

Research will help urban planners prioritize bike lanes

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A new virtual tool could help planners choose the best places to install bikes lanes in cities.

The data-based tool builds on previous research at the University of Waterloo that validated the safety benefits of bike lanes for cyclists and motorists.

Collected using sensors and a handlebar camera as researchers cycled hundreds of kilometres in Kitchener-Waterloo, Ontario, the data showed bike lanes virtually eliminate vehicles getting too close to cyclists when they pass them.

"Drivers aren't trying to scare cyclists or be inconsiderate," said Bruce Hellinga, a civil and environmental engineering professor at Waterloo. "In many cases, they just don't feel they can leave more space because of the geometry of the [road](#) and the proximity of other vehicles."

On two-lane roads without bike lanes, passing motorists got within a metre of cyclists 12 per cent of the time. With bike lanes, that number dropped to just .2 per cent.

On four-lane roads, unsafe passing dropped from almost six per cent with no bike lanes to .5 per cent with bikes lanes.

One metre of separation was used to distinguish safe passing from unsafe passing in the study because it is a legal requirement in some jurisdictions in North America.

The data is now being used to develop a transferrable software tool that predicts the number of unsafe passes on roads based on factors including traffic volume and flow.

That would help urban planners determine where bike lanes and other cycling infrastructure would be most beneficial.

"It's not about giving something to cyclists and taking something away

from motorists," Hellinga said. "It's about putting in infrastructure to reduce stress levels and improve safety for both."

The research was motivated by Hellinga's own experiences cycling to work.

"I got frustrated by what I perceived as vehicles getting too close to me," Hellinga said. "You feel very vulnerable when a [vehicle](#) comes within what feels like mere centimetres."

In addition to improving safety, he said bike lanes make cyclists more comfortable and therefore more likely to cycle.

Hellinga collaborated with graduate student Kushal Mehta and former postdoctoral fellow Babak Mehran.

Their paper on a predictive model, A methodology to estimate the number of unsafe vehicle-[cyclist](#) passing events on urban arterials, appears in the journal *Accident Analysis and Prevention*.

More information: Kushal Mehta et al, A methodology to estimate the number of unsafe vehicle-cyclist passing events on urban arterials, *Accident Analysis & Prevention* (2019). [DOI: 10.1016/j.aap.2019.01.005](https://doi.org/10.1016/j.aap.2019.01.005)

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