



Street Coaching for Pedestrians and Cyclists:
Putting Laws into Practice on University Campus (Baylor University)

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This study analyzes pedestrian, bicyclist, and e-scooter-involved crashes within and around Baylor University (BU). The dataset, covering crashes from 2019 to 2023, was obtained from the Texas Crash Records Information System (CRIS).¹ Given that student housing extends beyond the defined campus boundaries (outlined in green in Figure 1), the analysis includes additional crashes occurring within approximately one mile of campus (outlined in yellow in Figure 1). This distance represents a reasonable biking and walking range for students.

Between 2019 and 2023, a total of 103 crashes involving pedestrians, bicyclists, or e-scooter riders were reported in the BU area. Notably, the Texas Department of Transportation (TxDOT) introduced a specific variable in CRIS to identify e-scooter-involved crashes starting in 2021 (note that this analysis includes only e-scooter-involved crashes between 2021 and 2023). The dataset includes 67 pedestrian-involved crashes, 34 bicyclist-involved crashes, and two e-scooter-involved crashes, affecting 69 pedestrians, 34 bicyclists, and two e-scooter riders.

This crash analysis examines various contributing factors and potential causes, categorizing incidents based on severity. The severity classification includes all reported crashes as well as those resulting in fatality (K), suspected serious injury (A), or non-incapacitating injury (B), collectively referred to as KAB severity.



Figure 1. Campus and Vicinity Map of Baylor University (BU)

¹ Information contained in this report represents reportable data collected from Texas Peace Officer's Crash Reports (CR-3) extracted by TTI from CRIS on June 10, 2024 (Crash data of 2023), July 21, 2023 (Crash data of 2022), and September 20, 2022 (Crash data of 2019-2021).

Crash Characteristics

Crash Severity

The severity of pedestrian-, bicyclist-, and e-scooter-involved crashes was analyzed across various categories. The majority of crashes were classified as non-incapacitating injury crashes (n=50; 49%) and suspected serious injury crashes (n=21; 20%). Additionally, nine fatal crashes (9%), 19 possible injury crashes (18%), and four crashes with no reported injuries (4%) were recorded (see Figure 2).

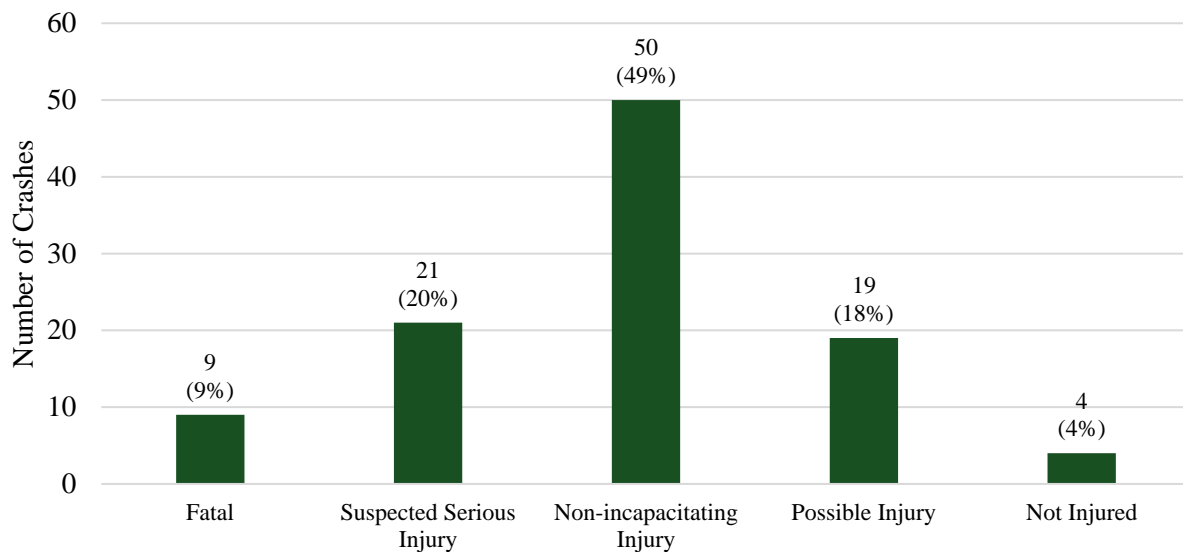


Figure 2. Crash Severity for Pedestrian-/Bicyclist-/E-scooter-involved Crashes within/around the Vicinity of BU, 2019-2023

Individual Injury severity was further analyzed by crash type (see Figure 3). The findings indicate that pedestrians were more likely to sustain fatal (n=7; 10%) and suspected serious injuries (n=17; 25%) compared to bicyclists (fatal: n=2; 6%; suspected serious injury: n=4; 12%). However, bicyclists were more likely to sustain possible injuries (n=10; 29%) and no injuries (n=2; 6%) compared to pedestrians (possible injury: n=9; 13%; no injury: n=2; 3%).

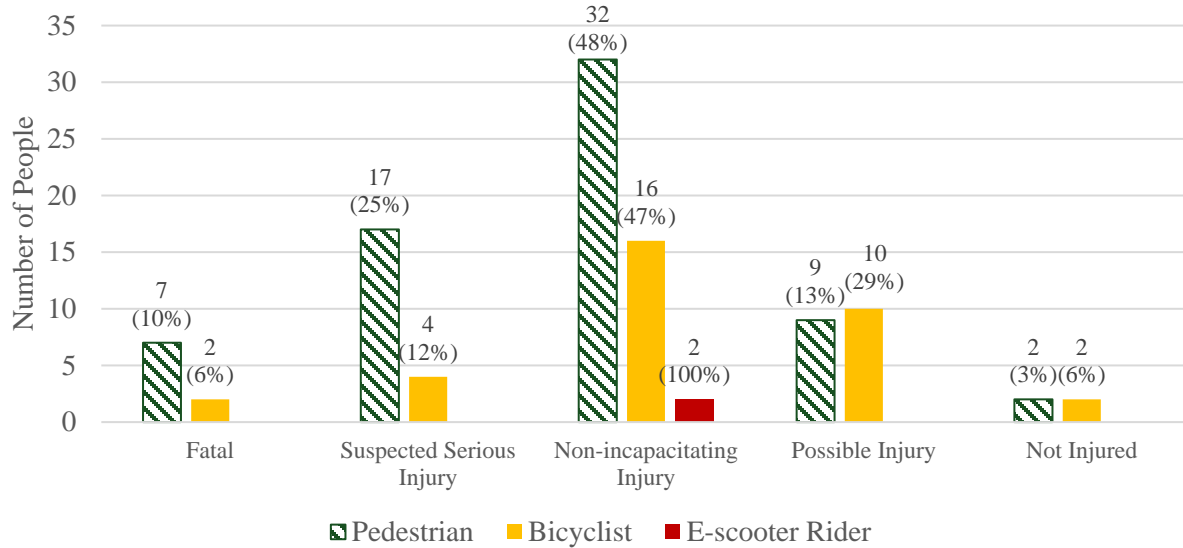


Figure 3. Severity Comparison Between Pedestrians/Bicyclists/E-scooter Riders Involved in the Crashes within/around the Vicinity of BU, 2019-2023

Collision Type

The most common collision type involved a motor vehicle traveling straight. This accounted for 79% (n=53) of all pedestrian-involved crashes and 79% (n=27) of all bicyclist-involved crashes (see Table 1). When considering only KAB crashes (fatal, serious injury, and non-incapacitating injury), 79% (n=44) of pedestrian-involved crashes and 86% (n=19) of bicyclist-involved crashes involved a motor vehicle going straight. For e-scooter-involved crashes, all cases of non-incapacitating injury were associated with the “angle—both going straight” collision type (see Table 1). The second most frequent collision type involved a motor vehicle turning left. Notably, 10 out of 11 pedestrian-involved crashes of this type resulted in KAB severity (see Table 1).

Table 1. Crashes by Collision Type within/around the Vicinity of BU, 2019-2023

Collision Type	Pedestrian-involved Crash		Bicyclist-involved Crash		Ped-/Biker-/E-scooter-involved Crash	
	All Severity	KAB	All Severity	KAB	All Severity	KAB
One Motor Vehicle - Going Straight	53 (79%)	44 (79%)	27 (79%)	19 (86%)	80 (78%)	63 (79%)
One Motor Vehicle - Turning Left	11 (16%)	10 (18%)	3 (9%)	1 (5%)	14 (14%)	11 (14%)
One Motor Vehicle - Turning Right	2 (3%)	1 (2%)	4 (12%)	2 (9%)	6 (6%)	3 (4%)
Angle - Both Going Straight	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (2%)	2 (3%)
One Motor Vehicle - Backing	1 (1%)	1 (2%)	0 (0%)	0 (0%)	1 (1%)	1 (1%)

Total	67 (100%)	56 (100%)	34 (100%)	22 (100%)	103 (100%)	80 (100%)
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Crashes by Semester

Figures 4 and 5 illustrate pedestrian- and bicyclist-involved crashes by semester. Pedestrian-involved crashes of all severity levels were more frequent in the spring semester (January–April) compared to other semesters (see Figure 4). However, KAB severity crashes were evenly distributed throughout the year.

Bicyclist-involved crashes were less common in the spring semester, with higher occurrences in the summer and fall semesters (see Figure 5). Notably, two e-scooter-involved crashes occurred in each the spring and fall semesters (not presented in figures).

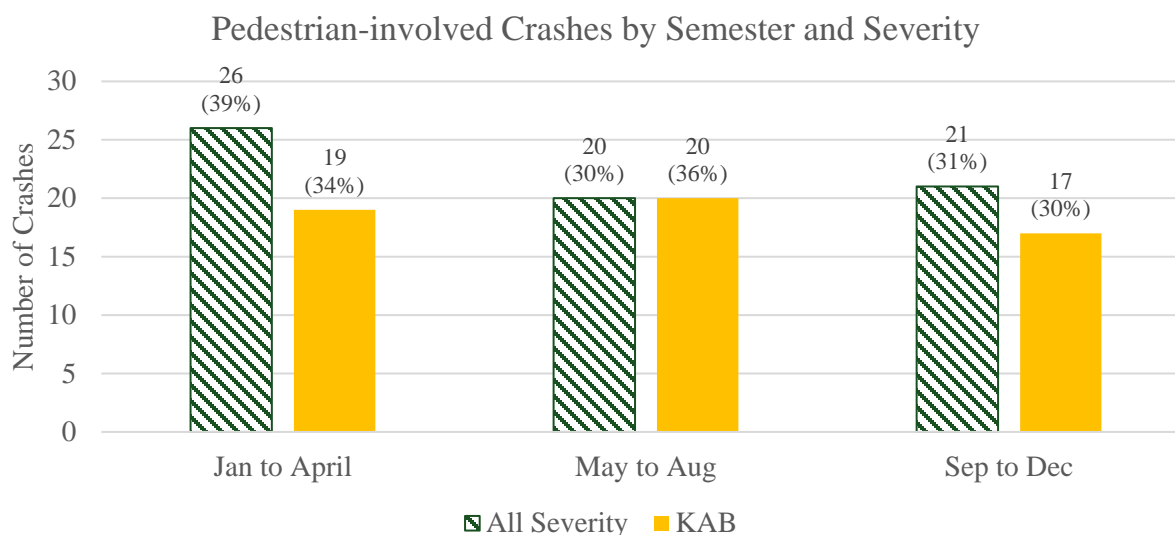


Figure 4. Pedestrian-involved Crashes by Semester within/around the Vicinity of BU, 2019-2023

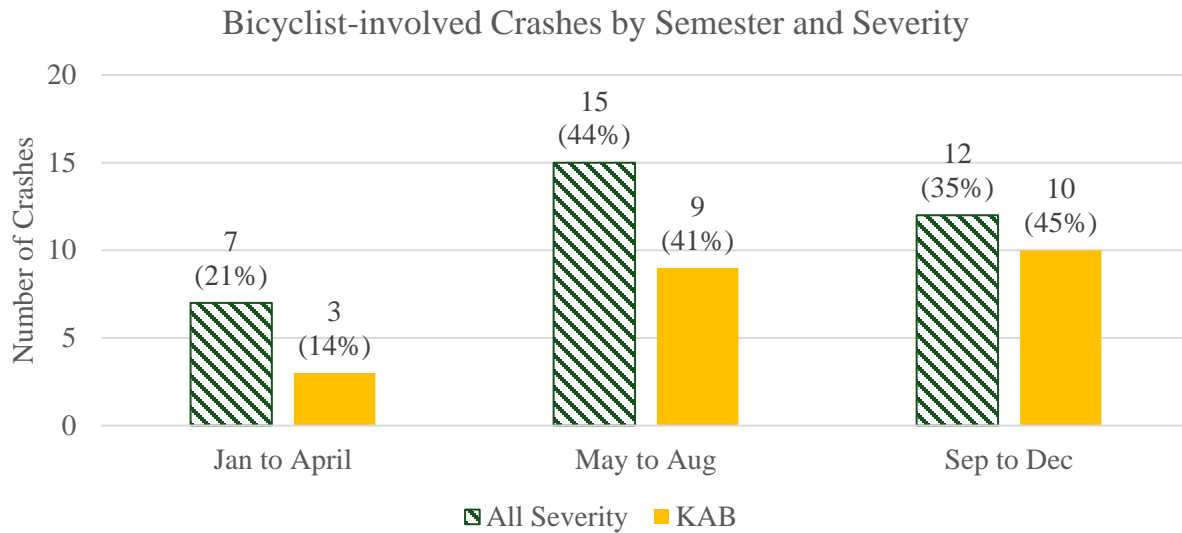


Figure 5. Bicyclist-involved Crashes by Semester within/around the Vicinity of BU, 2019-2023

Crashes by Day of Week

Pedestrian-involved crashes were more frequent from Thursday to Sunday, with Thursday having the highest percentage of crashes (see Figure 6). For bicyclist-involved crashes, Wednesday and Saturday saw the highest number of crashes, with Saturday recording the most crashes of any severity (see Figure 7). Of the two e-scooter-involved crashes, one occurred on Wednesday and the other on Sunday (not presented in figures).

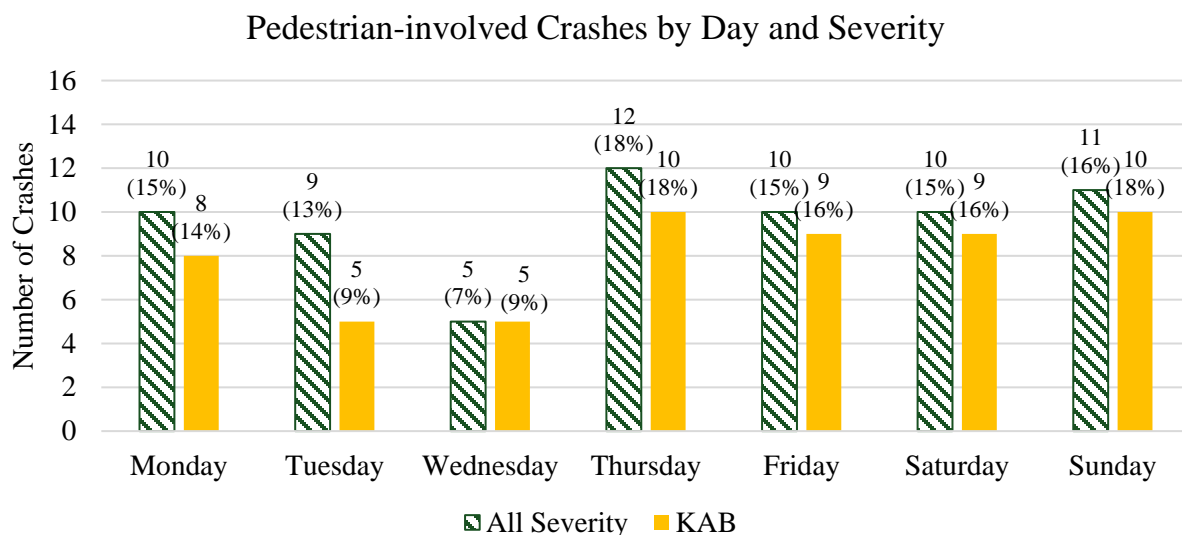


Figure 6. Pedestrian-involved Crashes by Day of Week within/around the Vicinity of BU, 2019-2023

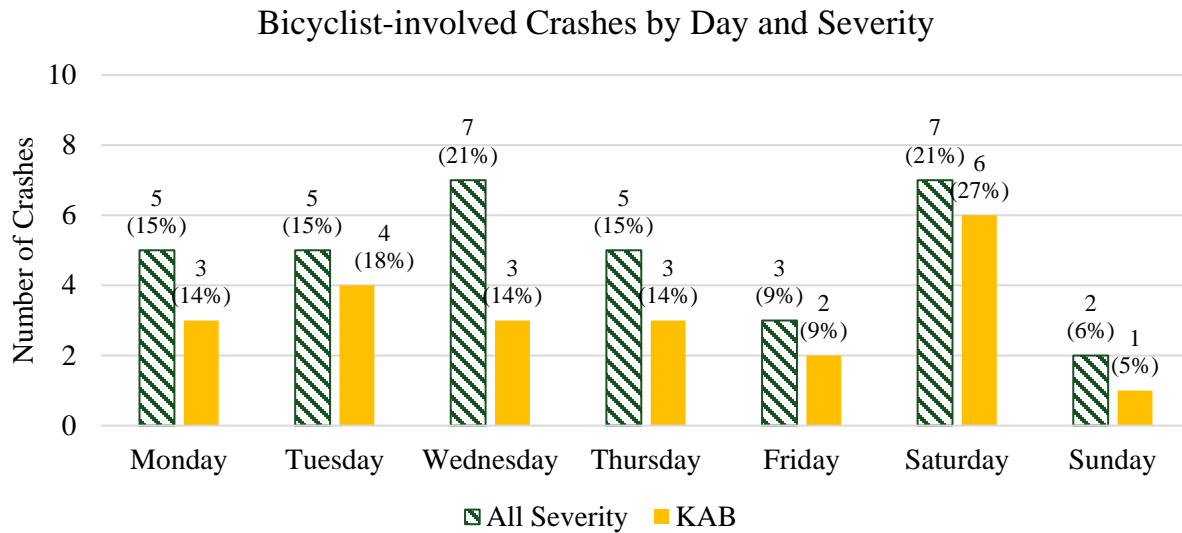


Figure 7. Bicyclist-involved Crashes by Day of Week within/around the Vicinity of BU, 2019-2023

Crashes by Time of the day

Pedestrian, bicyclist, or e-scooter-involved crashes were analyzed based on time of occurrence. For all pedestrian-involved crashes, the highest percentage occurred during afternoon hours (12:00–16:59; n=18; 27%), followed by evening hours (20:00–23:59; n=16; 24%). KAB-severity pedestrian crashes were also most common in these time periods (see Figure 8).

Bicyclist-involved crashes of all severity levels were most frequent during the afternoon (12:00–16:59; n=11; 32%), with KAB crashes peaking during the same period (n=9; 41%) (see Figure 9). The two e-scooter-involved crashes occurred during each 07:00–11:59 and 12:00–16:59.

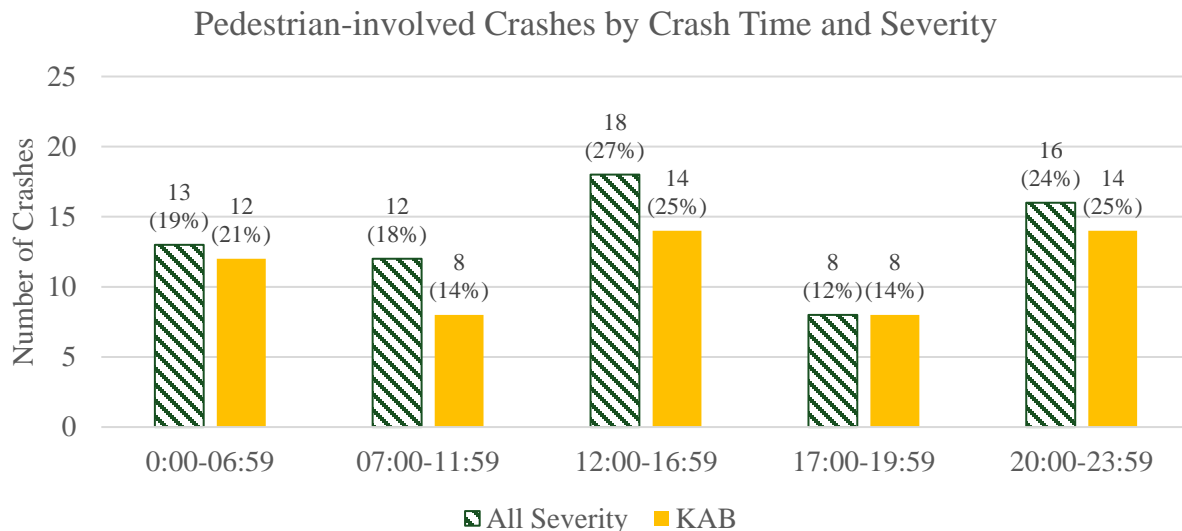


Figure 8. Pedestrian-involved Crashes by Time of the Day within/around the Vicinity of BU, 2019-2023

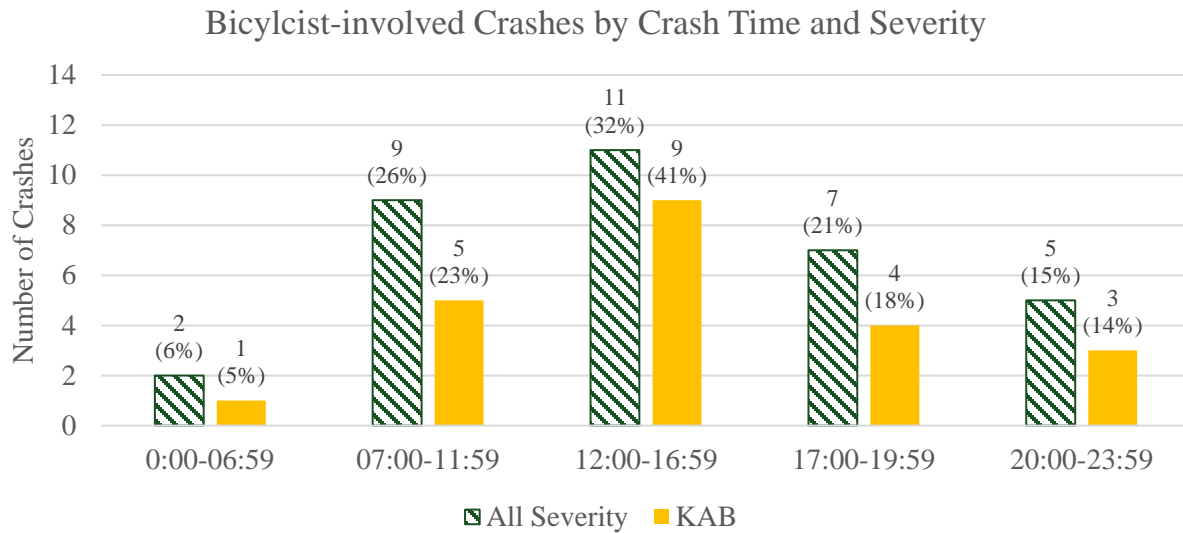


Figure 9. Bicyclist-involved Crashes by Time of the Day within/around the Vicinity of BU, 2019-2023

Further analysis of pedestrian- and bicyclist-involved crashes between noon and 16:59 showed that more pedestrian crashes occurred between 13:00 and 13:59 than any other hour (see Figure 10). Bicyclist crashes were evenly distributed throughout this period but slightly increased between 13:00–13:59 and 16:00–16:59 (see Figure 11). One e-scooter crash occurred between 14:00 and 14:59.

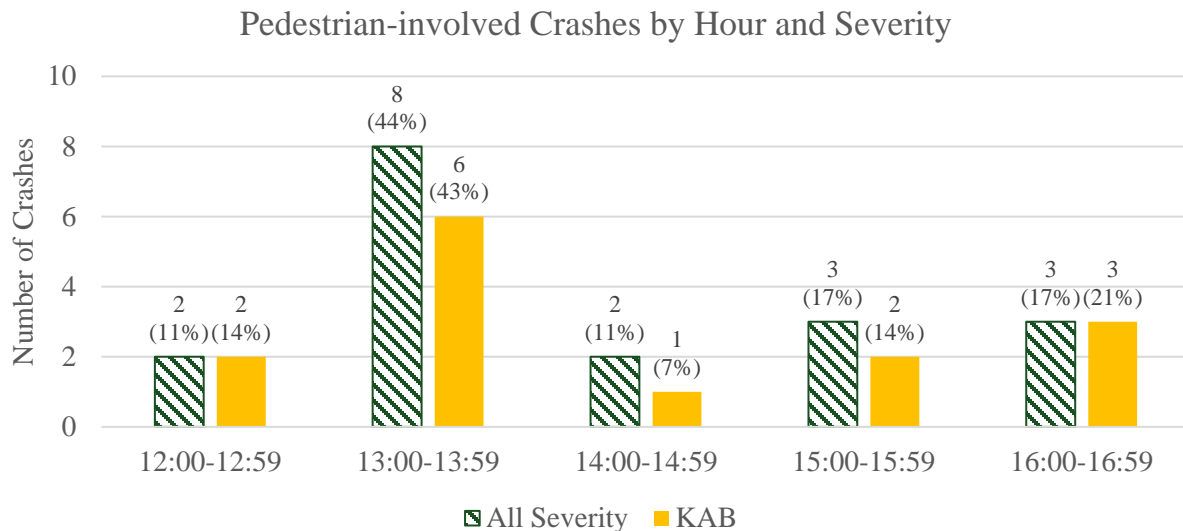


Figure 10. Pedestrian-involved Crashes by Hours between noon and 5 pm within/around the Vicinity of BU, 2019-2023

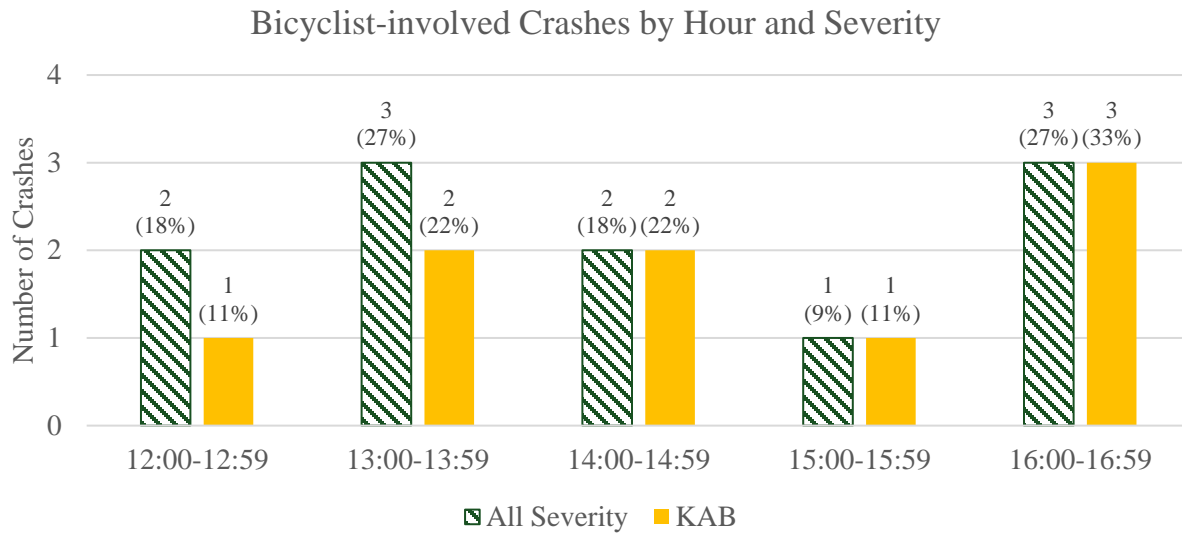


Figure 11. Bicyclist-involved Crashes by Hours between noon and 5 pm within/around the Vicinity of BU, 2019-2023

To investigate whether crashes were more likely to occur near class transition periods, crashes between 08:00 and 19:59 were analyzed at the quarter-hour level. Both pedestrian- and bicyclist-involved crashes were more likely to occur during the last 15 minutes of the hour (hh:45:00 to hh:59:59) (see Figures 12 and 13). This suggests a potential link between crashes and students rushing to classes. The two e-scooter-involved crashes occurred between hh:30:00 and hh:44:59.

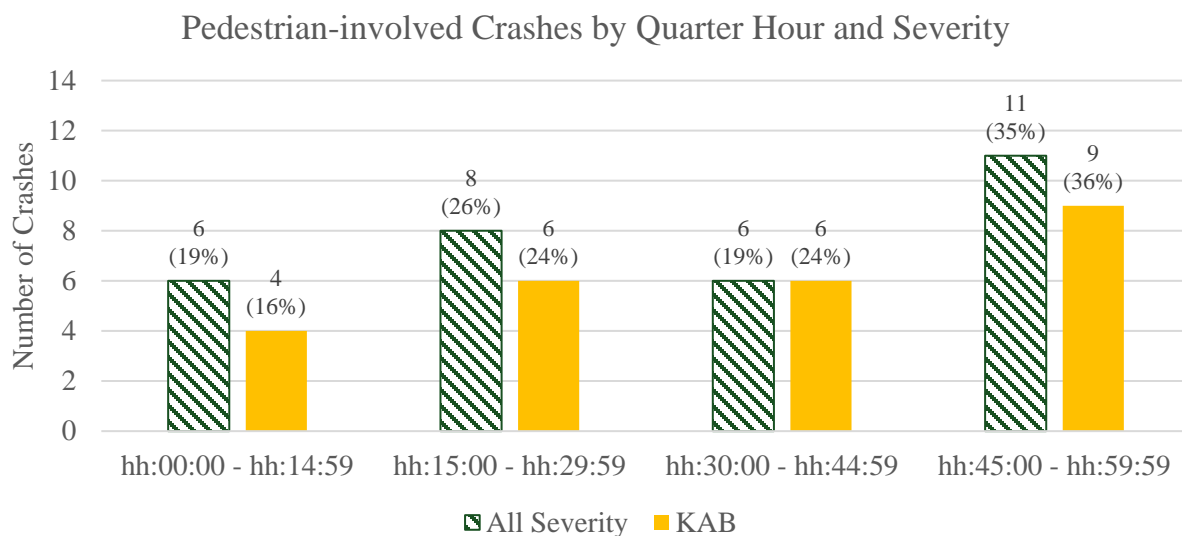


Figure 12. Distribution of Pedestrian-involved Crashes by Quarter Hour from 8:00 to 17:59

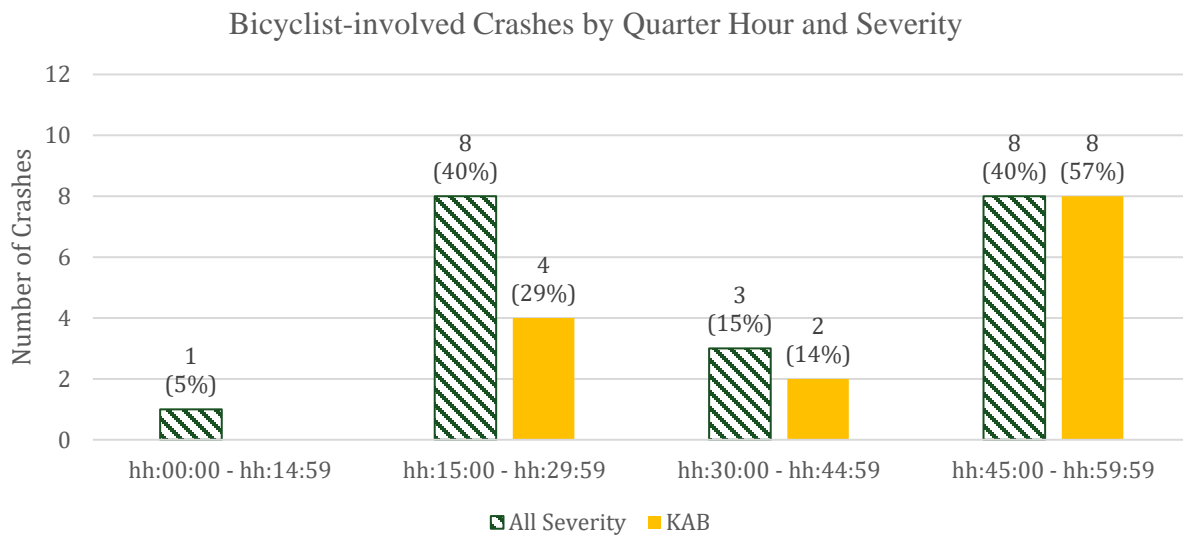


Figure 13. Distribution of Bicyclist-involved in the Crashes by Quarter Hour from 8:00 to 17:59

Demographic Factors

Gender

An assessment of crash involvement by gender and severity level revealed that among 69 pedestrians, 34 bicyclists, and two e-scooter riders (all severity levels), 65% (n=68) were male and 35% (n=37) were female. For KAB severity crashes, 68% (n=54) were male, while 32% (n=26) were female. These values are not shown in Figures 14 and 15.

A comparison of pedestrian crash data by gender (see Figure 14) indicates that 38 (55%) pedestrians involved in crashes were male, while 31 (45%) were female. For pedestrians sustaining KAB injuries, 33 (59%) were male and 23 (41%) were female. For bicyclists (see Figure 15), 29 (85%) were male and five (15%) were female. Among those with KAB injuries, 91% were male. OF the two e-scooter riders, one was male, and one was female (not presented in figures).

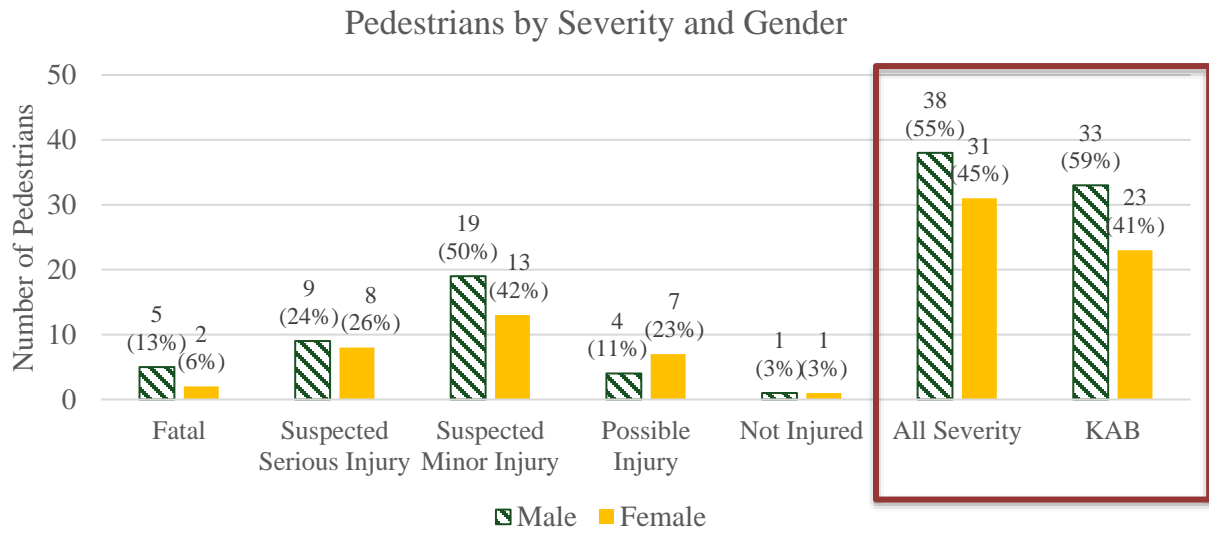


Figure 14. Severity Comparison Between Genders of Pedestrians within/around the Vicinity of BU, 2019-2023

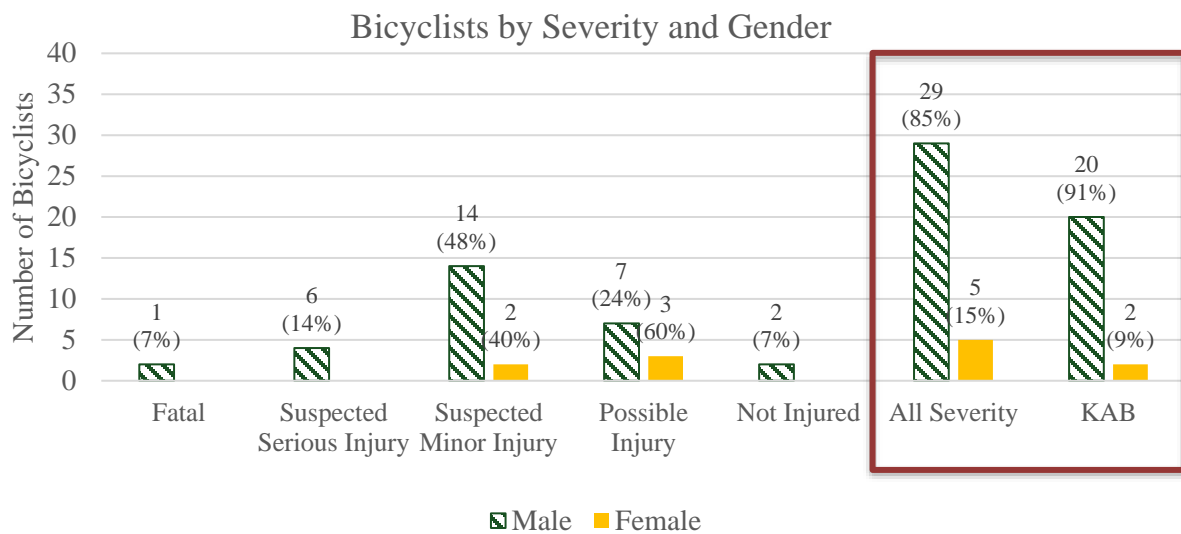


Figure 15. Severity Comparison Between Genders of Bicyclists within/around the Vicinity of BU, 2019-2023

Age Group

The distribution of pedestrians involved in crashes across age groups (see Figure 16) shows that individuals aged 18 to 25 years had the highest involvement, followed by those aged 26 to 55

years. Twenty-two (34%) pedestrians aged 18 to 25 years were involved in crashes, with 17 (32%) sustaining KAB injuries. The number of pedestrian crashes decreased among individuals aged 56 and older.

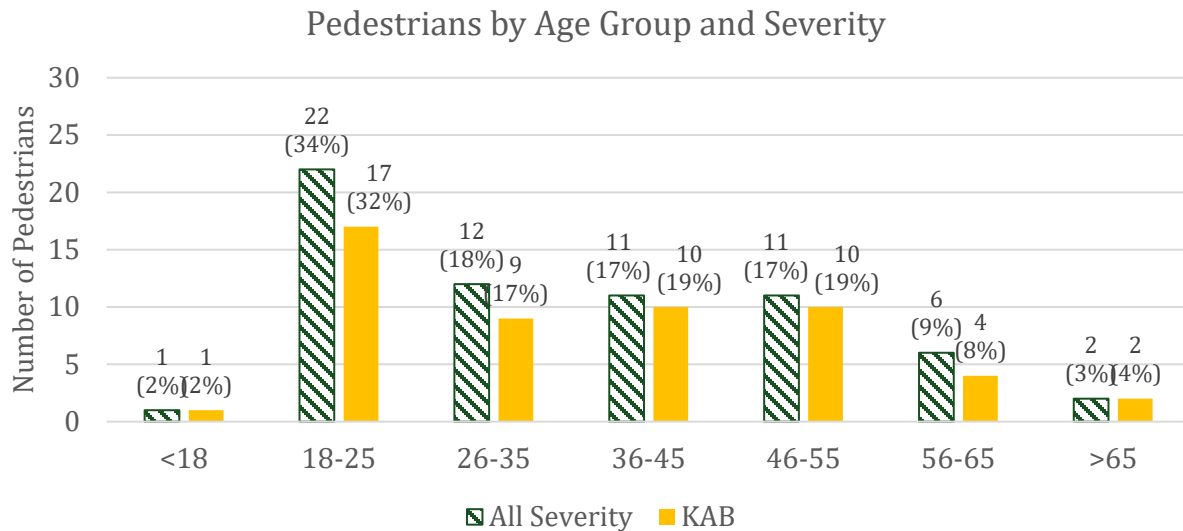


Figure 16. Age Category for Pedestrians Involved in the Crashes within/around the Vicinity of BU, 2019-2023

For bicyclists (see Figure 17), those aged 18 to 35 years were most frequently involved in crashes, accounting for 52% (n=18) of all bicyclist crashes. Among bicyclists with KAB injuries, seven (32%) were aged 18 to 25 years. For e-scooter riders, one was under 18 years old, and the other was in the 18 to 25 age group (not presented in figures).

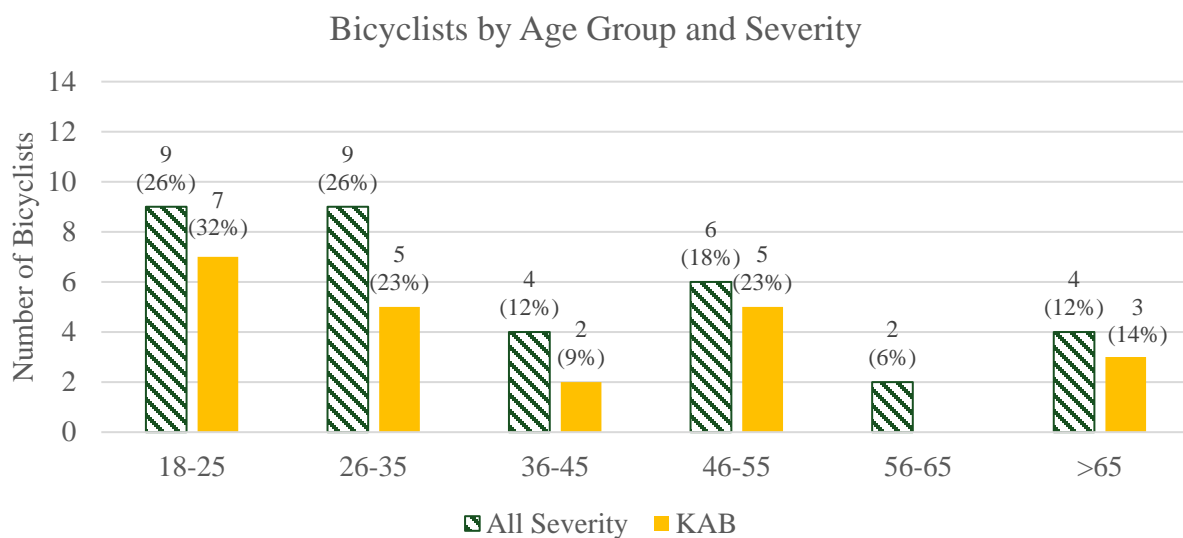


Figure 17. Age Category for Bicyclists Involved in the Crashes within/around the Vicinity of BU, 2019-2023

Ethnicity

Pedestrian crashes (see Figure 18) were most prevalent among White (n=30, 43%) and Black (n=29, 42%) individuals, followed by Hispanic and Asian individuals. Among those with KAB injuries, 25 (45%) were White, while 22 (39%) were Black.

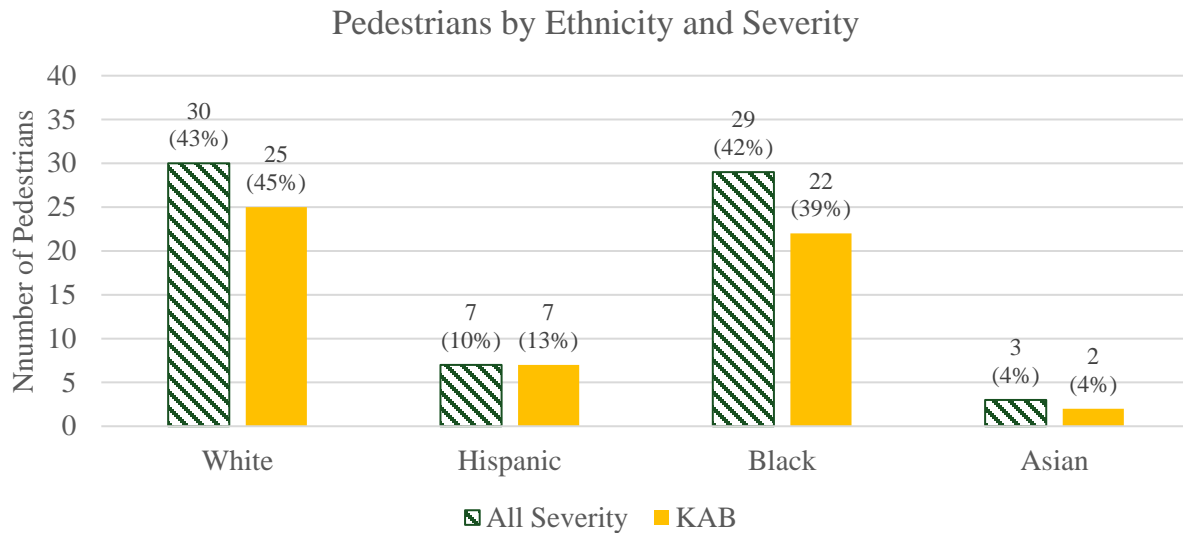


Figure 18. Ethnicity for Pedestrians Involved in the Crashes within/around the Vicinity of BU, 2019-2023

Similarly, White bicyclists accounted for 53% (n=18) of all bicyclist crashes, followed by Black bicyclists (35%, n=12) (see Figure 19). Among those with KAB injuries, 11 (50%) were White, while eight (36%) were Black. For e-scooter riders, one was White, and one was Black.

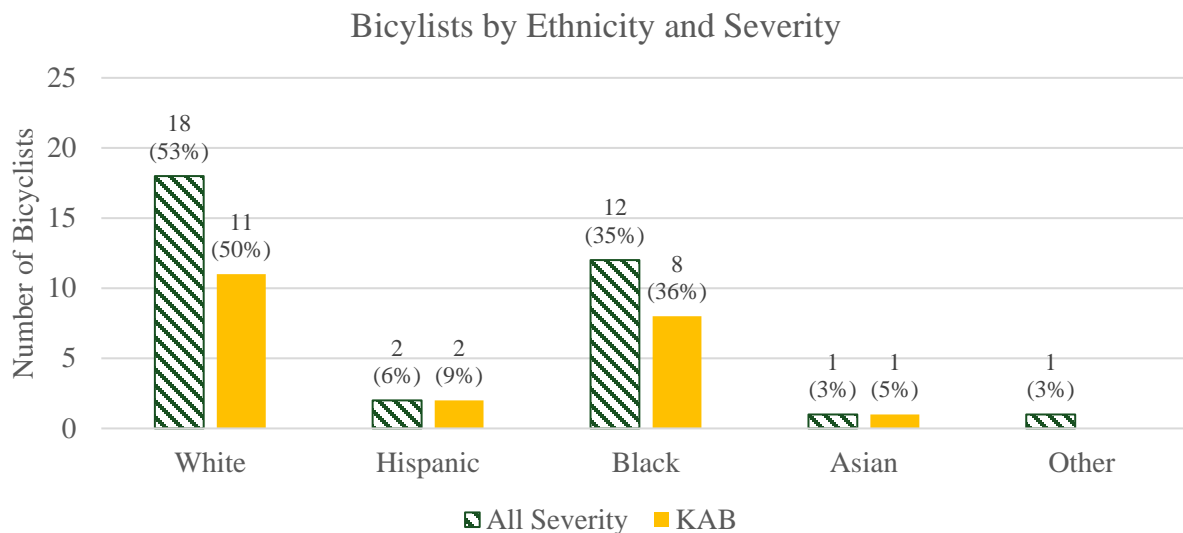


Figure 19. Ethnicity for Bicyclists Involved in the Crashes within/around the Vicinity of BU, 2019-2023

Helmet Use

Among bicyclists involved in crashes, 79% (n=27) were not wearing helmets. At all severity levels, only six bicyclists wore helmets. For those sustaining KAB injuries, 82% were not wearing helmets, suggesting that helmet use may help prevent severe injuries (see Table 2). Helmet use for the two e-scooter riders involved in crashes could not be determined.

Table 2. Helmet Use at Bicyclists involved in a Crash within/around the Vicinity of BU, 2019-2023

Helmet Use	All Severity		KAB	
	Bicyclists	Percentage	Bicyclists	Percentage
Worn, Damaged	2	6%	2	9%
Worn, Not Damaged	4	12%	2	9%
Not Worn	27	79%	18	82%
Unknown if Worn	1	3%	0	0%
Total	34		22	

Roadway Conditions & Environmental Factors

Weather Conditions

A comparison was made between pedestrian, bicyclist, or e-scooter-involved crashes under various weather conditions. According to reported crash data, the majority of pedestrian-involved crashes occurred in clear weather (n=54; 81%), followed by cloudy weather (n=10; 15%) and rain (n=3; 4%) (see Figure 20). For KAB severity crashes, similar trends were observed, with most occurring in clear weather (n=46; 82%), followed by cloudy weather (n=8; 14%).

For bicyclist-involved crashes, 88% (n=30) occurred in clear weather. The percentage of bicyclist-involved crashes in cloudy weather was lower compared to pedestrian-involved crashes (bicyclist-involved: 12% for all severity, 9% for KAB severity; pedestrian-involved: 15% for all severity, 14% for KAB severity) (see Figure 21). Both e-scooter-involved crashes occurred under clear weather conditions (not presented in figures).

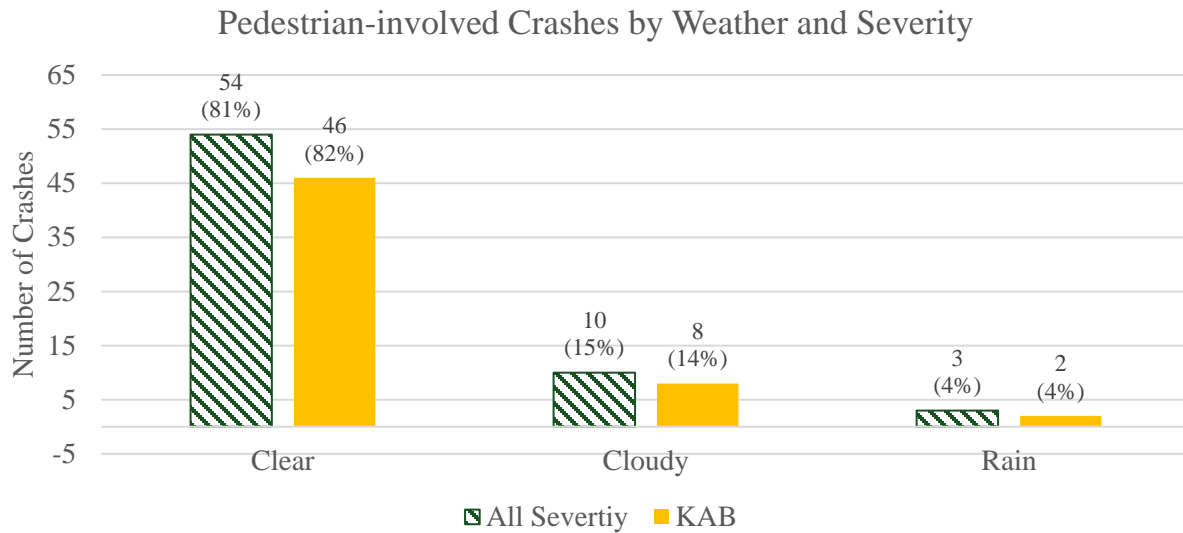


Figure 20. Weather Conditions of Pedestrian-involved Crashes within/around the Vicinity of BU, 2019-2023

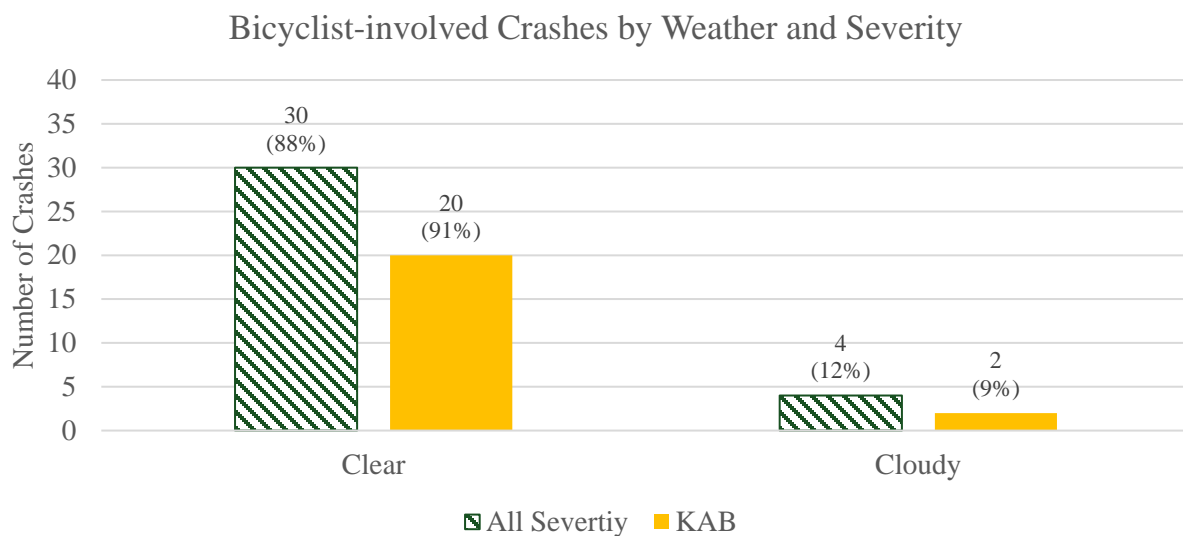


Figure 21. Bicyclist-involved Crashes by Weather Conditions within/around the Vicinity of BU, 2019-2023

Light Conditions

Analysis of crash data by light conditions (see Figures 22 and 23) revealed that more than half of pedestrian-involved crashes occurred in dark conditions (both lighted and unlighted). Sixteen crashes occurred in unlighted conditions, while 18 occurred in lighted areas. For bicyclist-

involved crashes, the majority occurred in daylight conditions (all severity: n=25; 74%, KAB severity: n=17; 77%). Both e-scooter-involved crashes also occurred in daylight conditions (not presented in figures).

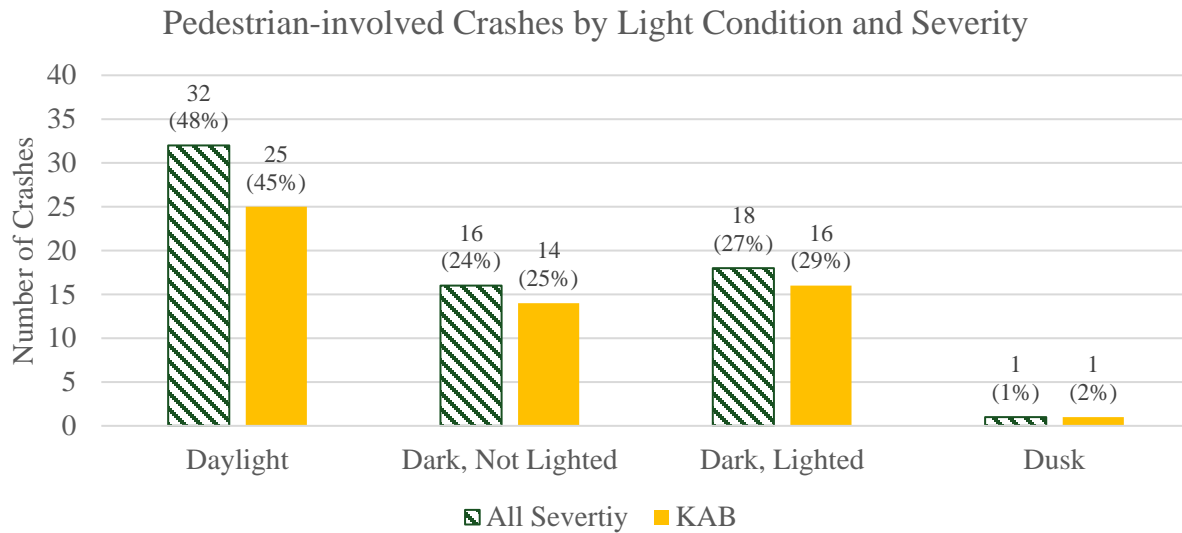


Figure 22. Pedestrian-involved Crashes by Light Conditions within/around the Vicinity of BU, 2019-2023

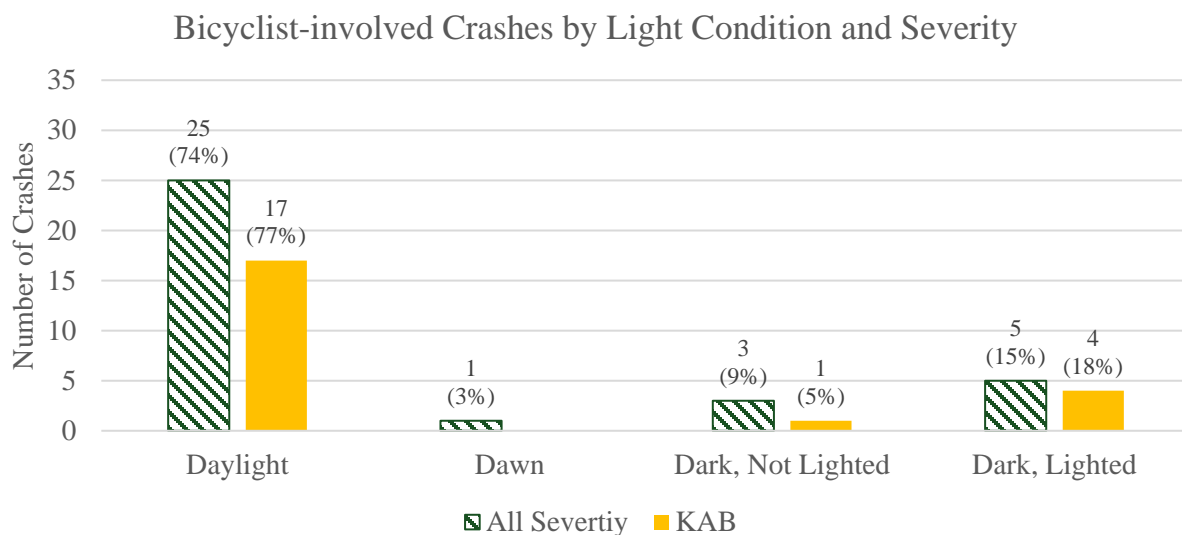


Figure 23. Bicyclist-involved Crashes by Light Conditions within/around the Vicinity of BU, 2019-2023

Surface Conditions

Most pedestrian- and bicyclist-involved crashes occurred on dry surface conditions (pedestrian-involved: 94%, n=63; bicyclist-involved: 97%, n=33) (see Figures 24 and 25). Among KAB severity crashes, 96% (n=54) of pedestrian-involved crashes and all bicyclist-involved crashes

occurred on dry surfaces. Both e-scooter-involved crashes also occurred on dry surfaces (not presented in figures).

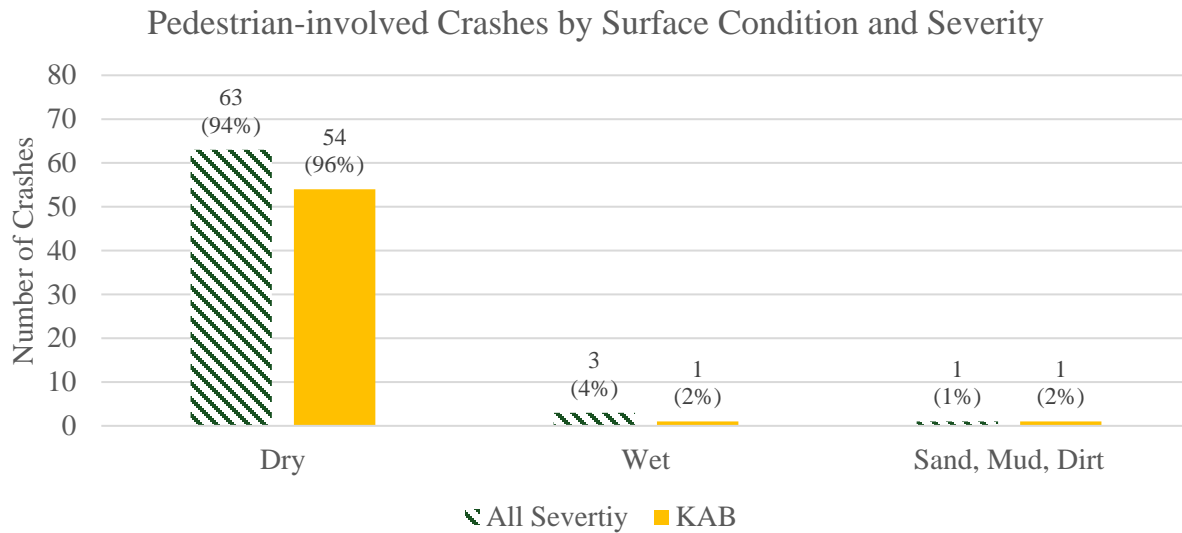


Figure 24. Pedestrian-involved Crashes by Surface Conditions within/around the Vicinity of BU, 2019-2023

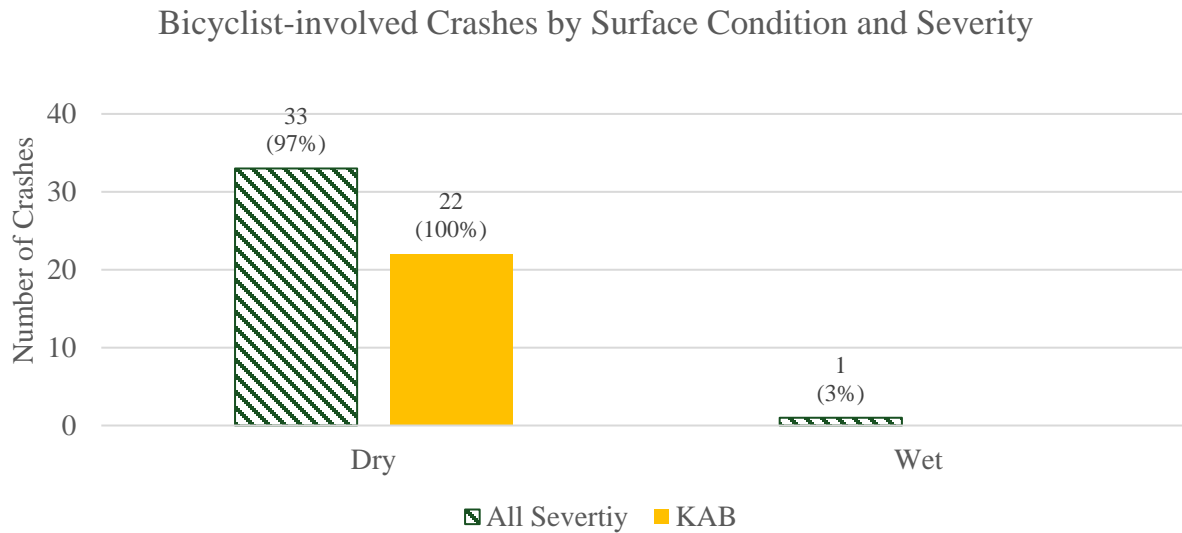


Figure 25. Bicyclist-involved Crashes by Surface Conditions within/around the Vicinity of BU, 2019-2023

Roadway Classification

In all severity crashes, more than half of pedestrian-involved (n=39; 58%) and bicyclist-involved (n=25; 74%) crashes occurred on city streets (see Figures 26 and 27). Among KAB severity crashes, 55% (n=31) of pedestrian-involved crashes and 73% (n=16) of bicyclist-involved

crashes occurred on city streets. As the second most frequent roadway category, 27% of pedestrian-involved and 24% of bicyclist-involved crashes occurred on U.S. and state highways. Both e-scooter-involved crashes occurred on city streets (not presented in figures).

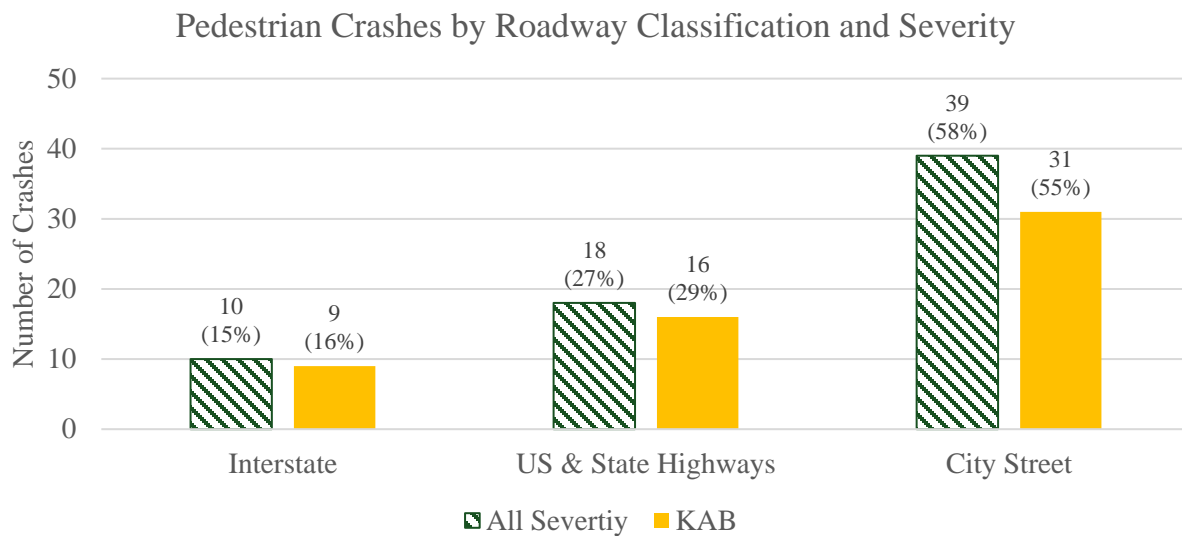


Figure 26. Pedestrian-involved Crashes by Roadway Classification within/around the Vicinity of BU, 2019-2023

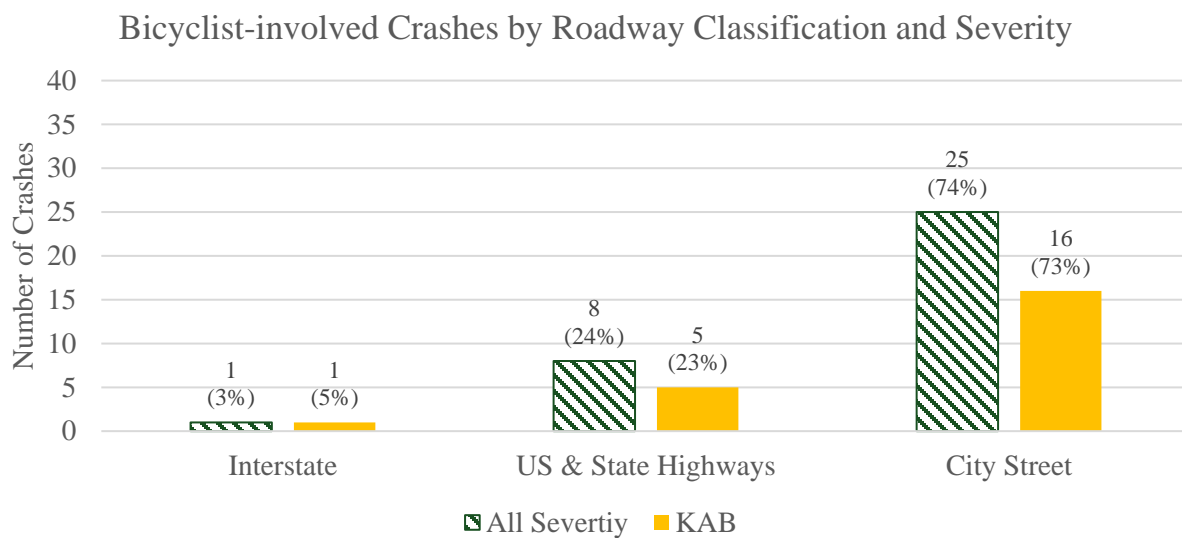


Figure 27. Bicyclist-involved Crashes by Roadway Classification within/around the Vicinity of BU, 2019-2023

Road Location

Pedestrian-involved crashes were more likely to occur in non-intersection areas (n=39; 58%), followed by intersection-related locations (n=19; 28%) (see Table 3). Conversely, the majority of bicyclist-involved crashes occurred at intersections or intersection-related locations (all severity: n=22; 65%, KAB severity: n=15; 68%). Of two e-scooter-involved crashes, one occurred at an intersection-related location, and the other in a non-intersection area (not presented in table).

Table 3. Pedestrian-, Bicyclist-, E-scooter-involved Crashes by Intersection-related

Road Location	Pedestrian-involved Crash		Bicyclist-involved Crash		Ped/Biker/E-scooter-involved Crash	
	All Severity	KAB	All Severity	KAB	All Severity	KAB
Intersection	7 (10%)	7 (13%)	22 (65%)	15 (68%)	29 (28%)	22 (28%)
Intersection-related	19 (28%)	15 (27%)	5 (15%)	2 (9%)	25 (24%)	18 (23%)
Driveway Access	2 (3%)	2 (4%)	1 (3%)	1 (5%)	3 (3%)	3 (4%)
Non Intersection	39 (58%)	32 (57%)	6 (18%)	4 (18%)	46 (45%)	37 (46%)
Total	67	56	34	22	103	80

Traffic Control Type

Pedestrian-involved crashes were more likely to occur on roadways with marked lanes (n=25; 37%), stop signs (n=13; 19%), signal lights (n=12; 18%), or no traffic control devices (n=11; 16%) (see Figure 28). For bicyclist-involved crashes, stop signs were the most common traffic control type (n=15; 44%). Of the two e-scooter-involved crashes, one occurred at a location without a traffic control device, and the other at a location with a stop sign (not presented in figures).

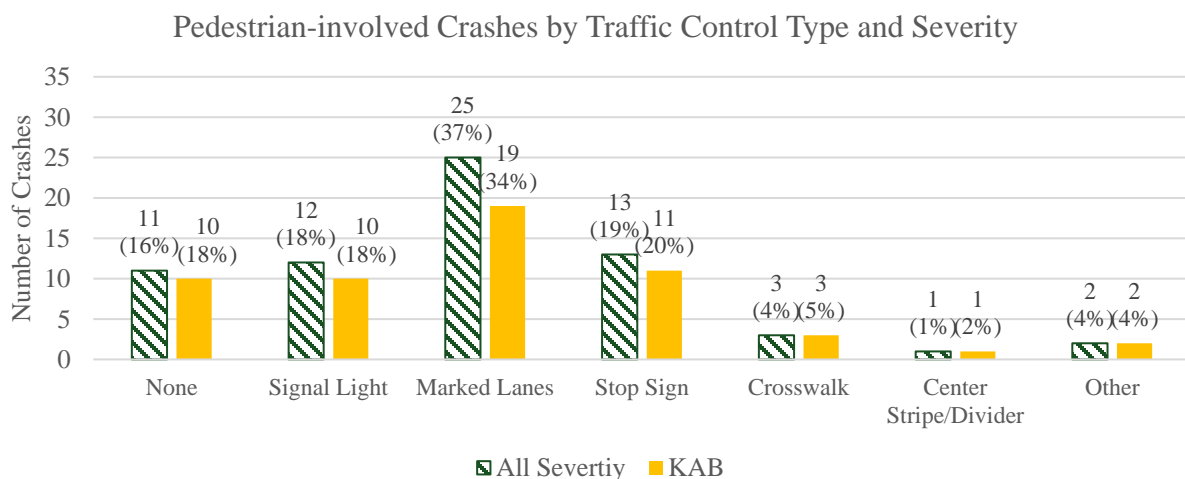


Figure 28. Pedestrian-involved Crashes by Traffic Control Type within/around the Vicinity of BU, 2019-2023

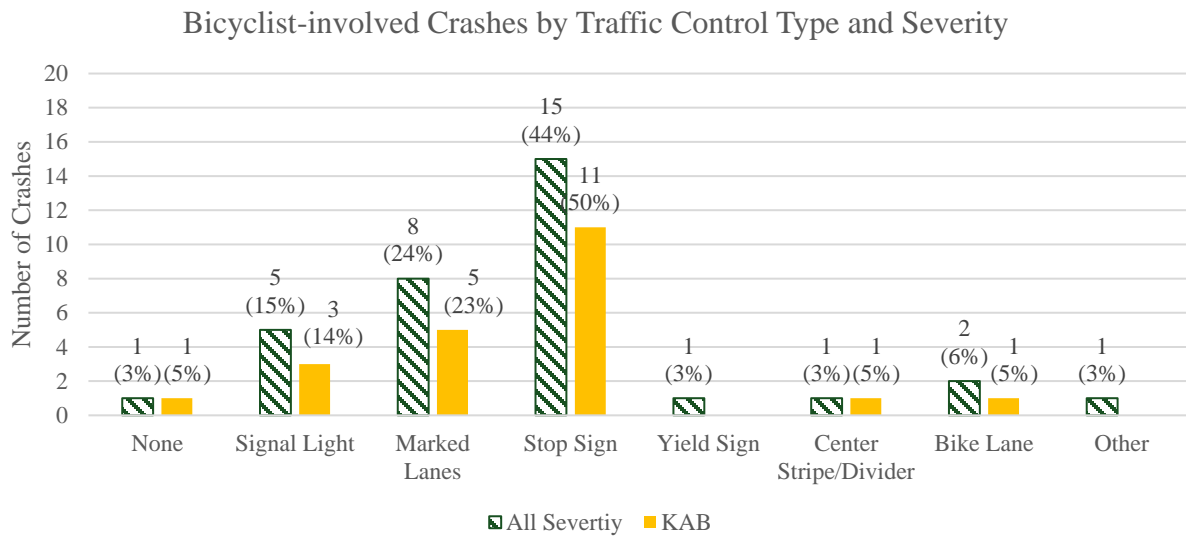


Figure 29. Bicyclist-involved Crashes by Traffic Control Type within/around the Vicinity of BU, 2019-2023

Road Alignment

Crashes were examined based on road alignment, revealing that 88% (n=59) of pedestrian-involved crashes occurred on straight and level roads (see Figure 30). Similarly, most bicyclist-involved crashes (n=30; 88%) also occurred on straight and level roads (see Figure 31). Both e-scooter-involved crashes occurred on straight and level roads.

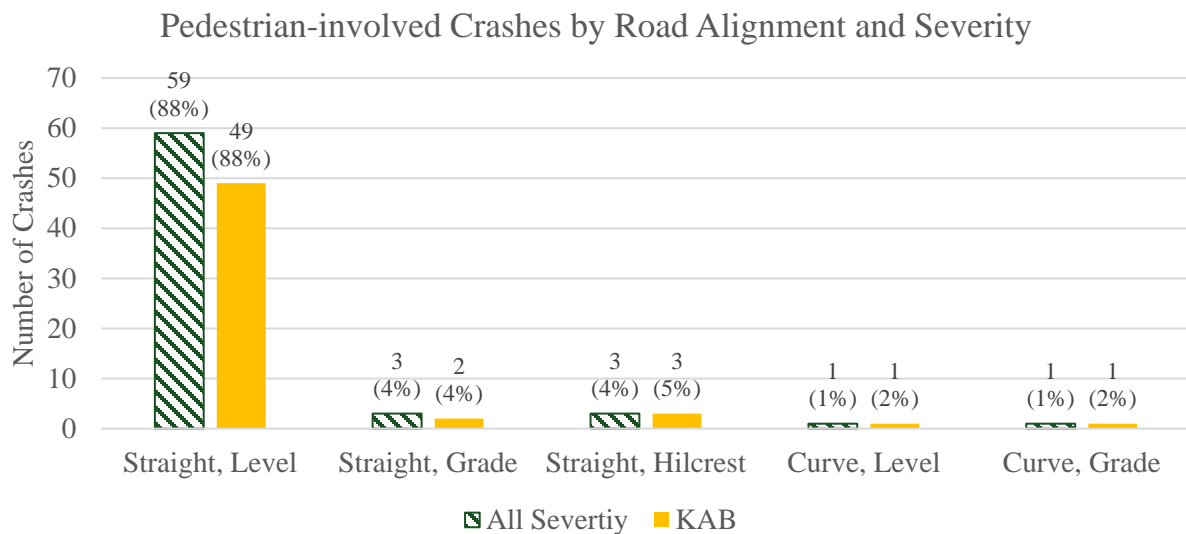


Figure 30. Pedestrian-involved Crashes by Road Alignments within/around the Vicinity of BU, 2019-2023

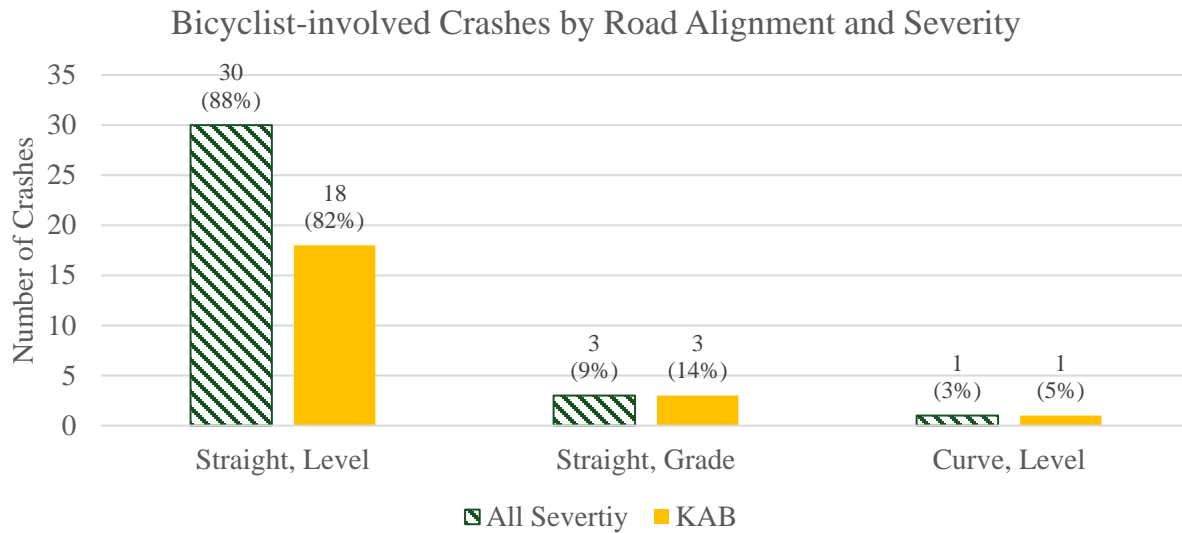


Figure 31. Bicyclist-involved Crashes by Road Alignments within/around the Vicinity of BU, 2019-2023

Posted Speed Limit

Most pedestrian- and bicyclist-involved crashes occurred on roadways with posted speed limits of 40 mph or lower. Specifically, 86% of pedestrian-involved crashes and 95% of bicyclist-involved crashes occurred at these speed limits (see Table 4). Both e-scooter-involved crashes also occurred in areas with posted speed limits of 40 mph or lower.

Table 4. Pedestrian-, Bicyclist-, E-scooter-involved Crashes by Posted Speed Limit

Posted Speed Limit	Pedestrian-involved Crash		Bicyclist-involved Crash		Ped/Biker/E-scooter Crash	
	All Severity	KAB	All Severity	KAB	All Severity	KAB
< 35 mph	38 (57%)	30 (54%)	23 (68%)	17 (77%)	63 (61%)	49 (61%)
35-40 mph	20 (30%)	18 (32%)	9 (26%)	4 (18%)	29 (28%)	22 (28%)
45-50 mph	2 (3%)	2 (4%)	1 (3%)	0 (0%)	3 (3%)	2 (3%)
> 50 mph	7 (10%)	6 (11%)	1 (3%)	1 (5%)	8 (8%)	7 (9%)
Total	67 (100%)	56 (100%)	34 (100%)	22 (100%)	103 (100%)	80 (100%)

Road Construction-related

While most crashes were not related to road construction, eight pedestrian-involved crashes occurred in road construction zones. Enhancing pedestrian safety measures in these areas should be considered (see Table 5). Neither e-scooter-involved crash was related to road construction.

Table 5. Pedestrian-, Bicyclist-, E-scooter-involved Crashes by Road Construction-related

Road Construction-related	Pedestrian-involved Crash		Bicyclist-involved Crash		Ped/Biker/E-scooter Crash	
	All Severity	KAB	All Severity	KAB	All Severity	KAB
Yes	8 (12%)	7 (13%)	1 (3%)	1 (5%)	9 (9%)	8 (9%)
No	59 (88%)	49 (88%)	33 (97%)	21 (95%)	94 (91%)	80 (91%)
Total	67 (100%)	56 (100%)	34 (100%)	22 (100%)	103 (100%)	88 (100%)

Contributing Factors

Crash contributing factors by person type (driver, pedestrian, bicyclist, and e-scooter rider) were analyzed (see Table 6). The most frequent contributing factor assigned to drivers was failure to yield the right of way to pedestrians (11 pedestrian-involved crashes; 8 bicyclist-involved crashes). The second most frequent factor for drivers was inattention (7 pedestrian-involved crashes; 6 bicyclist-involved crashes).

For pedestrians, the most common contributing factor was failure to yield the right of way to vehicles (n=31). For bicyclists, the most frequent contributing factor was listed as "Other - Explain in Narrative" (n=4), followed by "Disregard Stop and Go Signal" (n=3) and "Failure to Yield Right of Way - Stop Sign" (n=2). For the two e-scooter riders involved in crashes, one was attributed to failure to yield the right of way to a vehicle, and the other to inattention.

Table 6. Top 3 Contributing Factors of Drivers, Pedestrians, Bicyclists, and E-scooter Riders

Person Type	Crash Type	Severity	Top 1 Contributing Factor	Top 2 Contributing Factor	Top 3 Contributing Factor
Driver	Pedestrian-involved Crashes	All Severity	Failed to Yield the Right of Way - To Pedestrian (n=11)	Driver Inattention (n=7)	- Under Influence (alcohol) (n=4) - Failed to Drive in Single Lane (n=5)
		KABC	Failed to Yield the Right of Way - To Pedestrian (n=8)	Driver Inattention (n=6)	- Under Influence (alcohol) (n=4) - Failed to Drive in Single Lane (n=5)
	Bicyclist-involved Crashes	All Severity	Failed to Yield the Right of Way – Stop Sign (n=7)	Driver Inattention (n=4)	- Failed to Yield the Right of Way – Turning Left (n=2) - Failed to Control Speed (n=2)
		KABC	Failed to Yield the Right of Way – Stop Sign (n=5)	Driver Inattention (n=4)	Failed to Control Speed (n=1)
Pedestrian		All Severity	Pedestrian Failed to Yield the Right of Way to Vehicle (n=31)	Other (Explain in Narrative) (n=16)	Under Influence (Drug or Alcohol) (n=6)
		KABC	Pedestrian Failed to Yield the Right of Way to Vehicle (n=29)	Other (Explain in Narrative) (n=10)	Under Influence (Drug or Alcohol) (n=6)
Bicyclist		All Severity	Other (Explain in Narrative) (n=4)	Disregard Stop and Go Signal (n=3)	- Failed to Yield the Right of Way – Stop Sign (n=2)

				- Failed to Control Speed (n=2)
	KABC	Other (Explain in Narrative) (n=3)	- Failed to Yield the Right of Way – Stop Sign (n=2) - Wrong Side – Approach or Intersection (n=2)	
E-scooter Rider	KABC	- Failed to Yield the Right of Way to Vehicle (n=1) - Inattention (n=1)	-	

Summary

The analysis examined pedestrian, bicyclist, and e-scooter crashes in and around the Baylor University campus from 2019 to 2023. Overall, these vulnerable road users were at greater risk of fatalities and injuries compared to other road users. More than 76% of the crashes involving pedestrians, bicyclists, or e-scooter riders resulted in fatalities or injuries—ranging from suspected serious to minor. Specifically, during this period there were nine fatalities, 21 suspected serious injuries, 50 suspected minor injuries, and 19 possible injuries. While most crashes were non-incapacitating, a significant portion involved suspected serious injuries, and fatal crashes, although less frequent, remain a notable concern.

Given the high volume of pedestrian, bicyclist, and e-scooter activity on and around campus, crashes in this area accounted for over one third of all crashes involving these groups in the city of Waco. Moreover, the proportion of fatally injured pedestrians and bicyclists in the Baylor University vicinity was approximately 43% of the total fatalities involving these groups in the city.

The majority of injury-causing crashes resulted from collisions with vehicles traveling straight, followed by those involving vehicles turning left. Pedestrian-related incidents tended to occur in non-intersection areas—often on roads with marked lanes or no traffic control devices—while bicyclist crashes were more frequently associated with intersections or areas near stop signs. Notably, over half of pedestrian crashes happened under dark conditions, with nearly 25% occurring in unlit areas. Although most incidents were not related to road construction, a concerning number of pedestrian crashes occurred in construction zones, highlighting the need for improved safety measures in these areas.

Demographic analysis revealed that more male pedestrians and bicyclists were involved in crashes than females. Individuals aged 18 to 25—typical of undergraduate and graduate students—accounted for a large share of these crashes. Additionally, the majority of those involved were White or Black. Helmet use emerged as a critical safety factor; most bicyclists were not wearing helmets at the time of their crashes, and helmet usage among e-scooter riders could not be determined (the variable “Helmet Use” for e-scooter riders was marked as “Not

Applicable” in the crash database.). Among contributing factors, the factors related to the failure to yield the right-of-way were most common, while pedestrians themselves most frequently failed to yield to vehicles.

In summary, although most crashes occurred under common conditions (clear weather, dry surfaces, low speed limits), significant safety challenges persist. The high incidence of crashes due to failure to yield, low rates of helmet use, and occurrences in poorly lit conditions underscore the need for targeted interventions. Recommended strategies include enhancing street lighting, promoting helmet use among cyclists, and increasing awareness of right-of-way rules for both drivers and vulnerable road users. These measures could help reduce both the frequency and severity of crashes in the campus area, ultimately improving the safety of all pedestrians, bicyclists, and e-scooter riders.