

MOUNTAIN-PLAINS CONSORTIUM

RESEARCH BRIEF | MPC 24-516 (project 603) | March 2024

Investigating Bicyclist Safety Perceptions and Behaviors at Roundabouts



the **ISSUE**

As roundabouts become increasingly popular, and as many communities promote bicycle use, a major concern is the safety of roundabouts for bicyclists.

the **RESEARCH**

In this project, researchers studied bicyclists' safety perceptions of and preferences for roundabouts with different characteristics. First, the researchers performed a systematic literature review on bicycle safety at roundabouts, reviewing 49 different resources with empirical findings. Next, they developed a 20-minute online questionnaire to collect data from up to 613 U.S. adult bicyclists. The survey presented respondents with hypothetical roundabouts with various controlled design and operational attributes, represented using text and simulated images. The researchers then analyzed cyclist preferences from a discrete choice experiment and bicyclists' perceptions of comfort.



A University Transportation Center sponsored by the U.S. Department of Transportation serving the Mountain-Plains Region. Consortium members:

Colorado State University
North Dakota State University
South Dakota State University

University of Colorado Denver
University of Denver
University of Utah

Utah State University
University of Wyoming



Lead Investigator(s)

Patrick Singleton
patrick.singleton@usu.edu
Utah State University

Research Assistant(s)

Niranjan Poudel, GRA

Project Title

Investigating Bicyclist Safety
Perceptions and Behaviors at
Roundabouts

Sponsors | Partners

USDOT, Research and
Innovative Technology
Administration

the FINDINGS

The researchers found that, overall, U.S. bicyclists prefer roundabouts with smaller central islands, fewer travel lanes, lower traffic volumes, lower speed limits, and separated bicycle lanes. The most comfortable roundabouts for bicycling had many of these same characteristics. Notably, women and “interested but concerned” cyclists had stronger preferences for separated bicycle lanes.

the IMPACT

The researchers suggest updating U.S. roundabout design guidelines to include “protected roundabouts” that allow for separated bicycle lanes and result in safer and more comfortable roundabouts. Considering bicycle preferences and perceived comfort at roundabouts will encourage cycling for people of all ages and abilities.

For more information on this project, download the Main report at <https://www.ugpti.org/resources/reports/details.php?id=1156>

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.



This publication was produced by the Mountain-Plains Consortium at North Dakota State University. The contents of this brief reflect the views of the authors, who are responsible for facts and the accuracy of the information presented herein. This document is disseminated under the program management of the USDOT, Office of Research and Innovative Technology Administration in the interest of information exchange. The U.S. Government assumes no liability for the contents or use thereof.



NDSU does not discriminate in its programs and activities on the basis of age, color, gender expression/identity, genetic information, marital status, national origin, participation in lawful off-campus activity, physical or mental disability, pregnancy, public assistance status, race, religion, sex, sexual orientation, spousal relationship to current employee, or veteran status, as applicable. Direct inquiries to Vice Provost, Title IX/ADA Coordinator, Old Main 201, 701-231-7708, ndsuoaa@ndsu.edu.