MPC-384

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Project Title:
Understanding Public Perceptions of Different Revenue Generation Systems for Highway Construction and Maintenance

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Colorado State University

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Research Needs:
Fuel tax is the major funding mechanism for the maintenance and construction of the road networks in the US. Fuel tax is divided into two components: i) The Federal excise tax with a current value of 18.4 cents/gallon (Tax Foundation, 2009) and ii) state taxes that could be as low as 8 cents/gallon as in Alaska or as high as 37.5 cents/gallon as in Washington (The Council of State Governments, 2011).

The Federal excise tax is used to finance the Highway Trust fund (HTF). HTF was established by the Highway Revenue Act in 1956 to finance the construction and maintenance of the National System of Interstate and Defense Highways and also as the source of funding for the remainder of the Federal-aid Highway Program. The taxes dedicated to HTF are extended periodically by Congress through various Acts such as Intermodal Surface Transportation Efficiency Act (ISTEA), Transportation Equity Act for the 21st Century (TEA-21), and Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). In 2008, HTF account faced a risk of deficit and was supplemented with an $8-billion transfer from the general fund in September as approved by the Congress (Ichniowski, 2008). A similar risk of deficit resulted in a $7-billion infusion to HTF in August 2009 to keep the highway program at its current level (Ichniowski, 2009).

These deficits simply mean that HTF is unable to collect enough fuel tax revenue to pay for the needs of the highway program. This can be attributed to a number of issues: (i) the fact that the federal excise tax on fuel has stayed the same since 1993 despite inflation and increasing needs of the highway program, (ii) the decrease in the vehicle miles travelled due to recession in the economy, and (iii) the increase in the utilization of fuel-efficient vehicles or alternative fuels. In 2001, the federal excise tax on the fuel generated around six cents per vehicle mile travelled;

however today it only generates three and a half cents. The deterioration in the HTF income coupled with the increase in the cost of maintenance, operation, and construction, has created the shortfall in HTF as discussed above (Samuel, 2007).

With the increasing construction and maintenance costs for roads and the shortage of budget in most of the states, alternative revenue generation systems began to emerge (Gilroy & Pelletier, 2007). Some of these systems have been around for a long time (although not utilized frequently) while others are rather new systems which have been implemented only a few times in pilot projects. These systems are being discussed at different venues as possible long-term solutions to address the increasing needs of the highway program and the funding shortfall. There are newspaper and journal articles about different alternative revenue generation systems, discussing their advantages/disadvantages and applicability. However, there is a need for a study that investigates the public opinions and perceptions about these systems as well as the current system of fuel tax.

Research Objectives:

The objectives of this project are to:

1. Generate an understanding of the public perceptions of different revenue generation systems that are already in use or that have the potential to be used in the future.
2. Educate the public on the different revenue generation systems while trying to reach the objective presented above.

Research Methods:

In order to meet these objectives, this research will collect data through online surveys as well as surveys to be administered via mail. In these surveys, a brief and easy to understand explanation of each of the different revenue generation systems such as vehicle ownership charges (e.g., registration fees), fuel tax, fixed tolling, cordon/area pricing, high occupancy toll, and vehicle-miles-travelled (VMT) fee will be provided. In addition to these, an overall explanation of the Public-Private Partnership concept will also be provided. The explanation for each system will highlight, among other characteristics such as technology requirements, fee collection procedure, privacy issues, etc., the potential fees that the road users will need to pay as well as possible benefits of such system in terms of generating revenue to be used for highway construction and maintenance. The explanation will also include the impact of each system (if any) on the congestion, especially in metropolitan areas. The survey will have a number of questions in an effort to identify the perceptions of the road users on each revenue generation system. The survey will be administered only in the states covered by the Mountain-Plains Consortium (Colorado, North Dakota, South Dakota, Utah, and Wyoming). A good representation of the population in rural and metropolitan areas with different demographics will try to be attained.

Expected Outcomes:

Given that the current funding mechanism for highway programs mainly relies on the collection of fuel taxes which is prone to become less and less reliable as evidenced by the repeated shortfalls in HTF, it is time to evaluate the alternative revenue generation systems needed to construct and maintain the large network of US highways. It is critical to get the input from the road users (who will eventually bear the cost based on the revenue generation system implemented) and understand their perceptions as a part of this evaluation process. The findings

of this research will enable the policy-makers make better informed decisions on which revenue generation system to implement considering the input from the public.

The results of this project will be shared with the DOTs and policy-makers in the states within the scope of the project (Colorado, North Dakota, South Dakota, Utah, and Wyoming). These states can use this information to make better informed decisions on which revenue generation system to implement in the future considering the input from the public. The results will also be used to develop future proposals focused on performing a comparative analysis of different revenue generation systems considering a number of metrics including potential to generate revenue, technology requirements, road-user perceptions, environmental impacts, congestion impacts, etc. These proposals will be submitted to state and Federal agencies and will help make the results of this work known.

Relevance to Strategic Goals:
This study will address the "Economic Competiveness" strategic goal as it involves policy and finance research components that will address potential future funding mechanisms (in addition to the fuel tax) for transportation infrastructure development and maintenance.

Educational Benefits:
The information gathered in this study will be used by Dr. Ozbek and Dr. Atadero in teaching a "Transportation Asset Management" course, making this type of important information available to future engineers and transportation professionals/policy-makers. Furthermore, a graduate student will be hired as a research assistant to work on this project and will use this research to develop her/his thesis work.

Work Plan:
Task 1- Literature Review: The relevant literature originating from the US and other countries actively using different revenue generation systems for transportation infrastructure will be reviewed and summarized.

Task 2- Preparation of the Survey: A survey about different revenue generation systems will be prepared. In this survey, a brief an easy to understand explanation of each of the different revenue generation systems such as vehicle ownership charges (e.g., registration fees), fuel tax, fixed tolling, cordon/area pricing, high occupancy toll, and vehicle-miles-travelled (VMT) fee will be provided. In addition to these, an overall explanation of the Public-Private Partnership concept will also be provided. The explanation for each system will highlight, among other characteristics such as technology requirements, fee collection procedure, privacy issues, etc., the potential fees that the road users will need to pay as well as possible benefits of such system in terms of generating revenue to be used for highway construction and maintenance. The explanation will also include the impact of each system (if any) on the congestion, especially in metropolitan areas. The survey will have a number of questions in an effort to identify the perceptions of the road users on each revenue generation system. As such, this survey will both serve as an instrument to educate the public on different revenue generation systems and as a means to collect data on the opinions of the public on those systems.

Task 3- Pilot Administration of the Survey and Improvement: Once the survey is prepared, it will be sent to a small sample group for pilot administration and testing. Based on the feedback, the survey will be improved and finalized.

Task 4- Full Scale Administration of the Survey: The final survey will be administered in the states within the scope of the project (Colorado, North Dakota, South Dakota, Utah, and Wyoming). This will require sending out the surveys to a good representation of the population in rural and metropolitan areas as well as sending out reminders to complete that survey.

Task 5- Reporting and Dissemination: A draft and final report describing the findings of the research will be produced. A TLN seminar will be developed and presented. Furthermore, the results will be widely disseminated through a peer reviewed journal (possible venue: Transportation Research Record Journal) and a conference (possible venue: Transportation Research Board Annual Conference) to allow other states to benefit from the results of this study as well.

Schedule:

	Months							
Task	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24
1								
2								
3								
4								
5								

Project Cost:
Total Project Costs: $54,000
MPC Funds Requested: $27,000
Matching Funds: $27,000
Source of Matching Funds: Faculty time and effort

TRB Keywords:
Taxation and Finance, Congestion Pricing, Transportation Policy

References:

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