



Examining Transportation Infrastructure Investments at Large Employment Hubs for Improving Workers' Travel: A Case Study of the Denver International Airport

CTIPS-046 – UTC Project Information

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Center Name:	Center for Transformative Infrastructure Preservation and Sustainability
Research Priority:	Preserving the Existing Transportation System
Principal Investigator(s):	Manish Shirgaokar, PhD, AICP Aditi Misra, PhD Wesley Marshall, PhD, PE
Project Partners:	USDOT, Office of the Assistant Secretary for Research and Technology – \$50,000 Denver International Airport – \$50,000
Total Project Cost:	\$100,000
Project Start and End Date:	5/21/2025 to 5/20/2027

Project Description

The U.S. economy has evolved into specialized sectors where a variety of workers are needed. These sectors are as varied as logistics, information technology, health, recreation, education, and travel. Often specialized employment hubs are located outside urban centers due to cheaper land or other accessibility benefits for the movement of goods and services. Large employment hubs, located away from urban centers, are unique in their challenges for transportation for workers. Broadly, researchers have shown that the heterogeneous nature of employment agglomeration has varying impacts on commute distance, congestion, and travel mode choice. Most workers may decide to drive to and from work since transit is generally limited especially during off-peak travel times and active transportation is infeasible to/from such destinations due to greater travel distance. This pushes workers to rely on single-occupancy vehicle trips, with accompanying impacts on higher congestion in and around large employment centers.

Denver International Airport is a case study of such a large employment hub, located outside the urban center, serving 82.3 million passengers in 2024. The Airport employs about 40,000 people who experience traffic congestion, higher out-of-pocket costs, and other issues while traveling to and from work. In this research, we will build on previous work conducted with the Airport during the Fall 2023

semester, where Dr. Shirgaokar's graduate transportation class had the Airport as a client and studied transportation investments to aid workers' travel. Separately, the Airport conducted a large survey of employees (n=2700) and collected data through other techniques by engaging with both workers and on-site employers (e.g., concessioners). Denver International Airport will act as subject-matter experts and provide access to data assets and feedback for this research.

The main objective of this research is to identify consumer segments in the employee pool at the Airport through statistical analysis. We ask: Based on stated travel preferences, what types of infrastructure investments can make travel for workers more efficient? The research team, in close collaboration with the Airport staff, will also engage directly with workers at the Airport using semi-structured interviews and/or focus groups to gather deeper insights regarding what workers value in terms of easing transportation to/from the Airport. Especially in cases such as airports, transportation investments are made with passengers in mind. The Denver International Airport's focus on workers' travel needs is timely and offers a unique opportunity to study policy changes in real time. The research team will help with evaluation of several strategies that the Airport will roll out during 2025-26. Working closely with the Airport Planning & Design team, this research is uniquely positioned to have a significant technology transfer component in terms of evaluation of infrastructure investment strategies and consumer segment identification.

USDOT Priorities

This research is closely linked to the USDOT's strategic goal concerning economic strength and global competitiveness. For a robust economy, firms in the United States need to be able to attract workers at all skill levels, and making day-to-day travel easy is one way to keep employees satisfied. Broadly, keeping employment centers vibrant and competitive by reducing congestion in/around areas with large employers through transportation investments is needed in the United States. This will not only reduce travel friction but make it effective and cheaper for workers to travel to job centers. This project is a detailed case study in one location with the potential to generalize lessons learned across various capital and programmatic investment strategies used by large employers across the United States.

Outputs

Denver International Airport is the client for this project and will act as advisor and subject-matter experts. The research team will work in close collaboration with Denver International Airport in evaluation of various transportation investment policies being rolled out during 2025-26. The findings from this project are very likely to directly impact worker-focused transportation investments at Denver International Airport. The findings from this study will be documented in a public facing report for CTIPS and will be available for a wider audience. Further, one or more peer-reviewed conference paper/s and journal article/s will be written to help with sharing the lessons learned with an academic and expert practitioner audience.

Outcomes/Impacts

The anticipated outcomes of this research include:

- Development of an analytical method to reveal consumer segments in employee travel preference data
- Validation of consumer segments through qualitative analysis
- Evaluation of transportation investment strategies used by ex-urban employment centers

Final Report

Upon completion, the final report link will be added to the [project page on the CTIPS website](#).