Abstract

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Modelling the Influence of Fused Grid Neighborhood Design Principles on Active Transportation Use with emphasis on Street Connectivity.

Given the limited impact of current neighborhood street pattern designs in promoting more sustainable communities and active life style, the fused grid (Dutch Safe System) neighborhood design principles were developed by Canada Mortgage and Housing Corporation. One of the main distinguishing principles of the fused grid (FG) design relative to contemporary neighborhood patterns are the FG’s higher active transportation (AT) network connectivity versus vehicle network connectivity. This paper reports on research related to the influence of fused grid neighborhood design principles on active transportation use for work and non-work trips by hypothetical retrofitting of an existing neighbourhood using FG design principles. The change in travel time and travel distance due to retrofitting this neighbourhood was expected to cause a modal shift towards greater use of AT this hypothesis was tested using Multinomial Logit (MNL) mode choice models for the City of Kelowna. Results suggest that the influence of travel time on choosing the auto mode is much stronger and more significant for work trips compared to non-work trips. In addition, the results suggest that applying fused grid principles would be successful in significantly reducing auto use for work trips by approximately 10 percent and increasing AT mode use by 40 percent. However, an insignificant shift in modal share for non-work trips was found, likely due to the fact that no changes to local land uses (e.g. mix, density, etc.) were made in the retrofitted neighborhood case study.