

MOUNTAIN-PLAINS CONSORTIUM

RESEARCH BRIEF | MPC 24-562 (project 677) | September 2024

Understanding Paratransit Examining Time Inefficiencies and the Efficacy of Alternative Modes for Persons with Disability



the **ISSUE**

Paratransit is assumed to be an effective door-to-door service that enables people with disabilities to travel easily. However, when using the standard benchmark of car travel as a comparison, passive data show that paratransit often fails those with disabilities.

the **RESEARCH**

Researchers looked at Access-a-Ride trip data collected over 30 months, from January 2019 to June 2021. The dataset, obtained from the Regional Transportation District (Denver), included about 1.16 million trips detailing important information such as pick-up and drop-off locations. The researchers also estimated car trip duration for the same pick-up and drop-off points using the Google Distance Matrix API. They used a cleaned-up dataset with a randomly selected 10% sub-sample for this analysis. They examined the nature of paratransit demand using mapping and followed up with regression analysis where the outcomes were trip time on paratransit rides and a counterfactual for car travel for the same origin-destination pair.



A University Transportation Center sponsored by the U.S. Department of Transportation serving the Mountain-Plains Region. Consortium members:

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Project Title

Understanding Paratransit:
Examining Time Inefficiencies
and the Efficacy of Alternative
Modes for Persons with
Disability

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Regional Transportation District

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the FINDINGS

On average, female paratransit riders spent less time on the road compared with male riders. Paratransit riders experienced the longest trip times during peak hours, specifically from 7 a.m. to 8 a.m. and from 3 p.m. to 5 p.m., with trips taking about 22 and 12.5 minutes longer, respectively. In contrast, car travel during these times would have resulted in a much smaller time difference of around three minutes. Cash payers tended to have slightly less efficient trips compared with those who used tickets. Notably, riders who did not pay out of pocket experienced more efficient trips. For older riders, trip efficiency decreased, but this decline was slower compared with car trips. Additionally, increased daily precipitation led to lower efficiencies for both modes of travel, with car trips being marginally more efficient. In contrast, higher average daily temperatures reduced the time spent on paratransit but did not affect car travel efficiency.

the IMPACT

This research is important for practitioners and scholarly communities working to improve paratransit policies. Agency-side policy has not been the focus of researchers, who have largely investigated technology-enabled solutions to increase efficiency for travel modes of those with disabilities. This research examines other avenues, so far unexplored, to increase time-efficient travel for people with disabilities. For example, the analysis suggests that agencies should focus on improving paratransit services through adopting tools that eliminate pre-travel inefficiencies and leverage the spatial and temporal patterns to optimize operational efficiency.

For more information on this project, download the Main report at <https://www.ugpti.org/resources/reports/details.php?id=1225>

For more information or additional copies, visit the Web site at www.mountain-plains.org, call (701) 231-7767 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.



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