

MOUNTAIN-PLAINS CONSORTIUM

RESEARCH BRIEF | MPC 18-351 (project 455) | December 2018

Why are Bike-Friendly Cities Safer for All Road Users?



the **ISSUE**

Although bicycling is considered to be ten times more dangerous than driving, the evidence continues to build that bike-friendly cities are not only safer for bicyclists but for all road users. This report looks to understand why this is the case.

the **RESEARCH**

Based on 13 years of data from 14 major U.S. cities, we investigated nearly 19,000 fatalities, more than 83,000 severe injuries, and 3.7 million total crashes across more than 10,000 block groups via longitudinal negative binomial regression models. We hypothesize five potential pathways: i) socio-demographic and socio-economic changes, as cities become more populated by those with lower transportation injury risks; ii) built environment changes, as land use patterns change and cities promoting bicycling create safer streets; iii) travel behavior changes that help reduce exposure; iv) traffic and operation changes that help promote lower speed and safer environments; and v) improvement to emergency trauma care.



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Colorado State University
North Dakota State University
South Dakota State University

University of Colorado Denver
University of Denver
University of Utah

Utah State University
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Project Title

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the FINDINGS

The results suggest that more bicyclists on the road is part of the answer but that the approaches we employ to help attract more bicyclists is playing a larger role. In other words, much of our explainable variation in safety outcomes can be attributed to building denser and more urban places. This includes building better bike infrastructure with more separated bike facilities and fewer sharrows (shared lane markings). The variables representing gentrifying neighborhoods were also associated with better road safety outcomes. Overall, these variables and potential pathways for safer places are complementary and should not be considered in isolation.

the IMPACT

Our results suggest that building more compact places is typically representative of lower-speed urban environments with better bike facilities, increased non-driving modes, and improved emergency response. Such combinations of factors need to be considered when looking towards trying to build a safer and healthier transportation system with an evidence-based approach.

For more information on this project, download the entire report at <https://www.ugpti.org/resources/reports/details.php?id=928>

For more information or additional copies, visit the Web site at www.mountain-plains.org, call (701) 231-7767 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.



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