

Understanding the Impacts of Transitways

Demographic and Behavioral Differences between Hiawatha Light-Rail and Other Transit Riders

A Transitway Impacts Research Program (TIRP) Research Brief

“The Hiawatha LRT has a much broader influence on the regional transportation network than local buses and express services. LRT plays an important role in improving regional accessibility.”—Jason Cao



Project Background

This study examines the profile of transit riders in the Twin Cities and explores the environmental factors influencing mode choice of access to transitways. Researchers compared demographic and behavioral differences in riders of light rail, local buses, express buses, and premium express buses.

Project Design

The data used in this study came from the 2005 Metropolitan Council Transit Rider Survey (TRS). The survey asked transit riders about the characteristics of their trips including origin and destination, boarding and exit stations, access and exit mode choice, and trip transfer and purpose. The survey is available in four languages: English, Hmong, Somali, and Spanish.

Project Conclusions

Choice vs. Captive Riders

A captive transit rider does not have a vehicle or cannot drive. A choice transit rider can drive and does have a vehicle, but chooses transit instead. Researchers found premium express buses have the greatest percentage of choice riders (96 percent) and local buses carry the greatest percentage of captive riders (52 percent).

Project Fast Facts

- Light-rail transit balances efficiency and equity by serving both riders who depend on transit and those who use transit by choice.
- Light-rail transit has a broader influence on the regional transportation network than buses.
- Seventy-five percent of light-rail riders walk farther than a quarter-mile to reach a station.
- Light rail promotes reverse commuting: 33 percent of light-rail riders commuted outward.
- One-third of light-rail riders choose to park and ride.
- Light rail supports mode mixing: one in two light-rail riders transfer to another transit service.

Program Supporters:

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

Characteristics of Transit Modes

Transit Service	Definition	Type of Rider	How Transit is Accessed	Trip Characteristics
Light-Rail Transit	The Hiawatha Line from downtown Minneapolis to its southern suburbs	Mostly choice (62%)	Balanced between bus, walking, and park and ride	Home locations spread throughout the entire region; the average rider lives more than three miles from the line
Express Bus	Connects suburban areas directly to Minneapolis and Saint Paul downtowns	Primarily choice (84%)	About half park and ride (48%)	Home locations clustered at the line origin
Premium Express Bus	Express routes with coach buses	Almost exclusively choice (96%)	Mostly park and ride (62%)	Home locations clustered at the line origin
Local Bus	Serves urban and suburban areas with frequent stops	Mostly captive (52%)	Nearly all bus or walk (90%)	Home locations scattered along route; most riders live within a mile of the bus line

Light-rail transit balances equity and efficiency. It provides equity by attracting captive riders (31 percent) and by promoting a reverse commute, with 33 percent of riders traveling outward. It also provides efficiency by carrying choice riders (69 percent), alleviating congestion in downtown areas.

Access and Exit Mode Choice

Light-rail transit provides a balance in transit access mode choice among walking (37 percent), park and ride (30 percent), and bus (30 percent). Researchers also found three in four riders who walk to the light-rail station live more than a quarter-mile from the station. In addition, light-rail transit promotes mode mixing, with one in two light-rail riders transferring to another transit service.

Travel Shed Analysis

Researchers compared the home locations of each type of transit rider and found light-rail transit has a much wider, regional influence than other modes of transit. Local bus riders' home locations are clustered in a narrow strip along the bus route. Express and premium express bus riders' home locations are clustered in the suburban area of the line's origin.

In contrast, Hiawatha light-rail transit riders come from the entire region, promoting regional accessibility. The average light-rail rider lives more than three miles from the rail line. Researchers also analyzed existing bus routes along the future Central Corridor light-rail route and concluded this light-rail line has the same potential for promoting regional accessibility.

About the Research

The research was conducted by University of Minnesota Humphrey Institute assistant professor Jason Cao and funded by the Transitway Impacts Research Program (TIRP).

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