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Feasibility of Mileage-Based User Fees: Application in Rural/Small Urban Areas of Northeast Texas

Final Report

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16. Abstract

This study explores the application of mileage-based user fees, or vehicle-miles traveled (VMT) fees, as an alternative to the fuel tax in rural and small urban areas. The purpose of the study is to identify the issues associated with implementation of a potential new transportation funding system so that public and political concerns in rural communities can be addressed.

Researchers began by reviewing and evaluating the current fuel tax system in Texas to establish a baseline for any future alternative financing mechanisms. In partnership with the North East Texas Regional Mobility Authority (NET RMA) the research team conducted several outreach activities within the study area to identify potential issues and challenges that could arise when a fundamental change in the existing transportation funding system is proposed. The researchers used a variety of public perception data collection tools – including stakeholder interviews, focus groups, and a community advisory committee – to identify public acceptance issues associated with implementing a mileage-based fee system in northeast Texas. The information gathered was used to develop a public acceptance framework for evaluating a future mileage-based user fee pilot project.

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Feasibility of Mileage-Based User Fees:
Application in Rural/Small Urban Areas of Northeast Texas

Project # 08-11-06

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DISCLAIMER

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TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY 7
- Study Objectives and Approach 7
- Research Findings 7
  - Technological Criteria 8
  - User Fee Criteria 8
- Next Steps 8

INTRODUCTION 11

STRATEGIC ASSESSMENT 11
- Mechanics of the Fuel Tax 12
- Federal and State Spending 12
  - Federal Fuel Tax Allocation 13
  - State Fuel Tax Allocation 14
- Justifications for a New System 14
  - The Base of the Fuel Tax is in Jeopardy 15
  - Erosion of User Fee Principle 16
  - Opportunity to Improve Efficiency 17

MILEAGE-BASED USER FEES 17
- Conclusions from Previous and Ongoing Research 19

COMMUNITY INTERACTIONS IN NORTHEAST TEXAS 20
- Technology Alternatives for a Mileage-Based User Fee 21
- Community Advisory Committee 24
  - First Meeting 24
  - Second Meeting 27
  - Third Meeting 30
  - Fourth Meeting 31
- Stakeholder/Elite Interviews 35
  - Area Assets and Drawbacks 35
  - Vision for the Future 36
  - Tolling and Pricing 36
  - Mileage-Based User Fees 36
  - Potential Opposition Groups 37
- Focus Groups 38
  - General Issues 38
  - The Fuel Tax 39
  - Reactions to Mileage-Based User Fees 42
- Conclusions from Community Interactions 43

MILEAGE-BASED USER FREE FRAMEWORK 45
- Technological Criteria 45
  - Addresses privacy and data security concerns 45
  - Low-cost administrative functions 46
  - Simple and customer-friendly 46
  - Reliable 46
  - Tamper-proof and enforceable 46
  - Addresses future vehicle propulsion technologies 46
- User Fee Criteria 46
  - Accounts for higher mileage in rural areas 46
  - Accounts for multiple household vehicles and limited public transportation options 46
  - Charges appropriately for distance traveled by individual road types 46
  - Charges appropriately by vehicle class 46
  - Addresses out-of-state/out-of-region travelers 46
  - Does not drive transportation-dependent businesses from the region 46
  - Allows for local retention of revenue 46

Is transparent and demonstrates clearly the value added by the user fee 47
FUTURE RESEARCH 47
REFERENCES 49
REFERENCES 49
APPENDICES 51
I. Stakeholder Interview Subjects 51
II. Stakeholder Interview Guide 53
III. Focus Group Discussion Guide 55

LIST OF FIGURES

Page

Figure 1: The Texas Transportation Funding Process 13
Figure 2: FHWA Highway Cost Index and Consumer Price Index from 1990 to 2006 15
Figure 3: Annual Percentage Increase in Vehicles Miles Traveled and Fuel Consumption, Indexed to 1994 16
Figure 4: NET RMA Member Counties 21
Figure 5: The Oregon Model 22
Figure 6: The Cellular Model 23
Figure 7: The Gantry Model 24
Figure 8: Questionnaire Administered to CAC Participants 26
Figure 9: First CAC Meeting Questionnaire Results, Average Values 27
Figure 10: CAC Mileage Fee Survey Results 30
Figure 11: Results of "Mock" Mileage-based User Fee 31
Figure 12: "Simple" Flat-Fee Model 32
Figure 13: Chart Used in Focus Groups, "Sources of Revenue: Texas State Highway Fund" 40
Figure 14: Chart Used in Focus Groups, "Percentage Change in Number of Vehicles, Population and Lanes Miles between 1980 and 2003" 40

EXECUTIVE SUMMARY

Amid growing concerns over the long-term sustainability of the fuel tax as the primary mechanism for funding roadway programs at the state and federal level, exploration of various alternative taxing mechanisms is gaining interest. In 2008, researchers at the Texas Transportation Institute (TTI) received federal grant funding from the University Transportation Center for Mobility (UTCM) to explore alternatives to the fuel tax. The overall goal of the research was to lay the groundwork for a new transportation funding system that equitably addresses public and political concerns in rural communities. A system using mileage-based user fees, also known as vehicle-miles traveled (VMT) fees, was the primary mechanism studied.

Study Objectives and Approach

Researchers began by examining the current fuel tax system in Texas to establish a baseline for future efforts. The actual mechanics of the tax, in terms of collection and revenue distribution, were studied and cataloged. Researchers also conducted a survey of ongoing research into the factors that affect the fuel tax's sustainability in the long term.

Researchers next surveyed existing alternatives. Results indicated selection of mileage-based user fees as the most promising alternative worthy of additional study. Mileage-based user fees have recently been examined by the Transportation Research Board and the National Surface Transportation Policy and Revenue Study Commission as one of the most promising alternatives to the fuel tax. Most ongoing research efforts into mileage-based user fees are being conducted in larger urban areas, so TTI researchers elected to conduct their study from a small urban and rural standpoint. The northeast Texas region, which includes the cities of Tyler, Longview and Texarkana, was selected as the primary study area. The area was selected due to local interest in new transportation financing tools, including pricing, and the presence of one of the nation's only all-electronic rural toll highways – Loop 49. Furthermore, the area is relatively small in terms of population, and its geographic isolation lends itself to acting as a suitable test-bed for evaluating financing alternatives along with public education and communication.

TTI researchers worked with the North East Texas Regional Mobility Authority (NET RMA) to establish relationships and partnerships within the study area so as to identify potential issues and challenges that could arise from a proposed fundamental change in the current fuel tax-based transportation financing system. Researchers used a variety of public perception data collection tools – including stakeholder interviews, focus groups, and a community advisory committee – to identify public acceptance issues associated with implementing a mileage-based fee system.

After conducting a series of public interaction activities within the study area, researchers developed a basic implementation framework that can serve as a tool for future testing and implementation of an alternative financing system.

Research Findings

The fuel tax has served as an adequate proxy for road use since its inception. However, there are a number of forces that are eroding its effectiveness in adequately financing transportation needs in the long term:

- Increasing fuel efficiency of the U.S. vehicle fleet
- Fixed price on each gallon that has been static despite increasing demands on the system and rising construction costs
- The method by which the fuel tax is collected, making it very difficult to directly determine the amount of fuel tax revenue generated at a local scale and adjust policies accordingly
- Distribution of funds not directly tied to actual use at the collection point

Initial public reaction to an alternative approach to the fuel tax was mostly negative, but increased understanding of the challenges generally resulted in more openness to a new system. The overarching themes from the public reaction include the following:

- The fuel tax is not well understood, the transportation financing and funding processes even less so
- Gasoline prices are driving most of the discussion on transportation-related issues
- There is an overall perception that rural areas have not received their fair share of funds
- Any new system should be simple with minimal administration, transparent money flow and clear added value
- Privacy concerns are an issue, but are also individualized
- There is concern for commercial motor vehicles paying their "fair share"
- Any new system should account for rural needs: higher mileage in remote areas and limited public transportation options

Based upon the information gathered, researchers identified a general framework for an alternative funding system using mileage-based fees based on public feedback. The following sections describe aspects of that framework.

Technological Criteria

- Privacy and data security
- Low-cost administrative functions
- Simplicity and customer-friendly features
- Reliability
- Tamper-proof and enforceable funding options
- Accommodation for future vehicle propulsion technologies (e.g., will we be plugging in our vehicles to recharge, or connecting to our natural gas lines at home?)

User Fee Criteria

- Charges appropriately for distance traveled by individual road types
- Accounts for multiple household vehicles and limited public transportation options
- Charges appropriately by vehicle class to cover maintenance and needed expansion, including public transportation options (passenger rail and bus)
- Addresses out-of-state/out-of-region travelers
- Does not drive transportation-dependent businesses from the region
- Allows for local retention of revenue
- Is transparent and demonstrates clearly the value added by the user fee

Next Steps

This research effort represents the initial step towards conceptual evaluation of and pilot program implementation for a mileage based user fee program in the North East Texas region. The NET RMA has endorsed submitting a grant application to conduct an experimental pilot project in the region. Additional research should be pursued to answer questions raised by this study to explore additional issues that will need to be addressed prior to the development of a pilot program.

Further study is needed on a number of topics, including technology options. Mileage-based user fees are being implemented internationally and the recent interest by federal and state transportation agencies has led to increased development of technological alternatives. However, there has yet to be a systematic and independent review of these approaches. These technology options will have to be evaluated against the small urban and rural framework developed in this study to ensure the effectiveness of a pilot demonstration.

Researchers recommend an assessment of the legal issues and administrative barriers facing a transition away from the fuel tax and toward a mileage-based alternative. It is likely that such a transition will require legislative and/or Congressional action, and the proper path toward initiating this action has yet to be established.

The following are some of the major topics in need of future research for a transition away from the fuel tax to occur:

- What level of government (local, state, federal or other) should initiate a transition from the fuel tax?
- What would be the role of the government at each level?
- What are the available technologies for implementation of a mileage-based fee system?
- How does each of those technologies address public and political concerns?
- What is the status of other mileage-based fee implementation efforts (both domestic and international) and what can be learned from them?
- Is there an incremental approach to migrating from the fuel tax to a mileage-based fee system that is flexible enough to accommodate innovations in technology?

INTRODUCTION

The State of Oregon was the first to implement a fuel tax as a "user tax" and source of revenue for roadway projects in 1919. By 1929, all of the states with the exception of Hawaii and Alaska (not yet states) had some form of tax on fuel purchases. In 1932, the federal gasoline tax was implemented on a temporary basis and then made permanent with the Revenue Act of 1941 (1). Since that time fuel, tax revenues have accounted for the largest percentage of funds expended for transportation programs. It is estimated that for the 2008–2009 biennium, state fuel tax revenues will account for 32.1 percent and federal fuel tax revenues will account for 48.6 percent of the Texas State Highway Fund, which funds the Texas Department of Transportation (TxDOT) (2).

The conventional wisdom that fuel taxes can adequately fund transportation programs in the long term is being questioned, however. As the fuel efficiency of the United States auto fleet increases due to air quality regulations and market pressure from increasing fuel prices, it is possible that use of roadway facilities could potentially increase even as fuel consumption is driven downward. Furthermore, differences in fuel efficiency from vehicle to vehicle create a situation in which not all drivers pay equally for equal use of roadway facilities, undermining the user fee principle of the fuel tax. Additionally, the fuel tax system, from its collection to its eventual revenue distribution, can be argued to be extremely inefficient, as drivers do not make travel decisions based on the cost of each trip and fuel tax revenue distribution processes can be complex and politically driven.

In response to growing concern over the long-term viability of the fuel tax, the National Surface Transportation Policy and Revenue Study Commission was convened and in 2007 released its final report, which makes several conclusions and recommendations regarding the future of transportation funding and financing. Among these recommendations is a call to study alternatives to the fuel tax, and specifically mileage-based user fees (3). Mileage-based user fees have been examined by the Transportation Research Board (TRB) Committee for the Study of the Long Term Viability of Fuel Taxes for Transportation Finance as a promising replacement for the fuel tax, and the Texas Department of Transportation has endorsed the study of various alternatives (4, 5).

Several studies on mileage-based user fees are underway or have concluded. Most have been carried out in larger metropolitan areas and test the actual technology that would be used in a mileage-based user fee application. This research represents the first step toward a similar full-scale test. For this effort researchers conducted a strategic assessment of the current fuel tax to highlight potential institutional issues that would need to be addressed by a mileage-based user fee system. Researchers also conducted various public outreach activities consisting of stakeholder interviews, formation of a Community Advisory Committee and focus groups in order to evaluate how transportation funding and financing issues are perceived by the public. As previous and ongoing research into the mileage-based fee concept has been conducted in larger metropolitan areas, TTI researchers decided to focus their outreach on small urban and rural populations, specifically selecting the northeast Texas region as a target. In the course of these outreach sessions researchers also presented the mileage-based user fee concept as well as the various technology configurations currently being tested in order to gauge public reaction and to craft a framework for mileage-based user fee implementation that addresses public and political concerns.

STRATEGIC ASSESSMENT

For this research effort researchers began with a strategic assessment of the fuel tax. The aim of this task was to develop a detailed understanding of the existing framework for fuel tax collection. Besides understanding the mechanics of the fuel tax, researchers hoped to make detailed connections between the collection and distribution of revenues. Researchers looked at federal and state spending programs to highlight any potential relationships.

Mechanics of the Fuel Tax

The federal fuel tax has been set at 18.4 cents per gallon since 1993, while the Texas state fuel tax has been set at 20 cents a gallon since 1991. The tax paid at the pump by consumers when they purchase fuel for personal use represents a reimbursement to fuel suppliers and distributors. The fuel tax is originally assessed at the point where fuel is purchased from the terminal rack by a supplier. The term "rack" refers to the mechanism that delivers fuel from the bulk terminal/transfer system, which is the production and distribution system for motor fuel, to the transport vehicle. When a supplier removes fuel from this distribution system, the fuel tax is assessed on the volume removed. However, not all fuel is distributed in this manner. For example, blended fuels are removed from the bulk transfer system but not by a supplier and not for sale. These fuels are eventually assessed when they are brought into the state in the fuel supply tank of an interstate trucker after blending.

Licensed suppliers of motor fuel, who pay the original fuel tax at the point the fuel is removed from the bulk terminal/transfer system, receive an electronic funds transfer (EFT) from licensed distributors and importers for the amount of tax owed on the fuel purchased from the supplier. Suppliers then remit state funds to the Texas State Comptroller's office and federal funds to the Department of the Treasury. State returns from suppliers, importers and distributors are due in the comptroller's office by the 25th of each month except for commercial interstate motor carriers and motor fuel transporters, who file their returns on the 25th of the month following the end of the quarter. Licensed importers/distributors that pay their tax in a timely fashion get a 1.75 percent deduction from their tax liabilities for administrative costs, and licensed suppliers get a 2 percent deduction from their tax liabilities for timely payment. Federal funds are sent to the Department of the Treasury twice a month. There are 118 licensed fuel distributors, exporters and importers within the twelve-county North East Texas Regional Mobility Authority area, which was the subject of this research effort.

The fuel tax is intended to act as a user fee for use of the state and national highway systems. Therefore, many uses of fuel qualify for an exemption from the tax, including:

- Non-highway uses – agriculture, generators, etc.
- Fuel used by public school systems
- Fuel used for aviation
- Fuel used by public transit authorities

Fuel purchased for these uses may still be taxed at the point of purchase, but the purchaser is eligible to file for a refund from the state comptroller's office.

Federal and State Spending

Fuel tax revenues provide the majority of funding for transportation programs at both the federal and state levels. Of the $14.2 billion in new revenues for the Texas State Highway Fund in 2007 and 2008, 81 percent came from fuel tax revenues (2). This amount includes federal reimbursements and funds retained by the state. Other sources of funding for the Texas State Highway Fund include motor vehicle registration fees (accounting for 14.8 percent) and a statewide sales tax on lubricants (accounting for 0.6 percent) (Figure 1).

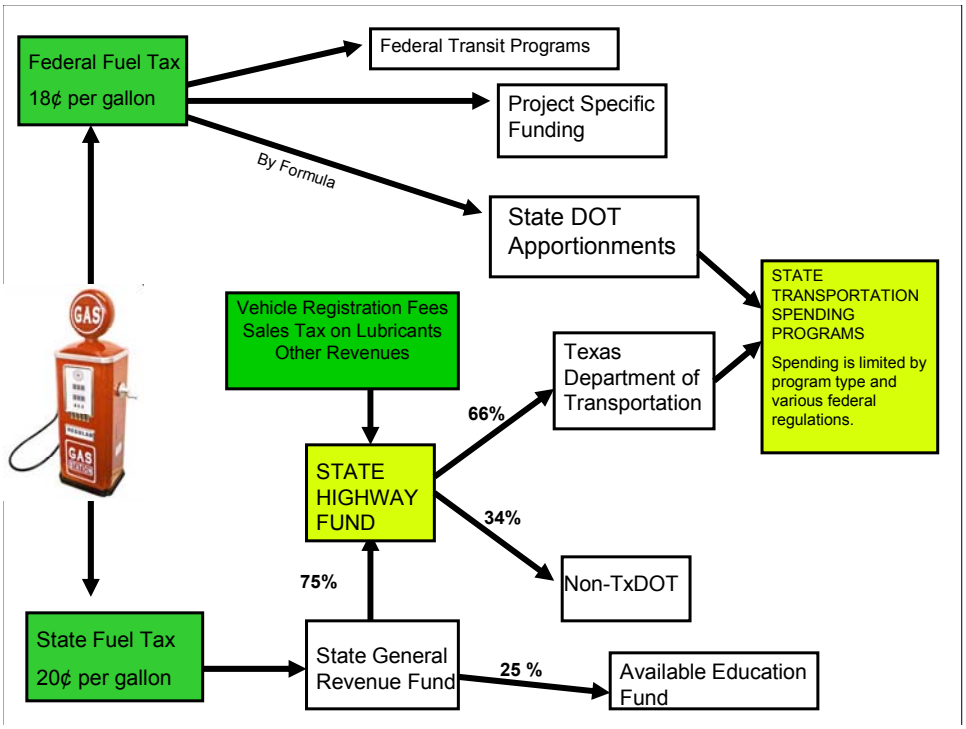


Figure 1: The Texas Transportation Funding Process

Federal Fuel Tax Allocation

Federal fuel taxes are remitted back to the states through various programs using allocation formulas. Depending on the program being funded, the allocation formula may take into account several different factors in order to determine the amount of federal funding each program will receive. Some of the more common measures used in allocation formulas include:

- Total lane miles of Federal-aid highways
- Vehicle miles traveled on lanes on Federal-aid highways
- Estimated payments into the Highway Trust Fund attributable to highway users
- Fatalities on the Federal-aid highway system

Texas is traditionally a “donor” state, in that it receives less in reimbursements from federal programs than the state as a whole pays in.

Once funds are allocated from the federal government to the state, and then from the state to the various TxDOT districts, there are numerous restrictions on how that money can be spent, depending on the program. For example, Congestion Mitigation and Air Quality Improvement (CMAQ) funds may only be used on congestion mitigation and air quality improvement programs in areas that do not meet National Ambient Air Quality Standards. Interstate Maintenance funds may only be used on the Dwight D. Eisenhower System of Interstate and Defense Highway system. States that wish to use funds from the Highway Safety Improvement Program must have federally approved Strategic Highway Safety Plans in place. It is estimated that for every dollar of federal funding received by the state, only $0.30 may be spent on highway capacity expansion (5). This amount does not include funds available for maintenance and bridge replacement and rehabilitation.

State Fuel Tax Allocation

State funding of transportation projects is done through the State Highway Fund (SHF), which is comprised primarily of fuel tax revenues. Federal fuel taxes are paid to the federal government, where they are apportioned back to the states through various formulas, then deposited directly into the SHF upon receipt. It is estimated by the Texas Legislative Budget Board that 95 percent of these funds take the form of reimbursements for highway planning and construction expenditures. Prior to deposit in the SHF, 25 percent of total Texas state fuel tax revenues are taken out and deposited into the Available School Fund (2).

State funding is often designated for on-system or off-system roadways.

- Off-system roadways are roadways that are not part of the state highway system and are not maintained by TxDOT, such as city streets and county roads.
- On-system roadways are roadways that are designated as being part of the state highway system and are maintained by TxDOT.

In addition to funding TxDOT, the SHF provides at least partial funding for several state agencies including the Department of Public Safety, Texas Education Agency, Health and Human Services Commission, Texas Transportation Institute, Office of the Attorney General, State Office of Administrative Hearings, Public Integrity Unit and Texas Emissions Reduction Plan Fund.

TxDOT operations are divided into five categories: *Plan It, Build It, Maintain It, Use It, and Manage It*. *Build It* and *Maintain It* activities currently account for 75.5 percent of TxDOT spending.

- *Build It* activities include building highways and bridges and making improvements to airports.
- *Maintain It* activities include maintenance and rehabilitation, structures replacement and rehabilitation, and safety programs.
- *Plan It* operations include planning and environmental design for the state's highway system and support for planning for transportation modes such as rail, air, marine, pipeline, bicycle and pedestrian traffic. PI activities also include acquiring right of way and providing relocation expenses.
- *Use It* operations include issuing motor vehicle titles and registration documents, providing grants to improve public safety, supporting public transportation outside of major metropolitan areas, regulating motor vehicle dealers, preventing auto theft and providing information to the traveling public.
- *Manage It* generally refers to TxDOT's human resources, information resources, purchasing, training and other administrative activities.

The funds that are used for these various TxDOT operations are either *allocated* or *project-specific*.

- *Allocated* funds are dedicated to projects or programs that are selected by the Texas Transportation Commission and generally have short development time. Most projects that receive allocated funding are highway preservation projects.
- *Project-specific* programs provide funding to specific projects, which are listed in the Unified Transportation Plan (UTP), that compete for funding on a statewide basis. These projects generally require longer development times and cost more to build.

Just as federal funds are allocated to states based on formulas, state funding of transportation projects within TxDOT's various districts is also done based on formula. These formulas are very similar to those used in federal allocation processes, except that they generally are applied to the district, area or county as opposed to the state.

Justifications for a New System

In addition to this research effort, many studies have been undertaken to evaluate the fuel tax as a viable source of funding for transportation development and to study new alternatives. In 2006, the Transportation Research Board Committee for the Study of the Long Term Viability of Fuel Taxes for Transportation Finance issued its report "The Fuel Tax and Alternatives for Transportation Funding" (4).

In 2007, the National Surface Transportation Policy and Revenue Study Commission released its report identifying the opportunities and limitations for transportation policies in the next two decades. The Commission's report offers several conclusions and recommendations regarding the future of transportation, with a follow-up interim report from the National Surface Transportation Infrastructure Financing Commission covering similar ground (3). These publications combine to make several broad recommendations for overhauling the nation's transportation financing system that are predicated on the following findings.

The Base of the Fuel Tax is in Jeopardy

Fuel taxes have been levied on a per gallon basis since their initial inception. As the taxes are not levied proportionate to the purchase price of the fuel, these taxes must be continually raised so as to not lose purchasing power against inflation. The fuel tax was last increased in 1993 as a means of reducing the deficit, but these additional revenues were later recaptured by the Highway Trust Fund (6). The state fuel tax was last raised in 1991.

Even as the fuel tax has lost purchasing power due to inflation it has also lost purchasing power due to the increasing year-to-year cost of roadway expansion (Figure 2). Since 2004, the FHWA's annual construction index has outpaced growth in the consumer price index, indicating that simply indexing the fuel tax to inflation will not accurately account for increases in construction costs and would thus continue to lose purchasing power (7). It is not known, however; to what extent the recent trends in escalating highway construction costs will continue in the long term.

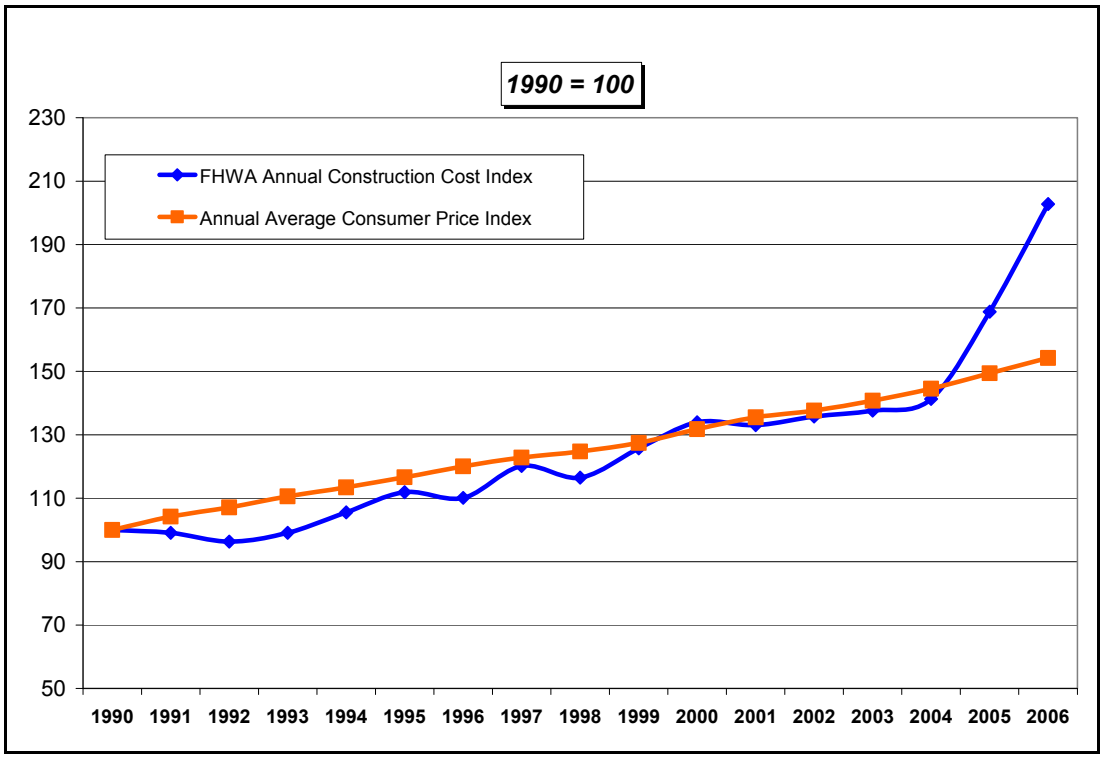


Figure 2: FHWA Highway Cost Index and Consumer Price Index from 1990 to 2006
Source: U.S. Department of Labor, Bureau of Labor Statistics; Washington State Department of Transportation

The steeper increases in highway construction costs in recent years are attributable to numerous, often interrelated factors (8). Fuel prices are one of the largest drivers of construction cost inflation. Asphalt and other highway material prices, for example, tend to follow crude oil prices – which are expected to increase for the remainder of 2008. Concrete prices also tend to fluctuate with the price of oil, but are not

expected to change drastically as the concrete industry copes with a weakening housing market. The slumping housing market is expected to keep lumber and plywood costs low, but steel prices are expected to increase due to tighter global supply and increases in scrap metal prices. As previously noted, it is not known to what extent these trends will continue in the long term.

TRB estimates that government regulations and sustained fuel price increases could drive a 20 percent reduction in fuel consumption per vehicle mile by 2025 (4). Furthermore, the development of fuel cell technologies and automobiles that run on household electricity are producing a classification of automobile that is wholly outside of the fuel tax collection network. A significant gap has developed between the use of the nation's roadway system and the consumption of fuel necessary to generate revenues to maintain and expand the system financed by fuel taxation (Figure 3).

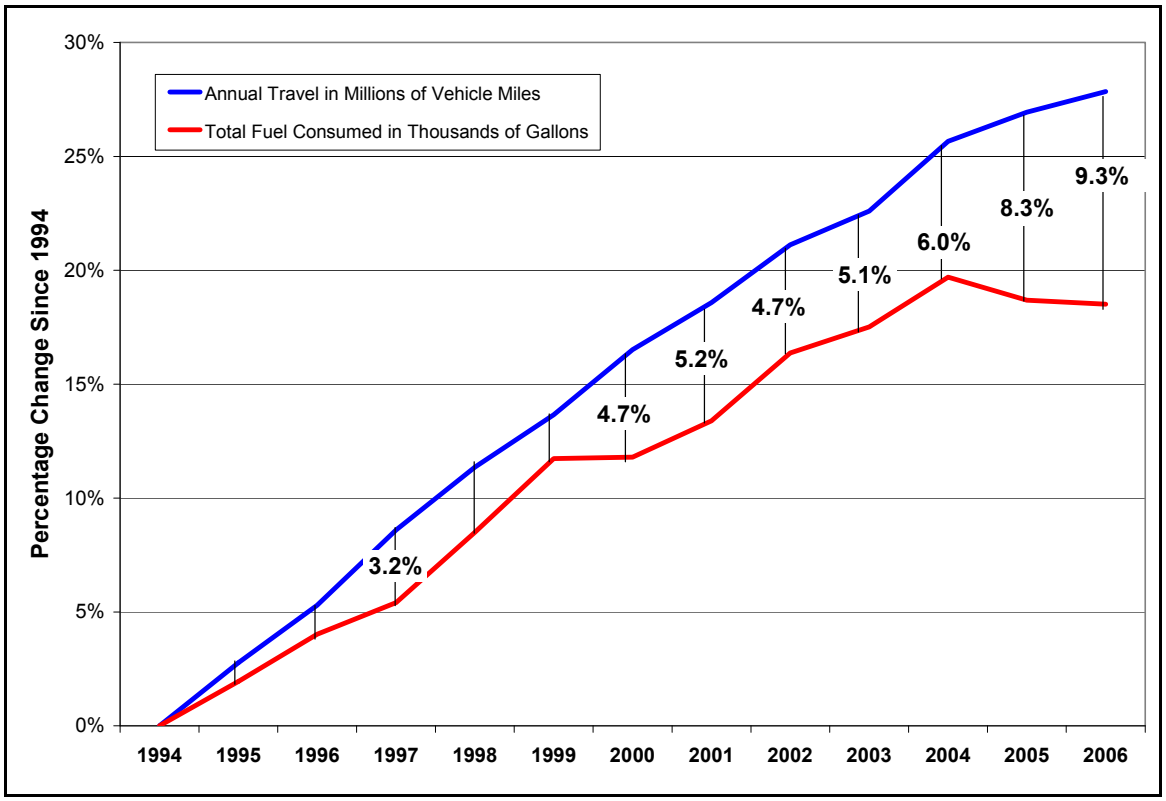


Figure 3: Annual Percentage Increase in Vehicles Miles Traveled and Fuel Consumption, Indexed to 1994

Sources: FHWA Traffic Volume Trends – December 2007; and the U.S. Energy Information Administration

Erosion of User Fee Principle

One of the main premises underlying the fuel tax as a means of financing transportation development is the compact that exists between users of the nation's roadways, who pay fuel taxes with the implicit understanding that revenues will be used to fund transportation projects, and the state and federal government who directs revenue allocation (4). When first implemented, the fuel tax served as a viable proxy for a use fee, as the more one drove and consumed fuel the more one paid for use of roadway facilities. However the aforementioned factors affecting long-term sustainability of the fuel tax (increasing vehicle fuel efficiency and the development of alternative fuel technologies) are also serving to undermine the user fee aspects that the fuel tax once represented. As fuel efficiencies continue to increase, drivers of fuel-efficient vehicles will be able to "use" more roadways but pay less in taxes. Use of the roadway thus becomes divorced from the payment of fees.

Furthermore, fuel tax revenues are currently and may continue to be levied or diverted to non-transportation related programs. The Omnibus Budget Reconciliation act of 1990 raised the federal fuel tax by five cents a gallon and dedicated one half of the increase to deficit reduction (1). The act also established the Underground Storage Tank Fund that currently receives 0.1 cents per gallon taxed (8). At the state level, 25 percent of Texas state fuel tax revenues are placed in the Available School Fund for education purposes. And while desirable from a public policy standpoint, the funding of transit programs with fuel tax revenues at the federal level is a direct transfer of funds from users of the national roadway system to non-users.

Opportunity to Improve Efficiency

A common criticism of the current transportation financing system is that the generation of revenue and the performance of the system are disconnected from one another. In particular, much discussion of mileage-based user fees and congestion pricing centers on the attractiveness of both mechanisms in terms of reducing congestion. In its current state, fuel taxes do not induce drivers to take into account the added strain they place on the area network. Drivers are charged the same regardless of whether they travel during periods of high congestion or during off-peak periods. The theory underlying congestion pricing and its application to mileage-based user fee scenarios is that by varying the price for access to a given facility by time of day or, where technology permits, by congestion levels, travelers making low-value trips will then choose to travel during off-peak periods or utilize alternate modes or routes, thus reducing congestion.

The method by which the fuel tax is collected prevents policy makers from being able to determine revenue generation on anything but a large-scale, regional basis. Since the tax is initially paid upon the fuel's removal from the bulk terminal/transfer system, and then distributed throughout the states, revenue can be traced only to the point of initial collection. Fuel is often distributed from the terminal/transfer system across state boundaries, so it is impossible to determine, even at the state level, where revenues are generated at the consumer level.

MILEAGE-BASED USER FEES

Over the past few years, transportation practitioners at all levels of government have identified a growing gap between transportation infrastructure investments – particularly new capacity to meet growing travel needs and rehabilitation of aging infrastructure – and the generation of revenue necessary to achieve these investments. TxDOT has "identified $188 billion in needed construction projects in order to create an acceptable transportation system by 2030," yet has only $102 billion of revenue estimated at existing funding levels (10).

As previously discussed, inflation, rising construction costs and increased vehicle fuel efficiency has caused a decline in the purchasing power of the fuel tax. The shift to more fuel-efficient vehicles, and the incremental use of alternative fuels, will result in fewer gallons consumed over time.

Currently there are two congressionally mandated commissions studying the adequacy of the fuel tax to support future transportation finance: the National Surface Transportation Policy and Revenue Study Commission and the National Surface Transportation Infrastructure Financing Commission. The Transportation Research Board has advised state and federal governments to undertake "serious exploration of the potential of road use metering and mileage charging" (4).

There are two types of user fees that could be applied in a road pricing situation:

- **Variable Pricing of New or Existing Lanes**. Although easiest to implement across an entire corridor (be it freeway, expressway, or arterial), the progress made with electronic toll collection (ETC) and global positioning system (GPS) technologies may allow for selective lane pricing, even on arterials. In this application, the governmental entity may choose to make the use of the

road or lane contingent upon payment of a toll (either fixed fee as is now done on Tyler's toll road Loop 49, variable fee based upon the time of day, or variable fee by the level of congestion experienced). This form of pricing has yet to be implemented on non-freeway corridors but has received considerable attention in the past ten years on freeways directly.

- **Mileage-based User Fees**. A mileage-based user fee involves charging drivers a fixed fee for the number of miles driven for each household vehicle within a certain area. Under most implementation concepts, a mileage fee would be assessed per mile within the implementing jurisdiction, excluding any miles driven outside the jurisdiction. In order to provide a means of adequately counting only jurisdictional miles, the mileage fee system would require a potential combination of ETC, GPS, and/or in-vehicle technologies. Fees could be assessed and collected at filling stations, intermittently via ETC/GPS systems or at annual inspections.

Long term, it appears there is a nexus for both a mileage charge for use of all roads (for transportation system revenue generation) and a direct user charge for special-priced facilities such as new toll roads, managed lanes or congestion-priced facilities (for management of facilities prone to congestion. Any of these approaches involve considerable challenges for implementation, whether statutory, technical or policy-based.

Since the early 1990s, multiple states and regions have studied the application of mileage based user fees, including pay-as-you-drive insurance and registration strategies. The majority of these studies were funded by the U.S. Department of Transportation's Value Pricing Pilot Program.

Oregon has the most extensive experimentation with mileage-based user fees. In 2001, the state legislature established a task force to "recommend a potential replacement for the gasoline tax, which was deemed likely outmoded in the not too distant future" (11,12). In 2003, the task force selected a mileage-based user fee as the preferred alternative and developed an experimentation regimen involving odometer, GPS and short-range radio frequency technologies to collect and transmit mileage data within a cordon zone around Portland. The Oregon mileage-based user fee system will be discussed in more detail in the subsequent sections.

The Puget Sound region recently experimented with the use of variable-based pricing across a variety of arterials and freeways in the Seattle area (13). Using only incentives (meaning, participants could earn cash by reducing travel as valued by the program), this experiment aimed to determine the feasibility of using GPS-based on-board units (OBUs) with a cellular-based transmission system. This is technologically very different from Oregon's system and utilizes a setup leveraged by the University of Iowa, described below. Puget Sound's principal focus was to reduce vehicular trips and maintain a high level of public acceptance. Transportation finance was not a main consideration in the experimentation.

The University of Iowa is conducting a Road User Charge Study to evaluate the technological and pricing options for (primarily) Vehicle Miles Travelled (VMT)-based options (14). In Phase I, researchers developed a mileage-based road user charge system that utilizes on-board GPS receivers. These receivers work in conjunction with satellite technology to determine each vehicle's location in relation to geographic information system (GIS) files stored in the on-board unit. Depending on the vehicle's location, a price per mile will be affixed to that particular trip. This price per mile will be applied to the number of miles traveled as provided by the vehicle's odometer, with price changes occurring whenever the GPS system indicates that the vehicle has entered into an area with a different per mile price or into a new jurisdiction. Data stored in the on-board unit will be uploaded via cellular technology to a billing and dispersal center on a pre-programmed schedule.

Based upon this Phase I design, the $16.5 million Phase II effort will field-test the robustness of the GPS/cellular-based technological package with 2,700 volunteers representing 20 vehicle classes in six areas (Austin, Baltimore, Boise, eastern Iowa, Raleigh/Durham, and San Diego). Researchers will evaluate the appropriateness of the technology in terms of cost-effectiveness, reliability, user friendliness, flexibility and security as well as its acceptability. Feedback from the study's participants will be used to

modify the design and operational features of the pricing system to maximize convenience and reduce any unfavorable aspects of the system. Notably, although this study accomplishes the technological and user-interaction evaluation that is also core to the proposed effort, it does not address the policy basis of mileage-based user fees.

Conclusions from Previous and Ongoing Research

Studies focused on the response of the public to mileage-based user fees have yielded several conclusions that guided the current research regarding mileage-based fees in rural and small urban settings (13, 14, 15, 16).

Lack of knowledge regarding the fuel tax – Focus groups convened for the purposes of evaluating public attitudes on mileage-based fees have generally shown that the public is unaware of how much each user of the national roadway network actually spends in terms of fuel taxes. Similarly, the public is generally unaware of where funding for various transportation programs originates.

The public has yet to link increased vehicle efficiency, alternative fuels and inflation to the availability of transportation funding resources – There are substantial educational barriers facing the implementation of mileage-based use fees as an alternative to the fuel tax, as the public is generally unaware of how various factors such as fuel efficiency and the development of alternative fuels might affect long-term fuel tax revenues.

Privacy concerns are likely to be widespread – The privacy issues related to mileage-based user fees relate to both vehicle tracking and information requirement aspects. Most mileage-based fee configurations being studied utilize some form of vehicle tracking in order to determine location. Drivers are generally accustomed to driving where and when they please, and the prospect of government entities having access to travel information can be unsavory. Furthermore, mileage-based fee systems will rely on extensive information-sharing systems, and the potential for these systems to be corrupted is likely to cause unease on the part of the public.

Acceptance of mileage-based user fees is dependent on clearly presenting the reasoning for switching – The public is more likely to accept a change in the method by which transportation programs are funded if they are presented with a clear explanation of the reasoning behind the shift. As previously indicated, the majority of the public is unaware of how various factors will affect fuel tax revenues in the long run, and will find proposals for alternatives to be unnecessary without extensive educational effort.

Mileage-based user fees may be viewed as penalizing drivers of more fuel-efficient cars – One of the main goals of a mileage-based user fee system is to equalize the cost of driving across vehicle types and to make revenue generation more related to actual use of the transportation network rather than to fuel consumption. Drivers of fuel-efficient vehicles may therefore see a mileage-based fee as penalizing them for what amounts to an economic or environmentally conscientious decision.

There are likely to be concerns regarding the reliability of the technology employed – The fuel tax is a well established mechanism with procedures and protocols that drivers are comfortable with. It is relatively simple in terms of its administration and is familiar to users. Drivers will therefore want assurances that a new system will function as well as the system it is replacing.

The public often feels that transportation funding is sufficient yet mismanaged – While this is not the sentiment of the majority of focus group participants, there is a strong sentiment among many that any problem with transportation funding lies not in the mechanism by which funds are generated, but rather lies with the systems by which funding is apportioned and eventually used.

Mileage-based fees are generally seen as "fair" – Focus group participants, after discussing current and future transportation funding shortfalls and mileage-based user fees, are generally comfortable with the idea of paying for their "fair share" as it is seen as comparable with the system by which public utilities are used.

COMMUNITY INTERACTIONS IN NORTHEAST TEXAS

The overall goal of this research effort is to lay the groundwork for an equitable transportation funding system that addresses public and political concerns in rural and small urban communities. Relying on previous research into mileage-based user fees, researchers employed a series of outreach activities aimed at interacting with various members of the community so as to determine baseline concerns regarding general community issues, transportation related issues specifically, transportation financing issues, and reactions to mileage-based user fees. In this phase of the study researchers utilized a Community Advisory Committee, conducted nine stakeholder interviews and conducted two focus groups in the region.

The North East Texas Regional Mobility Authority was a key partner in the community outreach portion of this research effort. TTI researchers worked closely with the NET RMA's Public Outreach Committee to organize and recruit participants for the Community Advisory Committee, identify and interview candidates and organize focus groups.

Regional Mobility Authorities (RMAs) are essentially toll road authorities that operate at local levels with wide scopes of influence. For example, RMAs may exercise authority over turnpikes, roadways, passenger and freight rail systems, ferries, airports, pedestrian and bicycle facilities, intermodal hubs, automated conveyors for freight movement, border crossing inspection stations, public utility facilities and air-quality improvement initiatives. They possess bonding authority and are authorized to maintain a revolving fund, acquire and/or condemn property, enter into contracts with other states and Mexico, borrow money, apply for grants and loans and seek other sources of revenue (with the exception that funds from the state general revenue fund or state highway fund may be used only on turnpikes and road projects). They may also enter into comprehensive development agreements.

The board of NET RMA is made up of appointed representatives from 12 member counties: Smith, Gregg, Cherokee, Rusk, Harrison, Upshur, Bowie, Cass, Panola, Titus, Van Zandt, and Wood (Figure 4). Together, these counties work closely with TxDOT to leverage available funds to advance important highway, rail, transit, aviation, bicycle lane, parking garage and other transportation projects in the region. NET RMA is interested in testing new ways to generate revenue to support needed multimodal projects in the region.

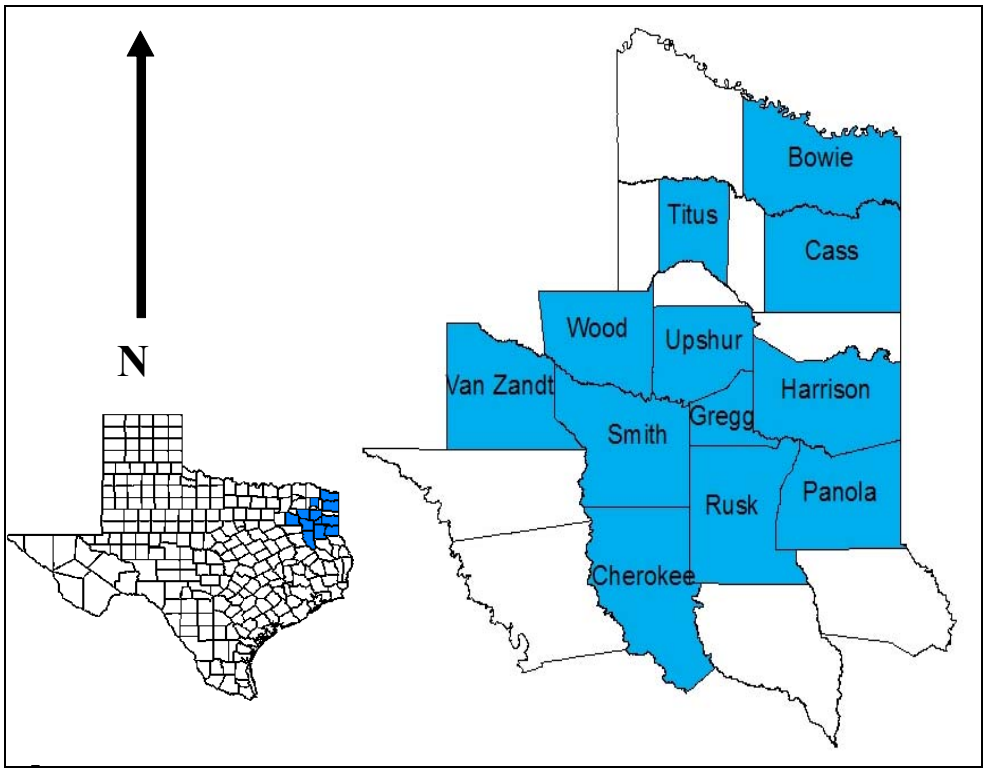


Figure 4: NET RMA Member Counties

The NET RMA region features a total of 29,248 lane miles, 69 percent of which are county roads or roads that lie within city limits or otherwise incorporated areas. Of the remaining 9,110 lane miles, about 5 percent are on interstate facilities, 19 percent are on U.S. highway facilities, 24 percent are on state highway facilities, 49 percent are on farm-to-market or ranch-to-market roads, and 3 percent are frontage roads. The amount of VMT for the six counties in the NET RMA region with the most miles of roadway (Cherokee, Gregg, Harrison, Rusk, Smith and Upshur) accounts for almost 73 percent of the region's total roadway miles and is expected to increase by 68 percent to 24,118,042 VMT by 2030. Most of this growth is expected to occur in Gregg and Smith Counties. These two counties are home to the region's two largest urban areas, Longview/Marshall in Gregg County and Tyler in Smith County. The Longview/Marshall metropolitan area is expected to grow by 17.3 percent between 2005 and 2030 to a total population of 235,074, with VMT growth projected to be around 61 percent. The Tyler metropolitan area is expected to grow by 21.7 percent over that time to a total population of 220,526 and a VMT growth of 86 percent. Smith County's growth in VMT, estimated to be around 4,888,000 through 2030, will account for about 50 percent of the region's total growth in VMT.

Technology Alternatives for a Mileage-Based User Fee

While public and political acceptability are likely the greatest challenges in migrating to a new system of generating revenue for transportation, technology does play a significant role in the collection and administration of any mileage-based user fee system. There are a number of general alternatives that may be viable (17):

- *Odometer tolling, as demonstrated in the Oregon Department of Transportation's Oregon Mileage Fee Concept and Road User Fee Pilot Program* – In this scenario volunteers' cars were equipped with on-board mileage-counting equipment that communicated with readers at specific service station gas pumps, allowing the fuel tax to be deducted from the purchase and a road user fee added.

- *Expanded use of current electronic toll collection systems that have demonstrated both technical viability and public acceptance* – Transponders and video tolling are common in Texas and throughout the U.S., and concepts to enhance those systems through transponders integrated in the vehicles, dedicated short-range communication (DSRC) technology migration, and integration with broader federal vehicle infrastructure integration (VII) are being advanced.
- *Satellite tolling where vehicles are equipped with an on-board unit that records movements by periodically downloading satellite time-stamped location coordinates* – In the case of a German truck-tolling system, mileage totals were calculated by the on-board unit and transmitted via cellular to a third-party vendor for billing (18).

A comprehensive review of the advantages and disadvantages of alternative technologies was not within the scope of this particular study, but sufficient understanding and descriptions of the plausible alternatives was necessary for obtaining feedback from the public during the community interaction phases.

In all three phases of community interaction (the Community Advisory Committee, stakeholder interviews and focus groups) participants were presented with potential technology configurations for a mileage-based fee and asked to provide feedback.

The first configuration was modeled after the system utilized in the Oregon pilot study (Figure 5). The Oregon model, as presented to the study participants, utilizes an OBU affixed to the interior of the car. The OBU is equipped with a GIS map of the area within which the mileage-based fee is applied. The OBU utilizes signals from a GPS satellite to determine the vehicle's location relative to the on-board GIS file. Depending on how the mileage system fee is assessed (by facility or by zone), the OBU uses the vehicle's odometer to tally mileage driven, either within a zone or on a facility type, and store information. When the vehicle needs to be refueled, the driver goes to a participating gasoline station where a special reader attached to the pump detects the presence of the OBU. Once a connection between the OBU and fuel pump equipment is made, the mileage information is transferred from the OBU to the fuel pump, which then contacts a billing office to determine the appropriate mileage charges for each zone or facility. The total fee is affixed to the fuel bill.

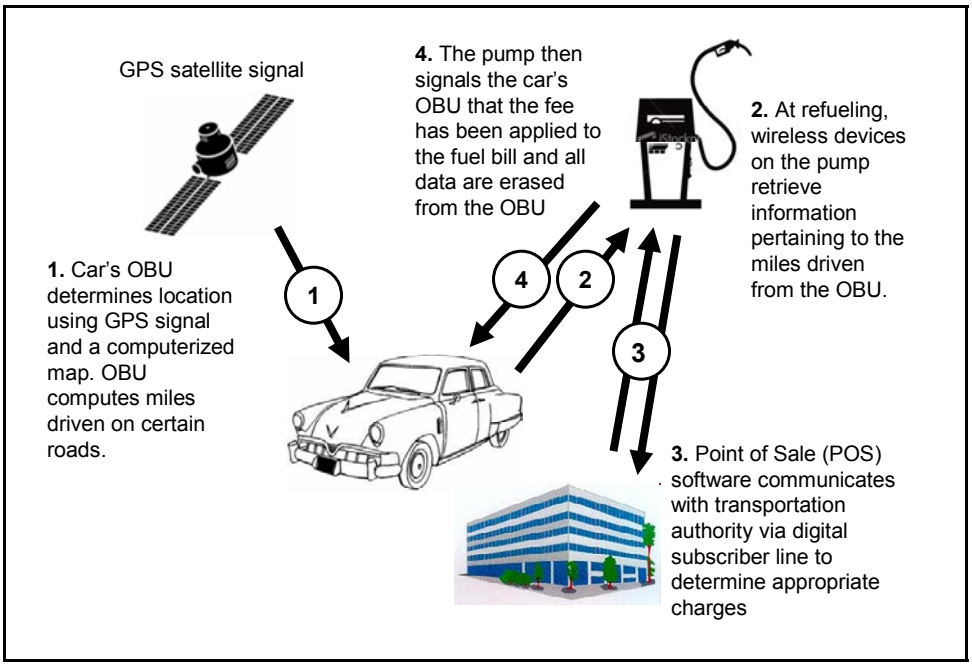


Figure 5: The Oregon Model

The second technology configuration presented is modeled after a mileage-based fee system utilized in Germany and applied to freight trucks (Figure 6). Like the Oregon model, this model (the "Cellular" model) utilizes a similar GIS-equipped OBU that determines vehicle location through GPS and tallies mileage in concert with the vehicle's odometer. However, the main difference between this model and the Oregon model is that mileage information is transmitted intermittently via cellular signal to a central billing center rather than in a point-of-sale setting. Hence, this model was dubbed the cellular model. Drivers subject to a mileage fee under the cellular model would then either receive a bill in the mail for their mileage or would have their mileage fees deducted from a prepaid account.

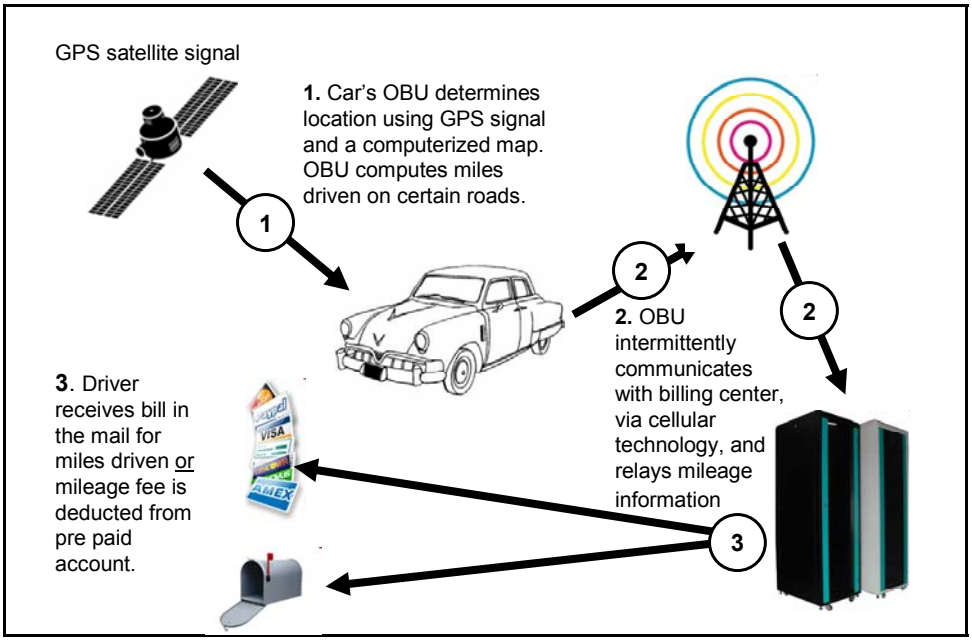


Figure 6: The Cellular Model

The third technology configuration presented to study participants (the "Gantry" model) was identical to the cellular model except that instead of using cellular signals to transmit mileage-based fee information to a central billing center, tolling gantries and other roadside sensing equipment were used to transmit fee information (Figure 7).

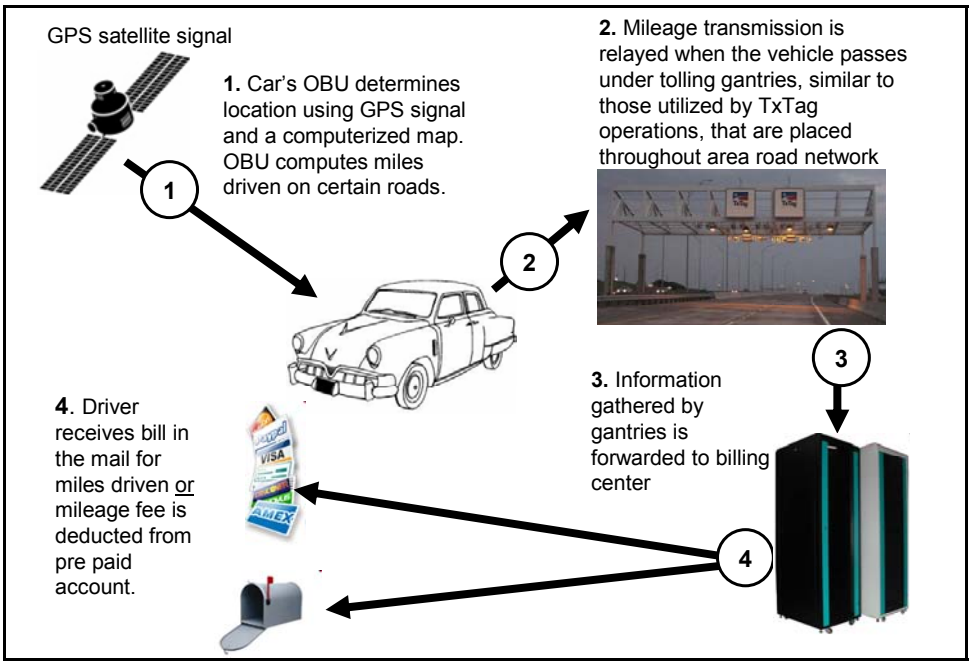


Figure 7: The Gantry Model

Community Advisory Committee

The Community Advisory Committee (CAC) was comprised of 16 participants who represented a broad range of community interests. The group was made up of business owners, employees of local business, area retirees, representatives from civic organizations such as the Chamber of Commerce, and representatives of governmental agencies such as the East Texas Council of Governments. Meetings were held once every five to six weeks and the content of each meeting depended on the discussion content of the previous meeting.

At the first meeting, CAC members were given a presentation on the basics of the fuel tax, the current issues surrounding the fuel tax and the recent push toward alternative funding mechanisms. The second meeting centered on a discussion of issues, both transportation and non-transportation related, that were currently affecting the region. CAC members discussed their preferred sources for news and information and discussed how and from whom they would like transportation and transportation policy information presented. In the third meeting CAC members discussed pricing and mileage-based fees. They were presented four potential mileage-based user fee systems and gave feedback to researchers on those configurations. The fourth meeting was essentially a wrap-up session, and the CAC was given a presentation on the results of activities. More detailed information about each meeting is provided in the following sections.

First Meeting

The first meeting of the CAC took place on April 4, 2008, in Henderson, Texas. The purpose of the meeting was to acquaint the members with each other, provide information on the research study and the CAC's role in it, and provide basic information on various transportation issues to prepare for future discussions. After opening the meeting with brief introductions, researchers provided basic information on the nature of the research, the nature of the CAC, how information from the CAC would be used later in the project, and why the northeast Texas area had been selected for this particular study.

The moderator began the main presentation by noting that the CAC would be aiding researchers in developing a new type of financing mechanism for transportation programs. Information was presented from other TTI research showing that most alternative financing mechanisms to the fuel tax, such as tolls

and borrowing from future gas tax receipts, are not popular with the citizens of the state. The moderator noted that it was for this reason that the committee had been assembled: to develop an alternative funding mechanism that would address various public concerns and political concerns, especially those of small urban and rural residents.

The moderator next presented information regarding TxDOT's funding situation and the various sources of revenue that fund the Texas State Highway Fund. The moderator noted that the fuel tax was the largest source of funding, and that the long-range sustainability of the tax to adequately fund needed transportation programs was in questioned.

The moderator moved to a discussion on the basics of the fuel tax in terms of the rates, how it is levied, exemptions and collections procedures. While the CAC participants were, for the most part, familiar with fuel tax as the primary means of funding and financing transportation development in at the state and federal level, most were unfamiliar with these basics. For example, very few of the committee's participants knew the amounts of the state and federal tax.

After presenting the basic mechanics of the fuel tax, the moderator asked members of the CAC how much they believe they pay in fuel taxes in a year and how much they think they use state and federally funded highways. This question was asked in order to get CAC members to begin thinking more about use and benefit with regard to traveling. While most participants could at least provide a rough estimate of how much they travel on state and federally funded highways, very few ventured to guess how much they spend in fuel taxes at any given time. In other words, most the members of the CAC were able to estimate their use of area facilities, but were unable to estimate the true benefit being received, as they were unable to estimate the cost of said facilities. Those participants that were aware of how much they spent on fuel taxes were generally employed in professions that required them to travel extensively or maintain fleets of vehicles.

The moderator next presented information regarding the various factors potentially undercutting the sustainability of the fuel tax in the long run. The major points discussed were:

- As the fuel economy of the U.S. auto fleet increases, due mainly to rising fuel prices, new government regulations on emissions and increasing automotive technology with regard to fuel efficiency and fuel consumption will be depressed, and fuel tax revenues will likely decline.
- Use of national roadways, in terms of vehicle miles traveled, has risen at progressively higher rates relative to fuel consumption.
- Federal and state fuel taxes have not been raised since 1992.
- The growth in overall lane miles in Texas has not kept pace with increases in the state population and the number of vehicles.

The moderator asked CAC members to start thinking, over the next month, about using and paying for highways in new ways. In order to facilitate this process, the moderator presented several examples of how one might think about transportation use differently.

Amusement Parks – If paying for transportation were like paying to visit an amusement park, then one would have the option of paying per visit (or per trip) or could elect to purchase a season pass and visit as they please (or travel as they please).

Hunting and Fishing Licenses – If paying for transportation were like purchasing hunting and fishing licenses, the traveler would purchase a customized permit that would allow them to travel for one year, or "season." The permit price might vary depending on when one drives, where one drives and type of vehicle. "Stamps" could be purchased to allow for limited uses outside of the permit restrictions.

Postal Service – If paying for transportation were like paying for postage, then one flat rate would allow the traveler to go anywhere, anytime.

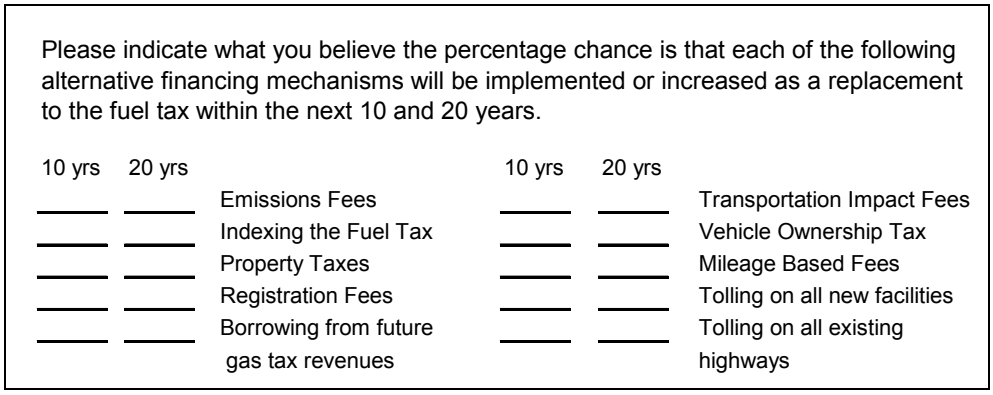
Cellular Phone Service – If one elected to pay for transportation like a cellular phone service, then travelers might have two options. The first would be to purchase a travel plan with a certain fee set for certain amount of miles to be travelled. Travelling outside of the allotted miles or outside of the contracted zones would cause the user to incur additional fees. The second option might be to simply to pay on a trip-by-trip basis. The fee per trip might be higher, but the system would allow travelers to tailor their use and not pay for trips they do not intend to make.

Internet Service – Under an internet service type payment plan, travelers might pay one monthly fee for unlimited use of roadways.

Utility Services – Paying for transportation in a manner similar to utilities would mean that the traveler would only pay for what they actually travel.

Since a utility type payment plan is most akin to what would be utilized under a mileage-based fee system, the moderator transitioned into a brief introduction to mileage-based fees, noting that CAC members would be helping to develop one "tailor made" for small urban and rural areas. The basics of mileage-based user fees were presented and the moderator made a very brief presentation on the Oregon Mileage Fee Concept and Road User Fee Pilot Program.

The moderator closed the meeting by asking those in attendance to answer a brief questionnaire (Figure 8). The questionnaire was aimed at determining what participants believed the likelihood of various alternative financing mechanisms being implemented within the next 10 and 20 years to be.


Please indicate what you believe the percentage chance is that each of the following alternative financing mechanisms will be implemented or increased as a replacement to the fuel tax within the next 10 and 20 years.

10 yrs	20 yrs		10 yrs	20 yrs	
_____	_____	Emissions Fees	_____	_____	Transportation Impact Fees
_____	_____	Indexing the Fuel Tax	_____	_____	Vehicle Ownership Tax
_____	_____	Property Taxes	_____	_____	Mileage Based Fees
_____	_____	Registration Fees	_____	_____	Tolling on all new facilities
_____	_____	Borrowing from future gas tax revenues	_____	_____	Tolling on all existing highways

Figure 8: Questionnaire Administered to CAC Participants

The average value for each financing mechanism and time period is shown in Figure 9. These results indicate that in the shorter term, CAC members believed that increasing registration fees and tolling new facilities are the most likely mechanisms to be implemented. In the longer term, CAC members believed that tolling new facilities and mileage-based user fees are the most likely to be implemented. Increased utilization of property taxes was deemed most unlikely, possibly reflecting statewide trends in dissatisfaction with this particular method of funding transportation development.

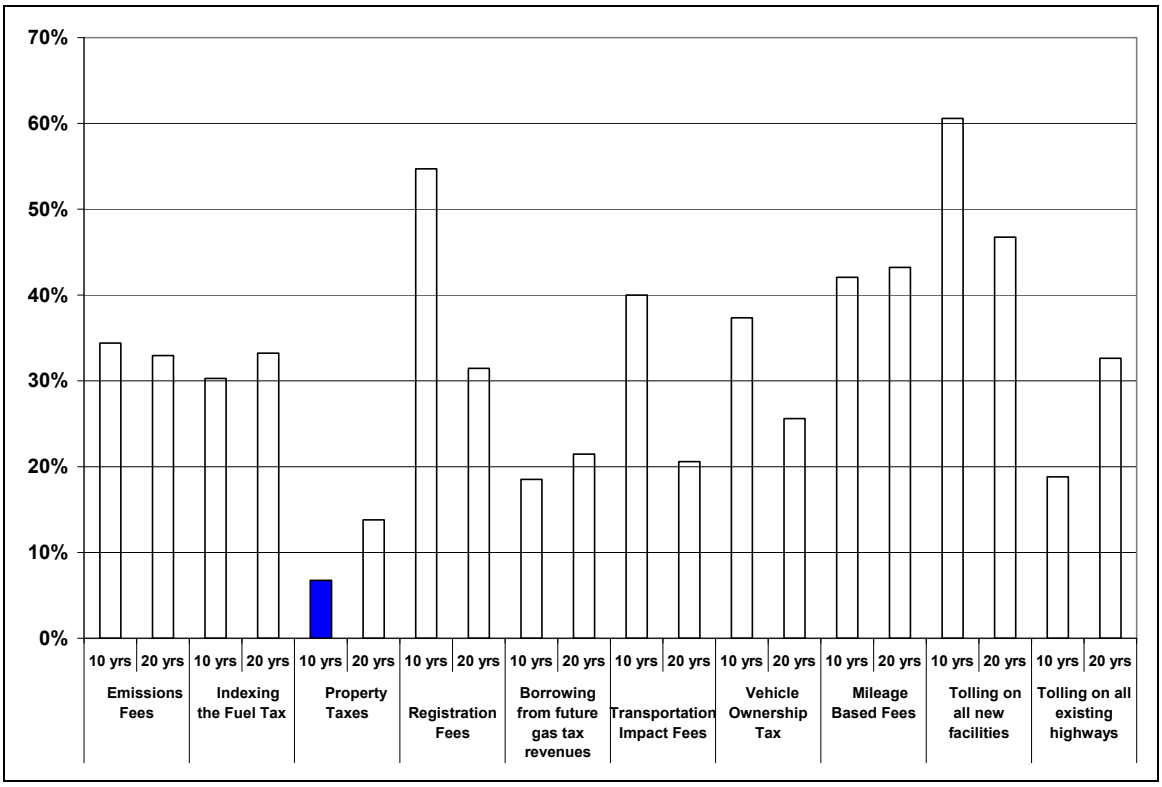


Figure 9: First CAC Meeting Questionnaire Results, Average Values

Second Meeting

The second meeting of the CAC, which occurred on May 8, 2008, focused mainly on discussing what members of the CAC believed were the major issues facing the region, state and nation. CAC members were asked to link these issues, if possible, to transportation in an attempt to determine if transportation policies have the potential to positively affect the biggest issues. Researchers utilized a flip chart and wrote down what CAC members believed to be the largest, overarching issues facing the region. Once the larger issues were identified, researchers worked to get the group to identify specific subissues that were indicative of the larger issue. Finally, researchers asked the group to discuss how transportation policies could potentially affect these subissues or larger general issues.

The Economy

The economy was cited as being one of the biggest issues facing the region and the state. Researchers worked to identify specific issues related to the economy and three main subissues were identified:

- Movement from a manufacturing-based economy to a service oriented one
- Educated workforce leaving the area
- Availability of mid-range jobs in the area

The group identified the need for a reliable transportation system to connect housing to job markets as one potential way transportation can positively affect the economic situation in the area. Reliable transportation was viewed by the group as encouraging educated workers from other, more remote areas to have access to the local workforce, which would increase the talent pool for mid-range employment opportunities and make commuting for workers more convenient.

Therefore, framing mileage-based road user fees as a mechanism that can potentially make areas more attractive to businesses and out-of-region workers could potentially be a valuable strategy in presenting such proposals to the public. The extent to which this sentiment is shared throughout the community will inevitably depend greatly on how the area network is perceived to operate. Areas served by small and/or

poorly maintained roads that reduce accessibility to other areas of the state will be the most likely to perceive new policies that enhance connectivity in a positive light.

Immigration and International Trade
Immigration and international trade emerged as a major topic in the group's discussion and, while it is difficult to tie in transportation with immigration from a policy standpoint, it is a connection that will need to be made given the tone of the conversation held with the CAC and the type of information received by the participants that informed this conversation. International trade has been included in the discussion on immigration because the two issues became intertwined during CAC discussion. It is possible that this stems from a perception on the part of the CAC's participants that trade agreements, such as the North American Free Trade Act (NAFTA), have had negative repercussions for the region.

It is obvious from the discussions that the impact of immigration on the state will need to be addressed if innovative policies are put forward, regardless of whether they are transportation-related or not. Many participants in the CAC appear to believe that the region, if not the state and nation as a whole, is being flooded by immigrants and that their increased presence puts a strain on several facets of life. Whereas researchers attempted to relate transportation as an issue that can potentially affect other prominent issues in the state and northeast Texas area, the same could be said for immigration. For example, the "influx" of immigrants, regardless of whether it actually exists to the extent that many of the CAC participants believe, can be argued to affect the economy, education and healthcare. All of these policy areas were highlighted in discussions with the CAC, especially in the following areas:

- Strain on schools and education system
- Strain on healthcare system
- Strain on law enforcement

As noted above, the link between immigration and transportation is a tenuous one, but one that will nonetheless need to be explored. For example, participants in the CAC discussed at length the presence of Mexican trucks on highways in the area in conjunction with their discussion on immigration issues. These vehicles were seen as contributing more to wear and tear on the local transportation network than typical vehicles, and while the connection between increased wear and tear on roadways as a result of truck traffic is well documented, the extent to which Mexican trucks contribute to this wear and tear has yet to be established. CAC participants perceived that there were substantial numbers of Mexican-domiciled trucks moving through the area, in spite of the fact that the Federal Highway Administration's Cross Border Trucking Program, which allows Mexican-domiciled vehicles outside of a 30-mile zone surrounding international points of entry, is only an 18-month pilot. As of May 15 only 77 vehicles were cleared to participate in the program. When researchers pointed out that the number of Mexican trucks moving through the area was likely to be quite low, many participants did not believe this was actually the case.

As a result, subsequent discussion of mileage-based fees turned to the question of how Mexican trucks would be charged for driving through the area. Many participants already believed that Mexican trucks fuel their vehicles only in Mexico and do not therefore pay U.S. and state fuel taxes. This, coupled with the knowledge that trucks contribute more to wear and tear on highways and the belief that there are substantial numbers of Mexican trucks on the state highway system, led to a common perception that Mexican trucks would not be paying their "fair share" for use of the area network.

Education
Education was seen as the third most important issue facing the region. CAC members identified two specific subissues.

- Educated workforce supporting the economy
- Testing and teaching methodology

Education and transportation were linked by the CAC participants to the extent that a strong local economy can positively affect schools in the area. CAC participants believed that encouraging economic

growth helps to increase an area's tax base, which in turn can significantly improve school performance. While alternatives to the fuel tax and the development of improved transportation networks may not be able to directly address the specific issues highlighted by the group, the better policy makers can link transportation improvements enhancing the economy to improving schools, the more likely the public is to accept new policies.

One participant noted that a well-funded school system would be better able to support a good school bus system, which might remove a lot of vehicles from the roads as fewer parents would need to drive their children to school.

Healthcare
The northeast Texas healthcare system was seen as the fourth most important issue facing the region. Specific subissues included:

- Medicaid
- Healthcare professionals

The ability of transportation to positively affect area healthcare issues is very much dependent on the state of existing infrastructure. Thus, public support for transportation policies is based on their potential to positively affect healthcare delivery and will be influenced by how the area network is perceived.

For example, CAC participants noted that a mileage-based user fee system might be able to positively affect healthcare to the extent that it could provide access to specialized care, presumably through increased connectivity to other areas of the state. The perception that a mileage-based user fee system could enhance connectivity, and thus generate additional regional benefits, appears to be predicated on the assumption that such a system would allow for local retention of funds or allow for more control over how funding is spent at the regional level. Participants were prompted with the question of whether they believed such a system might reduce travel time for emergency services (assuming such a system was developed with a congestion pricing aspect that would reduce congestion during peak periods of the day). The group did not seem to perceive emergency services in the area as being particularly hampered by area congestion, as might be found in a larger city, and therefore did not find this argument to be particularly convincing.

The Trans-Texas Corridor
While the Trans-Texas Corridor was a more specific issue than researchers planned to discuss with the CAC, the issue was nonetheless brought up and discussed by several of the group's participants. Most discussion centered around potential land-takings such a project would require and the impact on local landowners, many of whom own property that has been in their families for several generations.

News and Information
In addition to working to identify major issues and specific subissues seen by the CAC members, researchers also took the opportunity at the second meeting to ask members of the CAC where they obtain news and information. Researchers went into this research effort with the perception that the northeast Texas area was somewhat isolated from the rest of the state in terms of media markets. In order to test this assumption, participants in the CAC meetings were asked where they regularly obtained their news. Most indicated that they obtained news from local sources, such as Tyler television stations and the local newspaper. Many also indicated that they regularly watched cable news stations such as Fox News and, to a lesser extent, CNN.

The issue of where area residents obtain their news, with regard to both transportation and non-transportation-related topics, is something that will need to be addressed by any entity seeking to implement alternatives to established transportation financing mechanisms. As previously noted, many participants in the CAC meetings expressed opinions that could not be supported by the speaker. For example, one participant stated that they believed if current immigration rates continue that the northeast Texas region will be 50 percent Hispanic within 20 years but was unable to remember where they had received this information.

Usage Survey
At the conclusion of the meeting, the members were asked to track for a period of one or two weeks their total mileage driven, total fuel consumed and breakdown of road use by facility type. Participants were told that the information would be used to generate an individual "use fee" that would take into account fuel taxes paid and mileage driven on the state and federally funded highway systems.

Third Meeting

The third meeting of the CAC was dedicated almost entirely to discussing mileage-based user fees and the three possible technology configurations. The moderator began by presenting the results of the usage survey that asked members to chart their mileage, fuel consumption and breakdown of road usage.

Each member's individual usage fee was calculated in the same manner. Researchers first calculated each member's fuel taxes paid by multiplying the total reported fuel consumed by the combined federal and state fuel tax rate. Next, researchers calculated the mileage driven on each type of roadway by applying the reported percentages – such as percentage of travel on state highways, U.S. highways, interstate highways, county roads and local arterials – and multiplied these percentages by the total number of miles driven. This mileage was aggregated into two categories: state/federal roadway miles and local/county roadway miles. Each member's total fuel tax paid was divided by the number of miles driven on state/federal roadways to obtain a per mile fee. Mileage driven on county/local roadways was omitted from these calculations because these facilities are generally funded with property tax revenues, local sales tax revenues or local bond issues. As such, the "fee" that each driver pays in terms of fuel taxes is not applied to these facilities and should not be considered a true usage fee.

As might be expected, CAC members who drove extensively on state/federal roadways relative to local/county roadways had lower usage fees (Figure 10). The average road usage fee for those that reported their usage was 3.3 cents a mile. The average dropped to 2.4 cents mile when the two highest and two lowest values were omitted. Most participants seemed to believe that a 2.4 cents per mile fee seemed reasonable and fair for use of the state and federal highway system. It should be noted, however, that due to the self-reporting nature of the findings some of the results may not reflect the actual usage fees. For example, researchers expected fuel efficiency to play more of a role in determining which drivers would end up with higher fees. This was not the case, but the fact that two members of the CAC reported fuel efficiencies of over 40 miles per gallon cast suspicion on some of the numbers, either total mileage driven or fuel consumed. Members were not asked to directly report fuel efficiency. Rather, this number was derived from the reported information.

	Percentage of total Miles Driven		Reported Fuel
Mileage Fee ($/mile)	*State/Federal*	*County/Local*	Efficiency
$ 0.020	93.0%	7.0%	21.13 mpg.
$ 0.028	30.0%	70.0%	46.05 mpg.
$ 0.027	100.0%	0.0%	14.01 mpg.
$ 0.023	100.0%	0.0%	16.67 mpg.
$ 0.029	90.0%	10.0%	14.75 mpg.
$ 0.023	82.0%	18.0%	20.00 mpg.
$ 0.009	100.0%	0.0%	40.95 mpg.
$ 0.087	20.0%	80.0%	22.08 mpg.
$ 0.021	65.0%	35.0%	28.70 mpg.
$ 0.086	25.0%	75.0%	17.88 mpg.
$ 0.024	98.5%	1.5%	16.49 mpg.
$ 0.020	70.0%	30.0%	27.95 mpg.

Figure 10: CAC Mileage Fee Survey Results

In order to test CAC member's reaction to a possible area-wide mileage fee pricing system, researchers applied the reported mileage for both roadway categories to a mock fee of 2 cents a mile for federal and

state roadways and 1 cent a mile for local roadways. These amounts were chosen so as to generate a "break even" amount of mileage-based fees relative to fuel taxes. In other words, the mileage fees when applied to the total mileage would generate roughly the same amount of total revenues generated by the fuel consumption numbers reported by the members.

As can be seen in Figure 11, most CAC members saw a change in the amount of fees they would pay under a mileage-based fee system relative to a fuel tax system. It should be noted that while the mock mileage-based fee generated slightly more revenue than the fuel tax, the 2 cent and 1 cent charges per mile were selected due to the fact they represent rounded numbers.

		Mock Mileage-based User Fee			
Mileage Fee ($/mile)	**Fuel Taxes Paid**	*Fed/State $ 0.02*	*Local/County $ 0.01*	*Total Fee Paid*	Change
$ 0.020	$ 24.58	$ 25.15	$ 0.95	$ 26.09	$ 1.52
$ 0.028	$ 14.59	$ 10.50	$ -	$ 10.50	$ (4.09)
$ 0.027	$ 11.21	$ 8.18	$ -	$ 8.18	$ (3.03)
$ 0.023	$ 57.60	$ 50.00	$ -	$ 50.00	$ (7.60)
$ 0.029	$ 4.61	$ 3.19	$ 0.18	$ 3.36	$ (1.25)
$ 0.023	$ 42.24	$ 36.08	$ 3.96	$ 40.04	$ (2.20)
$ 0.009	$ 20.16	$ 43.00	$ -	$ 43.00	$ 22.84
$ 0.087	$ 4.80	$ 1.10	$ 2.21	$ 3.31	$ (1.49)
$ 0.021	$ 4.54	$ 4.41	$ 1.19	$ 5.60	$ 1.06
$ 0.086	$ 3.07	$ 0.72	$ 1.07	$ 1.79	$ (1.28)
$ 0.024	$ 24.38	$ 20.63	$ 0.16	$ 20.78	$ (3.60)
$ 0.020	$ 21.07	$ 21.48	$ 4.60	$ 26.08	$ 5.00
Total	**$ 232.86**			**$ 238.74**	

Figure 11: Results of "Mock" Mileage-based User Fee

**Note: Many of the values used in calculating the charges shown, including gallons of fuel consumed and mileage driven on federal/state and local/county roads, are not shown.*

The purpose of this exercise was to get the members of the CAC to think about transportation in terms of use and benefit.

The main discussion began with a brief presentation on the Oregon model. Initial concerns voiced by members of the CAC centered on their skepticism as to whether the various technologies employed would actually work.

The discussion on mileage-based fees began with a brief discussion on how members of the CAC feel trucks should be charged under a mileage-based system. CAC members where unable to generate an answer to this question; however, there was agreement from those present that although freight vehicles contribute to wear and tear on roadways to a much greater extent than personal vehicles, it would not be advisable to levy extra fees on the industry. The group agreed that independent owner-operators are generally in a difficult economic position at present, and that levying new fees would likely put many out of business. Furthermore the group believed that any new fees would simply drive up the cost of consumer goods.

Fourth Meeting

The final meeting of the CAC was essentially a wrap-up of the committee's activities, where researchers provided the members of the committee with their initial conclusions regarding this phase of the research. Researchers briefly discussed initial findings from the fuel tax strategic assessment and discussed the results of the stakeholder interviews that had taken place up until that point.

Researchers closed the meeting by prompting a dialogue on the three technology configurations (the Oregon, cellular and gantry models) for a mileage-based user fee system. Reactions to the various

configurations were mixed and were not necessarily specific to each configuration. In other words, concerns relating to the Oregon model were just as likely to be applied to the cellular and gantry models. A fourth model was developed for this discussion but was not presented to focus groups. The “simple” model did not utilize GPS signals to determine location and made use of toll gantries and other roadside equipment to relay mileage information (Figure 12). The simple model represents a simple, flat-fee mileage system that would address GPS/satellite-related privacy concerns but would be unable to differentiate between mileage driven within and outside of the taxing authority’s jurisdiction.

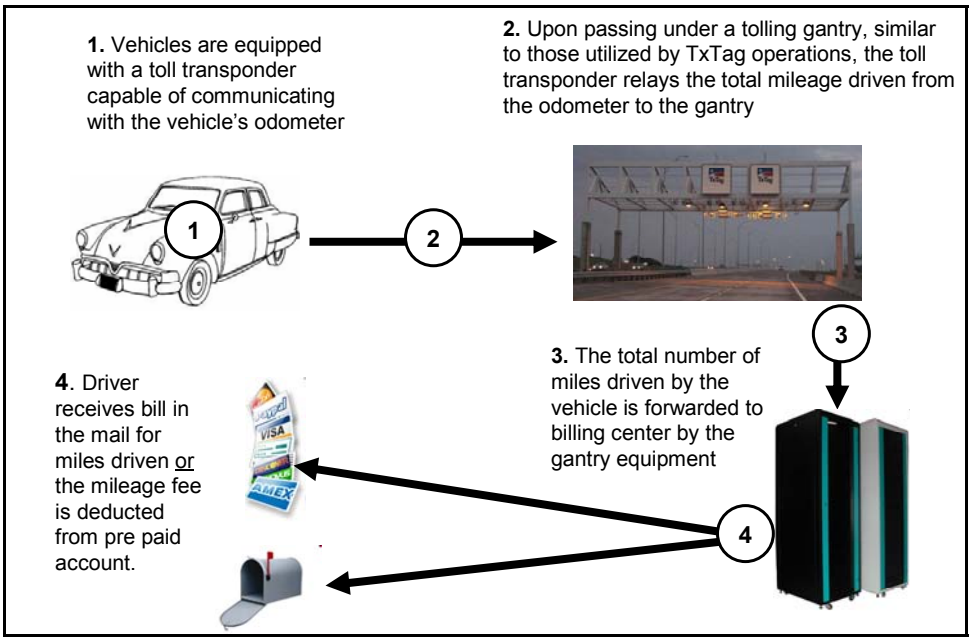


Figure 12: "Simple" Flat-Fee Model

Privacy Issues
Almost immediately upon viewing the Oregon, cellular and gantry models, CAC participants began expressing concerns about privacy. The utilization of GPS technology made many participants feel uneasy, and the term “big brother” was used more than once during discussions. In terms of privacy, the simple model was clearly favored.

Participants specifically noted that the idea of being “tracked” was what bothered them the most. When researchers explained that in all three GPS-based models, the OBU was simply using the satellite signal to navigate and was only tabulating miles driven, many participants felt more comfortable with the system. However, many were of the opinion that the government would still find a way to track movements, in spite of any assurances to the contrary.

Furthermore, one participant expressed unease with the point of sale aspect of the Oregon model. This participant questioned whether third parties would have access to fuel purchase information. They noted that with such information, a company could determine the fuel efficiency of the vehicle being driven and, if other personal information is available, bombard drivers of low-efficiency vehicles with “junk mail” regarding fuel-efficient technologies. Once this was noted by the committee member, many others in attendance expressed the same concern. The notion of privacy invasion for financial gain by private companies became very salient in addition to privacy invasion in terms of being tracked.

The general consensus of the CAC was that the simpler the model, the better. The Oregon, cellular and gantry models presented too much of an opportunity for personal privacy to be violated and the complexity of the systems, in the opinion of the committee members, left them more open to failure and the potential compromise of personal information.

Although privacy concerns permeated these discussions, they were by no means universal for all. Many CAC participants expressed an “I have nothing to hide” sentiment. Many of these individuals stated there is no right to privacy on the highway system, and that drivers should be willing to accept such intrusions into their personal lives if they wish to benefit from public roadways. Others stated that the government already has the capability of tracking citizens, either through cell phone use or credit card use, so this did not present more opportunities for governmental monitoring than are already in place.

Equity Issues
While none of the four systems seemed to be superior to the others in terms of equity, there were persistent equity concerns expressed that could be applied to all four configurations equally.

The primary equity concern related to how vehicles not falling under the purview of the system would be charged. This applied both to vehicles choosing not to participate in the program during phase-in and vehicles entering the jurisdiction of the taxing authority from outside, such as long-haul trucks and out-of-state drivers. Discussion regarding the charging mechanisms for trucks was particularly in-depth, as CAC members noted that trucks cause more wear and tear on roadways than personal vehicles yet they are vital to the regional, state and national economy. CAC members want to ensure that trucks pay their “fair share” under a mileage-based system but do not want truckers, particularly independent owner/operators, to be placed under severe financial hardships.

Perhaps the biggest concern raised by CAC members was the charging of out-of-region drivers. In addition to the large numbers of trucks navigating area roadways, the region sees large volumes of out-of-state and out-of-region drivers due to its location along Interstate 20 near the Texas, Arkansas and Louisiana borders. Additionally, I-20 sees significant volumes of vehicles travelling between the Dallas-Fort Worth area and Shreveport, Louisiana, the location of many prominent gambling establishments.

An additional equity concern raised by several members of the CAC related to how the system would function given the expansive rural nature of the northeast Texas region. For example, one participant inquired how the various configurations would account for miles that are not driven on roadways and in areas that are not maintained by any governmental entity. Many residents in the area, for example, maintain large ranches and farms. It would therefore be unfair to tabulate miles driven in these areas as

they can be rather large and are generally maintained by the landowner. In response to the gantry and simple configurations specifically, one participant noted the irregular intervals between the transmission of mileage information could be potentially bothersome to area drivers who live in outlying and isolated areas. Essentially, mileage could accrue as a vehicle was driven around private property or on isolated country roads, and if the driver decided to take their vehicle into town they might receive a substantial and unexpected bill if they were to pass under a gantry. Furthermore, many participants were concerned that such a system would unfairly penalize rural residents, as they tend to have longer commutes and must travel farther for day-to-day activities such as shopping. The lack of transit options was also seen as unfairly burdening area residents, as they do not have travel options outside of personal vehicles.

Administrative, Technological and Implementation Issues
Many of the CAC members had concerns about how the systems would be developed and eventually administered. For example, concerns were raised regarding how the system would be developed in terms of participation by the private sector. One participant believed that government contracts were always awarded to the lowest bidder, and went on to state that any system developed under a low-bid contract would be more likely to not function properly.

One participant made the observation, which was soon echoed by other members of the group, that many drivers in the area do not fill their gas tanks completely with every fuel purchase. These drivers, the committee member noted, tend to arrive a station with a preset amount of cash on hand for the purchase of fuel and fill their vehicles until the amount displayed on the pump equals their cash on hand. Whereas with the current fuel tax system the cost of the fuel tax is figured into the price at the pump, a mileage-based fee represents a cost that is not figured into the purchase price of the fuel and would be added to any fuel purchase. Therefore, it will be necessary for fuel prices at the pump to reflect the cost of fuel minus the fuel tax and the driver would need to be aware of the mileage fee prior to filling their vehicle. It would be most desirable, in the opinion of the CAC members, for the mileage fee to show on the pump prior to refueling so that the purchase price of the fuel can be added up to the preset spending amount.

Many CAC members were skeptical that a mileage-based system could ever be fully implemented as it would require all vehicles to be equipped with yet-to-be-developed technologies, all fuel pumps to be equipped with appropriate technologies in the Oregon model, or extensive infrastructure development in the case of the gantry and simple configurations. With regard to fitting vehicles with the appropriate technologies, researchers noted that conversion from the fuel tax to a mileage-based system would be a long-term process, and only newer cars, which are currently being built with newer GPS technologies, would be subject to the system. Furthermore, researchers noted that it is rare to see fueling stations that do not utilize pay-at-the-pump, a technology that was not widespread many years ago. This seemed to address much of the criticism levied by the CAC members in this regard, but agreement that such a system could be implemented even in the long term was not unanimous.

One of the drawbacks of a mileage-based user fee system, in the eyes of the CAC members, is that it will require new administrative procedures and protocols. The current fuel tax system is a fairly efficient mechanism, in that collection is built into point-of-sale systems and does not require extensive staffing to maintain. However, a mileage-based fee system would require billing offices and the development of new collection systems and, in the case of any system where fees are not paid in a point-of-sale context, staffing to maintain billing records and handle collections. Many participants believed that, depending on the technology configuration, a mileage-based user fee would be less efficient than the existing fuel tax in that it will ultimately cost more to collect one dollar of revenue in mileage fees than one dollar in fuel tax revenues. Participants stated that information relating to how much a new system would cost in terms of administration would be very beneficial in convincing area residents of the need for the new system.

Realizing Benefits
A major theme discussed by the CAC, which was echoed to an even greater extent by the various stakeholder interviews, was the need for users of the system to see a value in the new system. As noted by many of the officials interviewed, residents in the area are often resistant to change and can be difficult to reach on technical issues. However, area residents are not completely intransigent, and if approached correctly can be convinced of the merits of change. For example, the development of Loop 49, the

region's first and currently only tolled facility, which utilizes innovative cash-less toll collection technology, was introduced in the face of strong public opposition. However extensive outreach activities eventually led to the project's development and subsequent, although by no means overwhelming, support by the public. The State of Minnesota encountered a similar situation with the development of the MnPASS facility on Interstate 394 in Minneapolis and was able to implement the project only after a decade of outreach (19).

This need to see value in the new system made the prospect of retaining locally generated revenues a particularly attractive aspect of mileage-based fees to the CAC. Regardless of actual funding levels, area residents perceive that the area has been neglected by federal and state funding apportionments. Retaining local control of funds was seen as a way of ensuring that regional priorities are addressed in a fashion that benefits the region and its residents. However, it was also noted that a regional fee based on miles traveled might be a burden on businesses that regularly utilize area roadways, such as delivery companies or other service industries. Many CAC members noted that while having control over additional transportation revenues would be indeed be very beneficial to the region, it is important to ensure that those new revenues do not come at the cost of driving away businesses and discouraging economic investment from outside the region.

Stakeholder/Elite Interviews

The content of the stakeholder interviews was essentially the same as the content of the CAC meeting presentations, although in condensed form. Researchers spoke to elected officials such State Representatives and County Judges and unelected community leaders such as city planners, Economic Development Corporation executives, and Chamber of Commerce representatives.

Area Assets and Drawbacks

"Location" was a common asset of the northeast Texas area cited by those interviewed for this research effort. The area can be thought of as a crossroads because both Interstate 30 and Interstate 20 run through the area and, if completed, Interstate 69 will provide a major north-south route for traffic moving through the area. Freight lines running through the area were seen as assets that benefit the regional economy, although they are viewed as running at full capacity, which increases the region's reliance on trucking to move goods. Furthermore, the rural nature of the area is seen as benefiting the larger towns and cities in the region, as there are large numbers of consumers who travel into these towns for their shopping needs. A wealth of natural resources, such as oil and timber, was also mentioned as an asset within the region.

The area was generally seen as a desirable place to live by interviewees. Many of the area's larger towns and cities were seen as having most, if not all, of the amenities of larger urban areas but do not have the associated problems such as crime and congestion. Many interviewees noted that they had very short commute times to get to their places of employment. Furthermore, the area is generally seen as an affordable place to live.

The most common drawback cited by those interviewed was a lack of funding for needed transportation projects and the perception that the region is far behind on its infrastructure development. Capacity on area roadways, especially Interstate 20, was seen as insufficient. Several interviewees stated that it was their understanding that much of the funding appropriated from the Texas Transportation Commission is dedicated for toll projects, of which there are very few in the area. And several noted that an increased emphasis on tolling was likely to be a major part of any future transportation funding developments. Many interviewees expressed frustration with state officials regarding the provision of funding for expansion. One interviewee, in particular, noted that the problem was essentially that rural areas are forced to compete with larger urban areas for funds, and rural areas have a much more difficult time justifying increased funding without high levels of congestion or large numbers of drivers. Tolling was seen as an "urban solution," which puts rural areas at a disadvantage.

While the area's rural nature was seen as contributing to its attractiveness and livability, it was also seen as a deterrent to investment by prospective companies looking to establish a presence within the region. The lack of an international airport was specifically cited as a potential deterrent to larger companies moving into the area. Many of the interviewees who represented smaller cities noted that their specific area's distance from major interstates had hurt investment by major companies. Furthermore, several interviewees in the region's smaller towns noted that residents often had to travel long distances to larger towns like Tyler and Longview, as their towns lacked many of the retail establishments present in larger areas.

Area residents were seen by many interviewees as not being open to new ideas. It was noted that mileage-based user fees would be a very difficult concept to sell in the area, as the concept is very different from what residents are used to and they are often resistant to change. Furthermore it was noted that area citizen groups had been quite effective at halting much of the needed development in many of the region's towns. It was also noted, however, that area residents are not intractable and could be convinced of the merits of such a system if approached properly and clear added-value is demonstrated.

Vision for the Future

Road expansion was seen as one of the most desirable goals for the future. Several interviewees noted that many of the area's two-lane highways need to be upgraded to four lanes due to the large volume of traffic moving back and forth between Houston, Dallas/Fort Worth and Austin. The need to improve safety was one of the major contributing factors to this desire, and the presence of large numbers of trucks on area roadways was noted as a major safety concern. A lack of passing lanes on these two-lane highways was also seen as a major safety concern necessitating expansion.

Several interviewees noted that government funding, and not just funding for transportation development, is being misspent. The Iraq war was mentioned by two interviewees as a source of misdirected government spending, and that the funds spent on the war would be better applied to expanding infrastructure. Several interviewees noted that area governments have to pay for more and more of their transportation projects out of local funds, a trend they would like to see reversed in the future. The misappropriation of fuel tax revenues for political purposes was a recurring theme in many of the interviews.

Many interviewees expressed a hope that the area RMA would eventually play a larger role in area transportation development. Most expressed support for the RMA concept and supported the NET RMA's formation, as it was seen as a means of exerting more localized control over area infrastructure development, but noted that the agency had not been able to do much given its lack of dedicated funding.

Tolling and Pricing

Interviewees expressed a wide array of opinions regarding tolling and pricing of roadways in general. As previously noted, many of those interviewed stated that tolling was indeed the future of road development in the state, but that tolling was disadvantageous to rural areas as many new projects would not be toll viable.

Most of the interviewees supported tolling as both an efficient means of allocating costs among road users and as a means of raising needed revenue. However, many noted that tolling and pricing were not popular among area residents, and the issue of leasing infrastructure to foreign corporations was viewed as a highly salient and controversial topic among residents. Many interviewees noted that placing tolls on roadways that were previously "free" was likely to spark outrage in the region.

Mileage-Based User Fees

When presented with information on mileage-based user fees, including the various technology configurations, many of the interviewees were most concerned about the potential cost of the system.

The Oregon model, in particular, was seen as potentially very costly given that all service stations would need to be equipped with the appropriate hardware. Retrofitting older cars was seen as being cost-prohibitive. Administrative costs for a mileage-based fee system were viewed as being potentially high.

Many of those interviewed noted that the complexity of the system, relative to the gas tax, afforded many more opportunities for travelers to be mischarged.

Privacy concerns related to a mileage-based fee system were mixed among the various interviewees. While many stated that "I have nothing to hide" and did not mind a system that recorded travel in detail, others were very wary of being "tracked." Furthermore, even those who did not have a problem with the GPS aspect of mileage-based user fees stated that area residents were likely to oppose any system that could be viewed as "tracking" travel.

Many interviewees found the "user pays" aspect of such a system to be very attractive in that travelers would be charged specifically for each facility they use. However, several noted that even though the fuel tax is a proxy for use fees, the concept of a use fee in this context would be difficult for area residents to grasp as being more efficient. It was noted that more public education with regard to the fuel tax is needed.

One of the major drawbacks of a mileage-based user fee system, as expressed by the interviewees, was that it would simply appear to be a new tax to area residents who already believe they are being over taxed. The fee system was also seen as being potentially burdensome on lower-income residents. It was noted that many residents might view a mileage-based user fee system as a "double tax" in that drivers would be charged to drive on roads that had been paid for using fuel tax revenues. Several interviewees stated that this issue could potentially be addressed by educating the public with regard to how maintenance programs in the state work, as all roads require continual upkeep and are therefore never fully "paid for."

One of the most attractive aspects of a mileage-based user fee system was the potential for revenues to be retained within the areas where they are generated. Many interviewees continually noted that the northeast Texas region is "neglected" with regard to receiving its fair share of fuel tax revenues, and that a mileage-based system would afford the opportunity for more local control. Many interviewees stated that if a mileage-based fee system were to be implemented on a state or federal level, with the state and federal government controlling the disposition of revenues, then there would have to be more transparency with regard to how revenues are spent than what is currently practiced.

The Oregon model was generally preferred by the interviewees, as it would most resemble the current method of collecting road use taxes for the driver, and collections were likely to be easier if conducted in a point-of-sale context. Many interviewees noted that substantial numbers of area residents would never pay a bill received through the mail without strong enforcement and collections activities. However, it was noted that area residents are already familiar with TxTag, and that a system utilizing TxTags might enjoy more support.

Potential Opposition Groups

When asked what groups might be expected to oppose the implementation of a mileage-based user fee system, the most common answer given by interviewees was trucking organizations. Most of the individuals researchers spoke to noted that because truckers and trucking companies tend to make extensive use the nation's highway system, any new tax that is affixed to miles driven is likely to generate strong opposition from these groups. Several interviewees noted that this was in fact desirable, as trucks pay the same amount in terms of per-gallon fuel taxes but inflict exponentially more wear and tear on the roadway. One interviewee went on to note how the subsidization of the trucking industry, through fuel taxes, was an issue that needs to be examined in more detail.

Several interviewees stated that farmers and ranchers might be a group that would potentially oppose mileage-based user fees, as they often live far outside of urban areas and have to travel long distances

for things like groceries and supplies. It was also noted by one interviewee that because farmers and ranchers receive an agricultural exemption from the fuel tax that a mileage fee exemption would most likely need to be offered to gain the support of these groups. Another interviewee noted that the Texas Farm Bureau was likely to oppose a mileage-based user fee for various reasons but would not elaborate.

Environmental groups were seen as being potentially supportive of mileage-based user fees as such a system might have the effect of lowering the amount of miles driven in personal vehicles and provide an incentive to use public transit.

While fuel distributors were not seen as either supporting or opposing mileage-based user fees, it was noted by several interviewees that outreach should be conducted with fuel distributors so as to determine how a move away from the fuel tax would affect their operations.

With regard to gaining broad-based support for mileage-based user fees, most interviewees noted that the best strategy would be one that first educated local officials on the concept and gained the support of local and county governments before moving toward regional, state or national implementation.

Focus Groups

Two focus groups were held to test the conclusions drawn from researchers' interactions with the CAC and stakeholders and to discuss various transportation issues, including mileage-based user fees, with a group of area citizens that had not been exposed to the issues being researched.

The first focus group was held in Tyler at the metropolitan planning organization's office near downtown. The meeting was held at 7:00 p.m. on July 29, 2008, and was attended by five participants. The second meeting was held the following night at the Henderson Chamber of Commerce in Henderson. The meeting began at 7:00 p.m. and was attended by nine participants. Each participant was compensated $50. Participants were recruited via fliers that were distributed by various contacts in each of the cities including Chambers of Commerce, planning organizations and the CAC.

After a brief introduction, during which the participants were given information regarding how focus groups work and how the information gathered would be used, participants signed consent forms and the meetings officially began. Each session was audio recorded. Information was presented to each focus group in the form of PowerPoint® slides. There was one researcher present in each focus group to take notes in addition to the moderator.

General Issues

Participants were first asked to discuss what they believed to be the most important issues facing the region, state and nation. In the first session, the most common answer given was traffic and traffic congestion. Some participants indicated that the city (Tyler) had grown very quickly, especially to the south, and that while there was road development in the area there were no pedestrian facilities. Several participants indicated that the lack of sidewalks in the area, coupled with inadequate public transit, meant that residents had to drive everywhere. The lack of transit of and sidewalks was a topic of much discussion among the group, and seemed to be one of the primary transportation-related issues facing the city. Furthermore, one participant noted that they did not believe that planning of city streets was being adequately coordinated, as the new tolled loop on the outskirts of town "has no overpasses" and that travelers must go through a "minimum of twelve lights to get anywhere."

The general economy appeared to be the biggest issue on a regional, state and national scale. The rising costs of consumer goods and healthcare were specific issues cited, and three participants noted that overseas competition for jobs had hurt the region in terms of employment, and several participants discussed recent manufacturing job losses in the area. Rising fuel prices were a topic of discussion with

regard to the overall economic climate in the region. One participant noted that he had heard a nearby school was going to a four-day school week to save on fuel for buses.

While participants in the second focus group also stated that the economy was a major issue facing the region, state and nation, discussion was framed almost entirely in terms of fuel prices. High fuel costs were seen as reducing area residents' already strained disposable incomes, and many participants stated that they had severely reduced the number of vehicle trips they made during the week. One participant noted that he had recently purchased fewer groceries in order to offset fuel purchases. Several participants stated that fuel prices had affected their employment, one stated that he had his work week reduced to four days, and another stated that his employer had seen a 50 percent reduction in work as a result of rising gasoline and natural gas prices. This participant was very much dependent on long-haul trucking operations in the area, which he stated had been severely hampered by high gasoline prices. Another participant stated that his employer, an area tire manufacturer, had cut his job because high fuel prices had driven down car sales, which in turn reduced tire sales. Two participants stated that their family businesses have recently started charging customers a fuel surcharge for services.

Public education was a major issue to the members of the second focus group. Three participants noted that area schools were underfunded, and several participants supported this contention by noting that kids are often forced to sell computer supplies door to door in order to raise money for their schools. One participant inquired as to why more money was not going into state education funds from the lottery.

The Fuel Tax

Prior to discussing the fuel tax, participants in both focus groups were asked about their knowledge of the fuel tax. They were asked if they knew how the fuel tax works, how much the federal and state rates are, and how much they think they pay in fuel taxes. None of the participants in either of the sessions were able to answer any of the questions. In the first session, one participant knew that the tax was affixed to the gallon, but guessed that the combined rate was 20 cents. Another participant stated that anything he might know about the tax came from information presented on the news regarding proposed gas tax holidays. But even then, this participant was unable to provide answers to the questions posed. One participant noted, without prompting from the moderator, that the fuel tax is meant for transportation but is essentially a "legislative slush fund to reward people."

The second focus group was unable to answer any of the questions posed by the moderator. One participant stated that he knew the tax was a "significant portion of the price" of fuel, but was unable to quantify the amount. Another participant confused the fuel tax with a sales tax, stating that they believed the rate was 9 percent.

Participants in both groups were then presented information on the "basics" of the fuel tax. The groups were informed that:

- The tax is levied on a per gallon basis, with the federal rate being $0.20 a gallon and the state rate being $0.184 a gallon;
- The tax is initially paid by fuel suppliers at the terminal "rack," and these suppliers are reimbursed for the tax by distributors who are then reimbursed by consumers;
- There are uses for fuel that are exempted from the tax at the state level, including agricultural uses, fuel used by public school systems, fuels used for aviation, and fuel used by public transit authorities.

The focus groups were shown a clip from a news article that appeared in the July 7, 2008, edition of the *Houston Chronicle* (20). The article discussed how fuel tax revenues in Texas had declined for two months in a row, and that as fuel prices continue to climb revenues will likely continue declining. As a follow up, the focus groups were shown a slide with a pie chart showing revenue sources for the Texas State Highway Fund, 81 percent of which is made up of fuel tax revenues (Figure 13).

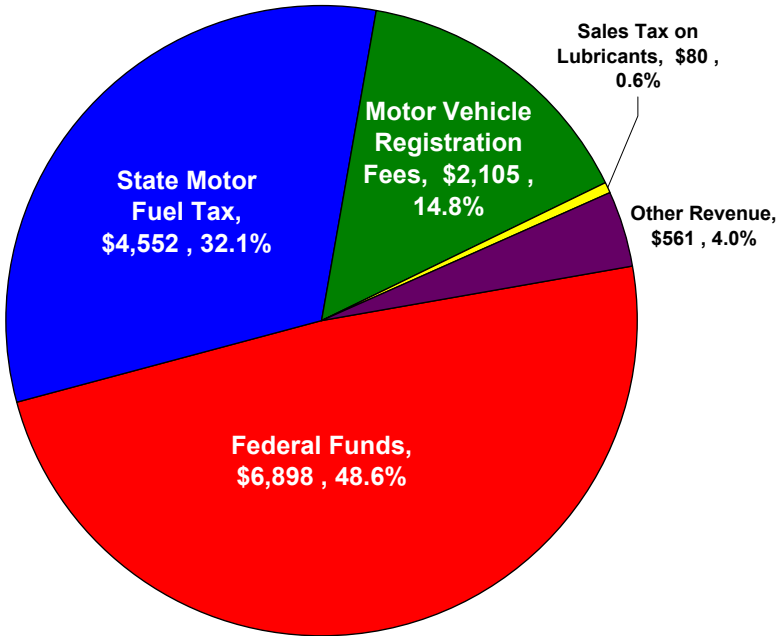


Figure 13: Chart Used in Focus Groups, "Sources of Revenue: Texas State Highway Fund"
Source: Texas State Legislative Budget Board

Participants were shown a chart showing the percentage change in the number of vehicle miles traveled, population and lane miles in the state of Texas between 1980 and 2003 (Figure 14). This was shown to illustrate that road expansion (as depicted by the percentage change in lane miles) has not kept pace with changes in population and the number of vehicles using the road.

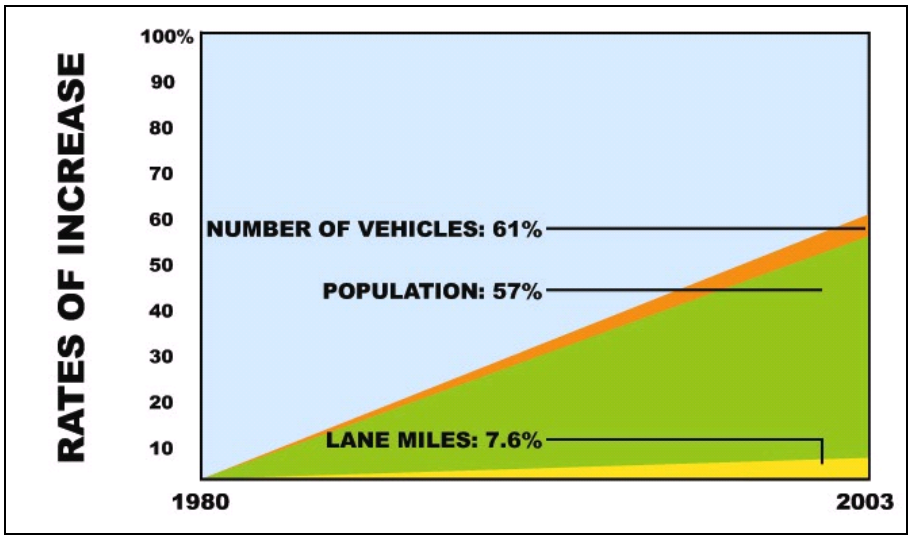


Figure 14: Chart Used in Focus Groups, "Percentage Change in Number of Vehicles, Population and Lanes Miles between 1980 and 2003"
Source: Texas Department of Transportation

Participants were presented with some findings from the Transportation Research Board on the effect of increasing fuel efficiency on fuel tax revenues. Namely, that as increasing fuel economy depresses fuel consumption, fuel taxes will be reduced and states will be forced to rely on revenues from other sources to fund transportation programs. To bolster this assertion, a graph was shown depicting a widening gulf between annual travel in (in terms of annual vehicle miles traveled) and annual fuel consumption (Figure

3). This was shown to illustrate that because of the increasing fuel efficiency of the U.S. fleet, travelers can travel more but use less fuel. Participants were informed that neither the state nor federal fuel tax rate has been increased since 1992.

After the aforementioned information was presented, each focus group was provided an opportunity to offer feedback. Participants in the first focus group seemed to discount much of the information presented, stating that the real cause of the problems facing the fuel tax were political in nature. One participant stated that fixing any of the problems highlighted would be pointless, as the state and federal legislature would still continue to divert funds to "cover earmarks." Another stated that the first priority should be fixing "tax usage" before talking about new taxes, while another stated that too much revenue is diverted to non-highway uses.

Participants in the first focus group did not find arguments based on the erosion of fuel tax revenues due to increasing fuel efficiency to be convincing in terms of replacing the fuel tax. One participant stated that if people want to purchase more fuel-efficient cars, then they should be able to drive more and pay less in taxes as they have made a more "responsible" decision. Most of the participants agreed that there were not a lot of hybrids in the northeast Texas area, so it is likely that most people would not care too much about how fuel efficiency affects fuel tax revenues. One participant, however, did note that it does not seem fair for hybrid drivers to pay less for the same use of area roadways.

The discussion of the fuel tax in the second focus group was markedly different both in tone and content from the first group. Two participants did not seem to believe that the fuel tax had not been raised in so long, and one actually demanded proof that they had not. This participant stated that every other tax has been continually raised, and that it does not make sense for this tax to have not been raised.

One participant did state that he believed the fairest taxes are sales taxes, and went on to note that he supported tolling on new roads because it was more fair to make only the people who use new roads pay for them. Another participant disagreed, stating that he avoided toll roads because they are more expensive and a burden for drivers who live on a fixed income. Most of the participants agreed, however, that they would be willing to pay more in taxes if they could be assured that the area would benefit. Some participants did not believe that area roads are being adequately maintained. They would need assurances that improvements over the status quo were guaranteed in order for them to support any new fees. Much of the discussion at this point focused on the poor condition of city streets as opposed to state highways and roadways. None of the participants were aware that these facilities are generally maintained by cities and counties using local funds such as property tax revenues.

Focus group discussion turned to how funds are used at both the state and federal levels. Participants were informed that for every dollar of state fuel tax revenues collected, only $0.66 actually went to the Texas Department of Transportation. Participants were also told that for every dollar of federal fuel tax collected, only $0.92 was returned to Texas on average. As a follow up to this information, a flowchart showing the path fuel tax revenues take from collection to deposit in TxDOT programming accounts was presented (Figure 2).

In the first focus group, there was much confusion as to the rationale for such a seemingly complex system. One participant asked why Texas was a donor state and wondered what could be done to receive more money back. Another participant stated that it was due to funding formulas and federal control of tax revenues that Texas raised the drinking age to 21 from 18 and inquired if this why Texas had changed its speed limits. One participant noted that it must be very difficult for the state and various localities to plan for transportation needs when funding would seem to be so hard to predict. As expected, many participants expressed dissatisfaction with the "diversion" of funds to other states as well as non-transportation-related programs. The "Bridge to Nowhere" was mentioned by one participant as a notably egregious example of fund diversion. One participant inquired as to what sort of oversight these funding processes are subject to, and wondered why funds were not allocated based on need. Several participants expressed their desire for more local control of funds, and noted that without local control more money would be sent to larger urban areas at the expense of smaller urban and rural areas.

Many participants in the second focus group expressed their desire to see funds generated locally stay in the area. One participant stated that if they are paying taxes in Rusk County, then Rusk County should be taken care of first before any other areas. Two participants noted that Texas Highway 64 has been slated for improvements but these have never taken place. All of the participants in the second group stated that local government needs to have more control over how revenues are spent, and one participant stated that if this was the case, voters would have more of a say in how revenues are spent when they vote for area officials.

Reactions to Mileage-Based User Fees

Focus group participants were introduced to mileage-based fees. A brief description of how such a fee might work was given with the primary points being:

- The fee would be fixed per mile, excluding miles driven outside of the taxing jurisdiction
- The fee could be assessed at filling stations, at annual inspections, or intermittently through electronic toll collection equipment or GPS-based units
- The fee rate could potentially be adjusted from a flat rate to vary by facility type, by zones or by any combination of the three with a charge varying by time of day

Participants in both focus groups had questions about how such a system might be administered. For example, one participant from each group asked how a taxing authority would know what miles were driven within its jurisdiction and what miles had been driven outside. Participants in both groups also wondered how such a fee could be charged by the time of day. The moderator indicated that these questions would be answered in the presentation that would follow.

Oregon Model

In response to the Oregon model, one participant in the first focus group stated that they absolutely liked the system. This participant stated that "computers can do anything," and that they should be utilized to a greater extent in public infrastructure and that we "have to get started sometime." Furthermore, this participant liked the "user pays" aspect but noted that zone charging might be effective in a large urban areas but would not work well in smaller urban areas.

The remainder of the participants in this session were skeptical of the system, but their critiques turned out to not be specific to the Oregon model. For the most part, participants were skeptical about both the potential cost of the system and the difficulties that would be encountered during implementation. On the cost side, several participants were concerned about how much OBUs would cost and whether the driver would be liable for the cost. When the moderator noted that it was likely that cars in the future would be equipped with most of the necessary components, such as GPS systems, several participants were nonetheless concerned that the required technology would significantly raise the cost of new vehicles. On the implementation side, the majority of first-session participants did not believe that a mileage-based system could ever be fully implemented. They believed that the cost to fit vehicles with the appropriate equipment, as well as the cost of fitting all service stations with the appropriate equipment, would preclude an effective implementation.

One participant had serious concerns about the system's susceptibility to tampering. One participant stated that such a system is a "hacker's dream," while another believed that it would be too easy for drivers to disable their OBUs to avoid being charged. At this point the moderator noted that during implementation the fuel tax would most likely be kept in place, so that even if units were tampered with the driver would still be forced to pay a fee. This seemed to address these particular concerns.

Of special note in the first session was the lack of privacy concerns. The participants in this first focus group did not see the Oregon system, or subsequent systems, as a threat to privacy. When asked why, the participants noted that the on-board units were using GPS signals to locate the vehicle, and that the GPS satellite was not in fact "tracking" the vehicle. The participants liked the fact that only mileage

information would be transmitted between the vehicle and the billing center, and that no location data would be stored.

However, privacy concerns were paramount for the second focus group and the term “Big Brother” was mentioned almost immediately. Five of the nine participants stated that they believed the system was the first step toward being “tracked” by the government, and statements made by the moderator regarding the transfer of select information did not address these concerns. Two participants did state, however, that they had “nothing to hide” and did not see the system as intrusive.

There was skepticism among most of the second focus group’s participants about whether the system would actually work. The Oregon model and subsequent models were seen as being overly complex as opposed to the relatively simple, and familiar, fuel tax.

The Cellular Model
Concerns voiced by the first focus group with regard to the cellular model were similar to those voiced in response to the Oregon model, namely that the system would be too difficult to implement. However, participants did note that they preferred the pay-at-the-pump aspect of the Oregon model much more than receiving a bill in the mail. Pay-at-the-pump was seen as superior due to the fact that it would allow drivers to “regulate” their driving more and receiving a bill in the mail would require many folks to budget for their driving. Participants also liked the fact the Oregon model was more like the current fuel tax system in terms of collecting revenue.

The second focus group echoed the sentiments of the first, namely in that paying at the pump was a superior method for collecting revenues. All of the participants agreed with one participant’s statement that collections would be “nightmare.” Many of the participants noted that it is common for many residents in the area to not pay bills that are received by mail and only pay when collection agencies contact them.

Gantry Model
Most comments from the first focus group regarding the gantry model centered around the need for additional infrastructure in terms of gantries. Most participants stated that it would be too expensive to equip the required roadways with the requisite equipment. Furthermore, the gantry model was seen as the easiest to evade, especially given the large and rural nature of the northeast Texas region where vehicles could easily bypass roadside equipment without anyone noticing. Participants also voiced their opposition to the paying by mail or by prepaid account aspect of the system.

One participant in the second focus group stated that he liked the gantry model the best. He stated that this configuration presented the least amount of privacy concerns but noted that collection would still be troublesome. Other participants echoed the sentiment that collection would be problematic.

Focus Group Preferences
Both focus groups favored the Oregon overall, mostly because they preferred the pay-at-the-pump aspect of the system. Even though it was noted that the gantry model presented the fewest privacy concerns, in that vehicles would not utilize GPS systems to determine location, mailing bills or deducting fees from prepaid accounts was seen as an inferior strategy.

Conclusions from Community Interactions

The four-month interaction with the CAC, as well as the various stakeholder interviews undertaken as part of this research, have given researchers an insight into how a mileage-based user fee system would need to be designed and implemented to address rural and small urban issues. Many of the conclusions drawn from focus groups conducted in larger metropolitan areas that are cited earlier in this report are applicable in a rural/small urban setting; however, there are also some noticeable differences.

Fuel prices and the economy are driving public discourse – In terms of general issues, the economy was by far seen as the most pressing issue by both CAC and focus group participants. While focus group participants were more likely to state that high fuel prices were the primary culprit behind the lagging

economy, CAC participants also indicated that fuel prices were a major issue in the area economy. Fuel prices were linked to the economy both in terms of their effect on area employers and their effect on personal finances.

Lack of knowledge regarding the fuel tax – As with focus group participants in larger metropolitan areas, the members of the CAC displayed a significant lack of knowledge regarding the fuel tax. This applied to not only their knowledge of the mechanics of the system and the actual amounts of the state and federal taxes, but also in terms of their personal expenditures. Participants were mostly unaware of how much they spent on fuel taxes at any given time, and were thus unable to accurately gauge the "value" of the facilities they use on a regular basis. This presents a clear opportunity for public education on mileage-based fees, as many CAC participants were more likely to be accepting of a mileage-based user fee when they were made aware of how much they use highway facilities relative to how much the pay for the use of said facilities in terms of fuel taxes.

Lack of knowledge regarding funding processes – In addition to a general lack of knowledge regarding the fuel tax, CAC and focus group participants were widely unaware of the processes behind state and federal transportation funding allocation. While obtaining basic knowledge about these processes did not necessarily increase participants' receptiveness to mileage-based user fees as a replacement to the fuel tax, it did serve to increase participants' willingness to discuss the need for alternatives. Furthermore, most participants were dissatisfied with the complexity of these processes and desired more local control over spending.

Lack of knowledge regarding relative responsibilities of local, county, state and federal transportation agencies – It also appears that there is a lack of knowledge on the part of both the CAC and focus group participants with regard to the division of responsibilities between local and county officials and the state. On many occasions discussion of the fuel tax revenues turned to problems on city streets. Many of the research participants appear to believe that fuel taxes, in addition to funding state and federal roadways, are also used for local and county street repairs and maintenance. For many city dwellers, the belief that their local roads are not being adequately maintained is a further indication that federal and state funding programs are not appropriately targeted to needed areas, in spite of the fact that the problems being cited are mostly the responsibility of local and county organizations.

The public has yet to link increased vehicle efficiency, alternative fuels and inflation to the availability of transportation funding resources – As in previous research, the members of the CAC were unaware of the relationship between increasing fuel efficiency and decreasing fuel tax revenues. This again presents a clear opportunity for public education on a national scale, as many of the CAC participants who eventually favored a mileage-based system did so out of a desire to make the system more fair to drivers of low-fuel-efficiency vehicles and to make the system by which the highway system is maintained and developed more usage-based.

Privacy concerns are likely to be widespread – Privacy concerns were perhaps even more pronounced in the CAC than had been observed in previous research projects. Many participant concerns were allayed when groups were presented with detailed information on how OBUs utilized in the Oregon pilot study worked, but many people indicated that any system that increased the level of information available to governmental entities was unacceptable. Furthermore, many participants had serious concerns regarding security of the data gathered by a potential mileage-based user fee system. The general theme with regard to developing a system that would ensure privacy was "simpler is better."

Acceptance of mileage-based user fees is dependent on clearly presenting the reasoning for switching – While laying out the rationale for transitioning away from the fuel tax did not lead to unanimous acceptance of a mileage-based system for all CAC participants, doing so did increase the willingness of most CAC participants to consider the need for alternatives.

Mileage fees may be viewed as penalizing drivers of more fuel-efficient cars – Unlike participants in metropolitan-based focus groups, the northeast Texas CAC was not much concerned with the potential penalization of drivers of high-fuel-efficiency cars. This was due in large part to the admitted prevalence

of large trucks and sport utility vehicles in the area. Participants stated that they did not believe that there was a sufficient volume of fuel-efficient vehicles in the area to warrant a consideration of how a mileage-based fee would affect such drivers.

There are likely to be concerns regarding the reliability of the technology employed – CAC participants were very skeptical about the reliability of a system that would have the technological requirements of a mileage-based system. Many believed that the northeast Texas region presented too many opportunities for a system to fail or be evaded.

The public often feels that transportation funding is sufficient, yet mismanaged – Many participants believed, even after extensive discussion on the mechanics and long-term prospects for the fuel tax, that the solution to any supposed transportation funding crises lay not in reforming the mechanism by which revenues are collected but in reforming the system by which revenues are distributed. Congressional earmarking of funds and the transfer of revenues generated in Texas to other states were particularly salient points. Unless these issues are addressed, it is unlikely that any alternative to the fuel tax will receive strong support in the region, as institutional reform is viewed as less technical and would not require additional intrusion into residents' privacy.

Mileage-based fees are generally seen as fair – While mileage-based user fees were indeed viewed as being fair from the perspective of "paying for what you use," this sentiment did not necessarily imply support for the imposition of a mileage-based replacement to the fuel tax. For the most part, CAC participants recognized that there was significant potential to increase the efficiency with which transportation programs are funded. However, most participants were not convinced that a new system could be implemented without substantial administrative cost and unwanted privacy violations. These factors seemed to outweigh any perceived fairness from the new fee.

The public wants to see the value in any new system – One of the most attractive aspects of a mileage-based user fee system to the CAC was the potential for revenues generated locally to be used locally. Most participants indicated that they believe the region is underfunded with regard to transportation development. Furthermore, most were extremely dissatisfied with Texas' status as a donor state with regard to its federal fuel tax reimbursements. Framing mileage-based user fees as a means of increasing local control over locally generated funds was a particularly salient point with the CAC, and it is likely that small urban and rural residents will find this aspect appealing as well.

MILEAGE-BASED USER FREE FRAMEWORK

Utilizing the community input from the various sessions, researchers developed a set of criteria to evaluate potential mileage-based fee systems from a public acceptability perspective. The intent is to utilize this framework as the basis for assessing of the feasibility of a pilot demonstration project in a small urban or rural environment in Texas.

Technological Criteria

The technology criteria of the framework refer to the essential elements of the mileage-based fee system (in terms of hardware, software, user interface and administration) and how they will function to address the issues articulated by rural and small urban constituents.

Addresses privacy and data security concerns

How privacy and data security are addressed will be a critical feature of any system. This will involve policies on collection and transmission of data including format and limitations in use, security safeguards, openness and accountability.

Low-cost administrative functions

The current pay-at-the-pump system has low administrative overhead. A new system should be designed to minimize administrative costs, particularly in terms of creating new levels of government.

Simple and customer-friendly

The current pay-at-the-pump system is unobtrusive, straightforward and easy for the customer to use. Any new system should be similar in customer-friendliness.

Reliable

The equipment must have demonstrated dependability.

Tamper-proof and enforceable

Any vehicle on-board unit must be tamper-proof and designed so that the driver cannot interfere with its operation. Those who attempt to cheat the system should be identifiable.

Addresses future vehicle propulsion technologies

Will we be plugging in our vehicles to recharge, or connecting to our natural gas lines at home? Any new system should consider the migration to other forms of energy that may be used in personal or commercial vehicles.

User Fee Criteria

The user fee criteria of the framework refer to the basic business principles of the system: who gets charged and how pricing is set. Any potential system should have the capability to address these criteria. Likewise, the detailed business model of a new system should be developed to address the principles below in order to ensure public acceptance by small urban and rural constituents:

Accounts for higher mileage in rural areas

Drivers tend to travel longer distances in rural areas, so a new user fee system based on mileage should account for longer trips that may cover the same amount of time as a shorter trip in a metropolitan area.

Accounts for multiple household vehicles and limited public transportation options

Because alternatives to driving are limited in rural and small urban areas, households tend to have more vehicles and fewer options. The fee structure should account for this.

Charges appropriately for distance traveled by individual road types

Related to the higher mileage of rural drivers, user fees should be differentiated by type of facility (interstate, U.S. highway, state highway, large urban versus small urban/rural, etc.).

Charges appropriately by vehicle class

Vehicles should be charged according to their impact on the transportation system (especially trucks) in order to cover maintenance and needed expansion, including public transportation options (passenger rail and bus).

Addresses out-of-state/out-of-region travelers

Drivers from outside the charging area who enter the area should be considered in the fee system.

Does not drive transportation-dependent businesses from the region

In designing any type of local-option mileage-based fee system, consideration must be made for businesses that are dependent upon transportation within the specified charging area.

Allows for local retention of revenue

This is a critical element; fees should return directly to the area where they are collected.

Is transparent and demonstrates clearly the value added by the user fee

Also related to the technology, the new system must have transparent flow of money and demonstrate to the user that it adds value when compared to the existing fuel tax system.

FUTURE RESEARCH

The concept of mileage-based user fees is under serious consideration as an alternative to the fuel tax This research has resulted in a set of criteria that can be used to evaluate potential systems from the perspective of public acceptability, particularly for rural and small urban areas. Additional research is needed that provides a greater understanding of the likely path for implementation. Building upon the major issues studied in the initial research, a pathway assessment can lay out the initial steps required for a movement from the fuel tax and to mileage-based alternatives.

Among the many questions needing further exploration:

- What level of government (local, state, federal or other) should initiate a transition from the fuel tax?
- What would be the role of the government, at each level?
- What are the available technologies for implementation of a mileage-based fee system?
- How does each of those technologies address public and political concerns?
- What is the status of other mileage-based fee implementation efforts (both domestic and international) and what can be learned from them?
- Is there an incremental approach to migrating from the fuel tax to a mileage-based fee system that is flexible enough to accommodate innovations in technology?

Conducting a pilot study can be a highly effective approach to demonstrating how such a system might work, as demonstrated by the Oregon pilot project. It provides an opportunity to demonstrate the mechanics of a system as well as to address public concerns in a tangible way. The long-term effectiveness of a pilot program would be enhanced by better defining an implementation path and further researching the issues highlighted above.

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APPENDICES

I. Stakeholder Interview Subjects

- Barbara Holly, Director of Planning, Tyler Metropolitan Planning Organization
- Bill Stoudt, County Judge, Gregg County, Texas
- Carol Windham, Director of Planning, City of Kilgore
- Darrell Prcin, President, Economic Development Corporation, Jacksonville, Texas
- James Carlow, County Judge, Bowie County, Texas
- Richard Anderson, County Judge, Harrison County, Texas
- Tom Mullins, President and CEO, Tyler Economic Development Counsel, Tyler Chamber of Commerce
- Representative Chuck Hopson, Texas State Representative District 11, Panola, Rusk, Houston and Cherokee Counties

II. Stakeholder Interview Guide

1. What is your role in the community? (e.g. elected official, city staff, businessperson, educator, etc.)

2. What are some of the area's assets and drawbacks?

3. What do you envision for the future in your area?

4. How do you view the transportation network in your area?
    a. Where are there areas for improvement? What are the major problems in the area?
    b. How does funding for transportation affect the area network?

5. What is your general opinion on tolling and pricing? What do you think about electronic tolling?

6. There have been discussions about the need for replacing the fuel tax. Do you think the fuel tax should be replaced with another financing mechanism, and if so, how would you like to see a new system operate?
    a. (IF YES) What sort of time frame do you envision for replacing the fuel tax?

7. How have the recent high prices for fuel affected the discussion of replacing the fuel tax?

8. Are you aware of mileage based user fees as one possible alternative for replacement of the fuel tax and, if so, what is your opinion of mileage based user fees?
    a. (IF YES) What is your general sense of the public's awareness of mileage based user fees?
    b. What do you see as the major advantages or disadvantages of a mileage based user fee system?

9. What group do you think would be most affected by a move away from fuel based funding mechanism and towards mileage based funding mechanism as a means of developing and maintaining transportation infrastructure? (Truckers, farmers, environmental groups, etc…)

10. If you were seeking input from various consumer segments and other groups regarding possibly replacing the fuel tax with another funding mechanism, who would you contact?

11. What group(s) would be hardest to convince with regards to the benefits of a mileage based user fee system versus the traditional fuel tax?

12. What groups have a special interest in the fuel tax? Who might have an interest in mileage based user fees as a replacement to the fuel tax?

13. What are the main barriers facing any attempt to replace the fuel tax? How would you recommend overcoming those barriers?

14. How would you recommend approaching the public about the need to replace the fuel tax? How would you recommend approaching the public about mileage based user fees?
    a. How would you address matters of privacy?
    b. How would you address matters of fairness?

15. What sort of regional and/or local perspectives need to be kept in mind during any discussion of replacing the fuel tax or transportation financing in general?

III. Focus Group Discussion Guide

I. Introduction

Welcome to the focus group today. Thank you for taking time out of your busy schedules to talk with us. I'd like to begin by telling you about how the group will work and then we'll get down to the specifics of our topic for the day.

How many of you have participated in a focus group before?

The success of the group depends quite a bit on how willing you are to share with us what you think. So, I'm asking you right up front to be open and forthcoming, and not to worry about what I might think, or what others in the group might think about what you say, or even if you are giving a viewpoint that disagrees with someone else's. We're not really talking today about matters that would be considered very sensitive, but the topic is one that we would expect people to have differing opinions on, so I do want to encourage lots of dialogue. Don't worry about the tape recorder. We will keep the tape to ourselves and just use it to help us with our notes. Try to forget that it's there. Let me assure you that we will always keep everything you say as anonymous.

Having said that, I want you to relax and enjoy the conversation. But I do have to ask that you talk one-at-a-time, that you not have any side conversations, and you speak loudly so that everyone can hear what each person has to say. I don't expect our discussion to last more than about an hour and a half. If you need to get more refreshments or use the facilities around the hall, please feel free to get up at any time.

First I'd like us to have some brief introductions. I'll start with us…
Now, let's go around the room and say your first name only (because we're keeping this anonymous), and a little bit about who you are, how long have you lived in the Tyler area and what you do for a living.

OK, now we're ready to get on with the topic at hand. TTI has a research project funded by the University Transportation Center for Mobility (UTCM) at Texas A&M University to examine the issues surrounding a potential transition away from the fuel tax as the primary mechanism for funding transportation programs.

I hate to be the one doing all the talking, and I promise that after I say just a few more things, I'll get onto the more important part of hearing what you have to say.

I want to let you know that we are wanting to focus our discussion on your opinions on the various transportation related issues we will be discussing today. These issues relate to a study that TTI is conducting regarding the fuel tax and a possible replacement as a means of funding future transportation related projects. Your insight will be crucial in helping us address local issues and insure that any new funding mechanism that may be develop din the future will be implemented in a way that will address local concerns.

II. Various Issues

While we will be discussing transportation related issues in depth, I would like to begin by asking each of you to briefly discuss the issues that you feel are most important to the area. Is it the economy, education, healthcare….We are interested in learning how these issues relate to transportation, and where transportation related issues rank in terms of importance for the area. Can you provide any examples of how the issues you feel are the most important to the region relate to transportation, or how transportation might affect these issues?

I would also like to know what sort of news sources you are regularly exposed to. Where do you get information regarding the issues we have just discussed? Which news sources do most trust and distrust and why? Do you go anywhere to get transportation related news?

III. Transportation Finance and the Fuel Tax

Now that we have discussed what general issues are the most important to you and the area, I would like to now discuss one specific issue: the fuel tax.

I would first like to know what you know about how the fuel tax works. Can you estimate what you pay on a weekly, monthly or yearly basis in fuel taxes?

[Present the basics of the fuel tax]

After having seen this information, what do you think of the issues just presented? Can you think of any way that these issues might be addressed?

Let's talk for a minute about how your fuel taxes are spent.

[Present basic federal and state spending programs, with particular emphasis on apportionment formulas and spending requirements]

Do you see any problems with this current system for transportation funding? How would you like to see the system improved?

IV. Mileage Based User Fees

In response to many of the problems associated with the fuel tax as a long term means of funding transportation development, there has been a lot of research lately into the use of alternatives. Many of these alternatives are already in place, such as tolling.

[Present information on alternatives]

What is your general impression of tolling and pricing on roadways as well as the other alternatives just discussed?

One specific alternative to the fuel tax that I would like to discuss further is a mileage based user fee.

[Present basics of mileage based fees]

How do you see a mileage based fee system as being able to address the issues we discussed earlier with regards to the fuel tax? Do you see a mileage based fee as being more or less able to address any of the issues we discussed at the beginning of this meeting?

Let's take a look at some specific ways a mileage based user fee might be implemented in the area.

[Present Oregon model, cellular model, gantry model and simple model]

What do you see as the potential benefits and drawbacks of each of these systems? What are your major concerns? Do you see any of them as being better able to address area issues than the others, or the fuel tax for that matter?

A recurring issue that we have encountered when discussing mileage based user fees in this area is the question of how large trucks will be charged. Large, commercial trucks tend to cause much greater damage to roadways and can create unsafe driving conditions on small rural roads. However, trucking is a very important aspect of the area economy, and independent truckers are already operating on a very thin profit margin. How do you think trucks should be charged for their use of area roadways?

There is likely to be significant opposition to the replacement of the fuel tax. Who do you see as being the most likely groups that will oppose such a transition? Who do you think will benefit the most from a mileage based fee system and who do think will be hurt most?

If a move away from the fuel tax is to occur, how would you like it to proceed? Who should be responsible for taking the first steps, and who would you like to see at the forefront of communicating the issues related to this transition?

V. Wrap up

A. Summarize
B. Hanging Issues
C. Thanks
D. Repeat the questionnaire?
E. Compensation

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