



# Expanding Pedestrian Modeling Tools Beyond the Portland Region

Kelly Clifton, Ph.D.

A NITC report offers improved tools for pedestrian modeling. Led by Kelly Clifton of Portland State University, researchers had previously created the the MoPeD pedestrian demand model as well as a pedestrian index of the environment (PIE) for forecasting pedestrian travel. The PIE index improved the sensitivity of walk trip models by incorporating contextual features of the built environment that affect walking behavior in the Portland, Oregon region.

Useful for academic researchers in transportation, Clifton’s research provides a framework for incorporating pedestrian travel behavior forecasts into traditional four-step travel demand models.

Since the method was based on Portland, the next step was to adapt the tools for wider use. The research team worked on making those measures, models and methods more transferable to other locations.

Researchers tested the walkability measure in Los Angeles, Minneapolis, San Diego, San Francisco, and Seattle to see if “PIE” estimated from one region could be applicable in another.

## TOWARDS A “WALKABILITY INDEX”

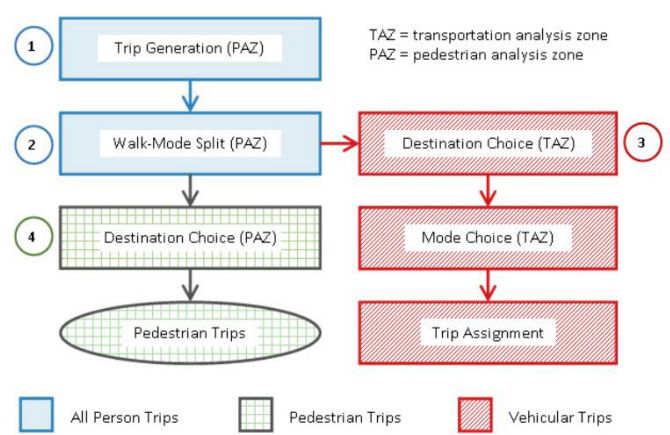
The results of this project showed:

- Population density and pedestrian connectivity had the strongest and most consistent relationship to walk mode choice across all of the regions tested.
- Other components of the built environment (such as road network density and transit access) had more variability in their ability to explain walk mode choice.

- Employment density and its retail and service access were found to have less explanatory power and stability across the cities tested.
- The interregional comparisons of PIE and walk mode share between Los Angeles and Portland showed promise for the use of the index in different regions.

Based upon these findings, the final report provides several guidelines for context-sensitive pedestrian modeling and the construction of a “walkability index” for other regions.

The overarching goal of this research is to increase the representation of walking within travel demand models, and to design a replicable tool for other metropolitan areas that works within the existing four-step model:





## ABOUT THE AUTHORS

The research team consisted of Kelly Clifton and Jaime P. Orrego-Onate, Portland State University; Patrick A. Singleton, Utah State University; and Robert J Schneider, University of Wisconsin – Milwaukee.


## ABOUT THE FUNDERS

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## THE FULL REPORT and ONLINE RESOURCES

For more details about the study, download the full report **Transferability & Forecasting of the Pedestrian Index Environment (PIE) for Modeling Applications** at <https://nitc.trec.pdx.edu/research/project/1028>

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