are kids on bikes and many's walking strollers !!! You can not have cars doing 40+ mph

Post-pandemic, we have noticed a rise in red-light running which resulted in a family member getting hit by someone speeding through a red light recklessly.

Rear ended by speeding suv

RUMSON RD IN LITTLE SILVER JUNCTION OF SEVEN BRIDGES RD. DRIVERS NOT FAMILIAR WITH THE TWO LIGHTS ADVANCE WHEN ONE LIGHT TURNS GREEN ALTHOUGH NOT INTENDED FOR THEM

Sidewalks need to be added in Wall Twp. The landscape of the town has changed since the establishment of the town roads. The town had become much more densely populated, and infrastructure has not been updated to accommodate for the safety of all using the roads. Especially bikers and pedestrians.

Someone hit me on I95 and fled the scene in 2021 and my car was totaled. I saw a bus almost hit a biker a month ago in spring lake in a parking lot

Someone ran a Stop sign on a side street and impacted my car as I passed by. My car was a total loss my knees will never be the same but since my car was older and I did not break a bone I got nothing for my pain and 4k for my dealer maintained car with a lifelong warranty on trans & engine. People need to be held responsible and insurance laws are crap. This was someone's fault. I cannot afford to replace my car. My real estate career is now over.

Someone rear ended my car. There needs to be better lighting on residential streets.

Someone run the blinking light on Fairhaven Rd and hit my friends car. The blinking lights on Fairhaven Rd, ridge Rd and Bellevue and not sufficient. They need to be replaced with actual traffic light !!!

Someone was on their cell phone, and didn't see that they were coming to a red light. They crashed into the back of my husband's car when he was stopped at that light

Stop for pedestrians sign and speeding enforcement is needed for Brinley Ave in Bradley Beach. Also jaywalking on Ocean Ave in the summer. In the neighborhood running stop signs has been epidemic. Too many bicyclists going the wrong way

suggesting to look at White Line Foundation: <https://www.thewhiteline.org/?srsltid=AfmBOoqFXKdOsnthe sVqeJQRKz13WSnVULszhSVuXv9FdfB0aWURzXqk>

Tennent rd at spring valley/harbor roads across from a school is desperately in need of a stop light. Many many accidents occur there

Test test test

Testing

The accident didn't cause serious injury to the people involved, but a few years back on Memorial Day weekend, two of my family members were driving home and were severely rear-ended. They were making a left turn at a traffic light that was backed up due to beach traffic, totaling the car. The cause was distracted driving. The driver of the other car wasn't paying attention to the flow of traffic, and didn't notice that my family's car had stopped to wait for traffic to pass in order to make the left

The Crossing Guard at the top of my street was struck by a car and seriously injured. He never came back to work. He got our kids across the street safely for years. The last few years, the speeding, tailgating, weaving lanes, phone use, and complete end of traffic enforcement by local police have made the roads extremely dangerous. Its a large factor in considering moving out of the area we used to love.

The roads in millstone township need to be paved. Especially schoolhouse road. Motorcycles and cars are consistently speeding on stagecoach road. There is little to no state trooper presence

There was a reckless driver making left turn while my husband drove street. Our new car was totaled in this accident.

Too many drivers on their cellphone talking and not paying attention. People driving too slow on left lane backing up traffic.

We have a very dangerous intersection in Millstone Twp. The corner of Perrineville Rd and Prodelin Rd. This needs to be a 4-way stop, it's only a stopped in the east/west director. There are multiple accidents here a year.

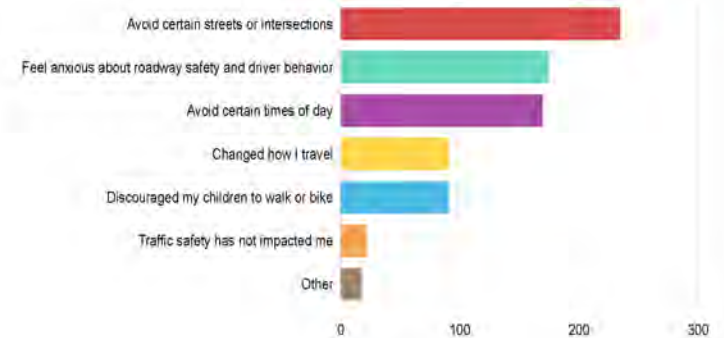
West farms road in Howell, my cat was T-boned when someone ran a stop sign

Yes - people don't know how to listen to the rules they are always speeding especially near neighborhoods and schools were kids are and inside neighborhoods - it's ridiculous people who are impatient and speeding all over and don't have the patience anybody can get hurt. They're either needs to be officers or a new law in place to wear if someone's speeding in neighborhoods or whatever you take a license plate tell the police because if someone's kid gets hit whether it's in a neighborhood you know outside of school or around the school that's an issue that requires someone to sue when that person who's speeding should be getting sued or at least a ticket or something - that goes to pedophiles as well. You need to do a better job with knowing who they are and even if they're not on the registry, you need to be careful they shouldn't be allowed near schools or children or anywhere in the neighborhood or apartment condo townhome anywhere that has kids either

Yes. A cyclist was fatally struck by a car (hit and run) on my street

Answered: 84 Skipped: 266

How has traffic safety influenced your daily travel choices?



Answers	Count	Percentage
Avoid certain streets or intersections	234	66.86%
Feel anxious about roadway safety and driver behavior	174	49.71%
Avoid certain times of day	169	48.29%
Changed how I travel	90	25.71%
Discouraged my children to walk or bike	90	25.71%
Traffic safety has not impacted me	21	6%
Other	17	4.86%

Answered: 345 Skipped: 5

Near-Misses



Highways
existing grant (th Pickney Blvd ear worse Rt. nj Ridge bridge lit location travel 5th
coming slows FRONT Monmouth corner let Lane Wall crosswalks Tinton Deal bike. roads
Hazel 35. 522 kid West turn 35 Rt Rumson obvious 537 run dangerous
out merge Beach Park Street 17 33 18 Ocean W Neptune time 51
speeding freehold intersections TwP Cr
Sycamore Highway Rd. Ave. Bank Hill hit 66 195 Eatontown yield Atlantic
high driver speed people River Asbury Circle stop & red Ave intersection S71
Memorial circles south Middletown Avenue 9 Dr cars St 34 Car 40 howell rivers
cross Eatontown SUNSET L TIMES Multiple Main traffic Bingham security
don't lanes Stagecoach Highlands Drive left millstone drivers City north WALKING side
turns LOGAN center crosswalk Falls signs crossing St 138 Broad 524 Parkway Locust major Traveling
driving av witnessed 33/34 Keyport Daily misses Distracted Navesink 547 Shawsbury Manalapan Green
Rte Prospect Circle. ShopRite Wyckoff due cell stop stopping sign over. feel Parker 549 S. 4-way slow them

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Applegarth rd	1
As a pedestrian I have nearly been run over by bikes in Asbury Park on multiple occasions. I have also had near-misses as a driver and a car passenger with other cars at the intersection of Emory and Asbury due to parked cars limiting visibility	1
Asbury circle ocean Twp, speeding down west Sylrama ave neptune city (no speed bumps)	1
Atlantic Highlands, First Ave	1
Belmar	1
Belmar Blvd wall	1
Bigham Ave & Rumson rd. Rumson NJ	1
Blackpoint and East River Road in Rumson	1
Bradley Beach - Ocean Ave, Neptune - Shoreham Road	1
Branch and Silverton, Pickney & Branch, Pickney & Broad	1
Branch Avenue in Red Bank at intersection with Bergen Place and at intersection with Brown Place	1
Brinley Ave and Memorial Ave	1
Brinley ave/ all north to south intersections, Bradley Beach	1
Broad St & W. Front St, Red Bank	1
Broad St and west Front st	1
Buena vista and rumson road	1
Candlewood in Howell more dangerous orthodox drivers	1
Children on bikes not stopping at to cross the street when riding on a sidewalk. First Avenue and Center Avenue Atlantic Highlands	1
Collingswood circle Rt 33 Rt 34 yield signs are ignored.	1
Collingswood circle. Merge into Rt 34 South from Rt 138	1
Collingswood traffic circle (Rt 33/34) as a pedestrian crossing E Main St in Freehold borough at designated mid-block crosswalk; Rt 18 crossover/congestion near Eatontown exits.	1

Cookman Avenue, Asbury Park	1
Corner of Rumson Road and S. Ward	1
Corner of So Pemberton Ave and Wolf hill Ave in Oceanport	1
corner of sunset and wickapecko	1
Corner of Wykoff Rd and 35in Eatontown. On 35 by the CVS in Eatontown, on 35 by the Dispensary in Eatontown. On Wykoff Road by WaWa in Eatontown, I've witnessed near-misses multiple times in each location noted.	1
Corner rumson road and Bingham, also rumson road and avenue of two rivers	1
County Road 51 in Tinton Falls	1
Crossing between Pinckney rd and broad st l. Red bank	1
Crosswalks in Rumson by Victory Park and French Market - cars fly through crosswalks and police watch and don't ticket them	1
Crowded parking lot	1
Daily	1
Deal Road and 35, Asbury Circle multiple times	1
Distracted drivers at 4 way intersections	1
Don't recall	1
Eatontown, NJ the intersection of Tinton Ave & Main Street near CVS.	1
Everywhere	1
everywhere!	1
Farmingdale, Howell freehold, ALL OVER Monmouth	1
Farmingdale/wall circle	1
Freehold Boro	1
Garden State Parkway	1

Getting out of Rt 18 on 66	1
GSP	1
Happens Everywhere! Too Many to List. Should be obvious where they are - Circles, people don't yield to other drivers when merging	1
Highlands and Atlantic Highlands route 36 area Highlands bay ave shore drive miller ave, water with linden ave all in Highlands.....First ave in Atlantic	1
Highway 34 and Cambridge Drive in Aberdeen, multiple times	1
Highway 35 and Harmony road in Middletown	1
Highway 35 near the ShopRite	1
Howell - CR 549 & CR 547, Lakewood-Allenwood Rd & Newtons Corner Rd, Fairfield Rd & RR tracks,	1
Howell, Freehold	1
I do not remember	1
I feel that I have both been involved in near misses as well as witnessed near misses many times a year. Middletown Shoprite I have witnessed several accidents and Middletown Target has a terrible traffic plan.	1
I have almost been struck while traveling on my motorcycle	1
I have seen cars speed and passing in no-passing lanes on 571. in some cases, just narrowly managing to get back into the correct lane and out of the way on oncoming cars	1
I travel most on rt 36 between Keyport and Hazlet. There are always pedestrians and no sidewalks and poorly lit intersections.	1
I'm in a near miss every day I drive. Cars just cut into lanes even if your there already.	1
In too many locations to list	1
Intersection at phalynx road and County Route 520. Along Route 520 between Everett Rd Middletown and Holmdel Rd.	1
Intersection of Fair Haven Road and Ridge Road in Rumson. And, between that intersection and Hance, along Ridge as you pass by Meadowridge Park. It's too dark, tons of deer and kids.	1

Intersection of Logan Rd and Sunset Ave, I have personally seen others in MANY near missing and have been in the case myself. Also same for intersection of 35 and Sunset, along wokapeco near the shops as well as the shops on sunset	1
Intersection of Pickney & Branch	1
Intersection on dr James and bridge	1
It happens to me nearly every day right in Asbury Park walking in crosswalks (even with a baby stroller), and being cut off or close-passed by drivers on my bike.	1
It's not a specific intersection or location, happens frequently Within the past month I was involved in a near miss at Craig road in MANALAPAN when someone made a turn into a shopping center at high speed. Similar situation on Indian path road and 33.	1
Lake Ave / Main Street Asbury Park. Rt 35 /66 Circle (multiple almost daily)	1
Laurel and 3rd in Neptune City-- the crosswalk is dangerous and not well marked	1
Little silver town , ave of two rivers /rumson road , Bingham and rumson	1
Little Silver-Rumson Rd and Prospect	1
Lloyd road by i section Aberdeen	1
Locust Ave, West Long Branch is a hot spot.	1
Locust Pt/Navesink River rd 3 way, Fair Haven rd/Ridge Rd, Rumson Rd entrance to bridge during summer months.	1
Main Street and N Maint Street in Farmingdale	1
Main Street and Southard Farmingdale nj speed all the time	1
Many intersections in Marlboro	1
Many times when drivers do not yield getting off of roads when there is a yield sign that they pay no attention to	1
Many times, from local roads to the Parkway Drivers are much worse post- COVID	1
McLaren and prospect in red bank. Car jumping stop sign.	1
Memorial Drive	1

Memorial drive and fourth Ave Neptune City	1
Memorial Drive is deadly by design	1
Middletown: Locust Point Rd/Locust Ave, Navesink River Rd, Swimming River Park/W Front St Rumson: Bingham Ave/Rumson Rd, E River Rd/Blackpoint Rd	1
Millstone on Stagecoach Rd	1
Millstone Road and Stagecoach in Millstone	1
Millstone Road and Stagecoach Road	1
Millstone Twp: Rt. 524 & Rt 571 also Rt 524 and Stillhouse Rd.	1
Millstone Twp: Scooter's Corner and intersection of Stagecoach and Stillhouse Rds	1
Monmouth Blvd & port au Peck	1
Monmouth mall jug and 35, Wall and Parker Rd Wykoff and grant 35,36 Broad and. 35 Eatontown	1
monmouth road and west park avenue intersection	1
Most intersections in red bank, especially near train crossings	1
Multiple locations in howell, Jackson and freehold	1
Multiple- Many on Branch Avenue and intersecting streets. Also exiting Fort Monmouth onto Route 35. Several others (and it's incre)	1
Multiple near misses on Asbury Circle, many cars do not yield when merging onto 35 south/36 west from the Asbury Circle	1
Multiple spots, people driving were distracted because on cell phone. I could see cell phone to there ear or holding it. they should use their vehicle Bluetooth instead. give them a ticket so they learn not to do this.	1
Multiple times at egress of Gooseneck Point Bridge where speed limit is too fast and is usually exceeded by drivers coming off the bridge heading south. Also, intersection of Rt 36 and Rt 71, and right turns on red from Monmouth Blvd onto Myrtle Av	1
NA	1
Navesink rd	1

Near forrestdale school at drop off and deans porter school people on phones during school hours	1
Nearly every street where drivers turn right, they do not LOOK right and almost hit me in the crosswalk	1
nearly hit in crosswalk while crossing the road at the intersection of Church and Main st in Allentown	1
Neptune City, 3rd Ave	1
Newman springs and shrewsbury ave	1
Newman Springs Road in Middletown	1
ocean township	1
Org almost every where you can think of. Traffic is out of control. Careless driving is out of control. People run red lights and stop signs regularly. Aggressive drivers are taking over.	1
On ramps to highways	1
Park Blvd and Chestnut street intersections, Ocean Township	1
Parkway all the time. REd Bank area	1
People going right through stop signs and/or crossing into oncoming traffic	1
People turning left when should be using jughandle - most specifically rte 35 (Deal rd and west park ave intersection) - also merge north of deal road on rte 35 to shopping center or lane of travel very chaotic	1
Port au Peck and Monmouth blvd. Rt36 multiple intersections from people running lights.	1
Prospect Ave & Amboy Road Cliffwood Beach	1
Pulling out of my driveway on Lake Terrace in Bradley Beach because driver doing 50+ mph in a 25 mph zone.	1
Pulling out of my driveway onto sycamore ave.	1
R 537 and Paint Island Spring Road	1
Red Bank numerous times, many unsafe intersections. "Broad Street" also contributes to unsafe road conditions when it is in operation	1

Red bank Shrewsbury Eatontown intersections of 4Route 35	1
Red Bank! It's playing wack-a-mole trying to walk across a cross walk, biking is even worse	1
Red Bank, Middletown, Freehold, Asbury Park	1
Red bank, Rumson, Middletown	1
Red Bank, Shrewsbury Ave & Locust Ave	1
Red Bank: intersections at Linden and Hudson, Spring and Harding, (stop signs/lights ignored) & crosswalks on Maple (especially by Reckless and the YMCA and crosswalk at Broad and Pinkney by Foodtown. People have been hit there	1
Red light runners.	1
River Road and Park Avenue, Rumson;	1
Roseld Ave, Berkeley Ave, Franklin Ave, Logan Rd- all in Ocean Township	1
Route 18, route 35	1
Route 195 , 295 and route 29. Disregard for other vehicles weaving in and out at high rate of speed	1
Route 33 and Sweetman's Lane people driving on the wrong side. The curve by Perrineville Lake -- too many people distracted on cell phone. Maybe put a cop there especially on weekends - maybe that will slow people down	1
Route 33, 35, 18 and 66	1
Route 35	1
Route 35 and Poole/Bethany, Route 35 and Miller Ave, Route 35 and the off ramp from the Parkway, exiting the parking lot of ShopRite on Hazlet Ave, Bethany and Hazlet Ave,	1
Route 35 nearly everywhere in the county, portions of Newman Springs Rd west of Red Bank	1
Route 35. Failure to stop at yellow/red lights. Distracted drivers	1
Route 36	1
Route 537, Freehold, yellow meetinghouse road, route 9 manalapan/merlboro	1
Route 71 & Ocean Road	1

Route 9 and Route 522	1
Route 9 most of the time, route18	1
Route 9, merges on rt. 34 and 35.	1
Route 9, tenant road, Texas road	1
Route18, Route 71,Route 33, Route 35, Garden State Parkway	1
Rt 33	1
Rt 33 and jumping brook rd in Neptune, crosswalks on West Sylvania, the cars don't stop for people crossing!	1
Rt 33, main st freehold	1
Rt 33/34 junction in Howell. Intersection of Main Sts in Farmingdale	1
Rt 34/33 as you approach split in farmingdale going north and also coming south over the overpass and backup on left turn slot in median	1
Rt 35 and Deal rd Ocean twp, rt 35 and Sunset Ave Ocean Twp, rt 138 and Allenwood Rd Wall Twp 18th Ave and New Bedford Rd Wall Twp	1
RT 35 AND SUNSET AVE OCEAN	1
Rt 35 circle at Asbury ave and rt 66 and Pinckney road at Broad street	1
Rt 35 circle Mana/Wall	1
Rt 35 in Hazlet	1
Rt 35 intersection s.	1
Rt 35, Rt 18, Rt 71, Manasquan Circle	1
Rt 36 & 71 left hand turns, Rt 36 & grant ave, Eatontown, Rt 35 & Tinton Ave into AYR Dispensary	1
rt 36/35	1
RT 537, RT 34, PHALANX, RT 520, MIDDLETOWN LINCROFT RD, WEST FRONT ST, HUBBARD AVE, HWY 35, NAVESINK RIVER RD, HWY 36	1
Rt 9, rt 33/rt 34	1

Rt 35 Most of it from drivers entering or exiting at high speed.	1
Rt. 79 south merge right before Ryan Rd	1
Rt36 and grant ave &36 and Wyckoff	1
Rte 35 Middletown	1
Rumson Boro, Rumson Road and Ave of Two Rivers	1
Rumson Road	1
Rumson Road & Bingham	1
Rumson road and avenue of two rivers	1
Rumson Road and Harding Road Intersection	1
Rumson Road and Heathcliff Road	1
Rumson Road- cars crossing the double yellow line and nearly hitting me head on while they looked at their phone/GPS	1
Rumson road cars pulling out of side streets. Also the corner of Rumson Road and Bingham Avenue	1
Rumson, Ocean, Eatontown, Tinton Falls, Neptune.	1
See above note	1
SEVERAL TIMES, SEVERAL LOCATIONS, SITUATION CREATED BY PEDESTRIANS TEXTING AND WALKING, BIKERS MOTORIZED AND NON MOTORIZED ACTING ONE MINUTE AS A "CAR" THE NEXT AS A BIKE	1
Shaft, RT 35&36.	1
Southard ave Accadamy St	1
Stagecoach Rd and Millstone Rd in Millstone Township. Rt 571 in Jackson Township.	1
Stagecoach road and millstone road	1
SUNSET AVE AND ROUTE 35, LOGAN ROAD AND WICKAPECKO.	1

Sweetness Lane (Millstone), intersection of Carrs Tavern/Paint Island/Saïrd (Millstone). Stagecoach/Paint Island/Millstone Rd (Millstone)	1
Sycamore Avenue and Palamino. People speed all the time. A sign has been installed on one side of Sycamore but the most speeding comes on the other side where people are from Hope Rd or further down Sycamore. Signs should be on both sides of the road.	1
tenant rd and Gordons corner rd Manalapan	1
Tennent road at union hill rd crazy drivers try to run the yellow or even red.	1
The intersection at Blackpoint & Forrest Road in Rumson is incredibly unsafe as it is only a one way stop and there are two schools right there	1
The intersection of Borad Street and Sycamore Avenue. By the Allen House in Shrewsbury	1
The intersection of Route 33 and Route 66 in Neptune. The intersection of Shark River Road and Shafto Road in Tinton Falls	1
The one that most comes to mind would be along route 35 south, near the home depot in hazlet. The intersection there requires aggressive decision making	1
The Yield coming up Ocean towards E Highland in Atlantic Highlands- people don't yield to left crossing traffic because the intersection is confusing	1
There is now a traffic circle being installed at the location (in Middletown /Atlantic Highlands / Highlands). Cars almost hit each other due to a 5-point intersection.	1
This happens often. Route 33, Route 66, Route 35, Route 33/34 Circle in Wall	1
Too many time to kept track. Multiple roads through out, major and minor roads.	1
too many to mention	1
Traffic circle at 33, 34, Asbury Rd	1
Traffic circle from rt33, Farmingdale leading to route 34 north	1
Traffic circles, no left hand turns at major intersections (Deal Rd at Rt 55) - it's poorly signed that lefts are not permitted going eastbound on Deal Rd (or people just don't care and do it anyway)	1
Traveling around the Manasquan circle and the route 54/33 circle	1

Traveling east on Ridge rd. Young driver run the blinking light of Bellevue. This kid did not slow down at all and went thru the intersection at 35 or 40 mph. Absolutely crazy. If I would have left my house a minute earlier I would be severely hurt.

Turning left off of Church Street onto Highway 35 south. The circles on 35 and 34 in Wall Township.

Union Hill Road - west of Wild Turkey Way in Manalapan; Route 9 near Taylors Mills Road in Manalapan

US 9 at Schibanoff Lane, US 9 at Elton-Adelphia Road, CR 522 at Robertsville Road, CR 537 at Burnt Tavern Road

usually people not paying attention

Valley Dr and Navesink Ave in Atlantic Highlands (before it became a traffic circle)

West Farms road and Route 524, cars leaving developments along Route 524 feel they do not need to stop at the intersection. Yellowbrook road and Route 33. Cars pull out of Yellowbrook Road even when cars or trucks are almost upon them.

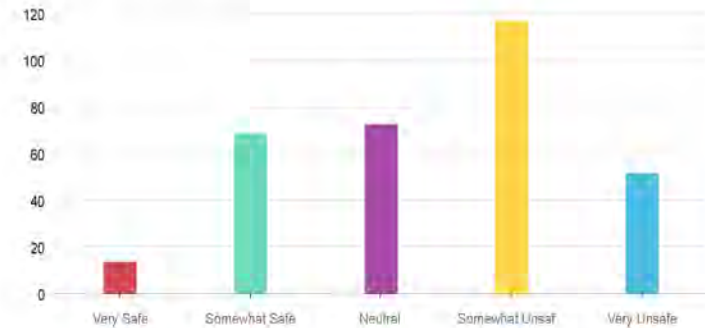
Willow Ave @ Little Silver Train Station: late left turn driver speeding at intersection, Harmony Rd. @Hwy 35-need left turn only lane.

Working as a crossing guard I've had near misses of cars not stopping at stop signs or guards out stopping traffic. The intersection I work in has a two way stop that vehicles blow through often.

Wyckoff Road, Rt 33, Collingwood Circle everyday

Answered: 227 Skipped: 123

Non-Motorized Safety-Level



Answers	Count	Percentage
Very Safe	14	4%
Somewhat Safe	69	19.71%
Neutral	73	20.85%
Somewhat Unsafe	117	33.43%
Very Unsafe	52	14.86%

Answered: 325 Skipped: 25

Safety Priorities

add more bike lanes in high density areas like Ocean Ave in Long Branch, and Kings Highway in Middletown. Sidewalks and/ or bike lanes needed along Locust Point Rd. near the bridge to Rumson	↑
Adding a traffic light on Buenavista, Bellevue and Ridge rd would be prudent.	↑
Adding traffic lights to some streets	↑
Ads on social media about using the crosswalk lights (if there is one). Watched CBA students almost get hit crossing Newman Springs because they cross without hitting the light. Same in Red Bank. Signage by the crossing light. Raised pedestrian walkways?	↑
Allow signage stop for pedestrians on Brinley Ave. Speed enforcement.	↑
Asphalt art project at the intersections.	↑
Better lighting at intersections, Public awareness to try and get pedestrians to wear some sort of reflective safety clothing	↑
Better road maintenance, especially in neighborhood areas	↑
Better traffic lights and police monitoring at heavily trafficked roadways	↑
Bike friendly roads everywhere	↑
Bike lanes	↑
Bike lanes needed Navesink River Rd from Browns Dock to Locust Ave. no brush/leaves in bike lanes. Reduce on street parking at intersections. Increase off road trail corridors - require connections through development. Navesink circle narrow for bikes	↑
Bike lanes on Rumson Road - the beach traffic keeps getting worse, it would help to encourage locals riding bikes to the beach	↑
Bike lanes, red light enforcement, actually holding drivers accountable for being distracted	↑
Blinking Pedestrian Crosswalk Signage	↑
Both Roosevelt and Millstone Twp use the state police, who seem to be indifferent to speeders and bad drivers. I understand they're busy. It would be nice if there was an agency that would enforce speeding, etc. laws.	↑
Broadway in Ocean Grove is unsafe. Cars speed down it and people are also parked too close to the intersections, making it hard to see when turning from side streets.	↑

Build pedestrian walkway along Walker Avenue (Co Route 526) in Allentown as currently pedestrians, people in wheelchairs and pushing baby strollers walk on the County-owned roadway pavement.	↑
Cell phone Crack down...give them ticket so they are not holding phone and distracted...	↑
close some roads to large trucks	↑
CONGESTION ON THE ROADWAYS IS POSING A DANGER. THESE ROADS WERE NOT MEANT FOR THE NUMBER OF PEOPLE NOW TRAVELING THEM. EVERY YEAR HAS ADDED 2 MINUTES OR MORE TO MY COMMUTE DUE TO CONGESTION. THE UNFAMILIAR WITH AREA OR RELYING ON THEIR NAV EXASPERATE	↑
Crosswalk stings in red bank.	↑
cycling is quickly becoming a new mode of transportation, our roads should accommodate them sufficiently	↑
Do not let horses be used as places of worship	↑
Don't take parking away. That is not an issue at all.	↑
Education. All drivers should be tested at license renewal with a written test and road test every other renewal. Bike riders should actually receive tickets for everything and enforce jaywalking	↑
eliminate street parking near corners to increase visibility bc of drivers entering intersections	↑
ELIMINATE THE MULTIPLE SPEED LIMITS IN A GIVEN AREA/ MOTORIZED BIKES NEED TO BE WELL LITE, WEAR REFLECTIVE GEAR AND HELMETS	↑
Enact stiffer penalties for driving infractions. Improve driver education concerning safe passing of cyclists, pedestrians, and vehicles. Improve driver awareness of dangers of aggressive driving. Enroll municipalities in enforcement and education efforts.	↑
encourage cruise control	↑
End right on red everywhere. Lower speeds. Flashers at crosswalks, Compel homeowners to care for sidewalks. Mass transit that works. Oh and an education campaign about those catch all turn lanes, people don't know how to use	↑
Enforce existing laws. Ticket bicyclists who ride on the sidewalk and cars that park over the sidewalk instead of fully in their driveways, forcing pedestrians into the street to get around them.	↑

Enforce more safety all over Monmouth county especially near all schools and neighborhoods.	1
Enforce no cell phone law	1
Enforce speed limits. Better lighting t intersections	1
Enforce stop signs.	1
Enforcement. Yield signs, stop signs and speed limits are not suggestions.	1
Enforcing speed and stop signs I travel river rd daily and it is hard to abide by the the 25 mph limit b/c there's always a car on ur bumper Stop signs seem optional which goes hand in hand w/ aggressive and entitled driving	1
Enforcement of the new e-bike regulations	1
Enhancing and expanding sidewalk and bike lane networks to link desirable destinations.	1
Expanding sidewalk coverage would improve pedestrian safety	1
Explore and promote use of roundabouts at municipal level when roadway upgrades are being considered.	1
Fix Memorial drive. Arnone's fault.	1
Fix the POTHLES all over the place. More speed bumps. More enforcement during summer at the shore towns NYers are out of control	1
Follow Dark Sky Internabonal Guidelines for better lighting designs. Simply flooding an area with light does not improve visibility. Only put lights where they are needed and always use timers.	1
have auto manufactures install cell phone jamming devices unless car is park.	1
Have more police presence. And make them do their jobs. I have seen violators do things in front of police and police do nothing	1
Have the police in towns actually enforce the laws and speed limits that already exist. Crosswalk on River Road by Bruce Street (kids crossing no crosswalk) 15 MPH and one lane traffic near schools.	1
Have traffic stops to make sure drivers licensed & insured. See a lot of drivers who clearly do not know the rules of the road in the US	1
Higher penalties for severe offenses and higher police presence	1

Highlands curb/sentrances 2 town stores accomm-disabled community we can't get in.. Reduce speed 10 mph in town strict enforce-Ban/ Zero Tolerance 4distract-driv-jail time. HoldCrankyBike responsible 4speedn motor bikes@ H Hudson helmets and licence plate	1
I rarely see any police enforcement. If police are visible, people slow down.	1
If public transportation offered more options, then I know many people my age would prefer to take it over driving, which could decrease the number of vehicles on the roads	1
Impactful Communication to drivers and pedestrians.	1
Improve and expand sidewalks everywhere, don't wait on property owners to do the right thing. Reduce on-street parking and add protected bike lanes and wider pedestrian walkways	1
Improve sidewalks for	1
Improved ADA and sidewalk compliance, currently home and business owners are responsible which means there is no cohesive approach, very difficult for elderly, disabled and young, particularly older towns like Ocean Grove	1
Improved traffic controls at certain intersections	1
In Millstone Twp. add lights, rumble strips, make major intersections 4 way stops with proper signage	1
Increase green left arrow times at intersections. Too many cars try to speed through the yellow arrow or when no arrow is present and they crash into the car in the opposing lane	1
Install more traffic calming designs, install flashing crosswalks at parks and schools	1
Install stop signs on county roads in Bradley Beach in the summer	1
install traffic calming measures like mini roundabouts, curb extensions, bulb outs, permanent speed humps, raised crosswalks, and hopefully soon traffic safety (speed) cameras all over NJ	1
Laws only work if they are enforced. Enforcement only happens if police officers feel supported be elected officials.	1
Lighting	1
Lloyd road has become a race way. With the school and bus stop no one stops to let u cross. Weneed more lights to slow people down. no	1
Logan Rd should go down to 25mph	1

Longer green light times for roads intersecting with route 35 (Hazlet Ave, Miller Ave, Bethany/ Poole). Better entrance/exits from the shopping centers with Planet Fitness and ShopRite.	1
Lower local neighborhood speed limits to 25 in all areas, especially residential areas. And enforce those speed limits.	1
Lower speed limit on routes 9 and 18 it isn't the turnpike or garden state	1
Lower speed limits and more labeled crosswalks on county roads through residential areas.	1
Lower speed limits in rumson to 25 from 30. Fair haven did they'll right thing.	1
Lower speed limits with higher cost for speeding, driving reckless and distracted driving, mark on licenses for those repeat offenders.	1
Lower the speed limit to 25 mph on Ridge rd. Too many kids in bikes and scouters use Ridge rd. I even saw this summer a nanny with a double stroller walking babies with her back to traffic and cars doing 40+ mph.	1
Main Street and Southard Farmingdale nj speed.	1
Make roads safer for bicycles and pedestrians.	1
Make wildlife corridors!!!!	1
Many people walk or bike millstone Road to get to the Jackson outlets and it is dangerous.	1
Monmouth County has to make a better effort to implement complete streets in County Planning Board plan review and construction projects undertaken by the County.	1
More "controlled" traffic signals to allow for pedestrians to to press button for "walk" sign or automatic systems that detect when pedestrians are present, so that traffic is stopped only when pedestrians are there.	1
More and wider roads. Less redundant stop signs. More enforcement of texting while driving infractions.	1
More enforcement (maybe focus on one problem spot for an extended period to help change habits). Tailgating is becoming more of a problem. Seems if you aren't exceeding the speed limit, the drivers feel they can tailgate you until you change lanes.	1
More enforcement of traffic light violations, add red light cameras.	1
More police presence to deter speeding, aggressive and distracted driving.	1

More Police traffic enforcement	1
More sidewalks.	1
More sidewalks in Oceanport, NJ and speed alert signs or flashing pedestrian signs on Oceanport Ave by Pemberton Ave and Main Street crossing to Old Wharf Park. Cars do not stop for pedestrians/strollers at crosswalk.	1
more street lights and more sidewalks for pedestrians	1
More traffic enforcement which I assume means more police hired to enforce. Middletown is huge!!! We need more enforcement. Especially on Route 520!!!!!! And Route 35. It's crazy!!!	1
More traffic lights/ stop signs at major intersections to slow down traffic.	1
Navesink circle... more lighting...	1
Need a connected and protected bike lane network throughout the county. Ocean Ave should have this at the very least.	1
Need crosswalks and slow/stop for pedestrians signs in the middle of the road at the intersections at the location I mentioned above and in and around Wanamassa Elementary School.	1
Need more designated cross walks with signage especially on Branch Avenue in Red Bank.	1
Need more enforcement on Lake Terrace (County Road 18) in Bradley Beach.	1
Need sidewalks!! You make bus stops blocks away from home but yet no sidewalks for kids to walk on. So they have to walk in the street, where cars are parked and are driving, at night, when it's impossible to see with the worthless lighting.	1
Newman Springs Road in Lincroft should widen sidewalks and reduce to one lane with a dedicated turn lane. People speed and drive way too fast too many accidents on the road.	1
on a municipal level- roundabouts on neighborhood streets. I had worked with the municipalities and their respective DOTs to successfully implement such projects in the past. (I'm a landscape architect and urban designer)	1
Pedestrian first planning. Incentive bus use. Increase availability of shuttles.	1
Place speed bumps on Church St in Allentown to stop dump trucks and cars from speeding.	1
Police enforcement where is NONE	1

Policing to slow speeders, flashing signs that display drivers speeds to make them aware that they are speeding	1
Put a traffic light at the corner of Tennes Rd and Spring Valley Rd. Speeding is a big problem, even in residential communities. More enforcement of speed limits!	1
Put crosswalk back in w blinking light next to Oceans first bank in Red Bank, from Memorial park between West Front & Riverside. There is a sidewalk and after repaving, crosswalk not repainted.	1
Reduce Speed Limit and have ONE consistent speed throughout Branch Avenue in RB, LS and Oceanport. Narrow the entirety of Branch Avenue	1
Reduce speed limit to 25 on N Main Street. Add crosswalk to N Main Street in Farmingdale. Children and adults cannot cross safely to friends neighborhood when people are driving 35 mph or speeding 50 mph on the 35mph road.	1
Reduce speed on Kings Highway, Middletown	1
Reduce the amount of county vehicles that are adding to the traffic issues. I just ran an errand a mile from my house in Eatontown and saw three county vehicles in 10 minutes. Why? Stop spending!	1
Reducing the population in Monmouth County	1
require sidewalks along all roadways, prioritize micromobility infrastructure whether it be on road lanes on lower speed roadways or off road mixed use paths along the side of higher speed roads.	1
restrict truck traffic and create a bypass around Allentown to reduce traffic in the area	1
Retest NYers	1
Rumson road speed limit should be reduced	1
Safer crosswalks -- better signage or neon stripes	1
Shorten wide side walks to increase width of street. Or get rid of the patch of grass. Improve lighting, so many street lights are not working.	1
Sidewalk northbound side of 36 between Linder Ave., Highlands and Sears Ave., Atlantic Highlands; walk/don't walk sign on northbound side of Route 36 at Miller Street for pedestrians walking eastbound	1
Sidewalks as visibility at corners is very dangerous	1

sidewalks on main streets in rumson (rumson road, ridge road and navesink river road	1
Signage should be reviewed. Some signs are posted to late to see when traveling at 50mph and make choice in time.	1
Speed bumps.	1
Speed bumps down residential streets to slow people down	1
Speed bumps near schools	1
Speed bumps, cell phone jammer, letting Waves and Google Maps inform drivers when coming up on questionable intersections.	1
Speed Cameras in downtown areas (ie RPH on Ridge Rd). Speed bumps in Rumson along Ridge Rd near parks/schools where deer and kids are crossing. Better lighting near wooded areas.	1
Speed limits are way too low in some areas. Like the new 25 mph in Little Silver. Lots of people running red lights on Shrewsbury Ave in Tinton Falls. Too much development! Too many people and cars for the existing infrastructure!	1
speed traps	1
Speeding & aggressive drivers are a major problem. Perhaps additional speed bumps, lower speed limits and enforcement of safe driving rules will help. I think there should also be a greater penalty (monetary, license suspended?) for unsafe driving.	1
Start paving older roads. Sometimes I feel like I'm driving in a 3rd world country. Stop building so much. The roads can't take it and it takes forever to get anywhere. This is supposed to be the suburbs, open space, farms, not a city like Staten Is	1
Street Lights!!! Belmar Blvd has almost none. It is very difficult to see on that road	1
Stricter regs on Motorized bikes-licenses, lights, helmets.	1
Support local municipalities painting crosswalks and not requiring pedestrian crossing signals to be manually activated.	1
Take bicycle traffic into account when determining speed limits. For example, County Rd 4 through Holmdel is 40mph with no shoulder and limited sight lines.	1
Test	1

The intersection of Sycamore and Branch/Oceanport Ave needs better pedestrian safety. When someone wants to cross in ANY direction, ALL the traffic in that intersection needs to stop. I	1
The street lights are terrible in my area and are in desperate need of improvement. Ocean Road east of Rt 71	1
There are many streets that a stop sign needs to be added or a stop sign to slow traffic down. For example in red bank on Shrewsbury Ave there needs to be a stop sign or the blinking lights when pedestrians cross because I have heard of numerous accidents	1
There is often good signage for crosswalks, but what are people being taught in drivers ed? I see SO MANY people cruise thru a red light (and even stop signs) to make a right hand turn, with no stop at all. Very disappointing - and dangerous!	1
There seems to be a total disregard of general traffic laws. Roads are dangerous every day. It was not always like this.	1
Through truck traffic should not be allowed within a town or village. The only truck traffic that should occur within a village or town should be for local deliveries only.	1
Ticket all cars traveling over 80 mph	1
Traffic calming devices, slower speed limits, more enforcement, higher penalties	1
Traffic light at Main Street, Asbury Ave and Southard Ave, Farmingdale Borough	1
Traffic light on the corner of state Route 71 and 16th Ave Belmar is not correct. Rt 71 traffic gets about 15 seconds before light turns red. While the traffic on 16th Ave crossing over Route 71 gets the green for an eternity.	1
Walk lights at some busy roads so walkers and bikers can trigger the flashing lights to cross	1
we dont need reduced speed limits or bike lanes or longer lights. Those are making the problems worse. We need enforcement of speed limits and distracted driving. The traffic is horrible and makes people want to go faster when able to.	1
We need more sidewalks along roads leading to "destinations" like schools, shops, trails, parks, rec areas, libraries etc. Too often people are forced to walk or bike in roadways, and that is unsafe and can easily be addressed with sidewalk installations.	1
We need sidewalks	1
When police still stopped cars and wrote tickets the roads were much safer.	1

When the car needs inspection, the driver should have to take a retest written exam. People forget the rules. Drinking and driving should never happen that's the answer not how much you drink to make you impaired. The answer is NO drinking.	1
Why bother with traffic laws if they are never enforced, why institute new laws if they aren't taught. Good example, how many drivers even know there is a 4 foot law for bicyclists and pedestrians?	1
Why would we slow roads, narrow road or reduce parking. There needs to be better use of roads, more roads, better flow design. I can get behind one-ways if it helps move vehicles. People are tired of sitting in traffic every where they go.	1
Widen roads, add more lights in between, extend the merge lanes or eliminate them	1
With the rapid growth in Monmouth County we are currently experiencing, the need to improve the roadway network for all modes of travel should be the one of the County Commission's highest priorities.	1
Would like to see sidewalks on the school side of Southard Ave. lots of kids crossing in that area.	1
Yes	1
Yes move obstructions from side triangles	1
Yes, issue tickets. Get the county roads in RB a reputation for law enforcement	1
Yes, participate in pilot programs where the car speed CANNOT exceed the speed limit. This may take 20 years to implement, but Monmouth County can at least provide indications of interest at the national level for 'pilot' cars built this way tested here.	1
You have to fix the traffic flow on 537 in Freehold Township West of Freehold Borough. Also, should look at left turn only lane at business 33 Throckmorton Street and Main St. Freehold Borough horrible. Make light longer green at East Main into Center	1

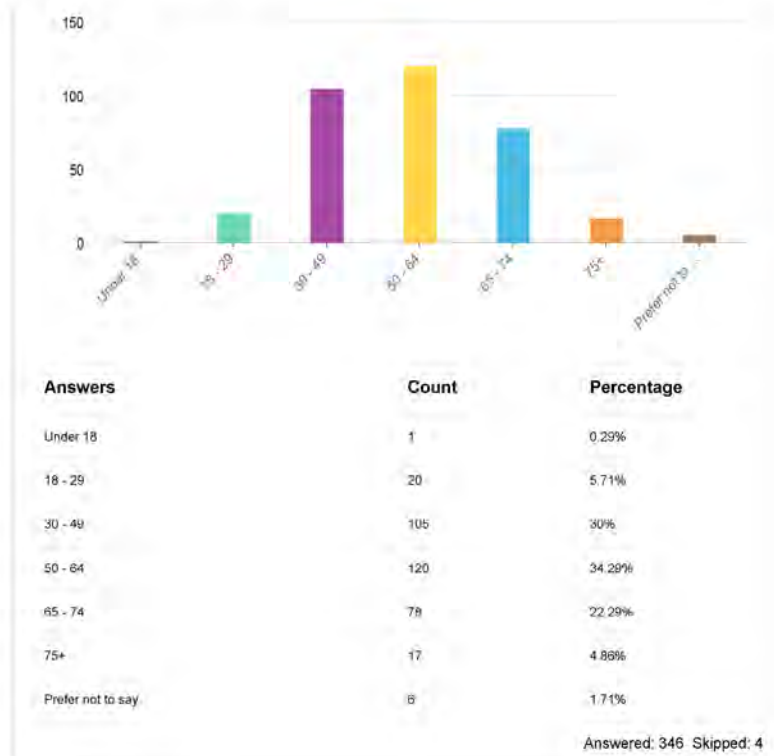
Answered: 167 Skipped: 183

Demographics

What is your age?

Safe Streets Monmouth Community Survey - Copy

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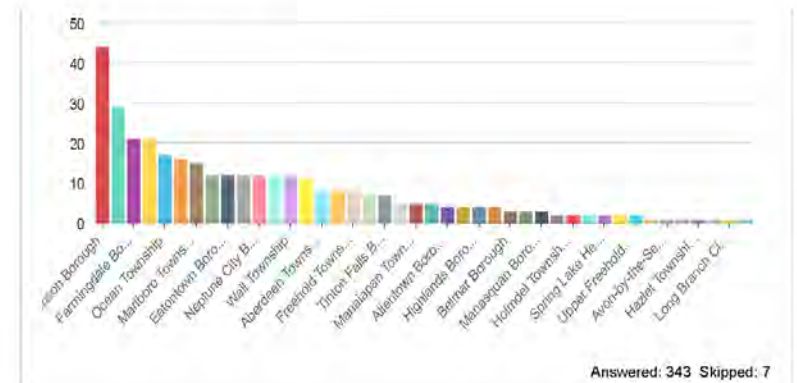
Where do you live?

47 of 48

2/12/2026, 8:50 AM
65

Safe Streets Monmouth Community Survey - Copy

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48 of 48

2/12/2026, 8:50 AM
66

Safe Streets Monmouth WikiMapping Results

No	Date	Type	What Issues Have You Observed Here?
166	12/19/2025	Point	Dangerous Behavior,Complex Intersection/Crossing,Heavy Traffic,Crossing/Turning Conflicts
167	12/19/2025	Point	Poorly Maintained Surface (potholes, worn pavement, markings, etc.)
168	12/19/2025	Point	Dangerous Behavior,Yield sign at Route 33 off-ramp merge to Wemrock Road should be made stop sign as ramp vehicles do not yield to SB Wemrock Road mainline travel.
169	12/19/2025	Point	Complex Intersection/Crossing,Crossing/Turning Conflicts,should make turning lanes on route 34 for safer traffic
170	12/19/2025	Line	Incomplete Network/Network Gap,Add sidewalk along Route 33 to connect Pegasus Blvd. to Sweetman's Lane.
171	12/19/2025	Point	Bike Parking Needed,Add secure structure for bike parking at or near Freehold Boroughtransit center.
172	12/19/2025	Point	Bike Parking Needed
173	12/19/2025	Point	Bike Parking Needed
174	12/19/2025	Point	Bike Parking Needed
175	12/19/2025	Point	Bike Parking Needed
176	12/19/2025	Point	Bike Parking Needed
177	12/19/2025	Point	Bike Parking Needed
178	12/19/2025	Point	Bike Parking Needed
179	12/19/2025	Point	Bike Parking Needed
180	12/19/2025	Point	Complex Intersection/Crossing,Heavy Traffic,Crossing/Turning Conflicts,Personal Safety Issues,Insufficient Safe
181	12/19/2025	Point	Bike Parking Needed
182	12/19/2025	Point	Bike Parking Needed
183	12/19/2025	Line	Incomplete Network/Network Gap,Poorly Maintained Surface (potholes, worn pavement, markings, etc.),Heavy Traffic,Insufficient Safe Travel Space,Poor Lighting,Bicycle Lanes or complete and wider sidewalks needed along
184	12/19/2025	Point	Bike Parking Needed,Bicycle parking needed - preferably enclosed structure.
185	12/19/2025	Point	Wayfinding Needed,Bike Parking Needed,Trailhead needed - vehicle parking, bike parking and amenities for walk /
186	12/19/2025	Point	Poor Visibility or Sightlines,Wayfinding Needed,Poor Lighting,Pedestrian Crossing safety signal needed. Skewed angle of crossing and vegetation inhibit pedestrian and bicycle visibility when approaching roadway.
187	12/19/2025	Point	Dangerous Behavior,Complex Intersection/Crossing,Poorly Maintained Surface (potholes, worn pavement, markings, etc.),Poor Visibility or Sightlines,Heavy Traffic,Crossing/Turning Conflicts,Consider roundabout as current turning movement-based design is dangerous.
188	12/19/2025	Point	Dangerous Behavior,Complex Intersection/Crossing,Poorly Maintained Surface (potholes, worn pavement, markings, etc.),Poor Visibility or Sightlines,Heavy Traffic,Crossing/Turning Conflicts,Consider eliminating overly complex, multi-ramp, signalized turning movement-based design with a safe and effective roundabout design..
189	12/19/2025	Point	Heavy Traffic,Crossing/Turning Conflicts,During weekend peak periods, turning mkovements in and out of shopping center impact mainline travel flow on Tennent Road.
190	12/19/2025	Line	Heavy Traffic,Severe congestion during peak travel periods.
191	12/19/2025	Line	Heavy Traffic,Severe congestion during peak travel periods.
192	12/19/2025	Point	Incomplete Network/Network Gap
193	12/19/2025	Point	Incomplete Network/Network Gap
194	12/19/2025	Point	Complex Intersection/Crossing,Heavy Traffic,Crossing/Turning Conflicts,Wayfinding Needed

Safe Streets Monmouth Safety Action Plan

WikiMapping Results 8/108

WikiMapping Public Input Results (Page 1)



SAFE STREETS MONMOUTH

MUNICIPAL INFORMATION MEETING #1
February 24th, 2026



S | S
4 | A



U.S. Department of Transportation
**Federal Highway
Administration**

AGENDA



Welcome and
Introductions



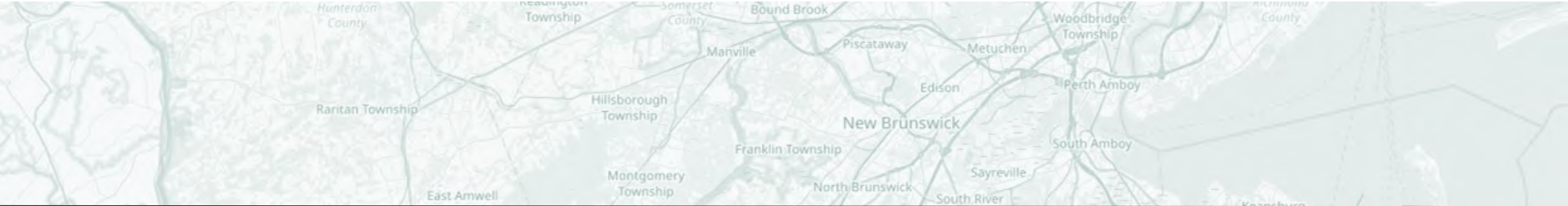
Safety 101



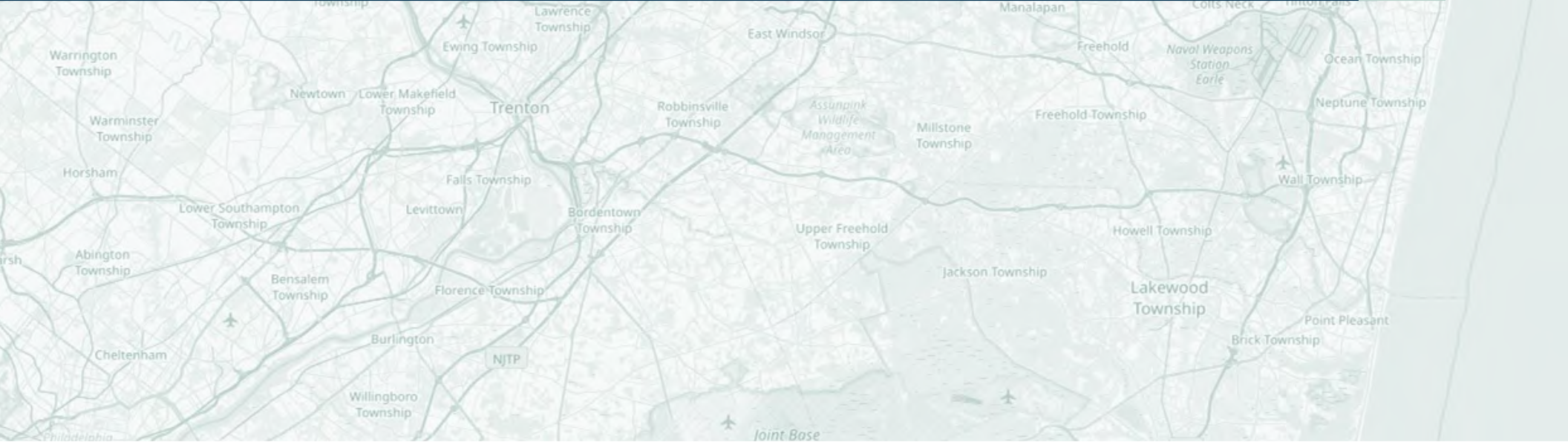
Safe Streets Monmouth
Overview



Next Steps/ Q&A



01 INTRODUCTIONS



PROJECT TEAM



Key Staff: David Schmetterer, Project Manager

Joe Barris Michael Nei Vince Cardone Leah Emmerich Antonio Scanziani Vincent Palmieri

Technical Advisory
Committee (TAC)

Access 4 All
Committee (4AC)



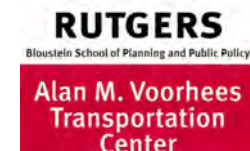
Key Staff: Rachana Sheth, AICP, PP, RSP1, Project Manager

Bettina Zimny James Clavelli Collin Rieger Andrea He Sarina Praseedom Brian Stankus



B2: PLANNING STRUCTURE

Technical Advisory Committee (TAC)

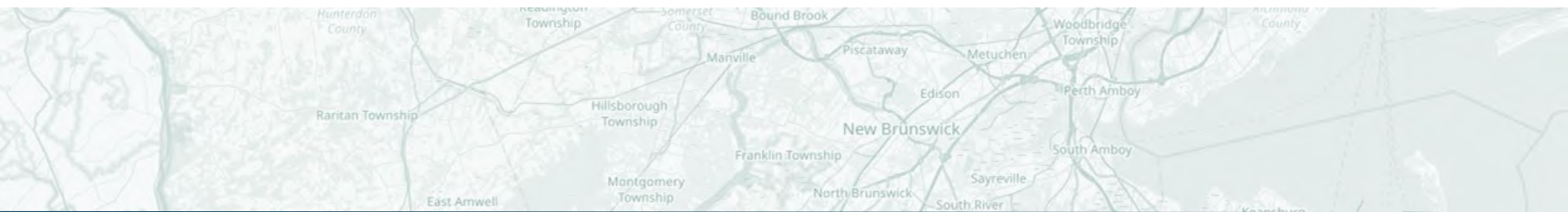


B2: PLANNING STRUCTURE

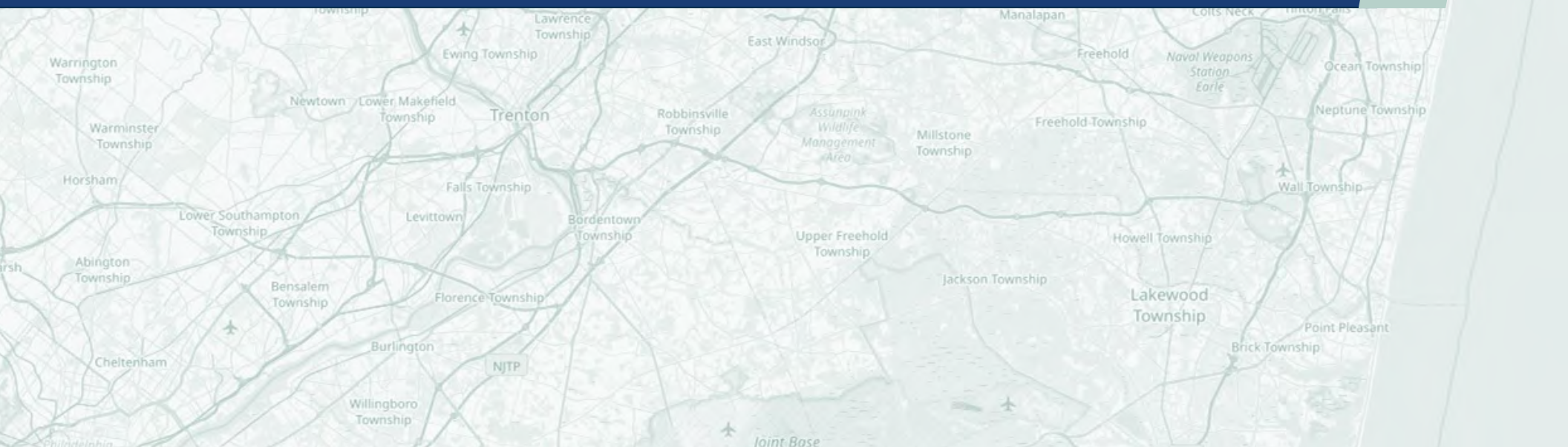


Access 4 All (4AC) Committee

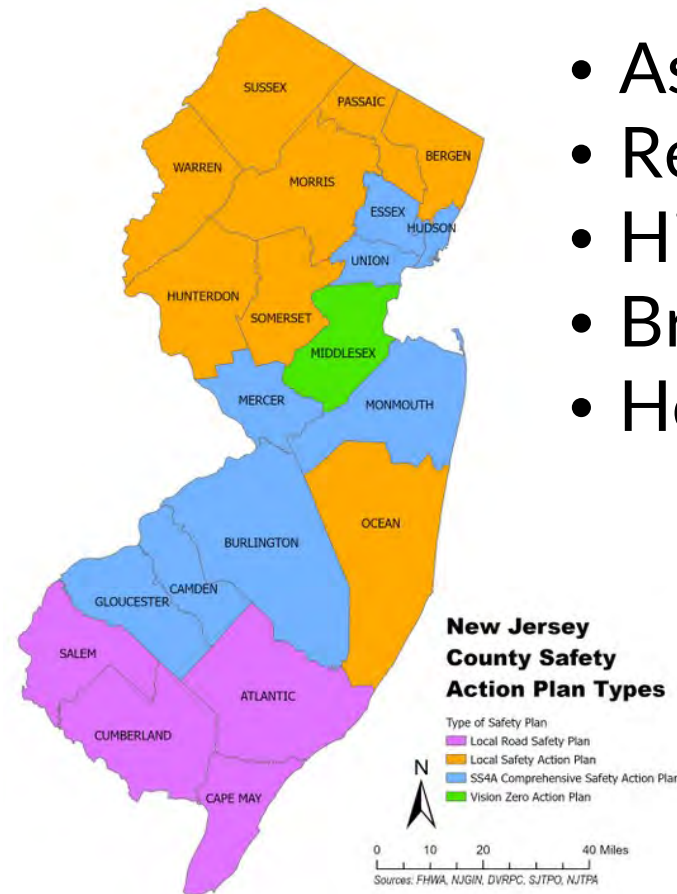




02 SAFETY 101

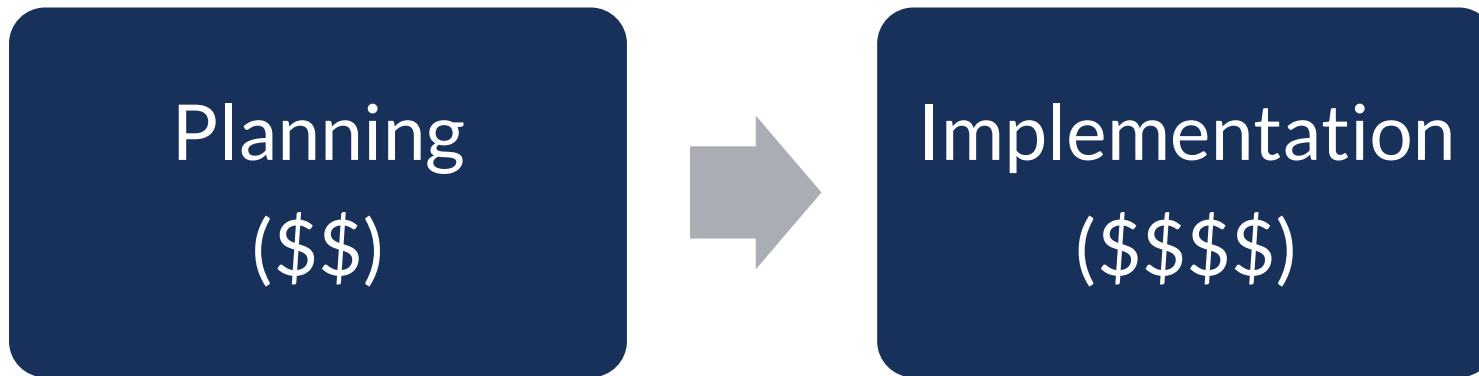


NEW JERSEY AND COUNTY



- Asbury Park
- Red Bank
- Highlands
- Bradley Beach
- Holmdel

SAFE STREETS AND ROADS FOR ALL (SS4A)



- \$5 BILLION 2022-2026
- \$1.1 BILLION AVAILABLE (5TH and Final Round 2026)
- NOFO to be announced in Spring 2026

WHAT IS THE SAFE SYSTEM APPROACH?



**A paradigm shift
towards zero
deaths and serious
injuries.**

**US DOT's National
Roadway Safety
Strategy**



APPROACH

**Zero is our goal. A Safe System
is how we get there.**

SAFE SYSTEM APPROACH: ELEMENTS



- ✓ Safer Roads
- ✓ Safer Speeds
- ✓ Safer Road Users
- ✓ Safer Vehicles
- ✓ Post-Crash Care



FHWA PROVEN SAFETY COUNTERMEASURES



SPEED MANAGEMENT

-  Speed Safety Cameras
-  Variable Speed Limits
-  Appropriate Speed Limits for All Road Users

ROADWAY DEPARTURE

-  Wider Edge Lines
-  Enhanced Delineation for Horizontal Curves
-  Longitudinal Rumble Strips and Stripes on Two-Lane Roads
-  SafetyEdgeSM
-  Roadside Design Improvements at Curves
-  Median Barriers

INTERSECTIONS

-  Backplates with Retroreflective Borders
-  Corridor Access Management
-  Dedicated Left- and Right-Turn Lanes at Intersections
-  Reduced Left-Turn Conflict Intersections
-  Roundabouts
-  Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections
-  Yellow Change Intervals

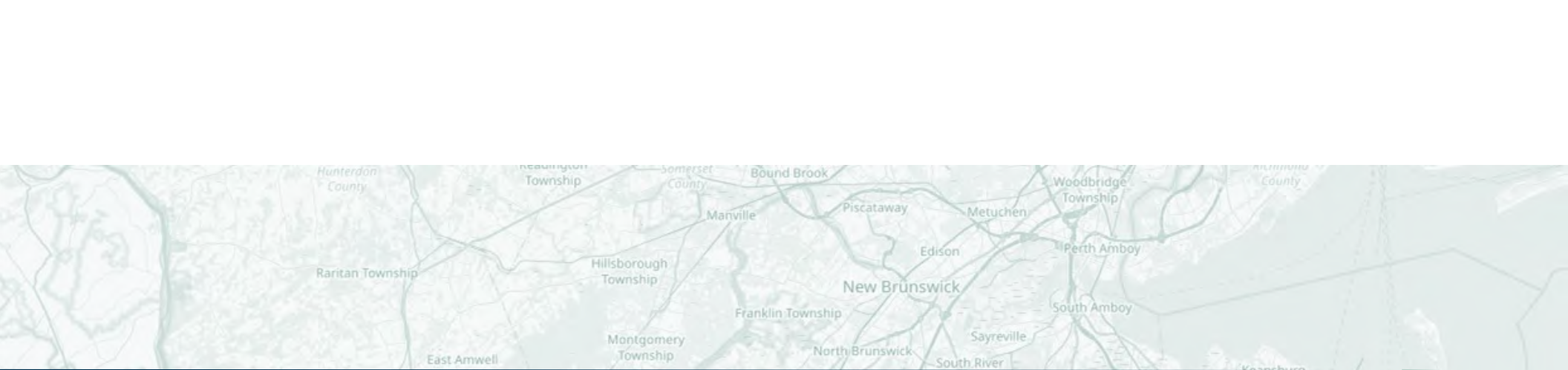
PEDESTRIANS/BICYCLES

-  Crosswalk Visibility Enhancements
-  Bicycle Lanes
-  Rectangular Rapid Flashing Beacons (RRFB)
-  Leading Pedestrian Interval
-  Medians and Pedestrian Refuge Islands in Urban and Suburban Areas
-  Pedestrian Hybrid Beacons
-  Road Diets (Roadway Reconfiguration)
-  Walkways

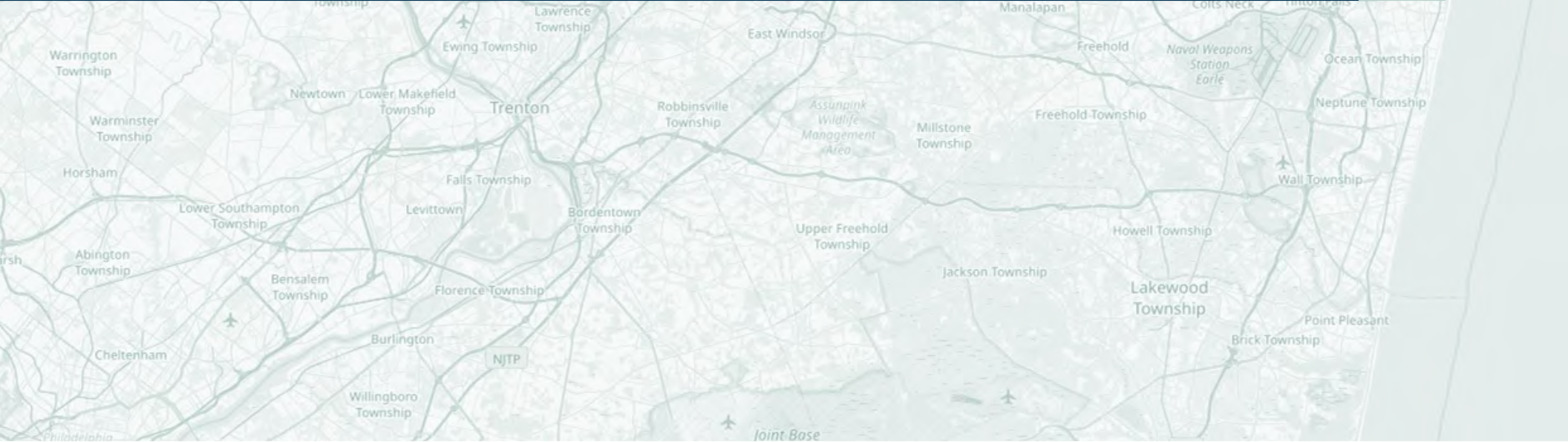
CROSSCUTTING

-  Pavement Friction Management
-  Lighting
-  Local Road Safety Plans
-  Road Safety Audit

FHWA-SA-21-081



03 PROJECT OVERVIEW



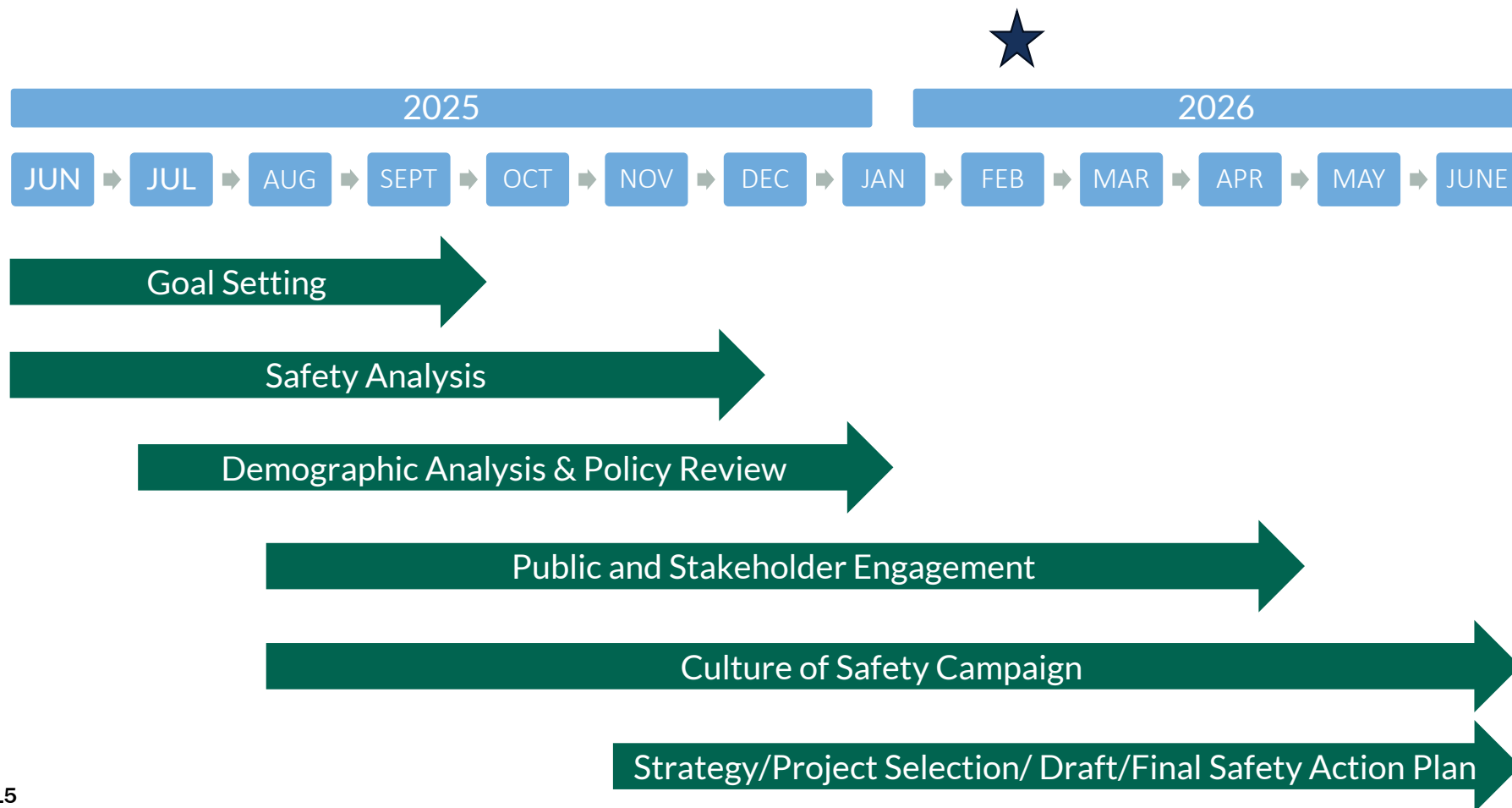
OUR GOAL



Monmouth County is committed to **reducing or eliminating** traffic-related fatal and serious injury crashes.

A SAFE MONMOUTH COUNTY

PROJECT TIMELINE (12 MONTHS)



PROJECT SCOPE



Safety Action Plan /
SS4A Plan

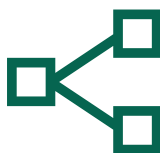


Culture of Safety
Campaign

SAFETY ACTION PLAN: COMPONENTS



LEADERSHIP
COMMITMENT/GOAL
SETTING



PLANNING STRUCTURE



SAFETY ANALYSIS



PUBLIC ENGAGEMENT
AND COLLABORATION



ACCESS FOR ALL ANALYSIS



POLICY AND PROCESS
CHANGES



STRATEGY AND PROJECT
SELECTIONS



PROGRESS AND
TRANSPARENCY

SAFETY ANALYSIS



Crash Data
Analysis



INRIX Safety
View
- Near-Miss
data



High-Injury
Network
Development

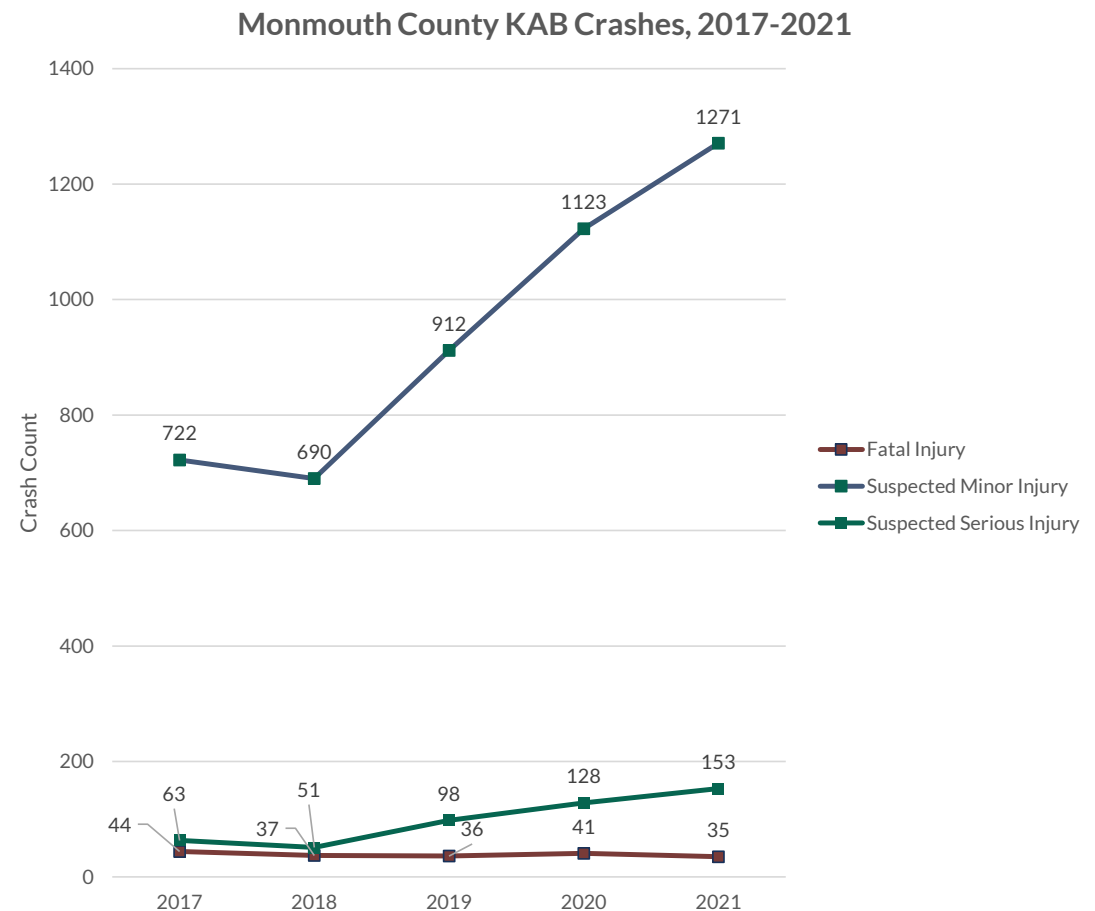


Roadway Data
Collection

CRASH DATA



- **Numeric Crash Data (2017-2021)**
- **KABCO Scale**
 - **K: Fatal Injury**
 - **A: Suspected Serious Injury**
 - **B: Suspected Minor Injury**
 - *C: Possible Injury*
 - *O: Property Damage Only*
- **2019 – Updated Standards for Non-Fatal Classification**



SAFE STREETS
MONMOUTH

5.7% or 4,718 minor injuries

0 1 2
Miles

APPENDIX C: PUBLIC ENGAGEMENT AND COLLABORATION 159

KAB CRASHES (2017 – 2021)



In Monmouth County:

5,404 total KAB crashes

193 fatal injuries

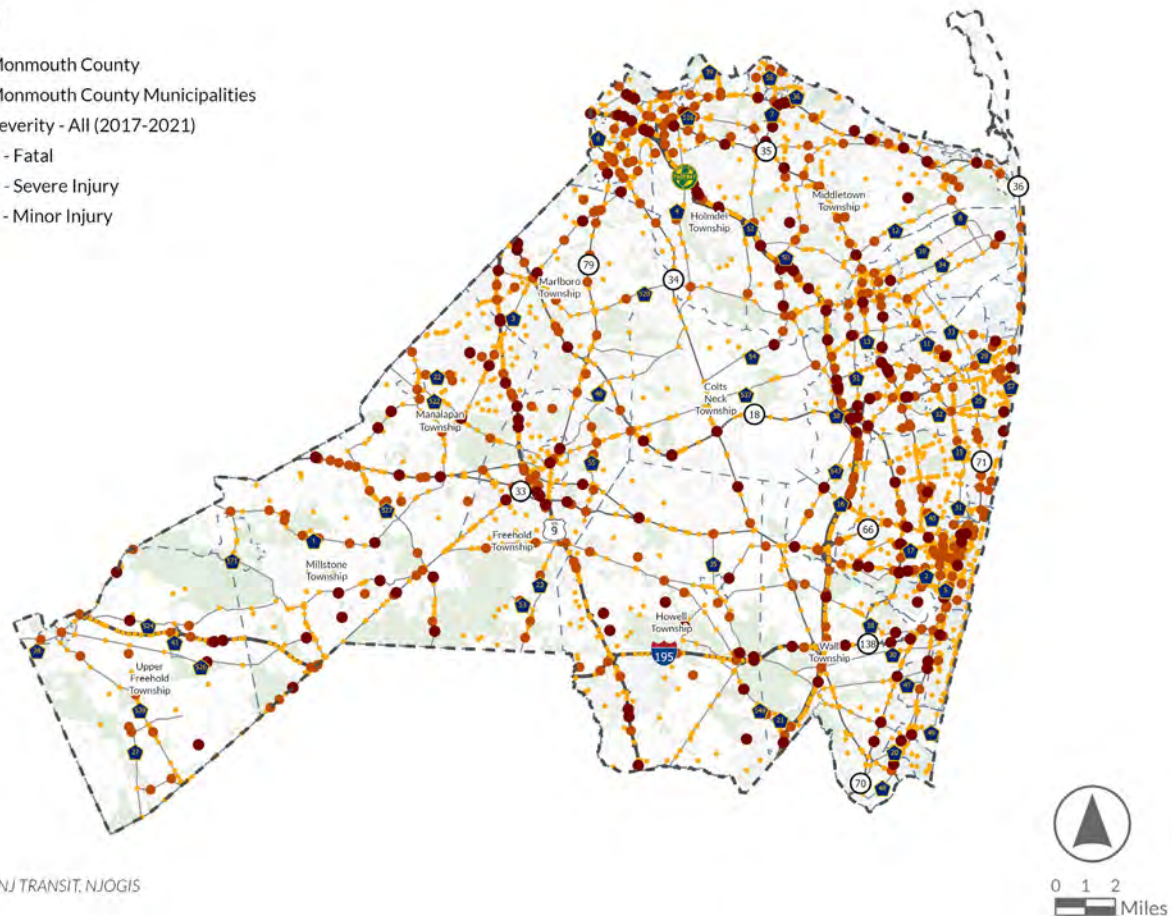
493 serious injuries

4,718 minor injuries

26% County Roads
21% Municipal Roads
34% State Roads

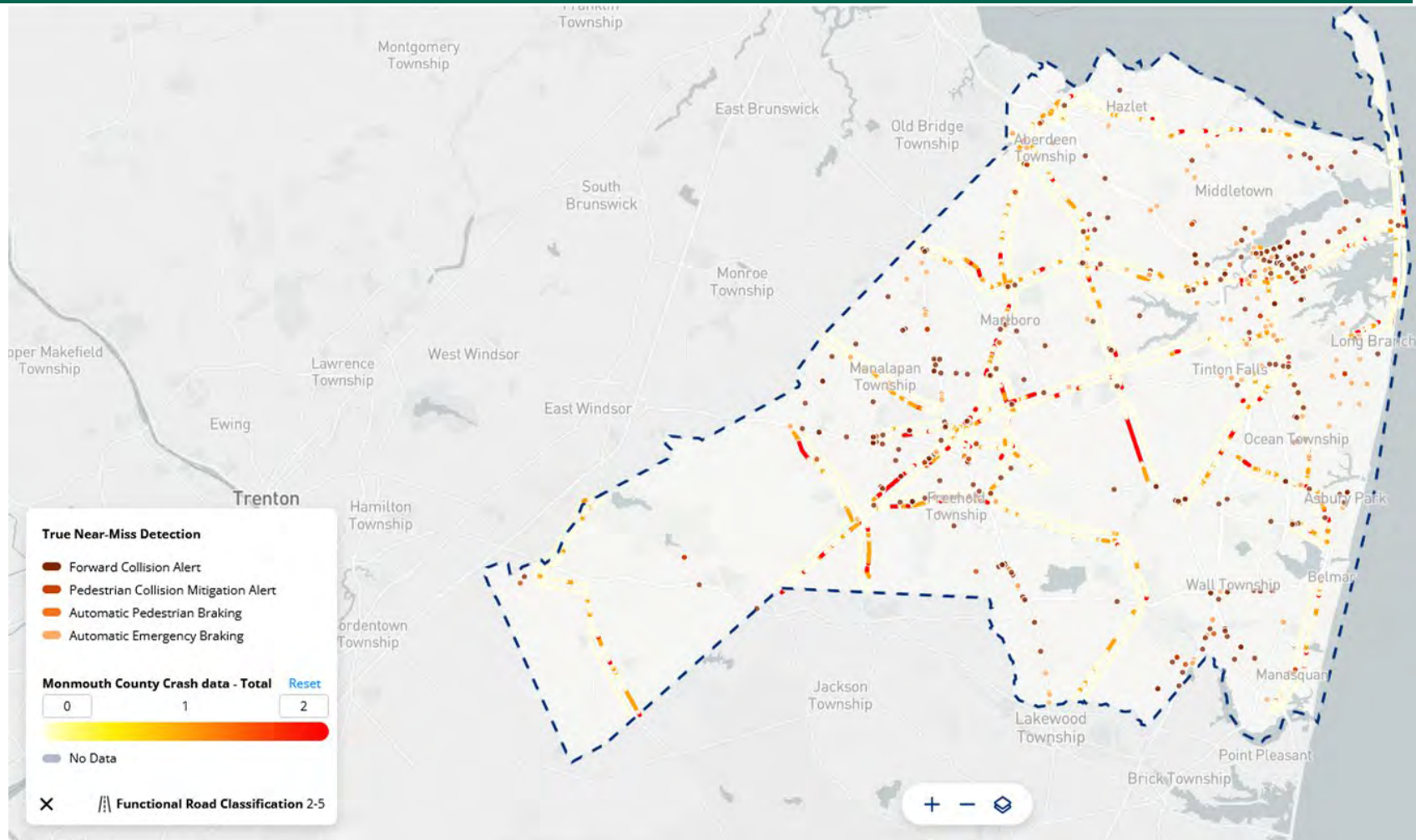
Legend

- Monmouth County
- Monmouth County Municipalities
- Crash Severity - All (2017-2021)
 - K - Fatal
 - A - Severe Injury
 - B - Minor Injury



Data Source: NJ TRANSIT, NJOGIS

INRIX: TRUE NEAR-MISS / CRASHES



22

HIGH-INJURY NETWORK PROCESS



• Data

- Crashes: 2017-2021
- NJDHTS Numetric Tool
- County roads only

• Method

- Sliding Window Analysis
 - Ranked by ePDO
- High-Injury Networks
 - All Crashes
 - Pedestrian Crashes
 - Bicyclist Crashes

Equivalent Property Damage Only (ePDO) Score Rates			
Crash Severity	KABCO Scale	Dollars	ePDO Value
Fatal Injury	(K) Fatal Injury	\$655,000	55.0
Suspected Serious Injury	(A) Suspected Serious Injury	\$655,000	55.0
Suspected Minor Injury	(B) Suspected Minor Injury	\$198,500	16.7
Possible Injury	(C) Possible Injury	\$125,600	10.6
No Apparent Injury	(O) Property Damage-Only	\$11,900	1.0

HIN PRIORITIZATION FACTORS



Crashes
Score

Outreach

HIN Overlap

INRIX Near-
Misses

Access For
All Analysis

½ mile of
schools

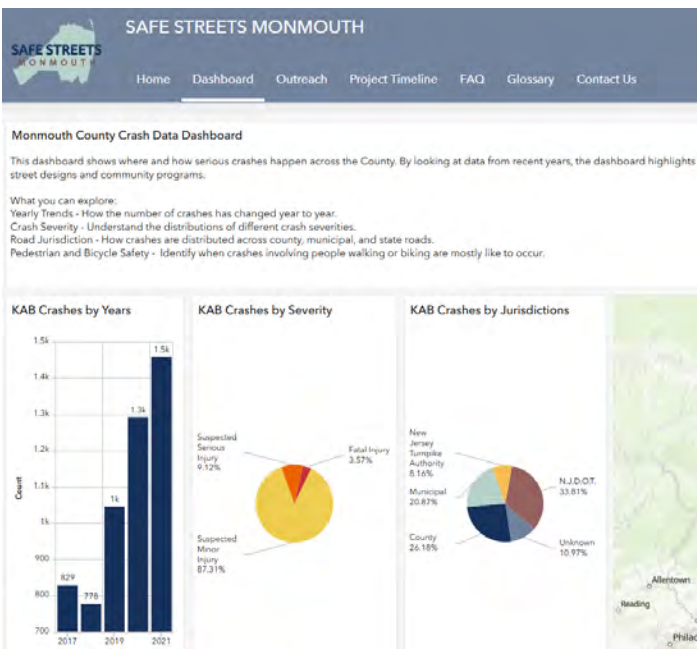
½ mile of
Transit

1 mile of
Shore/
Beaches

Land Use Mix

Recent Fatal
Crashes

PUBLIC ENGAGEMENT AND COLLABORATION: TOOLS



Safe Streets Monmouth Community Survey

SAFE STREETS MONMOUTH

Monmouth County is developing a Safe Streets for All Safety Action Plan to make our roads safer for everyone - whether you walk, bike, drive, or take public transit.

This short survey is to gather input from the community - **the LOCAL EXPERTS** - on the key issues and concerns related to traffic safety in Monmouth County. Your input is important and will guide strategies to reduce serious crashes and build a stronger Culture of Safety across the County.

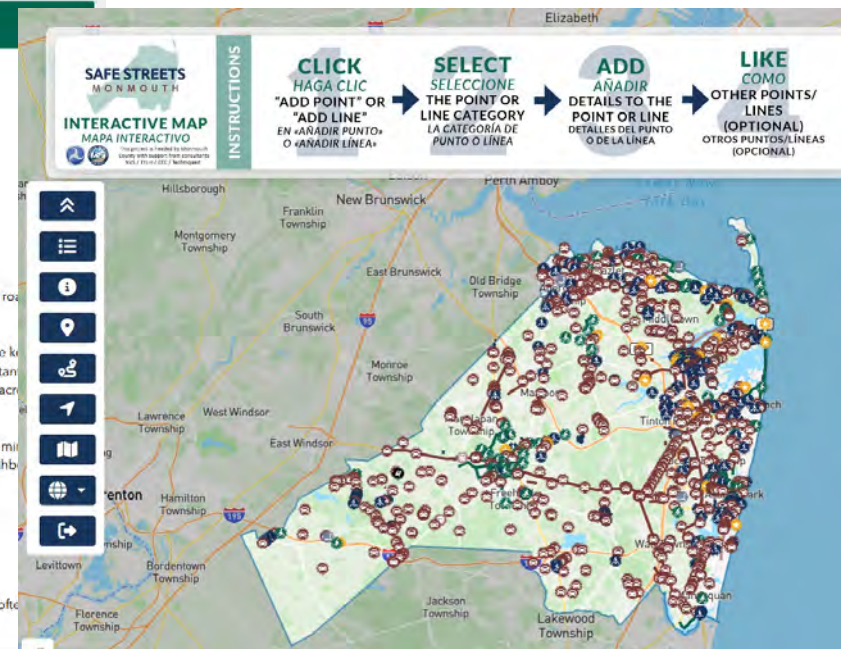
Please note that all responses are confidential and the entire survey should take 5-10 minutes to complete. When you finish your survey, please make sure to share it with your neighbors and community to ensure maximum participation.

General Travel

Travel in Monmouth

How do you typically travel in Monmouth County on weekdays? Rank based on how often you use travel (1 being the most often). *Select one option for each mode.

Mode	1 (most often)	2 (sometimes)	3 (never)
Driving			

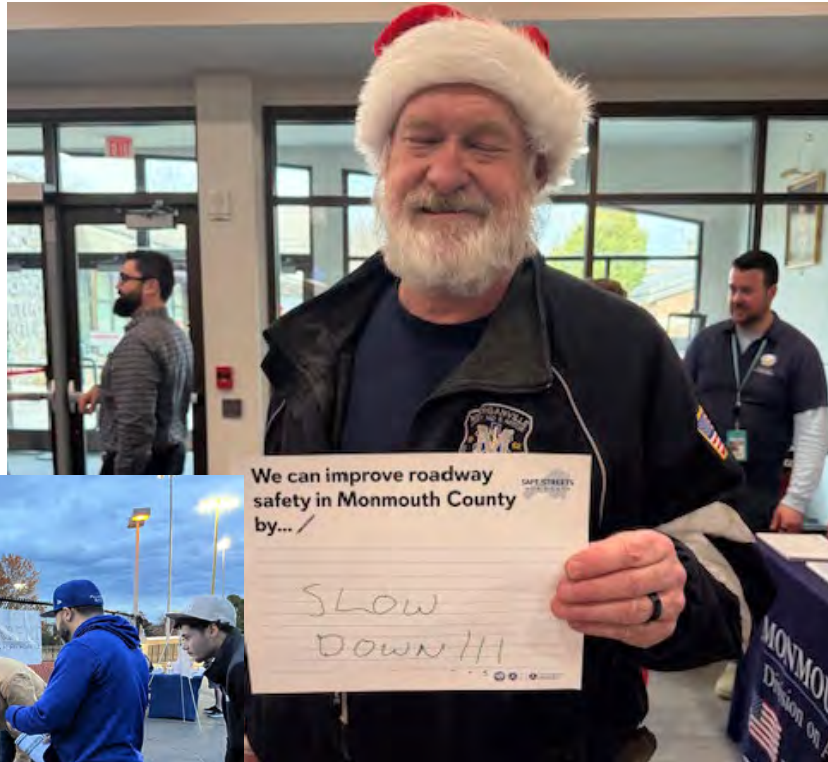


www.tinyurl.com/SafeStreetsMC

~350 SURVEY RESPONSES

~350 CONTRIBUTORS
~1500 POINTS/LINES

PUBLIC ENGAGEMENT AND COLLABORATION: EVENTS



ACCESS 4 ALL ANALYSIS



Minority Population: People who are not White Alone (Non-Hispanic or Latino)

Low-Income Population: People with household income less than twice the federal poverty line

Limited English Proficiency: The Population who speaks English less than very well

Disability Status: People with any physical or mental disability

Young Children: People who are below the age of 5

Children: People who are between the ages of 5 and 17

Seniors: People who are 65 years and older

No Vehicle Access: Households that do not have any vehicles

Foreign-Born Population: People who are not born in the United States

Female Population: People who identified as female

Highest Education Attainment: People who have less than a 12th-grade diploma or no diploma

Single-Parent Household: Households with children under the age of 18 and a single spouse or partner

ACCESS 4 ALL ANALYSIS



Legend

Composite Score

15 - 19

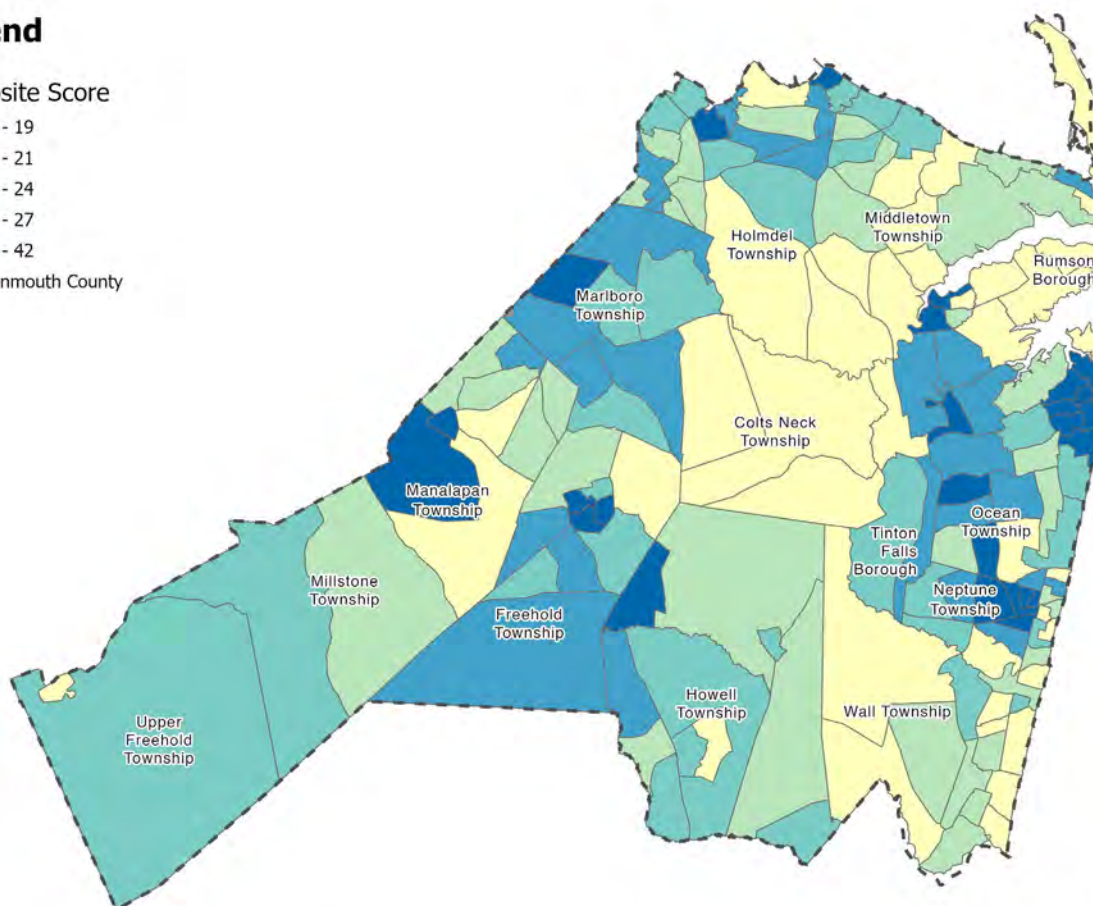
20 - 21

22 - 24

25 - 27

28 - 42

Monmouth County



0 1 2
Miles

TYLin

STRATEGY AND PROJECT SELECTIONS



Project Prioritization Matrix
and Technical Memorandum



Strategy and Project
Selection Memorandum

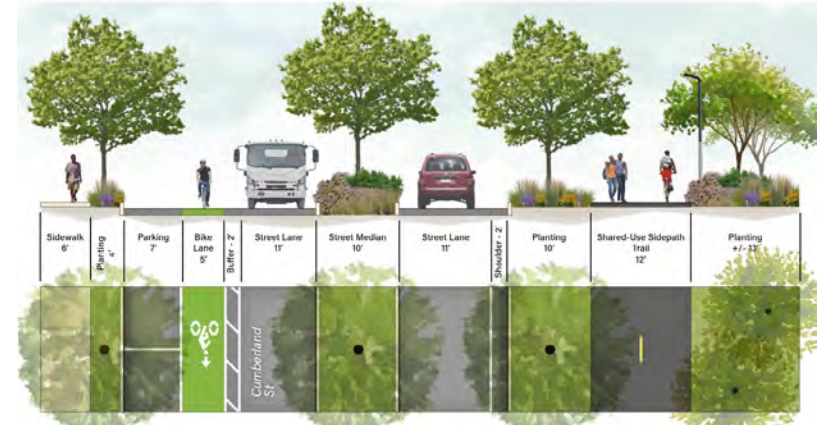


Up to 10 Concept Designs

STRATEGY AND PROJECT SELECTIONS EXAMPLES



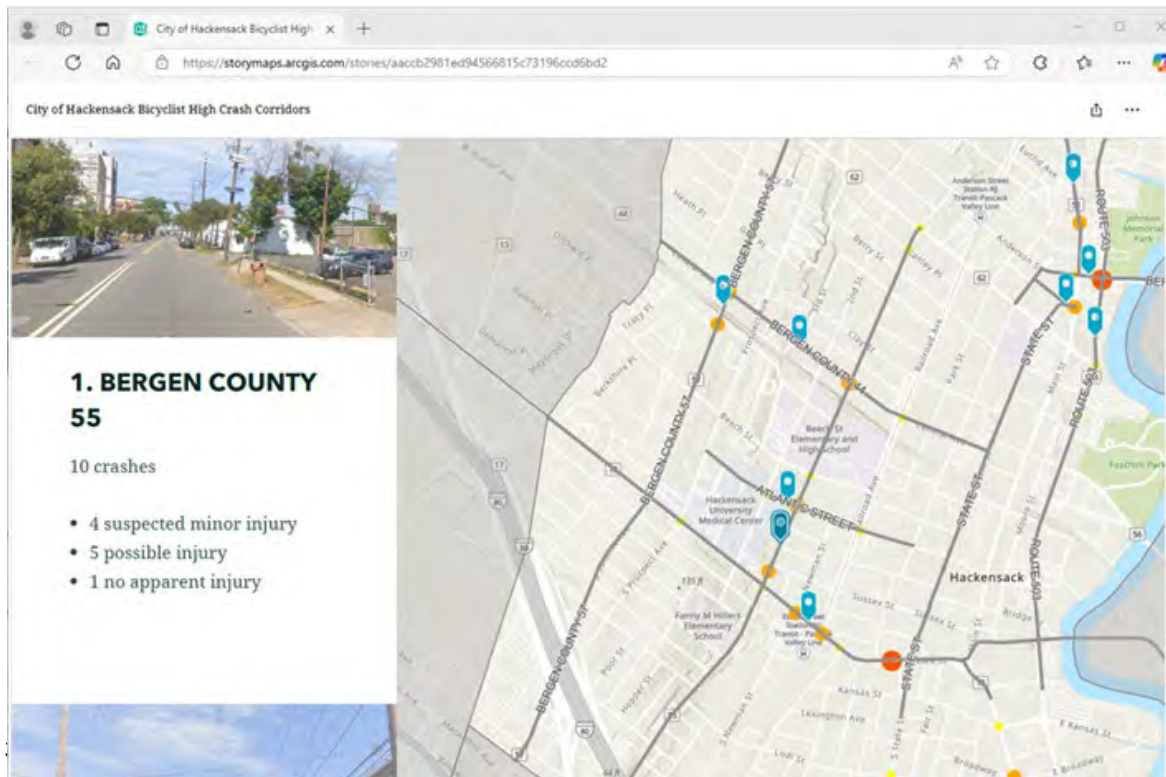
- Deep dives into ten high priority locations to:
 - Understand safety issue root cause
 - Collect needed data
- Create concept plans, sections, or renderings
- Safety Countermeasures



PROGRESS AND TRANSPARENCY



ArcGIS Online Progress Tracking Dashboard



Major Streets Screening Process

Updated February 2025

[Major Streets Screening Process](#) [What are the Tools?](#) [Where in Ann Arbor?](#) [Provide Your Input](#) [Frequently Asked](#)

Major Streets Screening Process?

Ann Arbor has a **Vision Zero** goal to **eliminate fatalities and serious injuries resulting from traffic crashes by 2025**. Speed is a major factor for determining how likely and how severe a traffic crash will be. Therefore, slowing vehicles down is an important strategy for helping Ann Arbor reach its Vision Zero goal.

This process targets major streets with documented speeding issues. Community members can report concerns about speeding on major streets. The Major Street Screening Process evaluates these issues and recommends targeted measures such as speed feedback signs, travel lane reconfiguration, or other engineering solutions. The screening process is planning in nature and serves as input to capital projects.

hit by a car
driving at...

20 MPH



9.5 out of 10 pedestrians survive.



30 MPH



5 out of 10 pedestrians survive.



40 MPH



1 out of 10 pedestrians survive.



PROMOTING A CULTURE OF SAFETY



Year 1 Safety
Campaign



SAP Campaign
Kick-Off

SAFE STREETS MONMOUTH

SAFE STREETS MONMOUTH SAFETY PLEDGE

I acknowledge that it is possible to eliminate traffic-related deaths and serious injuries in Monmouth County by doing my part to travel safely and by supporting the County in developing a Safe System with Safe Street Design and Safe Speeds.

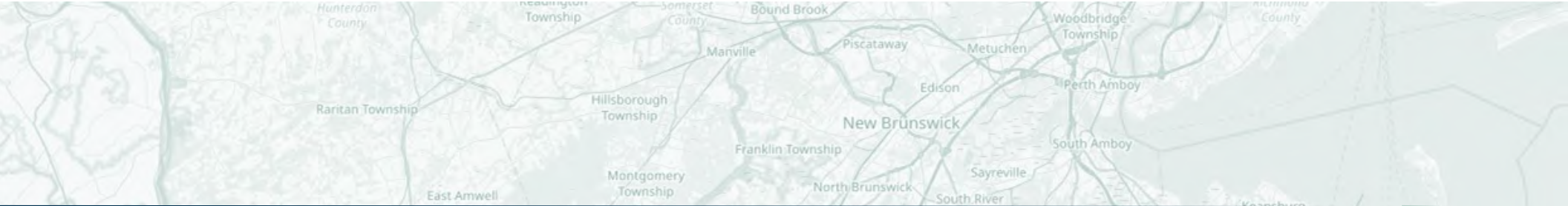
I PLEDGE TO:

- ☐ Only drive when I am sober, alert and without distractions such as my phone or other devices and keep my eyes on the street at all times.
- ☐ Slow down, drive carefully and give at least four feet of space when possible, or slow down to 25 mph when passing bicyclists¹.
- ☐ Follow all laws and regulations on the County's roadways, especially yielding to all vulnerable users such as pedestrians and bicyclists.
- ☐ Never flee a crash scene because I can save lives by calling 911 immediately.
- ☐ Recognize that as speed increases the risk of fatality and serious injury increases drastically.

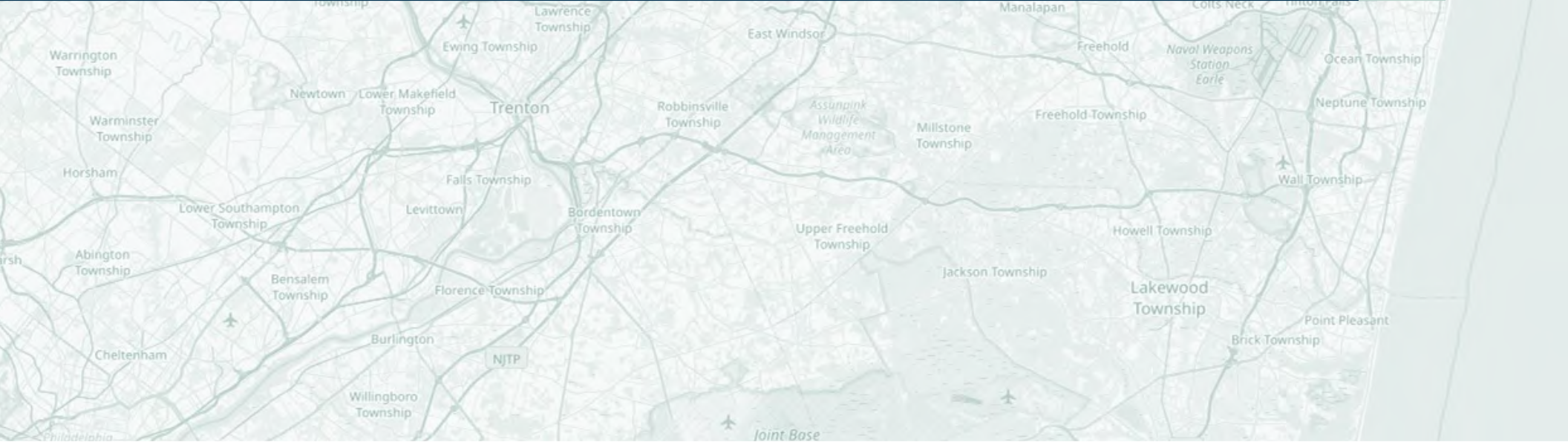
sign to pledge

¹NJ Safe Passing Law (<https://www.njoag.gov/about/divisions-and-offices/division-of-highway-traffic-safety-home/division-of-highway-traffic-safety-pedestrian-safety/>)

I SUPPORT A SAFER MONMOUTH COUNTY WITH ZERO TRAFFIC-RELATED DEATHS AND SERIOUS INJURIES



04 WHAT'S NEXT?



NEXT STEPS



MUNICIPAL INVOLVEMENT

- Share your key safety concerns
- Provide updates on planned/proposed safety projects
- Support our Culture of Safety Campaign
- Apply for SS4A Funding

COUNTY SUPPORT

- Share Crash Data by Municipality
- Provide Safe Streets Monmouth Project Updates
- Share Culture of Safety Campaign Materials

QUESTIONS?



VISIT THE PROJECT WEBSITE:
www.tinyurl.com/SafeStreetsMC

EMAIL US:
safestreets@co.monmouth.nj.us



A detailed map of Monmouth County, New Jersey, serves as the background. It shows various townships such as Raritan, Hillsborough, Cranbury, Marlboro, and Freehold. Major cities like Trenton and Edison are also visible. A large, dark blue rectangular banner with white text is centered over the map.

THANK YOU!

David Schmetterer, Project Manager
Monmouth County, NJ
David.Schmetterer@co.monmouth.nj.us

APPENDIX D: 4 ALL ANALYSIS

MEMORANDUM

DATE: July 27, 2026
 TO: Monmouth County / NV5
 C:
 FROM: TYLin International
 SUBJECT: Safe Streets Monmouth: 4 All Analysis

OVERVIEW

This memorandum summarizes the results of the “Access for All” or demographic analysis for Safe Streets Monmouth. The Access for All analysis plays a central role in prioritizing and evaluating Monmouth County’s future safety initiatives. By examining demographic factors alongside transportation conditions, the analysis highlights where disadvantaged populations may be disproportionately exposed to higher-volume or higher-risk roadways. These insights may be used to ensure that future safety investments are both data-driven and aligned with the County’s commitment to providing safe access for all road users.

The analysis is built on a range of socioeconomic and demographic factors to comprehensively understand the distribution of overburdened or historically disadvantaged communities within Monmouth County. The spatial distribution is further compared with the geographic trip patterns to highlight potential disparities and inform safety investments that create accessibility for all communities in the County.

ACCESS FOR ALL FACTORS

The Access for All analysis approach is primarily based on the [North Jersey Transportation Planning Authority \(NJTPA\) Demographic Analysis Tool](#), which includes 11 demographic and socioeconomic factors, plus an additional single-parent households factor selected based on input from County staff, the Technical Advisory Committee, and the Access 4 All (4AC) committee. This analysis captures factors specific to Monmouth County and is used to calculate a Composite Score.

The following factors are included in the analysis are listed below:

1. Race/Ethnicity: people who are not white alone (non-Hispanic or Latino)
2. Low-Income Population: people with household income less than twice the federal poverty line
3. Limited English Proficiency: the population that speaks English less than very well
4. Disability Status: people with any physical or mental disability
5. Young Children: people who are below the age of 5
6. Children: people who are between the ages of 5 and 17
7. Seniors: people who are 65 years and older
8. No Vehicle Access: households that do not have any vehicles
9. Foreign-Born Population: people who are not born in the United States
10. Female Population: people who identified as female
11. Highest Education Attainment: people who have less than a 12th-grade diploma or no diploma
12. Single-Parent Households: households with children under the age of 18 and a single spouse or partner

The analysis uses data from the 2023 American Community Survey 5-year estimates from the U.S. Census Bureau. Access for All focuses on capturing a holistic spatial view of Monmouth County by examining each socioeconomic and demographic factor in detail. The analysis of these factors aims to identify patterns, outliers, and any spatial inequalities among each indicator.

BENCHMARKING

A benchmarking analysis was conducted to compare demographic characteristics of Monmouth County with those of the NJTPA region and the State of New Jersey. Table 1 provides context for understanding the County’s relative composition across the factors listed above, including diversity, socioeconomic status, language proficiency, age distribution, transportation access, and educational attainment.

Monmouth County has a population of approximately 643,600 residents, accounting for about nine percent of the NJTPA region’s total population. Roughly 28 percent of Monmouth County residents identify as non-white, compared to 50 percent regionwide and 48 percent statewide. The County’s foreign-born population (14 percent) is also below regional and state averages. Socioeconomic indicators point to strong economic and educational conditions. The share of low-income households (15 percent) and residents without a high school diploma (6 percent) is lower than both regional and statewide averages, suggesting comparatively higher income and education levels. The County also has a lower proportion of single-parent households (4 percent) than the state (6 percent).

The County’s age profile skews slightly older, with 19 percent of residents aged 65 or older, compared to about 17 percent regionwide. While only 6 percent of households lack access to a vehicle, compared to 11 percent statewide, this indicates widespread overall vehicle access and is generally consistent with a low regional share of 5 percent. About 10 percent of residents report a disability, aligning with state averages and matching the regional share.

Table 1: Access for All Factors Benchmarks

Factors	Monmouth County		NJTPA region		State	
	Number	Percent	Number	Percent	Number	Percent
Total Population	643,615	-	7,003,128	-	9,267,014	-
Race/Ethnicity	179,325	28%	3,504,280	50%	4,453,673	48%
Low-Income Population	94,685	15%	1,467,762	21%	1,982,535	22%
Limited English Proficiency	38,747	6%	927,085	13%	1,107,478	13%
Disability Status	66,772	10%	686,645	10%	975,308	11%
Young Children	32,114	5%	403,244	6%	526,400	6%
Children	103,353	16%	1,137,687	16%	1,504,922	16%
Seniors	119,488	19%	1,165,376	17%	1,559,816	17%
No Vehicle Access	16,233	6%	316,937	5%	391,842	11%
Foreign-Born Population	87,365	14%	1,882,314	27%	2,181,755	24%
Female Population	328,027	51%	3,555,969	51%	4,708,343	51%
Highest Education Attainment	26,484	6%	457,382	7%	600,736	13%
Single-Parent Households	10,218	4%	-	-	198,943	6%

DEMOGRAPHIC AND SOCIOECONOMIC ANALYSIS

Consistent with the NJTPA methodology, the analysis categorizes each factor into five groups based on its concentration in each census tract. The thresholds for these groups are derived from the dataset's standard deviation, which measures how much each tract's value differs from the countywide average.

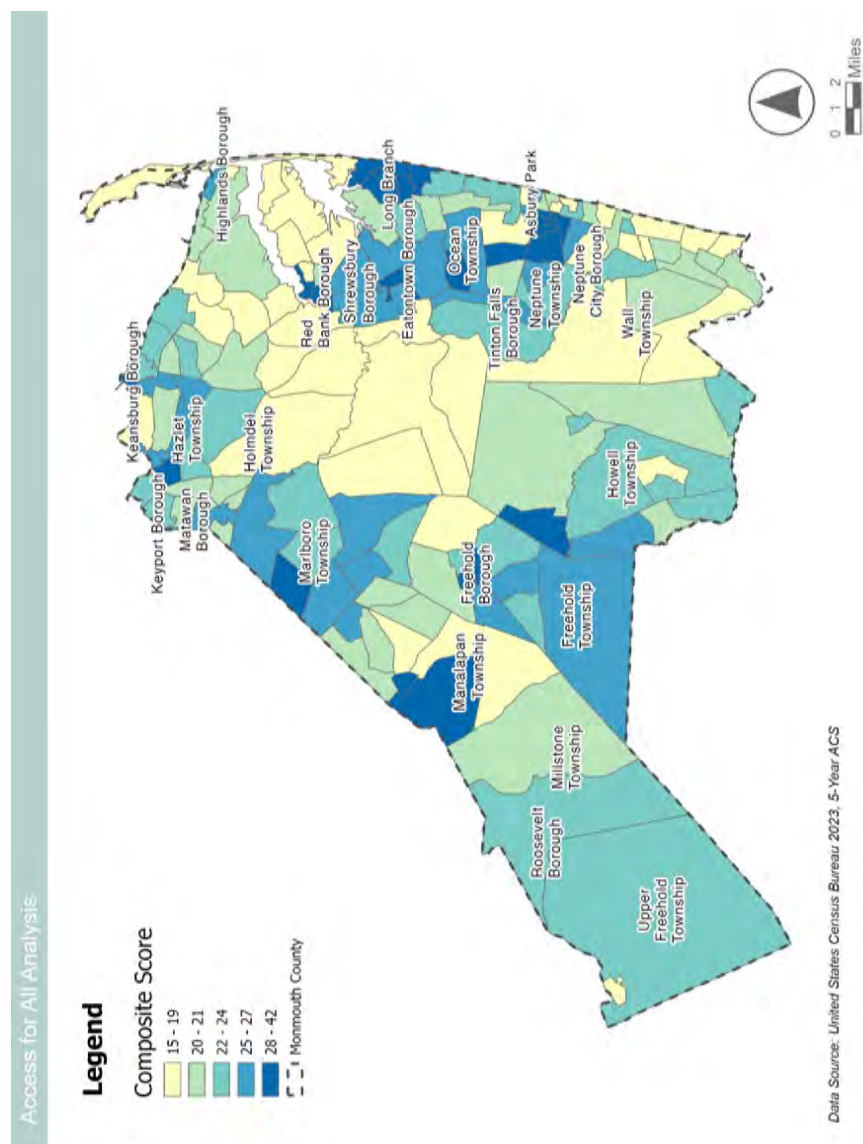
Each factor is calculated using census tract-level percentages across Monmouth County and classified according to its deviation from the mean, using the following scale:

- 0 = Very Below Average – more than 1.5 deviations below the average
- 1 = Below Average – between 1.5 and 0.5 deviations below the average
- 2 = Average – between 0.5 standard deviations below the average and 0.5 standard deviations above the average
- 3 = Above Average – between 0.5 and 1.5 standard deviations above the average
- 4 = Very Above Average – more than 1.5 standard deviations above the average

This methodology standardizes multiple demographic and socioeconomic factors so they can be compared on a common scale, regardless of their original units or ranges. Using the categories described above, each census tract is classified relative to Monmouth County, indicating whether a tract has lower, similar, or higher proportions of a given population group than the countywide average. This process helps identify disparities and spatial patterns in areas with higher concentrations of the Access for All factors.

Each standardized factor contributes to a composite score, which represents the overall concentration of underserved populations within each census tract. Tracts are ranked by composite score, ranging from 15 to 42, with higher scores indicating greater concentrations of disadvantaged populations and lower scores indicating fewer such populations. Figure 1 shows the distribution of scores, with higher concentrations in municipalities such as Neptune Township, Freehold Borough, Asbury Park City, and Long Branch City, among others.

Figure 1: Monmouth County Access for All Composite Score Map



For interpretive purposes, composite scores were grouped into three categories: low, moderate, and high. Classification thresholds were determined using a quantile-based approach that identifies breakpoints based on the distribution of scores across census tracts. Resulting score ranges were 15–20 for the low category, 21–27 for the moderate category, and 28–42 for the high category. Due to composite values and the distribution of scores, the number of census tracts in each category is not exactly equal. Approximately 48 percent of census tracts fall into the moderate category, 35 percent into the low category, and 17 percent into the high category (Figure 2). Table 2 shows that the highest number of census tracts in the *high* category are in Long Branch City, followed by Freehold Borough and Neptune Township.

Figure 2: Distribution of Census Tracts by Composite Score

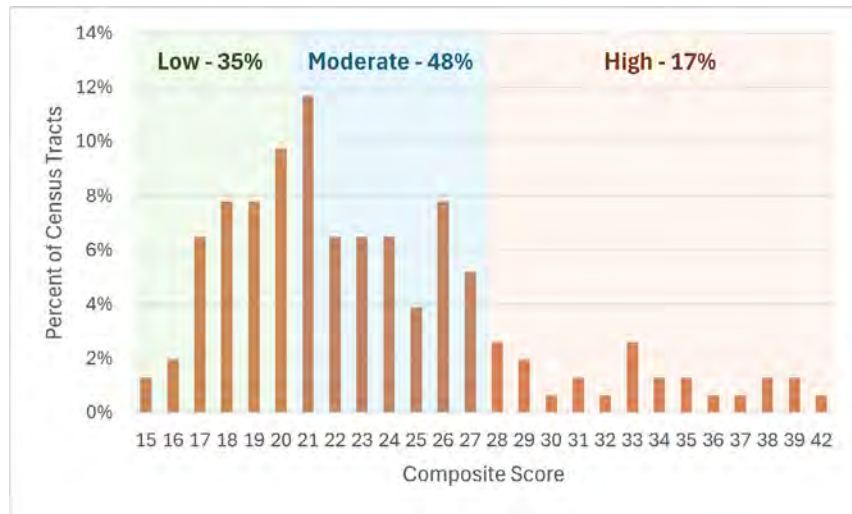


Table 2: Census Tracts with High Access for All Composite Score

Composite Score	Census Tracts	Municipality
42	Census Tract 8076	Neptune Township
39	Census Tract 8073	Asbury Park City
39	Census Tract 8108	Freehold Borough
38	Census Tract 8072	Asbury Park City
38	Census Tract 8110	Freehold Borough
37	Census Tract 8056	Long Branch City
36	Census Tract 8065.01	Ocean Township
35	Census Tract 8034	Red Bank Borough
35	Census Tract 8058	Long Branch City

Composite Score	Census Tracts	Municipality
34	Census Tract 8050.01	Eatontown Borough
34	Census Tract 8059	Long Branch City
33	Census Tract 8054	Long Branch City
33	Census Tract 8055	Long Branch City
33	Census Tract 8057	Long Branch City
33	Census Tract 8065.04	Ocean Township
32	Census Tract 8109	Freehold Borough
31	Census Tract 8017	Keansburg Borough
31	Census Tract 8060	Long Branch City
30	Census Tract 8036.01	Red Bank Borough
29	Census Tract 8075	Neptune Township
29	Census Tract 8077	Neptune Township
29	Census Tract 8102.02	Marlboro Township
28	Census Tract 8020	Keyport Borough
28	Census Tract 8095.06	Marlboro Township
28	Census Tract 8103	Englishtown Borough
28	Census Tract 8111.01	Howell Township

A series of maps (Figures 3–14) illustrates each individual Access for All factor and its spatial distribution across Monmouth County. The accompanying narrative highlights where these demographics and socioeconomic characteristics are concentrated and how they vary across census tracts.

Race/Ethnicity

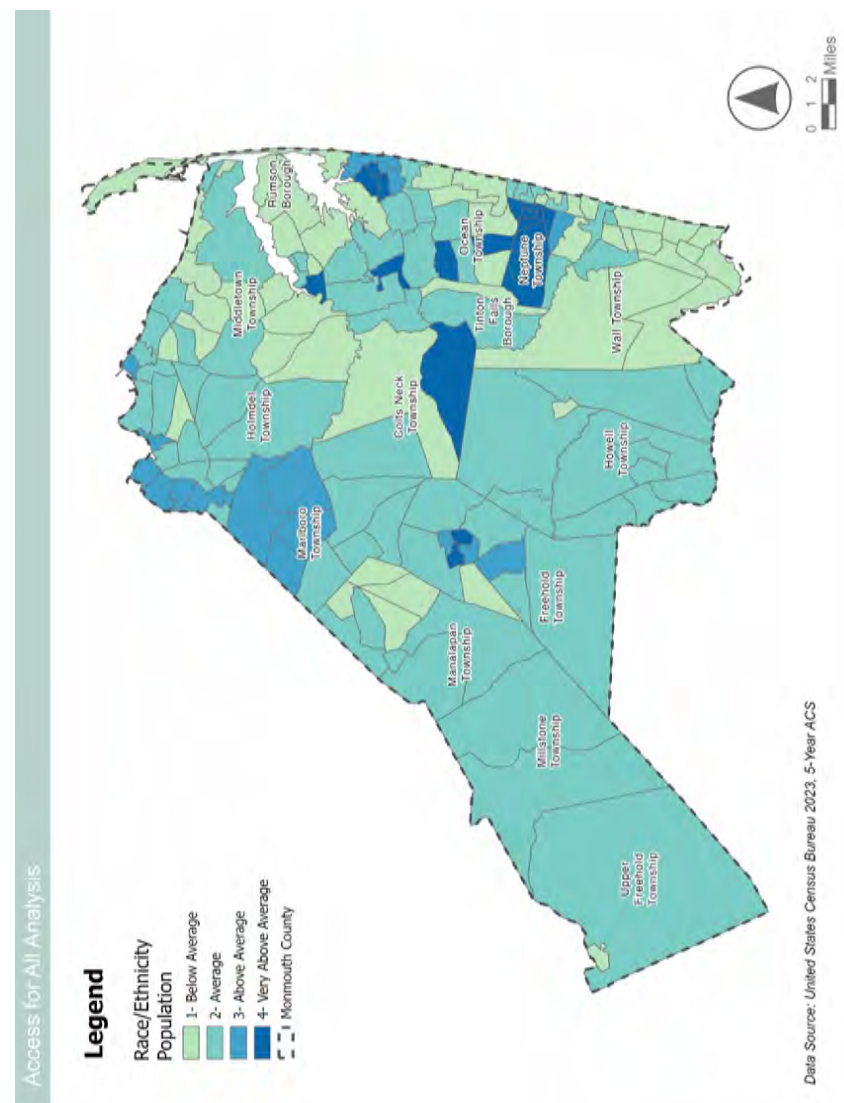
This factor represents the distribution of population by race and ethnicity, defined here as the share of individuals who do not identify as “white alone, non-Hispanic or Latino.” While Title IV of the Civil Rights Act prohibits discrimination based on race, historical and systemic inequities have shaped patterns of access to opportunity for many racial and ethnic groups. In Monmouth County, 28 percent of the population identifies as a race or ethnicity other than white, non-Hispanic, compared to 50 percent in the NJTPA region and 48 percent statewide. Table 3 summarizes the distribution of race/ethnicity scores across census tracts in Monmouth County. Nearly half of the County's census tracts fall within the average range, while approximately 33 percent fall below the countywide average, as shown in Figure 3. Census tracts with lower shares of racial and ethnic diversity are located in Wall Township, Rumson Borough, Colts Neck, Middletown Township, and other municipalities.

Conversely, around 12 percent of tracts score well above the county average, reflecting areas with higher concentrations of residents identifying as racial or ethnic minorities. These tracts are primarily located in Asbury Park City, Eatontown Borough, Neptune Township, Ocean Township, Freehold Borough, Red Bank Borough, and Long Branch City. In particular, one tract in Neptune Township has a population that is over 96 percent non-white, highlighting areas with significant racial and ethnic concentration within the county.

Table 3: Minority Population Score

Race/Ethnicity		
Score	Tracts	% of Tracts
Very Below Average	0	0
Below Average	51	33%
Average	68	44%
Above Average	17	11%
Very Above Average	18	12%

Figure 3: Minority Population



Low-Income Households

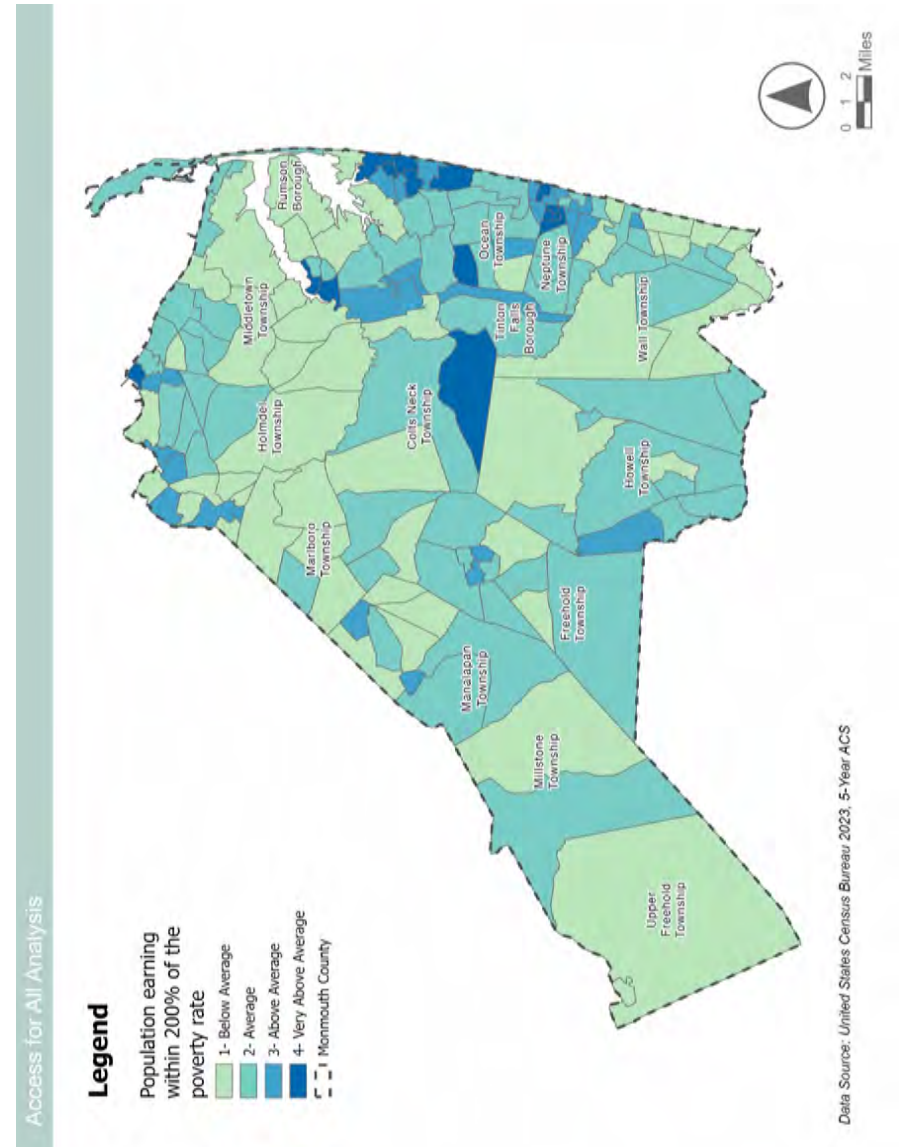
Households with incomes at or below 200 percent of the federal poverty level are classified as low-income. These households often experience a higher burden of transportation costs, limited vehicle access, and greater dependence on public or alternative transportation options for daily needs. In Monmouth County, 15 percent of residents live in low-income households, compared to 21 percent in the NJTPA region and 22 percent statewide.

Table 4 summarizes the distribution of low-income population scores across census tracts in Monmouth County. Approximately 41 percent of tracts fall within the average range, and 33 percent fall below the countywide average, comprising the majority of the county. Around 9 percent of tracts score well above average, indicating higher concentrations of low-income households. These tracts are primarily located in Long Branch City, Asbury Park, Keansburg Borough, Colts Neck Township, Ocean Township, Neptune Township, and Red Bank Borough. Notably, one tract in Red Bank Borough has a 56 percent low-income population, while a separate tract in Colts Neck Township has a 63 percent low-income population, highlighting areas with higher concentrations of low-income residents. On the other hand, some census tracts with a below-average concentration of low-income households are in Middletown Township, Freehold Township, Marlboro Township, Manalapan Township, and other municipalities. (See Figure 4)

Table 4: Low-Income Population Scores

Low-Income Population		
Score	Tracts	% of Tracts
Very Below Average	0	0
Below Average	51	33%
Average	64	42%
Above Average	25	16%
Very Above Average	14	9%

Figure 4: Low-Income Population Map



Limited English Proficiency

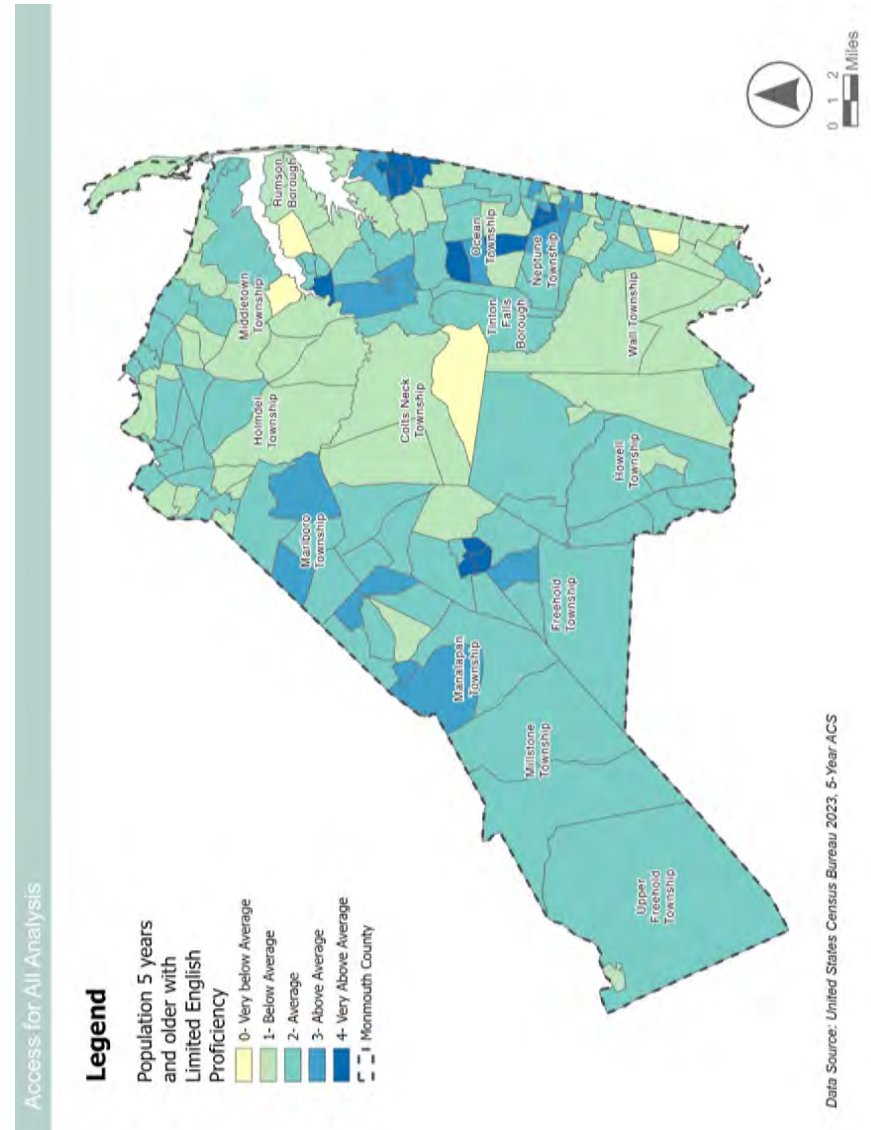
This factor includes the population of people 5 years and older who speak a language other than English and can speak English less than very well. English language proficiency affects a person's ability to read and understand safety signs, follow directions, and recognize cues critical to safe road travel. In Monmouth County, 6 percent of the population reports speaking English less than "very well," which is lower than both the NJTPA regional average and the statewide average of 13 percent.

As shown in Table 5, census tracts in Monmouth County are distributed across proficiency categories as follows: 31 percent fall below average, 47 percent are average, 11 percent are above average, and 8 percent are very above average. Notably, the tracts classified as Very Above Average for limited English proficiency include areas in Neptune Township and Asbury Park City, where approximately 32 percent of the population has limited English proficiency. Other communities with a Very Above Average concentration of residents with limited English proficiency are Freehold Borough, Ocean Township, Red Bank Borough, and Long Branch City. Conversely, some of the communities with a below-average population concentration and limited English proficiency are located in Aberdeen Township, Rumson Borough, Ocean Township, Wall Township, Colts Neck Township, and other municipalities. (See Figure 5)

Table 5: Limited English Proficiency Scores

Limited English Proficiency		
Score	Tracts	% of Tracts
Very Below Average	4	3%
Below Average	48	31%
Average	72	47%
Above Average	17	11%
Very Above Average	13	8%

Figure 5: Limited English Proficiency Population Map



Disability Status

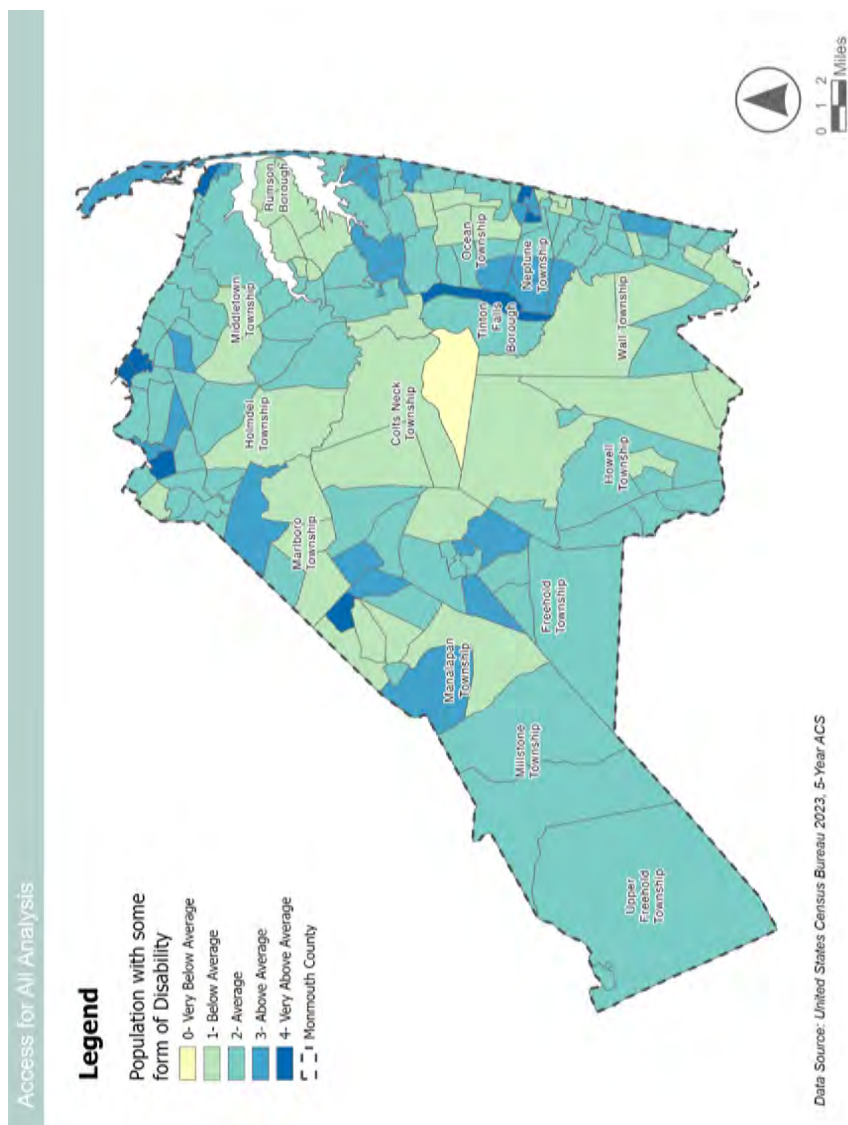
This factor includes the total civilian non-institutionalized population with any physical or mental disability. Disability and road safety are closely linked, as transportation infrastructure must be accessible to all users. Under the Americans with Disabilities Act (ADA) of 1990, road safety improvements are required to be inclusive and accommodate the needs of people with disabilities. In Monmouth County, 10 percent of the population reports some form of disability, aligning with the NJTPA regional average of 10 percent and nearly matching the statewide average of 11 percent.

Table 6 presents the distribution of census tracts by disability prevalence. More than half of the tracts are classified as average; about a quarter fall below average; 17 percent are above average; and 5 percent are very above average. The tracts with above-average or higher concentrations of residents with disabilities are primarily located in Asbury Park City, Tinton Falls Borough, Keyport Borough, Highlands Borough, and a few other municipalities. Notably, one census tract in Tinton Falls Borough has the highest proportion in the county, with 46 percent of residents reporting a disability. On the other hand, some communities with below-average concentrations of residents with disabilities include Aberdeen Township, Middletown Township, Manalapan Township, Colts Neck Township, and other municipalities. (See Figure 6)

Table 6: Disability Status Scores

Disability Status		
Score	Tracts	% of Tracts
Very Below Average	1	1%
Below Average	37	24%
Average	82	53%
Above Average	26	17%
Very Above Average	8	5%

Figure 6: Population with Some Form of Disability Map



Young Children

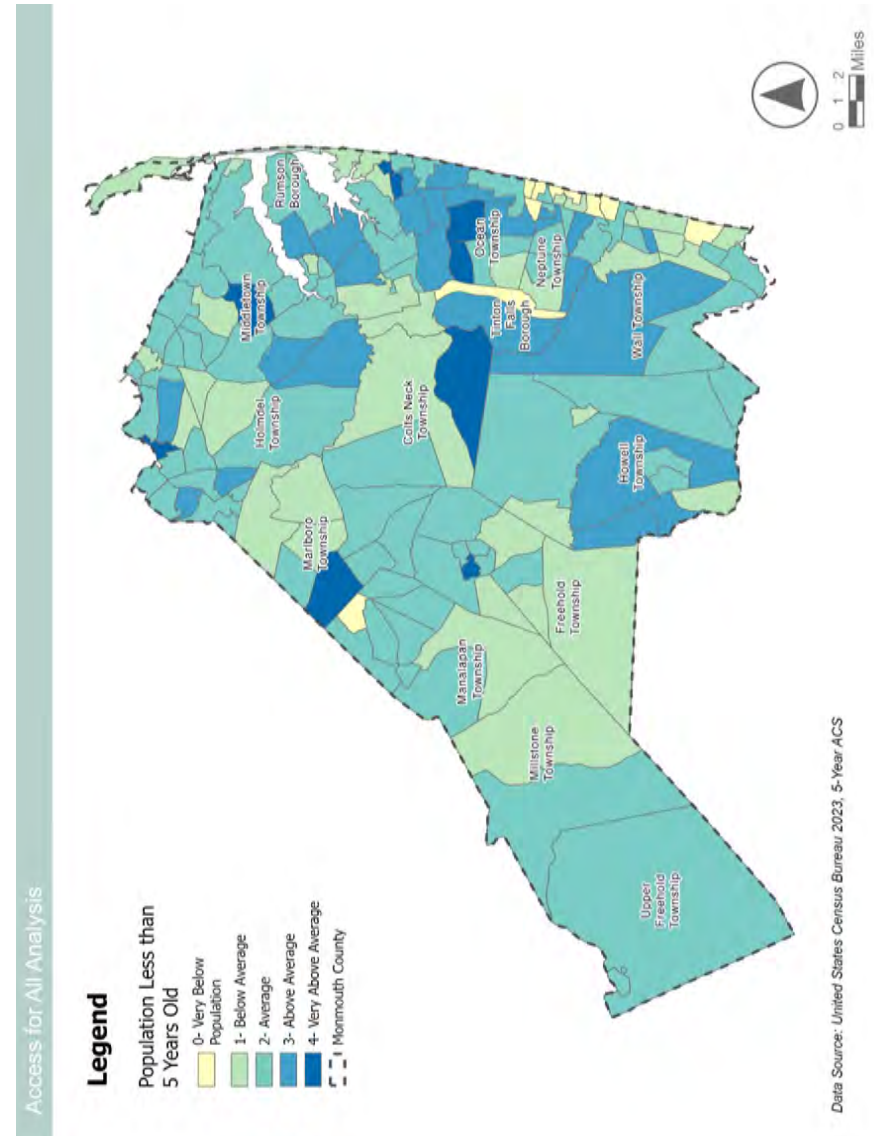
Children under the age of 5 are limited by their physical development, making them more susceptible to injury. While cognitive and social development in the early stages make young children less able to navigate complex or unpredictable environments independently, this increases their actual vulnerability. As a result, infrastructural considerations require additional safety measures specifically designed to protect young children and reduce their exposure to hazards. In Monmouth County, 5 percent of the population is under five years old, slightly lower than the NJTPA regional average and the statewide average of 6 percent.

As shown in Table 7, 17 percent of census tracts in the county fall above average, and 6% fall into the very above average category for the proportion of children under five. One tract in Colts Neck Township, categorized as Very Above Average, has 17 percent of its population under five. Middletown Township, Freehold Borough, Keyport Borough, Long Branch City, Marlboro Township, and Ocean Township are other municipalities with a high concentration of children under age 5. Overall, however, the majority of the County has a lower percentage of young children as a share of the population, with approximately half of the census tracts classified as average or below average. Some of those municipalities include Tinton Falls Borough, Manalapan Township, Freehold Township, Howell Township, and others. (See Figure 7)

Table 7: Young Children's Scores

Young Children		
Score	Tracts	% of Tracts
Very Below Average	10	7%
Below Average	36	23%
Average	73	47%
Above Average	26	17%
Very Above Average	9	6%

Figure 7: Population less than 5 Years Old



Children

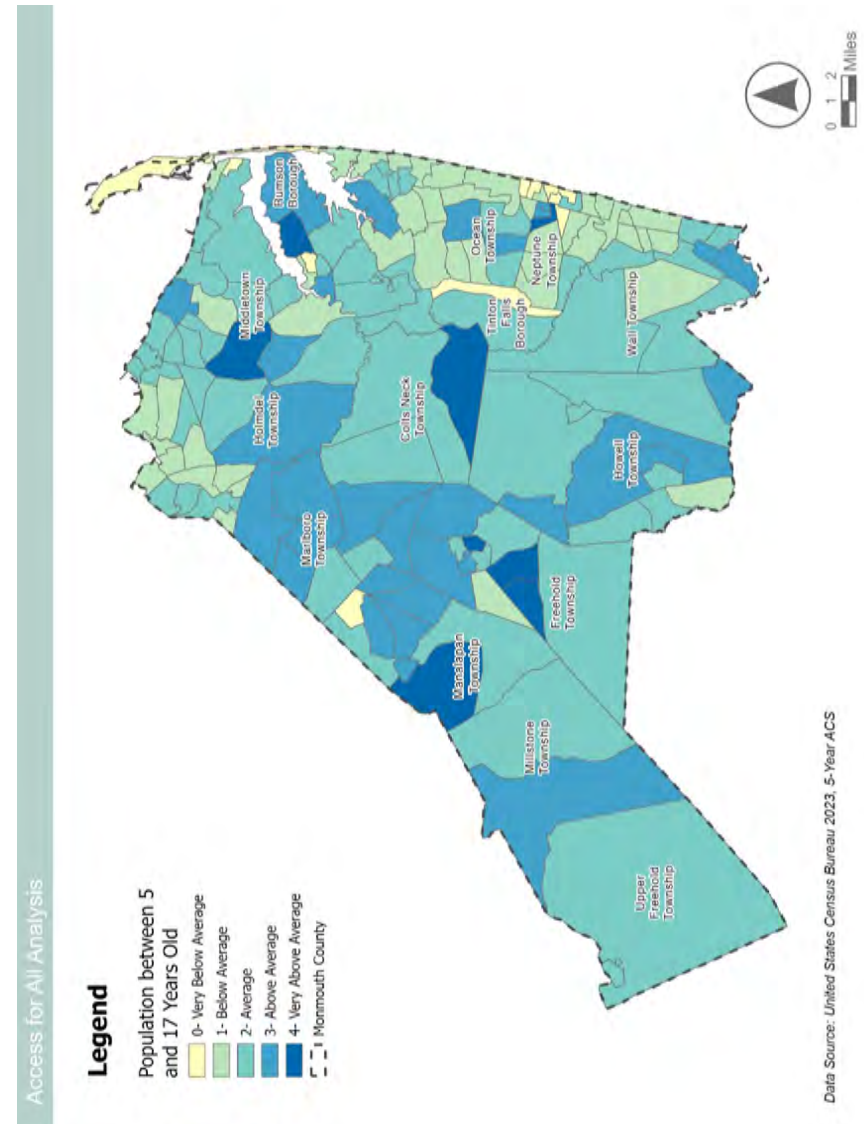
Children aged 5 to 17 represent older schoolchildren and teenagers. Children in this age group often walk and/or bike, or may be inexperienced drivers, thus requiring additional infrastructure considerations. In Monmouth County, 16 percent of the population falls within this age group, aligning with the NJTPA regional average and the statewide average of 16 percent.

As shown in Table 8, the majority of census tracts in Monmouth County are classified as average or below average for the proportion of children aged 5–17. About 21 percent of tracts are above average, and 5 percent are very above average. Census tracts with a higher-than-average concentration of children ages 5-17 are in Englishtown Borough, Freehold Township, Marlboro Township, Neptune Township, and other municipalities. Conversely, some of the municipalities with a below-average concentration of children aged 5-17 are Aberdeen Borough, Middletown Township, and Wall Township, among others. (See Figure 8)

Table 8: Children's Scores

Children		
Score	Tracts	% of Tracts
Very Below Average	11	7%
Below Average	44	28%
Average	59	38%
Above Average	32	21%
Very Above Average	8	5%

Figure 8: Population between 5- and 17-Years old Map



Seniors

The senior population comprises individuals aged 65 years or older. Age-related changes in vision, physical functioning, and cognitive functioning can affect some older adults' mobility. This requires road infrastructure to be inclusive. In Monmouth County, 19 percent of the population is 65 years or older, higher than the NJTPA regional average of 17 percent and the statewide average of 16 percent.

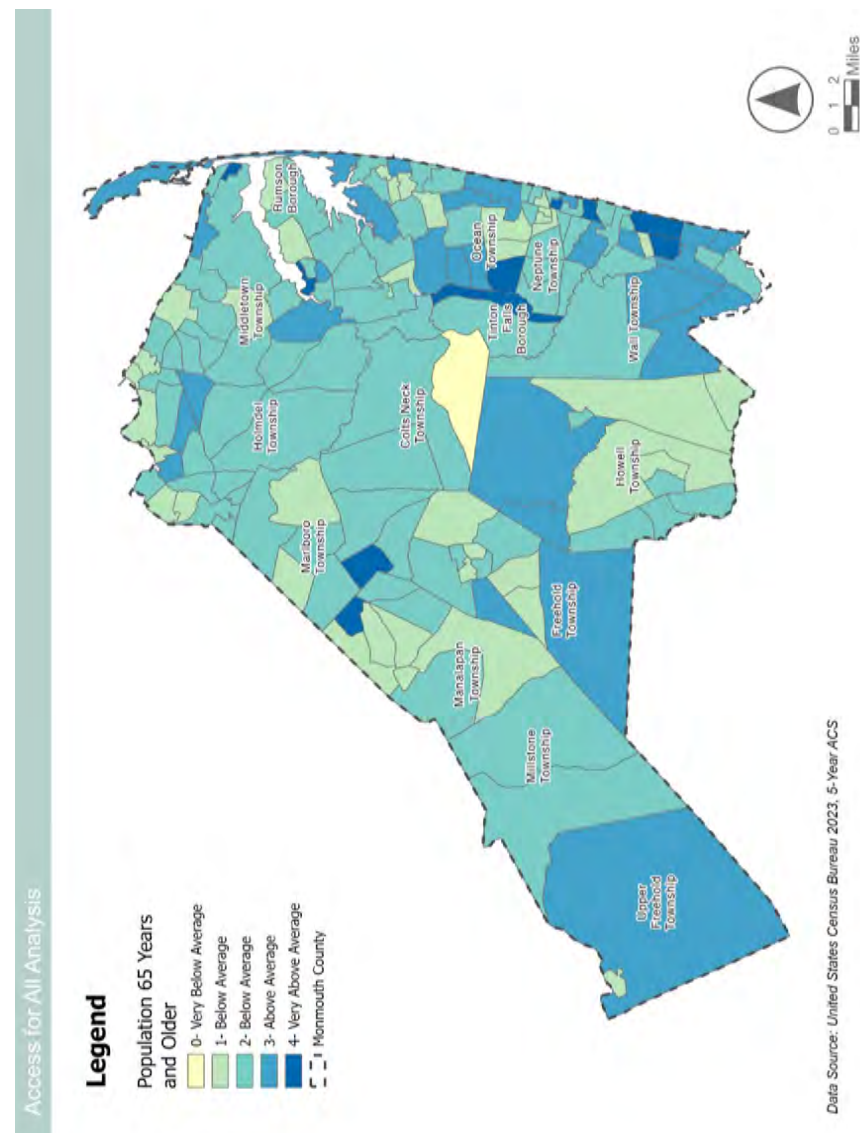
As shown in Table 9, approximately half of the county's census tracts fall within the average category for senior population. About 18 percent of tracts are above average, and 6 percent are very above average. Notably, one tract in Tinton Falls Borough has the highest concentration, with 75 percent of its population aged 65 or older. Some other tracts with higher-than-average senior populations are located in Neptune Township, Spring Lake Borough, Avon-by-the-Sea Borough, Tinton Falls Borough, Marlboro Township, Manalapan Township, and others. Conversely, some municipalities with a below-average concentration of the senior population include Freehold Borough, Long Branch City, Wall Township, Manalapan Township, Howell Township, and others. (See Figure 9)

This highlights areas where age-friendly infrastructure, such as longer pedestrian crossing times, well-maintained sidewalks, clear signage, and accessible transit, may be critical to support safe and independent mobility for older residents.

Table 9: Senior Scores

Seniors		
Score	Tracts	% of Tracts
Very Below Average	1	1%
Below Average	39	25%
Average	76	49%
Above Average	28	18%
Very Above Average	10	7%

Figure 9: Population 65 Years and Older Map



No Vehicle Access

This factor accounts for all households that do not have access to any vehicle. Access to vehicles affects households' mobility choices and day-to-day activity, especially in suburban areas. A lack of vehicle access typically increases reliance on transit and other means of commuting, along with increased travel time, creating a structural disadvantage, particularly in areas without many of these resources. In Monmouth County, 6 percent of households do not have a vehicle, lower than the NJTPA regional average of 45 percent and the statewide average of 11 percent.

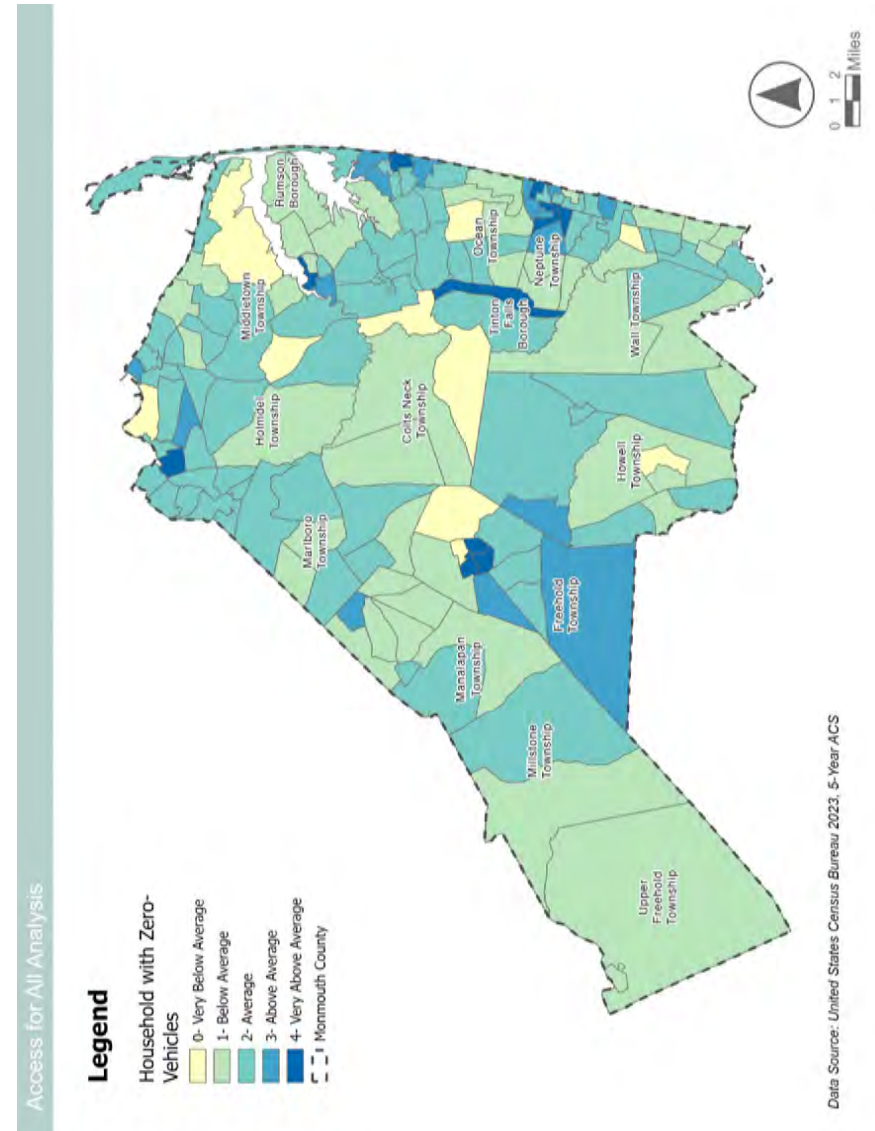
As shown in Table 10, approximately half of the county's census tracts are classified as average, while about 36% fall into the below-average or very below-average categories, reflecting a higher proportion of households with vehicles. Conversely, 10% of tracts are above average, and 7% are very above average, indicating a higher share of households without vehicles.

Municipalities with higher percentages of households without vehicles include Tinton Falls Borough, Neptune Township, Freehold Borough, Keyport Borough, Long Branch City, Red Bank Borough, and Asbury Park City. Notably, one census tract in Tinton Falls Borough has 48% of households without a vehicle. Some of the municipalities with a below-average concentration of households without vehicles are Middletown Township, Howell Township, Ocean Township, Manalapan Township, Colts Neck Township, Marlboro Township, and others. (See Figure 10)

Table 10: No Vehicle Access Scores

No Vehicle Access		
Score	Tracts	% of Tracts
Very Below Average	10	7%
Below Average	46	30%
Average	71	46%
Above Average	16	10%
Very Above Average	11	7%

Figure 10: Households with Zero-vehicle Map



Foreign-Born Population

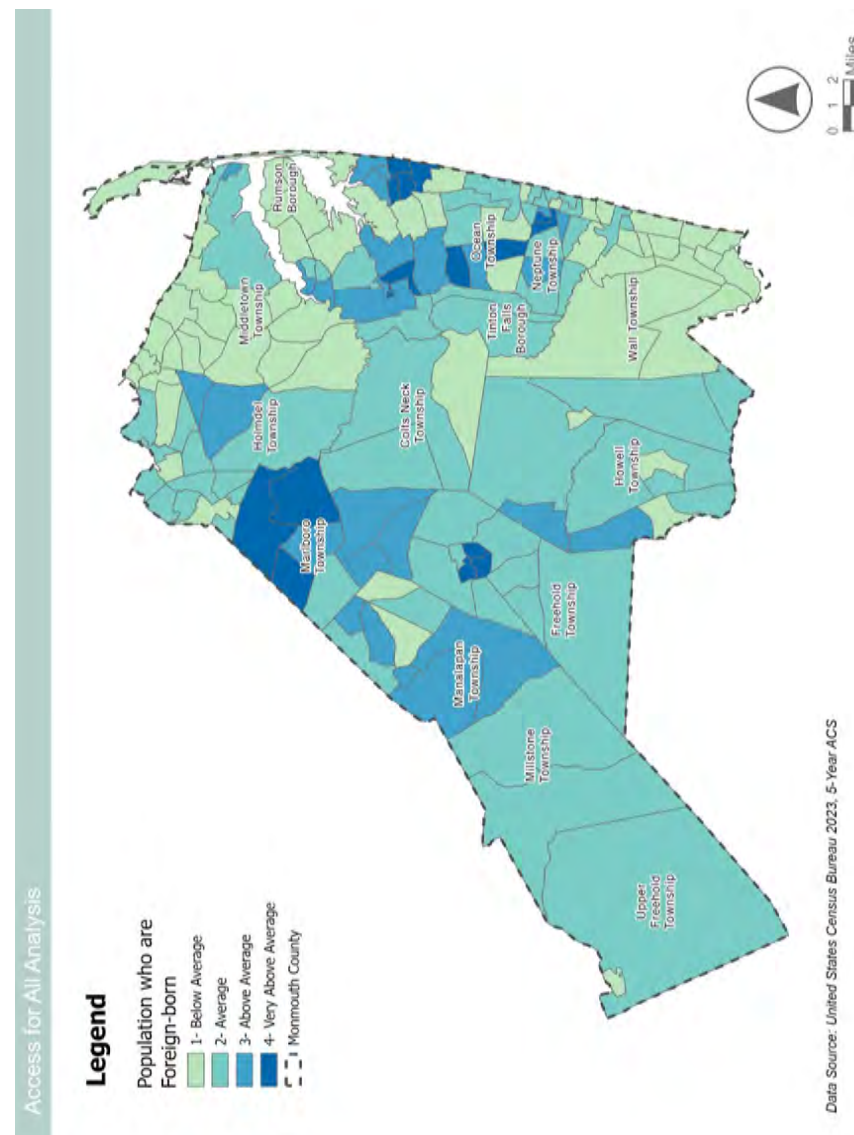
The foreign-born population comprises individuals born outside the United States, and Title IV of the Civil Rights Act prohibits discrimination based on national origin. In Monmouth County, 14 percent of residents are foreign-born, lower than both the NJTPA regional average of 27 percent and the statewide average of 24 percent.

As shown in Table 11, 17 percent of census tracts in the county are classified as above average, and 10 percent are very above average for the foreign-born population, highlighting areas with higher concentrations. Some municipalities with higher-than-average concentrations of foreign-born populations include Long Branch City, Marlboro Township, Ocean Township, and Freehold Borough. One census tract in Long Branch City has a foreign-born population of 40 percent, representing the highest concentration in the county. On the other hand, some municipalities with below-average concentrations of the foreign-born population include Middletown Township, Aberdeen Township, Freehold Township, Asbury Park, and Wall Township. (See Figure 11)

Table 11: Foreign-Born Population Scores

Foreign-Born Population		
Score	Tracts	% of Tracts
Very Below Average	0	0
Below Average	57	37%
Average	56	36%
Above Average	26	17%
Very Above Average	15	10%

Figure 11: Foreign-Born Population Map



Female Population

This factor includes the population who have identified as female in the ACS Survey. Monmouth County has a gender composition similar to the NJTPA region and the State of New Jersey, with approximately 50 percent of the population identifying as female across all geographies.

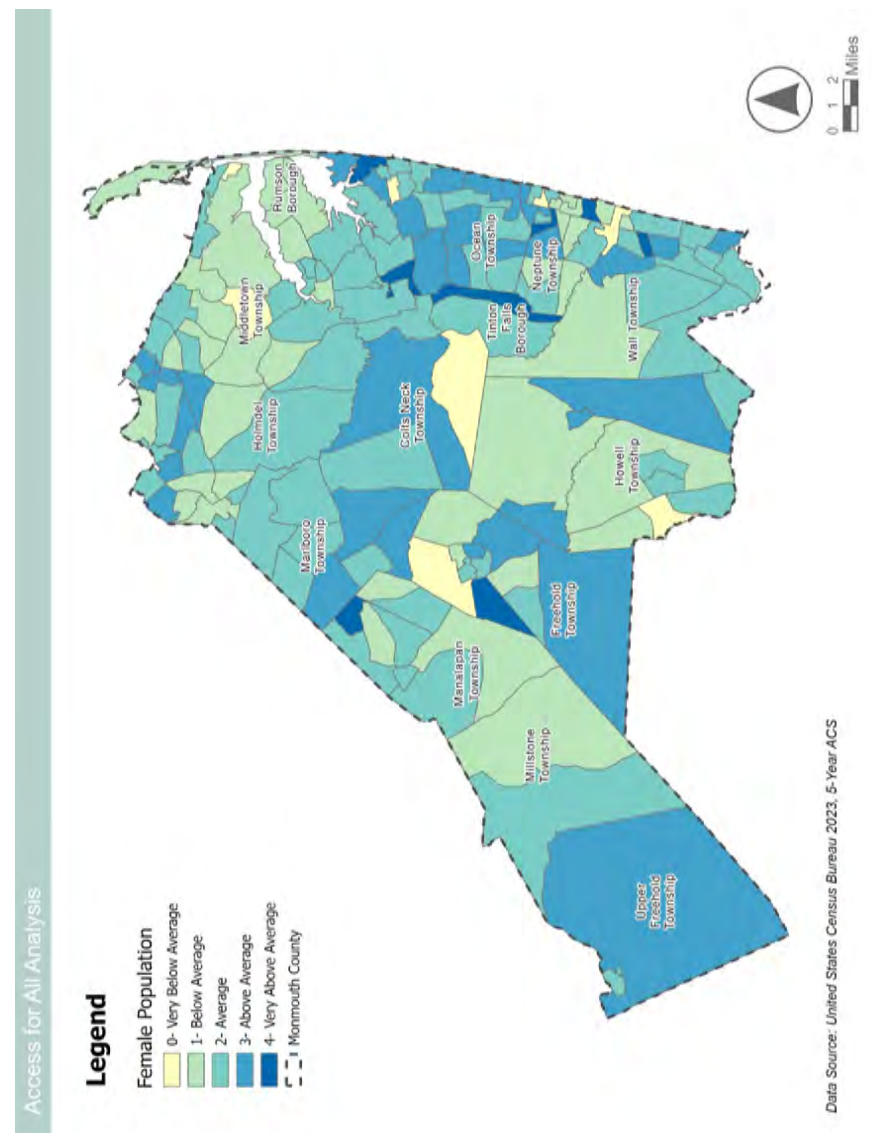
As shown in Table 12, most census tracts in the county have female populations close to the County average. However, about 5 percent of tracts with Very Above Average scores have a female population exceeding 56 percent, while another 5 percent of census tracts with Very Below Average have a female population below 45 percent. These variations are relatively minor but can help identify areas with demographic differences that may influence travel patterns, transportation needs, and safety priorities, since women often experience different mobility constraints and safety concerns. These can include access to reliable transit, well-lit walking environments, and safe pedestrian crossings, all of which can shape how they move through the transportation network. Understanding where female populations are concentrated helps planners assess whether local roadway and access conditions support safe, comfortable, and equitable travel for all users.

Some municipalities with above-average concentrations of female population include Freehold Township, Avon-by-the-Borough, Wall Township, Tinton Falls Borough, and others. On the other hand, some municipalities with below-average concentrations include Middletown Township, Holmdel Township, Neptune Township, and Belmar Borough (See Figure 12).

Table 12: Female Population Scores

Female Population		
Score	Tracts	% of Tracts
Very Below Average	8	5.2%
Below Average	38	24.7%
Average	67	43.5%
Above Average	33	21.4%
Very Above Average	8	5.2%

Figure 12: Female Population Map



Highest Educational Attainment

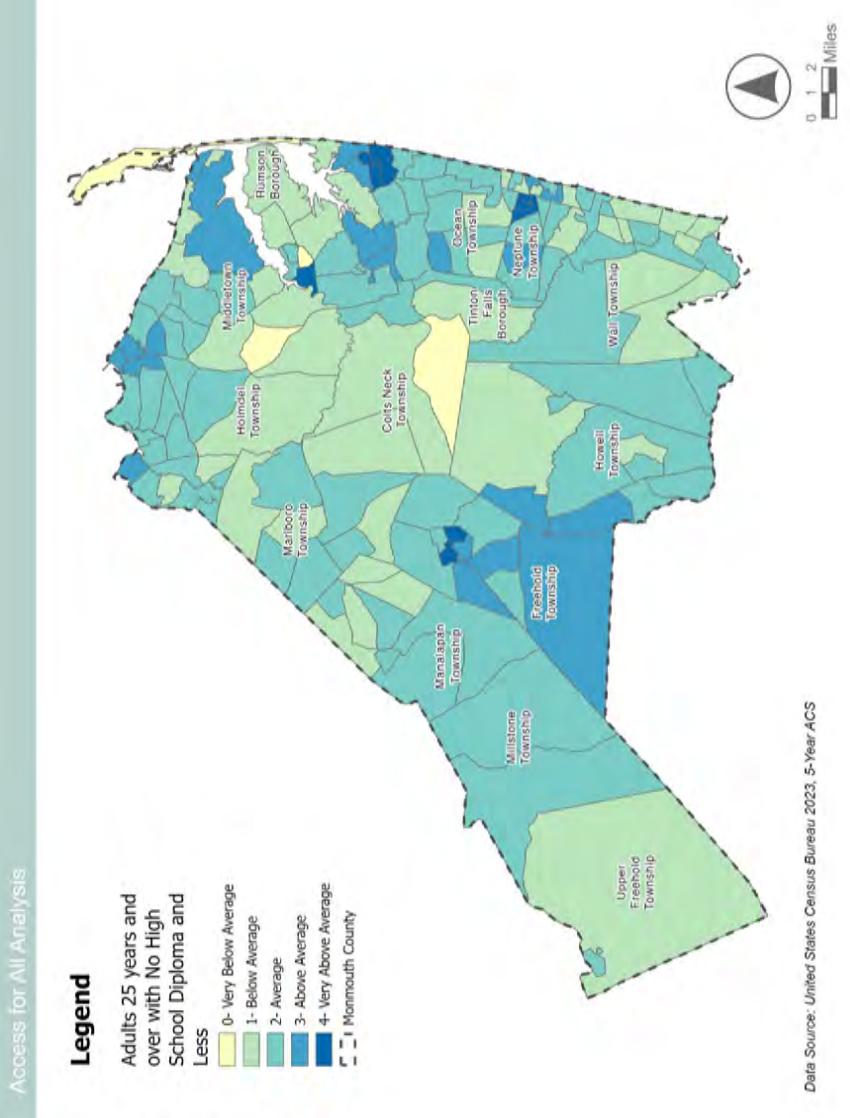
This factor includes all individuals 25 years of age or older who have less than a 12th-grade education and no diploma. In Monmouth County, 6 percent of the population has less than a high school diploma, which aligns with the NJTPA regional average of 6 percent and is lower than the statewide average of 13 percent. Educational attainment is another strong indicator of social vulnerability, and lower educational attainment is linked to lower access to resources and greater reliance on walking, biking, and public transit.

As shown in Table 13, approximately 49 percent of the county's census tracts are classified as average for low educational attainment. About 14 percent of tracts are above average, and 6 percent are very above average, indicating higher concentrations of residents with less than a high school diploma. Ten tracts have more than 15 percent of residents with low educational attainment, with several concentrated in Long Branch City, Asbury Park City, and Freehold Township. Notably, 30 percent of the population over 25 in one census tract in Long Branch City has attained less than a high school diploma, the highest in the County. Other municipalities with higher-than-average concentrations of residents with low educational attainment include Middletown Township, Howell Township, Neptune Township, Bradley Beach Borough, and others. On the other hand, some census tracts with below-average concentration of residents with low educational attainment are in municipalities such as Highlands Borough, Middletown Township, Aberdeen Township, Wall Township, Manalapan Township, and others (See Figure 13).

Table 13: Highest Education Attainment Scores

Highest Education Attainment		
Score	Tracts	% of Tracts
Very Below Average	4	3%
Below Average	44	29%
Average	75	49%
Above Average	21	14%
Very Above Average	10	6%

Figure 13: Highest Educational Attainment Map



Single Parent Household

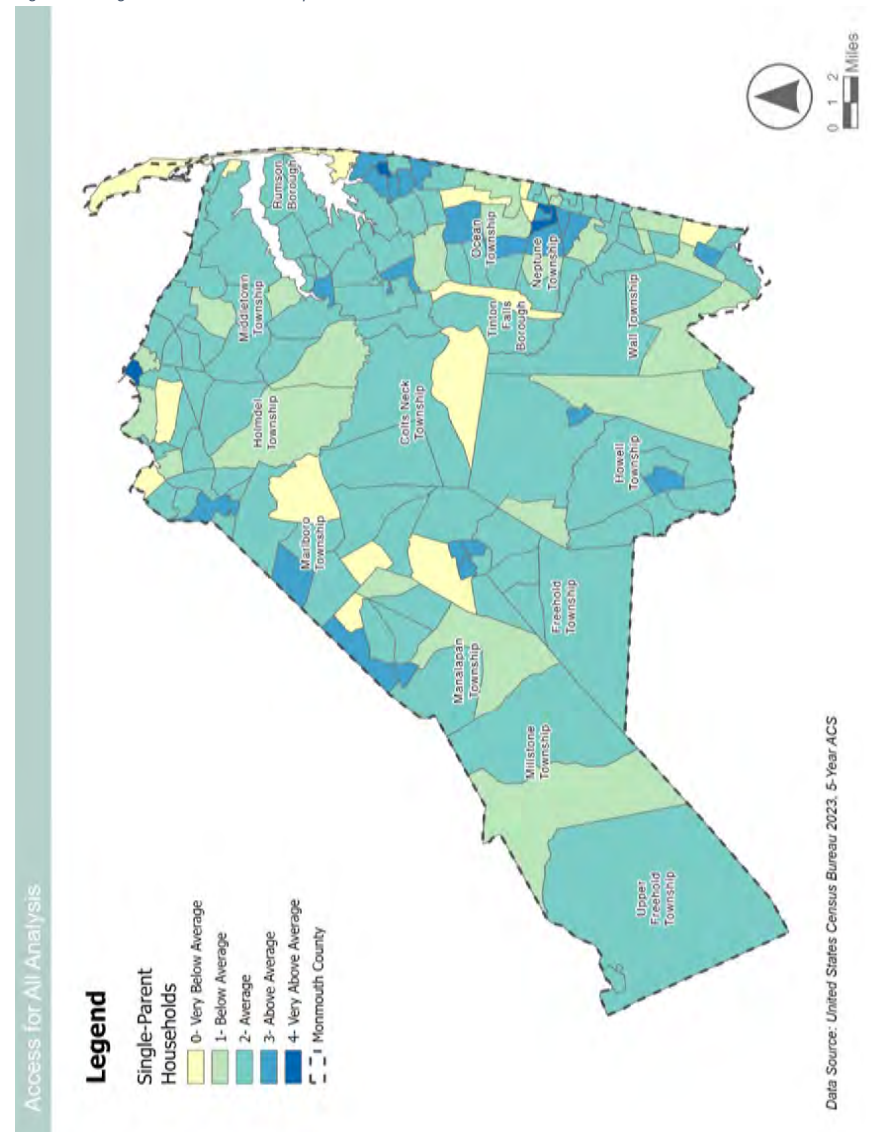
This factor includes households with children under 18 and single-parent households without a spouse or partner. Households with single parents and children under 18 face unique challenges, as the primary caregiver often balances economic responsibilities with childcare. In Monmouth County, 4 percent of households are single-parent households, slightly lower than the statewide average of 6 percent.

Approximately 58 percent of the county's census tracts are classified as average for single-parent households. However, 3 percent of tracts are very above average, indicating a higher concentration, with more than 13 percent of households in these areas led by a single parent. Municipalities with Very Above Average concentration of single-parent households include Keansburg Borough, Long Branch City, Neptune Township, and Asbury Park City. Notably, one census tract in Neptune Township has 24 percent of households headed by a single parent, the highest in the County. Conversely, some communities with below-average concentrations of households with single parents include Aberdeen Township, Middletown Township, Neptune Township, Wall Township, Marlboro Township, and others. (See Figure 14)

Table 14: Single-Parent Households Score

Single Parent Household		
Score	Tracts	% of Tracts
Very Below Average	15	10%
Below Average	23	15%
Average	89	58%
Above Average	23	15%
Very Above Average	4	3%

Figure 14: Single-Parent Household Map



Crash Disparity

Assessing crash disparity in relation to the Access for All composite score reveals the populations most affected by traffic crashes and whether risks are equitably distributed. Higher proportions of KSI crashes in tracts with certain socioeconomic characteristics indicate that some communities bear a disproportionate burden of traffic injuries and fatalities.

To evaluate these patterns in Monmouth County, crashes were analyzed relative to an Access for All composite score assigned to each census tract. A 50-foot buffer was applied around each census tract to capture crashes near boundaries, which often occur along roadways. This approach reduces misattribution or omission of edge crashes and provides a more accurate representation of safety conditions, despite the potential for minor double-counting. Using this method, the total number of fatal, suspected serious injury, and suspected minor injury crashes were calculated for each census tract and compared.

Figure 15 visualizes the distribution of injuries (fatal, serious, minor) relative to an Access for All composite score, along with the population share at each score level. The orange bar shows the percentage of the population at each composite score. The red line represents the share of fatal injuries at each score; the yellow line shows the share of suspected serious injuries. The blue line indicates the percentage of suspected minor injuries. Suspected minor-injury crashes account for a larger share of total crashes, resulting in higher percentages in areas with larger populations. Where the population percentage is lower than the injury lines, there are disproportionately more injuries at that score. The disparity is most noticeable along moderate composite scores (23–32), where suspected minor injury crashes are overrepresented relative to their population. Suspected serious injury crashes also show spikes in proportion in moderate-score areas, with a notable deviation at the high score of 34. This includes census tracts in Long Branch City and Eatontown Borough.

Figure 15: Distribution of crashes by composite score



EXPOSURE ANALYSIS

While the Access for All composite scores identify where demographic and socioeconomic factors may heighten vulnerability, understanding safety outcomes also requires examining the magnitude of people interacting with the transportation system. The exposure analysis provides an additional layer of insight by evaluating trip volume across the County's road network. By assessing where activity levels are highest, the analysis helps illuminate areas where relative crash risk may be elevated simply due to greater traffic presence, enabling a more nuanced understanding of community risk and safety needs.

Dataset and Methodology

To evaluate travel patterns across Monmouth County, the exposure analysis utilized Replica HQ's 2023 Monthly Trip Origin and Destination (OD) dataset. This analysis used typical weekday travel data for all modes to reflect routine, recurring travel patterns that residents experience most consistently throughout the year. Safe Streets planning focuses on systemic safety risk and everyday exposure conditions rather than short-term or event-driven traffic surges. The data provide detailed information on where trips begin and end. They were analyzed at the census tract level to align with the 2023 ACS geographies used in the demographic and socioeconomic analysis. This provides consistency between the exposure metrics and the population characteristics captured in the Access for All composite scoring.

Trip origins and destinations were aggregated by census tract to calculate total trip ends (See Appendix A Figure A.1), capturing overall travel activity associated with each area. This method highlights which tracts generate or attract the greatest number of trips and, therefore, experience higher exposure to transportation activity. To account for differences in population size across tracts, trip totals were normalized using a trips-per-person metric (i.e., exposure rates), producing a standardized indicator of activity relative to local population.

$$\text{Exposure} = \frac{\text{Percentage of Trips Taken}}{\text{Percentage of Population}}$$

Finally, these travel patterns were integrated with demographic and socioeconomic indicators (the Access for All composite scores) to identify areas where vulnerable populations such as children, seniors, low-income households, and residents without access to a vehicle may be disproportionately exposed to higher levels of transportation activity and associated safety risks.

Travel Exposure Patterns

The trip exposure rate across Monmouth County ranges from 0.52 to 3.16 trips per person. Figure 16 illustrates the spatial distribution of these exposure rates, highlighting clusters of high, moderate, and low exposure across the county. To better understand spatial patterns, exposure values were grouped into three categories: low, moderate, and high using a quantile classification method. This approach distributes census tracts evenly across categories, allowing for clearer comparison of relative differences in travel activity throughout the county.

Many of the high-exposure tracts are concentrated along the coastal corridor and in major commercial centers. Coastal communities such as Asbury Park, Long Branch, and Neptune Township attract tourism, recreation, and seasonal travel, while inland hubs like Eatontown and Freehold function as regional employment and retail destinations. These factors contribute to higher overall travel demand in these locations. Table 15 presents the top 15 census tracts with the highest exposure rates, along with the municipalities in which they are located. The full list of census tracts classified as high exposure is provided in Appendix A, Table A.1.

A census tract in Red Bank exhibits the highest exposure rate in the county. The unusually high value in this tract is likely influenced by its unique land-use characteristics, including a relatively low residential population combined with a concentration of commercial and institutional destinations. These include HMH Riverview Medical Center and New Jersey Route 35, a major regional arterial that passes through the tract.

Census tracts classified as moderate exposure (0.80–1.08) represent areas with average levels of trip activity relative to the rest of the county. These tracts are widely distributed across suburban communities and reflect typical residential and commuter travel patterns. Areas with moderate exposure include portions of Middletown, Marlboro, and Holmdel Townships, among others. These municipalities generally feature suburban land use patterns characterized by residential neighborhoods, local commercial areas, and commuter-oriented travel. Lower exposure tracts are more common in smaller boroughs and rural areas, where development density is lower, and overall travel demand is comparatively limited. These areas tend to generate fewer daily trips due to smaller populations, fewer employment centers, and less intensive commercial activity.

Figure 16: Distribution of Exposure Rate by Composite Score

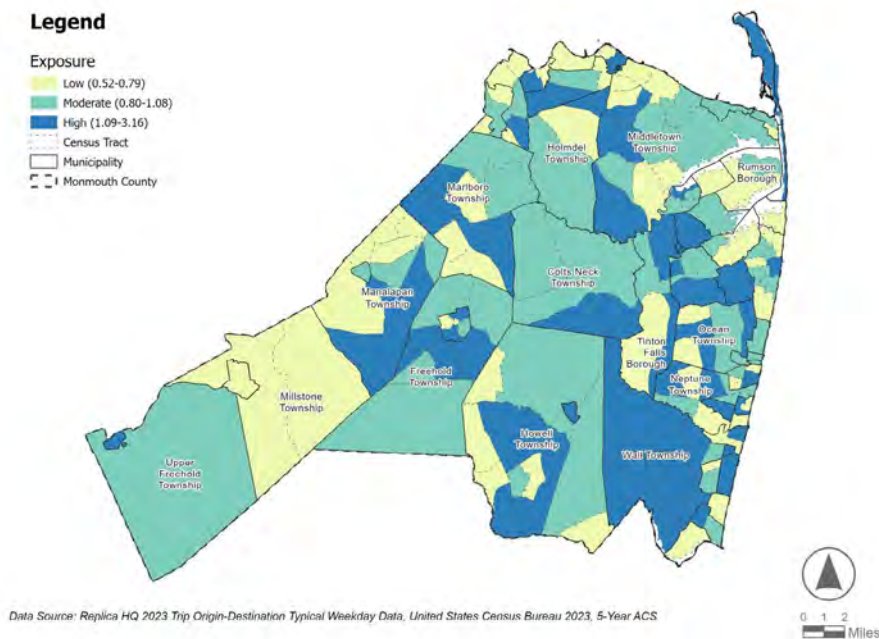


Table 15: Top 15-Census Tracts with High Exposure Rates

Census Tract	Municipality	Exposure
Census Tract 8036.01	Red Bank Borough	3.160
Census Tract 8051	Eatontown Borough	2.225
Census Tract 8065.04	Ocean Township	2.158
Census Tract 8105.03	Freehold Township	1.944
Census Tract 8105.01	Freehold Township	1.939
Census Tract 8070.05	Asbury Park City	1.938
Census Tract 8077	Neptune Township	1.907
Census Tract 8085.01	Wall Township	1.832
Census Tract 8084.01	Belmar Borough	1.795
Census Tract 8032.01	Holmdel Township	1.780
Census Tract 8105.04	Freehold Township	1.770
Census Tract 8070.06	Asbury Park City	1.744
Census Tract 8048.02	Tinton Falls Borough	1.706
Census Tract 8101.02	Manalapan Township	1.674
Census Tract 8058	Long Branch City	1.649

Seasonal Variation in Trip Activity

Monmouth County's coastal setting, with its beaches, boardwalks, parks, and waterfront destinations, contributes to notable seasonal variation in travel patterns. Travel demand fluctuates throughout the year as recreation, tourism, and weather influence how people move within and through the county. Based on input from the Technical Advisory Committee (TAC), a seasonal analysis was conducted to better understand how these fluctuations affect travel exposure and potential traffic safety conditions.

Seasonal trip activity was evaluated across four periods: Winter (December–February), Spring (March–May), Summer (June–August), and Fall (September–November). Exposure estimates were derived from Replica typical weekday travel data, which represent modeled average weekday conditions for each season. This approach captures recurring travel patterns, such as commuting, school trips, and other routine daily travel, that define the baseline roadway exposure experienced by residents.

Table 16 summarizes seasonal variation in exposure rates by municipality. To support interpretation, exposure values are symbolized using a color scale, with darker green indicating lower exposure and yellow indicating higher exposure across seasons. This allows for quick identification of when travel activity peaks or declines within each municipality, rather than comparing absolute values across different municipalities. Overall, most municipalities show a consistent pattern of increasing exposure from spring through summer, even when considering weekday-only data. This trend is particularly pronounced in coastal communities, where seasonal visitation begins to rise around Memorial Day, marking the unofficial start of the summer tourism season.

Municipalities including Belmar, Bradley Beach, Asbury Park, Manasquan, Lake Como, Spring Lake, and Monmouth Beach exhibit clear increases in exposure during the spring and summer, reflected by a shift toward yellow in the table. Figure A.4 in Appendix A shows the spatial distribution of exposure rates by municipality during summer. These patterns highlight the influence of recreational and visitor-related travel associated with shoreline destinations. Elevated summer exposure is also observed in areas such as

Middletown/Sea Bright, where seasonal access to coastal corridors contributes to increased travel demand. While seasonal patterns are most evident along the coast, some municipalities show relatively higher exposure during the winter months. Appendix These increases are generally associated with employment centers, commercial corridors, and areas with schools or higher education institutions, where travel demand remains more consistent year-round.

It is important to note that this analysis is based on typical weekday conditions and does not capture weekend travel, when beach visitation and recreational trips are at their peak. As a result, the magnitude of seasonal variation, particularly in coastal areas, is likely understated, and actual summer exposure may be higher than reflected in these findings.

Table 3: Seasonal Variation in Exposure Rates

Municipality	Winter	Spring	Summer	Fall
Aberdeen Township	0.227	0.231	0.221	0.223
Allentown Borough	0.318	0.322	0.311	0.321
Asbury Park City	0.248	0.256	0.277	0.258
Atlantic Highlands Borough	0.200	0.206	0.204	0.199
Avon-by-the-Sea Borough	0.176	0.183	0.211	0.174
Belmar Borough	0.235	0.252	0.298	0.235
Bradley Beach Borough	0.228	0.238	0.263	0.229
Brielle Borough	0.186	0.190	0.191	0.184
Colts Neck Township	0.216	0.222	0.218	0.218
Deal Borough/ Allenhurst Borough/ Loch Arbour Village/ Interlaken Borough	0.220	0.233	0.258	0.221
Eatontown Borough	0.402	0.400	0.386	0.387
Eatontown Borough/ Oceanport Borough	0.206	0.208	0.197	0.196
Englishtown Borough	0.209	0.211	0.203	0.205
Fair Haven Borough	0.178	0.184	0.177	0.175
Farmingdale Borough	0.311	0.329	0.306	0.325
Freehold Borough	0.245	0.249	0.243	0.240
Freehold Township	0.328	0.326	0.316	0.320
Hazlet Township	0.258	0.264	0.250	0.250
Highlands Borough	0.232	0.235	0.274	0.240
Holmdel Township	0.284	0.278	0.274	0.280
Howell Township	0.230	0.234	0.227	0.226
Keansburg Borough	0.208	0.218	0.218	0.208
Keyport Borough	0.232	0.236	0.232	0.227
Lake Como Borough	0.281	0.300	0.328	0.286
Little Silver Borough	0.234	0.237	0.228	0.230
Long Branch City	0.224	0.235	0.243	0.221
Manalapan Township	0.241	0.244	0.236	0.236
Manasquan Borough	0.276	0.294	0.307	0.278
Marlboro Township	0.230	0.235	0.224	0.225
Matawan Borough	0.193	0.195	0.185	0.187
Middletown Township	0.235	0.240	0.229	0.230
Middletown Township/ Sea Bright Borough	0.241	0.253	0.351	0.254
Millstone Township	0.186	0.194	0.189	0.185
Millstone Township/ Roosevelt Borough	0.193	0.191	0.202	0.200
Monmouth Beach Borough	0.178	0.188	0.212	0.180

Municipality	Winter	Spring	Summer	Fall
Neptune City Borough	0.293	0.298	0.292	0.285
Neptune Township	0.267	0.276	0.268	0.263
Ocean Township	0.254	0.259	0.250	0.247
Oceanport Borough	0.184	0.190	0.190	0.184
Red Bank Borough	0.319	0.317	0.311	0.312
Rumson Borough	0.217	0.224	0.225	0.214
Sea Girt Borough	0.167	0.176	0.187	0.171
Shrewsbury Borough	0.397	0.389	0.371	0.383
Spring Lake Borough	0.258	0.265	0.312	0.259
Spring Lake Heights Borough	0.247	0.259	0.261	0.246
Tinton Falls Borough	0.277	0.281	0.272	0.274
Union Beach Borough	0.180	0.190	0.186	0.178
Upper Freehold Township	0.200	0.204	0.198	0.198
Wall Township	0.297	0.301	0.290	0.291
West Long Branch Borough	0.373	0.377	0.358	0.363

PRIORITY AREAS

To identify census tracts with both elevated demographic and socioeconomic vulnerability and traffic exposure, the analysis combined the Access for All composite score with the exposure metric to highlight those that warrant targeted investment. These priority areas represent communities that may face disproportionate demographic and social challenges and experience higher levels of traffic activity conditions that together increase risk and underscore the need for accessibility and safety improvements.

Defining Priority Areas: Selection Criteria

To identify census tracts with higher concentrations of underserved populations and greater traffic exposure, percentile-based thresholds were applied to both metrics. A percentile is a statistical measure that indicates the relative standing of a value within a dataset. Using this approach, census tracts exceeding the 75th percentile for both the access-for-all composite score and the exposure rate were selected, representing the top 25 percent of tracts in each ranking. This threshold creates high and low categories for both datasets.

Using this approach, any census tract that exceeds the 75th percentile for both the access-for-all composite score and the exposure rate is classified as a Priority Area. These are locations where heightened demographic vulnerability intersects with high traffic exposure, indicating a greater need for targeted investment in safety and accessibility improvements. For this analysis:

- High Vulnerability tracts have Access for All composite scores above 26 ($\geq$ 75th percentile).
- Low Vulnerability tracts have Access for All composite scores below 26.
- High Exposure tracts have exposure rates above 1.19 ($\geq$ 75th percentile).
- Low Exposure tracts have exposure rates below 1.19.

Applying these thresholds yields four categories, as shown in Table 17. The first category, tracts with high vulnerability and high exposure, represents the Priority Areas.

Table 17: Categorization for Priority Areas

Category	Definition	Criteria
High Vulnerability + High Exposure	Tracts in the top 25 percentiles of both Composite Score and Exposure Rate	≥ 75th percentile for both
High Vulnerability + Low Exposure	High scores, below the 75 th percentile in exposure	≥ 75th percentile (access for all composite scores), < 75th percentile (exposure)
Low Vulnerability + High Exposure	High exposure, below the 75 th percentile in scores	< 75th percentile (access for all composite scores), ≥ 75th percentile (exposure)
Low Vulnerability + Low Exposure	Tracts below the 75 th percentile in both	< 75th Percentile for both

Priority Areas

The majority of Monmouth County's population (57 percent) resides in areas characterized by Low Vulnerability + Low Exposure, indicating lower overall risk. In contrast, Priority Areas are identified as census tracts with High Vulnerability + High Exposure. There are 16 such tracts, representing 10 percent of the County's population. Table 18 shows the percentage share of exposure categories, while Figure 17 illustrates their spatial distribution, with darker shades highlighting the Priority Areas. A map of Priority Areas is provided exclusively in Figure 18. These tracts are located across several municipalities, including Freehold Borough, Marlboro Borough, and Tinton Falls Borough (see Table 19 for the complete list).

Following initial identification, the Priority Areas were reviewed by Monmouth County's project team, along with feedback received during Technical Advisory Committee and Access for All Committee meetings. This stakeholder engagement helped validate the analytical results, ensuring that the final set of Priority Areas reflects both data-driven findings and local knowledge of community conditions, safety concerns, and ongoing initiatives. Initially, the analysis also evaluated the 80th percentile to identify the top 20% of Priority Areas, as shown in Appendix A, Figure A.7. It is presented in this report for reference purposes only.

Table 18: Percent Share of Exposure Categories

Category	Share of Census Tracts	Share of Population
High Vulnerability + High Exposure	6%	10%
High Vulnerability + Low Exposure	16%	20%
Low Vulnerability + High Exposure	14%	13%
Low Vulnerability + Low Exposure	64%	57%

Figure 17: Spatial Distribution of Priority Areas

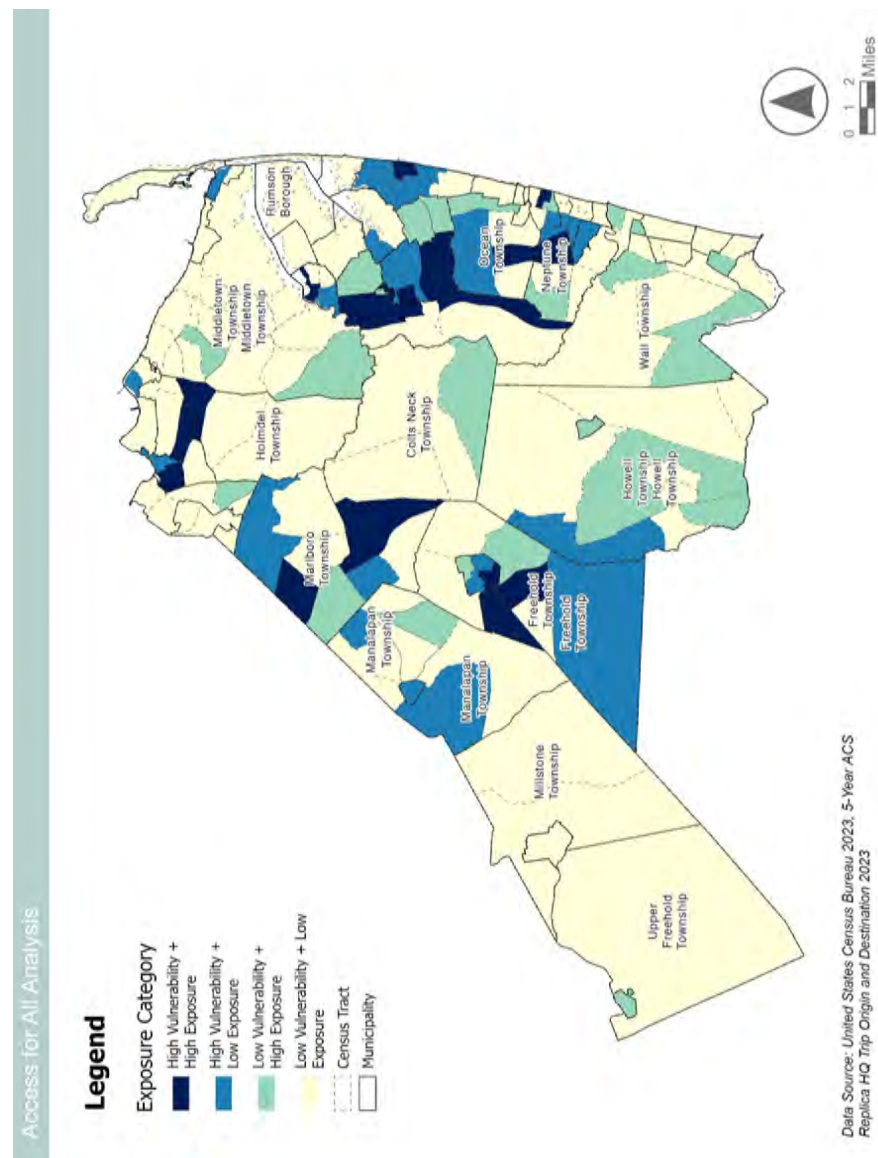
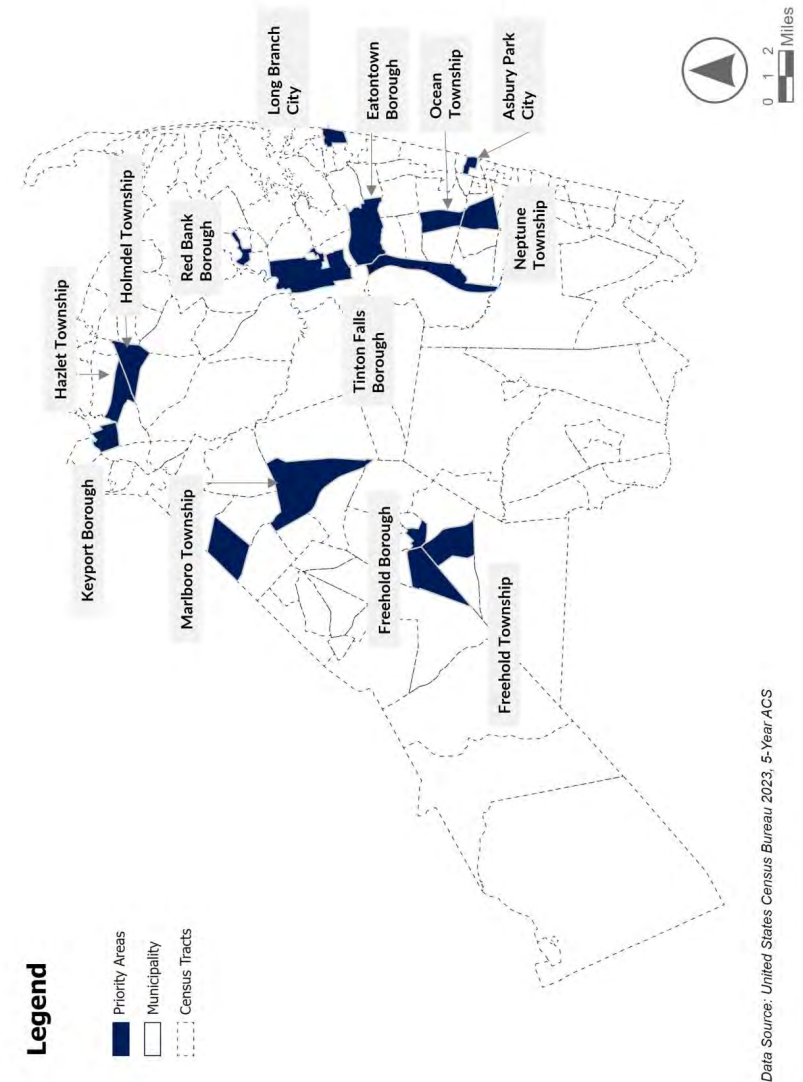


Table 19: List of Priority Areas

Census Tract	Municipality	Composite Score	Exposure Rate
Census Tract 8036.01	Red Bank Borough	30	3.16
Census Tract 8051	Eatontown Borough	26	2.23
Census Tract 8065.04	Ocean Township	33	2.16
Census Tract 8105.03	Freehold Township	27	1.94
Census Tract 8077	Neptune Township	29	1.91
Census Tract 8032.01	Holmdel Township	26	1.78
Census Tract 8070.06	Asbury Park City	27	1.74
Census Tract 8048.02	Tinton Falls Borough	26	1.71
Census Tract 8058	Long Branch City	35	1.65
Census Tract 8023	Hazlet Township	26	1.41
Census Tract 8095.06	Marlboro Township	28	1.4
Census Tract 8109	Freehold Borough	32	1.38
Census Tract 8126	Tinton Falls Borough	26	1.33
Census Tract 8020	Keyport Borough	28	1.27
Census Tract 8097.01	Marlboro Township	27	1.22
Census Tract 8105.04	Freehold Township	27	0.8

Figure 18: Priority Areas



Share of HIN in Priority Areas

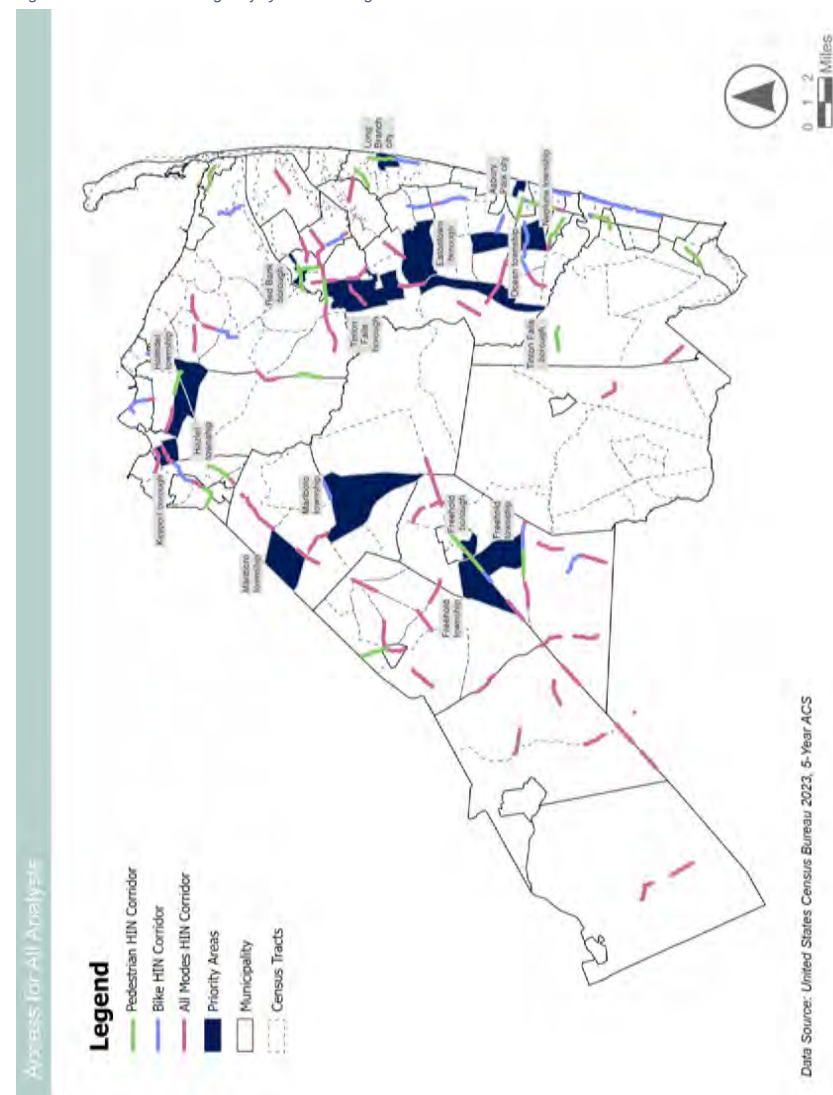
Assessing the concentration of High-Injury Network (HIN) segments within identified Priority Areas provides insight into how traffic-safety risks are distributed across Priority Areas. By comparing the share of HIN centerline miles located within Priority Areas to countywide totals, this analysis highlights the extent to which high-injury corridors overlap with populations that may already face social and economic vulnerabilities.

Table 20 indicates that overall, 16% of combined HIN segments are located within Priority Areas. Notably, approximately 23 percent of pedestrian HIN centerline miles (6.5 out of 28.1 miles) are concentrated in these areas. Similarly, 18 percent of bicycle HIN centerline miles (5.5 out of 30.8 miles) fall within Priority Areas, while 14 percent of total HIN centerline miles across all modes (14.1 out of 104.5 miles) are located within these communities. Overall, these findings suggest that Priority Areas bear a disproportionate burden of pedestrian-related safety risks driven by a higher share in areas such as Freehold and, to a lesser extent, bicycle-related risks. This underscores the importance of prioritizing safety investments, targeted interventions, and equitable resource allocation in these areas to address both existing safety challenges and broader disparities in transportation outcomes. Figure 19 shows the overlay of HIN segments and priority areas.

Table 20: Share of High-Injury Injury (HIN) Segments

	Priority Areas	Countywide	Share (%)
Ped HIN Centerline Miles	6.5	28.1	23%
Bike HIN Centerline Miles	5.5	30.8	18%
All Modes HIN Centerline Miles	14.1	104.5	14%

Figure 19: Distribution of High-Injury Network segments



APPENDIX A:

Travel Activity: Trip Origins and Trip Destinations

Figure A.1: Total Travel Activity in Monmouth County

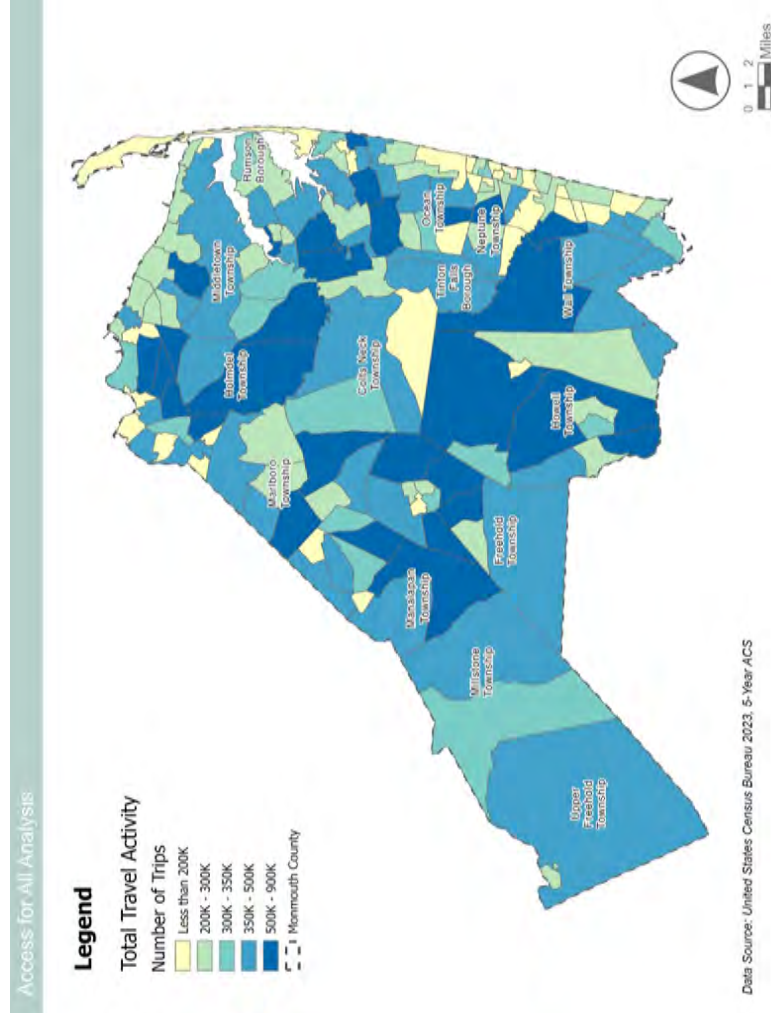


Table A.1: List of census tracts with High Exposure Rates

Census Tract	Municipality	Exposure
Census Tract 8036.01	Red Bank borough	3.160
Census Tract 8051	Eatontown borough	2.225
Census Tract 8065.04	Ocean township	2.158
Census Tract 8105.03	Freehold township	1.944
Census Tract 8105.01	Freehold township	1.939
Census Tract 8070.05	Asbury Park city	1.938
Census Tract 8077	Neptune township	1.907
Census Tract 8085.01	Wall township	1.832
Census Tract 8084.01	Belmar borough	1.795
Census Tract 8032.01	Holmdel township	1.780
Census Tract 8105.04	Freehold township	1.770
Census Tract 8070.06	Asbury Park city	1.744
Census Tract 8048.02	Tinton Falls borough	1.706
Census Tract 8101.02	Manalapan township	1.674
Census Tract 8058	Long Branch city	1.649
Census Tract 8015	Middletown township	1.562
Census Tract 8113.04	Howell township	1.553
Census Tract 8123	Shrewsbury borough	1.539
Census Tract 8062.01	West Long Branch borough	1.528
Census Tract 8079	Neptune township	1.431
Census Tract 8062.02	West Long Branch borough	1.424
Census Tract 8023	Hazlet township	1.412
Census Tract 8095.06	Marlboro township	1.402
Census Tract 8109	Freehold borough	1.380
Census Tract 8028	Aberdeen township	1.360
Census Tract 8107	Freehold borough	1.354
Census Tract 8126	Tinton Falls borough	1.332
Census Tract 8112	Howell township	1.326
Census Tract 8093.01	Manasquan borough	1.318
Census Tract 8007.02	Middletown township	1.301
Census Tract 8096	Marlboro township	1.286
Census Tract 8116	Farmingdale borough	1.272
Census Tract 8120	Allentown borough	1.272
Census Tract 8020	Keyport borough	1.272
Census Tract 8063	Ocean township	1.239
Census Tract 8099.03	Colts Neck township	1.229
Census Tract 8097.01	Marlboro township	1.223
Census Tract 8087.02	Wall township	1.210
Census Tract 8090	Lake Como borough	1.194

Census Tract 8088	Wall township	1.182
Census Tract 8082.01	Bradley Beach borough	1.176
Census Tract 8081	Neptune City borough	1.168
Census Tract 8011	Middletown township	1.163
Census Tract 8086	Wall township	1.161
Census Tract 8087.01	Wall township	1.146
Census Tract 8065.02	Ocean township	1.117
Census Tract 8024	Hazlet township	1.116
Census Tract 8016	Keansburg borough	1.112
Census Tract 8121	Middletown township/ Sea Bright borough	1.098
Census Tract 8091	Spring Lake borough	1.093
Census Tract 8102.01	Manalapan township	1.090

Seasonal Variations

Figure A.2: Exposure to Traffic in Spring Season by Census Tracts

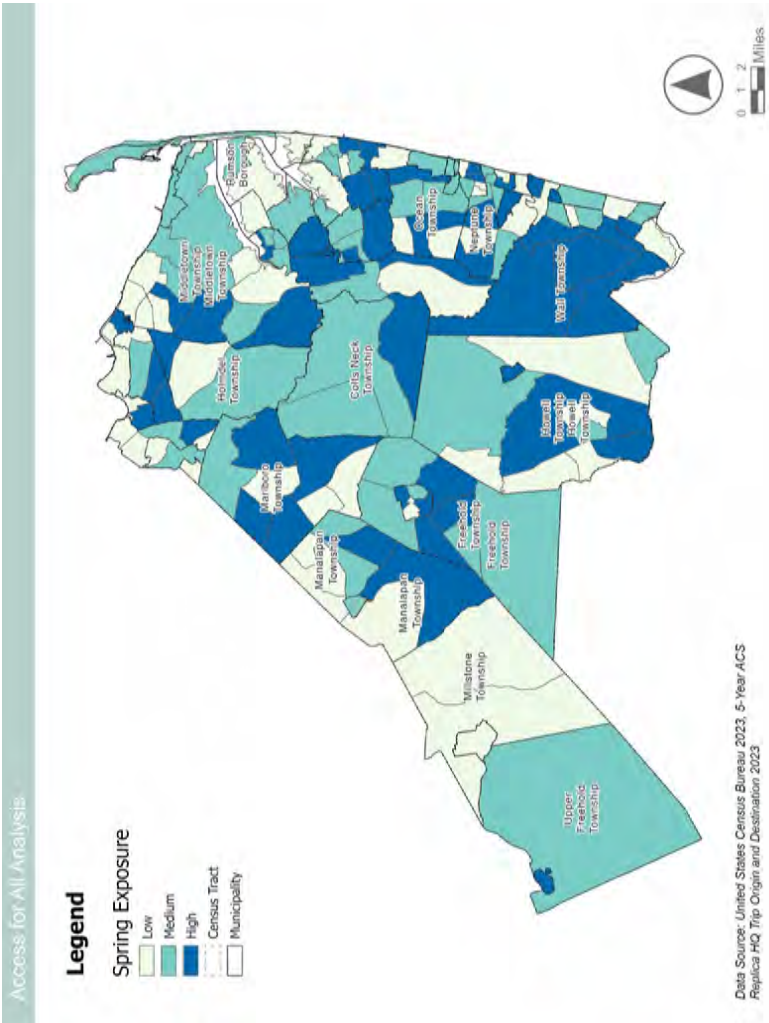


Figure A.3: Exposure to Traffic in Summer Season by Census Tracts

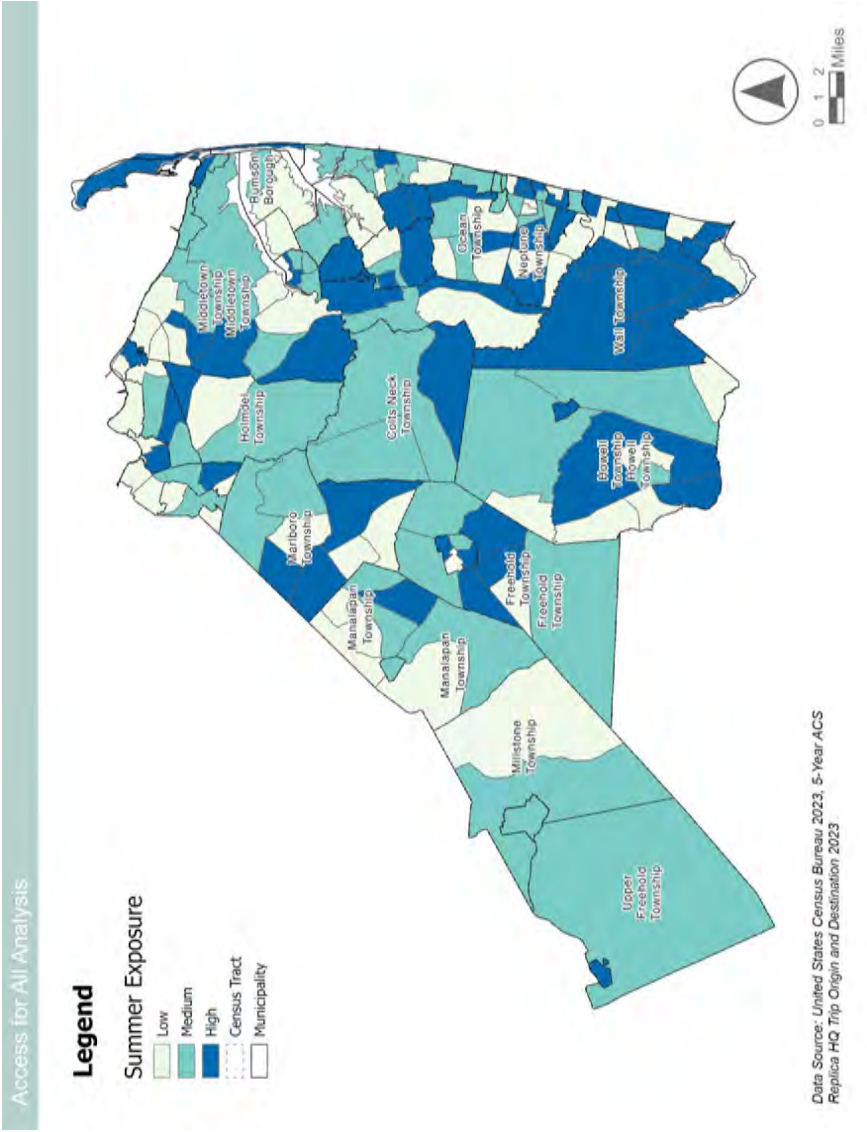


Figure A.4: Exposure to Traffic in Summer Season by Municipality

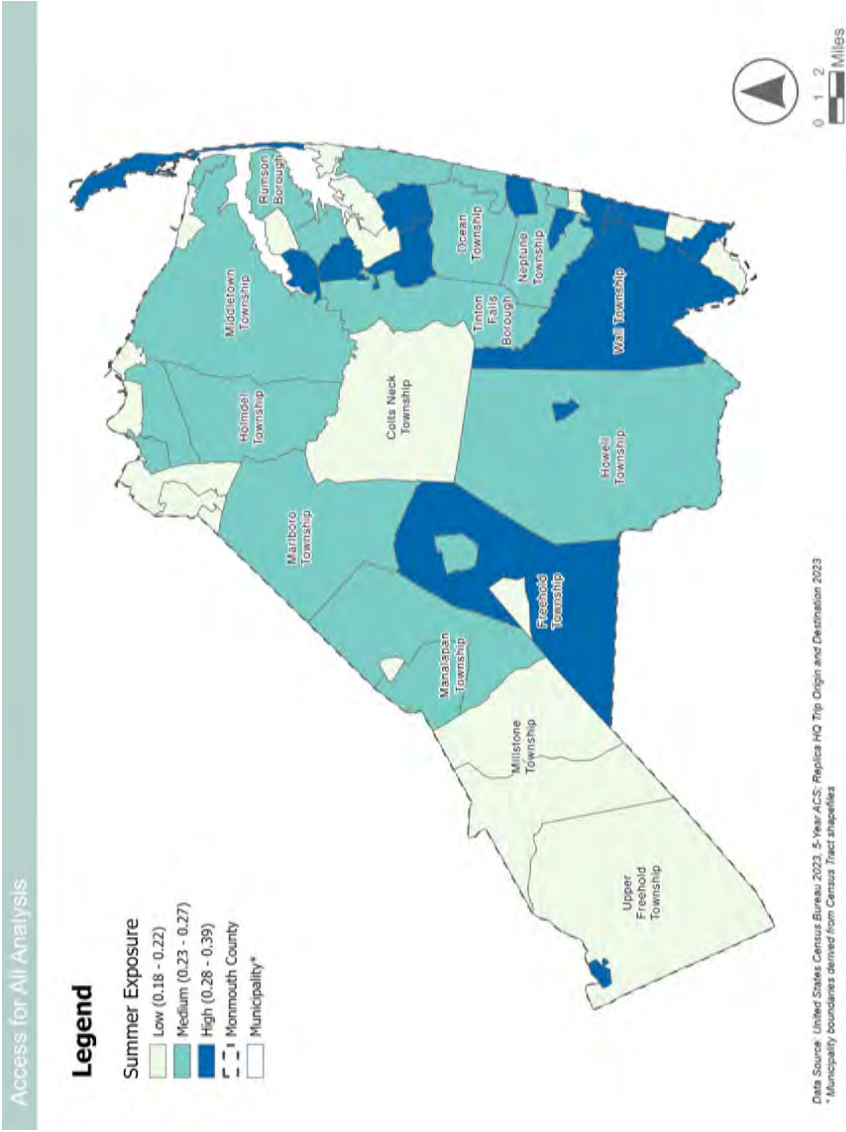


Figure A.5: Exposure to Traffic in Fall Season by Census Tracts

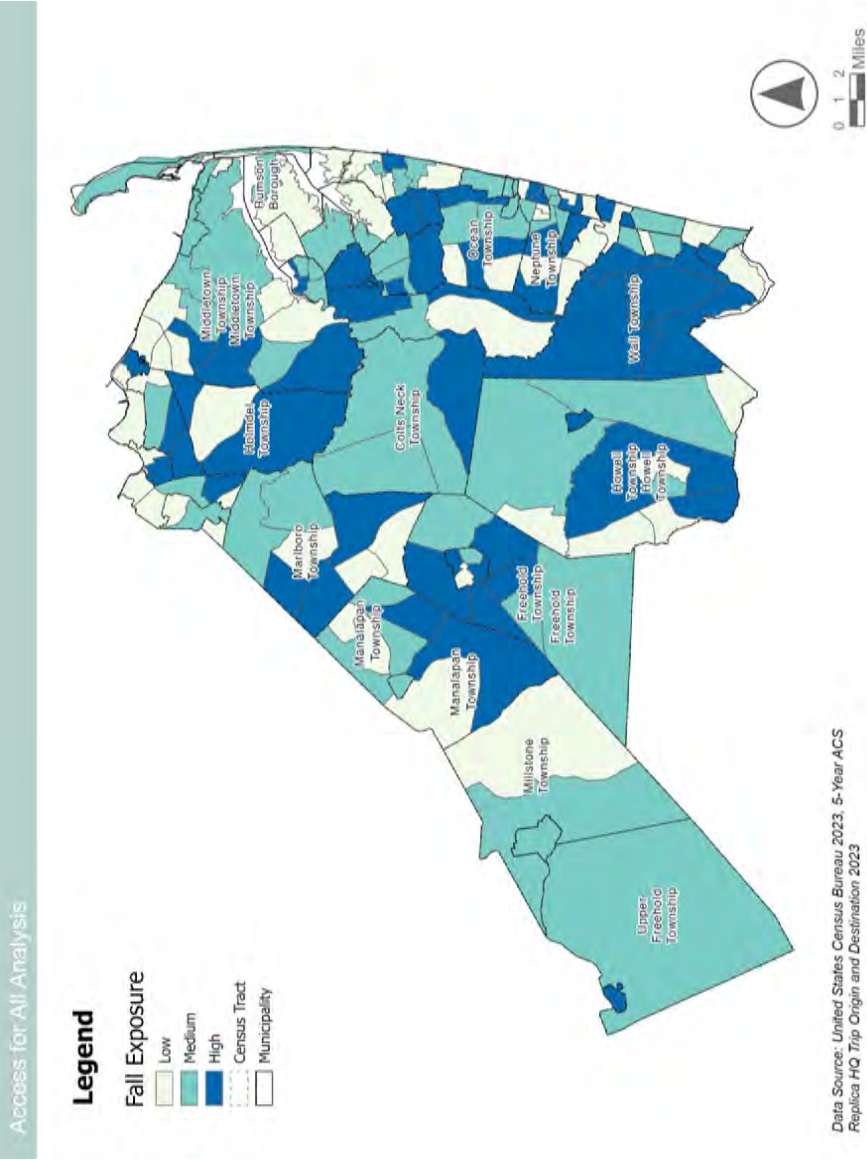


Figure A.6: Exposure to traffic in Winter Season by Census Tracts

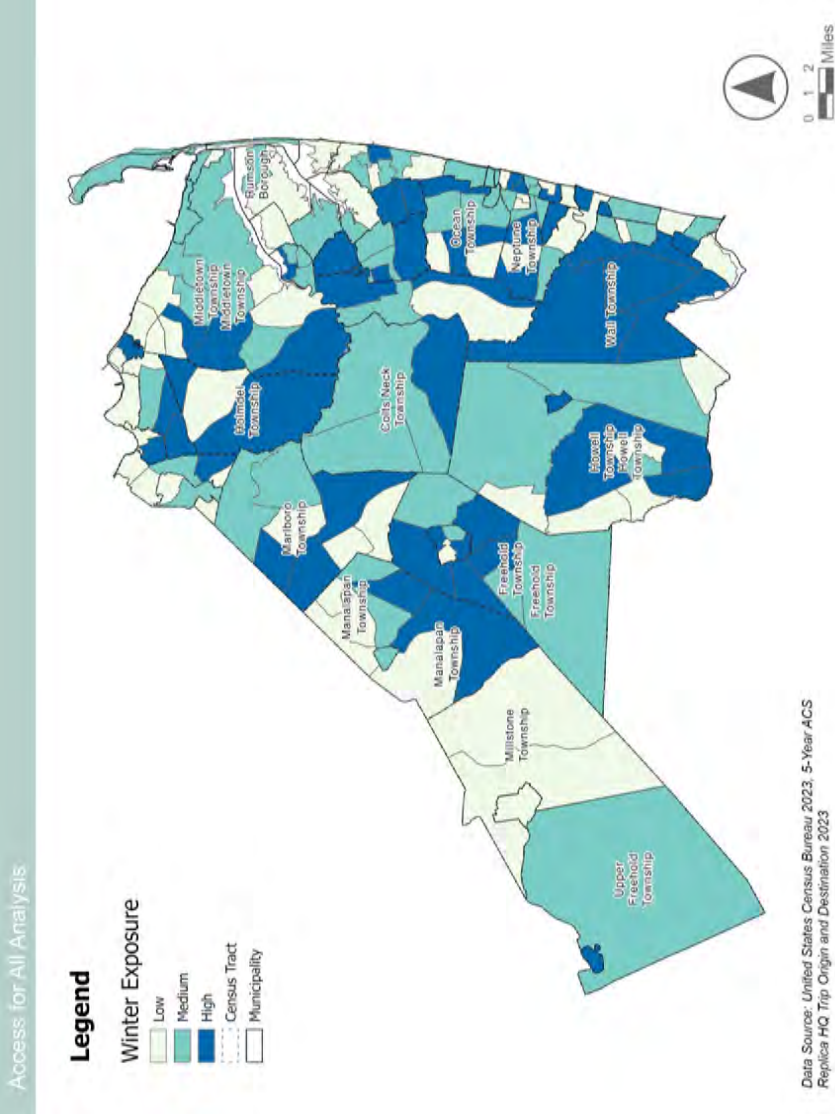
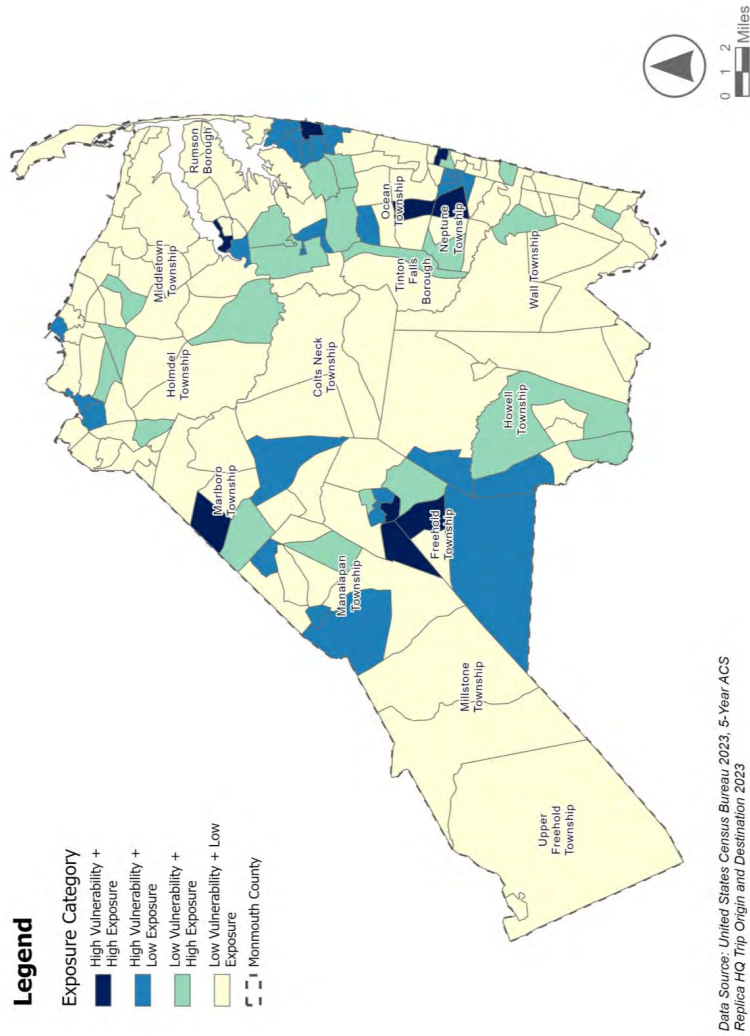


Figure A.7 Spatial Distribution of Priority Areas (80th Percentile)



APPENDIX E: POLICY AND PROCESS REVIEW

MEMORANDUM

DATE: July 27, 2026
TO: Monmouth County / NV5
C:
FROM: TYLin International
SUBJECT: Safe Streets Monmouth: Policy and Process Change

Introduction

Policy and process change constitute one of the eight action plan components required by the U.S. Department of Transportation's (USDOT) Safe Streets and Roads for All (SS4A) program. Aligning policies and processes with the Safe System approach and operationalizing Safe System principles within standards, guidance, and plans are critical steps agencies can take to eliminate severe and fatal crashes.

Through the Safe Streets Monmouth Plan, Monmouth County can strengthen a countywide culture of traffic safety and build capacity to address the root causes of crashes through ongoing programs, partnerships, and investments. While certain policies and processes may be outside of the County's direct control, County officials can play a key role in coordinating with municipalities, regional partners, and state agencies, and in advocating for the adoption of goals, strategies, and actions that advance safer streets for all users. This memorandum documents existing safety-related policies and processes within Monmouth County and provides recommendations to be advanced through the Safe Streets Monmouth Plan.

Safe System Approach

The Safe System approach acknowledges that any death on the transportation system is unacceptable. The approach is based on the understanding that humans make mistakes and that these mistakes can be anticipated. Through design and management, we can encourage safer speeds and systems so that these inevitable mistakes do not result in fatalities. The Safe System approach relies on system redundancy, so when a human inevitably makes a mistake, that mistake does not result in a fatality. Six principles define the Safe System approach:

1. Death & serious injuries are unacceptable.
2. Humans make mistakes
3. Humans are vulnerable
4. Responsibility is shared
5. Safety is proactive
6. Redundancy is crucial

The Safe System approach is further organized around five complementary objectives:

- **Safer People**, which encourages safe and responsible driving and behavior;
- **Safer Roads**, which focuses on designing roadways to minimize the consequences of human mistakes,

encourages safe roadway behaviors, and accommodates travel by vulnerable roadway users.

- **Safer Vehicles**, which notes the role of vehicles and vehicle systems in preventing crashes and minimizing their impact;
- **Safer Speeds**, which promotes thoughtful, context-appropriate roadway design and speed limits, supported by targeted outreach, education, and enforcement;
- **Post-Crash Care** targets improving the likelihood of surviving a serious crash through access to emergency medical care and creating a safe environment for first responders and traffic incident management practices.

Additionally, Safe Land Use is a newer objective within the Safe System approach aimed at implementing safety into land use planning that shapes travel behavior. This emphasizes building communities and facilities that can be easily and safely accessed without relying on an automobile. The objective is a helpful reference that explains how community design influences travel behavior, enabling us to highlight strategies that reduce car dependency while improving safety and accessibility for all road users.

Assessment of Current Policies and Practices

Monmouth County Plans & Efforts

Monmouth County Master Plan (2016)

The goals around traffic safety in the 2016 Monmouth County Master Plan build off the countywide Complete Streets policy adopted in 2010 to facilitate Safe Routes to Schools/Transit, Transit Villages, create trail crossings, and build bicycle connections. Multimodal facilities should be built to support regional connections, such as bike lanes, trails, and walkways between communities. Likewise, the County should support municipalities in their multimodal efforts. Finally, the County aims to support the New Jersey Transportation Planning Authority (NJTPA) and New Jersey's statewide safety campaigns and education programs.

Monmouth PATHS Access for All (2024)

The 2024 Monmouth PATHS Access for All Plan identified mobility and accessibility barriers in Monmouth County and recommended strategies to address them. The plan noted that safety barriers, including high vehicle speeds, unsafe passing, lack of yielding at crosswalks, and limited lighting, among other challenges, reduced mobility. Limited lighting, safe crossings, and low-stress facilities are particularly challenging for active travel. The lack of or poor condition of sidewalks was identified as a challenge in suburban and rural locations.

The plan listed several mitigation strategies to improve traffic safety conditions. This included prioritizing proven safety countermeasures, conducting Safe Routes to School programming, supporting the adoption of local municipal complete streets policies, updating speed limit policies, improving lighting and active transportation facilities and trails, and adopting a comprehensive safety action plan.

Monmouth County Complete Streets Resolution

The Monmouth County Complete Streets Policy was adopted in 2010 and was the first countywide policy in New Jersey. The policy outlines several key elements, including creating a comprehensive, multimodal network for active transit, ensuring roadways are designed safely and accessible for all road users, incorporating Complete Streets principles into upcoming projects and projections, and implementing connections through Safe Routes to Schools and Safe Routes to Transit. To make this a reality, the policy outlines several procedures to embed Complete Streets elements into daily operations, including a checklist of multimodal accommodations for projects under county jurisdiction, a procedure for evaluating resurfacing projects for Complete Streets inclusion, and exemption requirements. The policy does not outline reporting requirements to track ongoing progress.

Additional Plans

- [Monmouth County within Reach \(2021\) – Tourism and Events Travel Demand Management Study](#) – Outlines several transportation demand management strategies for tourist destinations that impact safety, including: creating dedicated managed crossings in areas with high volumes of pedestrians to reduce non-compliant crossings, promoting non-vehicular travel (such as shuttles or bike rentals), and designing public space for smoother rideshare operations.
- [Monmouth County Open Space Plan \(2019\)](#) – Outlines the importance of improving and expanding greenways, parks, and public spaces, particularly by contributing to the countywide trail network and to connectivity across the County. Connectivity and access are components within the plan, with recommendations to increase bicycle and pedestrian access via roadway upgrades, sidewalk network expansion, and improved crosswalks. This includes collaboration between Monmouth County, the State of New Jersey, and local municipalities to increase funding for these projects, such as participating in a Safe Routes to Schools program.
- [Aging Population Study \(2017\)](#) – The 2017 Monmouth County Aging Population Study was developed to help decision-makers understand demographic changes, address challenges associated with a growing older adult population, and identify opportunities to improve livability throughout the County. Focusing on housing and transportation, the study found that many older adults wish to age in place. Yet, many age-restricted and senior housing communities are located in automobile-dependent areas with limited transportation alternatives. To better understand these accessibility challenges, the study evaluated factors such as walkability, transit availability, vehicle access, and community connectivity to identify areas where older adults may face barriers to accessing services and destinations.

Regional Plans & Efforts

North Jersey Regional Active Transportation Plan, NJTPA

The 2023 NJTPA North Jersey Regional Active Transportation Plan includes a goal to reduce the risks and barriers associated with walking and biking in the region. NJTPA advocates for utilizing regional data to support local efforts to make infrastructure safer and more accessible for walking and biking. The plan also advocates for additional focus on regionally significant pedestrian destinations to ensure access is being assessed on the regional level.

FY 2026 – FY 2029 Transportation Improvement Program, NJTPA

The NJTPA Transportation Improvement Program (TIP) details the funding, schedule, and purpose of upcoming transportation projects in the region. Projects fall into three categories (system improvement, preservation, or support), and there are subcategories for 'direct safety' and 'pedestrian and bicycle' related categories. Likewise, safety is among several of the performance measures included in the TIP. Several projects with safety relevance are slated to occur during FY 2026 – FY 2029, including bringing roadways on several roads up to ADA compliance (including segments of Route 1, 27, 33, 35, 36, and others. Other projects include roadway resurfacing on Route 36 to include new bicycle lanes; signal, guardrail, and ADA upgrades on Route 138; and provide a grade-separated crossing at School House Road, near the bridge over Route 35.

Long-Range Transportation Plan 2050, NJTPA

The NJTPA Long Range Transportation Plan provides information about the long-range transportation planning and investments occurring in the North Jersey region. Safety is a key priority of the plan, with the aim of reducing crashes and improving the safety of all road users. Objectives of the plan align with those laid out in the 2025 NJ Strategic Highway Safety Plan. While strategies broadly aim to create safe bicycle and pedestrian environments, one specific recommendation includes changing design standards to reduce driveway conflicts.

Statewide Plans & Efforts

New Jersey Strategic Highway Safety Plan, NJDOT, 2025

The 2025 New Jersey Strategic Highway Safety 5-Year Plan details the state's commitment to zero highway fatalities by 2040 and other safety efforts on NJ's public roads. Strategies include working with counties to adopt Complete Streets policies/designs, increasing the implementation of signal pre-emption, enhancing procurement efforts for safer vehicle fleets, and utilizing countermeasures to address lane departure and intersection crash fatalities as well as pedestrian fatalities and serious injuries.

Complete Streets Policy, NJDOT, 2024 Update

In 2024, NJDOT updated the 2009 state Complete Streets Policy to require that all NJDOT projects funded under NJDOT's Capital Program incorporate safer infrastructure for all users, including pedestrians, cyclists, transit riders, and individuals with disabilities. This creates an advanced bar for safety for all users, and an expectation that implementation follows guidance developed by NJDOT and leading sources.

New Jersey Rail Plan, NJDOT, 2025 Update

New Jersey's 2025 Rail Plan highlights that, from 2012-2021, Monmouth County had the most highway-rail grade crossing fatalities of any county in the state at seven. The County also saw the second-highest number of highway-rail grade crossing crashes at 15 during this period. Monmouth County does not have sole authority over improvements at rail crossings. Any modifications near a rail crossing require review and approval through NJDOT's diagnostic team process, with oversight by NJDOT's Railroad Engineering and Safety Unit, which is responsible for coordinating rail crossing reviews and improvements in accordance with Federal Railroad Administration guidelines. Hence, long-term safety goals included in the plan detail the improvement of grade safety crossings through education and equipment.

New Jersey Bicycle & Pedestrian Plan, NJDOT, 2016

The goal of the New Jersey Bicycle and Pedestrian Plan is to ensure New Jersey is a state where people of all ages and abilities can bike and walk. Safety goals include eliminating pedestrian and bicycle fatalities and serious injuries and improving the sense of safety for active transportation users. This entails prioritizing vulnerable road users, increasing the number of pedestrian and bike safety projects, supporting the state's Pedestrian and Bicycle Safety Action Plans, and investing in public traffic safety education and Safe Routes to Schools initiatives.

New Jersey Bicycle and Pedestrian Access Study, NJ Transit, 2018

In this study, NJ TRANSIT reviewed the bicycle and pedestrian access of several stations, including Red Bank Station in Monmouth County. The station currently has pedestrian infrastructure that is in good condition but could be enhanced for pedestrian and cyclist safety and comfort. Recommendations include increasing crosswalk visibility, installing ADA-compliant curb ramps, and adding on-road bicycle facilities and bicycle parking.

County Peer and Best Practices Assessment

Peer Scan

The consulting team assessed Monmouth County's peers and identified several county-level safety action plans that represent the state of practice and reveal policy/programmatic options for the County to consider. The goal of identifying peer counties is to draw insights from jurisdictions in relevant contexts that may be at the same point or further along in implementation of their safety programs. This allows us to highlight best practices that are both aspirational and achievable, showing where Monmouth County could go next, while keeping comparisons meaningful and realistic. This peer scan, detailed in **Table 1**, includes high-level insights from each peer and overall takeaways on best practices.

Table 1: Insights on efforts to reduce fatalities and serious injuries from selected peer counties.

County	Safe Streets for All Status/Goal	Insights on Safe Streets Approaches
Neighboring Peers		
Burlington County, New Jersey	Developing a Comprehensive Safety Action Plan	- Supported by local MPO in Safety Action Plan Development - Traffic safety improvements are typically included in modernization and maintenance
Mercer County, New Jersey	Developing a Comprehensive Safety Action Plan	- The County and all municipalities therein have adopted Complete Streets policies. The 2020 Mercer County Bicycle Master Plan won an award for implementation efforts in 2023 - The Planning Department and Division of Engineering have collaborated on several traffic safety projects, including road safety and trail development.

County	Safe Streets for All Status/Goal	Insights on Safe Streets Approaches
Middlesex County, New Jersey	Adopted 2022; 2040 Goal	- Goals focused on the Safe System approach and additional elements including equity, engagement, and partnerships. - Created two steering committees, one focused on infrastructure and the other on developing a culture of safety. - In 2021, the County restructured the Department of Transportation to include the Office of Planning, Office of Engineering, Office of Public Works, Middlesex County Area Transit, and Keep Middlesex Moving. This allowed for better project coordination across offices.
Ocean County, New Jersey	Currently developing a Local Safety Action Plan	- Utilized local/regional safety funding to complete safety projects across major corridors and high-traffic intersections - Conducting safety programming and education, including a car seat technician and school crossing guard training program as well as education on topics such as school bus safety, parking lot safety, seat belt safety, and others
Nationwide Peers		
Delaware County, Pennsylvania	Adopted in 2025; 2050 goal	- Developed safety ambassador program to increase engagement with Safety Action Plan development process
Fairfax County, Virginia	Do not have a Safety Action Plan	- Collaborated with state and regional authorities to support the integration of county-level efforts - Adopted a Safe Streets for All Program, including an active transportation toolkit
Lake County, Illinois	Adopted 2025; 2050 Goal	- Included regional, County, and local collaboration on implementation and ongoing monitoring
Montgomery County, Maryland	Adopted 2016 (latest update 2023); 2030 Goals	- Action items are oriented around Complete Streets, Multimodal Future, and Culture of Safety, bolstering the Safe System approach for broader goals. - Drafted plan in collaboration with other transportation plans in mind, including reaching targets on non-auto travel from the County Master Plan or emissions goals from the Climate Plan - Yearly plan updates align with other formal county processes, including the budget and capital improvement plan.
Prince George's County, Maryland	Adopted in 2019; 2040 Goal	- The plan was originally organized beyond the 3 Es to include Education, Emergency Response, Engineering, Enforcement, Evaluation, and Equity. More recent materials acknowledge the Safe System approach as foundational to the County's strategy.

County	Safe Streets for All Status/Goal	Insights on Safe Streets Approaches
		- Established two task forces, one for crash review and the other for communications - Aim to hold a Vision Zero Symposium and establish a public campaign program to increase engagement.
Westchester County, New York	Do not have a Safety Action Plan	- Launched a \$15 million program to support Complete Streets projects across the County. The funding source for this program is the Westchester County capital budget. - Host countywide workshops around Complete Streets and Safe Routes to School

Key Takeaways

Peers included in this analysis are at varying levels of formalization of Safe System approach principles. Of those with adopted safety action plans, common elements include:

Neighboring County Peers:

Of the neighboring counties reviewed for this memo, only Middlesex County has adopted a safety action plan. The others, Ocean County, Mercer County, and Burlington County, are going through the process. Accordingly, the following takeaways are primarily focused on the Middlesex County Vision Zero Action Plan.

- Many counties aim to bolster existing local and county-wide traffic safety efforts. The Middlesex County Safety Action Plan moves these actions forward by committing to collaboration with local municipalities, governmental partners, and other related entities.
- Engagement was central to developing the plan, and the plan envisions multiple ways to keep the public informed and engaged in traffic safety efforts.
- The adopted plan or plans being developed align with other County transportation initiatives, ensuring that goals are aligned or complementary.
- Middlesex County Safety Action Plan:
 - o The plan is updated annually to formalize Vision Zero as part of the County's ongoing operations. This includes alignment with the County's budget, capital improvement plan, and other items. A new plan is released every five years.
 - o Policy recommendations related to engineering ensure adherence to state and national best practices and regulations while incorporating multimodal planning practices aimed at advancing County-specific Safety Action Plan goals.
 - o Restructuring of the Department of Transportation facilitated more efficient traffic safety work by enhancing collaboration between offices.

Nationwide County Peers:

Seven nationwide peers were reviewed for this memo, including: Delaware County, Pennsylvania; Fairfax County, Virginia; Lake County, Illinois; Montgomery County, Maryland; Prince George's County, Maryland;

and Westchester County, New York. Of these, half have released a Safety Action Plan, and the other half are at varying levels of integrating safety into existing practice.

- Analyzing severe crash history to identify common crash types, hot spots, and the development of a HIN.
- Embedding varied community engagement efforts into the analysis and strategy development process.
- Examining and refining strategies to address traffic safety outcomes for all users, including vulnerable road users.
- Utilizing equity measures developed by regional MPOs or other appropriate organizations to understand the impact of traffic safety on disadvantaged communities.
- Aligning strategies and goals with regional efforts
- Formalizing the Safe System approach in County operations and maintenance through discrete actions.
- Supporting the efforts of municipalities to conduct traffic safety improvements and formalize the Safe System approach and Complete Streets principles into their work.
- Commitment to regular reporting and sharing of key performance measures to track progress.

County Assessment

As a part of Safe Streets Monmouth, the project team conducted a comprehensive review of Monmouth County's transportation safety-related policies and procedures. The project team conducted multiple discussions with Monmouth County staff and shared a staff survey to understand what policies are currently being used, what could be used in the future, and analyzed the results to identify gaps, barriers, and future opportunities.

Policy Inventory

Through the policy inventory process, the project team reviewed plans and held workshops with Monmouth County staff to understand existing policies and procedures used in traffic safety practice. This section details the results of these analyses and is organized by the Safe System elements to align with the U.S. Department of Transportation's framework to eliminate fatal and serious injury crashes.

Safe Streets

Monmouth County has adopted a variety of policies and procedures aimed at creating safe streets. Monmouth County was the first County in New Jersey to adopt a Complete Street Resolution in July 2010 and utilizes several techniques to make continued roadway improvements. County staff has shared that while many safety projects have been successful, there is a need to institutionalize existing processes to move safety practice from reactive to proactive. These sentiments are echoed in The Monmouth PATHS Access for All document, as demonstrated in the recommendation to formalize a variety of safety projects.

Safe Road Users

Monmouth County has limited control over policies that may support safe road user behavior. Chiefly, Monmouth County cannot change any fines and fees related to traffic violations and dangerous driving behavior that could support curbing these behaviors. However, the County has invested in other means of encouraging road safety via public safety campaigns, including the County Sheriff's Office's presentations to local schools about bicycle safety, distracted driving, and other selected items.

The County aspires to provide more traffic safety education and training for county residents of all ages. The Monmouth PATHS Access for All recommends addressing knowledge gaps related to biking and scootering with education programs. Staff also shared that such programming could begin with schools under County jurisdiction. Likewise, this could take the form of safety training and education of County staff, particularly addressing safe driving behaviors around pedestrians and cyclists.

Safe Speeds

In previous safety projects, Monmouth County adjusted roadway speeds in line with the Safe System approach, setting speed limits to match the appropriate context of the roadway, following state and national guidance to de-emphasize roadway throughput and AADT. The County implements traffic calming elements in regular maintenance where applicable, particularly by narrowing lane widths, using rumble strips, and installing centerline pavement reflectors. In addition, the County has made capital investments for traffic calming, including road diets and roundabouts. Though the County understands the safety value of making traffic calming and intersection upgrades, it may make projects prohibitively expensive and time-consuming. Staff expressed a desire to expand traffic calming tools and overall investment but noted the need to implement policies that streamline this effort.

Safe Vehicles

Monmouth County currently follows New Jersey's standards of safety in vehicle procurement. County staff noted that future policies could encourage vehicle "right-sizing" with the latest technology features, where available and appropriate. Changes at the state level would likely have a trickle-down effect to counties and local agencies.

County Survey Results

A Policy & Process Benchmarking and Needs survey was shared with teams involved in Monmouth County's traffic safety efforts to gain further insight into the County's policies and procedures. This survey was designed to allow staff to share their thoughts on areas where transportation safety practice could be improved by addressing gaps in policy and legislation, streamlining processes, and removing internal/external barriers to safety practice.

County Gaps, Barriers, and Opportunities

The following summary of identified gaps, barriers, and opportunities in traffic safety policy in Monmouth County is based on the review of recent plans, policy documents, workshops with staff, and a survey. The items in gaps and barriers represent existing gaps in policy or barriers to policy implementation, organized by themes that emerged through staff surveying and workshops. The opportunities section synthesizes

these results to identify key areas and procedures that the County can focus on to forge new policies and make existing policies stronger.

Table 2: Gaps, barriers, and opportunities in traffic safety policy in Monmouth County

GAPS	Policy Strengthening: - Safety policies can be created or improved to prevent the potential for missed opportunities. Continued training and education would promote better implementation of the County's existing policies. - Safety policies could be enhanced to target intersection safety and investment in safe facilities for pedestrians and cyclists. - Capital Improvement Program listed projects are typically informed by NJTPAs Network Screening Lists and focus on state-of-good-repair projects for roads and bridges. - The existing county roadway plan can be enhanced by taking the surrounding land use context into account, especially downtowns and mixed-use commercial districts. This would allow for roadway standards to vary based on the context throughout the County. No Existing Policies - Monmouth County's development regulations should require new developments to install sidewalks along street frontages, based on increased pedestrian volumes. Operations: - Potential to formalize safety training for new Monmouth County office staff who operate County-owned vehicles. - Developers do not consistently incorporate temporary pedestrian and bicyclist accommodations during roadway, bridge, and sidewalk construction activities, which can reduce safe and accessible travel options for non-motorized users during construction. - Traffic calming projects are installed with routine maintenance, but the suite of tools used is typically limited to lane narrowing, speed bumps, and roundabouts. There are opportunities to explore new approaches and utilize other tools that could be particularly effective in Monmouth County. - Safety project selection can be enhanced by complementing community and stakeholder insights with crash and safety data. Crash Data: - Formalizing communication between the County's fatal crash response team and engineering could result in increased coordination. - Communications could be improved between the NJSP-served communities and the County to improve awareness of serious crashes on county roads.
	Internal Barriers: - Updating the development regulations and other procedural documents takes a significant investment in time and effort. - Safety funding is limited, and grant funding is typically competitive. - An updated community engagement process matched with an updated internal process and structure will support consistent and comprehensive follow-up and respond to public input.

	- Investment in vehicle procurement with advanced technology may require significant collaboration with additional County departments. External Barriers: - ROW acquisition is a barrier to working on larger-scale safety improvement projects. - Projects that overlap with New Jersey State roads require additional collaboration, approvals, and permitting to make safety upgrades that meet New Jersey's state standards and meet the needs of Monmouth County. Often, this bureaucracy can slow projects and increase their costs. The environmental review process for ROW acquisition on state intersections makes installing safety interventions requiring ROW procurement, such as roundabouts, time-consuming and expensive. - Daylighting is used in most County projects following NJ Title 39, but local jurisdictions are concerned about losing parking, leading to inconsistent usage.
OPPORTUNITIES	- The Division of Planning would benefit from increased capacity to continue to identify safety improvement opportunities. - The County Administrative Code could be considered for amendment to include design policy and engineering guidelines, including but not limited to sidewalk requirements, and the latest roadway design standards (NACTO, AASHTO, etc). - The County's Complete Streets policy can be bolstered to increase the volume and scope of safety investments. - An updated community engagement program would support the identification and firm up justifications for safety projects. - Monmouth County may be able to integrate driver's education and training in the curriculum at vocational schools in the County.

Policy Recommendations

Safety policy recommendations for Monmouth County are built on best practices and existing policy efforts for further consideration and evaluation. Based on the assessment of the County's plans, policies, and procedures, the project team identified strategies and policies for Safe Streets Monmouth.

Policies are organized around the Safe Systems approach and an additional category of interagency collaboration. This presents a holistic approach to safety policy, addressing the key categories that make the biggest difference in limiting the volume and severity of crashes, while building up internal procedures to bolster these efforts.

Table 3: Policy recommendations for Monmouth County, NJ, organized by the Safe Systems approach.

SAFE SYSTEM OBJECTIVE	POLICY RECOMMENDATION	DETAILS
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1. Safe Streets	1.1	Enhance the County's Complete Streets Policy to include additional specificity, including considering Complete Streets improvements for all resurfacing projects and establishing a reporting protocol to increase effectiveness and accountability.	<i>Introduce clear guidance on when, where, and how safety countermeasures should be implemented, including the consideration of Complete Streets improvements during roadway resurfacing projects, operationalized through an existing checklist or similar mechanism. Establish reporting requirements as well as project exemptions, to quantify implementation progress and safety outcomes.</i>
	1.3	Evaluate current sidewalk regulations in accordance with the goals set forth in Monmouth PATHS.	<i>Ensure that sidewalk policies align with the goals and ideals set forth in Monmouth PATHS, including but not limited to recommending sidewalk construction along the street frontages of new developments where there is clear</i>

			<i>need to connect pedestrian generators and attractors, evaluating the inclusion of ADA-compliant sidewalks on all road reconstruction projects, and designating sidewalk width requirements in accordance with ADA standards and the latest national guidance.</i>
	1.4	Adopt a standard suite of traffic-calming tools to be considered in routine maintenance and rehabilitation projects.	<i>Identify existing and future traffic-calming tools appropriate for county roadways and operations to streamline implementation. Include tools that do not require ROW acquisition.</i>
	1.5	Update Development Regulations Design Standards to support access and safety for all modes in accordance with goals set forth in Monmouth PATHS.	<i>Revise design standards to ensure that relevant projects prioritize safety and accessibility for all users, including pedestrians, bicyclists, transit riders, and motorists, regardless of existing demand.</i>
	1.6	Adopt National Standards for Planning and Design of County facilities, including,	<i>Including, but not limited to,</i>

	but not limited to the most recent editions of <i>the following</i>. Ensure County Staff are trained on their use and can support municipal adoption. • FHWA Manual on Uniform Traffic Control Devices for Streets and Highways • FHWA Highway Safety Manual (HSM) • TRB Highway Capacity Manual (HCM) • AASHTO Policy on Geometric Design of Highways and Streets • AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities • AASHTO Guide for the Development of Bicycle Facilities • AASHTO Roadside Design Guide • NCHRP Guide for Roundabouts • FHWA Proven Safety Countermeasures • USDOT National Roadway Safety Strategy • NCHRP Posted Speed Limit Setting Procedure and Tool	<i>daylighting, crosswalk markings, and lighting. Codifying promotes consistent implementation and provides clear guidance for municipalities and County staff.</i>
1.7	Adopt standardized safety measures at trail crossings in accordance with the goals set forth in Monmouth PATHS as well as in regulations/best practices in New Jersey law and accepted national standards.	<i>Develop a standard suite for scoping and prioritizing safety improvements for trail crossings, including, but not limited to, enhanced lighting, high-visibility markings, curb extensions, and pedestrian hybrid beacons or rapid flashing beacons, where appropriate.</i>
1.8	Within the developed standard suite of traffic-calming tools (Recommendation 1.4), designate specific tools that can be	<i>Identify opportunities to make safety</i>

	implemented without ROW acquisition and triggering environmental review to expedite the implementation of safety tools.	<i>improvements that do not require ROW acquisition or environmental review.</i>
1.9	Enhance community engagement protocol to provide a formal method for the public to provide project-based feedback on or share ongoing safety concerns.	<i>Implement a community engagement protocol and process that streamlines incoming comments and county responses or hand-offs.</i>
1.10	Update and formalize the safety metrics considered in the Capital Improvement Plan (CIP) process.	<i>Update the CIP development process to define and consider safety metrics consistent with the County's safety action plan.</i>
1.11	Formalize the crash data review process with an emphasis on fatal and serious injury crashes.	<i>Establish a point of contact and regular cadence to review and analyze county crash data to inform project selection and development, and to evaluate project performance.</i>
1.12	Continue sharing resources and guidance materials to support local municipalities to bolster traffic safety practice.	<i>Create mechanisms to support local municipalities in growing their traffic safety practice, including supporting the</i>

			<i>adoption of a Complete Streets Policy and accessing grants like Safe Streets for All and Safe Routes to School.</i>
2. Safe Road Users	2.1	Develop and deploy driver safety training for all county staff who have access to County fleet vehicles.	<i>Provide standardized training and establish performance monitoring procedures to promote safe driving practices among staff operating County vehicles.</i>
	2.2	Explore opportunities to expand driver safety education and training within County-operated schools.	<i>Offer driver's education at all schools under County jurisdiction and advocate for similar efforts at other schools in Monmouth County. Explore opportunities to expand bicycle and pedestrian safety portions of the curriculum.</i>
3. Safe Speeds	3.1	Develop standard triggers for evaluating existing posted speed limits to ensure that speed limits are reviewed and updated in a systematic and data-driven manner.	<i>Build speed limit evaluation into the standard project implementation process, using applicable State requirements and nationally accepted guidance, including NJ Title 39 and the most recent edition of the Manual on Uniform Traffic</i>

			<i>Control Devices (MUTCD), as the basis for review and decision-making.</i>
	3.2	Within the developed standard suite of traffic-calming tools (Recommendation 1.4), designate specific tools to be considered on roadways where high speeds are an identified safety issue.	<i>Identify and formalize the tools to consider when addressing high speeds.</i>
4. Safe Vehicles	4.1	Review safe vehicle procurement standards to include advanced safety features within county-owned vehicles.	<i>Conduct a safety assessment of the existing municipal vehicle fleet and solicit input from public works, fleet services, and the parks department to (1) assess where safety deficits may be reducing safety for those inside and outside the vehicle, and (2) identify what safety features should be prioritized in upcoming purchases and ongoing maintenance of this fleet.</i>
5. Post Crash Care	5.1	Adopt a safe clearance policy to ensure the timely clearance of traffic during any crash or other traffic incidents.	<i>Collaborate with the Monmouth County Sheriff's Office to develop a standardized approach to traffic clearance in response to typical crashes or traffic incidents.</i>
	5.2	Coordinate with the County Prosecutor's Fatal Crash Response Team.	<i>Collaborate with the County Prosecutor's Fatal Crash Response Team to include</i>

			<i>County engineers and planners in reviews on County roads and facilitate knowledge-sharing from review findings.</i>
6. Interagency Collaboration	6.1	Enhance collaboration between the Planning and Engineering Divisions by integrating Safe Streets Monmouth goals into departmental performance metrics.	<i>Goals and actions of Safe Streets Monmouth County should be reflected in the ongoing operations, collaborations, and performance evaluations of the departments involved in public safety, fostering accountability and transparency.</i>
	6.2	Formalize existing process for new staff to be trained in safety policies and procedures and for staff to be apprised of changes to safety policies.	<i>Ensure staff is up to date with existing safety policies and introduce new staff to them to ensure continuity and consistency.</i>
	6.3	Formalize practices with state resources and local officials to regularly receive and review timely crash data.	<i>Standardize practices to ensure that the County receives detailed information on county road crashes in the near term after a crash occurs.</i>
	6.4	Regularly update Development Regulations and move forward with amendments as needed between updates to reflect evolving safety best practices.	<i>Create a standard schedule with participating departments to update development standards and introduce the amendment</i>

	<i>process to streamline revisions or additions.</i>
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APPENDIX F: FUNDING RESOURCES

State Aid

- [Municipal Aid](#): NJDOT allocates at least 10% of all thier Municipal aid funds for roadway resurfacing, Complete Streets improvements, bicycle and pedestrian facilities, and other transportation infrastructure projects that enhance safety and accessibility.
- [County Aid](#): County Aid funds are appropriated by the Legislature annually for the improvement of public roads and bridges under county jurisdiction. Public transportation and other transportation projects are also included. Each project must be included in the County's Annual Transportation Program (ATP). In accordance with the County Aid regulations N.J.A.C. 16:20A, the ATP shall list a pool of eligible projects by name and location, including municipality, with a brief description of each project, project limits and an estimate of the construction cost.
- [Bikeways](#): This program funds bicycle projects that create new bike path mileage to help NJDOT work towards their goal of 1,000 dedicated bikeway miles in New Jersey. On-road bike lanes and other bike routes are eligible for funding, but special consideration will be given to bikeways that are physically separated from automobile traffic.
- [Safe Streets to Transit](#): The Safe Streets to Transit Program provides funding for pedestrian and bicycle improvements that enhance safe access to public transit facilities. Projects typically include sidewalks, crosswalks, lighting, traffic calming, and ADA accessibility improvements.
- [Transit Village](#): This program awards grants for transportation projects that enhance walking, biking, and/or transit ridership within a ½ mile of the transit facility. Municipalities must already be designated as a Transit Village by the NJDOT Commissioner and the inter-agency Transit Village Task Force to be eligible to apply.
- NJ Division of Highway Traffic Safety Grants (HTS Grants): The NJ Division of Highway Traffic Safety (NJDOTS) offers,

on an annual basis, federal grant funding to agencies that wish to undertake programs designed to reduce motor vehicle crashes, injuries, and fatalities on the roads of New Jersey. Municipal, county, state government and law enforcement agencies, as well as non-profit organizations, are encouraged to apply for NJDOTS grant funding to address specific, local traffic safety issues. Grant funding will only be awarded to programs that are in line with federal and state traffic and safety priorities to reduce car crashes, injuries and deaths.

State Administered Federal-Aid Infrastructure Grant Programs

- [Transportation Alternatives Set Aside \(TASA\)](#): TASA Grants are community-based, non-traditional transportation projects (land and water) which expand travel choice, strengthen the local economy, improve the quality of life, and protect the environment. This program was previously referred to as the Transportation Alternatives Program (TAP).
- [Safe Routes to School \(SRTS\)](#): Safe Routes to School supports infrastructure and educational initiatives that improve the safety of students walking and bicycling to school. Projects commonly include sidewalks, crossings, traffic calming, and safety education programs.
- [Recreational Trails Program](#): The Recreational Trails Program provides funding for the development, restoration, and maintenance of motorized and non-motorized recreational trails, as well as related trail facilities and accessibility improvements.
- Highway Safety Improvement Program (HSIP): The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land.

The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance.

- [Reconnecting Communities Pilot Program \(RCP\)](#): The Reconnecting Communities Pilot Program was established by the Infrastructure Investment and Jobs Act of 2021 (IIJA). The program aims to correct wrongs of past transportation projects that have isolated or otherwise cut off communities from jobs and other amenities. Ideal projects improve access in one or more ways, increasing opportunities for residents of impacted communities. Congress has appropriated \$1 billion for this program through fiscal year 2026. States, counties, and local units of government are eligible to apply for funding to plan and implement projects on facilities of which the applicant is the owner. Non-owners may apply for planning grants, as well as capital construction grants, provided that the facility owner has appropriately endorsed the application. All grants require a 20 percent local match.
- **Thriving Communities Program (TCP)**: The Thriving Communities Program provides technical assistance to governments and transit agencies. The program focuses on communities that have suffered historic disinvestment and lack the resources and capacity to successfully engage, develop, design, and deliver infrastructure projects. The program provides planning, technical assistance, and capacity building to better navigate federal requirements, identify financing and funding opportunities, and grow long-term capacity to leverage transportation investments to achieve broader economic and community development goals.
- **Road to Zero Community Traffic Safety Grants**: The Road to Zero Coalition was formed in 2016 as a partnership between the US Department of Transportation and the National Safety Council, with the goal of ending fatalities on the nation's roads by 2050. The Road to Zero Community Safety Grant Program supports innovative and promising approaches to implementing evidence-based countermeasures, supporting a Safe System approach, and performing necessary research to eliminate traffic fatalities.

Grants are for one year, and supplanting the effort with federal funds is prohibited.

Planning and Technical Assistance

- [Bicycle and Pedestrian Planning Assistance \(BPPA\)](#): NJDOT's Bicycle and Pedestrian Planning Assistance Program provides technical assistance to local governments for planning bicycle and pedestrian improvements, helping communities develop safer and more connected active transportation networks.

Funding from Other Sources

- [New Jersey Transportation Infrastructure Bank \(NJTIB\)](#): The New Jersey Transportation Infrastructure Bank (NJTIB) is a unique partnership between the New Jersey Infrastructure Bank (I-Bank) and NJDOT. The goal of this partnership is to reduce the cost of financing critical transportation projects for communities in New Jersey with low interest loans on local transportation infrastructure projects. NJTIB Loans are available for projects that increase the movement of passengers and goods, increase safety, or improve quality of life. This includes capital projects for public highways, approach roadways and other necessary land-side improvements, ramps, signal systems, roadbeds, transit lanes or rights of way, pedestrian walkways and bridges connecting to passenger stations, and servicing facilities such as bridges and grade crossings.
- [NJTPA Congestion Mitigation and Air Quality \(CMAQ\) Program](#): The NJTPA CMAQ Program provides federal funding for projects that reduce traffic congestion and improve air quality, including bicycle and pedestrian facilities, transit improvements, travel demand management, and traffic operations projects.
- **Sustainable Jersey**: The program provides small grants to municipalities to support their local green programs and is not project specific.
- **Sustainable Jersey for Schools**: These grants are designed to help schools progress towards the Sustainable Jersey for Schools certification.

- **NJ Healthy Communities Network:** This small grant program awards \$10,000 per year to New Jersey communities to implement policies and improvements in the built environment every that support healthy eating and active living.
- **Robert Wood Johnson Foundation:** The Robert Wood Johnson Foundation (RWJF) invests in grantees (e.g., public agencies, universities, and public charities) that are working to improve the health of all Americans. Current or past projects in the topic area “walking and biking” include greenway plans, trail projects, advocacy initiatives, and policy development. New Jersey Health Initiatives (www.njhi.org) is the statewide grant making program of the Robert Wood Johnson Foundation. New Jersey Health Initiatives supports innovations and drives conversations to build healthier communities through grant making across New Jersey.
- **Municipal Capital Improvement Program:** All New Jersey counties and many New Jersey municipalities have an Open Space Trust Fund, which is a dedicated program supporting open space land acquisition. The trust funds are established by ballot measure. Depending on the fund parameters, other development projects can be eligible including trails, historical preservation, and farmland protection.
- **Development Impact Fees:** Regulated by subdivision polices, impact fees require residential, industrial and commercial development project leaders to provide sites, improvements, and/or funds to support public amenities such as open space and trails. Impact fees may be allocated to a particular trail or greenway from land development projects if the fund is a dedicated set-aside account established to help develop a county- or municipality-wide system of trails or pedestrian/bicycle infrastructure facilities.
- **[County and Municipal Open Space Trust Funds:](#)** County and municipal Open Space Trust Funds can support the acquisition, development, and improvement of trails, greenways, and recreational facilities that enhance walking and bicycling opportunities.
- **County and Municipal Capital Programs;** Local capital improvement programs provide funding for transportation projects identified as community priorities, including roadway reconstruction, Complete Streets improvements, sidewalks, bicycle facilities, and traffic safety enhancements.

APPENDIX G: SELF- CERTIFICATION CHECKLIST

All applicants should follow the instructions in the NOFO to correctly apply for a grant. See the [SS4A website](#) for more information.

Table 1 of the [SS4A NOFO](#) describes [seven components of an Action Plan](#), which correspond to the questions in this worksheet. Applicants should use this worksheet to determine whether their existing plan(s) contains the required components to be considered an eligible Action Plan for SS4A.

This worksheet is required for all SS4A **Implementation Grant** applications and any **Planning and Demonstration Grant applications to conduct Supplemental Planning/Demonstration Activities only**. Please complete the form in its entirety, do not adjust the formatting or headings of the worksheet, and upload the completed PDF with your application.

Eligibility

An Action Plan is considered eligible for an SS4A application for an Implementation Grant or a Planning and Demonstration Grant to conduct Supplemental Planning/Demonstration Activities if the following two conditions are met:

- You can answer "YES" to Questions **3, 6, and 8** in this worksheet; *and*
- You can answer "YES" to **at least three of the five remaining** Questions, **1, 2, 4, 5, and 7**.

If both conditions are not met, an applicant is still eligible to apply for a Planning and Demonstration Grant to fund the creation of a new Action Plan or updates to an existing Action Plan to meet SS4A requirements.

Applicant Information

Lead Applicant: County of Monmouth, New Jersey UEI: _____

Action Plan Documents

In the table below, list the relevant Action Plan and any additional plans or documents that you reference in this form. **Up to three plans or documents may be included.** Please provide a hyperlink to any documents available online or indicate that the Action Plan or other documents will be uploaded in Valid Eval as part of your application. Note that, to be considered an eligible Action Plan for SS4A, the plan(s) coverage must be broader than just a corridor, neighborhood, or specific location.

Document Title	Link	Date of Most Recent Update
Monmouth County Safe Streets and Roads for All Safety Action Plan		July 2026



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Action Plan Components

For each question below, answer "YES" or "NO." If "YES," list the relevant plan(s) or supporting documentation that address the condition and the specific page number(s) in each document that corroborates your response. This form provides space to reference multiple plans, but please list only the most relevant document(s).

1. Leadership Commitment and Goal Setting

Are **BOTH** of the following true?

- A high-ranking official and/or governing body in the jurisdiction publicly committed to an eventual goal of zero roadway fatalities and serious injuries; and
- The commitment includes either setting a target date to reach zero OR setting one or more targets to achieve a reduction in roadway fatalities and serious injuries by a specific date.

☒ YES

☐ NO

Note: This may include a resolution, policy, ordinance, executive order, or other official announcement from a high-ranking official and the official adoption of a plan that includes the commitment by a legislative body.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)
Monmouth County Safe Streets and Roads for All Safety Action Plan	ii
Resolution Adopting the Goal to Eliminate Fatalities and Serious Injuries on County Roads by the Year 2040	2-3

2. Planning Structure

To develop the Action Plan, was a committee, task force, implementation group, or similar body established and charged with the plan's development, implementation, and monitoring?

☒ YES

☐ NO

Note: This should include a description of the membership of the group and what role they play in the development, implementation, and monitoring of the Action Plan.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)
Monmouth County Safe Streets and Roads for All Safety Action Plan	i,40



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3. Safety Analysis

Does the Action Plan include **ALL** of the following?

- Analysis of existing conditions and historical trends to provide a baseline level of crashes involving fatalities and serious injuries across a jurisdiction, locality, Tribe, or region;
- Analysis of the location(s) of crashes, the severity, contributing factors, and crash types;
- Analysis of systemic and specific safety needs, as needed (e.g., high-risk road features, specific safety needs of relevant road users, or post-crash care and emergency response); and,
- A geospatial identification (geographic or locational data using maps) of higher risk locations.

☒ **YES**
☐ **NO**

Note: Availability and level of detail of safety data may vary greatly by location. The [Fatality and Injury Reporting System Tool \(FIRST\)](#) provides county- and city-level data. When available, local data should be used to supplement nationally available data sets.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)
Monmouth County Safe Streets and Roads for All Safety Action Plan	11-31

4. Engagement and Collaboration

Did development of the Action Plan include **ALL** of the following activities?

- Engagement with the public and relevant stakeholders, including the private sector and community groups;
- Incorporation of information received from the engagement and collaboration into the plan; and
- Coordination that included inter- and intra-governmental cooperation and collaboration, as appropriate.

☒ **YES**
☐ **NO**

Note: This should include a description of public meetings, participation in public and private events, and proactive meetings with stakeholders.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)
Monmouth County Safe Streets and Roads for All Safety Action Plan	37-41

5. Policy and Process Changes

Are **BOTH** of the following true?

- The plan development included an assessment of current policies, plans, guidelines, and/or standards to identify opportunities to improve how processes prioritize safety; and
- The plan discusses implementation through the adoption of revised or new policies, guidelines, and/or standards.

☒ **YES**
☐ **NO**

Note: This may include existing and/or recommended Complete Streets policy, guidelines for community engagement and collaboration, policy for prioritizing areas of greatest need, local laws (e.g., speed limit), design guidelines, and other policies and processes that prioritize safety.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)
Monmouth County Safe Streets and Roads for All Safety Action Plan	61-68

6. Strategy and Project Selections

Does the plan identify a comprehensive set of projects and strategies to address the safety problems in the Action Plan, with information about time ranges when projects and strategies will be deployed, and an explanation of project prioritization criteria?

☒ **YES**
☐ **NO**

Note: This should include one or more lists of community-wide multi-modal and multi-disciplinary projects that respond to safety problems and reflect community input, indication of expected time ranges to complete each project, and a description of how your community will prioritize projects in the future.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)
Monmouth County Safe Streets and Roads for All Safety Action Plan	71-90



U.S. Department of Transportation

SS4A Self-Certification Eligibility Worksheet | Page 3 of 5



U.S. Department of Transportation

SS4A Self-Certification Eligibility Worksheet | Page 4 of 5

7. Progress and Transparency

Does the plan include **BOTH** of the following?

- A description of how progress will be measured over time that includes, at a minimum, outcome data.
- The plan is posted publicly online.

☒ **YES**

☐ **NO**

Note: This should include a progress reporting structure and list of proposed metrics.

If "YES," please list the relevant document(s) and page number(s) that corroborate your response.

Document Title	Page Number(s)
Monmouth County Safe Streets and Roads for All Safety Action Plan	127-128

8. Action Plan Date

Was at least one of your plans finalized and/or last updated between 2021 and May 26, 2026?

☒ **YES**

☐ **NO**

Note: Updates may include major revisions, updates to the data used for analysis, status updates, or the addition of supplemental planning documents, including but not limited to an ADA Transition Plan, one or more Road Safety Audits conducted in high-crash locations, or a Vulnerable Road User Plan.

If "YES," please list your most recent document, date of finalization, and page number(s) that corroborate your response.

Document Title	Date of Most Recent Update	Page Number(s)
Monmouth County Safe Streets and Roads for All Safety Action Plan	July 2026	1-134



U.S. Department of Transportation

SS4A Self-Certification Eligibility Worksheet | Page 5 of 5

APPENDIX H: FHWA SAFETY COUNTERMEASURES



U.S. Department of Transportation
Federal Highway Administration

OFFICE OF SAFETY

Proven Safety Countermeasures



Safety Benefits:

Bicycle Lane Additions can reduce crashes up to:

49%

for total crashes on urban 4-lane undivided collectors and local roads.⁶

30%

for total crashes on urban 2-lane undivided collectors and local roads.⁶



Separated bicycle lane in Washington, DC.
Source: Alex Baca, Washington Area Bicyclist Association

Separated bicycle lanes may provide further safety benefits. FHWA is anticipating completion of research in Fall 2022.

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://safety.fhwa.dot.gov/provencountermeasures/> and https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwas18077.pdf.

FHWA-SA-21-051

Bicycle Lanes

Most fatal and serious injury bicyclist crashes occur at non-intersection locations. Nearly one-third of these crashes involve overtaking motorists¹; the speed and size differential between vehicles and bicycles can lead to severe injury. To make bicycling safer and more comfortable for most types of bicyclists, State and local agencies should consider installing bicycle lanes. These dedicated facilities for the use of bicyclists along the roadway can take several forms. Providing bicycle facilities can mitigate or prevent interactions, conflicts, and crashes between bicyclists and motor vehicles, and create a network of safer roadways for bicycling. Bicycle Lanes align with the Safe System Approach principle of recognizing human vulnerability—where separating users in space can enhance safety for all road users.

Applications

FHWA's [Bikeway Selection Guide](#) and [Incorporating On-Road Bicycle Networks into Resurfacing Projects](#) assist agencies in determining which facilities provide the most benefit in various contexts. Bicycle lanes can be included on new roadways or created on existing roads by reallocating space in the right-of-way.

In addition to the paint stripe used for a typical bicycle lane, a lateral offset with painted buffer can help to further separate bicyclists from vehicle traffic. State and local agencies may also consider physical separation of the bicycle lane from motorized traffic lanes through the use of vertical elements like posts, curbs, or vegetation.² Based on international experience and implementation in the United States, there is potential for further safety benefits associated with separated bicycle lanes. FHWA is conducting research on separated bicycle lanes, which includes the development of crash modification factors, to be completed in 2022 to address significant interest on this topic.

Considerations

- City and State policies may require minimum bicycle lane widths, although these can differ by agency and functional classification of the road.
- Bicycle lane design should vary according to roadway characteristics (e.g., motor vehicle volumes and speed) in order to maximize the facility's suitability for riders of all ages and abilities and should consider the travel needs of low-income populations likely to use bicycles. The [Bikeway Selection Guide](#) is a useful resource.
- While some in the public may oppose travel lane narrowing if they believe it will slow traffic or increase congestion, studies have found that roadways did not experience an increase in injuries or congestion when travel lane widths were decreased to add a bicycle lane.³
- Studies and experience in US cities show that bicycle lanes increase ridership and may help jurisdictions better manage roadway capacity without increased risk.
- In rural areas, rumble strips can negatively impact bicyclists' ability to ride if not properly installed. Agencies should consider the dimensions, placement, and offset of rumble strips when adding a bicycle lane.⁴
- Strategies, practices, and processes can be used by agencies to enhance their ability to address equity in bicycle planning and design.⁵

¹ Thomas et al. Bicyclist Crash Types on National, State, and Local Levels: A New Look. Transportation Research Record 673(6), 664-676, (2019).
² Separated Bike Lane Planning and Design Guide. FHWA-HEP-15-025, (2015).
³ Park and Abdel-Aty, "Evaluation of safety effectiveness of multiple cross sectional features on urban arterials". Accident Analysis and Prevention, Vol. 92, pp. 245-255, (2016).
⁴ FHWA Tech Advisory Shoulder and Edge Line Rumble Strips. (2011).
⁵ Sandt et al. Pursuing Equity in Pedestrian and Bicycle Planning. FHWA, (2016).
⁶ Avelar et al. Development of Crash Modification Factors for Bicycle Lane Additions While Reducing Lane and Shoulder Widths. FHWA, (2021).





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Proven Safety Countermeasures



Safety Benefits:
High-visibility crosswalks
can reduce pedestrian injury
crashes up to:

40%¹

Intersection lighting can
reduce pedestrian crashes
up to:

42%²

Advance yield or stop
markings and signs can
reduce pedestrian
crashes up to:

25%³

For more information on this
and other FHWA Proven Safety
Countermeasures, please visit
<https://highways.dot.gov/safety/proven-safety-countermeasures> and <https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/techSheetVizEnhancem12018.pdf>.

FHWA-SA-21-049

Crosswalk Visibility Enhancements

Poor lighting conditions, obstructions such as parked cars, and horizontal or vertical roadway curvature can reduce visibility at crosswalks, contributing to safety issues. For multilane roadway crossings where vehicle volumes are in excess of 10,000 Average Annual Daily Traffic (AADT), a marked crosswalk alone is typically not sufficient. Under such conditions, more substantial crossing improvements could prevent an increase in pedestrian crash potential.

Three main crosswalk visibility enhancements help make crosswalks and the pedestrians, bicyclists, wheelchair and other mobility device users, and transit users using them more visible to drivers. These include high-visibility crosswalks, lighting, and signing and pavement markings. These enhancements can also assist users in deciding where to cross. Agencies can implement these features as standalone or combination enhancements to indicate the preferred location for users to cross.

High-visibility crosswalks

High-visibility crosswalks use patterns (i.e., bar pairs, continental, ladder) that are visible to both the driver and pedestrian from farther away compared to traditional transverse line crosswalks. They should be considered at all midblock pedestrian crossings and uncontrolled intersections. Agencies should use materials such as inlay or thermoplastic tape, instead of paint or brick, for highly reflective crosswalk markings.

Improved Lighting

The goal of crosswalk lighting should be to illuminate with positive contrast to make it easier for a driver to visually identify the pedestrian. This involves carefully placing the luminaires in forward locations to avoid a silhouette effect of the pedestrian.

Enhanced Signing and Pavement Markings

On multilane roadways, agencies can use "YIELD Here to Pedestrians" or "STOP Here to Pedestrians" signs 20 to 50 feet in advance of

a marked crosswalk to indicate where a driver should stop or yield to pedestrians, depending on State law. To supplement the signing, agencies can also install a STOP or YIELD bar (commonly referred to as "shark's teeth") pavement markings.

In-street signing, such as "STOP Here for Pedestrians" or "YIELD Here to Pedestrians" may be appropriate on roads with two- or three-lane roads where speed limits are 30 miles per hour or less.



Source: FHWA

¹ (CMF ID: 4123) Chen, L., C. Chen, and R. Ewing. The Relative Effectiveness of Pedestrian Safety Countermeasures at Urban Intersections - Lessons from a New York City Experience. (2012).

² (CMF ID: 435) Elvik, R. and Vaa, T. Handbook of Road Safety Measures. Oxford, United Kingdom, Elsevier, (2004).

³ (CMF ID: 2017) Zeeger et al. Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. FHWA, (2017).

Transportation agencies should refer to the Manual on Uniform Traffic Control Devices (MUTCD) for information on crosswalk markings (Chapter 3C) and in-street signing (Sections 2B.19 and 2B.20).





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Proven Safety Countermeasures



Safety Benefits:

13%
reduction in pedestrian-
vehicle crashes at
intersections.²

For more information on this
and other FHWA Proven Safety
Countermeasures, please visit
[https://highways.dot.gov/
safety/proven-safety-counter
measures](https://highways.dot.gov/safety/proven-safety-countermeasures) and [https://highways.
dot.gov/sites/fhwa.dot.gov/
files/2022-06/fhwasa19040.pdf](https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/fhwasa19040.pdf).

FHWA-SA-21-032

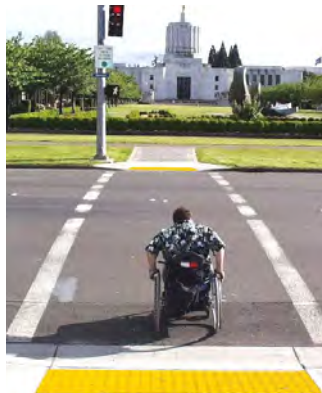
Leading Pedestrian Interval

A leading pedestrian interval (LPI) gives pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before vehicles are given a green indication. Pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn right or left.

LPIs provide the following benefits:

- Increased visibility of crossing pedestrians.
- Reduced conflicts between pedestrians and vehicles.
- Increased likelihood of motorists yielding to pedestrians.
- Enhanced safety for pedestrians who may be slower to start into the intersection.

FHWA's Handbook for *Designing Roadways for the Aging Population* recommends the use of the LPI at intersections with high turning vehicle volumes. Transportation agencies should refer to the *Manual on Uniform Traffic Control Devices* for guidance on LPI timing and ensure that pedestrian signals are accessible for all users.¹ Costs for implementing LPIs are very low when only signal timing alteration is required.



An LPI allows a pedestrian to establish a presence in the crosswalk before vehicles are given a green indication. Source: FHWA



LPIs reduce potential conflicts between pedestrians and turning vehicles. Source: FHWA

¹ Manual on Uniform Traffic Control Devices (MUTCD), Section 4I.06. FHWA, (2023).

² (CMF ID: 9218) Goughnour, E., D. Carter, C. Lyon, B. Persaud, B. Lan, P. Chun, I. Hamilton, and K. Signor. "Safety Evaluation of Protected Left-Turn Phasing and Leading Pedestrian Intervals on Pedestrian Safety." Report No. FHWA-HRT-18-044. Federal Highway Administration, (October 2018)





Safety Benefits:

**Median with
Marked Crosswalk**

46%

reduction in
pedestrian crashes.²

**Pedestrian Refuge
Island**

56%

reduction in
pedestrian crashes.²

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://highways.dot.gov/safety/proven-safety-countermeasures> and https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-08/techSheet_PedRefugeIsland2018.pdf.

FHWA-SA-21-044

Medians and Pedestrian Refuge Islands in Urban and Suburban Areas

A **median** is the area between opposing lanes of traffic, excluding turn lanes. Medians in urban and suburban areas can be defined by pavement markings, raised medians, or islands to separate motorized and non-motorized road users.

A **pedestrian refuge island** (or crossing area) is a median with a refuge area that is intended to help protect pedestrians who are crossing a road.

Pedestrian crashes account for approximately 17 percent of all traffic fatalities annually, and 74 percent of these occur at non-intersection locations.¹ For pedestrians to safely cross a roadway, they must estimate vehicle speeds, determine acceptable gaps in traffic based on their walking speed, and predict vehicle paths. Installing a median or pedestrian refuge island can help improve safety by allowing pedestrians to cross one direction of traffic at a time.

Transportation agencies should consider medians or pedestrian refuge islands in curbed sections of urban and suburban multilane

roadways, particularly in areas with a significant mix of pedestrian and vehicle traffic, traffic volumes over 9,000 vehicles per day, and travel speeds 35 mph or greater. Medians/refuge islands should be at least 4-ft wide, but preferably 8 ft for pedestrian comfort. Some example locations that may benefit from medians or pedestrian refuge islands include:

- Mid-block crossings.
- Approaches to multilane intersections.
- Areas near transit stops or other pedestrian-focused sites.



Example of a road with a median and pedestrian refuge islands. Source: City of Charlotte, NC



Median and pedestrian refuge island near a roundabout. Source: www.pedbikemages.org / Dan Burden

¹ National Center for Statistics and Analysis. (2020, March). Pedestrians: 2018 data (Traffic Safety Facts, Report No. DOT HS 812 850). National Highway Traffic Safety Administration

² (CMF ID: 175) Desktop Reference for Crash Reduction Factors, FHWA-SA-08-011, September 2008, Table 11.



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Proven Safety Countermeasures



Safety Benefits:
RRFBs can reduce
crashes up to:

47%

for pedestrian crashes.⁴

**RRFBs can increase motorist
yielding rates up to:**

98%

(varies by speed limit, number
of lanes, crossing distance,
and time of day).³



RRFBs used at a trail crossing.
Source: LJB

For more information on this
and other FHWA Proven Safety
Countermeasures, please visit
<https://highways.dot.gov/safety/proven-safety-countermeasures> and https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/techSheet_RRFB_2018.pdf.

FHWA-SA-21-053

Rectangular Rapid Flashing Beacons (RRFB)

A marked crosswalk or pedestrian warning sign can improve safety for pedestrians crossing the road, but at times may not be sufficient for drivers to visibly locate crossing locations and yield to pedestrians. To enhance pedestrian conspicuity and increase driver awareness at uncontrolled, marked crosswalks, transportation agencies can install a pedestrian actuated Rectangular Rapid Flashing Beacon (RRFB) to accompany a pedestrian warning sign. RRFBs consist of two, rectangular-shaped yellow indications, each with a light-emitting diode (LED)-array-based light source.¹ RRFBs flash with an alternating high frequency when activated to enhance conspicuity of pedestrians at the crossing to drivers.

Transportation agencies should refer to the *Manual on Uniform Traffic Control Devices (MUTCD)* for information on the application of RRFBs.¹

Applications

The RRFB is applicable to many types of pedestrian crossings but is particularly effective at multilane crossings with speed limits less than 40 miles per hour.² Research suggests RRFBs can result in motorist yielding rates as high as 98 percent at marked crosswalks, but varies depending on the location, posted speed limit, pedestrian crossing distance, one- versus two-way road, and the number of travel lanes.³ RRFBs can also accompany school or trail crossing warning signs.

RRFBs are placed on both sides of a crosswalk below the pedestrian crossing sign and above the diagonal downward arrow plaque pointing at the crossing.¹ The flashing pattern can be activated with pushbuttons or passive (e.g., video or infrared) pedestrian detection, and should be unlit when not activated.

Considerations

Agencies should:²

- Install RRFBs in the median rather than the far-side of the roadway if there is a pedestrian refuge or other type of median.
- Use solar-power panels to eliminate the need for a power source.
- Reserve the use of RRFBs for locations with significant pedestrian safety issues, as over-use of RRFB treatments may diminish their effectiveness.

Agencies shall not:²

- Use RRFBs without the presence of a pedestrian, school or trail crossing warning sign.
- Use RRFBs for crosswalks across approaches controlled by YIELD signs, STOP signs, traffic control signals, or pedestrian hybrid beacons, except for the approach or egress from a roundabout.

¹ Manual on Uniform Traffic Control Devices (MUTCD), Chapter 4L, FHWA, (2023).

² "Rectangular Rapid Flash Beacon" in PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System, FHWA, (2013).

³ Fitzpatrick et al., "Will You Stop for Me? Roadway Design and Traffic Control Device Influences on Drivers Yielding to Pedestrians in a Crosswalk with a Rectangular Rapid-Flashing Beacon," Report No. TTI-CTS-0010, Texas A&M Transportation Institute, (2016).

⁴ (CMF ID: 9024) NCHRP Research Report 841 Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments, (2017).





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Proven Safety Countermeasures



Safety Benefits:

4-Lane to 3-Lane
Road Diet Conversions

19-47%

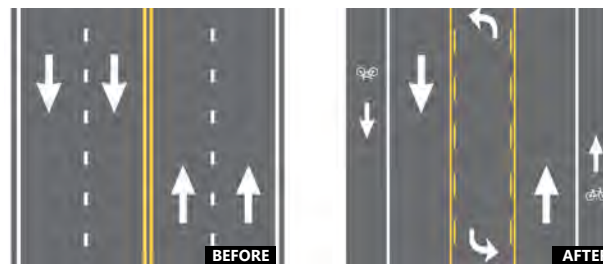
reduction in total crashes.¹

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://safety.fhwa.dot.gov/provencountermeasures/> and https://safety.fhwa.dot.gov/road_diets/.

FHWA-SA-21-046

Road Diets (Roadway Reconfiguration)

A Road Diet, or roadway reconfiguration, can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life. A Road Diet typically involves converting an existing four-lane undivided roadway to a three-lane roadway consisting of two through lanes and a center two-way left-turn lane (TWLTL).



Before and after example of a Road Diet. Source: FHWA

Benefits of Road Diet installations may include:

- Reduction of rear-end and left-turn crashes due to the dedicated left-turn lane.
- Reduced right-angle crashes as side street motorists cross three versus four travel lanes.
- Fewer lanes for pedestrians to cross.
- Opportunity to install pedestrian refuge islands, bicycle lanes, on-street parking, or transit stops.
- Traffic calming and more consistent speeds.
- A more community-focused, Complete Streets environment that better accommodates the needs of all road users.

A Road Diet can be a low-cost safety solution when planned in conjunction with a simple pavement overlay, and the reconfiguration can be accomplished at no additional cost. Typically, a Road Diet is implemented on a roadway with a current and future average daily traffic of 25,000 or less.



Road Diet project in Honolulu, Hawaii.
Source: Leidos

¹ Evaluation of Lane Reduction "Road Diet" Measures on Crashes, FHWA-HRT-10-053, (2010).





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Proven Safety Countermeasures



Safety Benefits:

Sidewalks

65-89%

reduction in crashes involving pedestrians walking along roadways.³

Paved Shoulders

71%

reduction in crashes involving pedestrians walking along roadways.³

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://highways.dot.gov/safety/proven-safety-countermeasures> and http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=1.

FHWA-SA-21-047

Walkways

A walkway is any type of defined space or pathway for use by a person traveling by foot or using a wheelchair. These may be pedestrian walkways, shared use paths, sidewalks, or roadway shoulders.

With more than 6,200 pedestrian fatalities and 75,000 pedestrian injuries occurring in roadway crashes annually,¹ it is important for transportation agencies to improve conditions and safety for pedestrians and to integrate walkways more fully into the transportation system. Research shows people living in low-income communities are less likely to encounter walkways and other pedestrian-friendly features.²

Well-designed pedestrian walkways, shared use paths, and sidewalks improve the safety and mobility of pedestrians. Pedestrians should have direct and connected network of walking routes to desired destinations without gaps or abrupt changes. In some rural or suburban areas, where these types of walkways are not feasible, roadway shoulders provide an area for pedestrians to walk next to the roadway, although these are not preferable.

Transportation agencies should work towards incorporating pedestrian facilities into all roadway projects

unless exceptional circumstances exist. It is important to provide and maintain accessible walkways along both sides of the road in urban areas, particularly near school zones and transit locations, and where there is a large amount of pedestrian activity. Walkable shoulders should also be considered along both sides of rural highways when routinely used by pedestrians.



Example of a sidewalk in a residential area.
Source: pedbikeimages.org / Burden



Paved shoulder used as a walkway. Source: pedbikeimages.org / Burden

- 1 National Center for Statistics and Analysis. (2020, March). Pedestrians: 2018 data (Traffic Safety Facts, Report No. DOT HS 812 850). National Highway Traffic Safety Administration.
- 2 Gibbs, et al. Income Disparities in Street Features that Encourage Walking. Bridging the Gap. (2012, March).
- 3 Gan et al. Update of Florida Crash Reduction Factors and Countermeasures to Improve the Development of District Safety Improvement Projects. Florida DOT, (2005).





U.S. Department of Transportation
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Proven Safety Countermeasures



Safety Benefits:

Chevron Signs

25% reduction in nighttime crashes.¹

16% reduction in non-intersection fatal and injury crashes.²

Oversized Chevron Signs

15% reduction in fatal and injury crashes.³

Sequential Dynamic Chevrons

60% reduction in fatal and injury crashes.⁴

In-Lane Curve Warning Pavement Markings

35 - 38% reduction in all crashes.⁵

New Fluorescent Curve Signs or Upgrade Existing Curve Signs to Fluorescent Sheeting

18% reduction in non-intersection, head-on, run-off-road, and sideswipe in rural areas.¹

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://highways.dot.gov/safety/proven-safety-countermeasures> and <https://highways.dot.gov/safety/rwd/keep-vehicles-road/horizontal-curve-safety>.

FHWA-SA-21-035

Enhanced Delineation for Horizontal Curves

Enhanced delineation at horizontal curves includes a variety of potential strategies that can be implemented in advance of or within curves, in combination, or individually.

Potential Strategies	In Advance of Curve	Within Curve
Pavement markings (standard width or wider)	✓	✓
In-lane curve warning pavement markings	✓	
Retroreflective strips on sign posts	✓	✓
Delineators		✓
Chevron signs		✓
Enhanced conspicuity (larger, fluorescent, and/or retroreflective signs)	✓	✓
Dynamic curve warning signs (including speed radar feedback signs)	✓	
Sequential dynamic chevrons		✓

Enhanced delineation treatments can alert drivers to upcoming curves, the direction and sharpness of the curve, and appropriate operating speed.

Agencies can take the following steps to implement enhanced delineation strategies:

1. Review signing practices and policies to ensure they comply with the Manual on Uniform Traffic Control Devices (MUTCD) principles of traffic control devices. Consistent practice for similar curves sets the appropriate driver expectancy.
2. Use the [systemic approach](#) to identify and treat problem curves. For example, Minnesota uses risk factors that include curve radii between 500 and 1,200 ft, traffic volumes between 500 and 1,000 vehicles per day, intersection in the curve, and presence of a visual trap.¹
3. Match the appropriate strategy to the identified problem(s), considering the full range of enhanced delineation treatments. Once the MUTCD requirements and recommendations have been met, an incremental approach is often beneficial to avoid excessive cost.



Chevron signs with retroreflective strips on sign posts installed along a curve. Source: FHWA

1 (CMF ID: [2439](#) [2431](#) [2432](#)) Albin et al. Low-Cost Treatments for Horizontal Curve Safety 2016. FHWA-SA-15-084, (2016).

2 (CMF ID: [2438](#)) Srinivasan et al. Safety Evaluation of Improved Curve Delineation. FHWA-HRT-09-045, (2009).

3 (CMF ID: [8978](#)) Lyon et al. Safety Evaluation of Two Curve Warning Treatments: In-Lane Curve Warning Pavement Markings and Oversized Chevron Signs. Presented at the 96th TRB Annual Meeting, Paper No. 17-00432, (2017).

4 (CMF ID: [10362](#)) Holmberg, S. Evaluation of Sequential Dynamic Chevrons on Rural Two-lane Highways. FHWA, (2017).

5 (CMF ID: [10312](#) [9167](#)) Donnell et al. Reducing Roadway Departure Crashes at Horizontal Curve Sections on Two-lane Rural Highways. FHWA-SA-19-005, (2019).





Safety Benefits:

Center Line Rumble Strips

44-64%

reduction in head-on fatal and injury crashes on two-lane rural roads.⁴

Shoulder Rumble Strips

13-51%

reduction in single vehicle, run-off-road fatal and injury crashes on two-lane rural roads.⁴

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://highways.dot.gov/safety/rwd/keep-vehicles-road/rumble-strips>.

FHWA-SA-21-036

Longitudinal Rumble Strips and Stripes

Longitudinal rumble strips are milled or raised elements on the pavement intended to alert drivers through vibration and sound that their vehicle has left the travel lane. They can be installed on the shoulder, edge line, or at or near the center line of an undivided roadway.

Rumble stripes are edge line or center line rumble strips where the pavement marking is placed over the rumble strip. This can increase the visibility and durability of the pavement marking during wet, nighttime conditions, and can improve the durability of the marking on roads with snowplowing operations.

With roadway departure crashes accounting for more than half of the fatal roadway crashes annually in the United States, rumble strips and stripes are designed to address these crashes by alerting distracted, drowsy, or otherwise inattentive drivers who drift from their lane. They are most effective when deployed systemically.

Transportation agencies should consider milled center line rumble strips (including in passing zone areas) and milled edge line or shoulder rumble strips with bicycle gaps for systemic safety projects, location-specific corridor safety improvements, as well as reconstruction or resurfacing projects.

Considerations

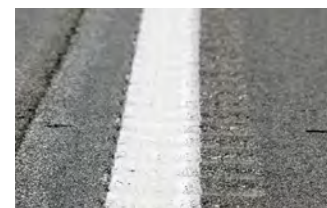
- Rumble strips are relatively low-cost, and economic analyses have indicated benefit/cost ratios that exceed 100.¹
- Where rumble strips cannot be placed due to noise concerns, agencies may consider a design using an oscillating sine wave pattern (also known as "mumble strips") that reduces noise outside of the vehicle. However, the safety benefits of this design need more study.²

Maintenance concerns:

- Where rumble strips are placed along a pavement joint, there are typically no issues with joint stability if the pavement structure and joint was already in good condition.
- Studies have shown no evidence of issues related to snow, ice, or rain build-up in the rumble strip.³



Shoulder rumble strips and center line rumble stripes are installed on this roadway. Source: FHWA



Example of an edge line rumble stripe. Source: Missouri DOT

¹ Himes, S., and McGee, H. Decision Support Guide for the Installation of Shoulder and Center Line Rumble Strips on Non-Freeways. Federal Highway Administration Report No. FHWA-SA-16-115. (August 2016).

² Bedsole et al. *Did You Hear That?* Public Roads Magazine, Volume 80, No. 4. FHWA Publication No. FHWA-HRT-17-002. (2017).

³ NCHRP Synthesis 339: Centerline Rumble Strips – A Synthesis of Highway Practices. (2005)

⁴ (CMF ID: 3358, 3356, 3425, 3648) NCHRP Report 641: Guidance for the Design and Application of Shoulder and Centerline Rumble Strips. (2009).



Safety Benefits:

15%
reduction in total crashes.¹

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://highways.dot.gov/safety/proven-safety-countermeasures> and <https://rosap.ntl.bts.gov/view/dot/42807>.

FHWA-SA-21-039

Backplates with Retroreflective Borders

Backplates added to a traffic signal head improve the visibility of the illuminated face of the signal by introducing a controlled-contrast background. The improved visibility of a signal head with a backplate is made even more conspicuous by framing it with a 1- to 3-inch yellow retroreflective border. Signal heads that have backplates equipped with retroreflective borders are more visible and conspicuous in both daytime and nighttime conditions.

This treatment is recognized as a human factors enhancement of traffic signal visibility, conspicuity, and orientation for both older and color vision deficient drivers. This countermeasure is also advantageous during periods of power outages when the signals would otherwise be dark, providing a visible cue for motorists to stop at the intersection ahead.



Retroreflective borders are highly visible during the night. Source: South Carolina DOT

Considerations

Transportation agencies should consider backplates with retroreflective borders as part of their efforts to systematically improve safety performance at signalized intersections. Adding a retroreflective border to an existing signal backplate is a very low-cost safety treatment. This can be done by either adding retroreflective tape to an existing backplate or purchasing a new backplate with a retroreflective border already incorporated. The most efficient means of implementing this proven

safety countermeasure is to adopt it as a standard treatment for signalized intersections across a jurisdiction or State.

Implementation challenges include minimizing installation time, accessing existing signal heads, and structural limitations due to added wind load in instances where an entire backplate is added. Agencies should consider the design of the existing signal support structure to determine if the design is sufficient to support the added wind load.



Signal backplate framed with a retroreflective border. Source: FHWA

¹ (CMF ID: 1410) Sayed, T., Leur, P., and Pump, J., "Safety Impact of Increased Traffic Signal Backboards Conspicuity," 2005 TRB 84th Annual Meeting: Compendium of Papers CD-ROM, Vol. TRB#05-16, Washington, D.C., (2005).



U.S. Department of Transportation
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OFFICE OF SAFETY

Proven Safety Countermeasures



Safety Benefits:

Reducing driveway density

5-23%

reduction in total crashes
along 2-lane rural roads.³

25-31%

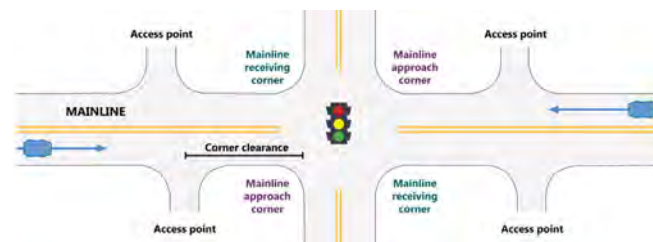
reduction in fatal and
injury crashes along urban/
suburban arterials.⁴

For more information on this
and other FHWA Proven Safety
Countermeasures, please visit
<https://highways.dot.gov/safety/proven-safety-countermeasures> and <https://highways.dot.gov/safety/intersection-safety/cam>.

FHWA-SA-21-040

Corridor Access Management

Access management refers to the design, application, and control of entry and exit points along a roadway. This includes intersections with other roads and driveways that serve adjacent properties. Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestion.



Schematic of an intersection and adjacent access points. Source: FHWA

Every intersection, from a signalized intersection to an unpaved driveway, has the potential for conflicts between vehicles, pedestrians, and bicyclists. The number and types of conflict points—locations where the travel paths of two users intersect—influence the safety performance of the intersection or driveway. FHWA developed corridor-level crash prediction models to estimate and analyze the safety effects of selected access management techniques for different area types, land uses, roadway variables, and traffic volumes.¹

The following access management strategies can be used individually or in combination with one another:

- Reduce density through driveway closure, consolidation, or relocation.
- Manage spacing of intersection and access points.
- Limit allowable movements at driveways (such as right-in/right-out only).

- Place driveways on an intersection approach corner rather than a receiving corner, which is expected to have fewer total crashes.²
- Implement raised medians that preclude across-roadway movements.
- Utilize designs such as roundabouts or reduced left-turn conflicts (such as restricted crossing U-turn, median U-turns, etc.).
- Provide turn lanes (i.e., left-only, right-only, or interior two-way left).
- Use lower speed one-way or two-way off-arterial circulation roads.

Successful corridor access management involves balancing overall safety and mobility for all users along with the needs of adjacent land uses.



Tandem roundabouts with a continuous raised median eliminates left-turn and across-roadway conflicts. Source: FHWA

¹ Gross et al. Safety Evaluation of Access Management Policies and Techniques. FHWA-HRT-14-057, (2018).

² Le et al. Safety Evaluation of Corner Clearance at Signalized Intersections. FHWA-HRT-17-084, (2018).

³ Harwood et al. Prediction of the Expected Safety Performance of Rural Two-Lane Highways. FHWA-RD-99-207, (2000).

⁴ (CMF ID: 179,178) Elvik, R. and Vaa, T., Handbook of Road Safety Measures. Oxford, United Kingdom, Elsevier, (2004).

ZERO IS OUR GOAL
A SAFE SYSTEM IS HOW WE GET THERE



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Proven Safety Countermeasures



Safety Benefits:

Left-Turn Lanes

28-48%

reduction in total crashes.¹

Positive Offset Left-Turn Lanes

36%

reduction in fatal and injury crashes.²

Right-Turn Lanes

14-26%

reduction in total crashes.¹



Left- and right-turn lanes on a two-lane road. Source: City of Greeley, CO

For more information on this and other FHWA Proven Safety Countermeasures, please visit <https://safety.fhwa.dot.gov/provencountermeasures/> and <https://www.fhwa.dot.gov/publications/research/safety/02103/02103techbrief.pdf>.

FHWA-SA-21-041

Dedicated Left- and Right-Turn Lanes at Intersections

Auxiliary turn lanes—either for left turns or right turns—provide physical separation between turning traffic that is slowing or stopped and adjacent through traffic at approaches to intersections. Turn lanes can be designed to provide for deceleration prior to a turn, as well as for storage of vehicles that are stopped and waiting for the opportunity to complete a turn.

While turn lanes provide measurable safety and operational benefits at many types of intersections, they are particularly helpful at two-way stop-controlled intersections. Crashes occurring at these intersections are often related to turning maneuvers. Since the major route traffic is free flowing and typically travels at higher speeds, crashes that do occur are often severe. The main crash types include collisions of vehicles turning left across opposing through traffic and rear-end collisions of vehicles turning left or right with other vehicles following closely behind. Turn lanes reduce the potential for these types of crashes.

Installing left-turn lanes and/or right-turn lanes should be considered for the major road approaches for improving safety at both three- and four-leg intersections with stop control on the minor road, where significant turning volumes exist, or where there is a history of turn-related crashes. Pedestrian and bicyclist safety and convenience should also be considered when adding turn lanes at an intersection. Specifically, offset left- and right-turn

lanes will lengthen crossing distances for pedestrians.

Offset Turn Lanes

Providing offset of left- and right-turn lanes to increase visibility can provide added safety benefits, and is preferable in many situations, particularly at locations with higher speeds, or where free-flow or permissive movements are possible.

At turn lanes with zero or negative offset, turning vehicles can block sightlines. For left-turn lanes, this usually involves opposing left-turning vehicles occupying the turn lanes at the same time. For right-turn lanes, this typically involves right-turning vehicles from the major road and vehicles entering the intersection from the minor road. In both scenarios, adding positive offset to turn lanes enhances the sight distance to approaching vehicles that conflict with the turning movement. Offset turn lanes should be considered when there is a high frequency of these types of conflicts in order to reduce the likelihood of a severe crash.

Zero Offset



Positive Offset



Illustration comparing zero offset to positive offset of left- and right-turn lanes. Source: FHWA

¹ Harwood et al. Safety Effectiveness of Intersection Left- and Right-Turn Lanes. FHWA-HRD-02-089, (2002).

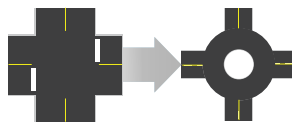
² Persaud et al. Safety Evaluation of Offset Improvements for Left-Turn Lanes. FHWA-HRT-09-035, (2009).





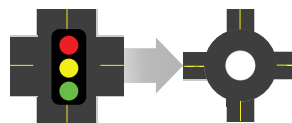
Safety Benefits:

Two-Way Stop-Controlled Intersection to a Roundabout



82%
reduction in fatal
and injury crashes.¹

Signalized Intersection to a Roundabout



78%
reduction in fatal
and injury crashes.¹

For more information on this
and other FHWA Proven
Safety Countermeasures,
please visit [https://highways.
dot.gov/safety/proven-
safety-countermeasures](https://highways.dot.gov/safety/proven-safety-countermeasures) and
[https://highways.dot.gov/
safety/intersection-safety/
intersection-types/roundabouts](https://highways.dot.gov/safety/intersection-safety/intersection-types/roundabouts).

FHWA-SA-21-042

Roundabouts

The modern roundabout is an intersection with a circular configuration that safely and efficiently moves traffic. Roundabouts feature channelized, curved approaches that reduce vehicle speed, entry yield control that gives right-of-way to circulating traffic, and counterclockwise flow around a central island that minimizes conflict points. The net result of lower speeds and reduced conflicts at roundabouts is an environment where crashes that cause injury or fatality are substantially reduced.

Roundabouts are not only a safer type of intersection; they are also efficient in terms of keeping people moving. Even while calming traffic, they can reduce delay and queuing when compared to other intersection alternatives. Furthermore, the lower vehicular speeds and reduced conflict environment can create a more suitable environment for walking and bicycling.

Roundabouts can be implemented in both urban and rural areas under a wide range of traffic conditions. They can replace signals, two-way stop controls, and all-way stop controls. Roundabouts are an effective option for managing speed and transitioning traffic from high-speed to low-speed environments, such as freeway interchange ramp terminals, and rural intersections along high-speed roads.



Illustration of a multilane roundabout.
Source: FHWA



Example of a single-lane roundabout. Source: FHWA

¹ (CMF ID: 211-226) AASHTO. The Highway Safety Manual, American Association of State Highway Transportation Professionals, Washington, D.C., (2010).



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Proven Safety Countermeasures



Safety Benefits:
Lighting can reduce
crashes up to:

42%

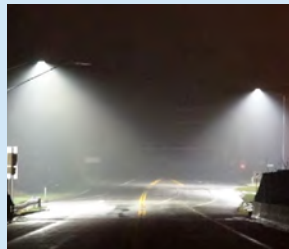
for nighttime injury pedestrian
crashes at intersections.¹

33-38%

for nighttime crashes at rural
and urban intersections.^{2,1}

28%

for nighttime injury crashes
on rural and urban
highways.¹



Source: FHWA

For more information on this
and other FHWA Proven Safety
Countermeasures, please visit
<https://highways.dot.gov/safety/proven-safety-countermeasures> and <https://highways.dot.gov/safety/other/visibility/roadway-lighting-resources>.

FHWA-SA-21-050

Lighting

The number of fatal crashes occurring in daylight is about the same as those that occur in darkness. However, the nighttime fatality rate is three times the daytime rate because only 25 percent of vehicle miles traveled (VMT) occur at night. At nighttime, vehicles traveling at higher speeds may not have the ability to stop once a hazard or change in the road ahead becomes visible by the headlights. Therefore, lighting can be applied continuously along segments and at spot locations such as intersections and pedestrian crossings in order to reduce the chances of a crash.

Adequate lighting (i.e., at or above minimum acceptable standards) is based on research recommending horizontal and vertical illuminance levels to provide safety benefits to all users of the roadway environment. Adequate lighting can also provide benefits in terms of personal security for pedestrians, wheelchair and other mobility device users, bicyclists, and transit users as they travel along and across roadways.

Applications

Roadway Segments

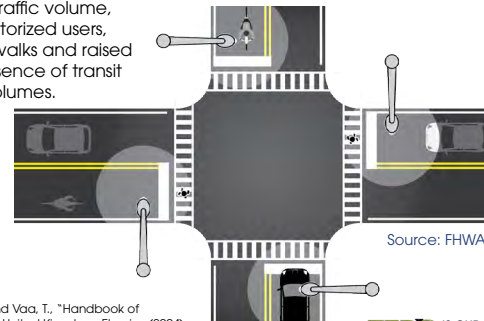
Research indicates that continuous lighting on both rural and urban highways (including freeways) has an established safety benefit for motorized vehicles.¹ Agencies can provide adequate visibility of the roadway and its users through the uniform application of lighting that provides full coverage along the roadway and the strategic placement of lighting where it is needed the most.

Intersections and Pedestrian Crossings

Increased visibility at intersections at nighttime is important since various modes of travel cross paths at these locations. Agencies should consider providing lighting to intersections based on factors such as a history of crashes at nighttime, traffic volume, the volume of non-motorized users, the presence of crosswalks and raised medians, and the presence of transit stops and boarding volumes.

Considerations

Most new lighting installations are made with breakaway features, shielded, or placed far enough from the roadway to reduce the probability and/or severity of fixed-object crashes. Modern lighting technology gives precise control with minimal excessive light affecting the nighttime sky or spilling over to adjacent properties. Agencies can equitably engage with underserved communities to determine where and how new and improved lighting can most benefit the community by considering their priorities, including eliminating crash disparities, connecting to essential neighborhood services, improving active transportation routes, and promoting personal safety.



Source: FHWA

¹ (CMF ID: 436,433,192) Elvik, R. and Vaa, T., "Handbook of Road Safety Measures," Oxford, United Kingdom, Elsevier, (2004).

² (CMF ID: 2376) Ye et al. A Simultaneous Equations Model of Crash Frequency By Collision Type for Rural Intersections, 87th Annual Meeting of the Transportation Research Board, (2008).







SAFE STREETS

MONMOUTH

