



RESEARCH PROJECT CAPSULE [24-2SS]

February 2024

TECHNOLOGY TRANSFER PROGRAM

Trip Generation for Various Sites

JUST THE FACTS:

Start Date:

January 1, 2024

Duration:

24 months

End Date:

December 31, 2025

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

State and local agencies in Louisiana, in common with most other states, rely on the Institute of Transportation Engineers (ITE) publication of trip rates to assess the traffic impacts of various development proposals. However, there are several problems for Louisiana to rely on these trip rates.

First, the data on which they are based was collected mainly in large urban areas in the northeast of the USA. As such, they may not be applicable in smaller urban and semi-urban areas in Louisiana. Second, the rates are often derived from a very small sample of locations. For example, some rates are based on only three locations. Third, most sites from which the data were collected are reasonably well served by public transportation; whereas, in most of Louisiana, there is little or no public transportation serving the land uses of concern. Fourth, some of the data are quite dated and were collected before many recent advances occurred in the ability of people to make transactions through web-based and similar services. As a result, the rates published by ITE may be quite inaccurate for today.

In addition, ITE trip rates are generally presented as being based solely on the land use in question and primarily as a function of the floor area of the land use. As shown in recent research undertaken for DOTD, contextual factors may play a significant role in affecting the trip generation rates of some land uses. It is therefore desirable to explore to what extent contextual factors should be used in determining appropriate trip rates for some land uses in Louisiana.

OBJECTIVE

This research covers six types of land uses of greater interest to DOTD as a pilot study. They are apartments, urgent care facilities, dollar stores, car washes, drive-thru banks, and drive-thru daiquiri/boil shops. This research will respond to the following six questions:

1. How much variability is there in the trip rates among sites and through the week?
2. Are the trip rates really significantly different from ITE, so as to warrant further determination of rates?



Figure 1. Using radar devices and countCAM4 for traffic counting

3. Is there apparent variability with contextual factors (assuming that sites are chosen that cover some variability in contextual factors, which is a requirement of the design)?
4. What should be the priority for determining new trip generation rates for use in Louisiana (as evidenced by deviation from ITE and potential impact on traffic planning)?
5. Can the new smart micro radars provide more accurate counts?
6. Can third party mobility datasets provide accurate count data for computing trip rates?

METHODOLOGY

The team will complete the following tasks to answer the six questions previously mentioned. They will begin with a literature review to determine any recent advances in the computation and measurement of trip rates from individual land uses, including advances in videography, image recognition, and detection of vehicle and pedestrian movements. In addition, literature on the importance of contextual factors for determining trip rates of various land uses will be reviewed.

The research team will then select sample sites for surveys and develop a measurement schedule based on a list of sites provided by the Project Review Committee members. Before launching the full counting survey, a pilot test of counting devices will be conducted. The purpose of this pilot testing is to select devices that perform better for the selected survey locations. After completing data collection, all the collected data will be reviewed, validated, and cleaned to support statistical analysis in responding to the six research questions.

IMPLEMENTATION POTENTIAL

The research will identify any potential differences between the ITE trip rates and those of Louisiana for the six different land uses. Recommendations will be made to answer further data collection for which land use(s) should be prioritized and which counting technology/method works better for each type of land use.