Crash study aims to make roads safer

March 18 2016, by Angela Mcmanaman

With a growing number of people bicycling to work, one UWM researcher is working to make roads safer for pedestrians and cyclists.

It was an early-August evening in rural Wisconsin. An SUV traveling north along a two-lane road veered over the center line. Before landing in a ditch, the car hit a light pole, speed-limit sign and a 13-year-old pedestrian, who died at the scene.

The police report, like about 500 others over the past three years, landed on Bob Schneider's desk at UW-Milwaukee's School of Architecture and Urban Planning.

Schneider studies severe or fatal bicycle and pedestrian crashes, collecting data that he uses to guide and encourage city planners, developers and policymakers to make roads safer. A professor of urban planning, he also chairs the Transportation Research Board's Committee on Pedestrians, a subgroup of The National Academies of Sciences, Engineering, and Medicine.

The need for this type of work, Schneider said, has never been greater.

"Statewide traffic fatalities were up in 2015 for everyone," he said, "drivers, motorcyclists, bicyclists and pedestrians. This isn't acceptable."

Then what is? After 15 years of study, Schneider has an answer: "The only acceptable number of traffic fatalities is zero. I'm driven to keep researching pedestrian and bicycle safety and communicate what we find."

His multiyear analysis of severe bike and pedestrian crashes has shown that multilane roads into Wisconsin's major urban areas are hotspots for fatalities. Four-lane roads pose more danger than two-lane roads. Injury severity increases with higher speed limits. Intoxication and failing to yield to pedestrians in crosswalks also contribute to crashes.

Bob Schneider believes a zero-fatality future for Wisconsin roadways is possible, and he's conducting a multiyear crash analysis with the Wisconsin Department of Transportation to boost bicyclist and pedestrian safety. Credit: UWM Photo/Troye Fox

His research points to solutions that can increase bicyclist and walker safety: providing separated lanes and wide shoulders for bicyclists; constructing curb extensions to reduce crossing distance and make pedestrians more visible to drivers; enforcing speed limits and drivers yielding to pedestrians in crosswalks; and improving lighting and pedestrian and bicyclist visibility at night.

Partners like the Wisconsin Department of Transportation (WisDOT) and the Bicycle Federation of Wisconsin translate Schneider's findings into action. WisDOT commissioned Schneider to perform the crash analysis as part of the state's campaign to stop traffic fatalities.

"Bob has a great passion for biking, and he can find the data," said Larry

Corsi, a grant specialist in WisDOT's Bureau of Transportation Safety. "Analyzing fatalities and severe injuries, we've been able to pick out some things we can educate people on – keep an eye out for bicyclists and pedestrians, slow down, remind bicyclists they have to follow the same traffic rules as cars. These behaviors can keep people safer."

Statisticians and engineers dominate the transportation safety field. An urban planner, Schneider has complemented their work by creating the Location Movement Classification Method (LMCM). The approach looks at the location where the crash occurred relative to the intersection and motorist, and pedestrian or bicyclist movement patterns when the crash occurs.

The LMCM yielded 57 combinations of motorist and bicyclist/pedestrian behavior, like "N_LRD_X." Schneider applied that designation to the August crash, in which a child was killed by a motorist along a non-intersection stretch of road after the motorist crossed the centerline.

This crash, like more than three-quarters of all pedestrian fatalities in Wisconsin, involved a motorist traveling straight rather than turning, which is important information for urban planners and others tasked with improving safety. One possible solution is adding more sidewalks and wide, paved shoulders along main roads in suburban and rural Wisconsin.

"The reason I call these 'crashes' and not accidents is because accidents are not preventable," Schneider said. "Crashes are preventable – there are actions we can take."

He acknowledges that some factors are outside the domain of urban planners. The driver who struck the girl had alcohol, Xanax and marijuana in his system. Intoxication is best addressed with education

campaigns for new and experienced drivers, though designing roads so that traffic moves more slowly in pedestrian areas and adding sidewalks can help reduce the risk from impaired drivers.

Keeping walkers and bicyclists alive is his foremost priority, but Schneider also believes safe transportation is critical to building dynamic, desirable communities.

"A great place is one where there is lots of human activity – people walking around or on bikes, sitting outside at cafes," he said. "The movement to make it safer to walk and bike also makes better communities to live in. In fact, there is a positive feedback loop – more walking and bicycling overall improves safety for each individual pedestrian and bicyclist."

Schneider's work earned him a 2015 Advocate of the Year award from the Bicycle Federation of Wisconsin, which has incorporated his safety-first research into media campaigns and efforts to make Milwaukee more bikeable and walkable.

"Bob's research is applicable and useful to citizens statewide," said Jessica Binder, program director for the Bicycle Federation of Wisconsin. "We've never had an academic partnership that's been as specific or in-depth as what Bob has provided."

Provided by University of Wisconsin - Milwaukee