Micromobility Crash Analysis

Executive Summary

Micromobility use is growing across Maryland, especially the use of electric devices. This growth has also led to more crashes involving these devices.

Micromobility includes small, low-speed vehicles such as bicycles and electric bikes and scooters. In this analysis, electric bikes and scooters are called e-micromobility.

In 2024, Maryland began using more detailed categories for non-motorist crashes, including e-micromobility. As a result, this analysis focuses on non-motorist crashes from 2024 and 2025. Non-motorist crashes include crashes involving pedestrians, bicyclists, scooters, and micromobility.

The Washington College Geospatial Innovation Program conducted a crash analysis for the Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) Highway Safety Office. The analysis used police-reported crash data from the Maryland State Police Automated Crash Reporting System and the Maryland Crash Data Dashboard. This is a summary and overview of the full analysis.

Key Findings

Analysis of 2024–2025 crash data found:

- About 70% of non-motorist crashes involved pedestrians. Of the remaining crashes involving people on small vehicles, there was a nearly even split between electric and non-electric vehicles, but with electric vehicle crashes rising.
- Of micromobility crashes, cyclists were involved in the most crashes, followed by electric scooters, then non-electric scooters, and electric bikes with the fewest crashes.
- 86% of non-motorist crashes led to an injury, while 3% resulted in a death due to a collision with a motor vehicle.
- Crashes happened most often on Thursdays and Fridays between 3 p.m. and 5 p.m.

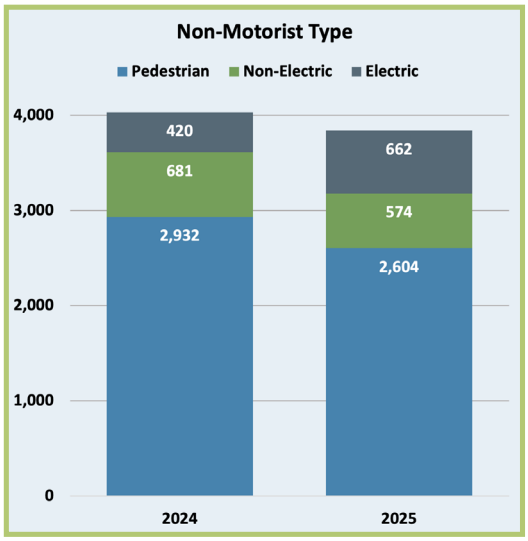


Figure 1: E-micromobility on the Rise 2024-2025

- Intersections and crosswalks were the most common crash locations, followed by travel lanes and road shoulders.
- Riders involved in crashes were most often traveling to transit, followed by school.
- The areas with the most crashes were Suburban Activity Centers/Town Centers, Suburban areas, and Urban areas.

Top Risky Behaviors

The most common risky behaviors linked to micromobility crashes were:

- Not yielding the right-of-way
- Riding the wrong way
- Not obeying traffic signs or signals
- Riding without proper lights

Demographics of crashes (**Figure 2**), show riders involved in micromobility crashes.

Who Is Most Often Involved?

Crash data shows who is involved in non-motorist crashes with trends similar across types, but most visible in those involving e-micromobility.

- Males, are involved in crashes about three times as often as females.
- Ages 10 to 40, with crash involvement decreasing as age increased.
- Ages 15 to 24 are most often involved in e-micromobility crashes.

Known micromobility trip information shows that 18.5% of the riders were traveling to transit and 4.5% were traveling to school and 77% were traveling to other locations.

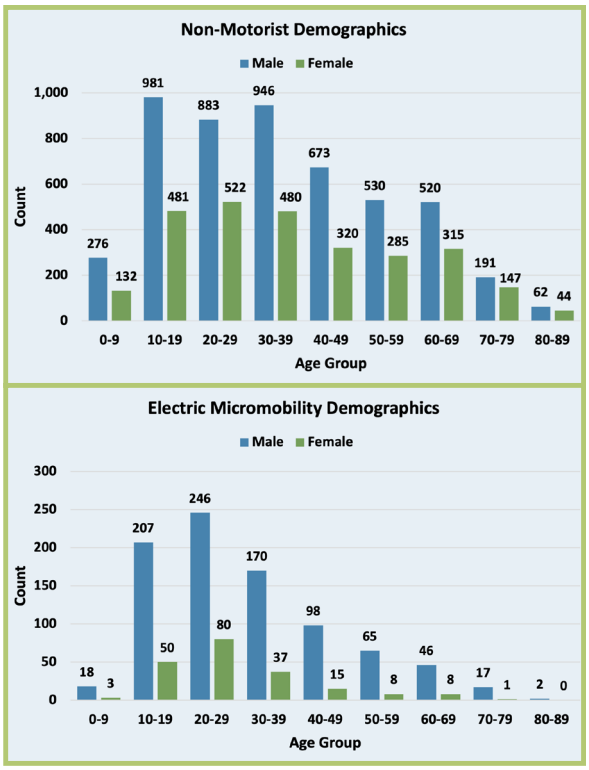


Figure 2: Crash Demographics

Rise in E-Micromobility Crashes

E-micromobility crashes increased from 10% of all non-motorist crashes in 2024 to 17% in 2025. There were 242 more e-micromobility crashes in 2025 than in 2024. An increase in e-micromobility use and crashes has been observed throughout much of Maryland with several counties seeing an increase of crashes of more than 5%.

The maps in (**Figure 3**) show that crashes for both electric and non-electric micromobility are concentrated near urban centers with the exception of Worchester County. While Baltimore City and more densely populated counties have higher rates for crashes in all modes, there are also high rates of micromobility crashes in some more rural settings. Worchester County shows up on both the non-electric and electric maps because while the county does not have a true urban center, it experiences an influx of visitors to tourist locations, such as Ocean City, where micromobility is popular. (**Figure 3**) also shows that while e-micromobility crashes increased, crashes involving non-electric micromobility decreased. This may show that some riders are shifting from non-electric to electric devices.

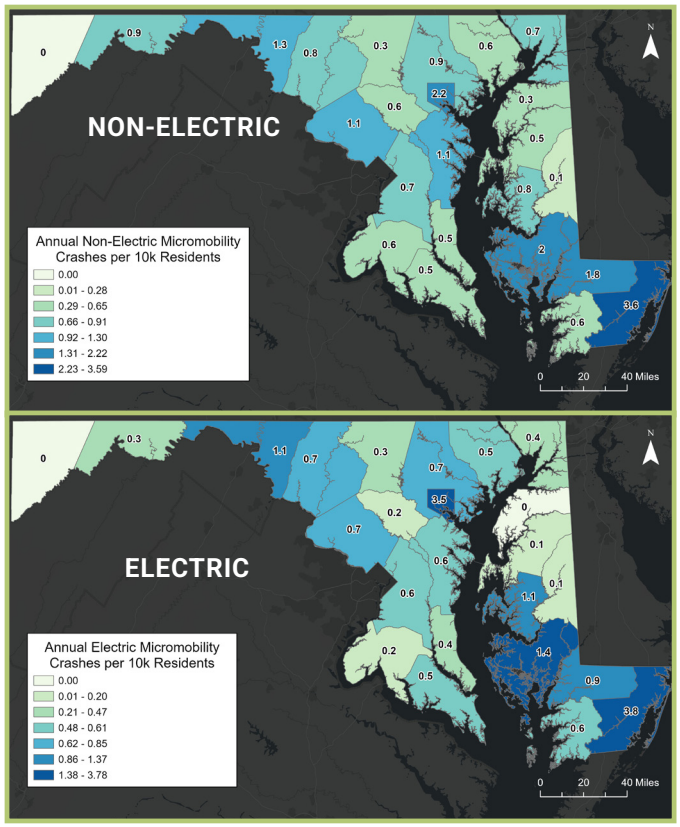


Figure 3: Electric & Non-Electric Crashes

Closing

Micromobility provides Marylanders with more ways to travel, but it also creates new safety challenges. The data show that e-micromobility crashes are increasing, especially among younger riders and in urban and suburban areas.

These crash findings can help MDOT and its partners improve safety education, enforcement, roadway design, and other safety efforts. Continued crash data collection will help Maryland better understand these trends and support MDOT's Vision Zero and Complete Streets goals.

For detailed view of full crash analysis report, follow this link: https://zerodeathsmd.gov/highway-safety-office/reports/partner-reports/