



Transitway Impacts Research Program (TIRP) Research Brief

Walking Tolerance of Transitway Park-and-Ride Users

Key Findings

- The area around transit stations can have both park-and-ride facilities and transit-oriented development—the two are not mutually exclusive.
- Walking distance is the most important factor for people when they are deciding whether to park and ride at transitway stations.
- Transitway park-and-riders will walk nearly two city blocks farther if the pedestrian environment is improved.

Project Background

To maximize transit ridership, station areas are often planned for either park and ride (P&R) or for transit-oriented development. P&R facilities provide access for suburban auto users but can reduce station-area walkability. Thus, the two approaches can seem mutually exclusive.

Twin Cities planners are interested in a hybrid option: locating P&R facilities at the periphery of development around transitway stations. This hybrid would require transit users to walk farther to their stops or stations.

Little research has been conducted, however, on how far P&R lots can be located from transitways while maximizing ridership and revenue—the “walking tolerance.” Moreover, no previous studies have explored how walking tolerance varies by the design of walkways between P&R lots and transit stations.

U of M researchers conducted several experiments to better understand walking tolerance. They studied how far P&R users are willing to walk, which factors influence that willingness, and which factors are the most important in their decisions.

Project Design

Researchers surveyed P&R users of lots serving various transit modes and locations throughout the Minneapolis–Saint Paul metro region. In total, 570 surveys were completed. For the analysis, the researchers set the minimum walking distance at two blocks and the maximum at five. (A city block is defined as about 0.1 mile.) Data were collected over a one-month period in the fall of 2016.

The survey asked about respondents’ last P&R trip, attitudes with respect to their daily travel habits, behaviors when there isn’t a P&R station, and preferred pedestrian environment.

One portion of the survey drilled down further into the pedestrian environment. Respondents were asked to imagine walking from a P&R lot through a shopping area to reach their stop or station and given four scenarios. Then, they were asked how four attributes—walking distance, pedestrian infrastructure, intersection safety, and building appearance—would affect their willingness to park and ride.

In addition, respondents were asked to rate how important 15 aspects of the built environment are when they decide how far they are willing to walk. These included the condition of the sidewalk, temperatures, the absence of trash, places to sit, the presence of business or shops, and other people out walking.

TIRP Partners and Supporters:

- Anoka County
- Center for Transportation Studies, University of Minnesota
- Center for Urban and Regional Affairs, University of Minnesota
- City of Bloomington
- City of Minneapolis
- City of Saint Paul
- Dakota County
- Federal Transit Administration
- Hennepin County
- Hennepin–University Partnership
- Metropolitan Council
- Metro Transit
- Minnesota Department of Transportation
- Ramsey County
- State and Local Policy Program, Humphrey School of Public Affairs, University of Minnesota
- University Metropolitan Consortium, University of Minnesota
- Washington County

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Study participants were asked how different scenarios would affect their willingness to park and ride.

Result Highlights

- The average walking distance for all respondents is three city blocks. Nearly 39 percent choose to walk two blocks, while at the other extreme, only 11 percent choose to walk five blocks.
- When people choose whether to park and ride, walking distance is much more important than pedestrian infrastructure, intersection safety, or building appearance.
- Park-and-riders are willing to walk farther in better pedestrian environments. For example:

Ample pedestrian infrastructure = **0.67 BLOCK FARTHER**
Safe intersections = **0.62 BLOCK FARTHER**
Attractive buildings = **0.47 BLOCK FARTHER**

If all three are combined, park-and-riders are willing to walk approximately **1.8 blocks** (or 0.18 mile) farther than they currently do.

- Willingness to walk also varies by transit type, demographics, and travel attitudes. For example, light-rail users are willing to walk farther than riders of other types of transit.
- Of the 15 built-environment attributes, these were the top five:
 - Sidewalks and crosswalks cleared of snow
 - Adequate street lighting
 - Presence of crosswalks and pedestrian signals
 - Sidewalks in good condition
 - Area is free of trash

“This research is critical to station area planning efforts underway for the Gold Line. It will be instrumental to planners working to find the balance between development and walking distance to achieve the highest and best use for land adjacent to Gold Line stations.”

—Jan Lucke, Planning Division Director,
Washington County Public Works Department

About the Research

Exploring the Walking Tolerance of Transitway Users (MnDOT 2017-29) was authored by Professor Jason Cao and graduate students Joseph Lampe and Chen Zhang of the Humphrey School of Public Affairs. The research was sponsored by the Minnesota Department of Transportation under the Transitway Impacts Research Program.