MOUNTAIN-PLAINS CONSORTIUM

RESEARCH BRIEF | MPC 16-309 (project 426) | July 2016

Does the Livability of a Residential Street Depend on the Characteristics of the Neighboring Street Network?

the ISSUE

Would living near a large arterial road offset the livability benefits of living on a lightly-traveled street? Alternatively, would living near a more "livable" arterial neutralize some of the problems associated with living on a street with heavy traffic?

the RESEARCH

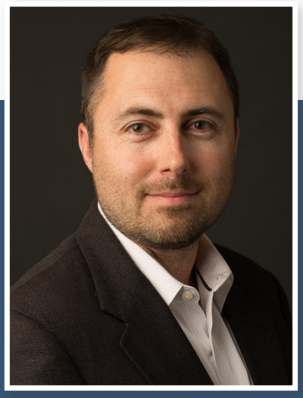
Not long after the advent of cars, a conflict arose between moving traffic and residential livability. The typical response pushed traffic off residential streets onto nearby major roads. This line of thinking evolved into more hierarchical street networks and arterial roads designed to carry the vast majority of vehicle traffic. With many researchers, most notably Donald Appleyard with his influential livable streets research strand, identifying traffic on residential streets as an underlying issue behind poor livability, this solution makes perfect sense. However, is the relationship between residential livability and traffic moderated by the character of the nearby road?

This project addresses this question via a residential study of 10 Denver, CO, neighborhoods where 10 urban arterials were selected that could be partitioned along two dimensions: high/low traffic, and high/low design quality. Within each of the 10 surrounding neighborhoods, we selected comparable residential roads to fit Appleyard's heavy, moderate, and light traffic descriptions where we then surveyed 721 respondents living along these 30 residential streets. Using factor analysis and ordinal logistic regression, we also examined: i) how residents perceive and use arterial roads; and ii) what specific characteristics of arterial roads are associated with residential satisfaction.

MPC
MOUNTAIN-PLAINS CONSORTIUM

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)

Wes Marshall
wesley.marshall@ucdenver.edu

Carey McAndrews
carolyn.ncandrews@ucdenver.edu

University of Colorado Denver

Project Title

Does the Livability of a Residential Street Depend on the Characteristics of the Neighboring Street Network?

Co-Investigator

Bruce Janson
University of Colorado Denver

Research Assistant(s)

Laia Mitchell
Craig Fisher
Greg Colucci
Mahdi Alvani
Trevor Clifford
Shile Dong
Zachary Heiney
Alejandro Henao
Benjamin Johnk
Maryam Karimi
Jennifer McGinnis
Yelena Onnen
Sarah Rosenberg
Mat Trostle
Tong Wen

Sponsors | Partners

TRB Task Force on Arterials and Public Health

City and County of Denver

USDOT, Research and Innovative Technology Administration

the FINDINGS

The character of the nearby arterial road influences residential livability across a number of livability measures. When controlling for income, high levels of traffic and low levels of urban design on the arterial both detract from the livability of those living in the surrounding neighborhoods. Moreover, some results suggest that residential streets with heavy traffic near a low traffic/high design arterial are just as livable, if not more, than residential streets with light traffic near a high traffic/low design arterial.

Our study includes three different measures of residential satisfaction, so the specific influence of the arterial road depends on whether one focuses on satisfaction with the neighborhood street, satisfaction with the neighborhood, or overall sense of happiness. The results suggest that arterials perceived as vibrant are associated with increased residential satisfaction – above and beyond other features of the residential environment.

the IMPACT

By no means should this be taken as a call to increase traffic on residential streets; rather, planners and engineers looking to promote residential livability need to begin taking a broader, network perspective to understanding livability. Livable residential streets can only be part of the solution; we also need more livable arterial roads. The results point to land use policies, enforcement of social norms, and the design of pedestrian and transit environments as measures to maximize the contributions of commercial arterials to neighborhood livability.

For more information on this project, download the entire report at http://www.ugpti.org/resources/reports/details.php?id=847

For more information or additional copies, visit the Web site at www.mountain-plains.org, call (701) 231-7938 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.