

Ridership and Pedestrian Impacts of Transitways

A Case Study of Hiawatha Light-Rail Transit in Minneapolis

A Transitway Impacts Research Program (TIRP) Research Brief



Photo courtesy of MnDOT

Project Background

This study explores the ridership and pedestrian impacts of the Hiawatha Line in the Minneapolis–St. Paul metropolitan region by comparing the travel behavior of residents in the LRT corridor to those in similar corridors without LRT but with comparable bus service. It investigates the reasons why residents choose to live in the LRT corridor, the associations between transit use and residency in the LRT corridor, and the effects of LRT and the built environment on pedestrian travel.

Project Design

The data for this project come from resident surveys combined with additional information about survey respondents' residential environment, including population density, land-use mix, design, and business activity. Researchers first identified a four-station section in the middle of the Hiawatha Line to be the study's focus; this section is in a traditional residential area in south Minneapolis and spans 3.8 miles of the 12-mile Hiawatha Line.

Researchers then selected four corridors to compare with the Hiawatha LRT Corridor: Nicollet Avenue and Bloomington Avenue in south Minneapolis as the urban control corridors, and Coon Rapids and Burnsville as the suburban control corridors. The urban corridors resemble the Hiawatha Corridor in terms of demographics, location context, built environment, and transit access (via comparable bus service). The suburban corridors have demographics similar to the Hiawatha Corridor, but they have the curvier roadways typical of suburban areas and typically require a park-and-ride for transit access.

After the corridors were identified, about 6,000 surveys were mailed to a random sample of residences in the four control corridors and to residences within a half-mile of the four stations in the Hiawatha LRT Corridor; about 22 percent of the surveys were returned.

Project Conclusions

To better understand the overall impacts of the Hiawatha Line, researchers analyzed the data and drew conclusions in three areas: residential preferences of Hiawatha residents, the impacts of the Hiawatha Line on transit use, and the relationship between the Hiawatha Line and pedestrian travel.

Residential Preferences of Hiawatha Residents

Researchers first focused on residents who moved into their respective corridors after the opening of the Hiawatha Line. They compared the preferences of Hiawatha Corridor residents with those of residents in the control corridors.

Project Fast Facts

- Residents who lived in the Hiawatha Corridor when the light-rail transit (LRT) line opened increased their transit use substantially—a clear ridership bonus from LRT.
- Residents who moved into the corridor after the LRT line opened use transit as often as new residents in similar urban neighborhoods without LRT.
- When looking for a place to live, good transit service and job accessibility are important factors for both urban and suburban residents—ranked behind only housing affordability and neighborhood safety.
- Residents choose to live near Hiawatha LRT stations because of their strong preference for transit access and quality.

Program Supporters:

- Anoka County
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- Minnesota Department of Transportation
- Ramsey County
- Saint Paul Area Chamber of Commerce
- State and Local Policy Program, Humphrey School of Public Affairs, University of Minnesota
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- Washington County

Findings include:

- In choosing where to live, good transit service and job accessibility are important factors for residents of all areas—both urban and suburban—ranking behind only housing affordability and neighborhood safety and ahead of more than 20 other factors such as high-quality schools.
- Hiawatha Corridor residents have a stronger preference for transit access and quality than residents of the urban control corridors.

Impacts of the Hiawatha Line on Transit Use

The second area of the study measured the impact of the Hiawatha Line on transit use among residents living in the Hiawatha Corridor. Findings include:

- A ridership bonus for LRT is evident: transit use among residents who already lived in the Hiawatha Corridor when the LRT line opened increased substantially for both work and non-work travel.
- Transit use by residents who moved into the LRT corridor after the line opened is similar to that of residents in the urban control areas.
- Residents in the Hiawatha Corridor use transit about three times more often than suburban residents do.

The Hiawatha Line, the Built Environment, and Pedestrian Travel

The final area of the study examined how LRT and the built environment affect pedestrian travel for purposes beyond walking to stations. Findings include:

- Residents walk to stores more frequently if their homes are near commercial areas and their neighborhoods have adequate population density and a continuous street grid.
- Residents walk for recreation more frequently if there is a continuous street grid, but population density and proximity to stores are not significant factors.
- Residents along the Hiawatha Line, which has a frequently interrupted street grid, walk for shopping or recreation at the same frequency as bus riders—LRT did not have a distinct measurable impact on walking.

Recommendations

To encourage transit use among station-area residents, the researchers recommend the following:

- Consider development potential when planning LRT routes and design a vibrant place rather than a traffic node to ensure a mix of activities and users.
- Create pedestrian-friendly connections between residential neighborhoods and rail stations.

About the Research: The research was conducted by Assistant Professor Xinyu (Jason) Cao and research assistant Jessica Schoner of the Humphrey School of Public Affairs at the University of Minnesota and funded by the Transitway Impacts Research Program (TIRP).



Researchers studied a four-station section in the middle of the Hiawatha Line between Lake Street and 50th Street.