# Bicycle-Motor Vehicle Crashes At Intersections: Behavioral Countermeasures

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## Introduction

In Kalamazoo County, Michigan, between 2020-2024, bicycle-motor vehicle crashes at intersections accounted for 72% of such crashes. In 2024, bicycle-motor vehicle crashes at intersections accounted for 75% of such crashes. Crashes in which the cyclists were riding counter to the flow of vehicle traffic accounted for an average of 29.5% of total bicycle crashes in 2015–2019 and 36.8% in 2020–2024 (Kwigizile & Bitaliho, 2025).

Engineering and enforcement measures are among the list of countermeasures that can help reduce the probability of crashes at intersections. Motorists and bicyclists can use behavioral countermeasures to reduce the probability of crashes at intersections, as well. One advantage of such behavioral countermeasures is that they can be applied in the moment and can help mitigate deficiencies in engineering and enforcement, in many cases. Such measures rely on encouragement and education (Oh, 2026).

The following lists of bicyclist and motorist behavioral crash countermeasures at intersections focuses on practical ways to reduce the probability of crashes at intersections. This document was compiled by Paul Selden, PhD (Chair, Bike Program Steering Committee) using Google Gemini for initial drafting and synthesis. The content was subsequently reviewed and augmented for technical accuracy by Jun-Seok Oh, PhD, PE, PTOE, of Western Michigan University.

We encourage readers to use of this list and add to it, in hopes the information can be applied in many ways, to reduce the probability of motorist-bicyclist crashes.

# Bicyclist Behavioral Countermeasures

- **Ride with the Direction of Traffic:** Always travel in the same direction as motor vehicles, even when using a sidepath or sidewalk. This ensures that motorists looking for a gap in traffic will see the cyclist approaching from the expected direction.
- **Scan and Make Eye Contact:** Actively look for drivers in idling or approaching vehicles at driveways and intersections. Making eye contact helps confirm that the motorist has acknowledged the cyclist's presence before crossing their path.
- **Slow Down at Conflict Points:** Reduce speed when approaching blind driveways or complex intersections. Lower speeds provide more time to react if a motorist suddenly exits a driveway or turns across the path.

- **Ride Predictably:** Maintain a steady course and use hand signals early and clearly. Avoiding "weaving" between the sidewalk and the road makes it easier for motorists to anticipate the cyclist's arrival at a crossing.
- **Increase Visibility:** Use high-visibility clothing and active lighting (white front lights and red rear lights), even during daylight hours. Flashing lights are particularly effective at drawing a motorist's peripheral attention at busy driveway exits.
- **Use Audible Warnings:** Use a bell or a verbal "passing on your left/right" when approaching other path users or motorists who may be distracted while waiting to pull out of a driveway.
- **Lane Position ("Take the Lane" when needed):** Ride in a **visible, central position** when lane is too narrow to share safely and approaching intersections or driveways. Avoid riding in the **door zone.**
- **Avoid the "Right-Hook" Conflict:** Do not pass turning vehicles on the right. Anticipate right-turning traffic at intersections and driveways

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# Motorist Behavioral Countermeasures

- **"Double Scan" at Crossings:** Look both ways twice before crossing a sidewalk, sidepath, or bike lane. Motorists often only look in the direction of oncoming motor vehicle traffic; a second scan specifically for cyclists is a critical preventive habit.
- **Use "Dutch Reach" Technique:** Open the car door with the hand furthest from the handle (the right hand for the driver). This naturally forces the body to turn, allowing the motorist to look back for approaching cyclists before opening the door into a bike lane or path.
- **Yield on Turns:** Explicitly check blind spots and side mirrors before making a right or left turn across a bicycle facility. Motorists should assume a cyclist may be approaching from behind or beside them.
- **Maintain Safe Following and Passing Distances:** Give cyclists ample room (five feet is preferred, by ordinance either five or three feet in Michigan) when passing on the road, and avoid "clipping" or "hooking" them by turning immediately after an overtake.
- **Slow Down in Multi-Use Zones:** Reduce speed in areas with high driveway density or where trails intersect the road. Lower vehicle speeds significantly increase the "cone of vision," making it easier to spot cyclists entering the roadway.
- **Avoid Distractions:** Eliminate phone use and other internal distractions, especially when navigating transition zones where non-motorized users are likely to cross.

- **Expect Cyclists ("Look for bikes" mindset):** Drivers should actively expect cyclists, especially near driveways, on sidepaths, and at intersections.
- **Use Mirrors & Reduce Blind Spots:** Reduce blind spots before turning or opening doors. Especially important for larger vehicles (SUVs, trucks).
- **Avoid "Blocking the Box" / Crossings:** Do not stop across bike lanes or sidepath crossings. Maintain visibility and right-of-way clarity.

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## Shared Behavioral Responsibilities

- **Comply with Traffic Control Devices:** Both parties adhering strictly to stop signs, yield signs, and signal phases.
- **Mutual Patience and Communication:** Use "wave-throughs" only when safe and certain, and after acknowledging other users to confirm that a right-of-way agreement has been reached at a driveway or unmarked crossing.
- **Reduce Right-of-Way Ambiguity):** Avoid informal "wave-through" unless safe. Follow consistent priority rules.
- **Be Aware of Emerging Users:** E-bikes and micromobility users can move at higher speeds than traditional bikes. Both users and drivers must adjust expectations.

This list is available under the title, *Bicycle-Motor Vehicle Crashes At Intersections: Behavioral Countermeasures*, on Bike Friendly Kalamazoo's https://bikefriendlykalamazoo.org/education-safety/ web page, under the category of Written Material. We invite comments and suggestions using Bike Friendly Kalamazoo's Contact Us form.

## References

Kwigizile, V., & Bitaliho, U. (2025, December 17). Bicyclists crashes in Michigan from 2015 to 2024: An update [PowerPoint Presentation]. Western Michigan University. https://bikefriendlykalamazoo.org/wp-content/uploads/2026/01/Bicyclists-Crashes-in-Michigan-from-2015-to-2024-An-Update-FINAL.pdf

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