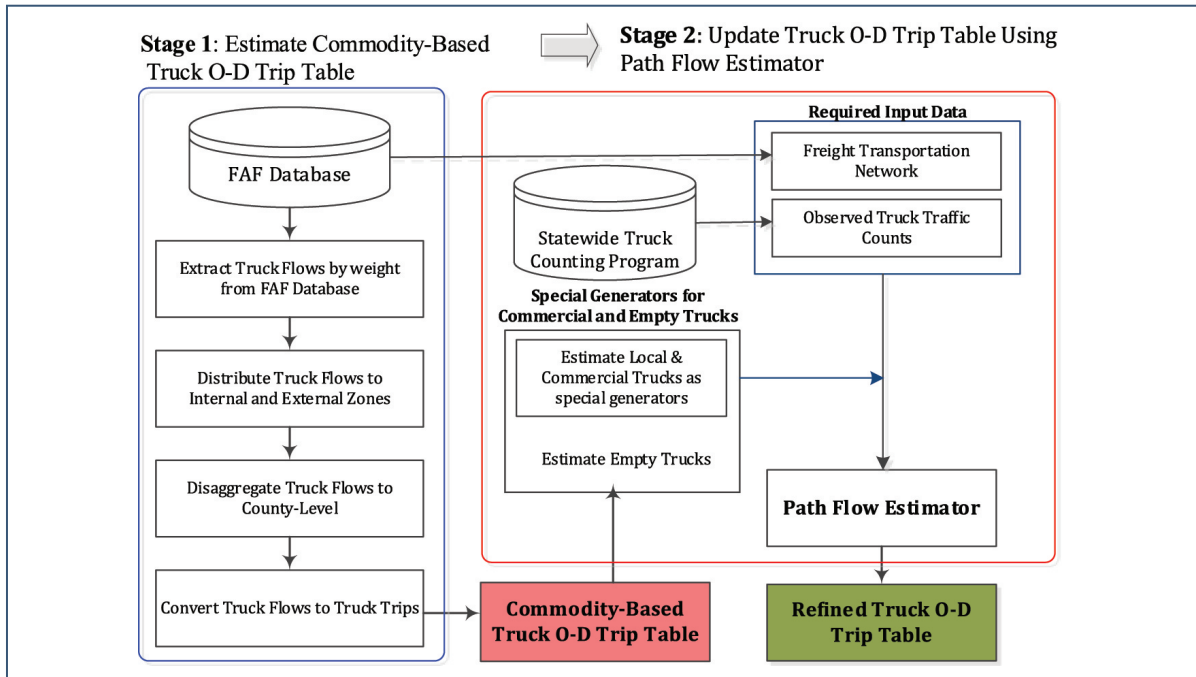


MOUNTAIN-PLAINS CONSORTIUM

PROJECT BRIEF | May 2014

A Two-Stage Approach for Estimating a Statewide Truck Trip Table



the ISSUE

Statewide models including passenger and freight movements are frequently used for supporting numerous statewide planning activities. There is an urgent need to develop innovative methodologies that make use of the publicly available data from both federal and state levels to estimate reliable and accurate statewide truck origin-destination trip tables.

the RESEARCH

This research develops a two-stage approach for estimating a statewide truck origin-destination trip table. The proposed approach is supported by two sequential stages: one estimates the commodity-based truck origin-destination trip table primarily derived from the commodity flow database, and the other refines it using the observed truck counts to reproduce the better matches. The first stage uses a national commodity flow data from the Freight Analysis Framework Version 3 (FAF3) database to develop a commodity-based truck trip table. The second stage uses the path flow estimator (PFE) concept to refine the truck trip table obtained from the first stage using the truck counts from the statewide truck count program. The model allows great flexibility of incorporating data at different spatial levels for estimating truck origin-destination trip tables. A case study is conducted using the Utah statewide freight transportation network to demonstrate how the proposed approach can be implemented.



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University of Denver
University of Utah

Utah State University
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Project Title

A Two-Stage Approach
for Estimating Statewide
Truck Trip Table

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the FINDINGS

The two-stage approach developed in this research provides an alternate method for estimating statewide truck trip table by combining the commodity flow data from the Freight Analysis Framework Version 3 (FAF3) database and the truck counts from the statewide truck count program. The case study using the Utah statewide freight transportation network demonstrated that the proposed approach is a viable and cost-effective way for estimating statewide truck trip table using publicly available data from both federal and state levels. Although the results using Utah as a case study are satisfactory, accurate and consistent truck counts are required in the two-stage approach to produce reliable results. Further work should be conducted to improve the accuracy and quality of the truck origin-destination trip table.

the IMPACT

Estimated statewide truck origin-destination trip tables will be useful to the state DOT and MPOs in addressing the impacts of truck traffic on congestion, infrastructure deterioration, safety, and environment. Specifically, the statewide O-D truck trip table can contribute to better understanding of the impacts of truck traffic in the transportation network and allow better planning, design, and management of highways, bridges, and pavements. Common uses of truck flow information includes: pavement and bridge design and management, prediction of freight movements, capacity expansions of highway segments and freight corridors, accident analysis, and environmental analysis.

For more information on this project, download the entire report at <http://www.ugpti.org/resources/reports/details.php?id=770>

For more information or additional copies, visit the Web site at www.mountain-plains.org, call (701) 231-7938 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.



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