

Bikeshare could increase light rail transit ridership

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Coupling bikeshare with public transit could be an important component when trying to increase light rail transit (LRT) ridership, according to a new study out of the University of Waterloo.

In their study, researchers from Waterloo explored the most efficient size of a bike pool that would ensure enough bikes would be available to commuters who sign up for a share program.

While the study isn't specific to any particular region, co-author Srinivasan Keshav, who is a professor in Waterloo's Cheriton School of Computer Science, believes bikeshare programs could be a component that municipalities, which are unveiling or revitalizing light rail [transit systems](#), want to consider.

"A solution based on personal mobility makes a lot of sense," says Keshav.

Using mathematics and computer modelling, the researchers worked out the most efficient way to couple bikeshare programs with public [transit systems](#). The study involved taking big data from a Montreal bikeshare program and then using that data to [model](#) commuter schedules, and the number of people obtaining or returning bikes at different times and stops.

The model considered commuters who ride rental bikes home from the train station in the evening, then ride back the next morning and drop the bike off. The model anticipates that commuters ride the train to a stop near their work, and pick up a different bike to complete the journey to work.

There are many bikeshare programs in the world, but Keshav said that to his knowledge, this study is the first time anyone has tried to calculate the needs of a bikeshare program coupled with public transit. He believes this model could be used on any multi-modal private and public transportation system.

"That's the nice thing about math, once you have solved a problem it can

be used in any number of ways," says Keshav, who hopes a municipality or bikeshare organization might one day launch a pilot project to test out the recent bike-and-ride research. "It takes somebody to do it and carry it into practice, and we would like to believe, and would hope, that our study could motivate people to use [public transit](#)."

More information: Guoming Tang et al, Bikeshare Pool Sizing for Bike-and-Ride Multimodal Transit, *IEEE Transactions on Intelligent Transportation Systems* (2018). [DOI: 10.1109/TITS.2018.2814583](https://doi.org/10.1109/TITS.2018.2814583)

Provided by University of Waterloo

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