



RESEARCH PROJECT CAPSULE [22-5SS]

March 2022

TECHNOLOGY TRANSFER PROGRAM

Analyzing Human Mobility for Active Transportation Planning in Louisiana

JUST THE FACTS:

Start Date:
March 1, 2022

Duration:
18 months

End Date:
August 31, 2023

Funding:
TT-Fed/TT-Reg – 5

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POINTS OF INTEREST:

Problem Addressed / Objective of
Research / Methodology Used /
Implementation Potential

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PROBLEM

Active transportation refers to any human-powered mode of transportation, such as walking and biking. Complete Streets is a concept for improving infrastructure to promote active transportation and balance multi-modal demand. The Louisiana Department of Transportation and Development (DOTD) adopted a Complete Streets Policy in 2010 to "balance access, mobility, and safety needs" of all road users. However, in practice, justification for active transportation infrastructure investment based on demand is a recognized challenge.

Short-duration "peak hour" counts may miss the days or times when pedestrian/bicyclist activity is most likely to occur. Using this data can lead to a false conclusion of "no observed walking/biking activities." The issue is common among states who do not have sufficient pedestrian/bicyclist count data to model or forecast demand.

This challenge leaves the DOTD, MPOs, and local authorities without strong data support when an active transportation infrastructure investment decision needs to be made. When the amount of funding is limited, projects serving pedestrian/bicyclist activities may easily lose their competitiveness due to the lack of demand justifications.

OBJECTIVE

The objective of this research is to identify areas in Louisiana with need for active transportation infrastructure (e.g., sidewalks and bicycle lanes). The need will be determined based on human mobility data collected continuously and anonymously from mobile devices.

METHODOLOGY

To achieve the objective of this study, the research team will complete several tasks. First, the team will review active transportation demand planning methods by conducting a broad scan of literature. Next, information from a large-scale, open-source dataset from SafeGraph will be retrieved and filtered for purposes of the study. SafeGraph data is passively and anonymously collected from mobile devices year-round.

The research team will use this data to identify active transportation hot areas and trends. An active transportation mobility index will be developed based on the data, which is expected to show that a high proportion of significant demand for access to certain locations could potentially be served with active transportation.

Then, connectivity-, safety-, and equity-related factors can be integrated for derivation of an active transportation infrastructure investment score. The developed mobility index and investment score each provide data-driven support for decision-makers. Results may be presented through an online map platform for data visualization, quick access, and easy interpretation.

IMPLEMENTATION POTENTIAL

The proposed research approach is based on a large-scale mobility dataset and investigates the potential where active transportation facilities can achieve greater success, which will be useful to active transportation planning, project prioritization, and investment decisions in Louisiana.

The mobility dataset is posted online and updated monthly, which makes the proposed methodology replicable into the future. This research has the potential to provide continuous support for active transportation planning and for tracking performance of related investments.