



MINETA
TRANSPORTATION INSTITUTE
MTI

SJSU Research Center
210 N. Fourth St., 4th Fl.
San José, CA 95112

Tel // 408.924.7560
Fax // 408.924.7565

www.transweb.sjsu.edu

Board of Trustees

Founder

Secretary Norman Y. Mineta

Honorary Co-Chairs

Congressman John L. Mica
Congressman Nick Rahall

Chair

Mortimer Downey

Vice Chair

Steve Heminger

Executive Director

Hon. Rod Diridon, Sr.

Thomas E. Barron

Ignacio Barrón de Angoit

Joseph Boardman

Donald H. Camph

Anne P. Canby

Jane Chmielinski

William Dorey

Nuria I. Fernandez

Rose Guilbault

Ed Hamberger

Hon. John Horsley

Will Kempton

Cindy McKim

William Millar

Hon. Norman Y. Mineta

Stephanie L. Pinson

Dean David Steele

Paul A. Toliver

Michael S. Townes

David L. Turney

Edward Wytkind

Bicycling Access and Egress to Transit: Informing the Possibilities

Kevin J. Krizek, PhD and Eric W. Stonebraker

MTI Project 2825

March 2011

When effectively integrated with transit services, considerable room exists for bicycling to realize various environmental, health, and congestion-mitigation benefits to communities.

A core problem, however, exists in that the predominant approach for integrating bicycles and transit—bicycles aboard transit vehicles—frequently runs up against capacity restraints. Given a variety of urban form contexts, what are the most cost effective strategies likely to generate the largest number of cyclists accessing transit?

When effectively integrated, bicycling and transit help advance various environmental, health, and congestion-mitigating benefits for communities.



for bicycle and transit integration strategies, (3) evaluated bicycle and transit integration strategies based on focus group responses using Analytic Hierarchy Process (AHP), and (4) employed analysis framework for to arrive at cost-effective solutions for integrating bicycling and transit.

Findings

This project provides a baseline understanding of the effectiveness of different bicycle and transit integration strategies and a preliminary approach to identify transit stops on specific routes more likely to generate CTUs. The AHP, a multicriteria, decision-making tool ranked cyclists' preferences for the four bicycle and transit integration strategies in order of preference: (1) "Bike ON transit", (2) "Bike TO transit", (3) "Shared bike", and (4) "Two bike". Results of the cost effectiveness assessment suggests that "Bike TO transit" ranked most cost effective overall, followed by "Bike ON transit," "Two bike," and "Shared bike" strategies.

Policy Recommendations

The cost effectiveness measure provides enhanced understanding on how to increase understanding for the three strategies. Much of the concern about the lesser preferred options:

Study Method

This study developed a framework to evaluate the cost effectiveness of different strategies used to integrate bicycling and transit. The authors: (1) reviewed the state of the knowledge, giving special attention to identifying transit types and locations that have the highest potential to generate cycle – transit users (CTUs), (2) conducted focus groups with cyclists from five case study communities to gauge preferences

(1) “Bike TO transit,” (2) “Shared bike,” and (3) “Two bike” strategies center on security issues. Security ranked highest of the four factors (cost to user, flexibility, guarantee, and security) comprising cyclists’ preferences for each integration strategy. Minor adjustments in terms of security could address the current challenge of “Bike ON transit” capacity limitations and make the less cost effective strategies comparable to “Bike ON transit.”

As carrying bicycles on-board buses or trains often runs into constraints, we need frameworks to uncover cost effective strategies that can generate heightened number of cyclists accessing transit.

This research revealed several examples of secure bicycle parking efforts near transit services. Chicago has built bicycle parking inside transit stations and several communities have integrated bicycle lockers as part of their bicycle parking. Boulder County is developing bicycle corrals at transit access and egress points in an attempt to increase transit ridership and reduce congestion on a state highway. New approaches such as these may help to overcome the apparent challenges of security that plague the three less preferred strategies and help to increase bicycle and transit integration.



About the Authors

Dr. Kevin J. Krizek is Associate Professor of Planning, Design, and Civil Engineering at the University of Colorado. His research focuses on travel behavior (specializing in cycling), neighborhood accessibility, health and planning, and sustainable development. Eric W. Stonebraker is a doctoral student in the College of Architecture and Planning at the University of Colorado. His research interests focus on travel behavior and the built environment.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/2825.html