

# JOINT TRANSPORTATION RESEARCH PROGRAM

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SPR-3704

2015

## Indiana State Highway Cost Allocation and Revenue Attribution Study and Estimation of Travel by Out-of-State Vehicles on Indiana Highways

### Introduction

This study was commissioned by the Indiana Department of Transportation to investigate the cost responsibilities and revenue contributions of highway users with regard to the upkeep of highway infrastructure in Indiana.

The costs consisted of expenditures on construction, preservation, maintenance, and operation of the highway infrastructure at both the state and local levels. For revenues, user and non-user sources at federal, state, and local levels were considered. User sources included fuel tax, motor carrier surcharge tax, motor carrier fuel use tax, vehicle registration fees, driver license fees, taxes on truck and trailer sales, tires, and heavy vehicle use, county motor vehicle excise surtaxes, and wheel taxes. The highway asset types included pavements, bridges, and those known to enhance highway safety and mobility. The highway users were represented by the thirteen (13) FHWA vehicle classes, and the study was based on 2009–2012 data on expenditures and revenues.

The study framework duly recognized the dichotomy between attributable and common costs. For allocating the attributable costs to the vehicle classes, ESALs, AASHTO load equivalency factors, and PCEs were used. Common costs were allocated on the basis of VMT.

For each vehicle class, the share of revenue contribution was compared to the share of cost responsibility to determine the equity ratio and thus to ascertain the extent to which vehicles in each class may be underpaying or overpaying their cost responsibilities.

The second objective of the study was to determine the distribution of fuel purchases and travel by

out-of-state vehicles on Indiana highways. This analysis was carried out to further refine the results of cost allocation and also to quantify the magnitude of any imbalance between the out-of-state travel and share of consumption on Indiana's infrastructure and the revenue from out-of-state vehicles.

### Findings

Pavement and bridge expenditures represent a dominant share of the overall expenditures. Classes 2 and 9 were found to have a dominant share of the cost responsibility. Of the total revenue, approximately 64% was from user sources while 36% was from non-user sources. The inability of user revenue sources to cover the total highway expenditure and the partial reliance on non-user sources can be considered rather problematic, particularly because the non-user sources are characterized by significant variability and, therefore, uncertainty.

On the basis of the expenditures and revenues associated with various vehicle classes over the analysis period, this study found that inequities exist, albeit in different directions and varying degrees, among the highway user groups. Of the 13 vehicle classes, classes 1–4 were found to be overpaying their cost responsibilities, while classes 5–13 are underpaying. For example, vehicle class 2 is overpaying its cost responsibility by 10% while vehicle class 9 is underpaying by 19%. The results of the equity analysis are similar to those of studies carried out at other states.

It was estimated that the travel by out-of-state vehicles on Indiana's interstates, NHS non-interstates, non-NHS, and local roads, as a percentage of total travel

on these road classes, is approximately 21%, 10%, 9%, and 7%, respectively, of the total travel as a percentage of VMT on those families of highway systems.

## Implementation

In Indiana, as in most other states, highways are financed primarily by taxes and fees paid by the state's highway users. However, in recent years, funding from user fees had declined steadily and a significant portion of the highway revenue had to be augmented by non-user sources of revenue, such as federal economic stimulus and Indiana's Major Moves (toll road lease money). The present study quantifies the extent of non-user revenues needed to support highway construction and maintenance activities at the state and local levels. The results of this study can be used to revise the existing user fee structure and/or to assess new sources of revenue. A basic principle of user-fee structure design is that efforts must be made to achieve not only equity among the users but also adequacy of the revenue amount. Therefore, the study results can be used directly to perform an evaluation of the alternatives for restructuring the user fees in Indiana.

The information on the extent of travel by out-of-state vehicles on Indiana highways can serve as critical input in reviewing any change in user fees by addressing the question of whether revenues from any individual highway revenue mechanism should come solely from Indiana residents or all road users in Indiana.

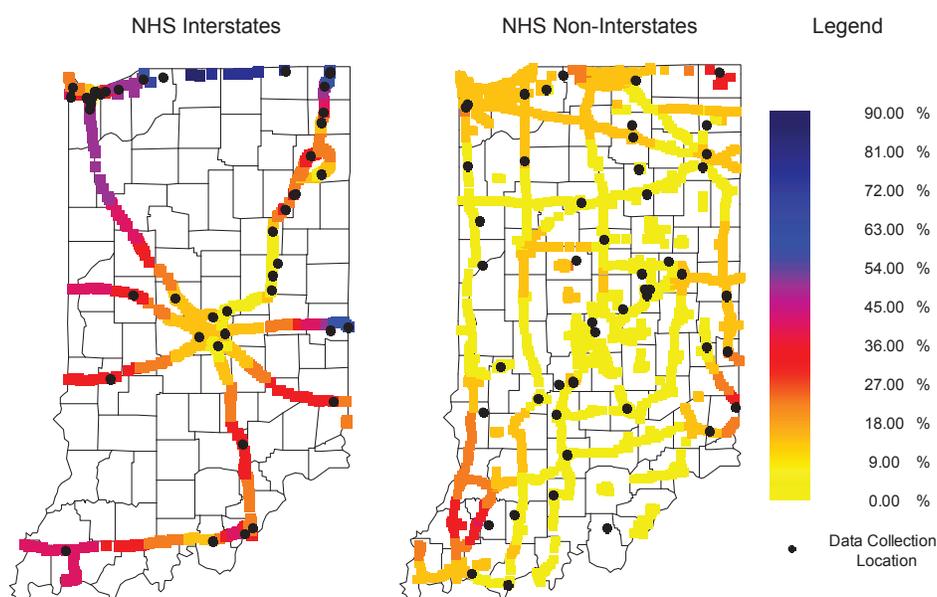
It is expected that the primary users and implementors of the study will be the the Indiana Departments of Transportation and Revenue.

## Recommended Citation for Report

Volovski, M., Bardaka, E., Zhang, Z., Agbelie, B., Labi, S., & Sinha, K. C. (2015). *Indiana state highway cost allocation and revenue attribution study and estimation of travel by out-of-state vehicles on Indiana highways* (Joint Transportation Research Program Publication No. FHWA/IN/JTRP-2015/12). West Lafayette, IN: Purdue University. <http://dx.doi.org/10.5703/1288284315709>

View the full text of this publication here:  
<http://dx.doi.org/10.5703/1288284315709>

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Percent of VMT by out-of-state drivers on NHS (for gasoline)

