



RESEARCH PROJECT CAPSULE [19-3SS]

November 2019

TECHNOLOGY TRANSFER PROGRAM

Exploring Non-Traditional Methods of Obtaining Vehicle Volumes

JUST THE FACTS:

Start Date:

August 1, 2019

Duration:

12 months

End Date:

July 31, 2020

Funding:

SPR: TT-Fed/TT-Reg

Principal Investigator:

Julius Codjoe, Ph.D., P.E.

Research Assistant Professor

Louisiana Transportation Research Center

225-767-9761

Administrative Contact:

Tyson Rupnow, Ph.D., P.E.

Associate Director, Research

225-767-9124

Technical Contact:

Elisabeta Mitran, Ph.D.

Assistant Professor, Research

225-767-9129

Louisiana Transportation

Research Center

4101 Gourrier Ave

Baton Rouge, LA 70808

Sponsored jointly by the Louisiana

Department of Transportation and

Development and Louisiana State

University

POINTS OF INTEREST:

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

WWW.LTRC.LSU.EDU

PROBLEM

Annual Average Daily Traffic (AADT) is a key input in any transportation agency's roadway planning/design/maintenance activities, traffic operations, and roadway safety assessments. AADT is needed for calibration/validation of travel demand models, estimation of statewide vehicle-miles-traveled, and must be reported to the Federal Highway Administration.

The Louisiana Department of Transportation and Development (DOTD) presently collects traffic counts on approximately 16,000 miles of state roadways on a three-year cycle at about 4,800 locations, and on over 44,000 miles of non-state roadways on a 10-year cycle at limited locations. Major cities have counts collected or estimated by their Metropolitan Planning Organization (MPO). Rural and small urban areas do not have systemic traffic counts or estimation programs for their non-state roadways.



Figure 1

One of the photos depicted on Citilab's website about Streetlytics app

Source: <https://www.citilabs.com/software/streetlytics/>

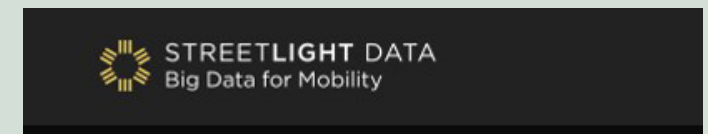


Figure 2

Logo of Streetlight Data

Source: <https://www.streetlightdata.com/>



Figure 3

Pictures depicting traditional AADT counter and Big Data AADT analytics

Source: <https://www.traffictechnologytoday.com/news/data/streetlight-data-expands-insight-platform-with-canadian-aadt-counts.html>

The lack of timely traffic volumes for state and local roads hinders roadway safety assessments and development of cost-effective safety improvement projects. Potential alternatives for having systemic AADT on all Louisiana roadways is available from Streetlytics (a joint venture of AirSage and Citilabs) and Streetlight Data.

LTRC Project 16-3SA “Evaluating Cell Phone Data for AADT Estimation” evaluated the accuracy of Streetlytics traffic counts when compared to traditional DOTD counts. Results showed that while there were differences, the greatest discrepancies were observed for locations with AADT under 300 vehicles per day (vpd). Streetlytics has made subsequent upgrades to its program. Streetlight Data was not included in the 16-3SA evaluation.

Based on recommendation from the 16-3SA Project Review Committee, the 19-3SS project will compare monthly volume counts to traditional counts for a specific month. It is anticipated that the study findings will present a more accurate assessment of the Streetlytics tool to predict actual volumes observed on the roadways, especially for low-volume roadways. It will also compare Streetlight Data with Streetlytics.

OBJECTIVE

The primary objective of this project is to evaluate the accuracy of information available from Streetlytics and Streetlight Data for rural roads with counts under 500 vpd and to make a recommendation as to whether DOTD can adopt either tool to provide accurate AADT for these areas.

Specifically, the main objectives are (1) to conduct a review of available AADT estimation tools and to document their pros and cons as well as their differences; (2) to develop a list of roads with counts under 500 vpd to be used for the comparative study; (3) to obtain Streetlytics, StreetLight Data, and traditional counts for the selected sample; (4) to perform comparative analysis to evaluate the accuracy of Streetlytics and StreetLight Data counts using traditional counts as ground truth; and (5) to make a recommendation on whether each tool offers more value than traditional counts.

METHODOLOGY

Initially, a literature search on available AADT estimation tools will be conducted. The research team will work with a Metropolitan Planning Organization (MPO) and the DOTD Highway Safety office to better understand and document how the data generated by these tools can be integrated into their respective units for maximum benefit.

A sample of roadways will be selected for evaluation of traffic data availability from DOTD: 2018 AADT for permanent count locations, 2018 24-hour counts for specific days of the month at both low- and high-volume locations, and 2019 full month counts for low-volume locations. The full month data is expected to be obtained with pneumatic tube counts, i.e., traditional counts. The project’s budget also allows for some data collection by an independent agency, if needed.

The research team will request corresponding counts from Streetlytics and StreetLight Data. These counts will be compared with the traditional counts. It is anticipated that there will be differences. This research will attempt to provide justification for what may be considered accurate enough.

IMPLEMENTATION POTENTIAL

Results from this study may lead to more immediate availability of accurate traffic data for Louisiana roadways. A statewide subscription license may be required to enable instant access to this data.