

Bicyclists vs Right Turn Vehicles: Optimizing Design Based on Conflict Risk Data

MicroTraffic invites you to participate in a multi-jurisdictional research study that leverages road safety video analytics to quantify the contextual safety effects of recent NCHRP¹ and NACTO² design treatments for bicycle vs right turn vehicle conflicts at intersections.

Project Details

- **MicroTraffic** will conduct conflict studies and produce Risk Diagnostic Reports at ten locations in your jurisdiction.
- The study aims to quantify the safety effects of recommended intersection design treatments^{1,2} and evaluate other key contextual elements known to impact bicyclist safety³ by studying the frequency and severity of detected conflict events.
- Study findings will result in an improved understanding of vehicle right turn vs bicyclist conflict risk that will support agencies in their selection and application of recommended design treatments to improve safety across their cycling network.
- The participation fee is **\$30,000 USD** for ten locations, not including video collection costs. Other participation levels are also available.
- The research program is limited to a maximum of 200 sites across North America. Video collection is expected between April and August 2021, with video analytics complete by December 2021. Research analysis is expected in early 2022.



MicroTraffic is a leader in road safety video diagnostics and conflict analysis and has worked with more than 60 communities globally to identify and eliminate safety risks using proactive and precise safety improvements. We are passionate about ending road fatalities and serious injuries.

Research Need

- Protected bike lane mileage in North American cities has grown by more than 600% since 2011², illustrating the importance of safe, evidence-based design guidance.
- Between 2014 and 2016, 44% of bicyclist fatalities in urban areas occurred at intersections¹. Of the intersection fatalities during that period, vehicle right turn vs bicyclist in the same direction were listed in the Top 7 most common crash types¹.
- Despite the proliferation of bike lane use and recent design guidance resources^{1,2}, the quantitative safety impacts of design alternatives for vehicle right turn vs bicyclist conflict types are not well known. This lack of quantification constrains designers to a subjective decision-making process and in some cases exposes cities to excess liability.
- There is currently no large dataset to inform C-V2X standards development related to bicycle-vehicle right turn interactions.



Participant Responsibilities and Research Outcomes

- Agency staff will select locations for video analysis based on an established framework and provide collision data, attribute data and exposure data, if available.
- 3-7 days of video footage will be collected by the agency at each study location. Depending on the video collection plan established for the jurisdiction, temporary cameras may be provided by MicroTraffic for site installation.
- Upon receipt of the video, MicroTraffic will conduct the conflict analysis at each location and produce detailed risk reports. In collaboration with research partners, the entire database of vehicle right turn vs bicyclist conflicts will be analyzed to quantify contextual factors that affect bicyclist safety in North America.
- Agencies will gain site specific risk data in their jurisdiction as well as the overall database and research results. Participants will have the opportunity to participate in a webinar at project completion and will gain exposure and recognition in any published works.

Bicycle Friendly Cities, NACTO Member Cities and Vision Zero Cities across North America focused on expanding and improving their cycling network are encouraged to participate in this study.

By leveraging conflict risk information, the study aims to answer key questions about when and where to use various recommended design elements, such as:

- Bi-directional bike lanes
- Protected right turn phases
- Bend-outs / curb extensions
- Quick build corner islands
- Protected intersections

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¹National Academies of Sciences, Engineering, and Medicine, 2020. Guidance to Improve Pedestrian and Bicyclist Safety at Intersections. Washington, DC. <https://doi.org/10.17226/25808>.

²NACTO, 2019. Don't Give Up at the Intersection. New York. <https://nacto.org/publication/dont-give-up-at-the-intersection/>

³Dai, B., Dadashova, B., 2021. Review of contextual elements affecting bicyclist safety. Journal of Transport & Health 20, 101013. <https://doi.org/10.1016/j.jth.2021.101013>